TABLE OF CONTENTS

LIST OF FIGURES

1 INTRODUCTION

1.1 BACKGROUND

Central Business Districts (CBDs) form the economic hub of towns and cities in terms of providing in a variety of social, economic and residential needs of surrounding communities. In the past few years, many towns and cities in South Africa have experienced urban decay as the result of an exodus of investment activities from CBDs to the surrounding residential areas which has consequently led to the manifestation of new unsustainable urban forms.

Lephalale town (formerly Ellisras) is set to become one of the largest cities in the country, due to booming mining and petro-chemical activity. It therefore needs to be transformed from a small rural town to a city which plays a major role in South Africa. The challenge in Lephalale and particularly the CBD is thus growth management rather than regeneration. For this reason, the Waterberg District Municipality (WDM) commissioned the drafting of a CBD Development Plan for Lephalale which is based on the anticipated/projected future growth of the town as defined in the Lephalale Spatial Development Framework and Integrated Development Plan.

1.2 STUDY AREA AND STUDY OBJECTIVES

1.2.1 Study Area

The Lephalale CBD Development Plan will address the town's CBD, as well as decentralised activity nodes within the town itself and in the nearby Marapong Township. The study area thus comprises the following four activity nodes (illustrated on **Figure 1**):

- Lephalale CBD
- Onverwacht Node
- Marapong Township – Spar Complex
- Marapong Township – Proposed CBD

The Lephalale CBD (also see **Figure 2a**) is located along regional access route R510 which leads to Thabazimbi Town in the south, and was identified as the primary activity node in the municipal area. The Onverwacht Node is located approximately 3km to the west of the CBD along route D1675/ Nelson Mandela Drive (also see **Figure 2b)**.

The access road to Marapong Township is found approximately 13km further westward along route D1675, and the township is situated about 4km to the east of the road. The Spar Complex Node is the first node along the township access road (also see **Figure 2c**), while a vacant land pocket about 1km eastwards in the central extents of the township was identified as the future Marapong Township CBD (also see **Figure 2d**).

1.2.2 Study Objectives

The main objective of the Lephalale CBD Development Plan is to revitalize the Central Business Districts and thereby also upgrade the living conditions of people within the Lephalale and Marapong areas; creating an integrated and functional urban environment, and rehabilitating the dysfunctional components of the CBD areas with economic development.

As part of the CBD Development Plan and Strategy, the following objectives are addressed:

- Identification of the economic base and other sectors;
- Determining the infrastructural assets;
- Determining the social settings and people's visions of the future;
- Determining the health of the ecological setting;
- Evaluating the aesthetic environment;
- Tracing the movement of people and goods within the CBD;
- Establishing the dynamic interactions of the major town centre influences;
- Determining the strengths, weaknesses, opportunities and threats to the affected town centre;
- Identification of the comparative and competitive advantages of the centre;
- Ensuring an Integrated Network of Streets, Transport Infrastructure and Public Space Areas;
- Creating a Sense of Place;
- Defining Public Open Space as Focal Points;
- Integration of all social amenities within a robust Development Framework;
- Addressing safety and security through innovative planning and design;
- Ensuring Sustainability of the total urban environment including engineering infrastructure and social services;
- Bringing about private investments within the municipality;
- Aim for multi-functional, but integrated Urban Development;
- Develop a broad strategy for revitalising the different functional parts of the CBD;
- Create partnerships with the public and private sector;
- Pay particular attention to attracting commercial and industrial business in line with the local LED Strategy;
- Focus on developing the unique qualities of the CBD;
- Maintain and develop genuine public spaces through extensive Urban Design Proposals and Guidelines;
- Make strategies locally based and flexible;
- Secure multiple sources of funding.

1.3 METHODOLOGY

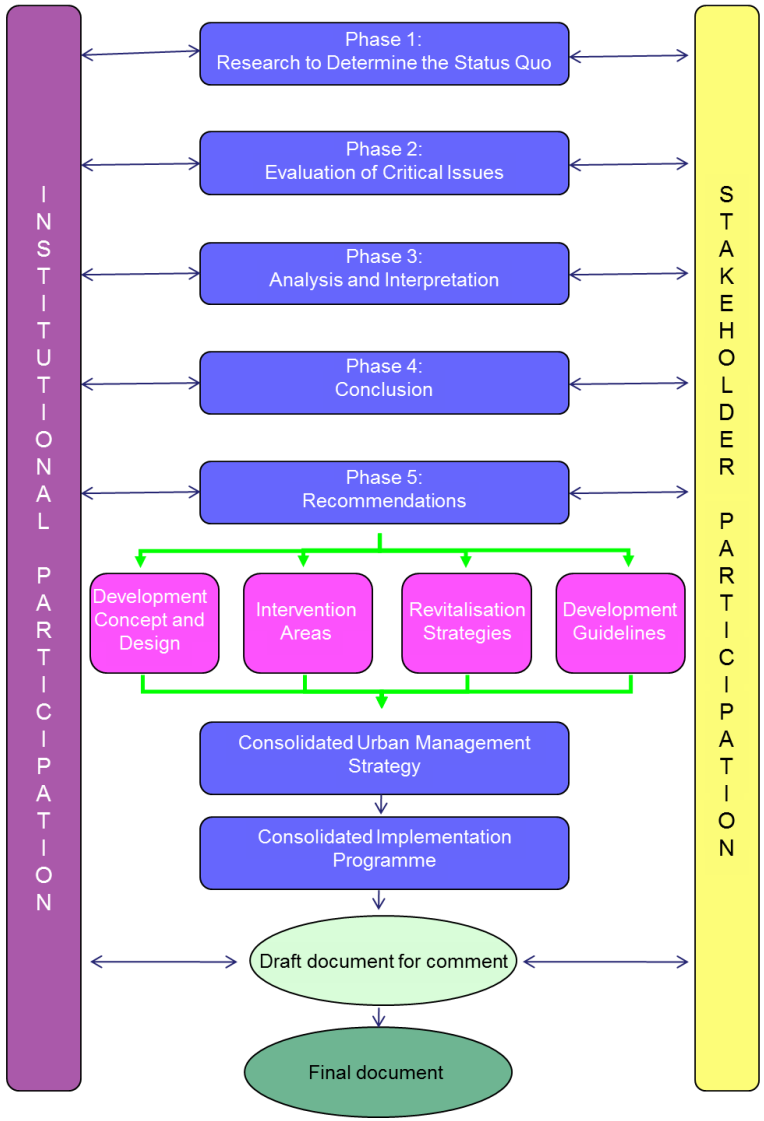
The Lephalale CBD Development Plan represents a cross-sectoral analysis of the study area, and will aim to propose interventions not only at a spatial level, but also take into account the social, economic and environmental aspects of the CBD.

The formulation of a CBD Development Plan for Lephalale town comprises the following phases, as illustrated in **Diagram 1**:

- **Phase 1: Research to Determine the Status Quo**
- **Phase 2: Evaluation of Critical Issues**
- **Phase 3: Analysis and Interpretation**
- **Phase 4: Conclusions**
- **Phase 5: Recommendations**
  - Development Objectives
  - Formulation of a CBD/Development and Revitalisation Plan
  - Urban Management Strategy
  - Implementation Programme and Strategy

This represents the draft report of Phases 1 to 5.

Diagram 1: Methodology



2 PHASE 1: SITUATIONAL ANALYSIS

2.1 REGIONAL CONTEXT AND FUNCTIONAL ROLE OF LEPHALALE TOWN

Lephalale Town is the capital of Lephalale Local Municipality (LM), which is situated in the northern parts of the Waterberg District Municipality (WDM) and falls within the Limpopo Province (see **Figure 3**). It borders on Botswana to the north. Lephalale Local Municipality is one of five local municipalities in the WDM, together with Blouberg LM, Mogalakwena LM, Thabazimbi LM and Modimolle LM.

The Town is linked with Thabazimbi and Vaalwater to the south via routes R510 and R33, and with Mokopane to the south-east via route R518. It is linked to Stockpoort and Groblersbrug border posts to Botswana via routes R510 and R572/ N11 freeway.

The National Development Plan (NDP, 2030) identified Lephalale Local Municipality as a mining area, a Growth Management Zone and a Possible Green Economy Zone (see **Figure 4**). It is one of three identified Growth Management Zones in the country (together with the West Coast Peninsula and George). This is because rapid growth is anticipated in the mining, petro-chemical and industrial sectors in the area around Lephalale.

Coal is critical to South Africa's economy. 95% of South Africa's electricity is generated by coal fired power stations and coal provides half of South Africa's liquid fuel requirements. The importance of energy generation in a developing economy cannot be over-estimated. Currently 84% of South Africa's coal is mined in the Mpumalanga coalfields, however the Waterberg coalfield contains 44% of South Africa's remaining coal resources. As the coalfields in Mpumalanga near the end of their mining lives, attention is moving to the Waterberg coalfield. Already we are seeing the development of a new Power Station at Medupi with another power station planned. The interest in the Waterberg coal resource has certainly grown in the last few years with a number of companies declaring large resources in the region. Note that the Waterberg coal field reserves are expected to last another 300 years.

The study area and surrounds thus form part of the National Energy Programme and Lephalale LM is envisioned to become a “coal gate into Africa”. The growth foreseen in the surrounding area in the short to medium term will have a significant impact on the town and on Marapong Township.

The NDP thus directed that extensive attention should be given to planning for, and managing this foreseen growth. In line with the NDP, the Limpopo Spatial Rationale 2002 identified Lephalale town (Ellisras/ Onverwacht/ Marapong cluster) as a Provincial Growth Point (PGP).

The node is effectively the only urbanised part and the only real activity centre in the Municipality, as it is linked with adjacent mines and the power

station. Therefore, most of the specialised services and job opportunities are located in Lephalale town. The extent of rural villages in Lephalale LM is small; they are focused in one or two areas to the east only, and the bulk of this land is owned by/ entrusted to tribal authorities. The remainder of the municipal area has a predominant rural character. The Lephalale PGP thus serves the higher order needs of a vast rural area. There is also a strong relationship between Lephalale and the Thuli Block in Botswana seeing as a number of Botswana citizens are employed in the Lephalale area.

The CBD Development Plan should therefore plan for, and direct, the potential growth in and around the town in a sustainable manner.

2.1.1 Waterberg Spatial Development Framework (SDF)

The Waterberg Spatial Development Framework (SDF) (2009) (see **Figure 5)** identified Mokopane as the District capital, and Lephalale Town as one of five activity nodes in the Second Order Network– along with Thabazimbi, Mookgophong (Naboomspruit), Modimolle (Nylstroom) and Bela-Bela (Warmbaths).

Route R510 to the south-west of the Town, route R33 to the south-east and route R518 to the east were earmarked as Corridors. There is a proclaimed protected area immediately to the south-east of the town, while the whole area to the south of routes R510 and R518 was proposed as an extension of the Biosphere.

2.1.2 Lephalale Local Spatial Development Framework (2012)

The Lephalale SDF was based on the following five principles:

1. Achieve a sustainable balance between urban and rural development, biodiversity conservation, agriculture and mining potential, economic activity, and all related activities/land uses;
2. Retain and improve the functional hierarchy of settlements and distribution of nodal points throughout the municipal area, but at the same time ensure equal access of all communities (urban and rural) to social and community services;
3. Ensure that Lephalale PGP grow into a city with a provision of specialised goods and serves and also ensure that Lephalale in general serve as energy hub for Africa;
4. Retain and improve the functional links of transport/ access routes between nodal points/ higher order settlements, and surrounding areas and ensure that prominent routes as well as other modes of transport are optimally utilised in support of the spatial patterns and economic activity envisaged for the municipal area; and
5. Achieve optimal utilisation of land and resources for future human settlement including residential development for housing provision by optimal use of land in existing urban and rural areas.

With regards to nodal development, the Municipality has been focusing development on identified growth points for a number of years already. The Lephalale Local Spatial Development Framework (LSDF) confirmed that

Lephalale Town is a Provincial Growth Point (PGP) (see **Figure 6a**) and therefore the municipal capital.

Smaller activity nodes were identified in the rural eastern parts, together with one node in the western extent of the Municipality (see Figure 6a). To the east are Thabo Mbeki Municipal Growth Point (MGP), Ga-Seleka and Setateng Population Concentration Points (PCP), and three Local Service Points (LSPs). To the west of Lephalale is Steenbokpan LSP. The classification is in line with the Provincial Spatial Rationale.

The LSDF broadly divided the municipal area into six Zones. The central core (around Lephalale Town) comprises of three Zones, including an Industrial Development Zone(1), an Aero Zone(2) and a Mining Zone(3), as reflected on Figure 6a. The details of these three zones are reflected on **Figure 6b**.

The Industrial Development Zone(1) includes Matimba power station and Medupi power station (under construction). The Aero Zone(2) is located around the existing airfield to the south of the Town, and the LSDF proposed that it be upgraded.

The remainder of the municipal area was divided into the following three Development Zones (see Figure 6a):

- The southern parts were reserved as an Environmental Protection and Tourism Zone(4); and
- The north-eastern extents of the municipal area were earmarked for Agricultural and farming purposes(5);
- To the north and west of the core area lies an Extensive Mining and Energy Regeneration Zone(6).

The LSDF identified three Development Corridors of which two affect the study area. The first corridor (see Figure 6b) is namely along route R518(4). The route is an extension of route R518's alignment, effectively creating a bypass road to the north of Lephalale Town(P1), and linking to Steenbokpan in the west. The second corridor (see blue corridor) is effectively an extension of route R33, creating a bypass road to the south of Lephalale Town and the Onverwacht area(5), and links into the R518 extension.

Pending Industrial Projects

Comments received on the SDF 2012 indicated that the following industrial development is already unfolding in the area:

- Resgen (Boikarabelo)
- Sekoko
- Temo Coal
- The Sasol Coal Mine, although not in direct proximity
- The Thaba Metsi project of Exxaro
- The IPP initiatives in the area
- Anglo Coal project
- Indications in the press that Government authorization is pending for the Coal 3 project of Eskom

Growth Scenarios

With regards to future growth, the SDF reported on two development scenarios, namely a *Fundamental/ Basic Growth Approach* and an *Exceptional Growth Approach*. The latter scenario takes into account expected development related to the mining and energy sectors in the area, and attempts to extrapolated its expected impact on population figures.

Note that the *exceptional growth approach scenario* has been formally adopted by provincial and local authorities for all planning purposes.

Residential Expansion

The majority of land surrounding the Lephalale PGP is privately owned, and there is a lack of government-owned land. This poses a challenge to the identification of suitable land for residential expansion.

The SDF identified immediate/ short term development areas (within a ten year development horizon), namely the current built environment and its new extensions. These include Altoostyd and Onverwacht amongst others.

Identified medium term development areas include vacant land removed from the current built up area and most of the bulk services. It provides for a development horizon of 15 years. These areas comprise SDAs (Special Development Area) and PDAs (Potential Development Areas).

The Special Development Areas (SDAs) include developable land removed from existing development, and mixed non-residential land use driven by mining and energy-related activities. The SDAs relevant to this study are namely SDA 8, 10, 11 and 7 (see Figure 6b).

Potential Development Areas (PDAs) include development areas informed by demands of the national energy development programme which would, under normal circumstances, be discouraged, but in this instance provides for special consideration of such development. The PDAs in Lephalale include the Steenbokpan node[7] to the west of Lephalale Town (see Figure 6a). The Steenbokpan settlement is currently rural in nature and hosts around 1500 residents. The SDF foresees specialised development to be associated with the mining activity, such as industrial parks and residential developments.

Pertaining to residential expansion, the SDF takes the following general stand: “If there is a need for houses…existing settlements should rather be densified or expansion promoted directly adjacent or between existing settlements in the most compact and integrated way possible”.

2.2 SOCIO-ECONOMIC FEATURES OF LEPHALALE POPULATION

2.2.1 Population Size

According to the 2011 Census data, the estimated population of Lephalale Municipality is 115 768 of which 27 328 (23.6%) reside in the Lephalale Provincial Growth Point (PGP) comprising Lephalale Town (Ellisras),

Onverwacht and Marapong. The urban population comprises 6 832 households (average household size of 4).

Of the 27 328 people residing in the Lephalale PGP/ urban complex, 13 463 (49%) reside in Lephalale Town and Onverwacht, while the remainder live in Marapong Township. The population is thus almost equally divided between the Town and the Township.

With regards to the projected population growth for the node, the SDF reported on a Fundamental Growth approach as well as an Exceptional Growth approach. However, comments received on the SDF indicated that the exceptional growth approach should be adopted for all planning purposes.

The Exceptional Growth approach estimated that the Lephalale PGP population will grow to 65 000 people or 16 264 households by 2020. These figures indicate more than a doubling of the resident population from 2011 to 2020. The growth is largely ascribed to the expected growth of the mining and energy sectors in the vicinity.

Considering the latest news on mining and energy-related developments in the Lephalale area, the following population projections were calculated by Plan Associates (**Table 1** overleaf). It is evident that the urban population could even grow as high as 77 930 by 2020 – higher than the 65 000 projected by the Exceptional Growth scenario and almost three times the current population. In 2030, the population is likely to be as high as 129 595, comprising 36 506 households. These figures represent 4.7 times the current population size and 5.3 times the current households. In other words the town will grow between four and five times its current size by 2030, if all foreseen developments take place within the projected timeframes.

2.2.2 Age and Gender

The census data (2011) indicated that the 15-34 age group constitutes the majority of the local municipality's population, namely 43.2%. In terms of gender dominance, males are slightly than females at 54%. The high proportion of the male population within the LM may be due to the employment opportunities in the mining and industrial sectors which are typically related to hard physical labour.

2.2.3 Level of Education

According to Census, 21% of the adult population within the LM has no form of schooling and only 44% has primary education. It was further indicated that only 3.6% has a post matric/ tertiary qualification.

Table 1: Lephalale Population Projections, 2001-2030

	2001 Census		2011 Census		2020		2030	
	Households	Population	Households	Population	Households	Population	Households	Population
Lephalale/Maropong Urban Complex	5 501	14 405	12 253	43 866	21 781	77 930	36 506	129 595
Remainder of LM	22 832	81 692	17 627	71 901	18 942	78 855	18 996	84 087
LIM362: Lephalale LM	**28 333**	**96 097**	**29 880**	**115 767**	**40 723**	**156 785**	**55 502**	**213 682**
Lephalale/Maropong Urban Complex	19%	15%	41%	38%	53%	50%	66%	61%
Remainder of LM	81%	85%	59%	62%	47%	50%	34%	39%
LIM362: Lephalale LM	100%	100%	100%	100%	100%	100%	100%	100%

Source: Plan Associates 2013 & Census 2001 and 2011

The IDP Draft report (2013-2017) confirmed that the LM has high levels of illiteracy. The low illetarcy and lack of skills creates a challenge in terms of obtaining skilled and semi-skilled employment, particularly for those in the rural areas.

2.2.4 Income Levels

According to income data compiled by Global Insight and Aurecon in 2008, approximately 23.1% of households in Lephalale LM have no form of income, while 18.5% of households earn less than R4 800 per month. Census (2011) indicated that approximately 12 234 households depend on free basic services, and 42% of the population receive government grants.

The majority of low income earners are located in the rural areas of Lephalale LM. The primary hindrance for low income earners in the Municipality is a lack of formal education and skills, prohibiting them from tapping into opportunities offered by the growing mining and energy sectors in the LM.

2.2.5 Employment

2.2.5.1 Unemployment and Skills

The unemployed rate in the Municipality is 22.9% (of which 27% are youth), which could become a set-back for the municipality in the long-term. The unemployment rate is however lower than the provincial average, which is evidence that Lephalale is an employment hub in the region.

Table 2 indicates the deficit of scarce skills in the largest economic sectors in Lephalale. The tourism sector has the greatest deficit, namely 355; second is the mining sector that requires 333 skilled labourers. Third is the agriculture sector that experiences a deficit of 29 labourers. Note that the mines and power stations often offer training to its employees.

Table 2: State of Local Skills Base

Sector	Scarce Skill	Base Line	Variance	Required
Mining	Artisan (mining, electricity)	79	22	101
	Technician (electrical and Mechanical)	74	24	98
	Machine Operators	106	21	127
	Engineering Manager	6	1	7
Mining Total				**333**
Tourism	Tourism Marketing	2	18	20
	Tour Guides	0	200	200
	Tourism information presenters	0	135	135
Tourism Total				**355**
Agriculture	Agriculture engineering	4	6	10
	Veterinary medicines	6	3	9
	Meat inspectors	1	9	10
Agriculture Total				**29**
Grand Total				**717**

Source: Lephalale IDP 2012/13

2.2.5.2 Employment Sectors

As is evident from **Table 3** the dominant employment sector in Lephalale is Mining – employing 27.3% of workers in the Municipality. Wholesale, retail trade and accommodation is the second biggest employer at 19.5%, and agriculture, forestry and fishing third at 14%. The electricity, gas and water sector contributes 5.8%, though this is bound to increase due to the Medupi Power Station being constructed.

Table 3: Employment by Sector in Lephalale Municipality

Sector	2008	2009	2010	2010
Agriculture, Forestry and Fishing	3633	2938	3392	14
Mining and Quarrying	4004	3812	4467	27.3
Manufacturing	805	677	628	3.8
Electricity, Gas and Water	851	927	1001	5.8
Construction	842	775	641	3.9
Wholesale and retail trade, catering and accommodation	3569	3165	3188	19.5
Transport, storage and communication	666	665	671	4.1
Community, social and personal services	2658	2451	2219	13.6
Finance, insurance, real estate and business services	799	678	673	4.1
General Government	1457	1394	1463	9
TOTAL	**19283**	**17481**	**17243**	**100**

Source: Quantec Regional Economic Database

2.2.6 Municipal Economy/ Market Trends

2.2.6.1 Economic Production

The mining sector is the greatest economic asset of the Lephalale LM as it contributes an extensive 71% to the local economy, refer to **Table 4**.

Table 4: Gross Value Added per Sector in Lephalale at Constant 2005 prices R'm

Sector	2008	2009	2010	2010
				%
Agriculture, Forestry and Fishing	189	168	171	3.9
Mining and Quarrying	1415	2456	3148	71.4
Manufacturing	81	62	63	1.4
Electricity, Gas and Water	179	120	125	2.8
Construction	45	42	42	0.9
Wholesale and retail trade, catering and accommodation	218	192	196	4.4
Transport, storage and communication	191	185	193	4.4
Community, social and personal services	58	53	53	1.2
Finance, insurance, real estate and business services	257	228	230	5.2
General Government	196	184	190	4.3
TOTAL	**2829**	**3690**	**4411**	**100**

Source: Quantec Regional Economic Database

Other sectors including electricity and agriculture contribute a relatively small percentage. The economy thus leans heavily on coal mining (a primary economic activity) and is not at all diversified. The foreseen growth in the mining and petro-chemical industries in the region, and related increases in population size etc, is however likely to have spin-off effects leading to growth in secondary industries.

2.2.6.2 Mining and Energy Sectors

The Lephalale local economy is essentially built on the coal supply agreement between the Exxaro coal mine (Grootegeluk) and the Eskom power station. Other business relationships are relatively weak due to the concentration of demand from these two organisations, and because of the nature and volumes of other inputs that are required.

According to the Lephalale IDP, the Waterberg coal fields contain an estimated 50 billion tons of coal of which 12.5 billion tons (25%) could be mined by the opencast method.

Groothoek Coal Mining Company (Pty) Ltd is the holder of a prospecting right over the farms Eendracht 505 LQ and Groothoek 504 LQ between the Onverwacht Node and Marapong Township. Based on the feasibility studies conducted by GCMC, a total of 1.1 billion tons of coal were declared as in situ in the Prospecting Right area. The Project has the potential to be a large, multi-product, opencast mine with Runof Mine (RoM) expected to be in the order of 1L.5M tpa. The products will include an export thermal coal, power station coal for domestic supply to Eskom, and low-ash product with potential for metallurgical coal. The prospecting right was issued by the Department of Mineral Resources in 2007, and has subsequently been renewed – now valid from 1 August 2012 to 31 July 2015.

Exxaro has announced its plans to construct a new coal mine – Thaba Metsi – approximately 3km west of its Grootegeluk mine. The project is currently in pre-feasibility phase and is expected to be functional by 2015. The mine apparently has potential to yield 8-16 million tons of coal per year. Furthermore, Exxaro plans to develop a 1 200 MW independent power station at the Thabametsi mine.

Furthermore, Eskom has estimated that it needs to increase yearly electricity generation from 40, 000MW (2008) to 80, 000MW by 2026. At least 20, 000MW of the 40 000 MW increment will have to be generated from coal. In this regard, the Lephalale area's power generation capacity at Matimba Power Station will be augmented by the Medupi Power Station (located near the study area) which will generate approximately 4 800 MW electricity yearly. Medupi is due for completion in October 2013 (IDP).

Together, Kusile (in Mpumalanga) and Medupi power stations contribute 9 600 MW of Eskom's 20 000MW coal-generated electricity deficit. In other words, at least an additional 10 400 MW is needed and the Waterberg Coal Field is a likely source to supply that capacity.

It was estimated that the additional power stations will consume in the region of 80 million tons of coal per year. Should all of this be sourced from the WDM, open cast mining activity in the area could be sustained for about 156 years (IDP).

In summary, the following industrial development is unfolding in the vicinity of the study area:

- Resgen (Boikarabelo)
- Sekoko
- Temo Coal
- The Sasol Coal Mine, although not in direct proximity
- The Thaba Metsi project of Exxaro
- The IPP initiatives in the area
- Anglo Coal project
- Recent indications in the press that Government authorization is pending for the Coal 3 project of Eskom

The structure of the local economy is likely to become even more concentrated with the mining and power station projects that are currently underway.

2.2.6.3 Alternative Energy

According to the IDP, Sasol (one of South Africa's leading energy and chemical companies) is currently conducting a feasibility study on liquefying the raw material of coal (petro-chemical). The study area might have potential in this sector.

2.2.6.4 Tourism

Tourism in the Lephalale area is mostly focused on ecotourism and hunting. The industry is relatively small (in relation with the mining and energy sector) but has potential for growth, eg to expand the business tourism industry in Lephalale, specifically linked with the mine(s) and power stations in the region. Other opportunities include educational tours to the power station(s) and/or mine(s).

Approximately 15km to the west of the study area lies the Steenbokpan area. The Steenbokpan settlement was classified as a historical rural village and may have potential as a heritage site.

2.3 MOVEMENT NETWORK AND TRANSPORT INFRASTRUCTURE

2.3.1 Road

The following regional routes link to the study area (see **Figure 7a** and also refer to Figure 5):

- **Route R510/ (O.R Tambo Road)** – North-South corridor stretching from the N4 highway in Rustenburg, via Thabazimbi and the Lephalale CBD to the Botswana Border.
- **Route R518** – East-west corridor, from Lebowakgomo, in the south-east, linking with the N1 in Mokopane and ending at the Lephalale CBD.
- **Route R33** – North-South corridor passing via N1, linking Vaalwater to Lephalale CBD.

Other important routes in the study area are namely:

- **Route D1675/ Nelson Mandela Drive and Route D2001** – Runs westward from Lephalale Town; provides a link from the R33 to Steenbokpan.
- **D2001** – Where the road splits, route D2001 provides access to Marapong and Grootgeluk mine, and extends further westward towards the Botswana border post
- **Route D2816/ Relebogile Street** – Links from D2001 in the west and provides the only access to the Marapong Township.

In terms of road infrastructure, the study area is thus well-connected to surrounding major centres via regional routes. However, some of these roads are not in a good condition due to high volumes of heavy vehicle traffic linked to mining and petro-chemical activity in the region, especially route R33. Road conditions within the township of Marapong are also in poor condition and therefore need to be improved.

In this regard, the Lephalale Transport Master Plan (TMP, 2011) made the following proposals for road upgrades and the re-alignment of certain route sections (see **Figure 7b**):

- Link(1) to be constructed from route R518 and pass to the north of Lephalale and link into route D1675 (classified as Urban 2 road).
- Route R33(2) to be extended and link into route D2001 (classified as Rural 3 road).

In other words, bypass roads are proposed to the north and south of the town. The TMP also proposed a number of additional Urban 3 and 4 strategic linkages (see Figure 7b). Especially important to note are the following:

- Proposed direct link(3) between routes R510 and R33, via the Lephalale airfield.
- Two proposed north-south routes(4)(5) to link Marapong Township more directly with Onverwacht. Furthermore, the Lephalale Municipality has prioritised public transport routes within Marapong as part of its road improvement programme, along namely Ramatlhodi Street and Chris Hani Street.
- There are also a few proposed routes (classified as urban 4 roads) through the Onverwacht and Lephalale CBD.

2.3.2 Rail

There is a freight rail railway line from Lephalale (Grootgeluk) that links Thabazimbi, Northam, Rustenburg, Madibeng, and Gauteng (Pretoria

station). The railway line is used mostly for coal and iron ore. Note that the line currently does not extend further north to Botswana.

The Lephalale TMP proposed the extension of the heavy haul rail link to Botswana, to enhance the exportation of minerals (see **Figure 7c**). This is in line with National Government's priority to upgrade and re-align railway networks across the country, and specifically the heavy haul rail facilities (2012). It was also proposed that the railway section between Matlabas and Vaalwater be completed.

Furthermore, the Waterberg Integrated Transport Plan (ITP) 2011 mentioned that the Local Municipality could, "during the preparation of its Local Integrated Transport Plan, explore market potential for the conveyance of passengers by rail from Lephalale to Pretoria via Thabazimbi. The rail network is in place and well maintained by Transnet Freight Rail".

Fig 7.17: Link Between Lephalale & Pretoria via Rustenberg.

Fig 7.18: Interloop situated at Phokeng from Lephalale to Pretoria

Source: Waterberg District ITP 2011

2.3.3 Air

There is only one airfield in the Local Municipality, situated to the south of the study area and specifically the Onverwacht Node (see Figure 7a). The 2 200 meter airfield is an old military airstrip owned by the South African National Defence Force (SANDF). The land on which the airfield is located belongs to the State and measures approximately 209 hectares in extent. The airfield is currently utilized by the military's medical corporates, as well as private aircrafts owners and commercial aircrafts.

In 2011 a study conducted for the Limpopo Department of Roads and Transport found that the airfield is well utilized – even better than the Polokwane International Airport – and the Limpopo Department of Roads and Transport is currently conducting a feasibility study that will conclude whether the airstrip should be expanded and upgraded, or entirely re-developed (LSDF).

The SDF earmarked the area surrounding the airfield as an Aero Zone and proposed its upgrading and expansion. Upgrading plans may include the extension of the runway to reach 2800m as well the construction of a new terminal building (Lephalale TMP 2012).

2.3.4 Public Transport

Figure 7a indicates public transport infrastructure in the study area. There is one formal bus rank, one formal taxi rank and one formal bus-and taxi rank in and around the CBD. In the Onverwacht Node is only one informal taxi rank; and there are two formal bus ranks and one informal taxi rank in Marapong Township.

Route D1675 is a major public transport route since many of the Marapong Township residents travel approximately 13km to Lephalale for work and/or services, or to gain access to regional routes R510, R518 and R33.

2.4 ENVIRONMENTAL FEATURES

2.4.1 Topography

The landscape in and around the study area is relatively flat (see **Figure 8a**). A definitive feature with regards to the landscape is the Grootegeluk mining dump located to the south of Marapong Township.

2.4.2 Hydrology

Two rivers traverse the study area. The first is the Sandloop River that runs in between the Marapong Township and the Onverwacht Node (see Figure 8a). The second is the Moloko River (also known as the Mogol or Mogolo River) which runs parallel to the east of route R510. The river, as well as associated wetlands (see Figure 8a), largely mitigates the town's development along the western side of route R510.

The upper reaches of the Mokolo (or Mogol) River Catchment receive a fair amount of water from the Waterberg mountain range (mostly located outside of the Lephalale municipal area). The Mokolo River and its tributaries form a considerable river system that drains 8 450 km^2 with an estimated MAR of 272 million cubic metres of which 98 million cubic metres can be utilised economically (WDEMF 2010). Almost 65% of this catchment falls within the Lephalale municipal area. Halfway down the catchment the Mokolo Dam (formerly known as the Hans Strydom Dam) is located (near Vaalwater). It supplies water to Matimba Power Station, the Grootegeluk Coal Mine and to the greater Lephalale area including Lephalale Town. Downstream of the dam, farmers make use of the irrigation allocation (WDEMF 2010).

The allocations for the Mokolo Dam are as follows (DWAF, 2001 In WDEMF 2010):

Matimba power station: ..... 7,3 million m3/a
Iscor (Exxaro) coal mine: ..... 9,9 million m3/a
Lephalale:..... 1,0 million m3/a
Irrigation (downstream of dam): ..... 10,4 million m3/a
Total ..... 28,6 million m3/a.

The Waterberg District has limited useable groundwater resources.

2.4.3 Mineral Deposits

As mentioned, the area is set to become one of the country's coal and energy centres due to the large coal deposits still available. The Department of Minerals and Energy have issued various prospecting rights and mining rights on some of the farms in the coal reserve areas.

Apart from the economic impact, the coal fields and coal reserves effect the spatial structure of Lephalale town in the sense that they separate Marapong Township from Lephalale town (as is evident from **Figure 8b**) effectively prohibiting its functional integration with the town.

The coal field extends into Botswana; it can be expected that the Botswana Government will develop this coal field. Though the locality of future mines and power stations in Botswana is unknown, the gross economic growth will also impact on the development of Lephalale town.

2.4.4 Agriculture

Commercial agricultural activities have established along the eastern and western banks of the Moloko River (refer to Figure 8a) and the study area is surrounded by farmland. In fact, the remainder of the municipal area is rather rural in nature. The Town is a service centre (Provincial Growth Point) to surrounding rural communities.

2.4.5 Protected Areas and Tourism

Eco-tourism and hunting play a large role in tourism activity in the region, and Lephalale Town serves as a pit-stop and service centre *en route* to their destinations. The D'nyala Nature Reserve is located to the south-east of the study area (see Figure 8a). Furthermore, a number of lodges are found in and around the Reserve. Hotels, guest houses and other overnight accommodation are also found within the town itself.

2.5 SPATIAL STRUCTURE, LAND USE COMPOSITION AND URBAN DESIGN ANALYSIS

2.5.1 Spatial Structure

The Lephalale CBD and the Onverwacht Node (two of the four identified activity nodes in the study area) are consolidated around route D1675/ Nelson Mandela Drive that traverses the study area from west to east (see **Figure 9**). The other two nodes are located along the main route that traverses Marapong township – route D2816. As a whole, the activity nodes in the study area thus have a linear structure.

Lephalale CBD is predominantly located to the north of route D1675 and along the western side of route R510 (see Figure 9). The Moloko River has prohibited the CBD from developing along the eastern side of route R510.

The Onverwacht Node is located approximately 3km to the west of the CBD, while the access road to Marapong Township is found about 13km further westward. The township is situated about 3km to the east of the road, separated from route D2001 by the Matimba power station. The result of this spatial structure is that Marapong Township is situated about 17km from the Onverwacht Node (by road) and more than 21km from the CBD.

The Onverwacht Node also has a linear form. It comprises of a cluster of business activities to the south of route D1675, as well as the town's light industrial area that lies approximately 600m to the north of the road.

To the west of Onverwacht lies the Altoostyd area. Though it is still vacant, its layout makes provision for an activity node (see Figure 9).

The first node in Marapong Township comprises an existing cluster of non-residential uses near the town entrance. The second activity node is located in the central parts of the township and comprises a vacant land pocket that was earmarked as the township's future CBD by the Lephalale SDF.

2.5.2 Land Use Composition and Urban Design Analysis

In this section, the five activity nodes in the study area – namely Lephalale CBD, the Onverwacht Node, the two nodes in Marapong Township, and the future Altoostyd Node – will be discussed firstly in terms of its land use composition, and secondly in terms of an urban design analysis.

The Urban Design Analysis is based on six typical urban renewal interventions/ 'aspects' that have been derived from an extensive literature review of urban design best practice. The six urban design aspects that 'make a good city' are namely:

- Mix and Diversity Land Uses
- Promote Compactness and Densification
- Inject Housing into Activity Nodes
- Promote Accessibility
- Invest in the Public Realm
- Create a Quality Public Environment

2.5.2.1 Lephalale CBD

I. Land Use Composition

The Lephalale CBD is surrounded by a few incidences of residential development of both single and medium density, as illustrated on **Figure 10a**. Medium density development around the CBD is in the form of enclosed townhouse complexes. The higher density developments often serve to accommodate government employees. The area experiences development pressure as is evident from new township layouts on the town's cadastre which have not been developed yet. Surrounding the town are large pockets of vacant erven and farmland. Extensive agricultural activities are found around the town, especially to the east of route R510 and to the south of Nelson Mandela Drive.

The CBD has two main concentrations of business activity – a northern cluster(1) and a southern cluster(2) (see Figure 10a). The northern cluster of economic activity is located along both sides of route R510/ O.R. Tambo Road, while the southern cluster is situated in the north-western quadrant of the intersection between Nelson Mandela Drive (D1675) and route R510. The area in between is more quiet, and slightly more dilapidated in comparison. The two clusters are discussed below.

A. Northern Business Cluster

There is a variety of business activity, including retail, motor industries, hardware, and other wholesale.

- Major retailers in the node (that also serve as landmarks) include Shoprite(3), Boxer retail(4) and Cashbuild(5). (Refer to photographs on **Diagrams 2a and 2b)**.
- Motor industries anchor the northern cluster to the north and south respectively.
- These far-northern parts of the CBD include quite a number of community facilities, including the following:
  - Hoërskool Ellisras(6) and Secondary School(7) on either side of the O.R Tambo Road (R510)
  - Lephalale Police Station(8)
  - Department of Roads and Transport(9)
  - Testing Centre(10)
  - Department Home Affairs(11)
  - Department of Labour(12)
  - Ellisras Clinic(13)
  - Department of Environmental Affairs(14)
  - While the taxi rank(15) and Bus rank(16) serving this area is located further towards the south.

- North of the cluster of community facilities is a bus depot [(17)].
- Office developments are very limited in this part of the CBD. The only offices are situated along Fox Odendale Street[(18)].
- The greatest concentration of informal trading in the northern business cluster is along Albert Street and J Louis Botha Drive – close to the public transport facilities[(19)].

B. Southern Business Cluster

- The two main retailers in the southern part of the CBD are Lephalale Square Shopping Centre[(20)] (with the Pick 'n Pay) along Nelson Mandela Drive (the largest retail development in the study area), and the recently developed Marula Mall[(21)] along J Louis Botha Drive (see **Diagrams 2c and 2d**).
- There are a few office establishments[(22)] in the study area, though mainly within the residential fabric of the town, close to the CBD and other nodes.
- Two motor dealer services are situated along O.R Tambo Road and Wells Street.
- The majority of community facilities in the southern business cluster are concentrated along Wells Street and Nelson Mandela Drive, and include:
  - Magistrate's court[(23)]
  - The police station[(24)]
  - The Department of Education[(25)]
  - There is only one public open space[(26)] within the CBD
  - A bus and taxi rank
  - Three large places of worship adjacent to O.R. Tambo Road
- To the south and west of the southern business cluster are a hotel and other accommodation facilities[(28-29)].
- North of the court is a formal public transport facility, accommodating both bus and taxi services[(30)].
- Informal trade is found close to the bus and taxi areas, and trading is conducted from both formal and informal structures.

II. Urban Design Analysis

The section below describes the current Urban Aesthetics of the Lephalale CBD. Refer to **Figure 10b** together with photographs on **Diagrams 3a and 3b**.

Mixed Use and Diversity

In terms of mixed land use development, Lephalale CBD has a variety of land uses including retail, offices, wholesale/ hardware and motor related activity. There are a few mixed use developments *(*see *photograph 1)* but the majority of buildings are single storey *(photograph 2)*

Compactness

There are quite a few vacant erven immediately around the CBD *(*see *photograph 3)*. Certain areas of the CBD are under construction (*photograph 4* displays a 2-3 storey building currently under-construction).

Housing

There are quite a number medium density residential developments (2 to 3 storeys in height) close to Lephalale CBD. This offers some variety of housing options, together with the single density residential areas that surround the CBD *(photograph 5-6)*.

Road Network

The Town and CBD have a clear road hierarchy, with O.R. Tambo Road being the primary route, and Nelson Mandela serving as a secondary road (*photograph 7)*. J Louis Botha Street and Albert Street in the west of the CBD links the northern and southern business clusters to one another.

There is only one entrance to the CBD from Nelson Mandela Dr namely from Wells Street close to the police station and court. There are four access points to the CBD from O.R. Tambo Road namely at Jan Lee Street, J Louis Botha Dr, Pika Street and Fox Odendale Street.

Heavy Vehicle Traffic

Along the O.R. Tambo Road are two formal lay-by facilities on both sides of the road, which are utilized by trucks as a truck-stop. Though trucks utilize these lay-by facilities, the extend of the lay-bys are not large enough to accommodate the high volume of trucks that pass through the town, so they resort to parking on other sections of the main road which are not designed for parking.

Pedestrian Movement Network

Pedestrian movement around the CBD is primarily along the two main roads (Nelson Mandela Dr and O.R. Tambo Road), and within the CBD is along J Louis Botha Dr, Albert Street, Jan Lee Street, Pika Street and Fox Odendale Street. The majority of the routes utilised by pedestrians do not have paved pedestrian walkways and other pedestrian infrastructure.

J Louis Botha Street and Fox Odendale Street have paved pedestrian walkways and pedestrians are protected from vehicular movement *(*see *photograph 8)*. Some internal roads within the town have made provision for narrow walkways at shop frontages, but some of these require upgrading.

Informal Trading

Informal trade in the CBD is not well managed, and is creating an unattractive urban environment. There is a lack of proper trading structures, see photograph 10.

As depicted on Figure 10b, there are five main informal trading areas in the CBD. These are namely at the southern(1) and northern(2) taxi ranks, the bus-stop facility(3), along J Louis Botha Street(4) in the north, as well as close to the Shoprite Centre(5). The northern and southern taxi ranks represent the greatest concentrations of informal traders in the CBD.

There are formalized informal trading structures at the southern taxi rank and at the Shoprite centre. According to the Lephalale Local Economic Development (LED) report, traders close to the Shoprite are well equipped with formal trading structures, which are property of the shopping centre and have been made available for rental basis. The majority of traders within the town are trading in informal trading structures, as there is currently a shortage of formal structures.

Informal traders trade from plastics tents, shacks and private vehicles, and goods are displayed on plastic grates, tables, or boxes. Goods traded consist of food (street kitchens), fresh produce eg. fruit and vegetables, snacks and sweets, as well as handmade crafts and accessories.

Public Open Space

There is one public open space within the CBD, located along Herman Street close to the court and police station. The public open space is well-maintained, however it is fenced-off from the bus and taxi facility and can therefore not be utilized by public transport users.

Adjacent to O.R. Tambo Road are sections of well-maintained open spaces with palm trees. These spaces are at times utilized by the public for seating, though they lack formal street furniture.

Signage

The CBD has two main entrance points, both along route R510. Only the southern entrance from Vaalwater has been landscaped and provided with signage to welcome visitors. Landscape materials utilized in this gateway include palm trees and multi-coloured. The signage is made out of wood to signify the town's natural resources (*photograph 9)*.

Street names and community facilities signage is well-distributed and clearly displayed within the CBD, and along main intersections leading to the town.

Street Lighting

Street lighting is widely provided within and around the CBD. Along higher order routes it mainly comprises high mast street lighting, while lighting at a human-scale is provided closer to business activity within the CBD area.

Street Furniture

The town lacks public seating area. There is a need for seating close to public transport facilities and main retailers eg Shoprite, Boxer and Pick n Pay, as the area experiences high volumes of pedestrian activity. A few linear metal benches are found at the bus-stop and the southern bus and taxi rank, however they are not sufficient.

Aesthetics

There is not a strong architectural heritage within the CBD. Buildings are notably old and not particularly well-maintained, though they are not necessarily dilapidated. The predominant building style is rather indistinctive, but many businesses have corrugated iron awning along the street frontage.

2.5.2.2 Onverwacht Node

I. Land Use Composition

- The business component of the Onverwacht Node is predominantly consolidated to the south of Nelson Mandela Drive, between Nelson Mandela and Walter Sisulu Drive (see **Figure 11a**).
- Business area
  - From Nelson Mandela, the business area is accessed via Chris Hani Street and George Well Street.
  - It comprises a mix of retail uses, community facilities, hardware/ wholesale and motor industries.
  - There three major retail establishments in the Onverwacht node are namely the newly constructed Lephalale Shopping Mall(1), the Spar complex(2) and Marula Square(3) (see Photographs on **Diagram 4a and 4b**).
- A number of community facilities in the node are concentrated around this business core, and include the Lephalale LM offices(4), the library(5), Telkom(6) and the post office(7).
  - To the west of the municipal offices is a sports complex(8), which comprises of a variety of sport activities.
  - To the west of the sports complex lies the Mogolo Golf course.
  - A private hospital(9) is currently being constructed along Dagbreek Drive.
- North of Nelson Mandela Dr is the Medupi Facility, Eskom offices and temporary residential structures(20).
- The light industrial area(1) is situated further to the north of Nelson Mandela Drive.
  - Access to the light industrial area is gained via Chris Hani Road.
  - Note that the area is isolated from the regional traffic.
- Land uses comprise predominantly of light industrial uses, motor industries and service industries.
  - Some of the industrial activities include Sasko Bakery(11), Wood Making Workshop(12), Lephalale Windscreen Fitment Centre(13) and Lowveld Bus Services(14) (refer to Photographs on **Diagrams 4c and 4d**).
- The area also includes a few government services, medium density residential development(15), and community facilities.
- Community facilities close to the industrial area include:
  - Ellisras Hospital(16)
  - Department of Agriculture(17)
  - Municipal Workshop(18)

- Department of Disaster Management[19]

- Informal trading[21] is conducted close to the Ellisras Hospital[16], however no formal structures have been provided and goods are traded from various informal structures.
- The node has potential for growth as there are a number of vacant stands, particularly to the south of the hospital site.
- The Onverwacht area includes single and medium density residential development. The latter is mostly in the form of security estates/ townhouse complexes.
- Furthermore, the node is surrounded by large vacant pockets of land which have potential for infill development.
- Educational facilities in the Onverwacht area, though located within the residential fabric, include the Lephalale FET College, Exxaro Grovo Traders Training Centre, and Lephalale Primary School[10].

II. Urban Design Analysis

Mixed Use and Diversity

Similar to Lephalale CBD, the activity node also includes a mixture of retail, hardware/ wholesale activities, offices, and motor industries (refer to **Figure 11b** and **Diagrams 5 and 6**). The majority of buildings within the Onverwacht node are single storey in height, with only a few multi-storey buildings, *see photographs 1-2*.

Compactness

There are still a few pockets of vacant land in the Node. It therefore has development potential *(photograph 3)*. New businesses, medical facilities and residential areas are currently under-construction, (*photograph 4* displays the new Hospital site opposite the Lephalale Municipal Offices).

Housing

There are various types of housing within and around the Onverwacht Node, including single residential dwellings and 2 and 3 storey walk-ups (see photograph 5). Recently established residential developments include the Kloppen Heim walk-up flats to the south of Chris Hani Street *(photograph 6)*, and Arenite Heights medium residential development close to the light industrial area.

Other types of residential accommodation includes the old age home along Joe Slovo Street, opposite to the Lephalale municipal offices, a cluster of single residential units at the intersection of Nelson Mandela Drive and Chris Hani Road, and lastly temporary residential units within the Medupi Facility to the north of Nelson Mandela Drive.

Road Network

Nelson Mandela Dr (D1675) acts as a spine through the Onverwacht node. A network of dual carriageways serve the activity area, comprising of Nelson Mandela Drive, George Well Street, Walter Sisulu Drive, and

Chris Hani Street. All the roads except Nelson Mandela Drive have medians.

Note that Onverwacht road to the east of Lephalale Mall has not yet been constructed.

There are two access points to the Onverwacht activity from Nelson Mandela Dr, namely along George Well Street and Chris Hani Street. Both entrances have traffic lights.

Public Transport

There is an informal taxi rank along Chris Hani Street, which predominantly serves Lephalale Mall, see *photograph 10*.

Pedestrian Movement Network

With regards to pedestrian movement, there is strong interaction between the Onverwacht node and Lephalale CBD (mainly along Nelson Mandela Drive). Other main pedestrian routes include Chris Hani Street, Joe Slovo Street which connects the FET College and municipal offices to Lephalale Mall, and a pedestrian short-cut from Douwater to Drif Street, refer to *photograph 7*.

No pedestrian walkways and street furniture are provided along Nelson Mandela Dr *(photograph 8)*. Pedestrian safety mechanisms such as pedestrian crossings and signage have been provided along certain internal roads.

Public Open Space

East of the municipal offices along George Well Street is the Mogol Sports Fields which comprises tennis and netball courts, a cricket pitch and a soccer field. The sports facility is well-maintained and is fenced off, limiting access. The Onverwacht area has no other formalized public open space *(photograph 9)*.

Street Lighting

Street lighting in the Node mainly comprises high mast street lighting, with only a few human-scale street lights provided close to business activities.

Signage

There is no signage to announce the Onverwacht node. The light industrial area does however have a sign board at the intersection of Hendrik Pistorius Avenue and Chris Hani Street, displaying the names of industries operational within the industrial area. Note that the signpost is located away from the regional traffic.

Street Furniture

The node generally lacks public space and street furniture to accommodate social interaction and outdoor relaxation.

High volumes of pedestrians socialise in the area around Lephalale Mall; yet there is not sufficient seating provided close to or within the premises of the Shopping Mall, nor does the Mall have an entertainment centre.

Cultural Identity/ Landmark Feature

The Onverwacht activity node is generally well-maintained, and visually attractive. Elements that contribute to a positive image are listed below:

There are landscaped medians along Chris Hani Street, Walter Sisulu Street and George Well Street, (see *photograph 11*). At the intersection of Nelson Mandela and Chris Hani Street is also a well landscaped area opposite the Sasol filling station. Along Chris Hani Street is a well-kept traffic circle with vegetation. The majority of the landscaped areas in Onverwacht have a theme of aloe plants and large rocks.

The tree art feature at Lephalale Mall which fronts on Nelson Mandela Drive could be seen to relate to the beauty of the surrounding bushveld (*photograph 12)*.

2.5.2.3 Altoostyd Node

The Altoostyd township layout makes provision for an activity node, though the township and activity node area are still vacant (see **Figure 11c**).

2.5.2.4 Marapong Township

I. Land Use Composition

- Marapong township has only one access from the main road (D2816), namely Relebogile Street.
- The township especially accommodates contractors from the Grootegeluk Mine(1) and Matimba power station(2), see **Figure 12a.**
- There are many vacant erven in the western parts of the township, including the area to the south of Node 1 and around Node 2. The eastern parts are more fully developed.
- Dwelling types in the township range from formal structures, RDP housing, hostels, and informal dwellings.
- To the south of Node 1 is a large hostel complex(3) and 3-storey walk-up flats(4).
- RDP housing is mostly found in the eastern parts of the township(5) while informal settlement(6) is found on the vacant land around Steve Biko Street, close to Node 2, as well as to the north of Tlou Street.
- Surrounding the township to the south-east are communal vegetable gardens(7).

As mentioned, there are two activity nodes in Marapong township. *Node 1*, around the Spar shopping centre, is the main activity node. *Node 2* was identified as the Township's future CBD in the Lephalale SDF (see Figure 12a). Additionally, a number of businesses have established along a section of Tlou Street (to the south of the proposed CBD), and is forming an *Activity Street*.

The two nodes and Tlou Street activity strip are discussed in more detail below:

A. Marapong Township - Node 1

- The activity node comprises of the Spar centre[8], as well as a few other business and a number of community facilities (refer to Diagram 4a).
- Other businesses include Dry Cleaning Services, a Pharmacy, and a few Furniture shops[9], (also see **Diagram 7a and 7b**).
- Community facilities in and around the node include a Post Office[10], municipal offices[11], a satellite police station[12] and a private Hospital[13], as well as various educational facilities.
- Education institutions include Phegelelo High School[14], Tielelo Secondary School[15], Itereleng Pre-School[16], Mogolo Academy[17] and the Marapong Induction Training Centre[18].
- Directly opposite the Spar Shopping Complex is an informal bus and taxi rank[19].
- There are two formal bus stops close to the spar complex, the bus stop situated near the Magolo Academy is mainly for mine employees and the one located south of the sports fields is utilized by the broader community of Marapong.
- There is only one public open space in the entire township, and it is located north of the municipal offices.
- To the east is a fence-off sport facility [20], which forms part of a school.

B. Marapong Township - Node 2

- The area has been earmarked as the future Marapong CBD but business activities and community facilities are still relatively limited compared to Node 1.
- Businesses in Node 2 include a spaza shop[21], hardware store, a panel beater, and tin recycling[22] (see **Diagram 7c**).
- There are a few community facilities south of Chris Hani Street including a library[23] and municipal offices[24].
- Node 2 lacks public open space and/or sports facilities.
- The reservoir[25] to the west of Node 2 serves the entire township.
- The businesses along Tlou Street is a functional extension of Node 2.
- Businesses to the south of the road include a local supermarket, fresh produce shop, hair dresser, a game centre[26] (see **Diagram 7d**).
- Business activities to the north of the road also include a commercial/ light industrial component, eg hardware and scrap yard.
- There is a community clinic[27] and a concentration of informal traders[28] at the intersection of Tlou and Relebogile Street but it is removed from the activity nodes.

II. Urban Design Analysis

Mixed Use and Diversity

Businesses in Node 1 are one storey in height (see **Figure 12b** and **Diagrams 8-9**). The Spar centre comprises a diversity of business activities *(photograph 1* on Diagram 8*)*. Surrounding the business complex are a variety of land uses including community facilities, educational institutions and public transport facilities, especially along Mosetlha Street and Relebogile Street.

Node 2 currently only comprises a few mixed use buildings.

The strip along Tlou Street comprises a variety of business activities, including local supermarkets, fruit and vegetable markets, local food restaurants, hair dressers, and a gym facility (*photograph 2*). The majority of businesses are in the form of kiosks that operate from small structures attached to residential properties, and managed by that household.

Compactness

To the south of the Spar shopping complex are a few vacant residential properties(1), and a vacant portion of land between the Spar complex and church(2). To the east of the Spar centre is a dilapidated building which forms part of the complex (*photograph 3*).

There are large vacant pockets of land to the north of Chris Hani Street(3) (Node 2), where informal settlements have established (see photograph 4). The Node thus has much development potential in terms of developable land.

Housing

Marapong Township offers a variety of housing typologies, ranging from single dwellings, to single and 2-storey hostel developments *(photograph 5)*, temporary housing units within the Grootgeluk mine premises, 3-storey walk-up flats, RDP housing ***(photograph 6)***, backyard residential units, as well as informal structures(7) (predominantly in the eastern part of the township).

Road Network

Relebogile Street is the main road within the township, and it runs east-west and north-south, linking the western part of the township with the east. Mohwiliri Street and Chris Hani Street are also main streets, serving the western part of the township.

Public Transport Facilities

There is no formal taxi rank facility. At present, there is an informal taxi and bus rank opposite the Spar complex (see *photograph 10*). There are two formal bus-stop facilities within the township, one serving Medupi employees and the other serving the community of Marapong.

Pedestrian Movement Network

There are high levels of pedestrian movement along Relebogile Street and Tlou Street due to the intensity of business activity along these two roads. Secondary pedestrian routes in Marapong include Mohwiliri

Street, Chris Hani Street, and Tswene Street. Certain sections of the road reserve along Relebogile Street and Mohwiliri Street have been paved for pedestrians, but are not in a good condition. The remaining roads lack pedestrian walkways, refer to *photographs 7 and 8*.

The main pedestrian desire lines in the township lead to various areas of opportunity such as business activity areas, community facilities, public transport, etc. There are also pedestrian shortcut routes within the residential fabric.

Pedestrian crossings have been provided along main pedestrian desire lines, eg. Relebogile Street, Mohwiliri Street, Tlou Street and Chris Hani Street, in order to ensure the safety of pedestrians. The community of Marapong are mostly pedestrianised, thus the safety and convenience of pedestrians should be a top priority.

Informal Trade

There are two areas within the township where informal traders mainly concentrate, namely around the Spar complex and along Tlou Street opposite the Marapong Clinic.

Public Space

The public realm in Marapong is poorly managed. The following are specific challenges:

- Storm-water systems are congested with waste material and vegetation;
- The majority of roads do not have clear road markings;
- Public open space requires upgrading and maintenance;
- The culture and identity of the township is not exhibited by landmarks/ features in any area; and
- There is a lack of public open space and sports fields in the eastern parts of the township.

Signage

There is a sign post at the entrance to Marapong Township from the west. It is a brick-structure *(photograph 9)*. Surrounding it is a rock-landscaped area. The signage does not really capture the identity of Marapong Township and its community.

Street Lighting

The majority of roads within the township have high mast street lighting (illustrated on *photograph 11*).

Signage displaying street names and community facilities along pedestrian movement network require upgrading.

Street Furniture

The area around the Spar complex has been informally converted into a semi-permanent social area/ gathering place for residents, as well as informal traders *(photograph 12)*. This indicates that there is a need for a formal public open space, together with street furniture such as outdoor seating, refuse bins, and human-scale lighting.

2.5.3 Conclusive Summary

2.5.3.1 Business and Office

The activity nodes in the study area comprise a mixture of business and community facilities. In summary, the business component is discussed below:

Figure 13a differentiates between the retail and office uses in the CBD. It is evident that the majority of the CBD's business activities comprise retail, with only a small office component towards the northern and western outskirts of the CBD. The retail activities are concentrated in two main locations, namely in the northern part of the CBD, as well as at the intersection between O.R. Tambo Road and Nelson Mandela Drive. The area in between is less intensely developed and slightly dilapidated. The northern and southern business concentrations are located closest to the regional traffic along route R510 – from Stockpoort and Groblersbrug border posts to the north (to Botswana) and from Thabazimbi, Vaalwater and Mokopane to the south and south-east.

There is one shopping centre in the northern business cluster, two in the southern business cluster, and one in the Onverwacht node. There are only a few mixed use buildings in the CBD. Offices in the CBD mainly represent professional services.

The CBD comprises relatively more floor area of retail activities than the Onverwacht Node, where the majority of retail is contributed by Lephalale Mall (**Figure 13b**). The mall was recently constructed, indicating that the centre of gravity of the town may be shifting away from the regional routes (CBD) and towards the Onverwacht area – also closer to Marapong Township, the Grootegeluk Mine and Matimba and Medupi power stations.

In Onverwacht the majority of business uses also comprise retail; there are very few office developments. Furthermore, the only mixed-use development comprises of offices and residential units in the form of temporary/ movable structures, and belongs to the Medupi mine and Eskom. Note that the Onverwacht Node comprises proportionally less business activities than the CBD.

Finally, as evident from **Figure 13c**, there is a low level of business activity in Marapong township. Also, all of the business uses are retail – there are no offices in the Township. There are three main concentrations of retail in Marapong, namely around the Spar Centre (Node 1), to the north of Chris Hani Street (Node 2) and the greatest concentration is attributed to spontaneous individual initiative – along Tlou Street (3).

2.5.3.2 Government Services and Community Facilities

As a Provincial Growth Point and service centre to a large rural area, it is important that Lephalale offers regional level services. The government

services and community facilities in the CBD and in the Onverwacht Node are indicated on **Figure 14a**, while **Figure 14b** indicates those in Marapong Township.

A large proportion of the community facilities and government services in the study area are divided between the Lephalale CBD and Onverwacht node. Unfortunately the facilities are not consolidated with one another; small concentrations are found throughout the activity nodes.

In the CBD, the taxi rank, Magistrate's court and police station are consolidated around the southern business cluster. Around the northern business cluster are a number of government departments, a taxi rank, clinic and two schools. The distance between the facilities in the north and the south is relatively far, and they do not function as an integrated system.

The facilities in the Onverwacht Node may be divided into two clusters – to the north and south of Nelson Mandela Drive. The cluster to the south is larger and comprises the municipal offices, a hospital, post office, Telkom, a library and sportsfields. To the north of the road are the old hospital and two government departments, loosely consolidated with one another. To the west are four educational institutions.

The government departments in the study area are fairly scattered. The Departments of Roads and Transport, Environmental Affairs, Home Affairs, and Labour are located in the northern parts of the CBD, while the Departments of Agriculture and Disaster Management are located in the In the Onverwacht Node.

Together, the CBD and the Onverwacht Node serve the majority of regional level needs of the town and surrounds; and there is no duplication of services.

There are a fair amount of community facilities in Marapong, although they are also fairly scattered throughout the township (see **Figure 14b**). The first and largest cluster is along Relebogile Street in the west, and includes satellite municipal offices, a satellite police station, a hospital, an informal taxi rank, and a few schools. The second loose concentration is just south of the SDF node, and includes a library, a community centre, and two schools.

Furthermore, large sports fields are found to the north of Relebogile Street and a clinic is located at the intersection of Relebogile and Tlou Street.

It is evident that there is considerable duplication of community facilities between the Township and the CBD and Onverwacht Node taken together. However, the business component of the Township is relatively weak in comparison.

The table overleaf gives a concise summary of the community facilities and government services in the three activity nodes.

Table 5: Summary of Community Facilities

IDENTIFIED NODAL AREAS	LEPHALALE CBD	ONVERWACHT NODE	MARAPONG TOWNSHIP
GOVERNMENT SERVICES			
Department of Roads and Transport	1		
Department of Environmental Affairs	1		
Department of Home Affairs	1		
Department of Labour	1		
Department of Agriculture	1	1	
Department of Disaster and Management		1	
Hospital		2	1
Department of Education	1		
Sub-Total	**6**	**4**	**1**
MUNICIPAL FACILITIES			
Court	1		
Police Station	2		1
Clinic	1		1
Testing Centre	1		
Post Office	1	1	1
Municipal Offices		1	1
Library		1	1
Community Centre			1
Municipal Workshop		1	
Sports and Recreational Facilities	1	1	1
Sub-Total	**7**	**5**	**7**
TOTAL	**13**	**9**	**8**

2.5.3.3 Built Form

The buildings throughout the study area are mostly only one storey high; though a few multi-storey developments are found scattered in all four activity nodes in the study area, as illustrated on **Figure 15**. The maximum building height is three storeys. It is evident that the majority of multi-storey development in the study area comprises medium density residential development.

2.6 HOUSING AND STRATEGIC DEVELOPMENT AREAS

According to the 2011 Census data, the current number of households in the Lephalale Provincial Growth Point (PGP) – comprising Lephalale Town (Ellisras), Onverwacht and Marapong – is 6 832.

Population projections by Plan Associates (refer to Table 1 in Section 2.2.3) indicated that this number will likely grow to 21 781 in 2020, and to 36 506 households in 2030. This figure represents 5.3 times the current number of households. In other words the town is likely to grow up to five times its current size by 2030, if all foreseen developments take place and within the projected timeframes.

The household growth may be translated to a need for an additional 14 949 residential units by 2020 and a further 14 752 units by 2030 – not considering the current housing backlog.

Based on town planning standards, the SDF predicted that the projected growth up to 2020 translates to between 945 and 1 181 Ha of land required to meet the demand, depending on the residential densities applied.

The table below provides a summary of the SDA's around the study area as identified in the SDF, together with their potential yield.

Table 6: Strategic Development Areas within Lephalale LM

Area & cluster	SDA	Settlement name/s	SDA size (in ha)	[42]Potential area for residential (ha)	Est. no. dwelling units	
					Low scenario	High scenario
URBAN AREAS					*20 du/ha*	*25 du/ha*
Lephalale PGP	SDA 7	Ellisras (town) south	769ha	570ha	11400	14 250
Lephalale PGP	SDA 8	Ellisras (town) north	650ha	490ha	9 800	12 250
Lephalale PGP	SDA 10	Altoostyd*	*540ha	400ha	8 000	12 500
Lephgalale PGP	SDA11	Onverwacht*	*584ha	540ha	10 800	13 500
Sub-tot. Urban			***1 959ha***	***1 460ha***	***29 400***	***39 000***

Source: Lephalale SDF 2012 (extract)

It is evident that the SDA's around Lephalale Town comprise a total area of 1 959 Ha that could potentially accommodate between 29 400 and 39 000 residential units, depending on the densities applied. This land represents more than enough to accommodate the expected increase in housing demand up to 2020 and perhaps even beyond. The SDF thus recommended that the Municipality apply a phased approach with regards to infill development, and not permit any settlement outside of the proposed SDAs for at least the short and medium term.

2.7 ENGINEERING SERVICES

2.7.1 Water Supply

Figure 16 graphically depicts the spatial distribution and nature of the water supply system in the Lephalale CBD, Onverwacht and Marapong township area. This can be summarised as follows:

- Lephalale Local Municipality is the responsible Water Services Authority for the study area comprising Lephalale CBD, Onverwacht and Marapong township.
- Bulk water serving the study area originates from Mokolo Dam from where it is pumped to the Wolfenfontein storage dam before it is distributed to Lephalale town.
- The bulk water supply line from Wolfenfontein storage dam supplies raw water to Zeeland water purification plant, Grootgeluk Mine and Eskom's Matimba power station.
- The Zeeland Water Treatment Works which is owned and operated by Exxaro Resources has recently been upgraded from 20 Ml/day to

40ml/day and supplies water to Lephalale CBD, Onverwacht and Grootgeluk mine.

- Water to Marapong comes from the Matimba Water Treatment Works which is operated and maintained by Eskom, and pumps up to 3000 kl/day of potable water.
- Water storage comprises of the following:
  - Three reservoirs located in the Zeeland Water Treatment Works. These comprise two 3Ml reservoirs and one 10Ml situated further south.
  - Additional water storage is provided by 6ml reservoir and a 3 Ml reservoir.
  - Marapong township is served by 1 Ml reservoir with a 530kl elevated steel tank and a 3.5 Ml reservoir with a 220 kl elevated steel tank.
  - Ellisras reservoir stores 6 Ml of water.

The following challenges are experienced with regard to water supply and quality of water:

- The Mokolo Dam currently has a quota of 17 million Kl/a of water. It is however utilised at capacity and would not be able cope with an increased demand in the area.
- Despite the Zeeland water treatment plant having been upgraded, its capacity will have to be further increased to cope with the increasing demand by domestic, industrial and mining sectors;
- Currently the Zeeland water treatment plant cannot cope with high raw water turbidity and the quality of water is affected;
- Most existing bulk distribution pipelines are operating close to full capacity and hence need upgrading;
- Supply of water from Matimba water treatment plant (which is currently 55-60%) to Marapong will have to be increased to accommodate the development planned for this area;
- Despite the industrial area receiving water from the Zeeland water treatment plant, an increased demand for water by proposed industrial developments will put this plant under tremendous pressure and hence alternative or additional water sources will be required.

The following future water projects were proposed to accommodate new developments and mining operations envisaged for the area:

- Proposed plans to increase the Zeeland water storage capacity by constructing additional 3 reservoirs on proposed sites;
- Construction of new pipeline by creating a split from the Onverwacht/ Lephalale CBD supply line;
- Increase the capacity of some existing bulk distribution water pipelines to cater for the increasing water demand.

2.7.2 Sanitation

Figure 17 graphically depicts the sewer system in terms of spatial distribution of infrastructure for the Lephalale CBD, Onverwacht area and Marapong Township. The network and infrastructure can be summarised as follows:

- A full water-borne sanitation network serves Lephalale CBD, Onverwacht, Marapong and the industrial area;
- Sewage outflow from Lephalale Town, Onverwacht and the industrial area is treated at Paarl Sewer Treatment Plant and the effluent discharged into the swamp and natural dam situated to the south and then into the river channel situated to the east of the town.
- The design capacity of the Paarl Sewer Treatment Plant is 10ml/d;
- Sewage outflow from Marapong is treated at Zongesien and Nelson's Kop Sewer Treatment Plants and the effluent discharged into the river channel situated to the east of the town.

The following challenges are experienced with regard to water supply and quality:

- The sewer treatment plants and the sewer lines are operating close to full capacity and will need to be upgraded.

The following future sewer projects were proposed to accommodate increasing domestic, industrial and mining activities:

- Upgrading of the existing Paarl Sewer Treatment Plant from 10ml/d to 20ml/d is critical;
- Upgrading of the Zongesien Sewer Treatment Plant by 4ml/d will alleviate pressure on existing plant;
- New sewer outflow pipeline to alleviate pressure from the Zongesien and Nelson's Kop Sewer Treatment Plants and discharge into Paarl Sewer Treatment Plant.

2.7.3 Solid Waste

- An unlicensed landfill site is situated north of Onverwacht on the farm Groothoek 504 LQ (**Figure 18**);
- The landfill site covers about 12ha and is used and managed by the Municipality until a new site is identified;
- The land belongs to Exxaro Resources who requested the Municipality to close and rehabilitate the landfill site in order to accommodate their planned development;
- A feasibility study has identified Portion 3 of the farm Zongesien 467 LQ, situated close to Marapong on tribal authority land as the preferred site. Detailed feasibility investigation of the site in terms of environmental, geotechnical and infrastructure qualities will have to be conducted.
- The site is situated about 23km from Lephalale town along the existing route and is not easily accessible which will necessitate the construction of a new access road.

2.7.4 Stormwater

In Lephalale CBD and Onverwacht road planning incorporates stormwater planning and management and hence there is no problem of stormwater in these areas.

In Marapong, there are stormwater challenges such as flooding due to a lack of proper roads. However, the Municipality incorporates stormwater planning and management as part of new road initiatives in the area.

2.7.5 Electricity

Electricity is distributed from the Eskom's 40mva Waterberg substation via the 33kva line to Lephalale substation. Reticulation from the Lephalale 35mva to Onverwacht and Lephalale CBD is done via the 11kva by Lephalale Municipality. Currently, there is a challenge to supply electricity to Lephalale which consumes about 15mva of the 35mva along three distribution lines. The current supply is insufficient for this area, and there is no spare capacity for new developments.

Marapong township is also supplied from the Eskom's 10mva Waterberg substation via two 22kva distribution lines to Marapong township. Of the two distribution lines, one line supplies electricity to 2.5mva Marapong substation from where it is downgraded to 11kva for reticulation along a ring-feeder mainly serving the old Marapong. The second 11kva line mainly supplies the western section of Marapong including the RDP section. Currently, electricity to Marapong is operating at full capacity and this has created a need for upgrade or augmentation from existing substations. The following three electrical substations are responsible for supplying electricity to the Lephalale CBD, Onverwacht and Marapong (see **Figure 19**):

- Waterberg substation (capacity 40mva/33kva: 2×20mva);
- Lephalale substation (capacity 35mva/11kva: 10mva, 10mva, 10mva, 5mva);
- Marapong substation (2.5mva/11kva)

In order to address the increasing demand for electricity supply the following electricity upgrading projects will have to be implemented:

- A new 40mva/132kva substation is in the planning stage which will be located west of Altoostyd town to meet the increasing demand and supply electricity to the Altoostyd area;
- The Lephalale substation will be upgraded to 80mva to cater for the increased demand of 40mva for Onverwacht and 40mva for Lephalale;
- A new substation (Bone City) will be established for Marapong to alleviate pressure on the existing facilities, capacity of 10mva.

2.8 CONCLUSIVE SUMMARY

Following from the Situational Analysis, the following is a brief summary of the key features of the study area comprising the Lephalale CBD, Onverwacht node, and Marapong Township node:

Regional Context

- Lephalale Town is the primary activity node in the municipal area, surrounded by farmland. The majority of rural settlements in Lephalale are concentrated in the eastern extents of the Municipality.
- The town serves the surrounding rural settlements, farms and even settlements across the border in Botswana, particularly with regards to higher order needs.
- The Vision of the Lephalale LM is to build a '*Vibrant City'* and an '*Energy Hub for Africa'*.
- The town and surrounds were identified as a "Growth Management Zone" and "Green Economy Zone" in the National Development Plan (NDP) 2030, with specific emphasis on development potential in the mining and energy sectors.
- Lephalale was identified as a Provincial Growth Point (PGP) in the Limpopo Spatial Rationale 2002.

Socio-Economic Profile

- The current population in the Lephalale Provincial Growth Point (PGP) – comprising Ellisras and Marapong – is 27 328 (2011 Census).
- The population is almost equally divided between the Town and the Township.
- By 2020 the population is likely to grow to between 65 000 and 77 930 by 2020, and to 129 595 in 2030 – more than four times its current population.
- The municipal area is generally characterised by low levels of education and skills, and relatively low income levels.
- The primary economic sectors in Lephalale LM are mining and energy. Mining contributes 71% GVA to the local economy.
- Major enterprises in the area include the Grootegeluk coal mine and Matimba Power Station. The Medupi Power Station is in construction; and Exxaro has announced its plans to construct a new coal mine – Thaba Metsi – near Lephalale Town.

Movement Network (Road and Rail)

- Lephalale Town is well connected to other activity nodes in the Province via the regional road network.
- Three regional routes converge at the town, namely route R510 from Thabazimbi, route R33 from Vaalwater, and route R518 from Mokopane.
- Some of the regional routes, especially Route R33, require upgrading.
- Planned routes that affect the study area include a northern bypass and southern bypass around Lephalale.
- There is a heavy haul rail link from Lephalale (Grootgeluk Mine) to Thabazimbi, Northam, Rustenburg, Madibeng, and Pretoria station (Gauteng).

- The Lephalale TMP 2011 proposed the extension of the heavy haul rail link northwards to Botswana.
- A feasibility study is being conducted to conclude whether the airfield just south of the town should be expanded and upgraded, or entirely re-developed.

Environmental Features

- The landscape in and around the study area is relatively flat.
- Two rivers traverse the study area, namely the Sandloop River and Moloko River.
- The Mokolo Dam supplies water to Matimba Power Station, the Grootegeluk Coal Mine and to Lephalale Town.
- Commercial agricultural activities have established along the eastern and western banks of the Moloko River.
- The town is located in the vicinity of the Waterberg Coal Field.
- The D'nyala Nature Reserve is located to the south-east of the study area.

Spatial structure

- Urban development in Lephalale Town is disconnected/ disintegrated, as proven by the four disparate activity nodes that comprise the study area.
- The CBD is located predominantly along the western side of route R510 (north-south) and route D1675 (east-west). The Onverwacht activity node is located to the west along route D1675/ Nelson Mandela Drive, and for purposes of the study, includes the industrial area to the north.
- Marapong Township is located approximately 17km to the west of Onverwacht along route D1675, and a total of 21km from the CBD. Access is granted via a secondary route off of the main road.
- Development trends indicate that the centre of gravity of the town may be shifting away from the Lephalale CBD (along the regional routes) and towards the Onverwacht area which is more central to the town as a whole.

Land use composition

- The four activity nodes broadly comprise a mix of retail activities, some offices, some wholesale and hardware, as well as government services and community facilities.
- The CBD has two main concentrations of business activity – a northern cluster and a southern cluster.
- Business activities in the Onverwacht are mainly consolidated around Lephalale Mall.
- In Marapong retail activities are consolidated in two locations, namely at the township entrance along Relebogile Road and along Tlou Street. A third area was earmarked by the Lephalale SDF as the future township activity node.
- Surrounding the study area are large vacant land parcels and farmland.
- The integration of Marapong with the Town is mitigated by the presence of coal reserves (and related private prospecting rights) on the farmland between them.
- With regards to community facilities and government services, the Lephalale CBD and Onverwacht Node together serve the majority of

higher order needs of the local and regional communities; and there is no duplication of services.
- A reasonable distribution of community facilities are provided in Marapong to serve the local community.

Urban Design Analysis
- Of the four activity nodes, the CBD is the most intensely developed.
- There is room for expansion around the CBD, but the Onverwacht and Marapong nodes are relatively landlocked – surrounded by single density residential uses
- Some medium density residential developments are scattered throughout the study area. The township also includes some RDP and informal housing typologies.
- Nelson Mandela Drive connects the Lephalale CBD with the Onverwacht node and Altoostyd area. Marapong is isolated as it is accessed via a secondary route.
- Major pedestrian movement desire lines broadly coincide with the primary road network; a number of informal pedestrian shortcuts are found.
- The buildings throughout the study area are mostly only one storey high; though a few multi-storey developments are found. The maximum building height was found to be three storeys.
- Limited public open space is provided in the activity nodes.
- There is a general lack of street furniture, paved walkways, and human scale street lighting in the study area.
- Informal trade in the CBD is largely informal, predominantly found at public transport facilities, and is creating an unattractive urban environment in places.

Housing
- The Lephalale PGP currently comprises 6 832 households.
- It was estimated that this number will likely grow to 21 781 in 2020, and to 36 506 households in 2030.
- The household growth may be translated to a need for an additional 14 949 residential units by 2020 and a further 14 752 units by 2030.
- The projected backlog up to 2020 will require 945 and 1 181 Ha of land.
- The SDAs identified around Lephalale Town comprise approximately 1 959 Ha of land and could accommodate between 29 400 and 39 000 residential units which exceeds the calculated requirement up to 2020, at least.

Engineering Services
- The Lephalale CBD, Onverwacht Node and Marapong Node are fully served with piped water and water borne sanitation networks, as well as electricity.
- The Moloko Dam is utilised at capacity and would not be able cope with an increased demand.
- The Zeeland and Matimba water treatment plants will have to be further upgraded to accommodate increased demand from domestic and industrial sectors.

- Most existing bulk water distribution pipelines are operating close to full capacity and hence need upgrading.
- The Paarl, Zongesien and Nelson's Kop Sewer Treatment Plants and the sewer lines are operating close to full capacity and will need to be upgraded.
- The electricity bulk infrastructure is at capacity and requires upgrading.
- A new landfill site needs to be established.

3 PHASE 2: EVALUATION OF CRITICAL ISSUES

The situational analysis presented in Section 1 provides an in-depth understanding of the current conditions and challenges affecting Lephalale Town in terms of socio-economic, environmental, physical and economic realities. The following critical issues emanated from the analysis which will be addressed in the Lephalale Framework Plan:

- The prevailing development pattern predominantly driven by the private sector has resulted in the occurrence of vast pockets of vacant land separating Onverwacht, Ellisras and Marapong; and each area has developed its own activity node. There is limited integration between them.
- Furthermore, the layout of the Altoostyd area makes provision for an additional activity node though the township is still vacant.
- The spatial isolation of Marapong township places a huge burden on the predominantly pedestrianized community which has to commute to town daily. There is a need to shorten the 'distance' between Marapong and the remainder of the Town.
- The Limpopo Spatial Rationale (2007) identified Lephalale town which comprise Ellisras, Onverwacht and Marapong as a Provincial Growth Point (PGP). This is due to vast coal reserves in the area and the related development potential. Planning for the area should facilitate, enhance and guide the future development of Lephalale Town.
- It was projected that the Lephalale urban population will grow four to five times its current size up to 2030.
- The potential growth poses serious developmental challenges for the Municipality such as the need for housing, job creation, rapid growth, environmental and issues bulk infrastructure capacities which all need to be planned for and managed effectively.
- The existing plans to alleviate congestion in town – particularly of trucks *en route* to the mines – are namely by way of constructing northern and southern bypasses around Ellisras town. The two proposed bypasses will have a profound effect on the Town's development patterns. These effects should be scrutinised, and mitigated/ leveraged where relevant.
- The town comprises a comprehensive range of land uses including retail, light industrial, commercial, office and residential activities which need to be efficiently structured to bring about sustainable urban form.
- The CBD comprises a northern and southern business cluster which is not integrated.

- The light industrial area exists in isolation of the CBD and the Onverwacht business cluster.
- The activity node serving the Marapong community is relatively small/ weak. Residents have to travel to Town for many goods and services.
- Though the study area offers a full complement of community facilities, they are scattered among the respective activity nodes and there is limited integration between them.
- The rapid growth of the mining sector has a ripple effect on other sectors such as housing, commercial, industrial and business all of which impact on the engineering services. The engineering service infrastructure ha limited spare capacity and will have to be upgraded and expanded as a priority to keep pace with growing demand and in order not to deter potential investors.
- The current trend towards residential expansion focuses on middle to high income residential expansion driven by the private sector. Due to limited state-owned land, Council has to be proactive and strategic in its approach to housing provision.
- It was found that the land area demarcated as SDAs within the Lephalale urban complex are sufficient to accommodate the Town's projected growth at least in the short to medium term.
- There is a need to uplift the Town's image via interventions that address the aesthetic quality of activity nodes.
- Public interventions should be relevant and functional in order to make a difference. 'White elephants' such as unutilised hawker structures should be prevented through community consultation/ inputs.

4 PHASE 3: ANALYSIS AND INTERPRETATION

Following from the Evaluation of Critical Issues pertaining to the study area, the following section comprises a brief analysis and interpretation of the key opportunities and problems, and associated intervention areas identified in the study area.

Location and Accessibility

Regional access to Lephalale Town is very good. However there is a challenge with regards to local access. This is not with regards to the road network by rather traffic volumes and particularly congestion experienced in the CBD and along Nelson Mandela Drive (Route D1675). The cause of congestion is mainly cause by through-traffic related to the mining activity to the west of Town.

Proposed Bypass Roads

Northern and southern bypass routes were proposed around Lephalale Town. Diverting regional traffic around the CBD is a positive move in terms of alleviating congestion in the CBD, but if not carefully managed it may have unintended consequences. The proposed routes will likely play a catalytic role by attracting non-residential activities along its length, due to high levels of visual exposure.

Mining Potential and Industrial Development Zone

The town will likely become a very prominent service centre to the northern parts of the country, when the surrounding latent mining potential is developed. The pending influx of job seekers must be monitored and planned for as best possible.

The Industrial Development Zone (IDZ) situated to the west of Lephalale town will act as a buffer between Marapong and Altoostyd. On a positive note, the IDZ will bring investment to the area which will help create jobs for the local community.

Strategic Development Areas

The Lephalale SDF proposed four areas (SDA 7, SDA 8, SDA 10 and SDA 11) for infill development in the Lephalale urban complex. This approach will help consolidate housing development thus in turn help to preserve and strengthen the existing centres.

Pedestrian Movement

Strong pedestrian movement is associated with public transport facilities and centres of gravity such as business activities and community facilities as evidenced in Marapong, Onverwacht and Lephalale CBD. However, the public space within Lephalale generally pedestrian infrastructure such as walkways, street furniture and street lighting. Towns should first and foremost be places for *people*, not cars. The comfort and safety of pedestrians should be addressed as a priority.

Informal Trade

informal trade is not properly regulated in terms of identifying appropriate land and the provision of proper facilities. Informal trading activities currently occur haphazardly often rendering the surrounding environment unsightly. A proactive and participatory approach is required to address this issue.

5 PHASE 4: CONCLUSIONS

5.1 ALTERNATIVE DEVELOPMENT SCENARIOS

Emanating from the identified critical issues and synthesis thereof, a number of 'points of departure' were derived to guide the choice of scenarios, as well as the final decision as to the preferred development scenario. The most desirable 'state'/ type of development in the study may be described as follows:

- The regional open space system forms the non-negotiable backbone to the spatial structure of the town;
- The northern and southern bypass roads proposed in the Lephalale SDF be taken into account.
- That existing activity nodes be preserved and strengthened.

- To improve connectivity between Marapong and the Lephalale (Ellisras)/ Onverwacht areas – keeping in mind the mineral potential/ mining rights on the land in between.
- That visual exposure from regional routes be optimally utilised without impeding their mobility function.
- The mining and energy sectors in Lephalale have massive growth potential but there is uncertainty around the scale and timeframes of developments. Thus the optimal scenario would be flexible to accommodate growth (over and above the 60 Ha) in the long term – without creating 'dead areas' in the interim.

Two possible development scenarios for the future development of Lephalale were investigated. The two alternative scenarios are conceptually illustrated on **Figures 20 and 21** and briefly summarised below:

Scenario 1

The fundamental approach in this scenario may be described as follows (see Figure 20):

- Construct northern bypass road as priority;
- Redirect regional traffic around the Town, but local traffic between activity nodes along Nelson Mandela;
- Consolidate new development around existing activity nodes and promote expansion of all activity nodes in the direction of the northern bypass;
- Promote commercial/ light industrial development along regional/ bypass road;
- Establish north-south linkages to link activity nodes with northern bypass.
- Develop the Altoostyd activity node.
- Establish a heavy industrial area at the intersection of the northern bypass and route D2001/ Nelson Mandela.

Positives

- Bypass road diverts heavy vehicle traffic around CBD and Onverwacht Node, alleviating congestion.
- Due to high levels of regional traffic, the northern bypass road becomes an anchor pulling development northwards, closer to Marapong.
- Incremental business/ commercial/ light industrial development along northern bypass will eventually lead to the consolidation of the CBD and Onverwacht nodes.
- Is an open system that does not limit future growth to a predetermined 'size'.
- Northern bypass drawing development northwards will provide incentive to consolidate existing urban fabric around existing activity nodes and discourage southwards expansion.

Negatives

There are no unwanted consequences associated with this Scenario.

Scenario 2

The scenario is briefly described below (see Figure 21):

- Northern bypass is constructed as a priority.
- Promote commercial/ light industrial development at the intersection between the northern bypass route and Onverwacht Road to utilise the visual exposure along regional road.
- Promote business along internal road network between the light industrial area and the CBD.
- Fill vacant land pockets between the proposed commercial/ light industrial node, the northern bypass and the CBD with residential development (reserving land for the business strip).
- Develop the Altoostyd activity node.
- Establish a heavy industrial area at the intersection of the northern bypass and route D2001/ Nelson Mandela.

Positives

- Has potential to link Onverwacht with CBD to create a singular strong core/ activity node.

Negatives

- Does not optimally utilise visual exposure along northern bypass route or route R510.
- Incremental development along the strip might prove challenging as there is a chance that 'dead' areas will exist along the periphery of the CBD and Onverwacht node until such time that they are integrated/ the strip is fully developed.
- The layout leads all regional traffic around and away from the town, and all local traffic through the CBD and Onverwacht node – there is limited interaction between the regional and local traffic; options to enter the activity nodes are limited.
- The concept creates a closed system which might prove to provide insufficient space for business activities in the long term.
- Does not alleviate the traffic congestion experienced in the CBD.

5.2 PREFERRED DEVELOPMENT SCENARIO

After careful consideration of the two development scenarios and measured against the study objectives and points of departure as stated in Section 5.1, it is recommended that Scenario 1 (Figure 20) be adopted for the future development of Lephalale Town. The reasons for preferring Scenario 1 above Scenario 2 are briefly noted below:

- The scenario will create an anchor for economic development in the north (along northern bypass), closer to Marapong;
- Best scenario to optimally utilise visual exposure along regional road network for economic development;
- Best scenario to strengthen existing activity nodes due to incentive for a consolidated urban fabric;

- Best scenario to alleviate traffic congestion in the CBD as it draws regional traffic out of the activity nodes, and provides sufficient north-south linkages to link local traffic to the regional road network;

The following section comprises the proposed recommendations of the CBD Development Plan. A Framework Plan was derived based on Scenario 1, the preferred development scenario, together with a CBD Management Strategy and Lephalale Programme and Strategy.

6 PHASE 5: RECOMMENDATIONS

6.1 DEVELOPMENT PRINCIPLES

Having identified the most ideal future development scenario for the study area, the CBD Development Plan proposes that the following ten Development Principles guide future development:

1) To protect and optimally utilise the regional open space system;
2) To construct the northern bypass road;
3) To consolidate the Lephalale CBD and Onverwacht activity node into a new Primary Activity Node and establish a number of supporting secondary activity nodes;
4) To link Marapong with Lephalale Town;
5) To consolidate the bulk of business activity within the primary and secondary activity nodes;
6) To promote commercial and light industrial activities in the northern parts of the primary activity node;
7) To consolidate heavy industrial activities within the Industrial Development Zone (IDZ);
8) To maintain existing community facilities in the primary activity node, and to promote the consolidation of new community facilities in the Altoostyd node;
9) To prioritise residential infill residential development within the existing urban footprint between the Altoostyd node, the northern bypass and Lephalale CBD, and to support residential densification around activity nodes;
10) To enhance the aesthetic quality of nodes by implementing urban design guidelines; and
11) To upgrade and expand engineering service infrastructure to accommodate and guide the imminent growth of Lephalale Town.

6.2 CBD DEVELOPMENT PLAN

The proposed Development Plan is graphically illustrated on **Figure 22a** and discussed in more detail in this section:

DEVELOPMENT PRINCIPLE 1:

To Protect and Optimally Utilise the Regional Open Space System

The regional open space system should be regarded as the main form-giving element in the Town and surrounds. As such, it should be protected from urban development and from contamination. No formal or informal settlement should be allowed within the 1:100 floodline and special care should be taken to ensure that mining and power station operations in the vicinity observe proper environmental management practices.

The broader area is a major tourism destination and is known for its scenic beauty, yet Lephalale town does not incorporate the natural features into its urban fabric. The regional open space system has potential to serve as an aesthetic and functional feature of the town.

The *Moloko River* that flows parallel to the eastern side of route R510 and its associated open space system could be developed as a recreational and social precinct to serve the broader community. It is close to the CBD and very accessible via route R510. A tourism information centre could be developed as part of the precinct, to supply visitors with information regarding the town and surrounds.

Furthermore, the *Sandloop River* and associated open space bisects the new Altoostyd activity node. It is proposed that the open space system be utilised to link and integrate the two portions of the node. Refer to Development Principle 10 for more details regarding the above two proposals.

DEVELOPMENT PRINCIPLE 2:

To Construct the Northern Bypass Road

The Lephalale SDF proposed the construction of both a northern and a southern bypass route to direct regional traffic around Lephalale town. The bypass routes are extensions of the regional road network. The CBD Development Plan proposes that the northern bypass route (see Figure 22a) be constructed as a matter of urgency.

Note that the SDF's initial alignment of the northern bypass was a little further to the north, in line with route R518. However, it is believed that the route alignment closer to town (as indicated on Figure 22a) will have a more positive impact on the future spatial form of Lephalale.

It is proposed that the northern bypass should be prioritised over the southern bypass and the construction of the southern bypass route is strongly discouraged for the short to medium term. The economic energy generated due to regional traffic passing along the northern route will act as a catalyst to

the northwards expansion of business and commercial land uses. This strong attraction will be a strong disincentive to the current southward expansion of the town. The premature construction of the southern bypass will dilute the town's economy and effectively counter the 'pulling force' of the northern bypass.

The northern bypass could be constructed by means of a joint venture between the local municipality and local stakeholders such as the mining companies who own mining rights on the affected land.

Furthermore, all regional linkages – namely routes R510, R33, R518 and the northern bypass – are vital to the economy and future development of Lephalale Town. The mining and energy sectors are largely dependent on road freight transport, and the regional roads grant access to the surrounding bushveld area, as well as to Botswana. The large-scale construction in and around the town is placing increasing pressure on the regional road infrastructure. As the town expands, the volumes and frequency of heavy vehicle traffic are also likely to increase.

The mentioned regional routes should thus be upgraded where necessary, and be very well maintained. This primary road network should also be systematically upgraded to accommodate projected traffic volumes.

DEVELOPMENT PRINCIPLE 3:

To Consolidate the Lephalale CBD and Onverwacht Activity Node into a new Primary Activity Node and Establish a Number of Supporting Secondary Activity Nodes

The construction of the northern bypass route is likely to be followed by pressure for development along the bypass route due to high levels of visual exposure to the regional traffic. Currently, the erven to the south of the proposed route are vacant while those to the north comprise agricultural holdings.

It is thus proposed that the strip of erven along both sides of the northern bypass, between the CBD and the proposed commercial/ light industrial precinct, be reserved for commercial and business development, as well as service industries. The northern bypass will likely also stimulate the northwards expansion of Lephalale CBD and the Onverwacht light industrial area. Once fully developed, the strip will also serve as an interface between the mining activities to the north and the town, while protecting the residential fabric of the town.

This pattern of development will, in time, lead to the incremental integration of the CBD with the Onverwacht node – via the northern bypass route. This consolidated activity node will form a new Primary Activity Node to serve the Lephalale area and rural surrounds.

Furthermore, two secondary activity nodes are identified – namely Altoostyd and Marapong nodes – to serve the western parts of Lephalale town. Furthermore, based on available information, the Steenbokpan area is likely to comprise a significant portion of residential development, together with local business centres and supporting community facilities. The new area would thus, over time, become an additional secondary node.

In line with the proposed nodal hierarchy, the new consolidated primary activity node will typically comprise a mixture of high level retail establishments and regional community facilities. The land use intensity should be high, incorporating medium to high densities, multi-storey buildings, and mixed uses. The proposed secondary activity nodes would focus on serving the respective local communities with retail and community facilities. The secondary activity nodes would thus fulfil a support function to the CBD.

DEVELOPMENT PRINCIPLE 4:

To Link Marapong with Lephalale Town

The main function of the northern bypass route will be mobility, in other words to carry regional traffic around Lephalale Town. A secondary road network is proposed to grant access to the respective activity nodes from the northern bypass as well as to carry local traffic between activity nodes.

The proposed secondary road network comprises a mixture of existing routes, some gravel routes that need to be surfaced, and new/ strategic linkages. The primary road network, together with the proposed secondary network, should be the priority routes for construction, upgrade and maintenance in Lephalale.

The secondary network is summarised below (see Figure 22a). Of all the routes, the most urgent for construction and upgrade are the three linkages between Marapong and Lephalale Town, and more specifically to major economic areas/ areas of opportunity.

Links to Marapong Township:

- Extension of Onverwacht Road from Onverwacht light industrial area to Marapong across mining land.
- Upgrading of existing link road from Marapong to Heavy Industrial Area at the intersection between the northern bypass and route D2001.
- New link road from Marapong to future Altoostyd node.

East-west Linkages:

- Nelson Mandela/ route D1675/ route D2001 to act as a local spine connecting Lephalale CBD, Onverwacht node and Altoostyd node to one another.
- Surfacing of the extension of Hendrik Pistorius Street from the light industrial area to the CBD and connecting into route R510 via Pika Street.
- Extension of Aalwyn Road from Onverwacht to J Louis Botha Drive in the CBD and linking into route R510.

- Once the town has developed to such an extent that it necessitates the construction of the proposed southern bypass (see Development Objective 2) it is proposed that the route be downscaled and form part of the secondary road network.

North-south Linkages:

- Extension and surfacing of Onverwacht Road between Nelson Mandela Drive and northern bypass.
- Extension of Maggie Street to connect northern bypass with Nelson Mandela Drive, via the light industrial area.
- Extension of Wells/ Jan Street in the CBD to connect northern bypass with Nelson Mandela Drive.
- Two new north-south roads that grant access from the northern bypass to the proposed residential precinct between the CBD and Onverwacht.

In addition to the linkages to Marapong, it is proposed that modal transfer facilities be established within every activity node and at major centres of employment in order to increase residents in Marapong's access to areas of opportunity.

DEVELOPMENT PRINCIPLE 5:

To Consolidate the Bulk of Business Activity within the Primary and Secondary Activity Nodes

The proposed strategy with regards to future business development in Lephalale is to consolidate formal retail and office uses within the footprint of the primary and secondary activity nodes. The reasoning behind the proposed consolidation is to build on and increase existing 'critical mass' within the activity nodes. The clustering of business activities stimulates demand for additional/ spin-off uses; Increased levels of activity also increase the vitality and viability of an activity node.

To give an indication of the surplus or deficit of retail space in the study area, a land use budget was drawn up for Lephalale, and is reflected in **Table 7**. The following key points are noted from the land use budget:

- It was projected that the total municipal population in 2030 will be approximately 197 695. This includes the Lephalale/ Marapong urban complex as well as the rural areas.
- Adjusting for levels of income and distance from Lephalale Town, it was calculated that the total municipal population in 2030 could support a total GLA (retail floor area) of 257 314 m^2.
- It is further proposed that of this total, 116 813 m^2 should be provided within the town centre (Primary Activity Node).
- Additionally, the total municipal population could likely support 67 855 m^2 GLA divided between 3 community centres; 59 686 m^2 GLA divided between 2 neighbourhood centres; and 12 960 m^2 GLa divided between 2 convenience centres (see Table).
- It is proposed that this remainder be divided between the secondary activity nodes, eg. the Marapong and Altoostyd nodes.
- Currently, the study area comprises 128 535 m^2 retail floor area, divided between the activity nodes.

Table 7: Potential incremental GVA in Lephalale/ Marapong Urban Complex - 2030

Type of Centre	Trade Area	% Spent in Town Household Income			2030 Trade Area Potential (Population)				Retail Space / Capita (m^2)			Retail Space Potential (GLA m^2)				Existing (GLA m^2)	Surplus/Deficit	Size of Centre (GLA m^2)	Number of Centres Needed	Area (ha) Needed
		Low	Middle	High	Low	Middle	High	Total	Low	Middle	High	Low	Middle	High	Total	Total	Total			
Town Centre: Primary Node	Urban*	100%	95%	90%	49 246	40 628	33 824	**123 698**	0.4	0.6	1.3	19 698	24 377	43 972	**88 047**					
	Rural**	90%	85%	80%	50 704	18 583	4 709	**73 996**	0.3	0.4	1.3	15 211	7 433	6 122	**28 766**					9.5
	LIM362: Lephalale LM				99 950	59 211	38 533	**197 695**				34 910	31 810	50 093	**116 813**	88 221	28 592			
Community Centre	Urban	100%	95%	90%	49 246	40 628	33 824	**123 698**	0.3	0.4	0.4	14 774	16 251	13 530	**44 555**			12 000 - 25 000	3	22.6
	Rural	90%	75%	65%	50 704	16 397	3 826	**70 927**	0.3	0.4	0.4	15 211	6 559	1 530	**23 300**					
	LIM362: Lephalale LM				99 950	57 025	37 650	**194 626**				29 985	22 810	15 060	**67 855**	-	67 855			
Neighbourhood Centre	Urban	100%	100%	100%	49 246	42 766	37 583	**129 595**	0.3	0.4	0.4	14 774	17 107	15 033	**46 913**			5 000 - 12 000	2	7.2
	Rural	50%	40%	35%	28 169	8 745	2 060	**38 974**	0.3	0.4	0.4	8 451	3 498	824	**12 773**					
	LIM362: Lephalale LM				77 415	51 511	39 643	**168 569**				23 225	20 605	15 857	**59 686**	38 172	21 514			
Small Free Standing and Convenience	Urban	100%	100%	100%	49 246	42 766	37 583	**129 595**	0.1	0.1	0.1	4 925	4 277	3 758	**12 960**			500 - 5 000	2	3.6
	Rural	0%	0%	0%	-	-	-	**-**	0.1	0.1	0.1	-	-	-	**-**					
	LIM362: Lephalale LM				49 246	42 766	37 583	**129 595**				4 925	4 277	3 758	**12 960**	2 141	10 819			
Total Retail Space Generated	Urban				49 246	42 766	37 583	**129 595**				**54 171**	**62 011**	**76 293**	**192 475**					
	Rural				56 338	21 863	5 886	84 087				**38 873**	**17 490**	**8 476**	**64 839**					**42.9**
	LIM362: Lephalale LM				105 584	64 629	43 469	213 682				**93 044**	**79 501**	**84 769**	**257 314**	**128 535**	**128 779**			

Source: Plan Associates 2013

* Urban = Lephalale/Marapong Urban Complex

** Rural = Remainder of Lephalale LM

- There will thus likely be capacity for an additional 128 779 m^2 up to 2030.
- The deficit of 128 779 m^2 GLA may be translated into 42.9 hectares that should be reserved for business/ retail purposes to accommodate the deficit.
- Likewise, the Town Centre currently comprises 88 221 m^2 of retail space. There is thus capacity for an additional 28 592 m^2 to total the required 116 813 m^2 that can be supported in 2030.
- The 28 592 m^2 GLA deficit translates to 9.5 Ha of land required within the Town Centre.

As indicated, the Development Plan makes provision for the northwards expansion of the Lephalale CBD and Onverwacht node, coupled with mixed use development along the northern bypass route.

The proposed expansion areas of every activity node are detailed below (see **Figure 22b**). Note that the demarcated nodal boundaries should be fairly well guarded by way of promoting infill development and redevelopment of erven within the boundary – and discouraging it outside of the boundary. In this manner the residential fabric around activity nodes remains protected, and decentralisation is kept to a minimum – leading to stronger activity nodes and boosting investor confidence.

Primary Activity Node

- Extend CBD westward to include the vacant land pocket(A) to the west of Louis Botha Drive (21 Ha).
- Expand CBD northwards to include the intersection(B) between the northern bypass and route R510 (24 Ha). The Department of Public Works currently situated on this site could be relocated to the commercial/ light industrial area where it would be better suited.
- Expand Onverwacht Node northwards to include northern quadrants(C) of intersection between Nelson Mandela Drive and Onverwacht Road (26 Ha).
- Reserve land adjacent to northern bypass(F) for business, commercial and light industrial uses.

Marapong Node

It is proposed that business activities be consolidated in the southern part(D) of the new node demarcated in the SDF. The remainder of the area could be filled with medium density residential development as the demarcated area exceeds the calculated retail potential for Marapong.

Altoostyd Node

The Altoostyd layout makes provision for an activity node(I+J). The node should preferably be developed with a mixture of business and community facilities.

DEVELOPMENT PRICIPLE 6:

To Promote Commercial and Light Industrial Activities in the Northern parts of the Primary Activity Node

Land adjacent to the northern bypass will benefit from visual exposure to the passing regional traffic. It is thus proposed that commercial uses, warehouses, service industries, tyre centres, and light industrial activities be promoted along

the northern bypass road[F + G] (Figure 22b). The activities could be linked to the existing light industrial area to the north of the Onverwacht node.

The area is ideal for activities that are not compatible with the business cores in the Lephalale CBD and Onverwacht node, and there are opportunities for interaction with the future mining activity on the farms to the north.

Importantly, an Access Management Plan will have to be developed for the northern bypass route, in order to regulate access to adjacent uses. Solutions may include a service road parallel to the northern bypass to grant access to individual land parcels.

DEVELOPMENT PRINCIPLE 7:

To Consolidate Heavy Industrial Activities within the Industrial Development Zone (IDZ)

The area to the west of Lephalale Town was earmarked as the Industrial Development Zone in the Lephalale SDF and includes a number of existing and proposed mines and power stations. Furthermore, the intersection between the northern bypass route and Nelson Mandela Drive/ route D1675 will become a very strategic intersection, as it will represent the point where regional and local traffic merges again after bypassing Lephalale Town.

The Development Plan thus proposes that heavy industrial activities be consolidated in the IDZ, specifically around the intersection of the northern bypass and route D1675 – close to the existing light industrial area[E] that forms part of Altoostyd. In this manner, the town will be able to directly serve and capitalise off of the heavy industries in the vicinity, without compromising the town's residential character.

The activities in the precinct will typically have strong relations with the mining and energy sectors, and will comprise heavier and more noxious uses than those allowed along the bypass route (refer to development principle 6).

DEVELOPMENT PRINCIPLE 8:

To Maintain Existing Community Facilities in the Primary Activity Node, and to Promote the Consolidation of New Community Facilities in the Altoostyd Node

Lephalale Town serves as the primary activity node to a vast rural area. As such, it should comprise a full complement of regional community facilities and government services.

The majority of community facilities in the study area are found in the primary activity node (CBD and Onverwacht Node). Unfortunately these services are not consolidated with one another. It is thus proposed that any additional community facilities at least be consolidated with one of the existing facilities. This will assist to establish clusters of community facilities in certain parts of the primary activity node.

Secondly, the CBD Development Plan proposes that the majority of new community facilities be consolidated within the Altoostyd Node in order to

catalyse the establishment of this node. It is proposed that the development of the Altoostyd node be based on national government's Thusong Centre concept (shortly described below).

The Thusong Centre/ Multi-Purpose Community Centre is a process to incrementally establish a new node by means of strategic public investment. The concept advocates the establishment of some basic community facilities, including a taxi rank, at a strategic intersection within the proposed activity node. Community facilities may include a clinic, community hall, post office, satellite police station, satellite municipal offices, etc.

The concept broadly states that the critical mass and economic energy generated around this point will incrementally grow until formal retail activities become viable, which in turn leads to a demand for housing in close proximity to the node. As the resident community grows, community facilities are incrementally added and the node's economic potential grows due to the critical mass generated around the initial strategic point.

It is the responsibility of the Lephalale LM to liaise with provincial and national government departments to ensure that new community facilities and government services are provided in the Altoostyd node, and to further ensure that these facilities are consolidated at a predetermined strategic point. Note that the node will also serve the Marapong community once the proposed direct road linkages to Marapong have been established.

Finally, it is proposed that new tertiary training institutions be consolidated in two Regional Institutional and Training Facility Precincts. The first area is namely between the Onverwacht node and the existing light industrial area, and the second is along Aalwyn Road adjacent to the existing private hospital (see Figure 22a).

As a regional service centre Lephalale Town should be a centre for academic and technical training. The expansion of the mining and energy sectors in the vicinity will increase the need for skilled personnel. Furthermore, the resident population will also grow and lead to a greater need for schools and other institutions such as satellite university campuses, ABET centres etc.

Of the two areas, the eastern precinct should be prioritised in terms of phasing, seeing as the precinct (once develop) will serve to connect the Onverwacht business core with the light industrial area.

As an alternative to training institutions, the two precincts may also be filled with medium density residential development which will also assist to link Onverwacht with the light industrial area.

DEVELOPMENT PRINCIPLE 9:

To Prioritise Residential Infill Residential Development within the Existing Urban Footprint between the Altoostyd Node, the Northern Bypass and Lephalale CBD; and to Support Residential Densification around Activity Nodes

It is far more cost-effective to service a consolidated urban area than it is to service scattered and disconnected developments. In this regard, the vacant land pockets between Altoostyd, the northern bypass route and Lephalale CBD should be prioritised for residential infill development in the short to medium term. Note that the area includes SDA 8 identified in the Lephalale SDF.

As mentioned, the land to the north of the northern bypass is undevelopable due to its mining potential, mitigating the possibility of physically integrating Marapong with the Town. The purpose of this infill development is mainly to create a consolidated urban footprint around the primary and secondary activity nodes and anchored by the northern bypass route – thus strengthening the activity nodes, and bringing the town closer to Marapong.

It is furthermore proposed that residential densification in general be encouraged within and around the identified activity nodes. A stronger residential presence will strengthen the nodes by increasing the viability of businesses and community facilities within them.

It is imperative to create favourable conditions for residential densification so that developers will take up the opportunities. It is thus suggested that infrastructure upgrades be prioritised in areas earmarked for infill development and densification as discussed above.

Finally, only when this identified area has been fully developed and densified as much as possible may residential expansion be allowed to the south of the Town (in SDAs 10, 11 and 7 of the SDF). Furthermore, the focus should be on incremental expansion and leapfrog development should not be allowed. Note that this long term expansion will most likely comprise middle to high income housing.

Development Principle 10:

To Enhance the Aesthetic Quality of Activity Nodes by Implementing Urban Design Guidelines

The identified activity nodes are the centres of life in Lephalale Town. They represent the town's image to visitors and potential investors, and are the heart of the resident community's daily lives. The activity nodes should thus not only be functional, but as places for *people* they should also be attractive and user-friendly.

In order to guide both the Local Municipality and potential private investors, the CBD Development Plan proposes a set of general Development- and Urban Design Guidelines that could be utilised to inform the design of buildings and spaces in the primary and secondary activity nodes.

The guidelines relate to the main elements of the public environment – where the Local Municipality have jurisdiction and thus have the ability to set the trend and are depicted on **Diagrams 10 and 11**. The features of the public realm are listed, together with the characteristics that are key to the success of each element, and a summary of 'tools'/ criteria that may be used to uplift the quality of that particular element.

Furthermore, a Precinct Plan was developed for each of the activity nodes where the Development- and Urban Design Guidelines are applied to the respective nodes. The Precinct Plans detail specific proposals that emanate from Development Principles 1-11, including the Development- and Urban Design Guidelines depicted on Diagrams 10 and 11, and are in line with the urban design principles discussed in section 2.5.2.

The interventions relate to, amongst others, infill business areas, public open space, main pedestrian movement routes, and place-making initiatives; and are briefly described below:

I. Lephalale CBD

Figure 23 illustrates the Precinct Plan for Lephalale CBD. Importantly, the Lephalale CBD and Onverwacht Node will eventually be consolidated by means of business/ commercial expansion along the northern bypass route; and will become a new Primary Activity Node to serve Lephalale Town. In the meantime though, the following proposals pertain to the former Lephalale CBD:

Mixed Use and Diversity

- Encourage new developments within the CBD to establish vertically in order to efficiently maximise space.

Compactness and Densification

- It is proposed that infill business development be accommodated as part of the CBD future expansion, namely in the west and north of J Louis Botha Dr, and in the south-western quadrant between the northern bypass route and route R510 (O.R. Tambo Road).
- The Department of Public Works could be re-located to the commercial/light industrial precinct (north of the Onverwacht Node).

Housing

- Medium density residential is proposed to be located closer to the business core in order to strengthen and increase viability of the town, and promote life (active 24 hours node), safety (eyes on the street) and a sense of convenience.

Public Transport

- Public Transport Facilities are well distributed within the Lephalale CBD. Due public transport services being one of the main feeders of life and energy into business areas, it is essential to integrate the three public transport facilities established within the town to one another through a well-defined pedestrian movement network. Located close to public transport services, is

proposed to promote and support informal trading by providing adequate and sufficient formal informal trading structures.

- **Diagram 12** depicts a proposal within the CBD of Lebowakgomo, which focused on integrating the existing taxi rank facility with an approved bus rank, and both these modes of public transport were linked via a defined pedestrian movement network. Furthermore, located between the two modes of public transport are formalized informal trading structures at a public open space area. This is typically the structure public transport facilities within the town of Lephalale, and a similar could be implemented.

Informal Trading

- It is proposed that Informal Trading be formalized and consolidated at the three public transport facilities, and along J Louis Botha Road which links all three public transport facilities. Due to informal trading varying in the types of trading businesses, it is also important to provide formalized informal trading structures that will cater for the needs of traders in terms of scale (small or large quantity trading) and design (open-trade structure or lock-up structure). **Diagram 13-14** depicts examples of different types of formalized informal trading structures which have been implemented in various township areas in South African.
- Due to limited space available at some of the public transport facilities, it is suggested that formalised informal trading structures illustrated on **Diagram 13** could be implemented. As these are narrower in size and therefore do not take up much space, however, providing these will also have to regard the type of trading being conducted in that particular area. Areas that offer larger spaces, in which currently accommodates food preparation type of businesses, it is suggested that formalized informal trading facilities depicted on **Diagram 14** be provided.

Pedestrian Movement Network

- There are six primary pedestrian links, three of which being north-south orientate and three traversing east-west. Pedestrian movement network traversing north-west is proposed along the O.R Tambo Road (R510), J Louis Botha Street and Wells Street which alternates as Jan Street in the north. In the east-west direction, pedestrian movement is proposed along Nelson Mandela Dr, Hendrik Pistorius Street and along the proposed secondary road north of Marula Mall.
- These six identified pedestrian links should be prioritised and be provided with adequate streetscape elements such as texture-paved pedestrian walkways, street lighting of human-scale, benches, waste disposal containers and trees (greenery for shade). Furthermore, to enhance pedestrian safety pedestrian crossings, speed humps and street bollards should also be placed across major attractions and services, (see **Diagram 10** for examples).

Public Open Space

- Develop the regional open space around the Moloko River (east of route R510) as Recreational Precinct. In order to achieve this, the Lephalale Local Municipality could do the following:
  - Clear excess vegetation between route R510 and the Moloko River;
  - Facilitate safe pedestrian crossing of route R510 eg, via pedestrian bridge(s) or pedestrian crossings;

- Provide paved pedestrian walkways that link into the Recreational area from the road network of the CBD;
- Provide park signage, 'human scale' lighting (1.37m high), shelters, benches, hard and soft spaces, together with a variety of braai/ picnic facilities, activity square/ paved areas and sport facilities within the open space system (see examples on **Diagram 11**).
- Construct a tourism information centre as part of the Recreational Precinct adjacent to the existing lodge to provide visitors with information regarding the town and surrounds.

- The public open space close to the court and police station is proposed to have its current fenced area removed and integrated together with the taxi rank facility in the north, as well as with the court and police station.
- Proposed public open space/activity square at intersection between J Louis Botha and proposed extension of Hendrik Pistorius Drive. To serve as a gateway into the CBD. This public area should include paved surface, street lighting, benches and art features.

Gateway

- Establish the northern entrance to the CBD, at the intersection of O.R. Tambo Road and northern bypass road, as a gateway by means of a signpost, landscaping etc.

II. Onverwacht Node

The Precinct Plan of the Onverwacht Node is illustrated on **Figure 24** and discussed below:

Mixed Use and Diversity

- The Onverwacht Node is proposed for expansion, not only within the node itself but to also expand to the north linking with the Light Industrial/Commercial area. Along the Onverwacht Road, in the east of Lephalale Mall is proposed for a variety of activity as the road will be connected to the northern bypass road.

Compactness and Densification

- It is proposed that infill business development be accommodated on vacant sites within and around the node.
- The construction of the Onverwacht Road, east of the node will unlock development potential in the eastern part of the node. Long-term business expansion is proposed at intersection between Nelson Mandela Drive and Chris Hani Street, this will link activity node in the south with the Regional Institutional Training Precinct and Light Industrial/Commercial area to the north.
- Infill light industrial activity on vacant sites in light industrial area.
- Proposed Institutional Precinct along the eastern side of Onverwacht Road as well as along Aalwyn Road. Consolidate tertiary training institutions in the Precinct.

Housing

- Residential densification is proposed close to the economic node in order to strengthen and increase viability of the node.

Pedestrian Movement Network

- There are three primary pedestrian movement links along Nelson Mandela Drive, Chris Hani Street, Onverwacht Road, and Dagbreek Road. These roads should be prioritised for the provision of paved pedestrian walkways, human-scale street lighting, trees and landscaping, and pedestrian crossings at major crossings or close to major attractions.

Public Transport and Public Open Space

- Due to the node not having a formal public transport facility, it is proposed that a taxi rank facility be provided either within the nodal point close to the Lephalale Shopping Mall and community facilities, or at one of the main intersections along Nelson Mandela Dr.
- It is recommended that close to the proposed taxi rank facility, be provided a formal public open space area with trees, benches, children's playing equipment, park signage, street lighting, and a formalized informal trading area (see example on **Diagram 12**).
- Provide an additional formal lay-by facility at the intersection of Nelson Mandela Drive and Chris Hani, at the north-east quadrant.
- Formalise the two public open spaces within the residential fabric, in the north and the south of the node.

Informal Trading

- Formalize informal trading along Chris Hani Street close to the Ellisras Hospital. It is recommended that formalized informal trading structures depicted on **Diagrams 13**, would be the better option, as traders conduct small-scaled businesses of selling goods.

Gateway/ Entrance

- Intersections at major roads act as gateways, visually introducing the node to vehicles and pedestrians. The Nelson Mandela Dr and Onverwacht Road leads to various areas within and around the node, is it therefore proposed that an art feature be placed at the intersection of Nelson Mandela Dr and Onverwacht Road, as the intersection serves as a gateway to the business node in the south and the light industrial / commercial area in the north.
- Design elements to be erected at major intersections, include texture paving, signage, landscaping and/or an art feature portraying the character of the area.

III. **Altoostyd Node**

Pedestrian Movement and Public Open Space

- It is proposed that the *Sandloop River* open space system that bisects the Altoostyd activity node be utilised to link and integrate the two portions of the node (see **Figure 25**). Guidelines that may be considered include:
  - Locating public buildings adjacent to the open space to encourage its use as social space;
  - Businesses that will front onto the open space system should be encouraged to front onto it (use the open space as 'front door') and 'engage' it through their site design and activities, thereby further integrating it into the urban fabric of the node;

- Utilising the open space as pedestrian movement corridor between the western and eastern portions by constructing paved walkways and pedestrian bridges (see **Diagram 11**);
- Provide street furniture and other amenities to enhance the functionality and safety of the open space 'corridor' such as seating and 'human scale' lighting (see **Diagram 10**).
- Community facilities should preferably be distributed and consolidated within the two nodal areas along route D1675.

IV. Marapong Node

It is proposed that future business development in Marapong be consolidated within the boundaries of the new activity node as proposed in the SDF. The reason is that the centre of gravity of the township is likely to shift eastwards once the northern bypass road has been constructed, as it will grant township residents more direct access to Lephalale town. The following interventions are proposed for the Marapong Node (read with **Figure 26**):

Mixed Use and Diversity

- Promote mixed land uses within existing spar node, Tlou Street, and the proposed nodal point east of the township, along Chris Hani Street.

Compactness and Densification

- Consolidate business activities at the spar shopping complex, along Tlou Street (formalize the trend of spaza shops).and the eastern nodal point between Chris Hani Street and Ramatlhodi Street.
- Additional community facilities to be consolidated along Chris Hani Street, adjacent to the library and community hall.

Housing

- Fill the remainder of the eastern node to the north, with medium density residential development.
- Proposed expansion of hostels in the south-west of the township, to connect with the two existing hostel complexes.

Road Network

- Proposed link road in the south- western part of Marapong, via hostel complexes, linking to Tlou Street.

Pedestrian Movement Network

- Main pedestrian movement network is namely along Relebogile, Mohlwiliri, Tlou, Chris Hani Streets and the extension of the northern bypass. Proposed design elements along these routes will include; paved pedestrian walkways, texture paving to define intersections, human scale street lighting, street furniture eg bins, benches, signage to main attractions (see **Diagram 10**).

Public Transport

- Proposed formal taxi rank within the new activity node.

Informal Trading

- Provide formalized informal trading structures at spar shopping complex, at the intersection of Tlou and Relebogile Street opposite the Marapong Clinic, as well as along Chris Hani Street. (Refer to **Diagrams 13-14** for options relating to formalized informal trading structures).

Public Open Space

- Formalize three existing public open spaces, namely at Tlou Street and two situated along Relebogile Street. Provide a play park, paved walkways, seating, street lights, and signage eg the name of the park. (see examples in **Diagram 11** under Public Open Space).
- Proposed sports field within the new activity node along Tswene Street.

Development Principle 11:

To upgrade and expand engineering service infrastructure to accommodate and guide the imminent growth of Lephalale Town

The availability of bulk water and sanitation infrastructure in and around a town is one of the greatest tools for Council to guide the town's future spatial structure. It is thus proposed that the upgrading and extension of the engineering infrastructure network in the identified residential infill areas (see Development Principle 9) be prioritised as a matter of urgency, in order to make proactive provision for the projected growth of the town. If sufficient engineering service infrastructure is available developers are more likely to take up these opportunities than to push for developments that are further away and disconnected from the existing urban fabric. In other words, it will assist to create an investment-friendly climate and to consolidate the town's urban fabric.

The Lephalale Municipality could partner with developers and mining companies to upgrade and expand the Town's water and sanitation infrastructure.

With regards to water, the Town's water supply has to be augmented, water storage capacity increased, and bulk distribution network increased. With regards to sanitation, the capacity of sewer treatment plants has to be increased, sewer lines upgraded, and an additional sewer outflow pipeline constructed.

Stormwater has to be addressed as part of the design and construction of roads in new townships, and as part of the upgrading of existing roads. Priority should be given to primary and secondary roads in the Town (see Development Principle 2). Lephalale and Marapong are Eskom service areas as far as electricity is concerned. It was identified that both the town and the township is in need of electricity network upgrades/ expansion.

6.3 LEPHALALE CBD URBAN MANAGEMENT STRATEGY

As mentioned, Lephalale town is set to become one of the largest cities in South Africa, due to booming mining and petro-chemical activity around the town and in the vicinity. The foreseen growth will likely transform the small rural town into a city which plays a major role in South Africa. The injection of

economic energy and population boom will bring with it opportunities as well as challenges. The challenge in the study area will be to manage, and provide for this growth in a sustainable way; while retaining a high quality of life for local residents.

The Spatial Development Plan for the Lephalale CBD reflects the future spatial vision for the area. However, in itself the Plan is worthless if not supported by way of a comprehensive management programme and implementation strategy for the area. In order to ensure the efficient implementation of the Plan, it is thus proposed that the following ten programmes be initiated in the study area:

1. Lobbying for Funding

As part of this initiative the Lephalale Municipality should also launch a Lobbying Campaign with National and Provincial Service Providers to make them aware of the Lephalale CBD Development Plan, and to obtain funding from these institutions to support the programme wherever their line functions are involved e.g. the Neighbourhood Development Partnership Grant administered by National Treasury, and the allocation of new community facilities and provincial government department offices. Specifically, provincial departments should be made aware of Lephalale's vision to establish Altoostyd as a secondary activity node, and the Municipality should lobby for the clustering of services to establish a Thusong Centre in the node.

Finally, the Lephalale Municipality should collaborate with the provincial transport department, the Waterberg District and local mining houses to prioritise the construction of the northern bypass route, as well as the upgrade and maintenance of the primary road network (R510, R518 and R33).

2. Minimum Basic Service Levels Agreement/ Commitment

The purpose of this programme is to ensure that all service departments within the Lephalale LM reach a common agreement on the minimum levels of service to be achieved and maintained in the activity node(s) and in infill business and residential areas. Typical aspects that should be part of such an Agreement include refuse removal, stormwater management, cleaning services, grass-cutting, policing, landscaping, land use management, by-law enforcement, infrastructure provision and maintenance (community facilities and services), as well as public property management and maintenance.

In terms of public property management, various external public and private service providers are responsible for delivering services and infrastructure within the study area. Typical role players that may play a role in this regard include, amongst others, the Limpopo Province Roads Department, Department of Public Works, Department of Justice, SAPS, the Department of Health, Department of Home Affairs, Department of Labour, and the Department of Education. The Municipality needs to sign Memorandums of Understanding/ Service Level Agreements with all these development agencies in order to ensure that the facilities under their jurisdiction are at all times properly maintained and managed in order to contribute towards the Lephalale CBD Development Plan.

3. By-Law Enforcement Campaign/ Capacity Building

The aim of this campaign would be to make people aware of the existing by-laws and what by-laws are intended to achieve. Such a campaign could also include an amnesty period for trespassers, and could make available procedures for legalising existing contraventions during the amnesty period.

This could be done by way of a series of articles on municipal by-laws to be included as a newsletter in the monthly service accounts of households and businesses (including informal traders in activity nodes).

Supplementary to the capacity building campaign, proper by-law enforcement should ensure that law and order is maintained in the primary and secondary activity nodes, with specific focus on the following aspects:

- illegal land uses
- road access management
- signage
- illegal/ informal trading
- traffic control
- illegal parking
- illegal settlement
- illegal/ unsafe/ neglected building structures.

If efficiently implemented, this initiative will also go a long way towards maintaining investor confidence in the activity nodes, and thereby attract investment for new development and upgrading of old facilities.

It is essential that prosecution processes related to by-law trespassing be speedy and visible in order to maximise the impact thereof. It will be the responsibility of the Municipality to find ways and means to act swiftly in this regard.

4. Private Property Management

The Lephalale Municipality should monitor the establishment of new private developments, especially retail and commercial activities within the demarcated nodal boundaries of activity areas, and along the northern bypass route once it has been constructed.

Council should also monitor residential expansion to ensure that leapfrog development is strongly discouraged and that infill residential development is consolidated within the existing urban footprint. Also, in accordance with the CBD Development Plan, densification should be promoted around activity nodes. The road layouts of new developments should be in line with the proposed secondary road network so that connectivity between activity nodes, residential areas, and the regional road network is optimised.

Also, Council has to continuously monitor the state and quality of private properties in the study area, specifically the respective activity nodes. This will ensure that they are able to respond pro-actively to problems pertaining to illegal or undesirable land uses, as well as neglected privately owned buildings and properties which could lead to urban decay in certain areas.

5. Joint Ventures with Private Sector

Joint ventures with the private sector could be an important component of realising the vision of the CBD Development Plan. In Lephalale the mining companies and Eskom represent large potential partners. In general, Council should follow an open door policy with regards to proposals from the private sector towards the (re)development of public space within and around activity nodes.

Specific interventions emanating from the CBD Development Plan that should be marketed to the private sector, and that pose opportunities for public-private partnerships, are namely:

- The construction of the northern bypass route, and related commercial/ business development along it;
- Proposed infill business areas in the CBD, Onverwacht and Marapong;
- That a commercial/ light industrial area will be established at the intersection of the northern bypass and Onverwacht Road (as an extension of the existing light industrial area); and
- That a new heavy industrial area will be established at the intersection of the northern bypass and route D1675.
- That infill development within the existing urban footprint is a Council priority;
- That medium to high density (multi-storey) development will be supported within and around activity nodes;
- In some cases new residential developments could include a social housing component to create a more integrated urban fabric.

6. Design-out Crime

There is extensive research regarding ways and means to design buildings and public spaces in such a way that it prevents crime. These principles should be incorporated into a set of development guidelines which should be applicable on all public and private developments in the study area. This will ensure that safe environments are being created from the outset which can ensure that activity nodes grow sustainably, and that urban decay is prevented.

The development of neglected, vacant portions of land in the CBD will also make a significant contribution in this regard – especially the area in the south-eastern extents of the CBD, as well as vacant buildings in the historic CBD.

7. Upgrading of Public Spaces

Apart from formal properties and buildings, the Municipality also has the responsibility to facilitate the development and maintenance of all public spaces within and around the activity node(s). This includes the Moloko River and Sand River open space systems, parks, sportsgrounds/ play areas, and taxi ranks, as well as the road network including sidewalks, medians, pedestrian walkways and public squares.

This programme seeks opportunities to implement initiatives to improve public spaces with interventions such as landscaping, maintenance, provision of refuse bins and formal trading structures in informal trade areas, lighting,

signage, provision of pedestrian infrastructure like paved walkways, street lighting, benches, and strict control of illegal uses on sidewalks.

It will also involve the redevelopment of these facilities in and around the activity node(s) in accordance with the proposals contained in the CBD Development Plan. It is important that Council develop and maintain these spaces to a minimum level of service and also address the needs and priorities of surrounding property owners.

It is especially essential that all major public environments within the study area be provided with paved pedestrian walkways and proper street lighting in order to facilitate ease of movement for all (including the disabled) and to aid in preventing incidences of crime. The main roads and pedestrian routes within and between the primary and secondary activity nodes (as identified in the Development Plan) should be first priority in this regard.

8. Informal Trade, Economic Empowerment and Capacity Building

It is important to formulate and implement an Informal Sector Promotion Strategy that would assist entrepreneurs to engage meaningfully in the mainstream economy in Lephalale Town. The strategy would serve to:

- Formalise the organisation of informal sector business.
- Identify business constraints and opportunities for informal sector business.
- Identify skills training needs and facilitate provision of training services.
- Identify infrastructure and logistical needs.
- Provide overall business development services for SMMEs.

DBSA and/or the Department of Trade and Industry could be approached to assist with expenses that may be incurred. The European Union LED Programme in Limpopo is also a potential source of funding support. The Department of Labour has indicated that their Social fund could accommodate requests for business training for informal sector business people.

Informal trade represents an emerging economy and platform for entrepreneurship in Lephalale, and as such it should preferably be consolidated to generate critical mass, as discussed in the CBD Development Plan. It is important to ensure the proper management, control and assistance of informal trade in the study area. This programme will thus focus on finding ways and means of properly structuring and assisting informal trading, and could include aspects such as sponsored shelters in specially demarcated zones in the activity nodes.

9. Visible Policing and Support Services

Visible policing and support services are key elements to creating an investor-friendly climate. It is therefore important for the Lephalale LM to enter into Service Level Agreements specifying minimum levels of services in the study area with the South African Police Services to ensure continued safety and visible policing in and around the primary and secondary activity nodes.

10. Monitoring and Review

It is envisaged that regular review of the CBD Development Plan will be done to engage all the stakeholders about progress on the one hand, and their respective involvement on the other. This will also ensure that the Plan and its timeframes are adapted to be in line with developments in the mining and energy sectors. The Plan thus requires continuous monitoring and evaluation (and amendment) to ensure that it remains relevant, and that all objectives are met.

6.4 IMPLEMENTATION PROGRAMME AND STRATEGY

Below is a list of priority projects that follow from the Development Principles discussed above. These projects are catalytic in nature, to give effect to the Lephalale CBD Development Plan in shaping the spatial structure and influencing future development in the town. The development of the Lephalale activity nodes should be a shared effort, and is especially not intended to be funded solely by the Local Municipal budget. In fact, the major role played by the Council, in addition to developing and maintaining the public space and – buildings, is rather to facilitate, and align initiatives between different parties, to create an enabling and investor-friendly environment, and to source funding.

A variety of funding mechanisms are available that could be applied to in order to fund the projects emanating from the CBD Development Plan. These sources include national government's NDPG programme (Neighbourhood Partnership Development Grant), provincial government departments, non-profit organisations, international government initiatives, and the local private sector (including developers and mining houses). The criteria to be satisfied in order to qualify for the different sources of funding are diverse, catering for a range of sectors, as well as a variety of indicators like number of job opportunities generated, BBBEE compliance, past history (historically disadvantaged persons) etc.

The following table then comprises a summary of the priority projects/ actions emanating from the Lephalale CBD Development Plan, as well as the proposed phasing (short, medium or long term) for the implementation of the projects, and the estimated cost involved.

Table 8: Priority Projects

ACTIONS/ PROJECTS	Short Term	Med Term	Long Term	Estimated Cost
Development Objective 1:				
• Develop regional open space system east of CBD as recreational and social precinct	X			
• General clean-up and ongoing maintenance of open space system (grass cutting, landscaping, litter control etc)	X	X	X	
• Develop tourism information centre as part of the precinct		X		
• Revise development guidelines of Altoostyd township to ensure that the Sandloop River is incorporated into building designs from the start, especially pertaining to the activity new node		X		
Development Objective 2:				
• Lobby for the construction of the northern bypass route by provincial government	X			
• Upgrade and maintain R510, R33, R518 (road surface, road shoulder)	X			
Development Objective 3:				
• Earmark the strip of erven along both sides of the northern bypass, between the CBD and the proposed commercial/ light industrial precinct, for commercial, business and light industrial development	X			
Development Objective 4:				
• Construct new strategic linkages between Marapong and Lephalale Town	X			
• Surface and upgrade additional routes identified as part of the secondary road network		X		
• Plan and construct modal transfer facilities within every activity node, together with pick-up drof-off facilities (eg. a layby) at major centres of employment		X		
Development Objective 5:				
• Promote infill business development in the respective activity nodes, as proposed in the Development Plan	X			
• Earmark land for Department of Public Works in the commercial/ light industrial precinct and begin process of relocation – eg. negotiate a land swop with private land owners		X		
Development Objective 6:				
• Promote infill light industrial and commercial development in the respective activity nodes, as proposed in the Development Plan	X			

ACTIONS/ PROJECTS	Short Term	Med Term	Long Term	Estimated Cost
• Market the commercial/ light industrial precinct as investment opportunity		X		
• Develop a Road Access Management Plan for the northern bypass route		X		
Development Objective 7:				
• Establish a heavy industrial area at the intersection between the northern bypass route and D1675		X		
• Market the industrial area as investment opportunity		X		
Development Objective 8:				
• Liaise with Government departments regarding the development of Thusong Centre in Altoostyd Node	X			
• Conduct detail design of activity node and earmark land for Thusong Centre, including modal transfer facility and informal trade market in close proximity	X			
Development Objective 9:				
• Promote residential infill development in the vacant land pockets between Altoostyd, the northern bypass route and Lephalale CBD	X			
• Grant rights for medium to high density residential development on all erven earmarked for densification (or for business and mixed use development)	X			
Development Objective 10:				
• Pave priority pedestrian routes in all activity nodes in a pre-determined style (to assist with creating a unified image in all activity nodes): - CBD: _ m^2 - Onverwacht Node: _ m^2 - Marapong: _ m^2	X			
• Install human scale lighting and plant trees along the priority pedestrian routes	X			
• General clean-up and ongoing maintenance of public space and pedestrian environment within activity nodes	X	X	X	
• Upgrade/ landscape the identified intersections that act as gateways to respective activity nodes (see Precinct Plans)	X			
• Formalisation and ongoing maintenance of public open spaces, parks and sportsgrounds within and around activity nodes	X	X	X	
• Design and construct hawker stalls at identified locations	X			

ACTIONS/ PROJECTS	Short Term	Med Term	Long Term	Estimated Cost
Development Objective 11:				
• Upgrade water and sanitation engineering infrastructure in infill areas and activity nodes to accommodate proposed infill development, densification and expansion	X			
• Revise Water and Sanitation infrastructure upgrade projects planned for the study area (refer to section 2.7 of this document) to support the implementation of the CBD Development Plan	X			