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MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

PHASE 3: SPATIAL PROPOSALS

Review of the Municipal Spatial Development Framework (MSDF) for Dipaleseng Local Municipality within a Period of 12 Months

18 September 2019

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List of Abbreviations

CRDP	Comprehensive Rural Development Programme
DLM	Dipaleseng Local Municipality
IDP	Integrated Development Plan
MSDF	Municipal Spatial Development Framework
MBCP	Mpumalanga Biodiversity Sector Plan
MP COGTA	Mpumalanga Department of Cooperative Governance and Traditional Affairs
MTPA	Mpumalanga Tourism and Parks Authority
PSDF	Provincial Spatial Development Framework
RDP	Rural Development Plan
SDF	Spatial Development Framework
SPLUMA	Spatial Planning and Land Use Management Act (Act No 16 of 2013)

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I INTRODUCTION

1.1 BACKGROUND AND PURPOSE

The Dipaleseng SDF is a spatial policy document that identifies the main challenges and opportunities confronting the municipality. The document sets out the municipal spatial Vision for the future and identifies a number of spatial strategies towards achieving this Vision.

The DLM is reviewing the existing municipal spatial development framework (MSDF) in order to compile a credible and updated Municipal SDF aligned with the provisions set out in the Spatial Planning and Land Use Management Act (SPLUMA). The objectives of SPLUMA in the context of Municipal Spatial Development Frameworks are to:

- provide spatial goals and supporting policies to achieve positive changes in the spatial organization of Municipal areas to better ensure a sustainable development future;
- promote the sound planning principles according to the relevant legislation;
- promote the general well-being of its inhabitants, thereby ensuring that the most effective and orderly planning is achieved for an area whereby changes, needs and growth in the area can be managed to the benefit of its inhabitants;
- provide direction for strategic developments, infrastructure investments, taking cognizance of environmental management mechanisms; and
- Represent the municipal spatial development vision statement through the integration and implementation of all relevant sector policies and plans.

The MSDF must also be underpinned by and give expression to the key principles of planning as expounded in SPLUMA, namely, spatial justice, spatial sustainability, efficiency, spatial resilience and good administration. The MSDF should also serve the purpose of integrating necessary functionalities and linkages within local government, delivering a multitude of services linked to an integrated development approach in the municipal area. It must equally indicate the desired spatial growth and development patterns as well as sufficiently provide for an economically and socially balanced development between rural and urban areas in the municipality.

In view thereof, the Dipaleseng MSDF must:

- provide a spatial expression of the coordination, alignment and integration of sectoral development policies, strategies and objectives of all municipal departments; prioritise land use development patterns;
- translate developmental needs;
- unpack spatial directives and objectives for implementation;
- provide investment guidance and the mechanisms for implementation; and
- provide guidance on sectoral development needs, investments and programme implementation.

1.2 POLICY ELEMENTS

The most prominent national and provincial policies and legal frameworks, namely the National Development Plan 2030, the Draft National Spatial Development Framework, the Draft Mpumalanga PSDF and from a legislative aspect the Spatial Planning and Land Use Management Act, 2013 provide an overall perspective through which Dipaleseng spatial dimension can be viewed.

Both the National Development Plan and SPLUMA set out principles that must “guide the preparation, adoption and implementation of any spatial development framework...” SPLUMA contains four spatial principles, namely (i) Spatial Justice, (ii) Spatial Sustainability, (iii) Efficiency and (iv) Spatial Resilience, whereby the National Development Plan adds a fifth principle, namely Spatial Quality.

These principles are essentially aimed at setting a framework for spatial transformation and underpin the need for fundamental spatial restructuring to enable socio-economic transformation.

Spatial transformation refers to a change in the nature, structure, form and appearance of a region that in turn would lead to the transformation of the apartheid spatial economy and human settlement patterns. The National Development Plan and SPLUMA enlighten these principles as follows:

- **Spatial Justice:** The historic policy of confining particular groups to limited space, and the unfair allocation of public resources between areas, must be reversed to ensure that the needs of the poor and rural communities are addressed first rather than last.
- **Spatial Sustainability:** Sustainable patterns of consumption and production should be supported, and ways of living promoted that do not damage the natural environment.
- **Spatial Efficiency:** Productive activity and jobs should be supported, and burdens on business minimized. Efficient commuting patterns and circulation of goods and services should be encouraged, with regulatory procedures that do not impose unnecessary costs on development.
- **Spatial Resilience:** Vulnerability to environmental degradation, resource scarcity and climatic shocks must be reduced. Ecological systems should be protected and conserved.
- **Spatial Quality:** The aesthetic and functional features of housing and the built environment need to be improved to create livable, vibrant and valued places that allow for access and inclusion of people with disabilities.

2 DRAFT SPATIAL VISION AND DEVELOPMENT OBJECTIVES

2.1 DEVELOPMENT OBJECTIVES

SPLUMA requires municipalities to prepare SDFs that will establish a clear vision which must be developed, through a thorough inventory and analysis based on national and provincial spatial planning principles and local long-term development goals and plans.

The Dipaleseng SDF aims to give spatial expression to the vision encapsulated in the PSDP, Municipal IDP – and other relevant local policies. As such both have a long term planning horizons in terms of overall vision and strategies to achieve them. Dipaleseng SDF provides the framework for the municipal vision spatial vision.

2.1.1 Spatial Goals

To address the identified spatial challenges and give effect to the relevant policies, the Dipaleseng SDF should focus on development towards:

- Explore and maximize its inherent economic opportunities;
- Protection and utilization of resources such as the rich agricultural land and diverse natural environment;
- Development of sustainable settlements where residents can lead enriched, healthy and convenient lives; and
- Improved effectiveness in governance.

2.2 SPATIAL VISION

The following Spatial Vision was formulated and adopted for Dipaleseng Local Municipality:

“Providing quality affordable services, good governance, rural development and sustainable economic opportunities, while protecting the natural environment”

2.3 SPATIAL OBJECTIVES

Working towards the development of spatial proposals and the drafting of the SDF six spatial objectives were formulated with subsequent development principles to structure the proposals. The following objectives were identified:

Strategic Objective 1: Movement and Transportation Corridors

Strategic Objective 2: Sustainable Economic Development and Concentration

Strategic Objective 3: Environmental Conservation and Utilisation

Strategic Objective 4: Sustainable Human Settlement Development

Strategic Objective 5: Infrastructure Investment

Strategic Objective 6: Rural Development and Transformation

3 SPATIAL DEVELOPMENT CONCEPT AND STRATEGIES

3.1 SPATIAL DEVELOPMENT CONCEPT FOR DIPALESENG

The Strategic Development Concept identifies how the spatial form of Dipaleseng Municipality should be formed, based on the identified spatial objectives and development principles. The Spatial Development Concept is structured around the following structural elements, which are interrelated:

- Nodes and Activity Areas
- Movement and Connectivity
- Environmental Structuring Elements

The aim of the concept is to reconstruct and integrate the urban and rural landscape of Dipaleseng into a more rational, compacted and manageable structure. Dipaleseng is one of the municipalities in Gert Sibande which are lagging behind in development in comparison to other municipalities. Widespread poverty is one of the major challenges facing the municipality making it difficult for the municipality to achieve its vision of providing quality services, rural transformation and sustainable economic development. However, due to its location in close proximity to major economic hubs, the municipality has the potential to achieve its vision. The municipality has the R23, R51 and N3 and various railway network as the major structuring elements that can be utilised to restructure the spatial pattern in a manner that creates liveable environments and sustainable employment opportunities.

Nodes and Activity Areas

Nodes are activity areas that have been identified within Dipaleseng for focused economic, infrastructural and social development, with a view to rationalizing resources and concentrating public and private investment in appropriate locations.

The benefits of concentrated activities at identified locations in the municipality is to act as a structuring mechanism in support of a viable public transport system, the concentration and intensification of various activities (diversity) at appropriate locations that are highly accessible, creating economic opportunities, and the management of these areas to address spatial equity, sprawl and the management of development pressure. Residential densification and infill in and around nodal areas are one of the strategies to ensure the viability of these areas and ensure a consolidated development system.

Movement and Connectivity

Movement and connectivity within Dipaleseng LM are influenced by the need for well-connected spatial structure based on the nodal development approach which is supported by public transport and corridors. An efficient spatial form will address matters of spatial restructuring and socio-economic inequality. The need for mobility is an essential element in promoting access to economic and social opportunities within the municipal area.

Movement in Dipaleseng is characterised by insufficient public transportation, corridors (R23, R51 and N3) and various railway network. Movement is dominated by regional connections. The concept of movement and connectivity is intended to ultimately define movement between nodal areas whilst promoting public transport connections and systems between them. This is also to enhance mobility as a fundamental move towards access to social services and economic opportunities.

This concept seeks to identify the key roles of existing movement connections and how they influence movement within the municipality and its surroundings. Through this, areas with good connectivity and those without can be identified for the necessary interventions.

Environmental Structuring

This Concept is built around creating linkages between the different spatial elements of the municipality which include the built form, natural environment and cultural heritage. Dipaleseng Local Municipality generally lies within an area of environmental significant areas, high agricultural potential land and mining activities. The environmental significant areas include major river channels and catchments, steep slopes, natural habitats and indigenous vegetation. The goal of this plan is to direct and manage the use of the built and natural environment to ensure sustainable and integrated growth and development of Dipaleseng Local Municipality.

One of the key challenges currently confronting most development initiatives is the ability to utilise natural resources in a manner that is not detrimental for future generations. This approach acknowledges the need to engage with natural resources but at the same time discouraging uses that impact negatively on the environment.

Elements which make up the environmental structuring concept include high potential agricultural land, river systems (and catchments areas), unprotected biodiversity and ecological zones. Such areas would require different levels of protection and optimal utilization as part of the creation of an integrated open space system. The Dipaleseng SDF, therefore, seeks to adequately conserve and manage environmental elements which support the proper functioning of the Municipal biodiversity and eco-systems, and contribute to climate change mitigation and adaptation.

The proposed Dipaleseng development concept feed right into the overarching poly-centric development concept that the Mpumalanga PSDF and NSDF has adopted. The frameworks envision a system of strong and functioning polycentric network of nodes and their hinterlands connected by corridors. The identified structuring elements, therefore, bring it in to effect at a more localized level.

3.2 SPATIAL DEVELOPMENT OBJECTIVES AND PRINCIPLES

3.2.1 Movement and Transportation Corridors

The municipality should ensure sufficient support is provided to enhance urban development in the established node of Balfour, which is the main economic node of the municipality. Normal activities and functions that provide goods and services to the entire area are provided within this primary development node. It is further centrally located within the municipality with good accessibility from the regional routes. The extent and variety of functions provided in Balfour make it the primary development node.

Grootvlei, on the other hand, is regarded as a secondary node with more industrial function due to the town hosting the Eskom power station. The power station provides a lot of employment opportunities for the locals and the economy of the municipality. Greylingstad/Nthorwane is also regarded as a secondary node providing more agricultural services. The size and the level of diversification of the local economy are limited in relation to the main node Balfour.

It is likely that the municipality will need to grow organically and incrementally, depending on what activities can be stimulated to increase the money supply to the area. This would usually be associated with agriculture and mining, as such, this may be the only real, viable alternative for the municipality to pursue in order to stimulate an expansion of the economy and a few more sustainable jobs.

Spatial Development Principle 1: Ensure connectivity between settlements, as well as nodes and connectivity within settlements

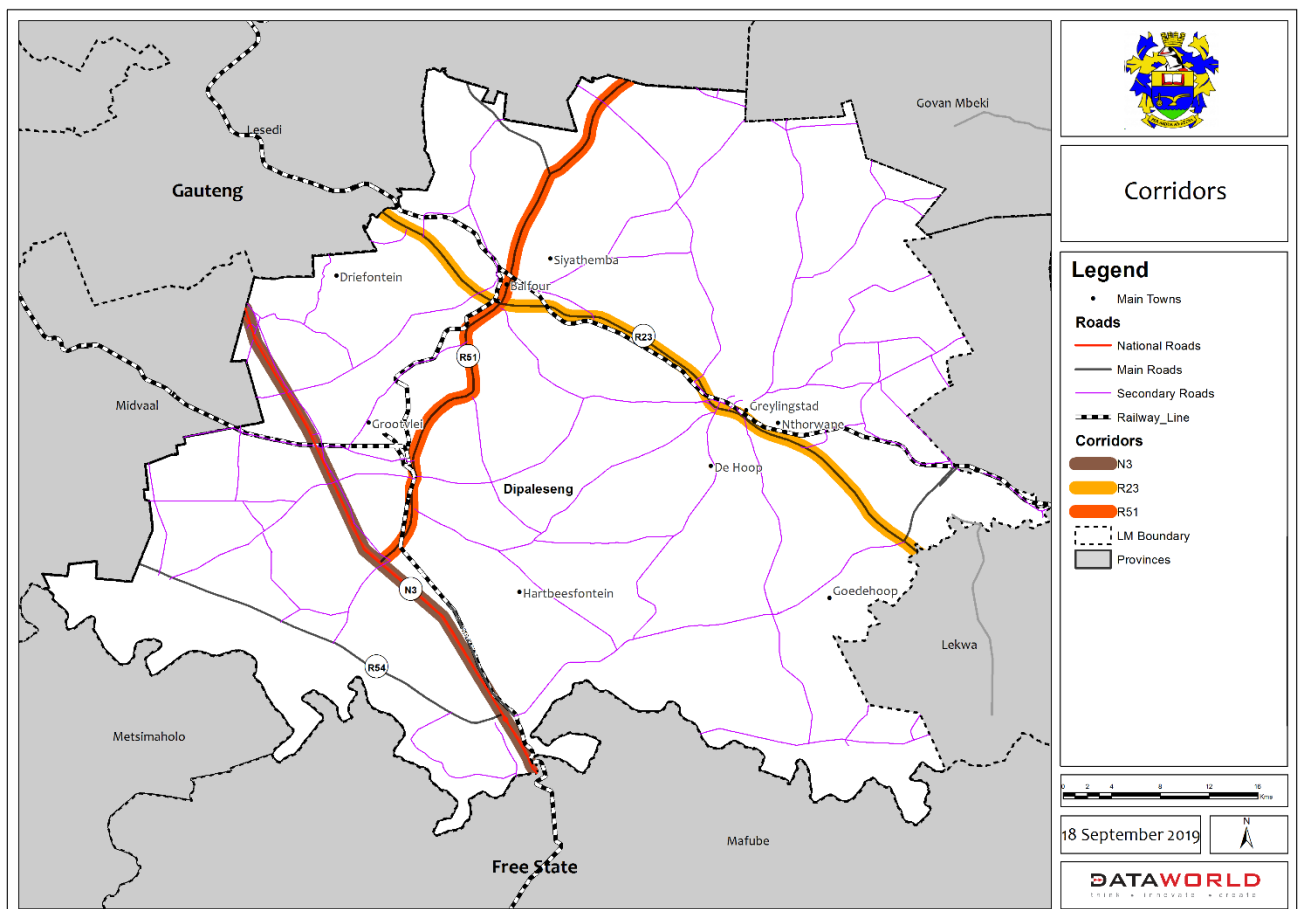
Enabling the mobility of people and goods between different service areas is central to socio-economic development. Without adequate transport systems, which play a fundamental role in facilitating this mobility, the quality of life within communities is drastically reduced and the challenges associated with marginalisation are exacerbated. In Dipaleseng, buses and minibus taxis are the two primary systems that anchor the municipality's public transport. Access to these systems is, however, a real challenge due to the low densities within the municipality, especially in the rural communities. Promoting local access to foster public transport, non-motorised transport (pedestrian/cyclist) and private transport is therefore crucial.

- Strengthen and integrate existing transport networks, services and modes to facilitate the optimal and efficient movement of passengers from origin to destination points in the shortest time possible.
- Facilitate and promote public transport links between disadvantaged areas and the main economic nodes of the Municipality.
- The provision of integrated modal interchanges supported by the infrastructure which includes taxi-bus ranks, amenities, footpaths and security facilities in all Activity Nodes of the municipality.

Spatial Development Principle 2: Ensure and maintain a high standard in terms of accessibility to the wider regional context and accommodate freight, private vehicles, mini-bus taxis and buses

Dipaleseng is affected by the R23 Corridor which represents the old route between the Gauteng Province and Durban/eThekweni in KwaZulu-Natal, linking prominent towns and settlements such as Balfour, Standerton and Volksrust to one another. This corridor including the others forms the base of a strategic road network for the municipality and District at large, and should, therefore, be maintained as a top priority. Other Provincial roads (R54 and R51 and the National road (N3) cross through the Municipality. This creates high potential for nodal development and tourism development as these roads are linking Dipaleseng with Kwa-Zulu Natal (via the N3), Free State (via the R54) and Gauteng (via N3 and R23) and the Eastern part of Mpumalanga Province (via the R23).

- Thorough maintenance and upgrading of the national and provincial road network. The upgrading of the Municipality's roads will also ensure that the roads are able to withstand the impact of a high frequency of heavy coal trucks.
-



Map 1: Movement Corridors and Transportation Networks

3.2.2 Sustainable Economic Development and Concentration

In Dipaleseng, the tertiary sector contributes 56% to the municipal GVA, the secondary sector 27% and primary sector 17%. Though the tertiary sector is the largest economic sector, the municipality's economy is largely dependent on the primary and secondary sectors. The reason behind this is Dipaleseng does not have an advanced economy propelled by tertiary sector activities such as business, finance, banking, education, research and knowledge-based services. Rather, the tertiary sector is an outcome of the basic tertiary sector services required by the citizens engaged in primary and secondary sectors. Therefore, until the time the municipality evolves into a knowledge-based advanced economy; the primary and secondary sectors will play major roles in the municipality's economic development. Therefore, the initial focus should be on the development of the primary and secondary sectors while taking the necessary steps to transform the municipality's economy to an advanced and knowledge-based one. The following strategies are being proposed to realise the objective of sustainable economic development in the municipality.

Spatial Development Principle 1: Strengthen Economic Bases of the Existing Urban Centres

Dipaleseng is primarily a rural municipality with large extents of farming land dotted with small settlements and three urban centres- Balfour (including Siyathemba), Grootvlei and Greylingstad (including Nthorwane). The municipality's economic activities (other than farming and mining) are concentrated in these three urban centres. These three urban centres house more than 80% of the municipality's population. Therefore, it is important for these urban centres to have sound economic bases. The strategy to strengthen the economic bases is spatial targeting, i.e. taking advantage of the available resources and economic opportunities and target the sectors with high growth potential. It is proposed to focus on the following sectors in the identified urban centres:

- Balfour: Agriculture (Beneficiation), Mining (Beneficiation), Construction, Transport, Small Scale Manufacturing
- Grootvlei: Utilities (Power Generation), Tourism, Retail, Agriculture (Beneficiation), Mining (Beneficiation),
- Greylingstad: Tourism, Retail, Agriculture (Beneficiation)

It is pertinent to mention that the Dipaleseng Local Economic Development Strategy has identified some economic development projects based on the underlying economic potential of the towns. The successful implementation of the LED projects will help increase the municipality's economic condition substantially. The following are the LED proposed projects that should be considered for implementation:

- Balfour: Dipaleseng Development Agency, Soybean Crusher Plant, Cattle Feedlot, Organic Compost Production Plant, Food Production Plant, Truck Body Manufacturing Plant, Serviced Industrial Park, Waste Management Centre, Retail Shopping Centre
- Grootvlei: Coal Mine

There is a proposal for the closure of the Grootvlei power station. The closure will result in job losses and subsequent economic downturn of the town. To avoid any

untoward socio-economic situation, the municipality should focus on creating jobs from other sectors. To create jobs in the town and municipality, the Agriculture and Tourism sectors should be encouraged to grow as these sectors have potential to create jobs.

Spatial Development Principle 2: Exploit the untapped economic potential of N3 corridor

The N3 corridor, linking Durban with Gauteng- two important economic centres of the country, traverses through the southwestern part of the municipality. The corridor connects the municipality with a seaport and an aerotropolis. Both are considered a stimulus for economic development in their areas. However, Dipaleseng is yet to take full advantage of the economic opportunities that this corridor can offer. To exploit the opportunities offered by the corridor, a Serviced Industrial Zone can be developed along the corridor, especially near the Free State border where the land is not being used for crop production. The Serviced Industrial Zone will have basic facilities such as internal road network, water supply, power supply and logistics facilities.

Spatial Development Principle 3: Economic Infrastructure Restructuring

Agriculture Development

The Dipaleseng LED acknowledges the role of agriculture in alleviating poverty and advocates for increasing agriculture productivity to uplift rural communities' economic condition. The municipality produces maize, sunflower, grain, sorghum, wheat, and livestock. Though agriculture occupies a distinct position in the municipality's economy, this sector can contribute more to enhance the municipality's overall economic health. To enhance this sector's economic potentials, the focus should be placed on processing and beneficiation of agriculture products and promotion of extensive commercial farming activities. Though the municipality has extensive commercial farming areas; agriculture output can still be increased by providing irrigation facilities and providing necessary training and support to emerging farmers. Possibilities of providing intensive irrigation facilities exist on the along the Vaal and Waterval river banks. These areas should be utilised for intensive farming.

At present, Karan Beef is the only large-scale beneficiation facility located in the municipality (in Balfour). More beneficiation facilities focusing on the processing of maize, soybean, sunflower and meat products will be required to add the value of agriculture products and generate employment opportunities. In addition to the benefaction facilities, necessary logistics, storage and transport infrastructure and soft capital (human and financial resources) need to be developed. Creating downstream linkages with the agriculture production areas and farms and upstream linkages with the market is also crucial for enhancing agriculture sector's economic performance.

To enhance the agriculture sector's output, the Rural Development Plan (RDP) for Gert Sibande District proposes initiatives including focusing on maize and cattle farming and developing Farmer Production Support Units (FPSU) in Balfour, Grootvlei and Greylingstad. These FPSUs will provide the necessary infrastructure for beneficiation activities. It is, therefore, recommended to take the necessary steps to implement the RDP proposals.

Tourism Development

The tourism sector is not considered an important economic sector for the municipality, perhaps due to the fact the economic potential of this sector is not exploited. Therefore, the strategy is identifying the underlying tourism potential and creating the necessary infrastructure and plans to attract tourists and generate employment and revenue for the municipality.

The Vaal River dam and Grootvlei dam offer opportunities for marina development, water sports, adventure sports and leisure accommodation development. These dams host many bird species, thereby offering the opportunity to develop eco-tourism facilities. In addition to these dams, Greylingstad can be promoted as a tourist attraction point due to the town's historical importance. This town hosts Anglo Boer War Battlefields and the historic graves of the Scottish regime. The town has a unique church that was built in the 1800s.

To exploit the municipality's tourism potential, the following steps are being proposed:

- Package tourism products: Develop a diverse range of special interest tourism products and routes such as water sports, birding, fishing, history, jock, leisure, adventure, and rural tourism.
- Develop tourist infrastructure: Develop tourist infrastructure such as lodging and boarding facilities and tourist information centres in the main tourism areas (Vaal dam, Grootvlei dam and Greylingstad). Also, develop road infrastructure connecting these places with the surrounding regions
- Involve local communities: encourage the participation of local communities in the tourism industry. Their involvement will ensure the generation of local employment and adding value to the local economy. However, the communities must be trained in the operation and running of tourist facilities.

Provide Investment Incentive

The realisation of economic development requires more than mere earmarking of land for industrial or commercial development. The development objectives need to be supported by a robust development support framework. The framework requires the municipality to adopt a pro-economic development policy and consider providing incentives to investors who are willing to invest in the municipality. It may be pertinent to mention that both the Draft Mpumalanga PSDF 2019 and the Dipaleseng Local Economic Development Strategy 2012 advocate for providing incentives for investment. The incentives can be of the following nature:

- Development of infrastructure (road, water supply, power supply etc.)
- Tax incentive
- Regulatory and Approval
- Financial incentives

The Department of Trade and Investment (DTI) provides incentives to investors under various schemes. The municipality must consider collaborating with the DTI to solicit investment to the municipality.

Township Economy Development

Siyathemba and Nthorwane are the two major townships in the municipality. Although these two townships contribute a significant portion to the municipality's urban population, they have poor economic bases and high levels of poverty and unemployment. The lack of economic opportunities within these townships results in a lower level of economic output, impacting the overall economic health of the municipality. Therefore, it is important to strengthen the economic bases of these townships. The Mpumalanga PSDF (2019) also recognises the importance of township economies in achieving an inclusive economy.

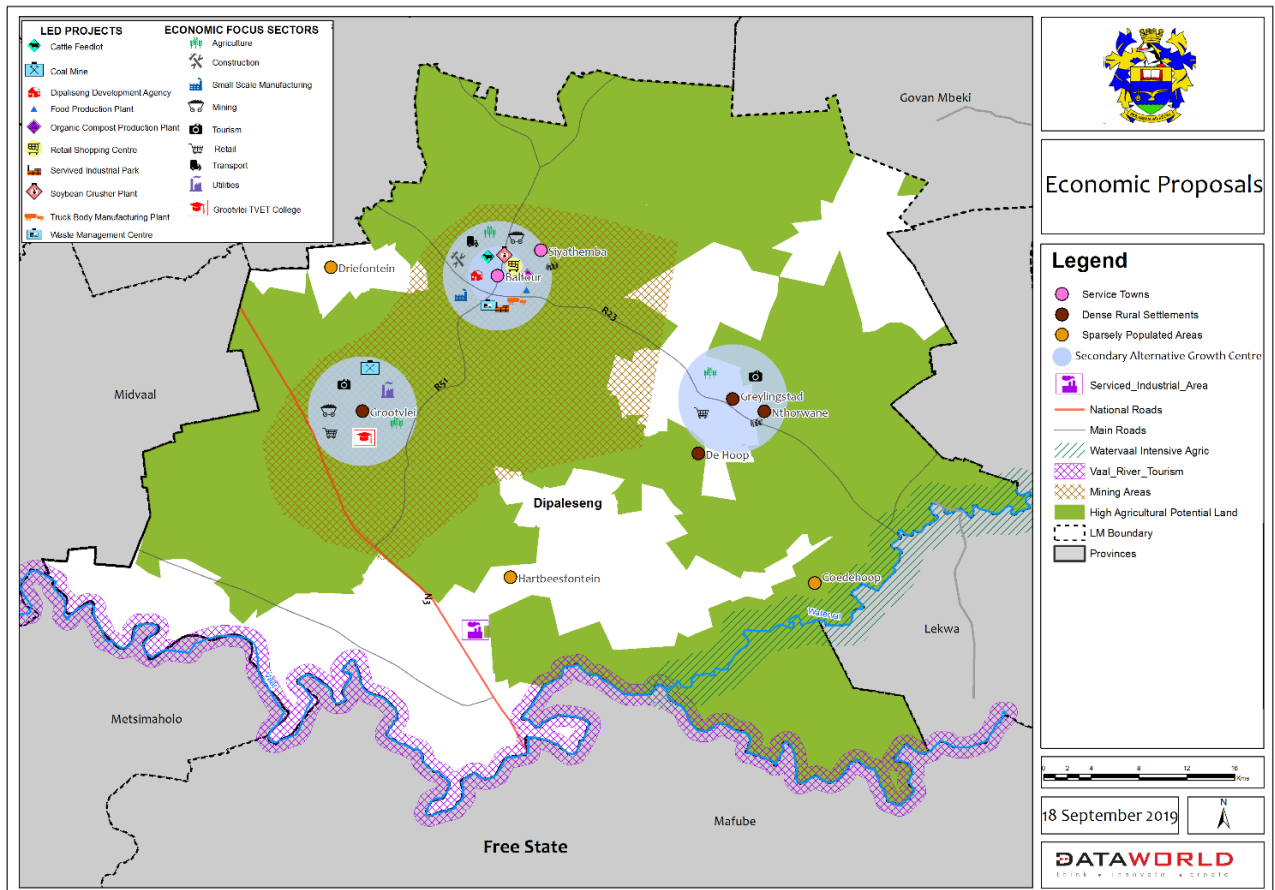
A multipronged approach would be required to enhance the economic bases of the townships. The approach should include the following initiatives;

- Discourage the development of large malls in and around townships. Instead, focus on developing small retail centres and shops that can be run by local people.
- Relax development restrictions and encourage small scale non-polluting industrial activities and services (such as furniture making and appliance repair centres) in the townships.
- Build capacity of township residents and provide vocational training.
- Increase government procurement from township enterprises
- Create market access for products and services originated in the townships.
- Provide necessary resources and infrastructure to township entrepreneurs

Skills Development and Capacity Building

The realisation of the above stated economic development strategies requires skilled human resources. The emerging farmers, township entrepreneurs or the people to be employed in the proposed economic development projects need to have the requisite skills. As many of them are coming from previously disadvantaged communities, they did not have fair access to education and training facilities. As a result, they do not possess the skills to run a successful business or work on a shop floor. Therefore, capacity building and skills development must be considered a pillar for achieving sustainable economic development. The strategy for capacity building and skills development entails the following activities:

- Development of a vocational training centre in Grootvlei
- Organise periodic skills development and capacity building workshops for emerging farmers, township entrepreneurs, tourism centre/ business operators
- Impart soft skills such as finance, marketing and operation
- Provide financial and infrastructural support to the emerging farmers and township entrepreneurs



Map 2: Sustainable Economic Development Proposals

3.2.3 Environmental Conservation and Utilisation

The objective of this strategy is to ensure that land use and settlement growth is directed and managed to protect and rehabilitate the functionality of Dipaleseng's environmental services and systems - natural assets. These support life and livelihoods offer the potential for further prosperity, as well as buffer the impacts of climate change and extreme events to life and property. In other words, the intention is to secure a sustainable and resilient base for Dipaleseng to function and prosper.

Spatial Development Principle 1: Protection of the Municipal Biodiversity & Ecosystem Services

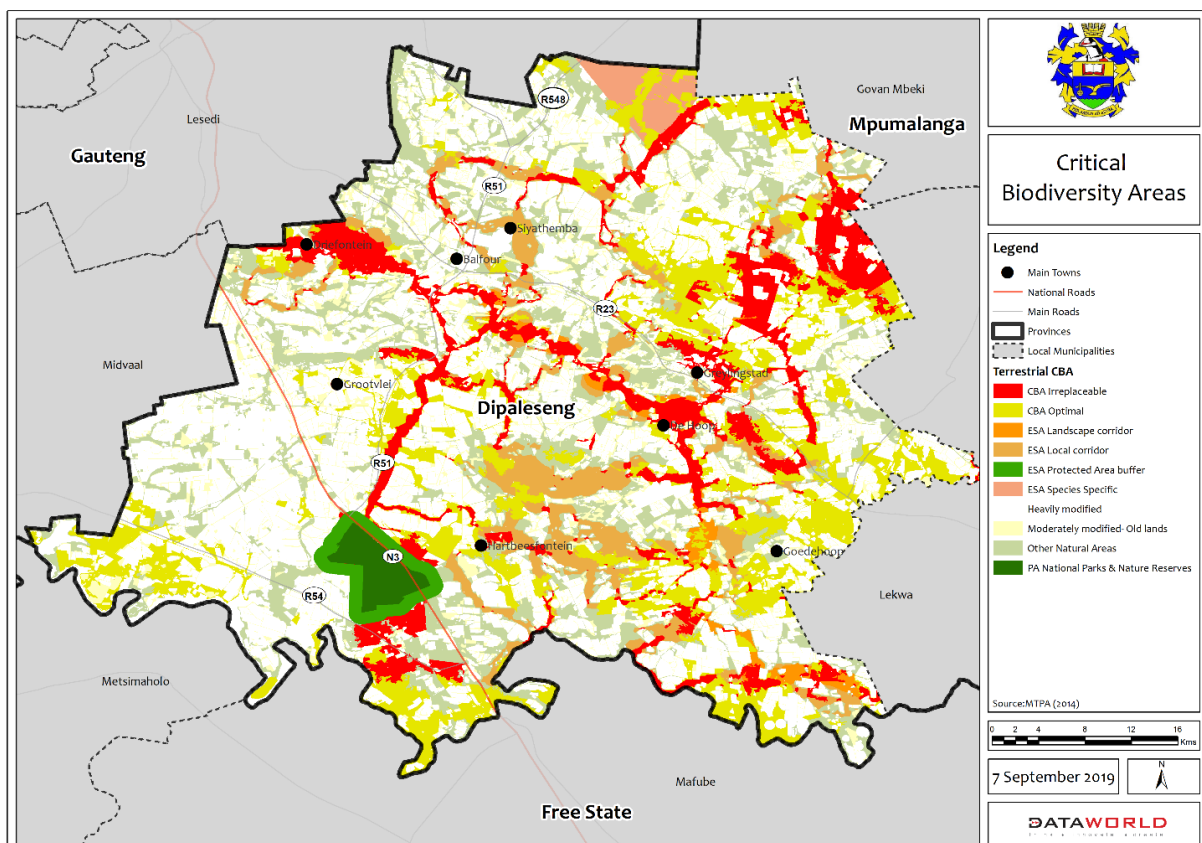
Land transformation (i.e. conversion from natural to man-made landscapes), is the primary cause of biodiversity loss and deteriorating ecosystems. The main threat is in the lowlands, particularly in areas intensively cultivated and subject to urban growth pressures.

If biodiversity threats are not reduced some ecosystems could collapse, requiring expensive intervention to maintain or replace them. Towards securing fragmented natural habitats, it is necessary to prevent further intrusion of agricultural activity or urban expansion into key Critical Biodiversity Areas and ecological support areas. The Highveld lands are most at threat given a concentration of competing for agricultural, mining, power generation and settlement development pressures.

Development Strategies applying development controls and supporting mechanisms in critical biodiversity areas are important to protect and enhance

these valuable assets. Critical biodiversity areas must be protected and preserved, with the value of ecosystem services they provide maximized.

- Developments within critical biodiversity areas must be limited to those that add value to the public realm, and that preserve the vital ecosystem services these areas provide.
- Ensuring new development and redevelopment in cognisance of current environmental policy
- The critical biodiversity layer should be seen as a municipal asset that provides valuable infrastructure services and not merely as unused land available for development
- Extending the role of the public environment, through streets and public spaces, in a broader, integrated, open space network.
- Integrating natural ecological systems with urban development through green corridors and the extension of an urban open space network
- Local spatial development framework and land use schemes should be acknowledging the special requirements for development anything within the vicinity ecological infrastructure.
- Identify high potential soils and implement the Mpumalanga Biodiversity Sector Plan or bioregional plans
- The environmental heritage and conservation areas, biodiversity hotspots and ecological corridors should be treated as a special Biodiversity Management Zone to be actively protected, managed and enhanced so as to ensure that these are not degraded by mining, forestry, agricultural and human settlement activities



Map 3: Critical Biodiversity Areas

Spatial Development Principle 2: Conservation of Water Resources and Catchment Areas

Hydrological systems (rivers, and wetlands), topography and critical biodiversity assets provide the primary structure guiding where settlement can take place and grow in the Dipaleseng. Dipaleseng contains over 2000 wetlands and numerous river systems, which includes five major catchment areas. Wetlands and their prime ecosystems are at risk due to the growing impact of farming and urbanization.

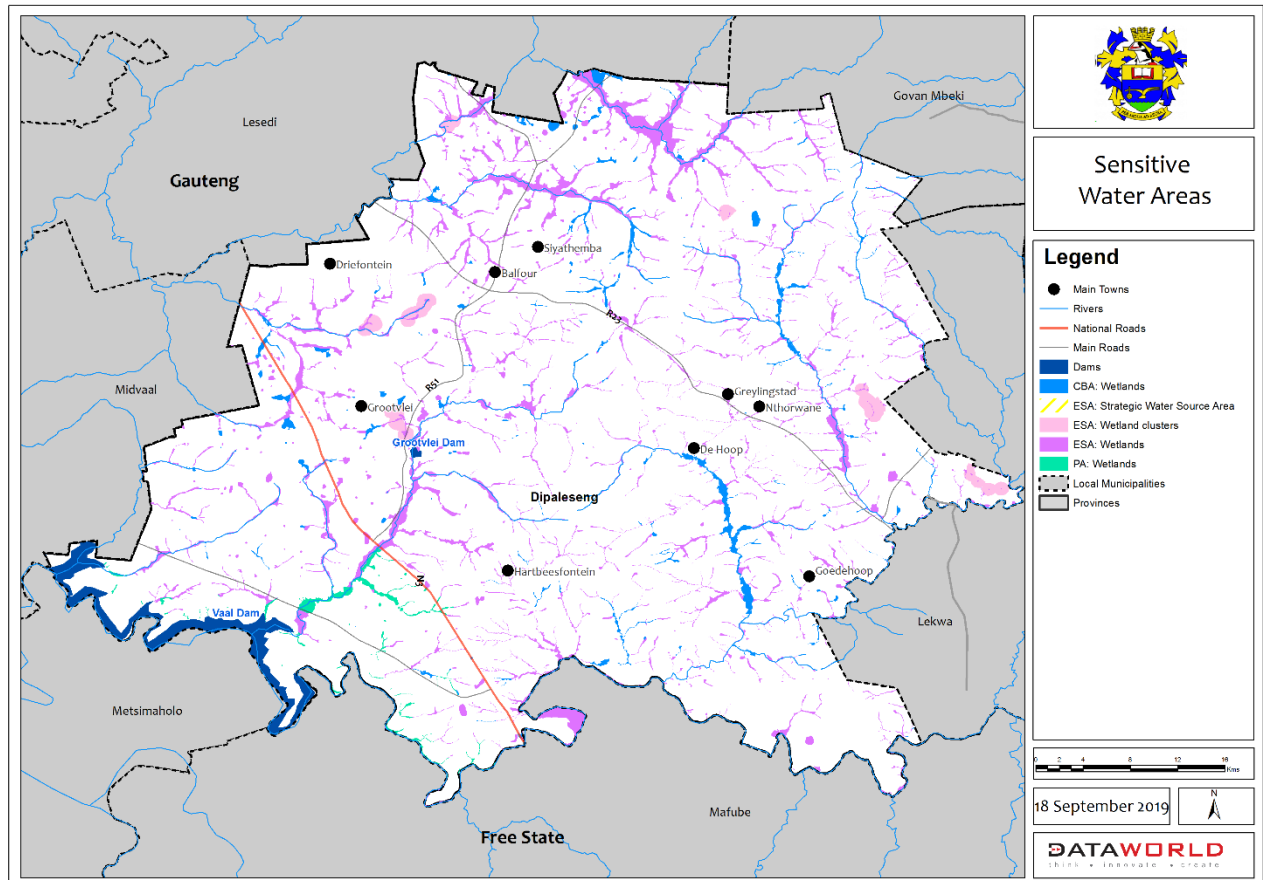
Therefore, there is a need to rehabilitate and protect rivers, wetlands and their catchments (Vaal's hydrological systems) - from pollution, increased surface run-off and siltation, unmanaged extraction and the impact of reduced run-off and/or clogging as a result of alien vegetation infestation. A precautionary approach supported by strong land use management and enforcement should be applied to activity and development within the catchments of the following priority water resource units.

- There is a need to prioritize the rehabilitation of the catchment areas of wetlands and the following rivers:
 - The Vaal River catchment, which ultimately forms part of the Suikerbos River system;
 - the Water Val River where it meets the Vaal River (Vaal Catchment);
 - the Suikerbos River where it meets the Vaal River (Vaal Catchment);
 - the Suikerbos River where it meets the Water Val River (Additional Suikerbos Catchment, which includes the upstream Water Val and Vaal River Catchments); and
 - the Water Val River at its confluence with the Vaal River (Vaal Catchment);
- Manage unlicensed water and sand extraction
- Implement water loss control measures such as pressure management and leakage control programmes, Recycle wastewater and Harvest rainwater
- Control all forms of pollution in catchment areas.
- Control all alien plants infestations in river courses.
- Regulate modification of river beds and natural flow patterns
- Minimise return flows from irrigated fields. Minimize the pollution and degradation of surface and groundwater by the optimal application of pesticides, herbicides and fertilizers (farmers).
- Monitor and measure water quality upstream and downstream of the irrigation areas to protect the aquatic ecosystem and the downstream users

Water, sanitation and stormwater infrastructure master planning and budgeting must ensure timeous maintenance and upgrading to secure the integrity of the hydrological systems / eco-services and mitigate risk to public health. Poor maintenance or where facilities operate at overcapacity can result in the pollution of rivers, which has an adverse impact on human health and the environment and presents a considerable social and economic cost. This can be exacerbated by both drought and high rainfall periods

Legislation governing the control of invasive species on land must be enforced as this contributes to reduced runoff into the rivers, clogging the rivers and /or siltation

of rivers and wetlands downstream. Settlement alongside rivers and wetlands must use sustainable urban drainage systems to avoid polluted run-off and be managed to mitigate against unsustainable water extraction.



Map 4: Sensitive Water Areas

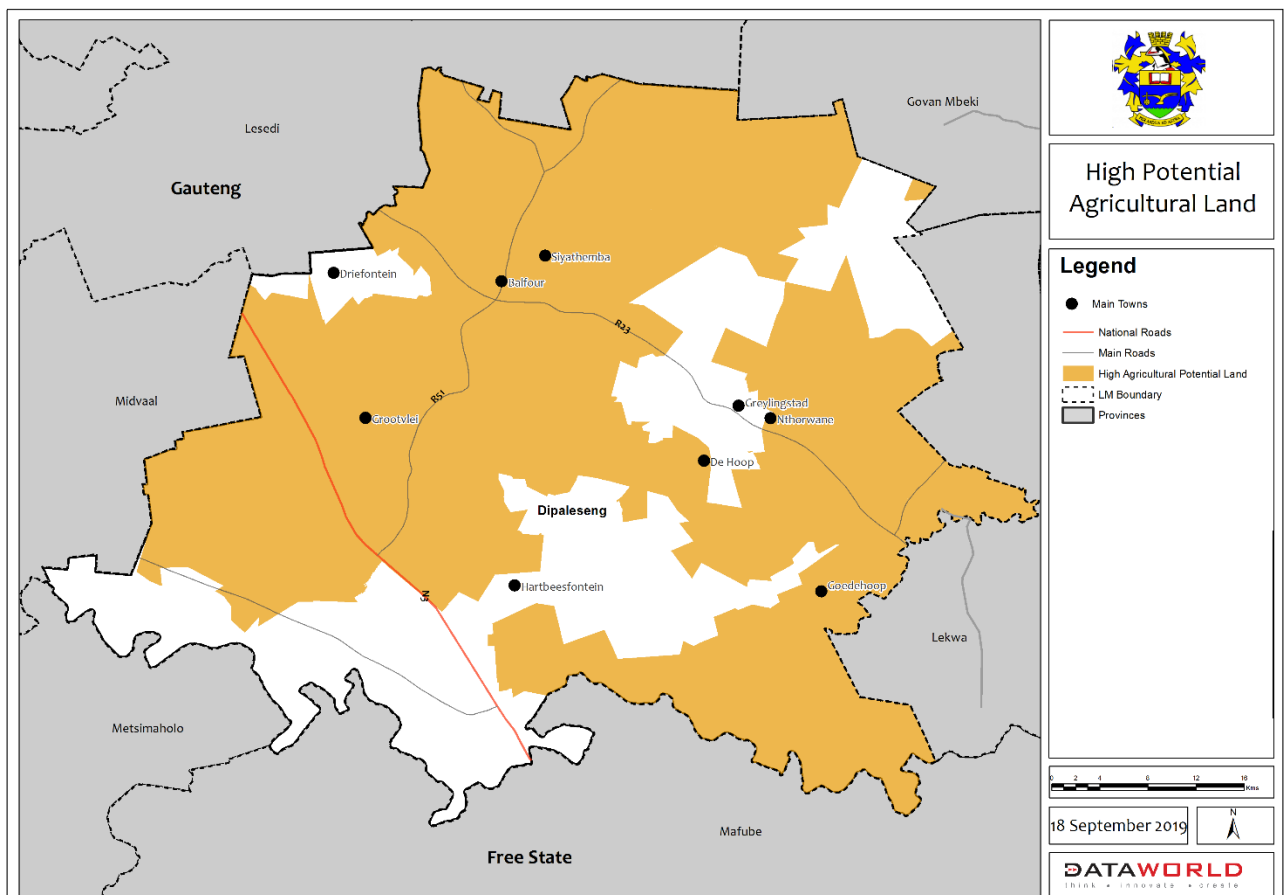
Spatial Development Principle 3: Sustainable Agriculture

Mpumalanga has a diverse climate that makes it possible to practice various agricultural activities with the main agricultural products being, maize, sunflower, grain, wheat, sorghum, beef, mutton, and dairy and wool. The Dipaleseng Spatial Development Framework (SDF), 2010 further highlights that the agricultural crop potential of land in Dipaleseng allows for the cultivation of crops such as maize, wheat and sorghum and livestock farming of cattle and sheep. The SDF depicts that 6% of the land is regarded as of high cultivation and 24% being medium while 4% of the municipal area is undetermined in terms of the agricultural crop potential.

The agricultural land should, therefore, be protected to ensure continuous production and for the area to serve as the main agricultural service centre supplying the surrounding agricultural communities and towns with commodities and services. There is, therefore, a need for the municipality to:

- Entrench the status of the natural environment and its resources as the determining factor in sustainable agriculture.
- Reforming agricultural legislation to support sustainable farming practices.
- Draft and apply integrated management systems for natural areas within agricultural zones

- Regulate the clearing of land for agricultural development in accordance with applicable legislation.
- Protect agricultural resources and manage the productive use of high value agricultural land
- Development of an agricultural protection and management framework
 - Identify and map all protected agricultural land.
- The approving of applications to convert intensive agricultural land to other uses should be a provincial responsibility
- Promote small-scale and extensive commercial farming activities. (Focused approach by the provincial Agriculture department and the municipal sector department to promote and enhance commercial farming in the municipality and to ensure that the local communities within the Municipality are sufficiently capacitated by way of skills and equipment to maximise the benefits
- Avoid the irreversible loss and degradation of biodiversity.
- Promote the skills of, and support to, small-holder farmers through the provision of capacity building, mentorship, farm infrastructure, extension services, production inputs, and mechanization inputs.



Spatial Development Principle 4: Climate Change Adaptation

Climate change is a current inevitability and its manifestations are unpredictable. Whether it will involve gradual shifts in temperature (up or down), changes in rainfall patterns, altered groundwater salinity or changes in the frequency and/or severity of

extreme weather events is yet to be confirmed. South Africa is the only African country among the world's top 25 emitters of carbon dioxide over the past several decades. The share of mining and energy-intensive industries in Dipaleseng's economy and the country's coal-intensive energy supplies are partly responsible for this climate change, but the transportation sectors also largely contribute to this

Dipaleseng, like all Southern African Municipalities, is extremely vulnerable to climate change impacts. Temperature increases and weather variability threaten to directly or indirectly disrupt systems critical to the survival of Municipalities in the region. The sub-region is warming and increased droughts are possible in the future. Heat island effects and changing disease patterns are key challenges for inland urban areas. Unguided urbanisation, degradation of freshwater resources, lowered levels of food security and failure of climate change adaptation strategies are among the most significant global environmental risks in Africa.

The challenge for African Municipalities such as Dipaleseng to respond to the impacts of climate change is particularly serious, due to the often precarious nature of living conditions and livelihoods that many face. For those living just outside of poverty, but still with very low incomes very slight external changes can prompt a shift to poverty. These may include social, economic, political or environmental changes such as droughts, increasing food or fuel prices or damage to property due to unexpected events.

Many of Dipaleseng's poor residents live in informal settlements and informal backyard dwellings. Informal living environments are at times located in high-risk locations (such as flood plains) and often with minimal bulk and public services, such as waste collection and management, public transport, access to potable water, sanitation, and health facilities. As such, it is clear that certain portions of the population are more at risk to the seemingly slight and gradual changes that climate change poses. Climate change is a significant threat to a sustainable future in the short, medium and long term. As such, Dipaleseng must introduce the Climate Change Adaptation Plan and the Energy and Climate Change and Action Plan.

In the context of the significant role urban form plays in carbon emissions, Dipaleseng must: build resilience within communities; promote a compact carbon-efficient urban form; and preserve the natural environment that provides irreplaceable ecosystem services for the municipality.

The current climate system may have significant effects on the region's agricultural production and the world's food security. The pattern will also affect both water availability and water quality. Higher temperatures will increase the rate of evapotranspiration and exacerbate droughts. The Municipality must:-

- Conduct Awareness on climate change and its impact on the environment
- Developed a climate change adaptation strategy/plan and action plan
- Developed a climate change mitigation strategy/plan
- Have a council committee that deals specifically with environmental and climate change issues
- Have an Environmental Management strategy. (air pollution control, waste management, water quality management, EIA's, biodiversity conservation etc.)

- Enhancing ecosystems, diversifying crop and livestock production, and building farmers' knowledge base to confront changes in climate. Design a climate change Adaption and Agriculture Programme Capacity Building
- Integrate climate change adaptation within existing development planning and implementation processes

3.2.4 Sustainable Human Settlement Development

The legacy of apartheid left dire consequences in the form of spatial distortion. This is particularly evident in former black townships and rural areas. The effects were far-reaching, leaving South Africa with three distinctive spatial patterns, namely, low-density sprawl, fragmentation and separation.

A sustainable human settlement should not only refer to the provision of housing but rather developing communities which enable societies to live in a way that encourages the notion of creating sense of place. A sustainable human settlement should support harmonious settlements, characterised by a sense of safety and belonging. Fundamental to sustainable human settlements is the ability to improve quality of life and human development. Developing sustainable human settlements should guarantee employment opportunities, safety, affordable housing, and resilient communities. It involves investment in the public realm, public transport, infrastructure, housing and adequate service delivery.

The National Development Plan: Vision 2030, proposes a revised approach to human settlement to guarantee the development of high-quality public infrastructure and environments, while also supporting impoverished households in acquiring adequate shelter. In essence, human settlement patterns within Dipaliseng should strive to meet needs of their citizens by reducing travelling distance and placing citizens closer to employment opportunities.

Spatial Development Principle 1: Promote spatial integration of settlements within the municipality

Dipaleseng is characterised by a fragmented spatial configuration between rural and urban areas which results in unbalanced services and infrastructure development between these areas. There is a great need to facilitate integration and densification through well-located sustainable development and infill, which will ultimately promote integration between communities and enable more efficient access to facilities and opportunities.

- Locating new developments closer to major transport nodes and corridors, economic opportunities and social amenities;
- Infill sites for new development within the existing Siyathemba, Balfour, Grootvlei, Dasville and Greylingstad should be a priority, infill development must focus on well-designed public spaces, with the provision of pedestrian lanes, public open spaces and greening.
- Increase the development of housing in gap markets by establishing partnerships with the private sector and encouraging greater investment in social housing projects and integrated housing and mixed-use development;
- Acquisition of land for sustainable housing development
- Relocation of informal settlement and backyard dwellers
- Promote the security of tenure through more efficient transfer of properties, and embark on a sustained drive to eliminate the title deed backlog.

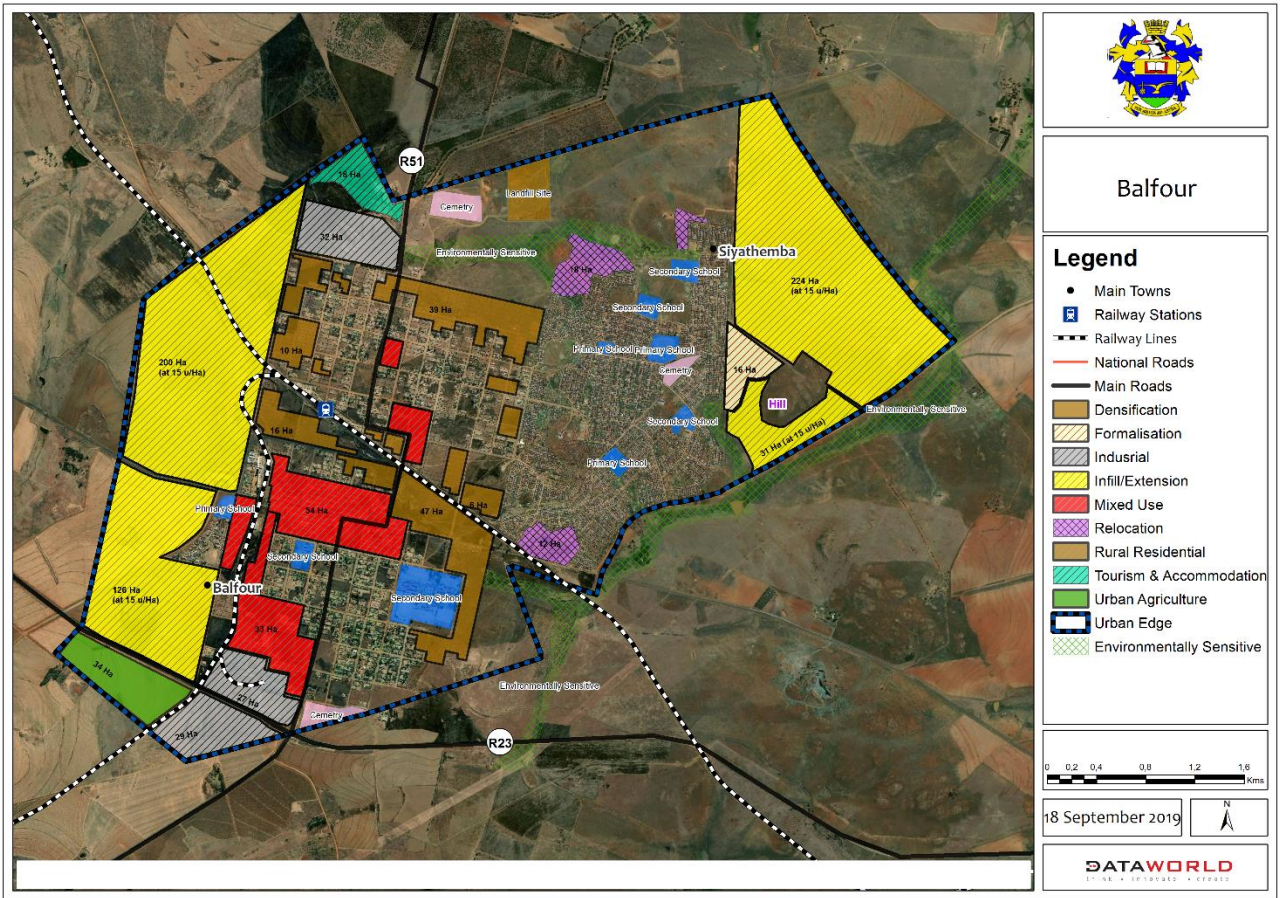
- Dipaleseng municipality and service providers to explore and make greater use of alternative, energy-efficient materials, methods, technologies, layouts in order to reduce the carbon footprint of new housing developments,
- The formalisation of informal settlements in Siyathemba, Dasville, Nthorwane and Balfour through relocation or in-situ upgrading and provision of infrastructure, development of shopping complexes, service centres, clinics and bus/taxi stations.
- Vacant public spaces should be planned for informal traders that characterize the Balfour, Grootvlei, and Siyathemba neighbourhoods;
- Balfour CBD vacant land parcels should be utilised for business use, scattered along the R23 and R51 route, as well as strategically positioned vacant land parcels towards the outskirts of town, is suitable for industrial use.
- Consolidate density and intensify land uses within secondary nodes such as Grootvlei along with key public transport networks and connection points.
- Identification of strategically located land in the Balfour CBD, Dasville, Greylingstad and Siyathemba township for low income and affordable housing with increased densities and various housing typologies.
- Development of an urban edge to contain the phenomena of urban sprawl and contribute towards the development of more compact towns/activity nodes.
- Urban edges are important development feature in planning livable human settlements and stimulate development and growth by making towns efficient.

Spatial Development Principle 2: Spatial Restructuring

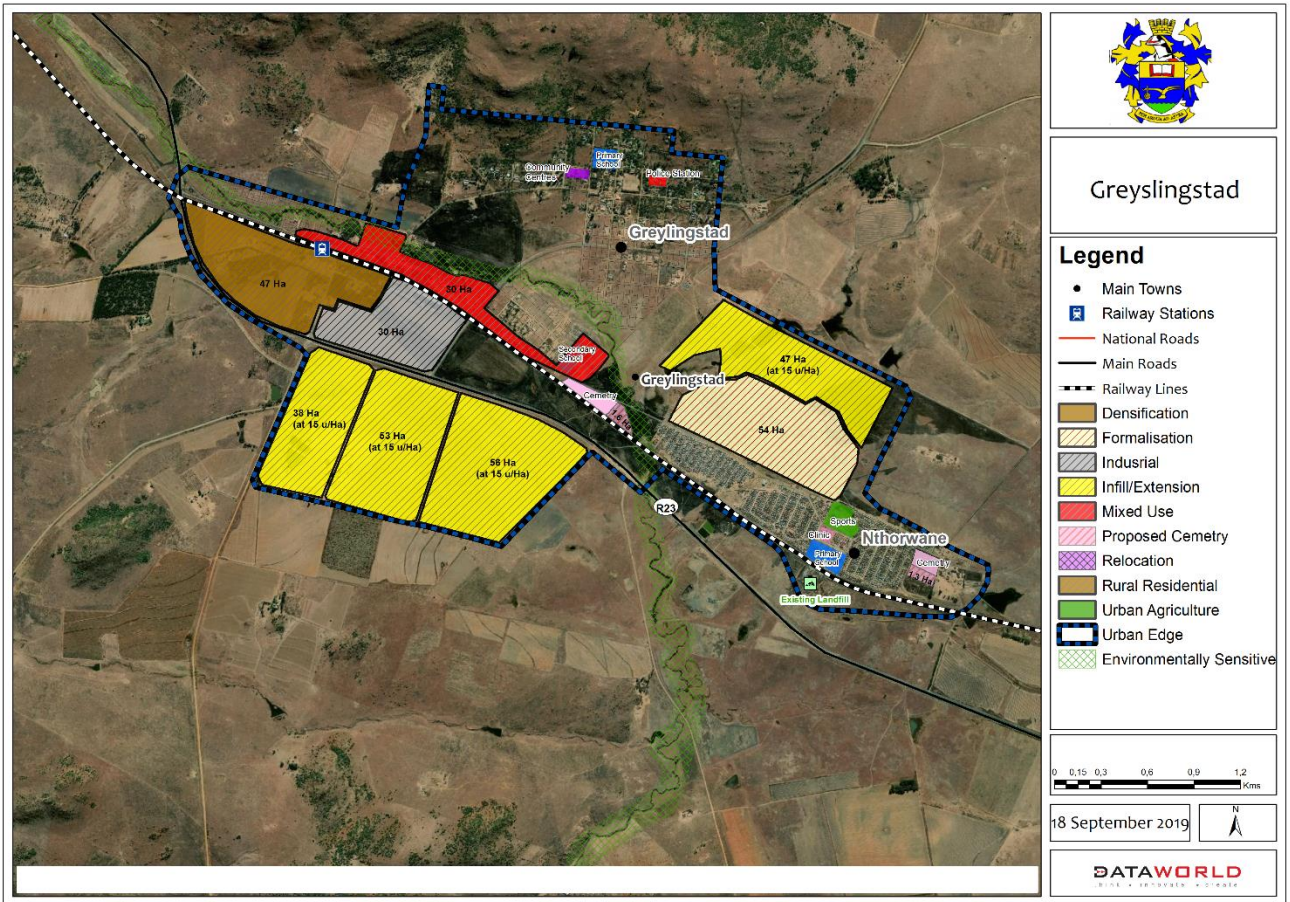
In order to achieve sustainable human settlements, spatial interventions tools are incorporated to radically change the trajectory of a settlement /towns, as well as the lives of its citizens. Ultimately, spatial interventions are essential to transform struggling municipal areas such as Dipaleseng, in which untapped socio-economic potential can be unlocked and further contributing to the sustainable human settlements. The municipality should consider the following interventions in order to facilitate spatial restructuring:

- Smart growth invests time, attention and resources in restoring viability in older towns; it encourages urban regeneration of dilapidated CBDs and settlement growth in areas with high development and economic growth potential;
- Use of strategically located vacant land parcels in the Balfour CBD, Greylingstad & Nthorwane, as a catalyst for densification, integration and mixed land use orientated development;
- Increased attention should be given to creating, maintaining and activating quality public spaces, such as parks, squares, playgrounds and transport interchanges. These spaces should be seen as shared centres of community life and generators of social inclusion and cohesion.
- Within Dipaleseng, there are three nodal points, namely, Balfour, Greylingstad and Grootvlei, these should provide a full range of community amenities, promote local economic development, provide opportunities for people to establish their own businesses; and benefit from the markets created in these nodes.
- Accessible nodal points should be identified in Dipaleseng, these should be focal points for public investment and provision of a range of social amenities.

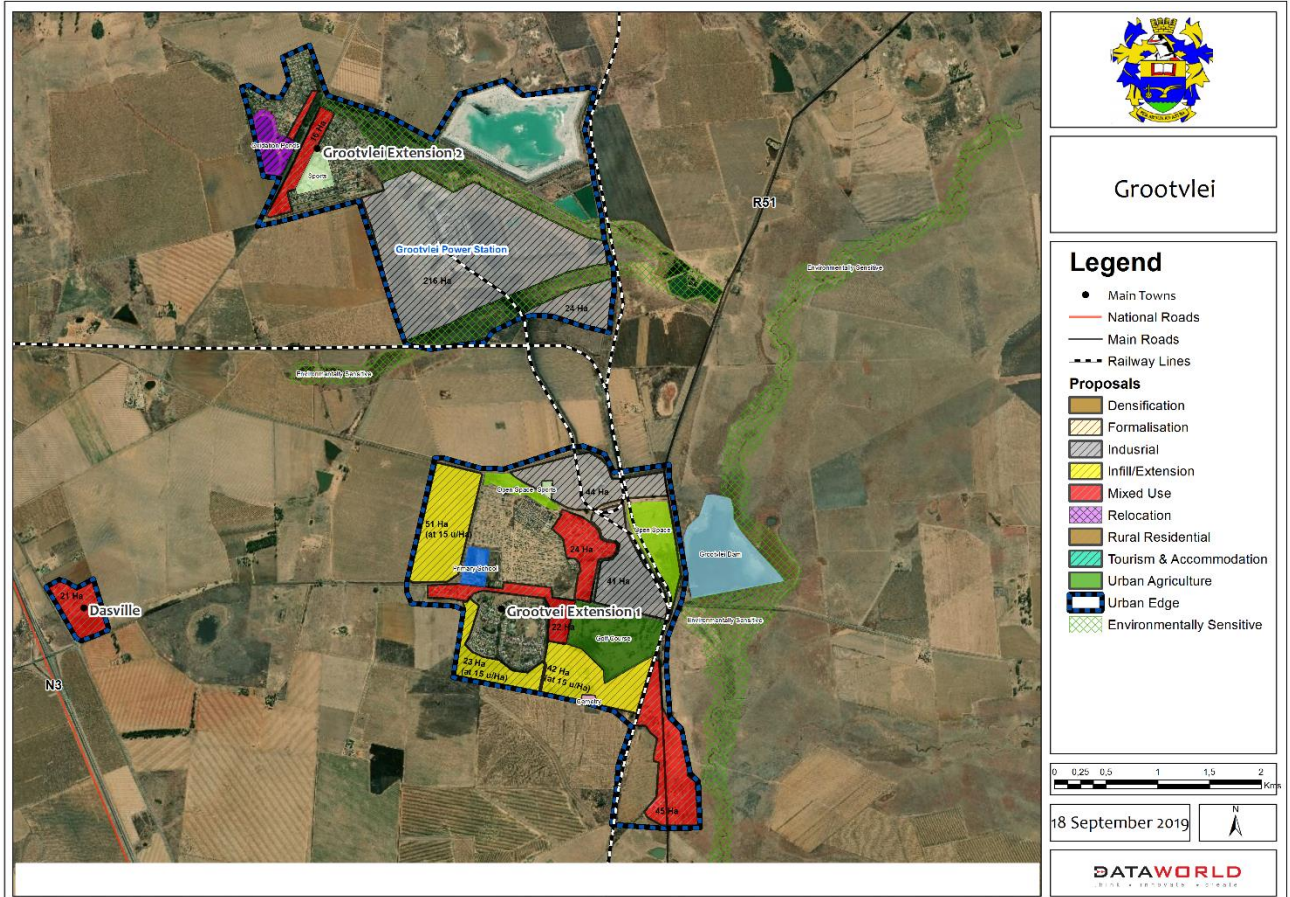
- Optimise the use of existing resources including bulk infrastructure, roads, transportation and social facilities.



Map 5: Balfour Restructuring Zone



Map 6: Greylingstad Restructuring Zone



Map 7: Grootvlei Restructuring Zone

3.2.5 Infrastructure Investment

The provision of water, electricity, sanitation and refuse disposal etc, should be fashioned toward achieving the objectives of sustainable development. According to the Dipaleseng IDP 2019/2020, development plans should be structured towards infrastructure upgrades, predominantly, water and sanitation. Infrastructure provision, good governance and sustainable development are inseparable.

In terms of the Dipaleseng Local Municipality Water Masterplan 2012, infrastructure development in the Dipaleseng has not received adequate attention. As a result, existing infrastructure is generally in poor condition. Local municipalities across the country are tasked with providing basic services and fostering development under their area of jurisdiction. Even though local municipalities have made tremendous efforts over the past few decades in the delivery of basic services. Many households especially those residing in the rural areas are still lacking access to basic services. This is further exuberated by the practical constraints of extending bulk infrastructure in rural areas.

Spatial Development Principle 1: Upgrading and maintenance of existing infrastructure

Water

The 2011 population of the study area is 42,500 people (based on the 2011 Census) and the projected population by the year 2034 will be 52 449 (based on a 0.93% growth rate per annum). The 2014 water demand for the project area is 16.8 ML/d and includes the requirements of the wet industries. It can be deduced from above that the existing infrastructure capacity is unable to meet the current demand. Currently, DLM with its water demand of 16.8 ML/day is supplied by 6.5 ML/day Fortuna Water treatment works (WTW). It is projected that the water demand in year 2034 will be approximately 19.5 ML/day. It is evident that the current and future water demands are greater than what Fortuna WTW can treat and supply. It is against this background that it has become necessary to augment the water supply to the Fortuna WTP in order to reduce the area's susceptibility to dry periods and to cater for current and future growth in water demands by:

- Balfour Fortuna Water Treatment Works requires a necessary upgrade to its infrastructure in order to augment the water supply and possibly meet future water demands.
- Construction of additional storage reservoirs in Balfour, Siyathemba, Greylingstad, Nthorwane
- Rainwater harvesting
- Carry out a hydro census and establish water available.
- Refurbishment of boreholes
- Raising the Suikerbosrand Dam wall to create more storage capacity

Waste Water and Sanitation

- Upgrading of wastewater treatment works in Balfour from 4ML/day to 12ML/day
- Construction of a new 1.5ML/day wastewater treatment works in Grootvlei
- Upgrade wastewater treatment works in Greylingstad from 0.5ML/day to 1.5ML/day
- Desludging of pit toilets in farm areas(strategic area)
- Eradication of septic tanks in Greylingstad

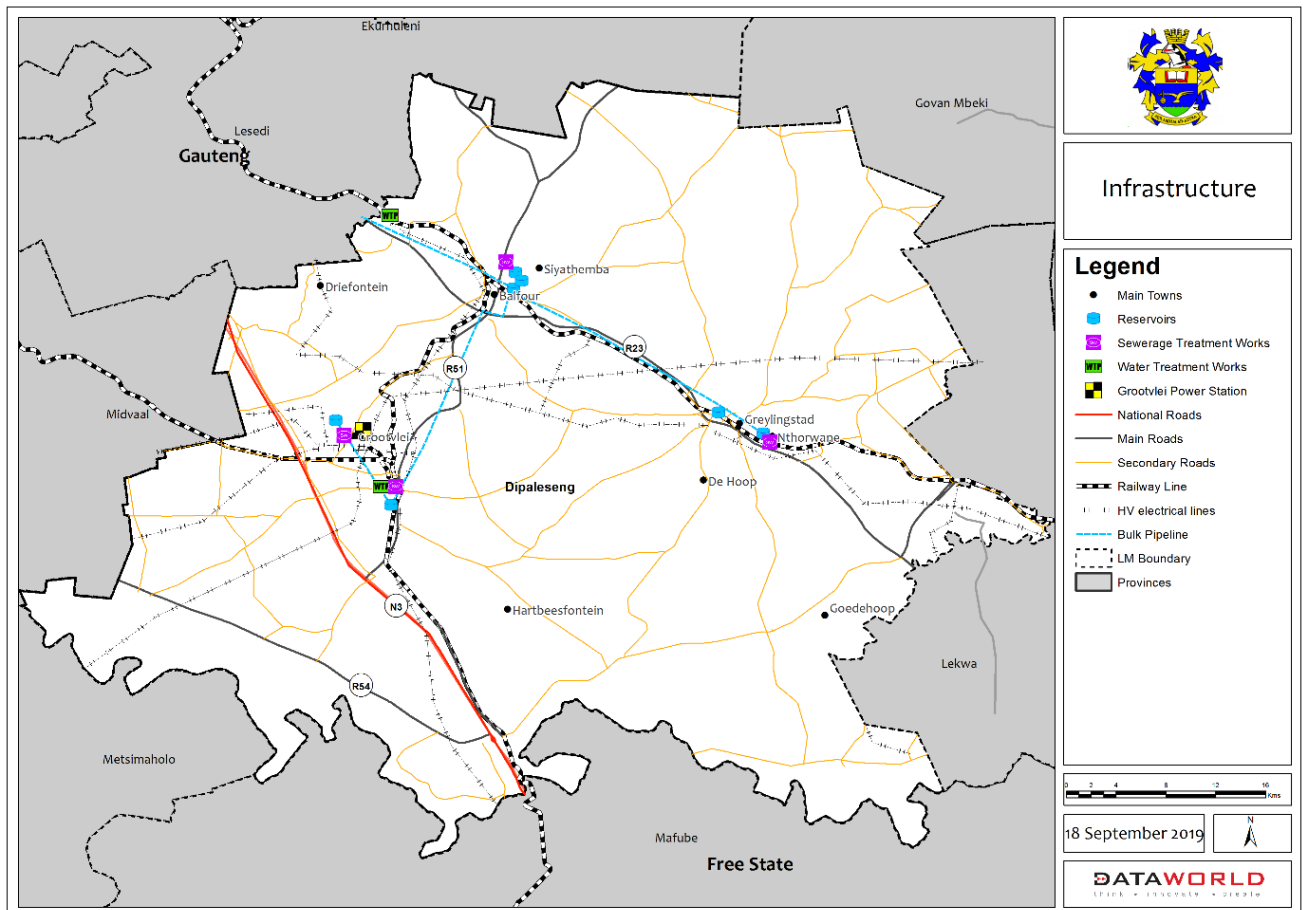
- Replacement of old and asbestos mainline and reticulation
- Provision of Sewer reticulation in Grootvlei Ext 1, Balfour North, Siyathemba Ext 5 & 6 and Nthorwane
- Maintaining the sewer network on a daily basis to ensure unrestricted flow purification plant.

Electricity

- Explore the possibility of generating energy from renewable sources in the municipality, e.g. Biomass plant from agricultural waste.
- Planned housing developments should install solar panels to relief pressure on-grid supply.
- Upgrading of an electricity substation in Balfour and Greylingstad
- Grootvlei and Klipspringer substations will require refurbishment
- Electrification to be expanded in rural areas

Waste Management

- Establish proper access control and fence the site (Grootvlei & Greylingstad).
- Ensure that cover material applied on the waste and compacted in each and every cell to increase the life span of the landfills
- Construct the weighbridge in Balfour
- Procurement of new trucks to address waste and refuse collection backlog
- Development of a waste management recycling hub on vacant land identified Balfour and Greylingstad
- Priority to clear all illegal dumping sites
- Waste management collection points must be established
- Develop ablution at all landfill site



Map 8: Infrastructure Services

3.2.6 Rural Development and Transformation

Rural Development is a proactive process of change and transformation of rural communities through social and economic change. Rural communities in Dipaleseng are still characterized by poverty, inequality, limited access to basic social infrastructure, underdevelopment, and lack of economic opportunities and incoherent spatial patterns. The Comprehensive Rural Development Plans are government's strategic efforts to promote sustainable rural communities and economies. Whereas the vision is achieved through three-pronged strategies that are based on the coordination and integration of broad-based agrarian transformation, rural development infrastructure and an improved land reform programme.

The NSDF, NDP together with the draft Mpumalanga PSDF puts emphasis on the development of segregated rural areas, in terms of which agriculture development plays a key role in addressing poverty, unemployment and inequality. These policies also promote the establishment of rural regions/ nodes¹ as a key strategy for spatial transformation in rural areas. This objective, therefore, emphasises on the creation of productive rural regions/ node which is supported by **Service Towns** and **Small Service Centres/ Rural Service Settlements** as a key strategy to provide support and increase access to economic markets, government and social services in the rural and areas. The large scale of agricultural activity in Dipaleseng, together with the numerous opportunities it presents i.e. supporting livelihoods, small scale farming,

¹ Mpumalanga PSDF, 2019

food production and security and the potential development of agri-industries. Presents prospects of developing well-functioning rural settlements.

Spatial Development Principle 1: Rural nodal development through rural restructuring, agrarian transformation and strategic investment in economic and social infrastructure

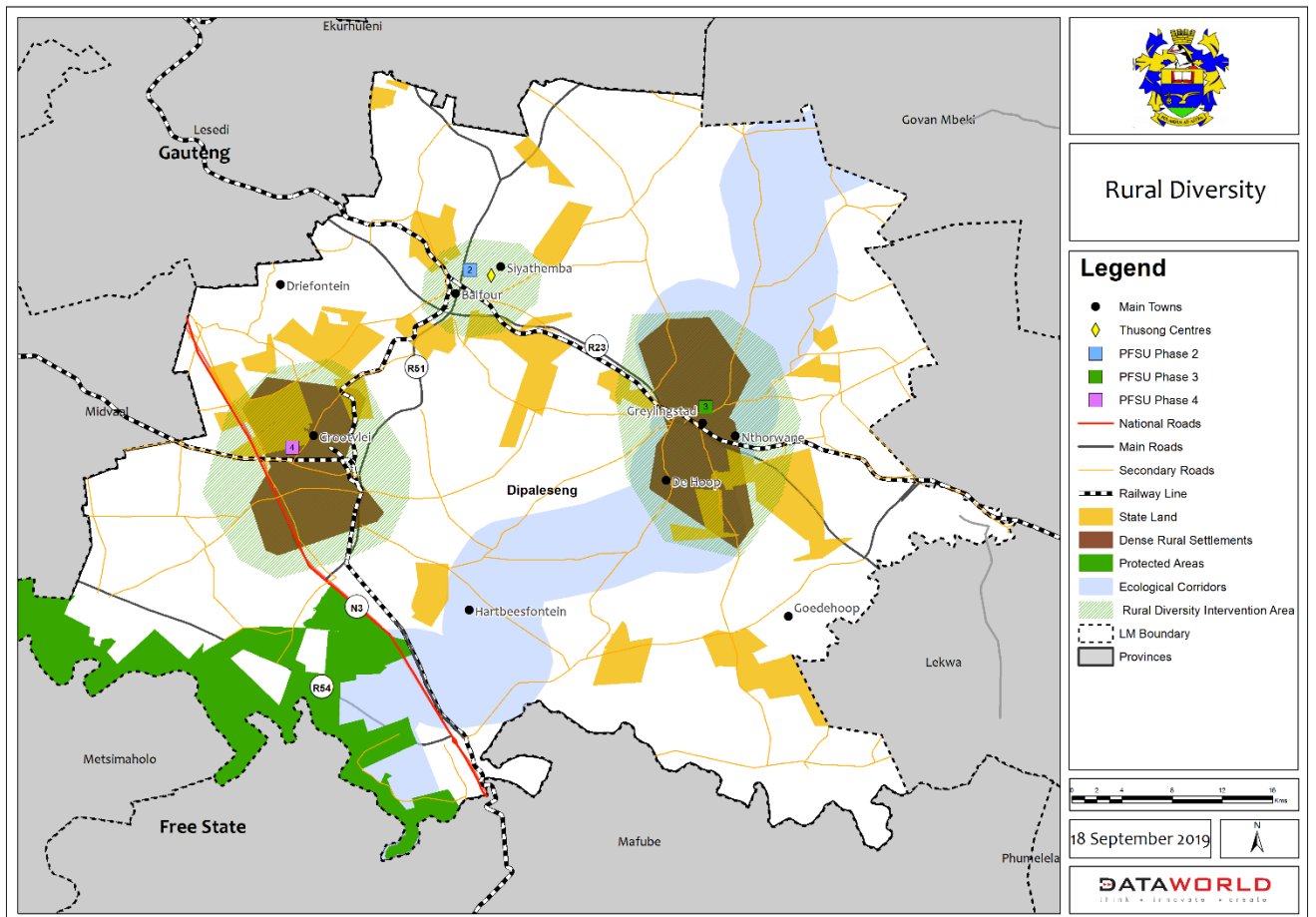
Rural settlements are still surrounded by inequality, poverty, limited basic and social infrastructure, underdevelopment and lack of economic opportunities. For centuries, rural settlement has relied on agricultural activities. Rural nodal development concept is an initiative that focuses on the creation of nodes and clustering rural settlements around rural economies

The PSDF proposes that the main focus of achieving transformation in rural areas should be through the development of what they term as "Rural Economic Nodes" which is concept centred on the proposed service towns and small service centres/ rural service settlements approach of the NSDF.

Rural Economic Nodes concept is an initiative that focuses on the creation of nodes by consolidating and clustering rural settlements around a rural economic activity linked by established transportation networks which aid in providing opportunities and access to markets and provision of high-quality services.

Rural Development in the municipality should also focus on the diversification and agglomeration of the rural economy, not only through agricultural development, but also on agrarian transformation, tourism, and government promotion of rural development and land reform projects. The following interventions aim to achieve the desired approach for Dipaleseng:

- Development of spatial plans focusing on the consolidation and renewal of rural settlements and sustainable provision of basic and social services to rural communities
- Development of RDP anchor project that will assist in the facilitation of agrarian transformation and land reform.
 - Optimising the Potential of identified FPSU's in the municipality
 - Implementation of identified agricultural anchor projects that are linked to the FPSU/ RDP programme
 - Implementation of Rural Intervention Area precinct plan focusing on grain and cattle farming thus incorporating cultural and rural activities in order to promote tourism in southern extents of the municipality-close to Vaal River
- Beneficiation of agricultural products to provide opportunities to emerging farmers and create more employment opportunities
- Implementation of vital land reform programmes e.g. Farms located in the south along the Vaal River Catchment area, along the N3 and R51 are suitable for large-scale cultivation.
- Promoting economic development through Rural/Agri-Tourism
- Development of Eco-tourism around the ecological corridor
- Develop adequate infrastructure that will assist in the operation of the FPSU's and RDP linked projects.



Map 9: Rural Development and Transformation