

## LIST OF ABBREVIATIONS

A.H.	Agricultural Holding
BMR	Bureau of Market Research
BNG	Breaking New Ground
CBD	Central Business District
CoJ	City of Johannesburg
DLA	Department of Land Affairs
DZ	Distribution Zone
GDACE	Gauteng Department of Agriculture Conservation and Environment
ha	Hectare
IAS	Important Agricultural Site
IDP	Integrated Development Plan
KZN	KwaZulu-Natal
LED	Local Economic Development
LLM	Lesedi Local Municipality
LM	Local Municipality
MHDP	Municipal Housing Delivery Plan
RW	Rand Water
SDA	Strategic Development Area
SDF	Spatial Development Framework
WCW	Water Care Works

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## 1 INTRODUCTION

### 1.1 BACKGROUND

The Lesedi Local Municipality Spatial Development Framework (SDF) (2008) seeks to ensure the sustainable and orderly development of the municipal area through the delineation of several activity nodes and development corridors within, and along which to concentrate and accommodate development initiatives (see **Figure 1**). The development potential of the areas around the proposed nodes and corridors have however not yet been fully explored. Hence, to ensure that future developments are concentrated in a manner that would provide the maximum impetus for growth and development within the Municipality, the feasibility of the nodes and corridors being proposed by the SDF have to be assessed holistically.

Essentially then, given the strategic importance of nodal and corridor development to the socio-economic and environmental well-being of the Municipality, the Lesedi Municipality initiated this study during December 2008 in an attempt to start to “unpack” the development of nodes and corridors within the Lesedi Local Municipality in greater detail, and provide parameters to guide detailed planning and development programmes in the area. In effect, this study thus seeks to compliment and elaborate on the proposals contained in the SDF referred to above.

### 1.2 STUDY OBJECTIVES

In order to assess the feasibility of the nodes and corridors proposed by the SDF, and to guide the development plans of the Municipality at a more detailed level, the following objectives have been set for this study:

- To determine the infrastructure needed to promote the development of nodes and corridors within the Municipality;
- To develop a plan to optimally capitalise on the development potential of identified nodes and corridors;
- To promote the maximum yield in as far as job opportunities within the identified nodes and corridors are concerned;

- To retain and expand existing development opportunities and promote new investments; and
- To determine the catalytic interventions needed along the identified nodes and corridors to maximise economic development.

## 1.3 STUDY AREA

The study area is reflected in **Figure 2** and comprises the entire area of jurisdiction of the Lesedi Local Municipality, with all the identified types of nodes and corridors as contained in the Spatial Development Framework of the Municipality, namely:

- The proposed N3 and N17 Primary Development Corridors;
- The proposed R42, R23, R549, R103, R550 and Heidelberg/Ratanda Road Secondary Development Corridors;
- The proposed R42 and R549 Tourism Development Corridors;
- The Heidelberg CBD as Primary Node;
- The Ratanda and Devon CBDs as Secondary Nodes;
- The proposed transportation related nodes at the junctions of the R23/N3, the R42/N3 and the R102/N3, the R42/N17, and the R550/N17;
- The rural nodes proposed at the Vischkuil, Kaydale and Spaarwater Agricultural Holdings;
- The proposed Tourism Node along the R42; and
- Jameson Park and Shalimar Ridge as Tertiary Nodes.

These nodes and corridors should be assessed against the backdrop of the theoretical definition of activity nodes and corridors and the key elements/critical success factors towards corridor development as summarised in the Information Box (see overleaf).

## 1.4 STUDY APPROACH AND METHODOLOGY

The methodology used in conducting the study consisted of six phases as detailed below:

### 1.4.1 Methodology

#### Phase 1: Situational Analysis

This phase involved a multi disciplinary analysis of the current situation within the study area. This included, *inter alia*, the following aspects:

- Assessment of the current regional development context of the study area;
- Assessment of historic and contextual documentation including the IDP and SDF, development plans and guidelines, strategies etc.;
- Assessment of the nodal spatial structure, land use patterns, dynamics and trends;
- Assessment of current land uses, land use applications, trends and tendencies in the study area;
- Assessment of Geotechnical and other Environmental Constraints/Sensitivities in the area for which EIA's may be required;
- Assessment of socio-economic features pertaining to the population and associated social and cultural facilities in the study area;
- Assessment of the existing engineering service and transportation infrastructure in the study area; and
- Assessment of the current housing initiatives in the study area.

#### Phase 2: Synthesis: Multi-sectoral Development Trends, Challenges and Opportunities

Emanating from the Situational Analysis, the development opportunities and constraints pertaining to nodal and corridor development in general within the municipal area were identified. Subsequent to, and based on the identified development opportunities and constraints, the most viable areas (or Priority Areas) for nodal and corridor development within the study area were identified.

## **Phase 3: Formulation of Development Objectives and a Nodal and Corridor Development Strategy Plan**

Having completed the formulation of the Development Objectives, the project team proceeded with the formulation of a Nodal and Corridor Development Strategy Plan focusing on the Priority Areas identified in Phase 2.

## **Phase 4: Integration and Service Delivery Implications**

Once the Nodal and Corridor Development Strategy Plan was completed, the specific implications of this in respect of the provision of other services, specifically engineering infrastructure and community services were delineated.

## **Phase 5: Formulation of Implementation Programme and Strategy**

Strategies were subsequently formulated to implement the proposals associated with each of the priority nodes and corridors identified. This included a range of mechanisms or measures to be implemented in order to ensure the successful implementation of the nodes and corridors.

## **Phase 6: Public Participation**

A Project Steering Committee was formed, and monthly progress meetings were held between the consultants and representatives from the various technical departments of the Lesedi Local Municipality. The draft document (which was submitted on 30 April 2009) was presented to Councillors and Officials from the Lesedi Municipality on 18 and 28 May 2009 in order to obtain their inputs; and to community representatives and Ward Committees during a public meeting which was held in the Lesedi Town Hall on 17 July 2009. Inputs received during these meetings were incorporated into the final document which was completed by the end of July 2009.

## **1.5 REPORT STRUCTURE**

**Section 1** of this report sets out the objectives for corridor development, and points of departure used in this study, as well as the process/methodology followed in the formulation of the proposals.

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**Section 2** gives a multi-disciplinary assessment of the status quo regarding the regional context and corridor development within the region. The local context is also explored in terms of transportation, engineering services and socio-economic conditions. A detailed analysis of the entire study area is provided.

In **section 3** the development opportunities and constraints of the study area for corridor development is evaluated, based on the theory and situational analysis.

**Section 4** provides the specific Development Concept, Framework and Development Guidelines to be met with the development of the nodes and corridors in Lesedi. This leads to the Implementation Priorities and Programme set out in **Section 5**.

## 2 SITUATIONAL ANALYSIS

### 2.1 REGIONAL CONTEXT

The Lesedi Local Municipality (LLM) is located on the south-eastern edge of the Province of Gauteng, and together with the local municipalities of Midvaal and Emfuleni constitutes the geographic area known as the Sedibeng District Municipality (see **Figure 3**). Similar to its sister municipalities, Lesedi is characterised by an expansive rural/ agricultural landscape, with the majority of urban activity concentrated along and around the intersections of prominent roads (transportation corridors) leading towards the numerous core economic activity areas of Gauteng.

In the case of Lesedi, the N3 and N17 national roads represent the two primary transportation corridors providing spatial structure to the LM. The N3 freeway is the main link between Gauteng Province and Durban / Ethekewini in KwaZulu-Natal (KZN), whilst the N17 corridor serves to link the City of Johannesburg (CoJ) to the Sasol-Secunda industrial node and Swaziland further to the east. Heidelberg / Ratanda and Devon are the primary services centres, with Heidelberg / Ratanda located along the N3 being the primary residential concentration area within the eastern extents of the District.

Similarly to Midvaal and Emfuleni, Lesedi features a high incidence of informal settlements, with Impumelelo representing one of the largest informal settlements within the District. The Suikerbosrand Nature Reserve located along the western boundary of the LM is a major environmental feature within the District.

Whilst Lesedi's economy has been relatively stagnant during the past decade, given the negative growth experienced by the mining and agricultural sectors, the construction, financial services, and manufacturing sectors have experienced some growth (Lesedi IDP, 2007).

## 2.2 LOCAL CONTEXT

### 2.2.1 Spatial Structure, Land Use and Transportation Network

As mentioned, the Lesedi Local Municipality can essentially be described as an expansive rural/agricultural area, with the majority of urban activity concentrated along and around the intersections of prominent roads (transportation corridors) leading towards the numerous core economic activity areas of Gauteng (see **Figure 4**).

The **N3** and **N17** freeways constitute the two primary transportation corridors traversing the study area and representing long distance linkages between Gauteng Province and Mpumalanga, and Gauteng Province and KwaZulu-Natal respectively. Notably, given the prominence of these two roads within the regional and local space-economy, the SDF has identified them as primary development corridors along which to stimulate mixed-use developments (see **Figure 4**). It should, however, be noted that none of these two routes represent high volumes of commuter movement on a daily basis as occurs along the N1 freeway between the City of Tshwane and City of Johannesburg, or along route R21 between the City of Tshwane and the Ekurhuleni Metro.

Apart from the two national roads, the study area is characterised by several provincial routes, of which some have been identified by the SDF to act as conduits for development between prominent activity areas. These include the secondary development corridors of:

- The **R42**, which links Heidelberg with Vereeniging towards the south-west and Nigel towards the north-east, and further onwards towards Delmas in Mpumalanga;
- The **R23**, which links the N3 freeway with Balfour, Standerton and KwaZulu-Natal to the east, and with Brakpan and Benoni to the north;
- The **R549**, linking Heidelberg and Ratanda with the Vaal River and Marina towards the south;
- The **R550**, which runs east-west through the eastern part of the municipal area, linking Nigel with Devon; and
- The **R103** running parallel to the N3 freeway north-west and south of Heidelberg, linking Heidelberg to the CoJ.

It should again be noted that none of these routes represent any form of linear, mixed use development over any significant distance along the route (a development/activity corridor). Instead, these routes rather function as transportation corridors carrying people and goods between different towns (nodes) in the district. Sections of the R42 and R549 secondary development corridors have been identified to provide some tourism focus. According to the SDF, the intention is not to develop the entire corridor, but rather to focus on establishing tourism related activities (hospitality, arts and craft; and eco-tourism) at certain points along the route.

Other prominent provincial roads traversing the study, but which have not been identified for corridor development purposes include:

- The **R29**, which constitutes a major provincial road running parallel and to the north of the N17, linking Springs with Devon;
- The **R51**, linking Nigel with Balfour; and
- The **R548**, linking Balfour with Devon.

The extensive network of national and provincial roads is furthermore complimented by **two railway lines** and a **private airfield** situated south of Bergsig, abutting the N3 Freeway on the east. The railway lines are predominately used for freight purposes, with the one line running through Heidelberg, linking the East Rand with Balfour, Standerton and Volksrust to the south-east. The other line runs parallel to the N17, linking the East Rand to the Secunda industrial area and beyond to southern Mpumalanga and KwaZulu-Natal.

In respect of the settlement structure, **Heidelberg** and **Ratanda** constitute the primary urban concentrations within the study area, and have consequently been identified as a primary and secondary activity node respectively by the SDF. The isolated residential area and tertiary node of **Jameson Park** is found in close proximity to the north-east of Heidelberg, along the R42 (see Figure 4).

**Devon/Impumelelo** which is situated on the eastern edge of the municipal area, and abutting the N17 freeway on the north, represents the most prominent rural settlement within the Municipality, and has consequently also been identified to function as a secondary activity node

by the SDF. The **Vischkuil Agricultural Holdings (A.H.) / Endicott** situated within the north-western extents of the Municipality (east of Springs), and abutting the R29 constitutes another, but smaller rural centre in comparison to Devon. Although these settlements appear as prominent nodes / services centres within the Municipality, in comparison to other smaller nodes found along the N17 and R29 roads between the CoJ and Ermelo (e.g. Leandra, Kinross, Evander, Secunda, Trichardt and Bethal), they perform a very limited economic function (see **Figure 5**). None the less, the Vischkuil, Spaarwater and Hallgate Agricultural Holdings have been identified as Rural Nodes by the SDF (see Figure 4).

Other agricultural holdings within Lesedi include, **Bothasgeluk, Kaydale, Spaarwater, Heidelberg, Eendracht, Boschfontein, and Zonnestraal**. Diverse land uses are found on these agricultural holdings, ranging from rural residential, through small scale farming to extensive, informal industrial and commercial activities. A relatively large proportion of the agricultural holdings are vacant. Hence, the Development Framework proposes that only strategically located smallholding areas are earmarked for future residential densification and the provision of higher order services. Areas identified over the short-term include **Jameson Park, Kaydale, Vischkuil / Endicott, Hallgate** and **Spaarwater**. Multi-Purpose Community Service Centres are proposed in Vischkuil / Endicott and Jameson Park.

Apart from the numerous agricultural holdings, four major informal settlement areas are present within the Municipality, namely:

- **Sepiwe / Floracardia** situated to the south-east of Heidelberg;
- **Ratanda** (around the fringes of the township, as well as backyard shacks);
- **Impumelelo** (Impumelelo Extension 1 and backyard shacks in Impumelelo to the west and adjoining); and
- **KwaZenzele** close to the Vischkuil/Endicott Agricultural Holdings (see Figure 3).

In an effort to speed up development in the region, boost local economic development and empower the communities within the municipality, several of the aforementioned settlement areas / activity nodes have been identified as **Priority Development Zones** by the SDF, namely:

- **Heidelberg / Ratanda:** The focus should be on subsidy-linked housing to address the existing housing backlog.
- **Jameson Park:** Development here should be primarily focused on the upgrading of existing services and facilities, and the facilitation of formal housing.
- **Vischkuil / Endicott:** This area is regarded as an emerging node suitable to densification.
- **Devon / Impumelelo:** The focus should be on land use integration between Devon and Impumelelo and local economic development.

In respect of residential development, the SDF specifically mentions that Infill development between the historically advantaged and disadvantaged residential areas of Heidelberg/Ratanda and Devon/Impumelelo should be encouraged. Supplementing the SDF is the recently compiled Gauteng Department of Housing: Sedibeng Regional Master Plan (2009). As far as housing delivery in Lesedi is concerned, the Housing Master Plan identifies several areas as suitable for accommodating future development (see **Figures 6**):

- Two Strategic Development Areas (SDAs) (**SL1 and SL2**) have been identified in close proximity to Heidelberg town. The main focus in terms of identifying these sites was infill development and consolidation of the urban fabric between Heidelberg Town and Ratanda Township. The two sites comprise of 515 and 246ha of land respectively.
- One SDA (**SL3**) has been identified in the vicinity of the Kaydale Agricultural Holdings, which are located to the north of Heidelberg Town. This area has been earmarked to accommodate the formalisation of the informal settlement located in the vicinity of the agricultural holdings. The area measures approximately 147ha in size and is essentially a functional extension of Jameson Park.
- One SDA (**SL4**) has been identified between Devon and Impumelelo. This area has been earmarked to accommodate the future expansion of Devon and Impumelelo, and includes the sites earmarked for Impumelelo X2 (in process) and X3. The area measures approximately 354ha in size.
- One SDA (**SL5**) has been identified at Vischkuil. This area has been earmarked to accommodate the formalisation of the informal settlement located along route K134. The area measures approximately 426ha in size.

As can be seen from Figure 6, the sites are mainly concentrated along the corridors and nodes identified by the SDF of the Municipality (see Figure 1), with the main focusing being to promote infill development between Ratanda and the town of Heidelberg, and to consolidate residential development along the N17 corridor around Vischkuil and Devon. According to the Master Plan (based on the relative developability of the sites identified), Strategic Development Areas SL1, 3 and 4 should be considered as short-term (2010) priority areas, whilst SL2, 5 and 9 should be considered as medium (2015) to long-term (2020) priority areas respectively.

**Industrial and commercial activity** is primarily limited to two areas within Heidelberg. The one area is found between the railway line and Rensburg where the two major concerns of the BAT Cigarette Manufacturing Plant and the Escort Meat Processing Plant are located. The other area is situated between the R23 and the railway line, to the north-east of the Heidelberg CBD, where a range of smaller industrial concerns are situated. Commercial activity (which can be defined as warehousing, distribution and transport businesses) is found integrated with industries within the two aforementioned areas (see Figure 4).

**Retail/business** activities are predominantly located in the CBD of Heidelberg, both north and south of the Blesbokspruit. Major shopping nodes in the Heidelberg CBD include the Shoprite/Checkers centre in the central part of town and the Victorian centre on its northern fringe. There is a relatively large variety of shops and tertiary business services in the CBD, e.g. most major banks, a number of financial service companies, attorneys etc. A motor town with a more distinct commercial character has established south of the Blesbokspruit along Schoeman Street. Businesses in this area include a number of motor dealerships, filling stations, hardware stores, light industrial/commercial enterprises and retailers. A few small formal businesses are however located in Devon, Vischkuil/Endicott, and Ratanda. Notably, in respect of stimulating industrial / commercial and retail development the SDF identifies a **Zone of Opportunity** to the east of the Heidelberg CBD, abutting the N3 and R42. The Zone of Opportunity has also been identified as a Priority Development Zone by the SDF.

**Commercial agriculture** takes up the largest area within Lesedi at approximately 95% of the total land surface, and is dominated by large scale crop (maize, grain, sorghum, wheat soya and dry beans, ground nuts, sunflower seeds and vegetables) and animal production (milk, beef, mutton and lamb, port, eggs and poultry). In respect of agricultural development, the Gauteng

Agricultural Plan (2008) identifies several **Important Agricultural Sites (IAS)** and an **Agricultural Hub** within the study area (see **Figure 7a**). According to the Agricultural Plan, the Agricultural Hubs identified should become the focus areas for the location and development of all activities (primary and secondary) related to the agricultural industry – e.g. downstream agri-processing, agricultural villages, incubators, etc. Furthermore, in support of the Hubs, the Important Agricultural Sites (IAS's) or the areas falling outside of the boundaries of the Hubs, should be protected from uses other than for agricultural purposes.

Agricultural Hubs can best be defined as “hot-spot” areas having the necessary size (area), environmental (water, climate and soil), land capability (moderate to high and high), infrastructure (roads, buildings, etc), and facilities (markets, electricity, telecommunications, training and education, etc) properties allowing for the sustainable cultivation of a wide range of agricultural commodities over time.

Consequently, the SDF identifies a focus area for agriculture stretching from Vischkuil/Endicott in the north, southwards towards Balfour. More specifically, in support of agricultural development and the strategies being implemented by the DLA and the Gauteng Department of agriculture, the SDF proposes the establishment of six **Area Based Planning (ABP) areas** (see **Figure 7b**). Essentially, these areas (as proposed by the Agricultural Plan) are being reserved by the SDF solely for agricultural purposes. Furthermore, the SDF identifies the strip of land located between the R29 and N17 roads as a Development Zone for agricultural-based LED initiatives.

Apart from industrial and agricultural uses, a number of old **mine shafts** are found east of Heidelberg and south of Nigel. The most important of these are the old Witwatersrand/Nigel Gold Mine situated  $\pm 3$  km south of Jameson Park, and the vertical shaft in the “Heidelberg Zone of Opportunity” between Heidelberg and Heidelberg Ext 9 (Bergsig). **Figure 8** illustrates the spatial distribution of existing mining rights within the Municipality, with the majority of these located in the vicinity of Devon, Vischkuil A.H. and the R549 leading Ratanda and Heidelberg.

The **Blesbok**, **Boesman** and **Suikerbosrand spruits**, the **Suikerbosrand** and **Alice Glockner Nature Reserves**, and the **ridges** represent important environmental features within the study area (see Figure 4). In respect of the SDF and the Lesedi Environmental Management

Framework (EMF) (2006), the Blesbokspruit wetlands north of Nigel and west of Vischkuil/Endicott, and the Suikerbosrand Nature Reserve west of Heidelberg represent ecological focus areas. According to the SDF and EMF, these areas should be conserved and promoted as major eco-tourism and recreational centres. Notably, ecological transition areas / buffers should be created around these resources as illustrated by **Figure 9a**. Furthermore, the spruits and their various tributaries should be regarded as ecologically sensitive areas and provide the potential for regional open space links throughout the study area (see **Figure 9b**). Given the ecological sensitivity of the ridges, the SDF has also adopted the classification provided by the EMF, namely Class 1 and Class 2 Ridges. Whilst no development should be allowed within these areas, limited low-impact eco-tourism activities may be considered on Class 2 Ridges.

Growth and developmental pressure over the last 7 (seven) years has resulted in a large number of development applications falling outside of the existing **urban edge** being approved. Furthermore, several of the existing rural settlement areas were ignored in the delineation of the previous urban edge. These rural settlements (Devon/Impumelelo, Vischkuil, Jameson Park and Kaydale) play an important function in the provision of housing opportunities for the rural dwellers, social facilities and economic opportunities. Consequently, the SDF proposes that the existing edge be amended (see **Figure 10**).

In respect of **land ownership**, a total of 20 113 registered farms and erven are found within the Municipality, of which the majority of the land (92%) comprising these farms and erven are in private ownership. Significantly though, in terms of the existing spatial structure, Government-owned land is strategically well-located to facilitate infill and densification (see **Figure 11**).

## 2.2.2 Current Development Initiatives

**Figure 12** illustrates some of the current development initiatives and associated spatial trends taking place within the Municipality, namely:

- The development of Heidelberg Kloof Estates<sup>(1)</sup>.
- The Bergsig residential development<sup>(2)</sup>.

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- The development of a Residential Golf Estate<sup>(3)</sup> and a larger area envisaged for conservation purposes by the Gauteng Department of Agriculture Conservation and Environment (GDACE).
- Several subsidy-linked housing projects to relieve the demand for housing:
  - Zone of Intervention (Obed “Mthombeni” Nkosi)<sup>(4)</sup>.
  - Impumelelo Extensions<sup>(5)</sup>
  - Jameson Park<sup>(6)</sup>.
  - Rusoord Extensions (328 units)<sup>(7)</sup>.
- A “Zone of Integration”<sup>(8)</sup> has been identified between the Vaaldam and Vereeniging roads to alleviate the housing backlog of ±22 000, and to eradicate the informal settlements that are on the increase on private plots within the area and land surrounding Ratanda.
- Three Agri Village projects<sup>(9)</sup> Tokolohong, Sipiwe and KwaZenzele are being undertaken in conjunction with the Department of Land Affairs (DLA), amounting to a total of ±560 units.
- A “Zone of Opportunity”<sup>(10)</sup> has been identified at the intersection of the R42 and the N3, for the purposes of mixed retail, commerce and service industries. The process of Township Establishment has commenced, with a planned retail shopping centre of approximately 13000m<sup>2</sup> to take place.
- A small industrial area<sup>(11)</sup> wedged between the N3 and R103, to the far north-west of Heidelberg.
- A northern extension<sup>(12)</sup> to the existing industrial/commercial areas located to the south of Heidelberg and abutting the R23.
- A Transnet fuel storage depot<sup>(13)</sup> abutting the R42, right-across Jameson Park.
- A bio-fuel facility<sup>(14)</sup> along the R549, just south of Ratanda.
- A water bottling plant<sup>(15)</sup> along the N3, south of the Alice Glockner Nature Reserve.
- Three Land Restitution projects<sup>(16)</sup> have been identified in the Suikerbosrand area, namely Tamboekiesfontein, Koppieskraal and Kafferskraal, which is currently being investigated by the DLA (see Figure11).

From Figure 12 it is evident that development initiatives tend to cluster around/along route N3 in the proximity of Heidelberg Town, and also along route P41-2 which runs past Ratanda, through the Zone of Intervention and into Heidelberg Town.

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## 2.3 ENGINEERING SERVICES

### 2.3.1 Strategic Road Network

As far as the strategic road network of the Municipality is concerned, several changes and additions to the network are being planned by Gautrans, based on the original PWV Transportation Study Report published in 1980. In brief, the planned future freeway developments include (see **Figures 13a and b**):

- The east-west running **PWV16** past Tsakane, Duduza and Vorsterkroon, linking-up with the PWV19 and the proposed N17 south-east of Vischkuil A.H.
- The north-south running **PWV17**, linking the N3 at Heidelberg with the central and eastern areas of Ekurhuleni in the north.
- The east-west running **PWV 18**, linking-up with the proposed PWV 17 south of Sonstraal A.H. and the PWV19 north-west of Bothasgeluk A.H..
- The north – south running **PWV19** within the central extents of the Municipality, which will link-up with the proposed PWV16, 18 and 20 freeways, the N17, the R29 and the proposed K134 in the vicinity of Vischkuil A.H..
- The east – west running **PWV 20** within the southern parts of the Municipality, which will link-up with the proposed PWV19, the R42, 549 and 103 roads, as well as the R23 system south-west of Balfour.

In respect of the planned PWV roads, none of them have been listed to be constructed within the next 5 to 10 years. The planned future K-Route developments include (see Figures 13a):

- The **K138** linking Vischkuil A.H. to Springs and Brakpan.
- The **K181** linking Blue Valley A.H. to Nigel and beyond.
- The **K162** linking the proposed PWV18 to the R51.
- The **K154** linking the N3 to the proposed PWV16, 17 and 18 freeways past Kaydale A.H.
- The **K165** linking the proposed K133 to the proposed PWV18, K150 and beyond to the industrial areas of Ekurhuleni.
- The **K150** linking the far north-western extents of the Municipality to Nigel.

- The **K129** linking the far north-western extents of the Municipality to the proposed K133, the N3, and up-north to the industrial areas of Ekurhuleni.

Markedly, the planned **K168** road and the re-alignment of the R549 by construction of the **K135** (see **Figure 13b**) should specifically be considered when planning the future spatial development of the southern extents of Heidelberg. The construction of the proposed K168 will not only serve to link the N3, R23 and R42, but will also provide three new dedicated access points to the southern extents of Heidelberg along these roads. Notably, the construction of the K135 will provide for an additional junction with the proposed K168, to the west of the junction to be formed by the existing R549 and K168. Essentially, the construction of these roads will greatly influence the functional use of the properties comprising the Heidelberg A.H. as well as the existing industrial area located to the north thereof.

### **2.3.1.1 Rail Service**

Although the existing railway line within Lesedi primarily caters for freight, the planned densification of Jameson Park/Kaydale, the infill development between Heidelberg and Ratanda, and the establishment of Heidelberg as an alternative residential location to the CoJ warrants an investigation into the introduction of a passenger service along the existing line.

### **2.3.2 Water**

#### **a) Supply System**

Heidelberg/Ratanda obtains its potable water from Rand Water (RW) abstracted from the Vaal Dam situated on the Vaal River. Water is pumped to various reservoirs in Johannesburg and gravitates from there to users in Gauteng, North West Province and Mpumalanga. Heidelberg is situated at the end of a pipeline system which supplies the East Rand including Springs, Nigel and areas north of Heidelberg. Locally, the total potable water demand of the Lesedi system is supplied from reservoirs at Rensburg, Bergsig, Overkruin and Ratanda in the west of Lesedi Local Municipality and Devon in the east (see **Figure 14**). The water network system consists of seven Distribution Zones, namely Devon, Nigel, Bergsig, Overkruin, Rensburg, Ratanda, and the Eastern area of Springs (see **Figure 15**). Notably, the proposed water Distribution Zones include the SDAs identified for residential development by the Housing Master Plan (see Figure 15).

### b) Capacity

The Heidelberg 2020 peak day water demand projection is estimated to be 15MI/day. Therefore no augmentations are foreseen in the near to medium future due to the fact that the existing RW supply system has adequate capacity. According to the SDF (2008), the supply situations in respect of the Municipality's rural nodes are as follow:

**Jameson Park:** The Rand Water supply is more than sufficient to supply the very large existing reservoir. Even with the open stands in Jameson Park developed and including the existing undeveloped Kaydale A.H. and the proposed residential development, the bulk supply system will not require upgrading in the foreseeable future.

**Devon and Impumelelo:** The bulk supply and storage situation for Devon is presently more than sufficient. However, the existing distribution network will have to be upgraded as residential density increases.

**Endicott/Vischkuil:** Similar to Devon and Jameson Park, the Endicott/Vischkuil A.H. are presently not fully developed. Notably, Endicott/KwaZenele does not have a storage reservoir to provide peak flows as is the case in Vischkuil. Although the supply system is presently suitable for the existing and expected increase in water use, if high density development was to be considered, the system will have to be upgraded.

### 2.3.3 Sanitation

#### a) Supply System

The main components of the Lesedi sewer system are illustrated on **Figure 16**. The system is operational in one main drainage area, namely the Ratanda Water Care Works (WCW) situated at the south-west end of the Lesedi Local Municipality. The Ratanda drainage area consists of several sub-basins, namely Bergsig, Overkruin, Heidelberg, Rensburg, Shalimar Ridge, and Ratanda. Gravity sewers from all six of the sub-drainage areas discharge at the Ratanda Water Care Works.

Notable is the absence of bulk sewer infrastructure within Vischkuil and Devon / Impumelelo. Although a WCW has recently been constructed at Devon/Impumelelo, KwaZenzele and Ashton Lake still require infrastructure (Lesedi LM SDF, 2008).

## b) Capacity

As mentioned, most of Heidelberg is drained via a single outfall sewer along its western boundary, parallel to the Blesbokspruit. This outfall and the other 2 bulk sewers (central and northern) were designed for the existing developments, and have no spare capacity available. According to the SDF, there is a proposal to construct a new outfall to accommodate the flow projected from proposed developments to the south and east of the Heidelberg CBD. The municipality has budgeted R10.3m for 705 stands in Ratanda to eradicate the use of buckets.

## 2.3.4 Electricity

### a) Supply System

According to the SDF, the two main electricity providers in Lesedi are ESKOM and the Municipality. As far as municipal electricity provision is concerned, the Lesedi Local Municipality buys electricity in bulk from ESKOM and reticulates it to certain identified areas, namely:

- Heidelberg (± 4300 house connections);
- Ratanda (± 6500 house connections);
- Devon (streetlights only);
- Impumelelo (850 house connections);
- Jameson Park (258 house connections);
- Tokolohong Agri-Village (200 house connections);
- Tokolohong Agri-Village phase 2 (110 house connections);
- KwaZenzele Agri-Village (240 house connections);
- Heidelberg Extension 23 (2500 house connections); and
- Heidelberg Extension 26 (594 house connections).

### b) Capacity

The existing electrical capacity is indicated by **Table 1**.

**Table 1: Existing Electricity Supply: Lesedi Local Municipality (Lyon and Partners, 2007)**

SUBSTATION	INSTALLED CAPACITY KVA	CURRENT DEMAND KVA	SPARE CAPACITY KVA
Ratanda Substation	10.000	8.000	2.000
Heidelberg Substation	40.000	33.000	7.000
Maraisdrift	Eskom supply point	700	0.0
Impumelelo point of supply	No substation	600	0.0
KwaZenzele point of supply	No substation	400	0.0

According to the SDF, the current backlog in terms of electricity provision stands at approximately 4000 connections. More specifically, the SDF identified the following areas to be experiencing severe capacity problems:

- Ext 12 /Jameson Park;
- Rensburg –no capacity on lines; and
- Devon/Impumelelo – 3000 units.

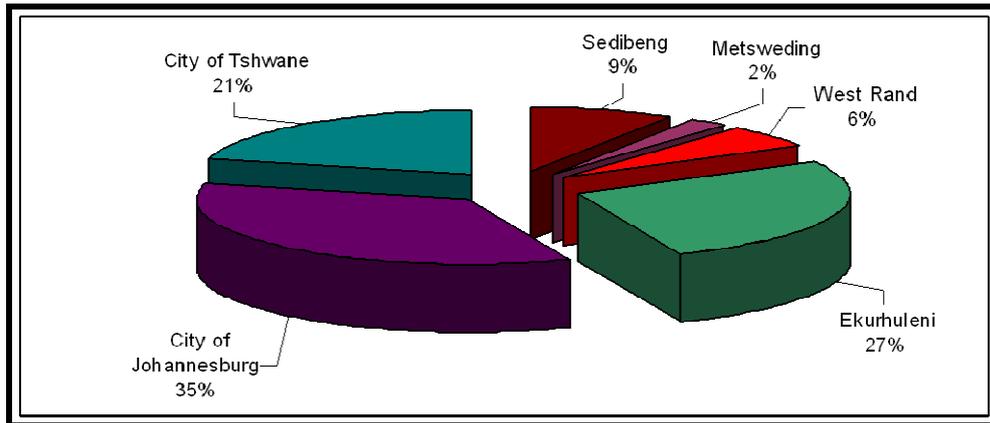
## 2.4 SOCIO-ECONOMIC ANALYSIS

### 2.4.1 Macro-Economic Perspective

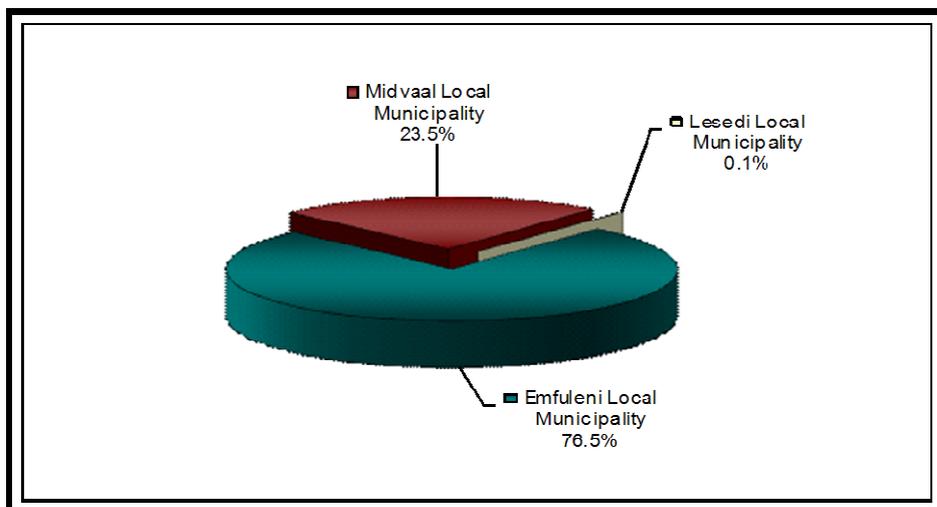
Although Lesedi recently (3003/2004 to 2006/2007) featured the highest economic growth rate of all three of the LMs constituting the Sedibeng District, its economy has been relatively stagnant during the past decade. In effect, its overall contribution to the Gauteng Provincial economy is minute. In 2007 it contributed less than one percent to the District economy, with the District economy only contributing nine percent to the Province's economy (see **Charts 1** and **2**). The District economy is approximately 12 times smaller than that of the CoJ.

More specifically, the largest areas of growth in the Municipality over the past six years have been the construction, financial services, and manufacturing sectors, with agriculture and mining experiencing negative growth (Lesedi IDP, 2007).

**Chart 1: District Municipalities' Economic Contributions to the Gauteng Economy, 2007**



**Chart 2: Local Municipalities' Economic Contributions to the Sedibeng District Economy, 2007**



According to the Lesedi LED Strategy (2008) (see **Section 2.4.2.**), a greater diversification of the economic base will be required to reduce the heavy reliance on the agricultural and industrial sectors for economic well-being and job creation. Manufacturing activity for example is dominated by a few large concerns namely, British American Tobacco and Escort, while the rest of the manufacturing concerns are mostly small operations geared towards servicing the local

market (East Rand). Similarly, agricultural activity is dominated by large-scale commercial farming (crop production including maize, grain sorghum, wheat, soya and dry beans, groundnuts, sunflower seeds and vegetables, and animal production including milk, beef, mutton and lamb, eggs and poultry). The agricultural sector does, however, present opportunities for downstream economic activities in terms of further processing of agricultural produce (e.g. Karan Beef, Escort, Floracardia).

In spite of featuring a very small economy in relation to the District and Provincial economies, and having to compete with the industrial and commercial areas of the CoJ and Ekurhuleni LM, the Municipality's close proximity to these areas hold a number of advantages as highlighted by the Municipality's Draft LED Strategy:

- It affords middle class families the opportunity to move away from the congestion of the metros.
- It affords professionals who work from home via the use of the internet with only a 30 minute trip to the metros.
- In contrast to the metros, the cost of commercial land within Lesedi is well-priced and affordable. Considering the time spent in traffic by business owners and employees having to travel to commercial areas such as Midrand and Kya Sands, at just 30 minutes away Lesedi becomes an attractive location.
- The O.R. Tambo international airport is a mere 40 minutes away.
- The location of major national transport corridors (N3 and N17) in Lesedi affords freight and logistics enterprise development opportunities. As is, the dry port in the CoJ is congested and requires that the trucks enter the City before disbursing, which places a huge strain on the traffic flows of Johannesburg. Hence, a facility which would service all the major routes at a sensible distance from the city traffic is practical.
- It affords day trippers wanting to mountain bike, fish, etc. with an opportunity to do so. In terms of natural beauty, Lesedi has a similar product offering to the Magaliesberg.

### **2.4.2 Draft Lesedi Local Economic Development Strategy (LED) (2008)**

As mentioned, a Draft Local Economic Development (LED) Strategy was formulated for the Lesedi Local Municipality in 2008. The Strategy is based upon the analysis of numerous plans and strategies developed for the Municipality in the past, combined with recently conducted

research. Although the analysis conducted revealed that Lesedi boasts several strengths, none of the identified strengths proved to be of exceptional stature on their own when considered in a local or regional context. Hence, the LED Strategy proposes that Lesedi should **not try to position itself within the regional economy via the use of a specific sector** (e.g. agriculture or tourism or industry), but rather **adopt a holistic approach that combines and packages the existing strengths**. Consequently, the LED Strategy proposes pursuing what it calls the “Lesedi Lifestyle”. The Lesedi Lifestyle concept essentially consists of creating an environment that is safe, convenient, affordable, tranquil and conducive to recreation.

To achieve its stated aim, the LED Strategy identifies five main Priority Growth Areas / Priority Projects for the study area. These are articulated by **Table 2** below:

**Table 2: Lesedi Local Municipality Local Economic Development Strategy (2008): Priority Projects**

	PRIORITY INITIATIVES				
	AGRICULTURE, LAND REFORM AND AGRI-PROCESSING	MANUFACTURING	TRANSPORT	RESIDENTIAL	TOURISM
GOAL	<ul style="list-style-type: none"> <li>To increase the market share of Gauteng</li> <li>To strengthen small farmers sustainability and access to markets</li> </ul>	To increase the manufacturing sector within the Municipality	To position Lesedi as a Freight and Public Transport Hub for the Country	To position the Lesedi municipal area as a healthy destination to attract people	To brand Lesedi as a tourist destination
OBJECTIVE	<ul style="list-style-type: none"> <li>To ensure that Agric programmes are coordinated and focused</li> <li>To improve BEE sustainability within Agric Sector</li> <li>To identify new and niche markets</li> </ul>	<ul style="list-style-type: none"> <li>To provide support to existing manufacturing enterprises.</li> <li>To attract new businesses</li> <li>To allow emerging manufacturers sustainably into market</li> </ul>	<p>A dry ort with a fully integrated road and rail feeder system</p> <p>A redesigned public transport system with intermodal facilities</p>	To extend the urban edge, thereby increasing employment, rates base and local economic activity	To increase tourism by 20%
OUTPUT	<ul style="list-style-type: none"> <li>To lobby government to buy farms as a going concern</li> <li>Avenues created allowing emerging farmers access to retail markets</li> <li>To ensure small farmers benefit from BEE procurement</li> </ul>	<ul style="list-style-type: none"> <li>An active body supporting manufacturing sector</li> <li>Appropriate incentives to investors</li> <li>Security of energy supply</li> <li>A manufacturing cluster development along the R42</li> </ul>	<p>A freight hub, with local supporting services business growth</p> <p>An integrated transport plan which allows for the freight and commuter needs, with intermodal facilities linking Lesedi to the Metros and the industrial</p>	To unlock 300 hectares of agricultural land (areas west of Jordaan Park, alongside and between Blesbokspruit and R42, the R103, the R29 and N17)	To join N3 meander to create own identity to encourage the maintenance of the cultural feeling of the town/area

	<p>systems</p> <ul style="list-style-type: none"> <li>• To ensure that all farmers receive necessary capacitation to comply with market standards</li> <li>• Review of farm rental of land reformed farms, deferred to a minimum of 3 years</li> </ul>		<p>areas of Emfuleni</p>		
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**Figure 17** illustrates the intended locations of the priority initiatives within the Lesedi Local Municipality.

## 2.4.3 Socio-Economic Features

### 2.4.3.1 Population Projections and Economically Active Population

The total population of Lesedi is estimated at approximately 70 926 individuals. As **Table 3** indicates, the Municipality experienced a fairly substantial growth in its population for the period 2001 – 2007, amounting to an incremental growth of approximately 16 749 individuals (or thirty percent of its total population in 2001). The largest concentration of people are found within the Heidelberg / Ratanda functional area (56 401), followed by Devon / Impumelelo area (7 665) and the Vischkuil A.H. area (4 863). The Jameson Park / Kaydale A.H. area located just to the north-east of Heidelberg features the smallest population at approximately 1 996 individuals. Notably, the Heidelberg / Ratanda and Vischkuil A.H. areas experienced the largest growth in population numbers. The substantial growth in the total population numbers of the Vischkuil A.H. area could possibly be attributed to the growth of the informal settlement of KwaZenzele, located along the western boundary of the agricultural holdings.

# LESEDI NODAL & CORRIDOR DEVELOPMENT STUDY



**Table 3: Lesedi Nodes and Corridors: Historic Population, 2001 - 2007**

LESEDI NODES AND CORRIDORS: HISTORIC POPULATION, 2001 - 2007							
NAME	POPULATION			INCREMENT		INCREMENT PER ANNUM	
	2001	2005	2007	2001 - 2005	2005 - 2007	2001 - 2005	2005 - 2007
Heidelberg/Ratanda	42,429	52,411	56,401	9,981	3,990	2,495	1,995
Kaydale A/H, Jameson Pa	1,845	1,882	1,996	37	115	9	57
Devon/Impumelelo	7,608	7,498	7,665	-110	167	-27	83
Vischkuil A/H	2,294	2,309	4,863	15	2,555	4	1,277
<b>TOTAL STUDY AREA</b>	<b>54,177</b>	<b>64,099</b>	<b>70,926</b>	<b>9,923</b>	<b>6,826</b>	<b>2,481</b>	<b>3,413</b>

Source: 2001 Census  
2005, 2007 PLAN Associates

Based on the 2001 Census data and population projections developed by the Bureau of Market Research (BMR), Global Insight and Plan Associates, the Municipality's total population is expected to increase over the next 15 years, reaching an estimated total population of approximately 106 852 individuals by 2025. This would amount to an incremental growth of 35 926 individuals or fifty one percent of its total estimated population in 2007 (see **Table 4**).

**Table 4: Lesedi Nodes and corridors: Expected Population, 2007 - 2025**

LESEDI NODES AND CORRIDORS: EXPECTED POPULATION, 2007 - 2025														
NAME	POPULATION				INCREMENTAL POPULATION					INCREMENTAL POPULATION PER ANNUM				
	2007	2010	2015	2025	2001 - 2005	2005 - 2007	2007 - 2010	2010 - 2015	2015 - 2025	2001 - 2005	2005 - 2007	2007 - 2010	2010 - 2015	2015 - 2025
<b>TOTAL STUDY AREA</b>	<b>70,926</b>	<b>76,080</b>	<b>87,853</b>	<b>106,852</b>	<b>9,923</b>	<b>6,826</b>	<b>5,154</b>	<b>11,774</b>	<b>18,998</b>	<b>2,481</b>	<b>3,413</b>	<b>1,718</b>	<b>2,355</b>	<b>1,900</b>

Source: 2001 Census  
2005, 2007 PLAN Associates  
2010 to 2025 Bureau of Market Research, Global Insight, PLAN Associates

As **Table 5** indicates, 30 314 individuals or forty three percent of Lesedi's total population is economically active (this includes per definition the formal workers, informal workers and unemployed people aged between 15-65 years). At just under sixty percent, the formal sector is by far the largest employer, with this trend expected to continue and intensify within the future. Notably, the twelve percent (3 491 individuals) are employed in the informal sector, implying that this sector makes a significant contribution to the local economy.

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# LESEDI NODAL & CORRIDOR DEVELOPMENT STUDY



Thirty percent of the economically active population is currently unemployed; hence the Municipality displays an unemployment rate of thirty percent, which is regarded as high but on par with national averages.

**Table 5: Lesedi Nodes and Corridors: Estimated Economically Active Population**

LESEDI NODES AND CORRIDORS: ECONOMICALLY ACTIVE POPULATION					
	YEAR	ECONOMICALLY ACTIVE POPULATION			
		Formal	Informal	Unemployed	Total
Historic	2001	11,659	3,313	8,497	23,469
	2005	15,535	3,271	8,556	27,362
	2007	17,694	3,491	9,130	30,314
%	%	58%	12%	30%	100%
Expected	2010	18,777	3,788	8,634	31,199
	2015	24,639	4,587	7,749	36,975
	2025	33,437	5,714	6,458	45,609
%		73%	13%	14%	100%

Source: 2001 Census  
 2005, 2007 PLAN Associates  
 2010 to 2025 Bureau of Market Research, Global Insight

**Table 6** indicates the formal job opportunities in Lesedi, based on information provided by Census 2001, Plan Associates, the BMR and Global Insight. Currently, the total number of formal job opportunities within the municipal area is estimated at approximately 13 444 individuals. Compared with the number of people living within the Municipality who are currently employed in the formal economy (17 694), indicates that there is an outflow of at least 4250 formal workers from the Municipality. Further comparison of expected economic activity and expected job opportunities within the formal sector, reveals that the current trend is set to continue and increase to 12 543 workers by 2025. This trend could be attributed to the fact that formal workers may prefer the rural-residential environment offered by Lesedi, rather than those provided by the CoJ, Ekurhuleni, etc.

# LESEDI NODAL & CORRIDOR DEVELOPMENT STUDY



**Table 6: Lesedi Nodes and Corridors: Estimated Formal Workers / Job Opportunities**

LESEDI NODES AND CORRIDORS: FORMAL WORKERS											
YEAR	FORMAL WORKERS						OUTSIDE WORKERS			Total Formal	
	Retail	Office	Industrial	Commercial	Local Serving	Other	Agriculture & Mining	Construction	Transport		
Historic	2001	3,038	1,868	1,918	243	1,887	107	935	368	666	11,029
	2005	3,610	2,645	2,324	243	2,152	110	799	547	744	13,173
	2007	3,700	2,698	2,424	243	2,243	110	799	509	718	13,444
%		28%	20%	18%	2%	17%	1%	6%	4%	5%	100%
Expected	2010	4,445	2,841	2,646	243	2,126	114	656	537	760	14,368
	2015	5,695	3,798	2,870	243	2,760	114	501	762	864	17,607
	2025	6,941	4,727	3,032	243	3,442	114	419	1,033	945	20,894
	%		33%	23%	15%	1%	16%	1%	2%	5%	5%

Source: 2001 Census, Bureau of Market Research, Global Insight  
 2005, 2007 PLAN Associates  
 2010 to 2025 Bureau of Market Research, Global Insight

**Table 7** below illustrates the potential additional retail floor space that can be provided in different parts of the Lesedi Municipality based on the projected incremental population numbers for these areas up to 2025, and the associated projected income profile of the incremental population.

From this information it is estimated that Heidelberg-Ratanda can develop an additional 26 384m<sup>2</sup> of retail space during this period; Kaydale/Jameson Park about 4415m<sup>2</sup>; Devon/Impumelelo about 7622m<sup>2</sup>; and Vischkuil/Kwazenzele about 5623m<sup>2</sup>. It should however be emphasised that these figures are mere broad indicators of the magnitude of retail floor space that can be maintained by the projected future incremental population, based on a specific development scenario, and an estimated average level of expendable income of these communities.

**Table 7: Lesedi Nodes and Corridors: Retail Potential 2007, 2025**

LESEDI NODES AND CORRIDORS: RETAIL POTENTIAL 2007, 2025								
AREA	2007				2025			
	POPULATION	RETAIL POTENTIAL (m <sup>2</sup> )	ESTIMATED EXISTING RETAIL FLOOR AREA (m <sup>2</sup> )	SURPLUS/DEFICIT (m <sup>2</sup> )	POPULATION	RETAIL POTENTIAL (m <sup>2</sup> )	ESTIMATED EXISTING RETAIL FLOOR AREA (m <sup>2</sup> ) (2007)	SURPLUS/DEFICIT (m <sup>2</sup> )
Heidelberg/Ratanda	56,401	77,333	107,950	30,617	90,875	134,334	107,950	-26,384
Kaydale A/H, Jameson Park	1,996	2,666	250	-2,416	4,039	4,665	250	-4,415
Devon/Impumelelo	7,665	8,083	510	-7,573	7,265	8,132	510	-7,622
Vischkuil A/H	4,863	5,598	60	-5,538	4,673	5,683	60	-5,623
<b>TOTAL STUDY AREA</b>	<b>70,926</b>	<b>93,680</b>	<b>108,770</b>	<b>15,090</b>	<b>106,852</b>	<b>152,815</b>	<b>108,770</b>	<b>-44,045</b>

SOURCE: Gauteng Strategic Road Network Review, 2009, PLAN Associates

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## 3. SYNTHESIS

### 3.1 DEVELOPMENT OPPORTUNITIES AND CONSTRAINTS

The study area is characterised by several development opportunities and constraints which should be considered as part of the process in evaluating the potential for corridor and nodal development. Those opportunities and constraints stemming from the Situational Analysis are summarised below:

#### 3.1.1 Development Opportunities

- **Location:** The study area is well located in terms of provincial context, particularly in relation to the metropolitan areas of Johannesburg and Ekurhuleni. It essentially serves as a gateway to the southern areas of Gauteng, particularly Nigel, Springs, the Duduza-KwaThema complex, Benoni, and Vosloorus. Furthermore, the study area facilitates direct access between the agricultural service centres of Delmas (situated within the Nkangala District Municipality) and Balfour (situated within the Gert Sibande District Municipality). As highlighted by the LED Strategy, the study area's close proximity to the CoJ and Ekurhuleni holds a number of specific advantages, namely
  - The presence of major national transport corridors (N3 and N17) at Heidelberg affords freight and logistics enterprise development opportunities;
  - In contrast to the metros, the cost of commercial land within Lesedi is well-priced and affordable;
  - Since it is only a 30 minute trip to the metros, the study area affords middle class families the opportunity to move away from the congestion of the metros; and
  - In terms of natural beauty, Lesedi has a similar product offering to the Magaliesberg.
- **Existing and planned transport network:** The overall condition of the transport network can be described as good. The road network connects the study area with prominent markets in the province, as well as markets located within Mpumalanga, the Northern Free State and KwaZulu-Natal. The N3 and N17 are the most prominent roads

in this regard. Significantly, several changes and additions to the network are being planned by Gautrans, and may offer new development opportunities. The construction of the proposed K168 and K135 roads may specifically offer new development opportunities as these roads will not only serve to link the N3, R23 and R42 roads, but will also provide three new dedicated access points to the southern extents of Heidelberg.

- **Engineering services:** The study area is well-endowed with engineering services, with all of the activity nodes identified by the SDF already mostly serviced with piped water, water borne sewer and electricity. Based on the findings of the SDF, future developments could easily be accommodated in terms of services provision in all of the activity nodes identified by the SDF, although upgrading of the water supply system will be required in Vischkuil / Endicott, and upgrading of the electricity supply in Impumelelo and KwaZenzele.
- **Economic opportunities:** The largest part of the study area is occupied by farms, with potential in the agricultural sectors for diversification and employment, particularly seen in light of the close proximity to markets in Gauteng. According to the Gauteng Agricultural Plan and the Led Strategy, the local processing of agricultural produce could contribute to the establishment of forward and backward linkages to other sectors.

As highlighted by the LED Strategy, the strong rural character of the study area poses opportunity for rural residential development or country life-style developments in close proximity to the urban areas of the CoJ and Ekurhuleni. Furthermore, the study area offers eco-tourism potential related to activities such as fishing, mountain biking, bird watching, etc.

- **Current and planned development initiatives:** Apart from providing impetus for development, the numerous development initiatives currently taking place or being planned within the study area spatially concentrated, which provides opportunity for the development of strong activity nodes.

- **Rates and taxes:** The rates and taxes applicable within the study area are very reasonable compared to metropolitan areas.

### 3.1.2 Development Constraints

- **Transport network:** Whilst the study area does feature regional transport linkages, these linkages are not as strong / prominent as those linkages characterising the Midrand strip and R21 corridors which carry excessively high volumes of traffic between two major nodes daily. None of the routes in Lesedi complies to the criteria to act as an Activity or Development Corridor. Instead, most of the routes in Lesedi act as Transport Corridors. Furthermore, whilst two rail linkages traverse the study area, they do not offer exceptional corridor development potential as they are mono-functional in nature, primarily catering for the transport of freight.
- **Macro-economic factors:** There are also factors of a macro-economic nature hampering economic development in the study area, which includes *inter alia* the decline in the mining and agricultural sectors, and the heavy reliance on the agricultural and industrial sectors for economic well-being and job creation. Essentially, the heavy reliance on agriculture and industry, and the lack of diversification which it brings, renders the local economy vulnerable and volatile. Considering that the population of the study area is expected to double over the next fifteen years, and the already high levels of unemployment, diversification of the local economy is needed.
- **Leakages from the local economy:** Further weaknesses impacting on the economy are leakages from the local economy as goods and services are bought and sold outside of the area to some extent; and having to compete with the industrial and commercial areas located in the CoJ and Ekurhuleni. This limits the scale of potential development to that of strong activity nodes, rather than continuous stretches of corridor development.
- **Spatial Structure:** Considering the comparatively weak economic base of the study area, the relatively dispersed spatial structure brought about by the occurrence of several agricultural holdings / nodes, needs to be consolidated in a strategic manner in order to create the necessary economies of scale needed to stimulate development. In

respect of consolidating the spatial structure in a strategic manner, it is noted that there is currently no clear evidence of a natural tendency for development to take place along the major roads traversing the study area.

### 3.2 CORRIDOR AND NODAL DEVELOPMENT POTENTIAL

Considering the spatial occurrence and character of existing residential and economic activity, the space-economy of the study area is essentially characterised by several transportation corridors and a number of activity nodes, rather than areas of continuous corridor development. Hence, given the current development situation, the expected future populations, the scale of existing and proposed development initiatives and areas of opportunity as highlighted by the LED Strategy and the Gauteng Agricultural Plan, the development characteristics of the study area lends itself more to the development of strategically selected activity nodes than extensive development corridors as indicated by the SDF.

This does not imply that the potential for the development of development corridors do not exist, but rather that the development of such corridors is perhaps foreseen over a longer period of time (30 years plus), and dependant of the development of strong nodal areas. The mere linkage of areas of activity via a transport route, over many kilometres, does not constitute corridor development, even at a sub-regional level. A combination of key elements should ideally be present, to give rise to efficient corridor development. These include *inter alia*:

- **Propensity for development** which holds that there must be a natural tendency for development to occur along / within the corridor. Currently there is no clear evidence of a natural tendency for development to take place along the major roads traversing the study area.
- **Densities and continuity** which holds that apart from existing high density developments, an area should ideally display clear potential for high density development, both in terms of residential and business activity. Hence, considering the macro-and local economic reality, the scale of potential development within the study area is more suited to the development of strong activity nodes than corridors. Furthermore, the creation of continuity of development will be difficult seeing that

existing developments along the roads identified to constitute corridors by the SDF has taken place in a limited and sporadic manner.

- **Connection between major nodes and economic logic** which holds that a road earmarked to function as a development corridor should provide a connection between major nodes and essentially function as a desire line between forces and points of attraction. In this respect, the only real potential that currently exists for corridor development within the study area exists along the stretch of the R549 connecting Ratanda and Heidelberg, and potentially the small strip of land located between the N3 and the R102 roads leading to Germiston and the CoJ, as these roads function as a desire line between the southern growth points of Gauteng and Lesedi.
- **Significant land uses** which holds that the existence of **significant land uses** should ideally already be present along the corridor or at focal points. This is evident to some degree within the municipality, most notably along the R549 (between Heidelberg and Ratanda), the R23 (between Heidelberg and the intersection of the R23 and N3), and the R42 (between Heidelberg and Jameson Park).
- **Existence of multi-modal transportation** which holds that both road and rail transport should ideally be available in support of one another along a corridor. Except for the stretch of the R29 where the road and the railway line parallels one another, the corridors identified by the SDF generally do not comply with this element.

Hence, from the above, the use of strategically selected nodes (which display both existing economic activity and high potential for development) rather than corridors may possibly be a better way of initially ensuring that future developments are concentrated in a manner that would provide the maximum impetus for growth and development within the Lesedi Municipality.

In respect of opportunities for nodal development, the Situational Analysis reveals several areas featuring high potential for nodal development (based on existing economic activity, planned development initiatives, and general potential for development in respect of sectors being targeted by the LED Strategy) within the study area. These areas are graphically illustrated on **Figure 18** and include the following:

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- The Heidelberg CBD<sup>(1)</sup>.
- The Ratanda CBD<sup>(2)</sup>.
- The area (Zone of Integration) between Ratanda and the Heidelberg Agricultural Holdings<sup>(3 and 4)</sup>.
- The area surrounding the intersection of the N3 and R23<sup>(5)</sup>.
- The Zone of Opportunity and the industrial / commercial areas to the south<sup>(6 and 7)</sup>.
- The area to the south of the Eendracht A.H., between the N3 and R102 roads<sup>(8)</sup>.
- Jameson Park<sup>(9)</sup>.
- Devon / Impumelelo<sup>(10 and 11)</sup>.
- Vischkuil Agricultural Holdings<sup>(12)</sup>.
- Two Tourism Corridors between the Suikerbosrand and Alice Glockner Nature Reserves along routes R42 south towards Midvaal and Vereeniging; and R549 towards the Vaal Dam.

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## 4 DEVELOPMENT CONCEPT, FRAMEWORK AND GUIDELINES

### 4.1 DEVELOPMENT CONCEPT

In Section 3.2 of this document it was concluded that the areas of high economic activity and/or high latent potential for economic development in the Lesedi area are predominantly nodal in nature rather than in the form of linear development corridors. These nodes are, however, without exception, located along or in close proximity to the major transport corridors running through the municipal area (see Figure 18).

The proposed development concept for future economic development in the Lesedi area is thus the “beads on string” concept with the beads being the activity nodes, and the string being represented by the various transport corridors running through the municipal area as illustrated on Figure 18.

Section 4.2 below highlights in greater detail the development potential of each of these priority activity nodes as well as the proposed spatial configuration of land uses in each of these.

### 4.2 PRIORITY ACTIVITY NODES

#### 4.2.1 Activity Node N1 (Heidelberg CBD)

Activity Node 1 is the CBD of Heidelberg as reflected on **Figure 19(a)**. This is the highest order activity node in the Lesedi municipal area and caters for a mixture of land uses including retail, institutional, and residential uses. This node performs the highest order function as far as retail in the municipal area is concerned, and the Municipal Spatial Development Framework and the 2004 Heidelberg CBD Urban Design Plan contain a range of development proposals and guidelines for this area. Most of these proposals are aimed at the intensification of land use activities within the CBD in order to enhance the viability of the area.

As far as greenfields development is concerned, there is one major opportunity to further enhance the viability of the Heidelberg CBD. This is the vacant pocket of land located adjacent to the east of the old prison between the residential area and road P4-2 (see **Figure 19b**). This site comprises about 2,6 hectares of land which could accommodate retail floor space of about 7680m<sup>2</sup> which could be developed as a mirror image to the existing shopping centre in the CBD. The western part of this site could encounter some environmental constraints. Access to the site

can be gained by linking the Mare Street to the Heidelberg Kloof road (R23) as was proposed in the 2004 CBD plan. The direct linking of the CBD to route R23 would significantly enhance access to the CBD, which would generally have a positive impact on the economic viability of the CBD.

As illustrated on Figure 19a this would result in a T-shaped CBD area while the old prison located between the two shopping centres can be developed as a cultural-historic precinct with walkways to accommodate pedestrian movement between the two shopping centres.

Care will have to be taken not to give direct access to the new shopping centre via the residential areas immediately to the south thereof as this will inevitably result in land use changes in this residential area with illegal home offices and businesses intruding. The current situation will therefore have to be maintained with the main traffic movement being channelled along Voortrekker and Euckerman Streets (and Mare Street) in a north-south direction, and along HF Verwoerd Street in an east-west direction.

Water and sanitation is available, and if the new centre is a functional extension of the existing one, then electricity should not be a problem either, as the spare capacity currently allocated to the existing shopping centre can be utilised.

This is the only major intervention proposed for the Heidelberg CBD, apart from the more detailed guidelines and measures proposed in the 2004 CBD Urban Design Framework and the Lesedi SDF (2008).

### 4.2.2 Activity Nodes N2 and N3

Activity Nodes N2 and N3 are located in Ratanda and Obed Nkosi respectively (refer to **Figure 20a**). Activity Node N2 is the existing CBD of Ratanda while Activity Node N3 is a proposed new activity node located at the eastern entrance to Obed Nkosi from route K135 (R549).

The Ratanda CBD (N2) is almost fully developed and comprises a wide range of community facilities (sports, recreation, education, health etc.) as well as formal and informal business and a taxi rank (see **Figure 20b**).

The node is located central to the Ratanda community, but it is not linked to the regional economy. Because of its location it primarily serves the Ratanda community and this also limits

the development potential of the node as its size is determined by the limited buying power of the surrounding disadvantaged community. Had it been located 1 kilometre to the east at the eastern entrance to Ratanda from Route K135 it could have served both regional traffic and the local community which could have enhanced the development capacity of the node.

Even this entrance is limited in development potential as it is located about 5 kilometres from Heidelberg Town and will thus not serve the middle and higher income residents of the town.

It is proposed that the functionality of this node be optimised by way of the Neighbourhood Partnership Development Grant initiative (NDPG) which is currently being conducted for the area.

Closer to Heidelberg, in the Zone of Intervention, the new township of Obed Nkosi which will comprise about 7000 residential erven, will soon be established (see **Figure 20c**). The township layout plan makes provision for two accesses onto route K135 to the east and two onto future road K168 to the north as illustrated on **Figure 20d**.

At the northern entrance onto road K135 (R549) the layout plan also earmarked some stands for business uses and a taxi rank. This node has significant development potential for the following reasons:

- it will serve both the Obed Nkosi community and regional traffic passing along route K135 / R549;
- it will also serve the existing Ratanda community as local public transport will travel from the Ratanda CBD, along the internal network to this point from where it will access route K135 / R549 towards Heidelberg Town;
- this node (N3) is located close to Heidelberg Town and will also serve the new extensions of Heidelberg (e.g. Extension 2 and surrounds) in future.

It is proposed that sufficient land be earmarked/reserved at this entrance to make provision for a Neighbourhood Shopping Centre ( $\pm 8000\text{m}^2$ ), a filling station, a taxi rank, an informal trade market, and a Multi Purpose Community Centre (MPCC) which should hold a wide spectrum of community facilities e.g. clinic, Home Affairs office, library, post office, community hall, pension pay-out point etc.

The “critical mass” created by the convergence of people (local and regional) to this point due to community facilities located at the MPCC and the taxi rank, could then act as stimulus for the establishment of a shopping centre, informal trade market, and a filling station at this point – all of which would be to the benefit of the local community.

The anticipated future southward expansion of Heidelberg towards Emmasdal will further strengthen the economic viability of this node as it will eventually become a central node to all the communities residing in the southern parts of Heidelberg Town.

It should however be noted that the node cannot expand to the east of road K135 / R549 in future as the cemetery is located here (see Figure 20c). This further emphasises the point that sufficient land need to be reserved for business/community/transport purposes at this point in the Obed Nkosi township application to cater for the future need of the surrounding communities to the east and west of road K135 / R549.

Engineering services required to develop the node will follow from the development of the residential units in Obed Nkosi and no special provision need to be made in this regard.

### 4.2.3 Activity Node N4

The next area identified with significant potential for economic activity within the Lesedi municipal area is the pocket of land comprising the eastern part of the Heidelberg Agricultural Holdings on both sides of road R549. To the south and south-east the area borders onto the prison and Heidelberg X2; to the east it borders onto road K186 / R23 and the Heidelberg industrial area; and to the north it links to Shalimar Ridge.

The area is currently served by road R549 and R23, but once road K168 is constructed, the northern section of the existing road R549 will be downscaled to a local (third order) road. This will divide the node into four precincts as illustrated on **Figure 21** with regional access to and from the node being provided via K186 (R23), K168 and K135 (R549); and local access to properties to be gained from the current northern section of road R549.

The site holds about 33 agricultural holdings covering an area of about 52 hectares of land, and apparently there is interest to establish a shopping centre in the south-eastern quadrant of the R549-R23 intersection.

It is proposed that the site be earmarked for retail and commercial uses which could include warehouses, factory shops, panel beaters, buildings yards etc. Functionally, the site links to the existing Heidelberg industrial area to the east, and the commercial uses along Schoeman Street to the north-east thereof, while it is also centrally located between Obed Nkosi, Ratanda, Heidelberg X2 and 3, and Shalimar Ridge in the Zone of Integration. It could eventually develop/act as a functional extension of the existing industrial area located to the north thereof.

The primary function of the Lesedi Municipality is to promote this area as a business/commercial node by way of informing land owners that they could obtain such rights and ensuring that bulk services are available for the area. The provision of engineering services should not be problematic as bulk and reticulation networks exist to the north, east and south of the site. The site could eventually result in a yield of about 156 000m<sup>2</sup> of commercial floor area. The engineering department of the Lesedi Municipality indicated a preference for the site to be developed incrementally from north to south.

#### 4.2.4 Activity Node N5

The next three activity nodes are located at each of the three access interchanges along the N3 freeway in the vicinity of Heidelberg Town. Activity Node 5 is located at the southernmost access interchange where route R23 / K186 intersects with the N3 freeway, and it includes the south-eastern and south-western quadrants of this intersection as illustrated on **Figure 22**.

The site is located a few kilometres to the south of Heidelberg Town and therefore engineering services are extremely limited (and will be costly to provide). Both these two sites already hold some development: a filling station in the south-eastern quadrant serving freeway traffic and local traffic along the N3 and route R23 respectively, and a bottling plant in the south-western quadrant which currently gets direct access from route R23.

Both quadrants are also served via third order routes running parallel to the N3 freeway from which access can be gained, although the filling station has permanent access rights onto route K186 / R23 in line with Gautrans policy.

It is proposed that limited development be allowed in both these quadrants (based on market demand) without placing an unnecessary burden on Council in terms of provision of additional

engineering services. Developers will thus have to finance bulk service upgrading/expansion if required.

With this in mind the following is suggested:

- that the filling station site be allowed to expand its function (if the owner is interested) by becoming a truck-port with overnight accommodation facilities, and associated Convenience Store; and
- that the south-western quadrant be earmarked to develop land uses complementary to the existing ones – e.g. non-noxious industries like bottling plants etc, but only to a limited scale in the precinct as earmarked in Figure 21. This quadrant cannot expand further southwards due to environmental constraints associated with the Alice Glockner Nature Reserve.

#### 4.2.5 Activity Nodes N6 and N7

Activity Nodes 6 and 7 are located to the west of the N3 freeway in the area between road R42 (K174) (Heidelberg-Nigel) to the north, and future road PWV17/K168 to the south (refer to **Figure 23a**).

Activity Node 6 (328 ha) comprises the northern portion between the railway line and road K174 while Activity Node 7 (94 ha) is located to the south of the golf course and the existing industrial area up to future road K168 and the Rensburg residential area.

Activity Node 6 is divided into a northern (6a) and southern (6b) section, and in terms of current planning the northern portion is earmarked to be developed into a mixed use area comprising retail, business and some industrial uses, while the southern portion (6b) is reserved for mining activity for the time being. **Figure 23b** shows the layout plan with development proposals for the site.

This is the best located precinct in the entire Lesedi municipal area to accommodate large scale economic development in the short to medium term, for the following reasons:

- the land belongs to the municipality and it can thus dictate the terms for the development thereof;

- the site represents infill development between Heidelberg Central and the N3 freeway to the east thereof which also makes sense from an engineering services point of view;
- the site is visible and accessible to both national and regional traffic along the N3 freeway adjacent to the east thereof, but also via roads R42 (K174) and K166 to the north and west thereof;
- the site can be served by rail via the railway line which runs along its southern border;
- there is currently market interest to develop the area;
- the site is ideally located to serve as a dry port/logistics centre/freight transfer node as contemplated in the LED strategy of the municipality because of its visual exposure, proximity, and accessibility to and from the N3 freeway.

Care will however have to be taken to ensure that this node does not develop to the detriment of the existing Heidelberg CBD i.e. that it draws activity away from the CBD which will result in urban decay in the CBD area. This specifically applies to retail where it should be noted that retail is the primary function of the CBD, and this node should not develop retail facilities which will compete with the Lesedi CBD area.

Activities accommodated here should thus rather complement those of the CBD, and the area must focus on ensuring that Lesedi municipality benefits from regional traffic passing through the area. It should thus be orientated towards the regional economy rather than the local economy.

**Figure 23c** shows an industrial park located between the N1 freeway and road K101 in the Midrand strip/corridor. The objective of the Lesedi Municipality should be to develop Activity Node N6 to similar scale, density and intensity during the next twenty to thirty years. The 103 hectares of land available should thus be optimally utilised for predominantly light industrial and commercial and associated office uses. If properly developed it could yield about 308 500m<sup>2</sup> of light industrial and commercial office space.

Activity Node 7 comprises an infill development between Rensburgdorp to the south and the existing Heidelberg industrial area to the north thereof as illustrated on **Figure 23d**. The site covers about 94 hectares of land and will in future be served by road K168.

This site also represents infill development between two existing developments which would make the provision of engineering services more viable than a leapfrog development on the

edge of the city. There is currently a township establishment application submitted for the western portion of this precinct.

Combined with the existing industrial area to the north thereof, this area has the potential to become the major core of economic activity to the Lesedi municipal area in future.

It is proposed that Activity Node 7 be earmarked for industrial and commercial uses similar to those currently accommodated in the surrounding Heidelberg industrial area.

In the short term, access onto the N3 freeway via a lower order route in the K168 road reserve can be negotiated with Gautrans as an interim measure until such time as when route PWV17 is constructed.

If the industrial development in this precinct proves to be highly successful, the existing golf course could be relocated in future to make this land available for income- and employment generating industrial activity. This golf course site will then get access via route K166.

As far as engineering services are concerned, the engineering department of the Lesedi municipality indicated that precinct N6a and the western portion of area N7 should be developed first (short to medium term), while areas N6b and N7 east could be developed in the longer term.

In the development of activity nodes 6 and 7 it will be important for the Lesedi municipality to maintain the rural character of the municipal area which makes it a sought-after residential and tourism destination (as highlighted in the LED strategy). Industries to be established here should thus be non-noxious, modern, and aesthetically attractive similar to the style and character created along the Midrand Strip in the City of Johannesburg.

### 4.2.6 Activity Node N8

Activity Node 8 as reflected on **Figure 24a** is the third node along the N3 freeway, and the one closest to the City of Joburg and Ekurhuleni.

Apart from the access interchange between route K109 and the N3 freeway, this precinct also has road R103 (K133) which runs parallel to the N3 freeway over a distance of some 30 kilometres towards Alberton. This poses a development opportunity with visual exposure to

regional traffic via the N3 freeway, and access to be gained via route R103 (K133). It is however important to keep in mind that properties/developments will not get direct access onto road R103 (K133), and as a result a third order road network will have to be created from which properties can then take access, or business parks will have to be established similar to the one illustrated on Figure 23c.

The first part of this strip (node 8a) from the interchange up to the watershed about 1 kilometre to the west thereof, is very narrow and will be very difficult to develop given the access constraints onto route R103 (K133). Provision has been made for a single access point which could give access to a business park in this precinct as illustrated on Figure 24a.

The area further towards the west (8b) is more suited to accommodate development between the freeway and the K-route but falls in a different catchment area than the rest of town, which would make the provision of services more problematic. Provision has been made for a single access point to this area as illustrated on Figure 24a.

In essence, it is possible to accommodate a mixture of light industrial, commercial and associated office development in this area, but the question to be answered is whether the local economy of Lesedi is strong enough to sustain development at this node and the others e.g. nodes 6 and 7 simultaneously.

At present there is a trend of high income residential development taking place in the areas to the south of the N3 freeway, and in similar fashion to what currently happens in the Blue Rose area in the Midvaal municipal area, executives and directors of companies residing in the area may decide to relocate their businesses to an activity node closer to home. It is thus possible that this node can become the future node of choice for local residents as it is the node in Lesedi which is closest to the markets of Johannesburg and Ekurhuleni.

As far as the portion of the node to the east of route K109 in the Eendracht Agricultural Holdings area is concerned (see 8c on Figure 24a), there is currently pressure for the contained establishment of agri-processing plants and light industries which is in line with the principle in the LED strategy which states that the agricultural sector present opportunities for downstream economic activities in terms of further processing of agricultural produce.

As illustrated on Figure 23 it is proposed that the agricultural holdings fronting onto road K109 be allowed to convert to agri-industries/light industries subject to conditions pertaining to water supply, sanitation and pollution control.

According to the Lesedi engineering department a new reservoir (2,5 ML at R20 million) will be required to serve this area, as well as bulk electricity upgrading ( $\pm$  R10 million) to fully develop the node. These upgradings can be done as part of the upgrading required to accommodate the new residential developments in the surrounding areas (Bergendal etc.).

**Figure 24b** depicts area N8d which is a proposed new industrial area (Tamboekiesfontein) located to the north along the N3 freeway, past the Ultra City, and almost at the Lesedi-Ekurhuleni municipal boundary. The site was selected because of its location adjacent to the N3 freeway and in close proximity to the markets of Ekurhuleni and the City of Joburg.

If successfully developed, this node could act as the catalyst to stimulate more economic activities along the N3 freeway closer towards Heidelberg town.

The provision of water and sanitation to this site will be negotiated with the Ekurhuleni Metro, while the construction of a 10 MVA electrical substation is currently being negotiated with Eskom ( $\pm$  R11 million).

### 4.2.7 Activity Node N9

There is currently significant pressure for residential development in the Jameson Park and Kaydale Areas to the north of Heidelberg Town along route R42 (K174).

According to information available there are plans underway to provide subsidised housing in the Jameson Park township area around the railway line as illustrated on **Figure 25**, and there are also recent township establishment applications for residential developments in the area where proposed future road PWV17 crosses road R42 (K174).

From this it seems evident that the wedge-shaped area between road R42 (K174) and the railway line will come under increased pressure for residential infill development and densification in the short to medium term. It will thus be of critical importance to pre-actively identify land suitable to accommodate the development of a multi functional activity node for this area. This node should be developed in similar fashion to the one proposed at Obed Nkosi

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where a Multi Purpose Community Centre should be established to act as catalyst for the establishment of a modal transfer facility (e.g. taxi rank) and the subsequent development of formal and informal retail and trade activities.

For this purpose Activity Node (N9) was identified as the optimal location for such facility. It is located at a designated access point onto route R42 (K174) and at present it already comprises a fruit and vegetable market and a sports bar. The majority of the community residing to the north of this point will in future move past this point en-route to Heidelberg Town and it is thus only logical that this node should serve the community with retail, transport and community facilities.

To the east of route R42 is the Petronet Depot/Terminal with several fuel companies considering establishing fuel processing plants in the areas adjacent. This could result in the future establishment of an industrial node in this area opposite to the east of Jameson Park and route R42.

Because of the safety hazards associated with fuel plants it will be essential to timeously determine the no-development radii around the fuel plant and to structure the future road network, residential developments and related business nodes in the Jameson Park/Kaydale area accordingly.

This necessitates the compilation of a detailed Development Framework (Precinct Plan) for this area.

There is already an application for 1000 residential units submitted in the area, and according to the Lesedi engineering department an application for 2000 more units is expected soon. This will require the upgrading of the existing sewer pump station serving the area, while no major problems are foreseen as far as water provision is concerned.

The area falls under license of Eskom, and the electrical substation in the area is currently being upgraded.

## 4.2.8 Activity Node N10 and N11

**Figure 26** depicts the proposed location of activity nodes N10 and N11 in Devon. Activity node N10 is proposed in the northern part of the settlement at the intersection between the Delmas road (R548) and route R29 (K134). This ensures that the activity node will not only serve the local community but is also accessible to the broader regional traffic passing through the town along route R548.

Activity node N10 is also located within walking distance ( $\pm 500\text{m}$ ) from Impumelelo and extensions which are located to the west thereof. In terms of the development proposals it is suggested that activity node N10 be developed to accommodate a Multi Purpose Community Centre on the western portion, and a retail facility comprising either one combined shopping centre, or a number of small shops and retail outlets on the eastern section.

The establishment of the Multi Purpose Community Centre is based on the same rationale as proposed for the activity nodes at Jameson Park and Obed Nkosi respectively. It thus acts as catalyst for economic activity by creating a “critical mass” of people at a specific point from which economic development can then be initiated.

There is sufficient space on the site to accommodate a neighbourhood centre comprising about 8730m<sup>2</sup> of floor space.

It is important to note that Impumelelo should in future expand in an easterly direction towards this activity node instead of expanding further towards the north and north-west as is currently the case as this will further enhance the viability of this node.

It is thus important to ensure that the Gauteng Department of Housing focus their housing initiatives in this direction to ensure future residential development to be established to the north and north-east of activity node N10.

The development of this node is not constrained by engineering services, and if additional capacity is required, it can be obtained via the residential development taking place in the areas adjacent.

There is also potential to accommodate some light industries/agri-processing activities within Devon. There are two sites located to the south of the railway line that are suitable for such

purposes. The first option is to earmark the area immediately to the south of the silos and the railway station as an agri-processing/light industrial precinct. The major disadvantage to this location is the fact that it is located off the main road network, and the implication would be that heavy vehicles would have to travel through the residential area in order to reach the industrial node.

The preferred alternative would be to establish the light industrial/agri-processing activities at the main southern entrance to the town where routes R550 and R545 converge as indicated on Figure 26. At present there is already a filling station, a public works yard, and some truck businesses operating from this area.

The precinct is also highly accessible to the N17 freeway via an access interchange about 1 km to the south thereof onto the freeway (from route R545).

In order to properly facilitate development in this area, it would be necessary for the Lesedi municipality to ensure that there are sufficient services available to support economic development in this node.

In summary, there is thus potential in Devon to accommodate a Multi Purpose Community Centre with public transport facility, a number of retail facilities to the north of the railway line amidst the residential core area, as well as a small light industrial/ agri-processing node in the areas to the south of the railway line in close proximity to the N17 freeway.

A detailed Development Framework needs to be compiled for this area in order to formulate development proposals in greater detail.

### **4.2.9 Activity Node N12**

Proposed activity node N12 is located in Vischkuil as illustrated on **Figure 27a**. The proposed node is located at the intersection between route R42 (K179) which is the main road linking Delmas to Nigel and Heidelberg, and route R29 (K114) which links Springs to Devon and Secunda further towards the east. This is the point of highest potential for economic activity and development in the Vischkuil area due to regional traffic converging at this point.

However, from Figure 27a it is evident that the informal settlement and associated disadvantaged communities of Kwazenzele are currently located a few kilometres further

towards the west to the opposite side of the Vischkuil Agricultural Holdings. At present there are also initiatives underway to formalise 400 of these units in-situ, and there are processes underway to expand the settlement in a northerly direction accommodating an additional 3000 formal residential units in future.

The major problem with this approach is the fact that the disadvantaged communities will not reside near the node of economic opportunity as identified in this study, and which is also the point most accessible to job opportunities in the surrounding region. It would have been significantly more beneficial and sustainable to formalise the informal settlement in close proximity to the activity node as indicated on Figure 27a, not only in order to bring the community closer to local job opportunities, but also to increase their options in terms of finding jobs in the surrounding region.

**Figure 27b** highlights in greater detail the proposed configuration for the activity node. From this it is evident that the node is proposed to comprise of a light industrial/agri-industry precinct, a Multi Purpose Community Centre precinct, a retail precinct, and a residential precinct (which could also incorporate an agri-village concept) in line with the draft LED Strategy.

The proposed agri-processing/light industrial precinct is located in the south-western quadrant of the intersection, and has the potential to expand in future towards the mining activities and the grain silos located further towards the west thereof. To the south the area is bordered by the railway line.

Immediately adjacent to the north in the north-western quadrant is the area earmarked for business/retail development. At present this precinct already holds a small shopping facility, but if the residential developments as currently planned materialise in Vischkuil it will significantly enhance the potential to add more retail floor space to the town. It is suggested that the retail facilities then be consolidated in this quadrant in order to be able to serve both the local market and the regional market by way of passing traffic.

As illustrated on Figure 27b the entire south-eastern quadrant as well as the bulk of the north-eastern quadrant of the proposed node is earmarked for residential development. This can include both conventional residential units as well as an agri-village concept where the residential units are clustered in the residential precinct with the agricultural activities expanding radially outwards in a northerly and an easterly direction.

In the central part of this residential precinct (closest to the intersection) is the proposed location for a future Multi Purpose Community Centre. The benefits associated with this specific location are two-fold: In the first instance it is directly accessible from the proposed residential precinct adjacent to the north-east and south-east thereof. Secondly, it is located at the intersection which will make it accessible to communities from the surrounding rural areas as well. The site is also ideally located to include a taxi rank/bus stop which will not only serve the Multi Purpose Community Centre, but also the retail facilities and the light/agri-industries.

As highlighted above the development concept for this activity node is based on creating a “critical mass” by way of residential development and the establishment of a Multi Purpose Community Centre. However, if current initiatives continue to formalise residential units at Kwazenzele further towards the west of Vischkuil, it will impact negatively on the development potential of this node, and will most probably necessitate the establishment of a significantly smaller (and more vulnerable) node at Kwazenzele in future. This matter needs to be dealt with more extensively as part of an initiative to compile a Development Framework/Precinct Plan for the area.

According to the Lesedi Engineering Department this proposed development would necessitate the construction of a proper sewerage treatment plant at Vischkuil/Endicot, and the construction of a water tower in the vicinity of the intersection. (Rand Water pipelines currently run through the area in close proximity to the intersection).

The node falls within the Eskom supply area.

#### **4.2.10 South Western Tourism Corridors**

Apart from the proposed priority activity nodes as discussed above, the south-western parts of the Lesedi municipality are ideally suited to tourism development. The three main natural resources relevant in this regard are the Suikerbosrand Nature Reserve; the Alice Glockner Nature Reserve, and the Vaal Dam further towards the south.

Apart from extensive agriculture and agri-industries (e.g. biofuel industries etc) this area should thus be branded as a major tourism destination in Gauteng Province in line with the objectives of the Lesedi 2010 Tourism Strategy and the Vaal 21 Project. The three resources as highlighted above represent the core tourism anchors, and routes R42 south and R549 act as

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the major corridors accommodating movement between these anchors. Both these routes also attract development of tourism related activities like equestrian estates, retreat centres and health spa's, hotels and conference facilities, hiking and mountain biking trails etc, and should be promoted and branded as tourism corridors within the tourism precinct of the Lesedi municipality.

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## 5 IMPLEMENTATION PRIORITIES AND PROGRAMME

**Table 8** provides a summary of the most salient features of each of the twelve activity nodes identified in the Lesedi Municipal area.

It highlights the total size of the node followed by an estimation of the total potential floor space that can be developed for either retail, industrial or commercial purposes, and a summary of uses to be permitted in each of the nodes according to the development guidelines provided in section 4 of this document.

From this it was determined that the twelve nodes identified can collectively yield about 40 815m<sup>2</sup> of retail space (compare with Table 7 which indicated potential demand of 44 045m<sup>2</sup> by 2025). It should however be noted that no retail space was allocated to the Zone of Opportunity, which could significantly increase the yield. This figure also excludes retail space created in residential neighbourhoods in the form of corner shops, spazas etc.

The areas earmarked for industrial use could result in about 985 113m<sup>2</sup> of industrial floor space if fully developed, and commercial floor space could total about 495 070m<sup>2</sup>.

**Table 9** converts the developable floor space into a potential (theoretical) number of job opportunities based on national averages for South Africa. These averages are also commonly applied in traffic modelling, land use modelling, water demand modelling and electric load demand modelling throughout Gauteng Province.

From this it is estimated that the land demarcated in the twelve identified activity nodes could result in about 1237 retail related job opportunities; 25 613 industrial jobs, and 12 723 commercial jobs, totalling about 39 573 job opportunities in total.

About 82% of the jobs can be created around the three nodes along the N3 freeway, 11% in the Zone of Integration, 1% in the CBD, and about 7% collectively around Vischkuil, Devon and Jameson Park.

It should be noted that, depending on the national and provincial economic climate, the development of all the land earmarked could easily take 30 to 50 years to develop. It is thus essential for all parties involved to be realistic in terms of their expectations.

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This document thus represents the beginning of a long process spanning several decades. (The Ben Schoeman Corridor in Midrand started developing some 40 years ago, and is still in process of development).

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**Table 8: Lesedi Nodes and Corridors: Development Potential**

PRECINCT	ACTIVITY NODE	AREA	RETAIL	INDUSTRIAL	COMMERCIAL	USES PERMITTED	
			floor area (m <sup>2</sup> )	floor area (m <sup>2</sup> )	floor area (m <sup>2</sup> )		
HEIDELBERG	CBD	N1	2.6	7,680			Neighbourhood Shopping Centre: (supermarket, convenience stores), Restaurants, Banks, Offices, Services (Post Office, Clinic)
		N2	12.5				Note: Area is developed already
	ZONE OF INTERVENTION	N3	3.2	8,100			Neighbourhood Shopping Centre: (supermarket, convenience stores), Restaurants, Banks, Offices, MPCC Services (Post Office, Clinic etc.), Taxi Rank, Filling Station
		N4	52.0			156,000	Commercial uses: Such as Distribution Centres, Wholesale trade, Storage, Warehouses, Cartage and Transport services
		Subtotal 1	67.7	8,100	0	156,000	
	SOUTH	N5 West	31.1		93,345		Light Industrial
		N5 East	3.4			3,370	Truck Stop Facilities
		Subtotal 2	34.5	0	93,345	3,370	
	CENTRAL	N6 (a)	41.5		124,590		Midrand Strip Type of Industries: Manufacturing of Electronic Apparatus, Chemicals and Speciality Goods, Distribution Centres, Wholesale Trade, Storage, Warehouses, Telecommunication Centres, Laboratories, Computer Centres, Offices (directly related to main use)
		N6 (b)	61.3		183,900		Midrand Strip Type of Industries: Manufacturing of Electronic Apparatus, Chemicals and Speciality Goods, Distribution Centres, Wholesale Trade, Storage, Warehouses, Telecommunication Centres, Laboratories, Computer Centres, Offices (directly related to main use)
		N7	94.0		282,000		Industrial Purposes (excluding noxious industries)
		Subtotal 3	196.8	0	590,490	0	
	NORTH	N8 (a)	60.6		181,710		Midrand Strip Type of Industries: Manufacturing of Electronic Apparatus, Chemicals and Speciality Goods, Distribution Centres, Wholesale Trade, Storage, Warehouses, Telecommunication Centres, Laboratories, Computer Centres, Offices (directly related to main use)
		N8 (b)	15.0		45,108		Midrand Strip Type of Industries: Manufacturing of Electronic Apparatus, Chemicals and Speciality Goods, Distribution Centres, Wholesale Trade, Storage, Warehouses, Telecommunication Centres, Laboratories, Computer Centres, Offices (directly related to main use)
		N8 (c)	111.9			335,700	Focus will be on Extensive Uses such as Agri-processing plants, Transport Services, Builder's Yard, etc.
		Subtotal 4	187.5	0	226,818	335,700	
	JAMESON PARK	N9	3.1	9,435			Neighbourhood Shopping Centre: (supermarket, convenience stores), Restaurants, Banks, Offices, MPCC Services (Post Office, Clinic etc.), Taxi Rank, Filling Station
	DEVON	N10	2.9	8,730			Neighbourhood Shopping Centre: (supermarket, convenience stores), Restaurants, Banks, Offices, MPCC Services (Post Office, Clinic etc.), Taxi Rank, Filling Station
		N11	9.0		27,000		Agri-processing plants, Light Industrial
		Subtotal 5	11.9	8,730	27,000	0	
	VISCHKUIL	S12 North	2.3	6,870			Neighbourhood Shopping Centre: (supermarket, convenience stores), Restaurants, Banks, Offices, MPCC Services (Post Office, Clinic etc.), Taxi Rank, Filling Station
		S12 South	15.8		47,460		Agri-processing plants, Light Industrial
		Subtotal 6	18.1	6,870.0	47,460.0	0.0	
	<b>TOTAL</b>		<b>522.2</b>	<b>40,815</b>	<b>985,113</b>	<b>495,070</b>	

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Table 9: Lesedi Nodes and Corridors: Number of Additional Workers

PRECINCT	ACTIVITY NODE	NUMBER OF WORKERS					
		RETAIL	INDUSTRIAL	COMMERCIAL	TOTAL	%	
HEIDELBERG	CBD						
	N1	233	0	0	233	1%	
	ZONE OF INTEGRATION	N2	0	0	0	0	
		N3	245	0	0	245	
		N4	0	0	4,009	4,009	
		Subtotal 1	245	0	4,009	4,255	11%
	SOUTH	N5 West	0	2,427	0	2,427	
		N5 East	0	0	87	87	
		Subtotal 2	0	2,427	87	2,514	6%
	CENTRAL	N6 (a)	0	3,239	0	3,239	
		N6 (b)	0	4,781	0	4,781	
		N7	0	7,332	0	7,332	
		Subtotal 3	0	15,353	0	15,353	39%
	NORTH	N8 (a)	0	4,724	0	4,724	
		N8(b)	0	1,173	0	1,173	
		N8 (c)	0	0	8,627	8,627	
		Subtotal 4	0	5,897	8,627	14,525	37%
	JAMESON PARK	N9	286	0	0	286	1%
DEVON	N10	265	0	0	265		
	N11	0	702	0	702		
	Subtotal 5	265	702	0	967	2%	
VISCHKUIL	S12 North	208	0	0	208		
	S12 South	0	1,234	0	1,234		
	Subtotal 6	208	1,234	0	1,442	4%	
	<b>TOTAL</b>	<b>1,237</b>	<b>25,613</b>	<b>12,723</b>	<b>39,573</b>	<b>100%</b>	
	<b>%</b>	<b>3%</b>	<b>65%</b>	<b>32%</b>	<b>100%</b>		

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It would be unrealistic to assume that each of the twelve activity nodes identified can develop simultaneously. Firstly, the local authority does not have the financial means to service these areas at the same time, and secondly the market does not function in this way.

To successfully develop all the activity nodes identified will require a long term, pragmatic approach from the side of the municipality in which it:

- actively market the area over a prolonged period of time;
- incrementally invest in infrastructure in different areas over a period of time according to a set strategy;
- establish investor confidence in the municipal area and in the municipality as an institution;
- establish public-private partnerships in order to achieve certain development objectives;
- ensure that all capital investments made in the area by the various spheres of government are aligned to the development goals and objectives of the municipality e.g. MPCC's, housing, roads etc.

In line with this approach it is suggested that the development of the various nodes be prioritised as reflected in **Table 10** and on **Figure 28**.

**Table 10: Development Priority per Activity Node**

Node	Development Priority
N1	Short Term
N2	Short Term
N3	Short/Medium Term
N4	Short/Medium Term
N5 West	Long Term
N5 East	Long Term
N6(a)	Short Term
N6(b)	Medium Term
N7	Short Term
N8(a)	Medium/Long Term
N8(b)	Medium/Long Term
N8(c)	Short Term
N8(d)	Short Term
N9	Short/Medium Term
N10	Short Term
N11	Medium Term
N12 North	Short Term
N12 South	Medium Term

**Table 11** below summarises the actions/interventions required per activity node, the estimated costs to implement the actions/interventions, and the responsible department/institution.

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**Table 11: Lesedi Nodes and Corridors Implementation Strategy**

Activity Node	Interventions/Actions Required	Cost	Responsibility
N1 (Heidelberg CBD)	<ul style="list-style-type: none"> <li>- Liaise with Gautrans on access to road K186.</li> <li>- Earmark government owned land to the west of old prison for business uses and call for proposals.</li> <li>- Implement detailed guidelines for CBD as contained in CBP Plan and SDF.</li> </ul>	<p>In-house</p> <p>In-house (will generate income)</p> <p>In-house</p>	<p>Lesedi Dept: Transport</p> <p>Lesedi Dept: ED</p> <p>Lesedi Dept: ED</p>
N2 (Ratanda CBD)	<ul style="list-style-type: none"> <li>- Intensify land uses within existing CBD (limited potential) and apply for NDPG Grant.</li> </ul>	NDPG Funding	Lesedi Dept: ED
N3 (Obed Nkosi CBD)	<ul style="list-style-type: none"> <li>- Review layout plan to make sufficient provision for business and community facilities.</li> <li>- Apply for NDPG funding for a Multi Purpose Community Centre and a Taxi Rank to act as economic catalyst.</li> </ul>	<p>In-house</p> <p>R30 million (NDPG)</p>	<p>Lesedi Dept: ED</p> <p>Lesedi Dept: ED</p>
N4 (Heidelberg Agricultural Holdings)	<ul style="list-style-type: none"> <li>- Earmark the entire precinct for mixed use, including business and commercial uses and communicate this to local land owners.</li> <li>- Liaise with Gautrans to confirm the short, medium and long term network in the area and status of road sections.</li> <li>- Assess the bulk service implications if area develops, and align capital programme accordingly.</li> <li>- Compile a Precinct Plan for the area.</li> </ul>	<p>In-house</p> <p>In-house</p> <p>In-house</p> <p>R100 000</p>	<p>Lesedi: Land use</p> <p>Lesedi: Transport</p> <p>Lesedi: Engineering Services</p> <p>Lesedi: Land Use</p>
N5 (K186/N3)	<ul style="list-style-type: none"> <li>- Liaise with filling station owner on possibility of establishing truck stop with overnight accommodation and convenience store.</li> <li>- Earmark south-western quadrant for non-noxious industries subject to bulk service requirements and availability.</li> </ul>	<p>In-house</p> <p>In-house</p>	<p>Lesedi: ED / Engineering Services</p> <p>Lesedi: Land Use</p>
N6 (Zone of Opportunity)	<ul style="list-style-type: none"> <li>- Commence with development proposals for activity node N6 as per current initiative by Council and/or review the proposals to ensure intensity and mix of uses are appropriate.</li> </ul>	In-house	Lesedi: Land Use
N7 (Industrial South)	<ul style="list-style-type: none"> <li>- Finalise township establishment process for southern industrial area.</li> <li>- Liaise with Gautrans regarding short, medium and long term access arrangements and status of various routes serving the area.</li> <li>- Expand bulk service and reticulation network to serve all new industrial erven (from west to east).</li> </ul>	<p>In-house</p> <p>In-house</p> <p>In-house</p>	<p>Lesedi: Land Use</p> <p>Lesedi: Transport</p> <p>Lesedi: Engineering Services</p>
N8 (N3/K109/K133)	<ul style="list-style-type: none"> <li>- Liaise with land owners in the node regarding the development potential of the node, and obtain their buy-in.</li> <li>- Market the node by way of signage as a future development area for light industrial, commercial and associated office uses to gauge market interest.</li> <li>- Develop an implementation strategy for the area based on market response following the marketing campaign                             <ul style="list-style-type: none"> <li>- development configuration and phasing;</li> </ul> </li> </ul>	<p>In-house</p> <p>In-house</p> <p>In-house</p>	<p>Lesedi: ED / Engineering Services</p> <p>Lesedi: ED / Transport</p> <p>Lesedi: Land Use/ ED</p>

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	<ul style="list-style-type: none"> <li>- provision of engineering services.</li> <li>- Finalise service agreements at Tamboekiesfontein.</li> </ul>	In-house	Lesedi: Engineering Services
N9 (Jameson Park/ Kaydale)	<ul style="list-style-type: none"> <li>- Liaise with Gauteng Department of Housing and local developers on housing initiatives in the area.</li> <li>- Align layout plans and compile a Precinct Plan for the area which also consolidates Petronet initiatives.</li> <li>- Apply for funding for a Multi Purpose Community Centre and taxi rank at the node.</li> <li>- Liaise with land owners on the possible future land uses on the site/Establish Local Business Forum.</li> </ul>	In-house R100 000 R30 million (NDPG) In-house	Lesedi: Housing/ Land Use Lesedi: Land Use Lesedi: ED Lesedi: ED
N10 (Devon: Retail/ MPCC)	<ul style="list-style-type: none"> <li>- Liaise with land owners on the possible future land uses on the site.</li> <li>- Liaise with Gauteng Department of Housing on direction of future extensions of Impumelelo.</li> <li>- Apply for funding for a MPCC and taxi rank facility.</li> <li>- Assess bulk service and reticulation implications of the proposed development.</li> <li>- Compile a Precinct Plan for the entire Devon area.</li> </ul>	In-house In-house R30 million (NDPG) In-house R200 000	Lesedi: ED Lesedi: Land Use/ Housing Lesedi: ED Lesedi: Engineering Services Lesedi: Land Use
N11 (Devon: Light Industrial)	<ul style="list-style-type: none"> <li>- Liaise with land owners on the possible future land uses on the site/Establish Local Business Forum.</li> <li>- Assess bulk service and reticulation implications of the proposed development.</li> </ul>	In-house In-house	Lesedi: ED Lesedi: Engineering Services
N12 (Vischkuil/ Endicott)	<ul style="list-style-type: none"> <li>- Liaise with land owners on the possible future land uses on the site/Establish Local Business Forum.</li> <li>- Liaise with Gauteng Department of Housing on direction of future extensions of Kwazenzele.</li> <li>- Apply for funding for a MPCC and taxi rank facility.</li> <li>- Assess bulk service and reticulation implications of the proposed development.</li> <li>- Compile a Precinct Plan for the entire Vischkuil/Endicott area.</li> </ul>	In-house In-house R30 million (NDPG) In-house R200 000	Lesedi: ED Lesedi: Housing/ Land Use Lesedi: ED Lesedi: Engineering Services Lesedi: Land Use
South Western Tourism Corridors and Linkages to Emfuleni R42/R549	<ul style="list-style-type: none"> <li>- Liaise with Gautrans in order to brand the Tourism Precinct/Corridors through appropriate tourism signage along the corridors.</li> <li>- Establish a Local Business Forum for the Tourism Precinct and explain to land owners what land uses/activities Council will support.</li> </ul>	In-house In-house	Lesedi: ED/Engineering Department Lesedi: ED/Land Use
General	<ul style="list-style-type: none"> <li>- Conduct an audit of all funding sources available (national/provincial) to promote the development of the nodes/corridors in Lesedi Municipality e.g. NDPG, Gauteng Fund, LED Funds etc.</li> <li>- Promote the development opportunities in the nodes and corridors of Lesedi by way of an information brochure.</li> </ul>	In-house R25 000	Lesedi: ED Lesedi: ED

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## 6 CONCLUSIVE SUMMARY

The Lesedi Nodal and Corridor Study concluded that there is limited potential for the establishment of Activity/Development Corridors in the municipal area. Instead, the bulk of development potential was found to be concentrated around twelve activity nodes located along some of the most prominent transportation corridors running through the municipal area (the beads-on-a-string concept).

From the investigation it was determined that these twelve activity nodes could generate as much as 39 573 job opportunities if developed to full potential. In line with the LED strategy of the municipality these activity nodes focus on promoting economic activity related to:

- agriculture, land reform (agri-villages), and agri-processing;
- manufacturing (light industries);
- transport (freight and public transport facilities);
- residential development to create “critical mass” around certain nodes;
- provision of social/community services by way of one-stop Multi Purpose Community Centres (Thusong Centres); and
- tourism development.

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