



**River Regional
Spatial Development
Framework >>>**

Comprehensive Vaal River Regional Spatial Development Framework



May 2024

Project Information Sheet

Project Name:	APPOINTMENT OF A SERVICE PROVIDER TO DEVELOP THE VAAL RIVER REGIONAL SPATIAL DEVELOPMENT FRAMEWORK WITHIN A PERIOD OF EIGHTEEN (18) MONTHS	
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Consultant/ Service Provider:	Asika Consulting Pty. Ltd. Suite G3, Building 27, Thorn Hill Office Park, Bekker Road, Vorna Valley, Midrand, 1685, email: info@asika.co.za	
Approved by:	Project Steering Committee Rajesh Makan (Chairperson)/ Ngodiseni Musetha (Project Manager)	Maartin Friedrich Pr.PlN A/117/2009 Team Leader- Asika Consulting Pty. Ltd

Document History

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0.1	31 May 2024	Comprehensive Vaal River Regional Spatial Development Framework (Final Draft)

Project Phases

- Phase 1: Inception Report**
- Phase 2: Regional Situational Analysis and Regional Spatial Vision and Development Principles**
- Phase 3: Draft Vaal RSDF**
- Phase 4: Consultation on Draft Vaal River RSDF**
- Phase 5: Final Comprehensive Vaal River RSDF**

Cover page image source: Wikipedia.org

List of Abbreviations

Abbreviation	Description
AAMP	Agriculture and Agro-processing Master Plan
AMD	Acid Mine Drainage
APAP	Agricultural Policy Action Plan
CBA	Critical Biodiversity Area
CGA	Citrus Growers Association
COGTA	Cooperative Governance and Traditional Affairs
CoJ	City of Johannesburg
CMA	Catchment Management Agency
DALRRD	Department of Agriculture, Land Reform, and Rural Development
DCOG	Department of Cooperative Governance
DFA	Development Facilitation Act
DFFE	Department of Forestry, Fisheries and the Environment
DTIC	Department of Trade, Industry, and Competition
DWS	Department of Water and Sanitation
EMF	Environmental Management Framework
FPSUs	Farmer Production Support Units
GDARDE	Gauteng Department of Agriculture, Rural Development and Environment
GIS	Geographic Information System
GSDF	Gauteng (Provincial) Spatial Development Framework
GVA	Gross Value Added
IPAP	Industrial Policy Action Plan
I&AP	Interested and Affected Parties
ISRDP	Integrated Sustainable Development Strategy
IUDF	Integrated Urban Development Framework
IVRS	Integrated Vaal River System

Abbreviation	Description
LM	Local Municipality
LOM	Life of Mine
LUS	Land Use Scheme
MDB	Municipal Demarcation Board
LQ	Location Quotient
MEC	Members of the Executive Council
ML/day	Megalitre per day
MICI	Municipal Investment Competitiveness Index
MMC	Member of the Mayoral Committee
MTSF	Medium-Term Strategic Framework
NATMAP	National Transport Master Plan
NDP	National Development Plan
NGO	Non-Governmental Organisation
NGP	New Growth Path
NGVA	National Gross Value Added
NSDF	National Spatial Development Framework
NSDP	National Spatial Development Plan
NWRS	National Water Resources Strategy
PGDP	Provincial Growth and Development Plans
PGVA	Provincial Gross Value Added
PHSHDA	Priority Human Settlements and Housing Development Areas
PSC	Project Steering Committee
PSDF	Provincial Spatial Development Framework
R&D	Research and Development
RDP	Reconstruction and Development Programme
REDZ	Renewable Energy Development Zone
RGVA	Reginal Gross Value Added

Abbreviation	Description
RSDf	Regional Spatial Development Framework
SACPLAN	South African Council for Planners
SANRAL	South African National Roads Agency SOC Ltd
SAL	Small Area Layer
SALGA	South African Local Government Association
SDF	Spatial Development Framework
SDGs	Sustainable Development Goals
SEZ	Special Economic Zone
SOE	State Owned Enterprise
SPLUMA	Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)
SuDs	Sustainable Urban Drainage Systems
SWOT	Strengths, Weaknesses, Opportunities, Threats (Analysis)
SWSA	Strategic Water Source Areas
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
VRRSDF	Vaal River Regional Spatial Development Framework
(VD)WHS	(Vredefort Dome) World Heritage Site
WMA	Water Management Area
WUL	Water Use License
WWTW	Wastewater Treatment Works

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1: INTRODUCTION AND BACKGROUND

Since the introduction of the democratic dispensation in South Africa, spatial planning in the form of spatial development plans and spatial targeting, has gained momentum. This is the case in all spheres of government.

Spatial targeting was first built into the Integrated Sustainable Development Strategy (ISRDP) which identified 13 nodal areas. The National Spatial Development Perspective (NSDP) was introduced in the early 2000s and has had a profound impact in terms of spatial planning at a national level. It has since been replaced by the National Development Plan 'Vision 2030' (NDP). The NDP is now widely acclaimed as the country's blueprint for development.

On 01 July 2015, the Spatial Planning and Land Use Management Act (SPLUMA) (Act No 16 of 2013) came into force and replaced the Development Facilitation Act No 67 of 1995; repealing the Removal of Restrictions Act No 84 of 1967, the Physical Planning Act No 88 of 1967 and other laws. SPLUMA provides, inter alia, for a uniform, effective, efficient and integrated regulatory framework for spatial planning and land use management in a manner that promotes the principles of co-operative government and public interest.

Section 18(1) of the Act specifically empowers the Minister, after consultation with the Premier and Municipal Council responsible for a geographic area, to publish a Regional Spatial Development Framework (RSDF) to guide spatial planning, land

development and land use management in any region of the Republic. In 2019, the Planning Division in the Gauteng Premier Office commissioned a study to determine the feasibility of formulating a Regional Spatial Development Framework for the Vaal River Region. The current study entitled "Development of the Vaal River Regional Spatial Development Framework" has been commissioned based on the recommendations of the feasibility study.

1.1: The Vaal River Region

For the purpose of this study, the Vaal River Region is delineated as an inter-provincial area covering parts of four provinces, i.e., Gauteng, Free State, North West and Mpumalanga. The Vaal River Region comprises Midvaal and Emfuleni Local Municipalities and a portion of Lesedi Municipality of the Sedibeng District (Gauteng), Metsimaholo, Moqhaka, Ngwathe and Mafube Local Municipalities of Fezile Dabi District (Free State), JB Marks Local Municipality of Dr Kenneth Kaunda District (North West), and Dipaleseng Local Municipality of Gert Sibande District (Mpumalanga).

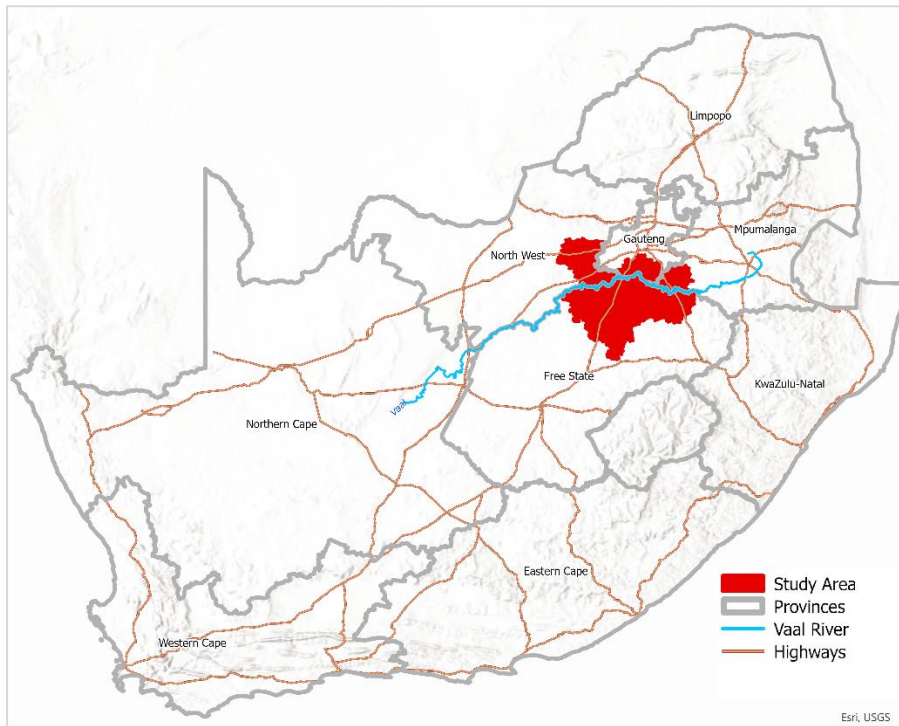


Figure 1: Location of the Study Area (Vaal River Region)

The Vaal River is central to the region and plays an important role in the region through the provision of water for domestic, industrial, agricultural and other purposes. The region consists of urban centres of varied size and typology, world heritage sites, and agricultural areas. Some of the major urban centres in the region are Vanderbijlpark, Vereeniging, Sebokeng, Meyerton, Heidelberg, Potchefstroom, Parys, Kroonstad, Frankfort, and Balfour. Further details of the study area / region can be found in Chapter 2.

1.2: Requirements for a Regional Spatial Development Framework

Section 18 of SPLUMA advocates preparing a RSDF to give effect to national land use policies or priorities in any specific geographic area and to guide spatial planning, land development, and land use management in the Region. The SDF Guidelines (2017), prepared by the Department of Agriculture, Land Reform and Rural Development/ DALRRD (formerly Department of Rural Development and Land Reform), further clarify the roles and legislative mandates of RSDFs. According to the guidelines, an RSDF shall be prepared for specific purposes to address unique needs and circumstances that manifest within or across administrative boundaries. Furthermore, as an inter-municipal and inter-provincial strategic plan, a RSDF must be aligned with the spatial development frameworks of the provinces, districts and municipalities that form part of the region and developed in collaboration with the affected authorities.

Section 19 of SPLUMA specifies the content of a RSDF, and the SDF Guidelines describe how to prepare a RSDF to ensure that it contains all items suggested in SPLUMA. Table 1 provides an overview of the contents of a RSDF as suggested by SPLUMA and how to prepare the RSDF as mentioned in the guidelines.

Table 1: Basic Guidelines for a Regional Spatial Development Framework

SPLUMA (Chapter 4, Part D), A regional spatial development framework must:	How? According to the guidelines (DALRRD, 2017)
19a give effect to the development principles and applicable norms and standards set out in Chapter 2 of SPLUMA	Base vision and proposal on the five SPLUMA principles
19b give effect to national and provincial policies, priorities, plans, and planning legislation	Base vision and proposals on relevant national and provincial policy objectives
19c reflect the current state of affairs in that are from a spatial and land use perspective of the region,	Conceptual mapping of the key status quo elements of the region
19d indicate desired patterns of land use in that area	Spatial proposals for land use
19e provide basis guidelines for spatial planning, land development, and land use management in that area	Guidelines and management framework
19f propose how the framework is to be implemented and funded, and	Set up an implementation framework and possible funding plan by the authority concerned

SPLUMA (Chapter 4, Part D), A regional spatial development framework must:	How? According to the guidelines (DALRRD, 2017)
19g comply with environmental legislation	Base spatial proposals to NEMA principles

1.3: Objectives of the VRRSDF

Considering the SPLUMA legislative mandates, the SDF guidelines, and the purposes of the project as mentioned in the terms of reference, the following objectives have been identified for VRRSDF:

- ▶ Promote regional thinking in planning, present a shared spatial development vision for the Vaal River Region and guide the Region's planning and development decisions across all government sectors.
- ▶ Give effect to the SPLUMA principles at a regional level through the integration of various regional and environmental policies and guidelines.
- ▶ Align and rationalise various plans, strategies, policies, frameworks, and programmes in operation in the Region, to streamline the Region's development and avoid duplication of efforts by agencies involved in the Region's development. Furthermore, it is expected that the VRRSDF will improve the level of cooperation and coordination among the region's various land development authorities,

leading to alignment in development authorisations (SPLUMA sections 29 and 30).

- ▶ Create a unique identity for the Vaal River Region and promote the Region's development by enhancing the Region's unique strengths and niche opportunities (regional drivers), developing a resource base, and minimising the development challenges and bottlenecks. The regional drivers may be insignificant at a municipal level and anything below that, but they are important at the regional level.
- ▶ Identify spatial structuring elements of the Region and strengthen the functions of the elements and nodes to accelerate development in the Region.
- ▶ Identify the Vaal River Region's spatial targets or priority areas. These spatial targets may be where the Region's socioeconomic development needs are most pressing or where economic development prospects are greatest and align the capital investment programmes of different government departments to achieve the spatial targets.
- ▶ Acknowledge the spatial dynamics of the surrounding areas and address inter-provincial and inter-municipal spatial issues.
- ▶ Indicate the desired spatial pattern of the Region and functionally link rural and urban economies within the Region.
- ▶ Functionally link the Region with the surrounding areas and ensure that the Region plays a pivotal role in the larger national economy.

- ▶ Address existing and foreseeable social exclusion, socioeconomic issues, environmental threats, economic decline and inefficiencies, logistical bottlenecks, urban insecurity, decaying infrastructure and impacts of new technologies.
- ▶ Develop a clear plan of action to efficiently implement the VRRSDF proposals by specifying resource requirements, implementation timeframes, responsible parties and funding.
- ▶ Provide basic guidelines for spatial planning, land development and land use in the Vaal River Region.
- ▶ Enhance cooperation between spheres of government and align regional resources and capabilities to support the Region's development.

It must be noted that the VRRSDF is a strategic and discretionary planning instrument that serves national and regional interests. It does not bestow or limit any person the right to use or develop the land within the context of the Municipal Spatial Development Framework or the relevant Municipal Land Use Scheme.

1.4: Project Phases

This project is undertaken in the following five phases:

Phase 1: Project Inception

The project inception phase lays the foundation for the project by identifying stakeholders, assigning roles and responsibilities to

stakeholders, devising a communication plan, and preparing a detailed project work plan.

Once key stakeholders have been identified and project workplans have been set out, a project steering committee is set-up to monitor workplan progress and discuss key issues.

Phase 2: Regional Situational Analysis and Regional Spatial Vision and Development Principles

The first key task of this phase is to identify and analyse the plans, proposals, policies and guidelines that can influence the Region's spatial structure and development path.

The second key task of this phase is undertaking a comprehensive analysis of all matters that have implications for the spatial form and development of the Region. The spatial analysis is intended to present an overall spatial status in terms of current development and spatial growth pattern and identify the overt and latent spatial development challenges and opportunities in the Region.

The third key task of this phase is preparing a development vision for the Region and a set of objectives duly grounded on the results of the status quo analysis. The vision intends to define a clear, concise and overarching development path for the Region. The vision will be supported by various development objectives.

Phase 3: Draft Vaal River RSDF

This phase entails three key tasks – refining the development vision and objectives; preparing draft spatial proposals; and developing a framework to implement the VRRSDF's development proposals. The implementation framework translates the VRRSDF's development proposals into implementable projects and programmes and specifies the departments / entities responsible for project implementation as well as the financial implications for the implementation. The implementation framework also identifies the priority programmes and projects and defines the phases of project implementation.

Phase 4: Consultation on Draft Vaal River RSDF

This phase involves publishing the draft VRRSDF and inviting comments from all stakeholders and I&APs. In addition, there are bilateral engagements and workshops with key stakeholders.

Phase 5: Final Comprehensive Vaal River RSDF

The project's final phase involves deciding on the comments in the previous phase and amending the VRRSDF accordingly. This phase also involves packaging the final reports, GIS shapefiles and databases and preparing an executive summary.



Figure 2: Project Phases

1.5: Report Objectives and Outline

This report constitutes Phase 5's deliverables. The primary objectives of this report are:

- ▶ Describe the spatial development vision and objectives adopted for the development of the Region;
- ▶ Describe the spatial planning approach adopted to translate the development vision and objectives into spatial development proposals;
- ▶ Describe the spatial development proposals, along with the measures to be taken to implement the proposals;
- ▶ Identify the agencies to be involved in implementing the spatial development proposals or parts of the proposals.

The report is divided into the following chapters:

- ▶ **Chapter 1- Introduction and Background:** This chapter provides an overview of the context that necessitates undertaking this project. This chapter also highlights project objectives and describes the purposes of this report.
- ▶ **Chapter 2- The Study Area:** This Chapter alludes to the defined study area (primary and secondary study area) and provides a valuable regional perspective that contextualises the study area and the project.
- ▶ **Chapter 3- Summary of Status Quo Findings:** This chapter provides a summary of the findings of the comprehensive status quo analysis that was carried out in the previous phase. The purpose of this analysis was to ascertain the Region's biophysical, built-environment, socioeconomic,

regional economic, and governance conditions (status quo), and from these findings, to determine the spatial development opportunities and challenges for the Region.

- ▶ **Chapter 4- Spatial Development Vision and Objectives:** This chapter outlines the spatial development vision and a set of spatial development objectives for the development of VRRSDF. The vision and objectives were conceptualised in the previous phase but then refined through consultation with stakeholders. It is for this reason that the vision and objectives contained in the Phase 2 report differ from those contained in this report. The vision and objectives are informed by the legislative and policy context within which the VRRSDF operates, and the spatial development opportunities and challenges described in the previous chapter.
- ▶ **Chapter 5- Spatial Development Planning:** This chapter lays the foundation for the spatial development proposals by outlining the Region's macro spatial structure; the spatial planning principles and the spatial development concept. The macro spatial structure divides the Region into subregions based on unique composition, character, land use and spatial form present in the various parts of the Region. The spatial planning principles define appropriate planning principles that underpin the way forward for this Region. These are drawn together in a broad spatial development concept.
- ▶ **Chapter 6- Spatial Development Framework:** This chapter provides a spatial development framework for each of the

subregions within the Region. It was compiled in this manner to assist all local municipalities and developers to easily access the spatial trends and directives for that specific subregion, thereby facilitating an understanding of the way forward for the subregions, and for the collective Region. The development framework is foundation to spatially structure the overall Region and on which the objectives and therefore implementation plan hinge.

- ▶ **Chapter 7- Spatial Development Proposals and Implementation Framework:** This chapter takes each of the five development objectives developing them further into detailed proposals for implementation and concludes each subsection with an implementation sheet assigning content and timeframes to the activities. This chapter contains the instructions for the successful implementation of the development framework, hence, for the wise and productive development of the Vaal River Region.
- ▶ **Chapter 8-VRRSDF Implementation Guide:** This highlights measures to be followed in order to effectively implement the VRRSDF.

1.6: Spatial Development Proposal Formulation Process

Figure 3 below depicts the planning process followed for preparing spatial development proposals, and so also captures the structure of this report. The report starts with a short summary of the content of Phase 2, a re-capture of the relevant policy

guidance, key spatial development opportunities and key spatial development challenges, and the now final spatial development vision and objectives.

Following are all spatial development planning elements, which commence with dividing the area into four subregions for their unique composition and role and function within the Region. A determination of sound spatial planning principles (that abide by the Chapter 7 SPLUMA principles and when applied will lead to a comprehensive spatial development framework) to govern the way forward and a follow-on spatial development concept.

The latter is translated into a Spatial Development Framework, one for each subregion, so that each local municipality and its developers have quick and easy access to the planning proposals for that subregion. This should make spatial implementation and embracing of the key components at grassroots level easier for all applicable parties.

The report includes an implementation plan, which transforms the development objectives into meaningful and implementable strategies coupled to timeframes.

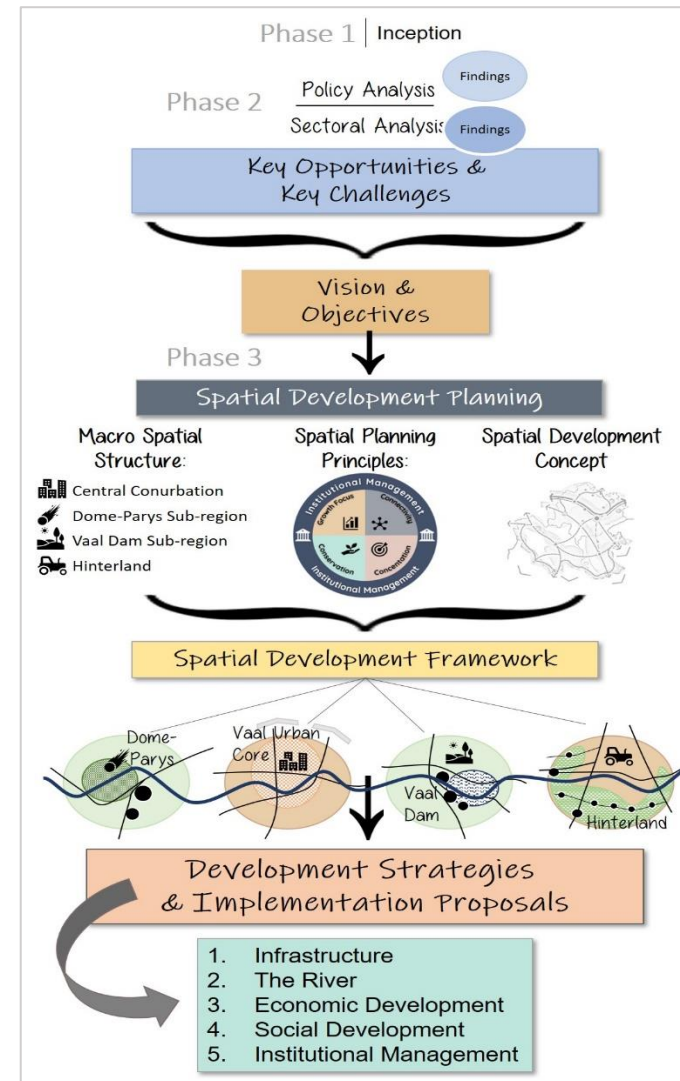


Figure 3: Spatial Development Proposal Formulation Process

2: THE STUDY AREA

The Vaal River, including surrounding areas, was identified at National and Provincial levels as a vitally important resource for the country, Gauteng and obviously its immediate surrounding regions, subareas and adjoining areas. Its value lies in many strategic components, and these have been found and explored in this project.

Owing to the unique composition of the study area, it comprises a primary study area and a secondary study area.

The primary study area was delineated in a previously undertaken Feasibility Study (viz. Feasibility Study Towards the Vaal River Regional Spatial Development Framework, 2019), which determined the inclusion and exclusion of certain areas. The latter study is the origin and provides the foundation for the VRRSDF. The primary study area is the focus of the project, or the core area of attention, and on which the way forward hinges.

However, because of the primary study area's unique delineation, which does not follow the boundaries of local municipal areas but cuts across these municipalities, it was agreed to delineate a secondary study area along local

municipal boundaries mostly for the purpose of the status quo analysis. Where local planning is concerned, most data sets and spatial information are funnelled into the prevailing local municipal areas / delineated boundaries. Hence, it is near impossible to find valuable status quo information that only covers selected areas or areas not in line with municipal boundaries. Thus, to ensure a thorough status quo analysis and ensure the base information is accurate and reliable, a secondary study area was delineated on the outside boundaries of the eight local municipalities that make up the study area.

2.1: Primary Study Area

As delineated in the feasibility study and affirmed in the Terms of Reference of this project, the Vaal River Regional Spatial Development Framework study area is an inter-provincial functional area comprising parts of Gauteng, Free State, North West and Mpumalanga provinces (see the figure below). It is important to understand that the study area is a functional spatial area.

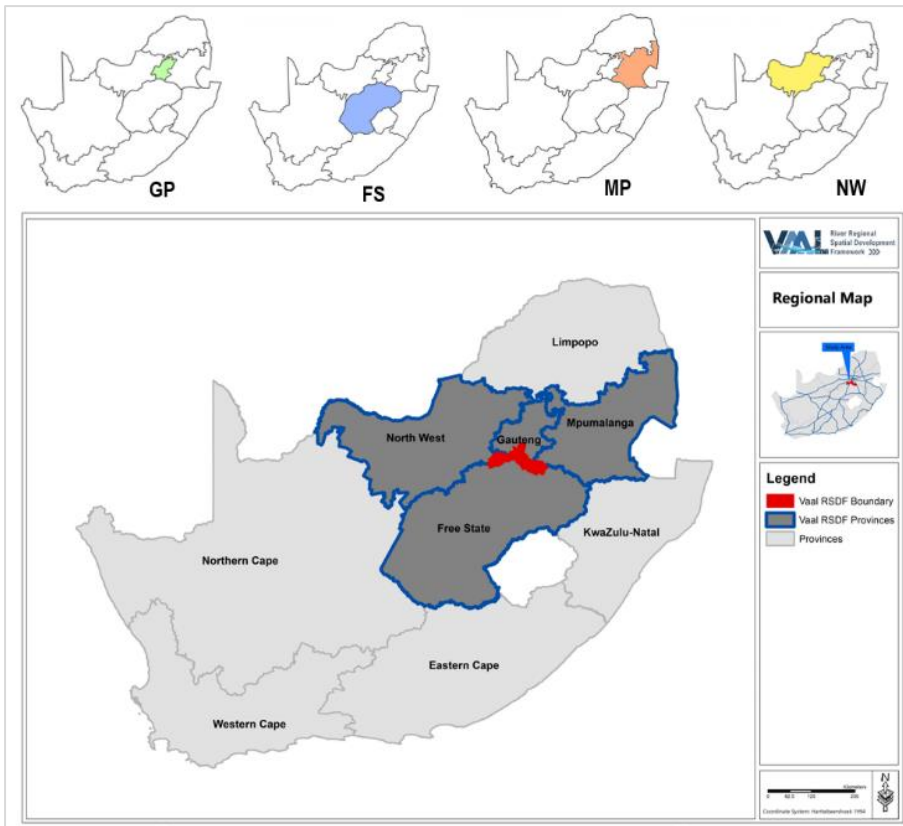


Figure 4: Geographic Footprint of the Primary Study Area

In conjunction with the above, Table 2 shows the district and local municipalities that fall within the delineated Vaal River RSDF primary study area. What is unique and complex about the primary study area is that no municipality in its entirety forms part of the delineated Vaal River RSDF primary study area. The primary study area is a composition of parts of provinces, districts and local municipal areas as shown below.

Table 2: Composition of Primary Study Area per District and Local Municipality

	District Municipality	Local Municipality
Gauteng	Sedibeng 	Emfuleni, Midvaal
Free State	Fezile Dabi 	Mafube, Metsimaholo, Ngwathe, Moqhaka
Mpumalanga	Gert Sibande 	Dipaleseng

	District Municipality	Local Municipality
North West	<p>Dr Kenneth Kaunda</p>	<p>JB Marks</p>

The extent of the different district municipalities that make up the primary study area varies significantly. The district municipality most represented in the primary study area is Sedibeng DM, as most of Midvaal and Emfuleni fall within the primary study area. As for the other district municipalities only small portions of their local municipality(ies) (Dipaleseng, Mafube, Metsimaholo, Ngwathe, Moqhaka and JB Marks) form part of the primary study area. It is this matter that complicated the status quo analysis, since NO single local municipality in its entirety fell within the primary study area.

Central to the primary study area is the Vaal River. It is common to all four provinces and plays a meaningful role in delineating the provincial boundaries. The study area / region consists of urban centres of varied size and typology, world heritage sites, agricultural areas, a 305km-stretch of the Vaal River and the Vaal

Dam which covers a surface area of 32 107 hectares and has a shoreline of over 870km.





2.2: Secondary Study Area

Since no municipality in its entirety was part of the delineated primary study area, but only parts of it were, a secondary study area had to be delineated. It essentially served to enable a meaningful status quo analysis, since most data sets and spatial information are funnelled into the prevailing local municipal areas / delineated boundaries. This enabled an accurate analysis to set the project on the right path. On the flip side the secondary study area provided a larger project area for which spatial and development proposals could be made that reached beyond the primary impact zone of the Vaal River. It enabled the project to be far more comprehensive than initially anticipated.

The secondary study area is much larger than the primary study area, covering an area of nearly 32 500 km², compared to the primary area that measures approximately 6 400 km². The purpose of the secondary study area was to include complete local municipal areas to facilitate the status quo analysis. The areas that constitute the secondary study area are shown in the table below. Following it, is the delineated study area, showing both the primary and secondary study areas in respect of one another.

It should be noted that the boundaries of both the primary and secondary study areas can be adjusted later, during the VRRSDF's review and implementation, if circumstances justify it.

Table 3: Composition of Secondary Study Area per District and Local Municipality

Gauteng	Mpumalanga
<p>Sedibeng: Emfuleni, Midvaal, and a portion of Lesedi</p> 	<p>Gert Sibande: Dipaleseng</p> 
Free State	North-West
<p>Fezile Dabi: Mafube, Metsimaholo, Ngwathe, Moqhaka</p> 	<p>Dr Kenneth Kaunda: JB Marks</p> 

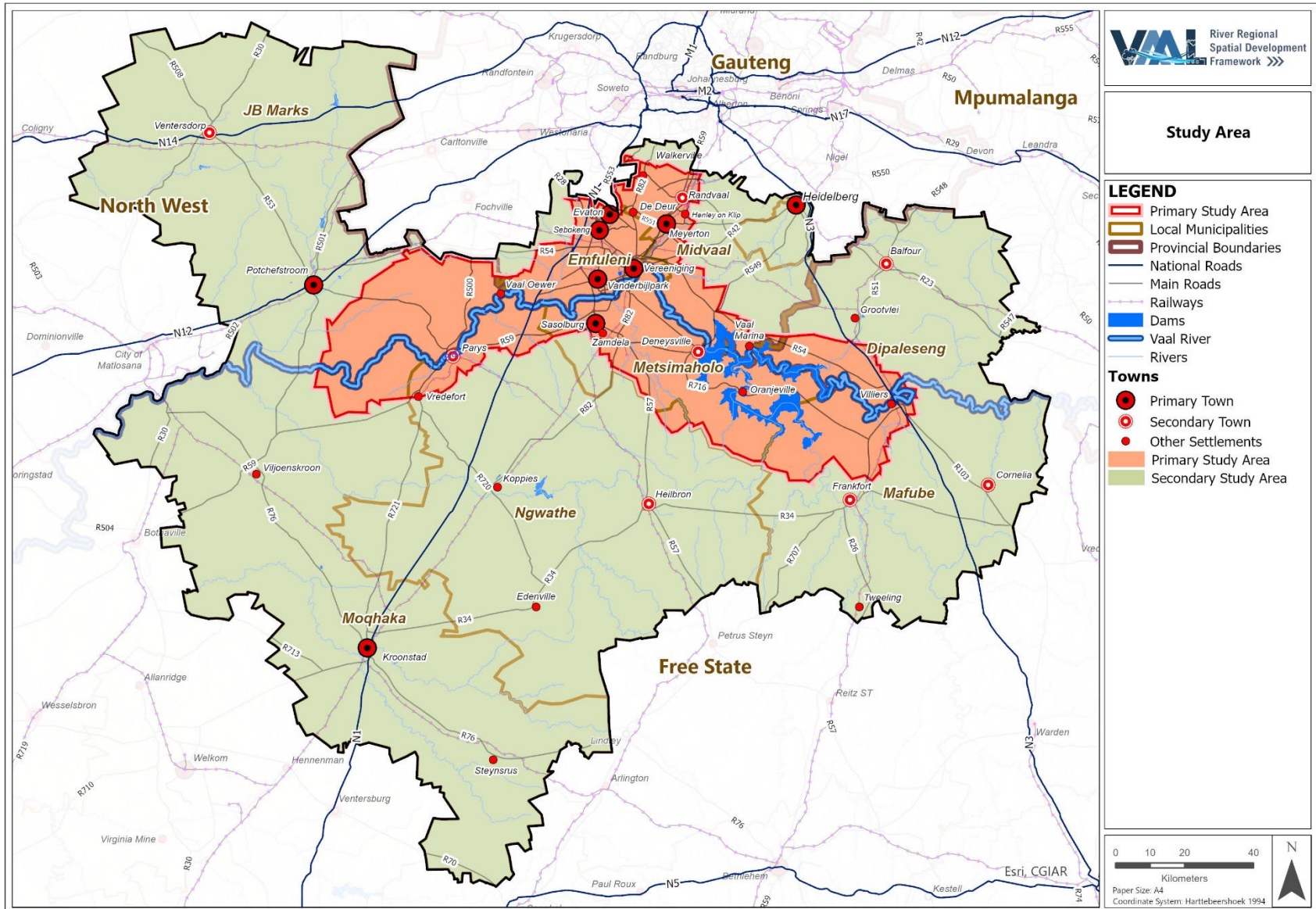


Figure 5: Vaal River RSDf Primary and Secondary Study Areas

2.3: Regional Context

The regional context sets the scene for the status quo analysis, providing background to and context for the study area by highlighting functional concentrations, unique characteristics, linkages and regional similarities.

2.3.1: Urban Perspective

The study area comprises a number of urban centres/concentrations of varied size, typology and function. They tend to be concentrated in the central area and include the towns of Meyerton, Vereeniging, Vanderbijlpark, Sebokeng, Evaton and Sasolburg (see Figure 6). There is a functional linkage between these areas and Gauteng providing benefits for residential and commercial development. The residential character varies from formal high income residential neighbourhoods to lower income high-density settlements. Due to the high demand for residential land informal settlements have commonly developed on vacant land and in proximity to employment opportunities.

Sasol Petrochemical plant located in Sasolburg plays an important role in the national and local economy, but offers limited expansion opportunities for various reasons, the primary being that it cannot compete with the low cost of fuel imports.

Midvaal has a developed core which is supported by a limited residential component but a large rural hinterland, which offers opportunities for a rural residential lifestyle in proximity to Gauteng.

A range of towns with differing sizes and functions are distributed throughout each having developed and grown according to its resources and population. Higher order towns such as Kroonstad (Maokeng), Potchefstroom and Ventersdorp are located along national routes and fall in the secondary study area. Smaller towns such as Parys, Vredefort, Villiers, Balfour, Frankfort, and Heilbron act as service-, rural service- or tourism centres.

2.3.2: Connectivity

The area is well connected with a system of radial linkages emanating from the urban concentration. National routes N1, N3, and N12 (see Figure 6). provide high level mobility and are important freight corridors.

Regional and intra-regional connectivity corridors of varied order are well established between the various towns and nodes. However, unmaintained road infrastructure and deteriorating roads hamper the successful movement of goods, services and people.

The rail network is well established but underutilised as rail infrastructure is degrading and turnaround times cannot compete with road freight transport. The main railway route from Gauteng to the Northern- and Western Cape runs through Potchefstroom. The Cape-Gauteng line runs via Vereeniging, Sasolburg, and Kroonstad, connecting the region to Johannesburg, Bloemfontein, East London, Gqeberha, and Cape Town. The Johannesburg-Vereeniging Line connects the region to Johannesburg. The Johannesburg-KwaZulu-Natal railway line

passes through Balfour, which is on the eastern edge of the secondary study area. The Balfour-Bethlehem Line runs through Villiers, Frankfort, and Tweeling. In addition, the region's towns are connected by a few minor rail lines. Such rail lines include the Skansdam-Springs Line, the Parys Branch Line, the Arlington-Heilbron Line, and the Helibron Branch Line.

Airports in the Region are limited to local and municipal airports or airfields except for the Potchefstroom airport which can accommodate larger aeroplanes due to its military use. A new airport (Vaal Aerotropolis) is proposed in Emfuleni located west of the N1.

2.3.3: Vaal River and Vaal Dam

Cooperative governance and coordination are very key in the Vaal River Region to advocate for sustainable development. As the Vaal River is common to all eight local municipalities and plays an important role as a strategic water source to Gauteng and all surrounding municipalities, agricultural and tourism sector, through cooperative governance all the municipalities, districts and provinces involved would be in a good position to tackle all challenges in existing issues (social, economic and environmental), foreseeable social exclusion, economic stagnation, decaying infrastructure and challenges of using old or new technologies.

The Vaal Dam is a strategic dam for water supply. Rand Water is the largest bulk water utility in Africa and is one of the largest in the world, providing bulk potable water to more than 11 million

people in Gauteng, parts of Mpumalanga, the Free State and North West. Accessibility to the dam is limited due to ever-increasing densification through subdivision of agricultural land along the shores of the dam. High value residential units appear to be the norm, though they also have a value-add in terms of increased rates and taxes which could be explored.

The Dam and River offer a variety of aquatic activities and their recreation role in the greater context should be explored but can only occur once the severe pollution is resolved.

Trade-offs require to be considered where possible to ensure that all three pillars of sustainable development (social, economic, and environmental) are not compromised. For example, to protect the water resources and biodiversity in general. To guarantee that our natural resources are not exploited, polluted and ensure that human beings have pleasure, economy is growing, and jobs are created.

2.3.4: Natural and Heritage Resources

The study area offers a range of natural areas formed by topographical features, water courses, dams and grassland. The Region is home to the Vredefort Dome World Heritage Site (see Figure 6). which includes Parys, Vredefort and a section of the Vaal River. The Dome-area offers a number of tourism and eco-tourism facilities unique to the area and its landscape intercepted by long standing agricultural activities.

Emfuleni has a rich history as it encapsulates the Anglo-Boer War, with heritage assets such as the Sharpeville monument and the liberation struggle epitomised by the signing of the Constitution in 1996 in Sharpeville. Koppies is becoming known for its tourist attractions with specific reference to the R82 Battlefield Route which consists of several historical battlefields.

2.3.5: Agriculture

Farming is be found throughout the Region ranging in intensity, scale and type. Commercial farming practices consist mainly of grain and animal production units. Ventersdorp in the north-west is a strong grain production area as is the Kroonstad area but with

an increasing mix of animal production. Kroonstad being a higher order service centre for the agricultural sector. Die Koppies Dam within the Renoster River, and a series of dams, such as the Weltevrede, are prominent water sources for agricultural purposes in that area. Vredefort is a small farming town in the Free State around which cattle, peanuts, sorghum, sunflowers and maize are being farmed. Frankfort is a rural service centre serving a hinterland agricultural community where sheep and cattle farming, and maize and sunflower seed production prevail. Villiers functions is the main concentration point for agricultural products in the district, and includes products such as maize, sunflower, wheat, grain, sorghum, meat and dairy. Being on the N3 it has a pertinent distribution function.

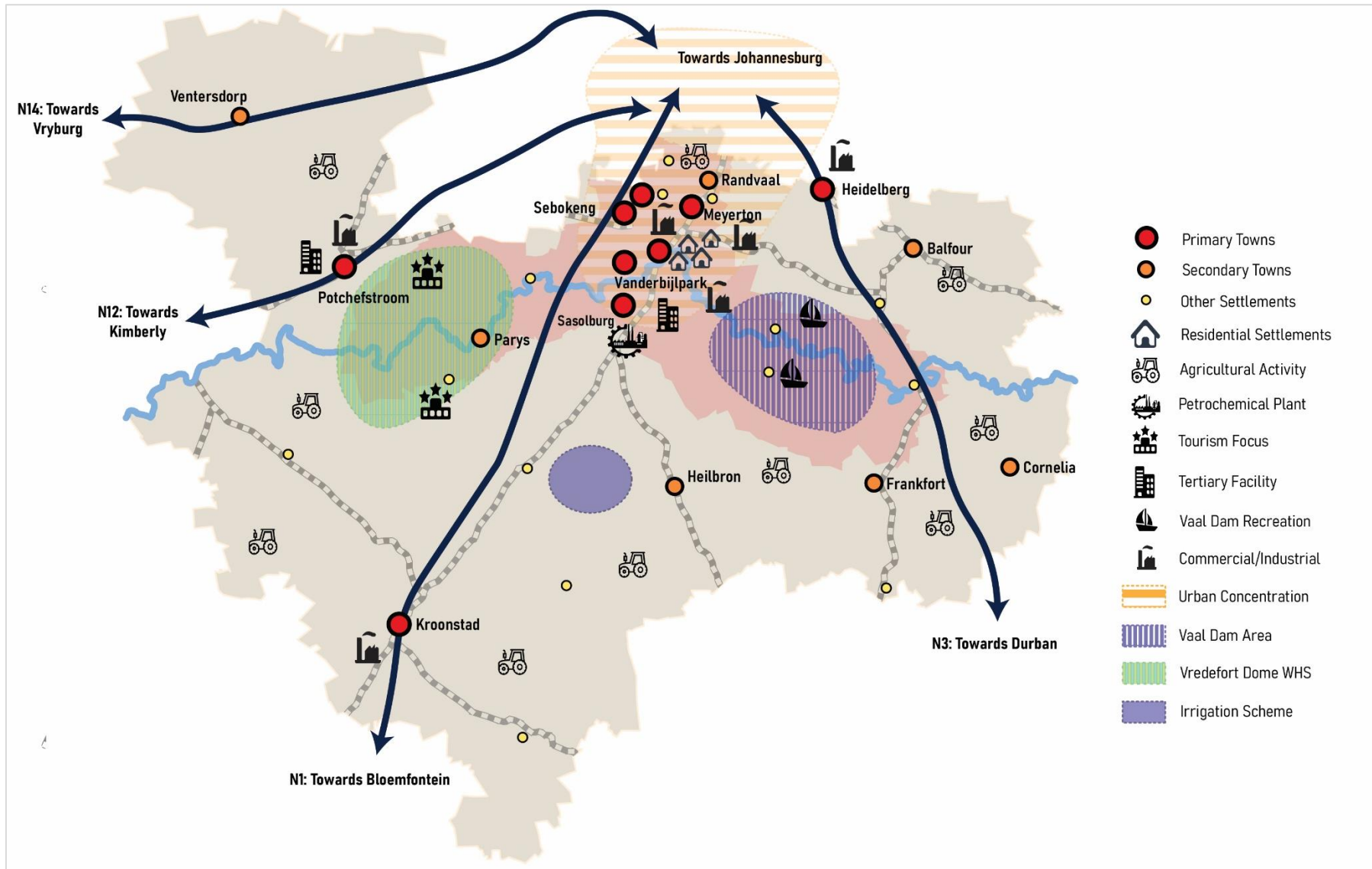


Figure 6: Regional Perspective

3: SUMMARY OF STATUS QUO FINDINGS

3.1: National Policy Environment

The national policy review found that the Vaal River Region is a nationally recognised spatial area that has importance and development priority in terms of both the National Development Plan 2030 (NDP) and National Spatial Development Framework (NSDF, gazetted in February 2023). The VRRSDF will have to facilitate the implementation of the NDP by prioritising the development of the Vaal catchments, as the NDP identified the upper and middle Vaal sub-catchments as areas that require institutional development. The NDP also emphasised the conservation of the environment and water resources upstream of the Vaal dam. The Vaal River Region forms part of the Central Innovation Belt, National Spatial Transformation and Economic Transition Regions (Gauteng), and Upper Vaal National Resource Risk Area of the NSDF's National Spatial Action Areas. In addition, the region falls within four NSDF sub-frames, namely National System of Nodes and Corridors, National Resource Economy Regions, National Movement & Connectivity Infrastructure System, and National Ecological Infrastructure Network.

Based on the NSDF proposals and guidance, the VRRSDF must ensure:

- Diversify the economy, rebuild, support and upscale the secondary sector, and strengthen the tertiary sector.
- Create transformed, well-functioning settlements.
- Strengthen existing connections to, and links with the core areas of the Gauteng Urban Region.
- Strengthen infrastructure networks to facilitate regional, national and cross-border flows.
- Support agro-processing, viable mineral and metals beneficiation and alternative energy production.
- Ensure the sustainable use of resources and prevent pollution and resource depletion.
- Manage and mediate the impacts of (1) dense human settlement and (2) intense economic activity on critical national water resources, e.g. the pollution mitigation actions in the case of the Vaal River.
- Prioritise natural resource management by, amongst others, introducing far more stringent protection and wise management of the country's scarce natural resources, notably so its high-value agricultural land.
- Manage competing and incompatible land uses, e.g. mining, agriculture and eco-tourism.
- Protection of high-value agricultural land and putting it to good use, and managing competition for development on such land, within the pursuit of (1) national food security, (2) economic growth, and (3) social stability.
- Management of the development of land with high-agricultural production potential, and encouragement of small-scale agriculture and resource enterprise development.

- Intensive rehabilitation and strict control in accordance with the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA) will be required in existing and new mining areas to limit water, air and soil pollution and land degradation.
- Rehabilitation of degraded land and effective land-use management.
- Improvement of rural-rural connections, market accessibility and key agricultural-production infrastructure.
- Enhancement of connectivity through well-planned infrastructure investment and settlement consolidation in well-connected regional development anchors.

APAP recognises agriculture as a sector with significant job creation potential while providing other significant benefits which include food security. The Vaal Region consist of vast agricultural land used for agricultural activities, while the other vacant extents remain high-potential agricultural soil, and the VRRSDF should ensure that these are taken advantage of.

3.2: Provincial Policy Environment

The review of the provincial policy environment of the four provinces (Gauteng, Free State, North West, and Mpumalanga) provided several development proposals that covered all sectors of development and growth and included specific projects in dedicated areas. Industrial, commercial and mining development proposals prevailed in Gauteng and the Free State, while tourism, agriculture and mining featured in the Free State,

North West and Mpumalanga Provinces. All four provinces reported challenges related to old and deteriorating infrastructure, inadequate housing, poor sanitation and water supply, and backlogs in engineering provision.

It is valuable to note that all four provinces realise the importance of the Vaal River Region as all of them include dedicated proposals and projects for its area that relates to the Vaal River. This means cross-border awareness exists and cross-border co-ordination should be attainable.

3.3: District and Local Policy Environment

The analysis of the district and local municipal policy environment found there are many focused development proposals for the entire Vaal River Region. At a municipal level the Vaal River Region is important, holds much potential and is already of insurmountable value for all municipal areas.

Development proposals are staggered with most development focus being on the central part of the Region, followed by the Vaal Dam area, and Vredefort Dome / Parys area. The Dr KKDM and Gert Sibande DM areas that form part of the study area do not have any economic development proposals in the study area as these areas are primarily used for commercial agricultural purposes.

Specific development proposals include the following:

- ▶ **Industrial:** the proposed industrial developments are mostly situated in the central area and therefore related to

proposals made by Sedibeng and Fezile Dabi DMs. The subject areas from Sedibeng include Vaal SEZ Sites, Leeuwkuil, Boipatong, Cyferpan, and Sebokeng CBD. While the subject areas from Fezile Dabi include The Chem City and Naledi Park. Furthermore, these proposed developments range from light to heavy industries which provides a good mix and scale of potential developments.

- ▶ **Energy:** proposed green energy and related industrial development opportunities in Sasolburg and Sedibeng District.
- ▶ **Commercial:** proposed commercial developments are also mostly situated in the central area being from Sedibeng, thus including Savannah City, Sicelo, Mamello, Evaton, Berverley Hills, Palm Springs, Boipatong, Bophalong and Sebokeng.
- ▶ **Tourism:** proposed tourism developments and proposals are found across the study area. The subject areas from Sedibeng include Sharpville Struggle, Three Rivers, River Road, River Front, Walkerville, Sebokeng Struggle, Suikerbosrand, R42 Scenic, R54 Marina, R550 Klip Route; and Vanderbijlpark (Emerald Casino). Subject areas from Fezile Dabi include Parys, Deneysville and Oranjeville; and the subject area in Dr Kenneth Kaunda is the Vredefort Dome.
- ▶ **Mining:** there are existing mining activities in the study area. No new mining proposals / developments have been identified. The existing mines are situated in the central

area and include Bantu Bonke (Sand quarry along the Vaal River) and New Vaal Colliery (coal mine).

- ▶ **Agricultural:** proposed agricultural developments are situated in all three subregions of the study area: Sedibeng, Fezile Dabi, Dr Kenneth Kaunda District Municipalities. The subject areas from Sedibeng DM include Rietkuil Agri-Hub, Sebokeng Agri-Park, and Bantu Bonke (potential agri-villages). Subject areas from Fezile Dabi DM include the Farm Moodraai 44. The portion covered by the Gert Sibande DM is already predominantly agricultural, whereas the Dr Kenneth Kaunda DM identifies some parts of the study area as high-potential agricultural land. In addition, there are proposals for the development of agrivoltaics and agrivoltaics industries in the Region.

3.4: Bio-Physical Environment

- ▶ The Vaal River, Vaal Dam and all tributaries are an invaluable resource for the Region and the four provinces as a human and economic resource.
- ▶ The Vaal River is in a critical state, with escalating pollution rendering the water unfit for human consumption and being destructive to the ecosystems. The resource in its entirety is threatened.
- ▶ Tourism, recreation and agriculture are under threat from the state of the River.
- ▶ Present water demand is broadly in balance with water supply, with no capacity for future growth and increase in

demand, which is problematic given limited groundwater availability.

- ▶ A minor portion of the study area is not suitable for development for various reasons including the presence of dolomitic rock, ridges, water bodies and protected areas.
- ▶ Most of the area is suitable for agricultural activities (good rainfall, good temperatures, high potential agricultural land, etc.) and can accommodate commercial, small-scale, agri-villages, intensive farming, dry-land cultivation or livestock farming. The agricultural profile of the Region is beneficially diverse.
- ▶ Large areas are environmentally sensitive, already classified as CBAs and protected from development. This is beneficial for tourism and eco-tourism development, and the Dome, and is needed to protect the scenic value of the Region.
- ▶ Minerals are found in the Region and may lead to mining. Mining has a negative visual and environmental impact, but has a positive economic impact and is a needed economic resource.
- ▶ A portion of the Klerksdorp Renewable Energy Development Zone (REDZ) falls within the region. Hence, there is an opportunity to generate renewable energy in

the Region. However, considering the REDZ overlaps with the Vredefort World Heritage Site, this will have to be environmentally managed to secure the tourism value of the Region.

- ▶ The region offers opportunities for agrivoltaics. Development of sustainable and renewable energy plants will help achieving energy security and support emerging, existing and SMME's facing negative consequences due to electricity cuts.
- ▶ The Vaal River Region is vulnerable to climate change. Climate change can decrease the quantity and quality of water in the Vaal River system, threaten biodiversity and ecosystems, increase heat stress and severe weather events. The effects climate change may lead to less water availability for nature services and consumption (irrigation, drinking, industrial purposes etc.), loss of wetlands and water bodies, change in agriculture production, reduced food security, tourism and economic activities, and migration of rural people to urban and peri-urban areas.

BIO-PHYSICAL ENVIRONMENT SUMMARY



TOPOGRAPHY & CLIMATE

The Region is generally flat with two major ridges in the Central Urban Conurbation and Vredefort Dome Sub Region. Vredefort Dome Sub Region comprises some valleys along the Vaal River.

The Region is generally associated with moderate temperatures. The average annual temperature of the whole region ranges between 16°C and 18°C. The average rainfall in the Region ranges between 800mm to 1600mm.



BIODIVERSITY

The Region is rich in biodiversity with several nature reserves, critical biodiversity areas, irreplaceable areas and linear ecological corridors.

The Region also contains several wetlands, rivers, and dams- making it rich in aquatic biodiversity.

However, there is a decline in the biodiversity due to the destruction of natural habitat; invasive alien species, over-abstraction of water, and climate change.



WATER RESOURCES

Vaal River, its tributaries, and dams are major water resources in the region. The Vaal River is in a critical state, due to pollution and over utilisation. The region also includes several wetlands which play significant role reducing soil erosion and water pollution

Availability of ground water is limited. A few strategic ground water resources areas (SWSA) exist in the region. Conservation of these SWSAs is essential for ensuring future availability of water.



NATURAL HAZARD

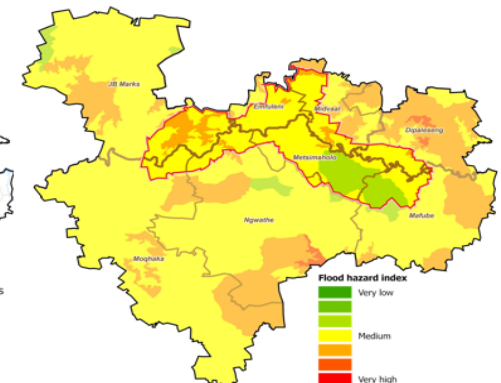
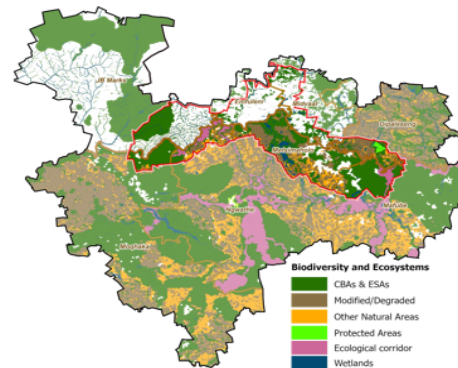
Parys and Vredefort are most likely to experience wildfire; whereas Vereeniging, Sasolburg, Vanderbiljpark, Villiers, Vaal Marina show traces of the likelihood of wildfire.

The Region shows a medium flood hazard index. Walkaville, Rooipoort, Cooperville AH have a medium flood index within the primary study area. Vaal Dam area have a low flood hazard index.



LAND USE/ COVER

Major Land Uses/ Covers: Temporal Crops (31%), Natural Grassland (41%), Urban & Rural Built-up, Infrastructure and Mining (10%), Artificial Water Bodies/ Dams (5%), and Natural Wooded Land 4%.



3.5: Built Environment

- ▶ The Region is strategically located with good radial connectivity, which provides good integration internally across and around the Vaal River, and externally linking to Gauteng and other major centres in all directions.
 - ▶ Several larger and vibrant industrial areas drive the economy of the Region, in which the R59 Corridor, which links through to the Gauteng City Region, is a critical component. The Region's proximity to markets is good.
 - ▶ Manufacturing is thriving in Sasolburg, agriculture throughout the Region, tourism has countless untapped opportunities and logistics development may be on the horizon. Where manufacturing is not thriving in other areas, a good base exists on which a thriving manufacturing sector can be built on.
 - ▶ The state of infrastructure, including all networks and systems, is problematic as all infrastructure is aged and remains mostly unmaintained and un-upgraded. Local and provincial roads are in dire repair, don't get maintained and no new roads are built, raw sewerage runs down streets and is pumped into the water courses which flow into the Vaal River; water supply and quality is poor; over and above loadshedding electricity supply is frequently interrupted, which has a most significant economic impact.
 - ▶ Increasingly demand for water is becoming problematic so much Emfuleni municipality has halted new developments.
- The Region's future water security is dependent on wise water use, recycling and reusing treated wastewater, and sourcing water from other river basins.
- ▶ Pollution caused by failing sanitation systems up- and down River is exceedingly problematic. This infrastructure sector is in dire need of financial assistance and re-administration.
 - ▶ In line with the above, there is a lack of serviced land to accommodate particularly housing development, while the need for housing remains high and unmet.
 - ▶ Housing developments and informal settlements have resulted in a fragmented urban footprint which is difficult to repair.
 - ▶ Rail lines exist in the area, but are totally underutilised, however, this is as a result of the national rail infrastructure situation and cannot be resolved by this Region. Rail revival should be a national priority.
 - ▶ Decline in the mining and iron sectors must be navigated otherwise it could have a detrimental impact on the overall economy and employment. Plans / strategies must be devised to counter this otherwise the Region will face harsher backlogs than presently.
 - ▶ The urban areas such as Vereeniging, Vanderbijlpark and Sasolburg, are characterized by formalised medium-density housing accompanied by informal settlements, commercial and industrial activities, CBDs, and mixed-use areas. Generally, the urban areas have a grid-like street pattern and are well connected to the other centres.

- ▶ The peri-urban areas comprise a mix of residential, commercial, and agricultural land uses. These areas often have larger plots and more green space than the urban areas, and the street pattern is less formal.
- ▶ The rural areas are mostly characterized by agricultural land uses, scattered settlements, and open spaces. The spatial pattern is less structured, and the settlements are often located along major roads or rivers. The rural hinterland comprises a diverse range of agricultural activities.

3.6: Socio-economic Profile

- ▶ The population of the nine municipalities (including parts of Lesedi) is expected to grow to 2.06 million in 2050 from 1.93 million in 2022.
- ▶ The socio-economic conditions of the project municipalities portray a mixed picture. Some of the municipalities have experienced population decline, probably due to migration as a result of the lack of economic opportunities, while others registered decent population growth.
- ▶ The Region has a good share of youth and working-age population (68% of the total population), highlighting the availability of the labour force. The substantial proportion of the youth and working-age population represents a demographic window of opportunity. The National Development Plan 2030 estimates that South Africa's demographic window of opportunity will close by 2030. If

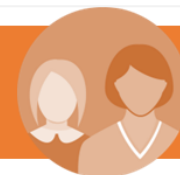
the working-age population is engaged in constructive economic activities, this window of opportunity can be converted into a demographic dividend that will support economic development and social upliftment. However, the current high unemployment rates and youth unemployment, hint at the lack of economic opportunities and waste of the available labour force..

- ▶ The Region has a higher tax-paying populace compared to the national average but a lower average annual household income.
- ▶ Though a distinctive spatial pattern of socio-economic conditions cannot be observed, the conditions of Dipaleseng, Mafube, Moqhaka, and Ngwathe are poorer and more prone to socio-economic vulnerabilities. A possible reason for this pattern is that these municipalities do not have strong economic bases and are not integrated with the key economic bases of the Region, such as Vereeniging, Vanderbijlpark, Meyerton and Sasolburg. Thus, it calls for better spatial integration and the creation of better socio-economic conditions in those municipalities.
- ▶ There are high income, skills, and employment inequalities throughout.
- ▶ Higher education opportunities exist and present an opportunity for expansion – growing that sector and educating more people and thereby expanding the area's advantages.

»» Vaal River Regional Spatial Development Framework

- ▶ Population growth is expected, which will place pressure on all resources – land, housing, infrastructure, the economy, and employment.
- ▶ Economic decline will have a significant impact on the social status of the populace and inability to achieve social betterment.

SOCIO-ECONOMIC PROFILE SUMMARY



POPULATION

2022 : 1.93 million (estimated)

Highest in Emfuleni: 945 650

Lowest in Dipaleseng: 35 980

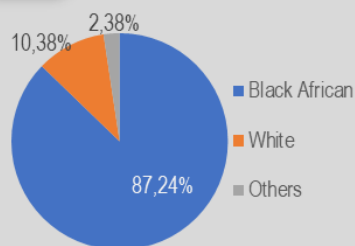
2050: 2.06 million (estimated)

Highest in Emfuleni: 792 567

Lowest in Dipaleseng: 47 764



ETHNIC COMPOSITION



UNEMPLOYMENT

Unemployment Rate: 34.60%

Highest in Dipaleseng: 44.92%

Lowest in Midvaal: 17.81%

Youth Unemployment Rate: 48.52%

Highest in Dipaleseng: 60.08%

Lowest in Midvaal: 27.05%



EDUCATION

Attendance at an Edu. Inst.: 73.38%

Highest in Moqhaka: 77.27%

Lowest in Midvaal: 70.58%

People with Higher Edu.: 11.85%

Highest in Emfuleni: 12.8%

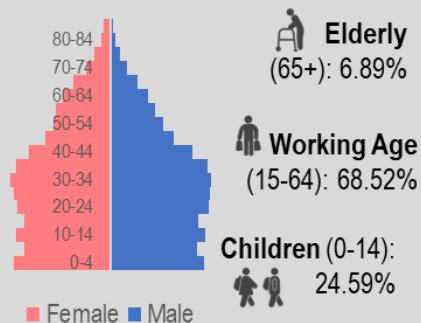
Lowest in Dipaleseng: 5.4%

GENDER AND AGE STRUCTURE



50.96% Female

49.04% Male



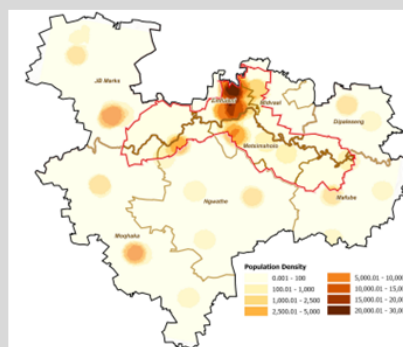
POPULATION DENSITY



Population Density (People/ sq Km): 59.30

Highest in Emfuleni: 978

Lowest in Dipaleseng: 13,74



The Region has a large proportion of youth and working-age people and can provide labour for economic activities. The existence of tertiary and vocational institutes allows for the training and upskilling of the labour force.

The region's average household income is lower than the national average, even though the region is home to several industrial activities. Midvaal has the highest average household income and Dipaleseng has the lowest.

The region has significant income disparities. Income disparities in Midvaal, Emfuleni, JB Marks, and Metsimaholo are higher than the national average.

In general, the crime rate in the region is lower than the national average. The project municipalities' socioeconomic vulnerabilities range from low to moderate. The socio-economic scores of highly urbanised municipalities such as Emfuleni, Metsimaholo, Midvaal, and JB Marks are lower than those of rural municipalities..

The population of the region is projected to decrease from 1.93 million in 2022 to 1.87 million in 2030 and then increase to 2.06 million in 2050 (CSIR, Greenbook 2019).

Table 4: Estimated Future Population of Vaal River Region

Municipality	2022	2030	2050
Metsimaholo	158 391	192 547	261 188
Mafube	61 150	54 310	52 488
Moqhaka	112 254	129 767	103 927
Ngwathe	134 962	106 692	96 421
JB Marks	212 670	315 297	397 685
Midvaal	112 254	158 016	243 747
Emfuleni	945 650	746 789	688 656
Lesedi (Heidelberg and Ratanda)	110 210	116 009	164 623
Dipaleseng	35 980	47 083	47 310
Total	1 926 677	1 866 510	2 056 045

Source: StatsSA Census 2022, CSIR Greenbook 2019 (medium growth scenario)

In 2050, the Vaal Urban Core, Vaal Dam sub-region, Dome-Parys sub-region, and secondary study area are projected to have populations of 1.11 million, 41 237, 48 946, and 0.86 million, respectively.

Table 5: Estimated Future Population of Subregions

Sub-region	2030	2050
Vaal Urban Core	1 024 478	1 109 735
Vaal Dam Area	32 594	41 237
Dome- Parys Area	55 192	48 946
Hinterland/ Secondary Area (includes Potchesfroom, Heidelberg, and Kroonstad)	754 246	856 127

Source: CSIR Greenbook 2019 (medium growth scenario)

The population growth in the Region's municipalities and settlements will be uneven. High to extreme growth pressure is expected in Sasolburg, Potchefstroom, Meyerton, Heidelberg, and several smaller settlements in Lesedi and Midvaal. Sebokeng, Vereeniging, Kroonstad, Parys, Vredefort, and Frankfort, and many smaller settlements in Free State, are likely to see population declines (see Figure 7).

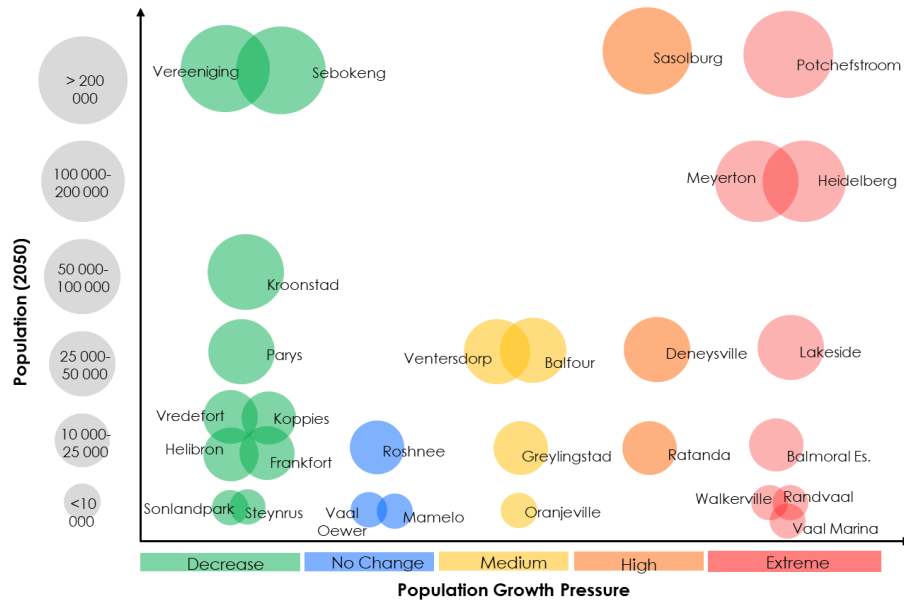


Figure 7: Population (2050) and Population Growth Pressure on Settlements

Source: CSIR Greenbook 2019 (medium growth scenario)

3.7: Regional Economic Profile

The combined gross value added (GVA) of the nine local municipalities forming the Vaal River Region is R 435627,886 million (2022) in current prices, contributing 3.34% to national GVA. The economic growth between 2001 and 2022 is shown for each of the nine local municipalities in Figure 8. Due to the COVID-19 pandemic, all nine municipalities reflected a decline in their positive growth trajectories between 2019 and 2020. This has subsequently been reversed, and positive growth has been observed for 2021, albeit from a lower level.

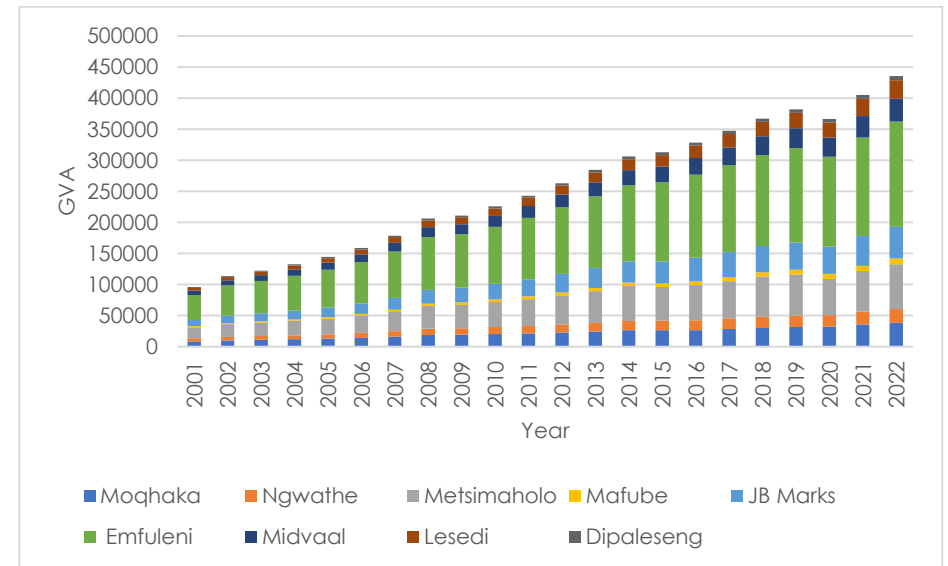


Figure 8: GVAs of the Vaal River Region's Municipalities

Source: Quantec 2023

Economically the most dominant municipalities in the region are Emfuleni (38,89% contribution to the regional GVA), Metsimaholo (16.52%), and JB Marks (11,66%), and the least dominants are Dipaleseng (1.54%), and Mafube (2.18%) (see Figure 9).

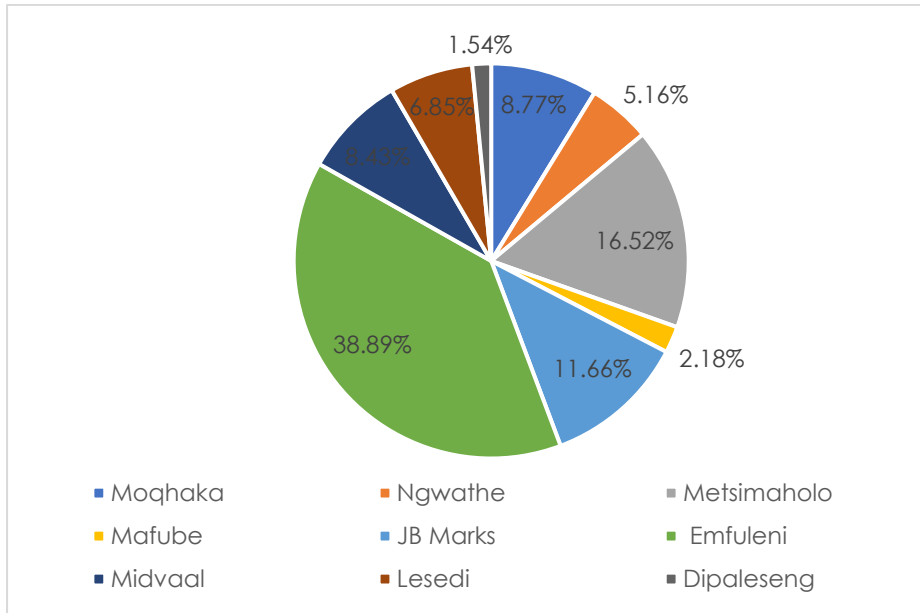


Figure 9: Municipal Contribution to Regional GVA (2022)

Source: Quantec 2023

Of the different economic sectors, Manufacturing plays the most dominant role by contributing 37% to Vaal River Regional GVA (Figure 10). The other important economic sectors are Finance, insurance, real estate and business services (13%), and Community, social and personal services (11%).

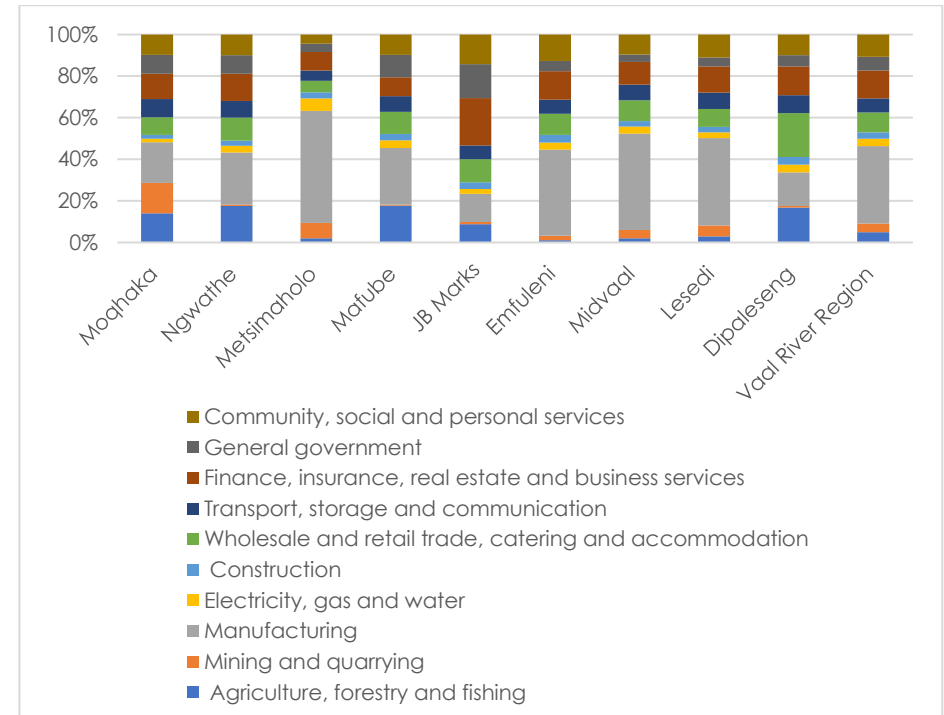


Figure 10: Regional Economic Structure

Source: Quantec 2023

3.7.1: Key Economic Features and Structural Elements

- The Region has valuable environmental assets such as the Vaal Dam, Vaal River, Vredefort Dome, Parys, Petro-Chemical developments in Sasolburg, the iron and steel industry (ArcelorMittal) in Vereeniging (although declining), tourism, agriculture, and agro-processing

activities, as well as well-established tertiary institutions like the Vaal University of Technology and North West University serving as the Region's innovation and technology custodians.

- ▶ The Region reflects mixed economic use patterns with agriculture, mining, manufacturing, and the potential for tourism development.
- ▶ The Vaal River Region has strong regional linkages to major economic cores like Johannesburg and Ekurhuleni, and strong internal / local linkages within the Vereeniging-Vanderbijlpark-Sasolburg complex. These include the R59, R82, R53, R54 and N12.
- ▶ Emfuleni, Metsimaholo, and JB Marks are the largest contributors to RGVA and comprise established commercial farming, mining and manufacturing linked to the petrochemicals sector around Sasolburg and the iron industry in Vereeniging. Smaller settlements and agricultural holdings in the surrounds are dependent on the urban centres for employment and economic opportunity.
- ▶ The local population is predominantly unskilled, and unemployment levels are high compared with provincial and national averages.

3.7.2: Key Economic Drivers

The key economic drivers for economic development include:

- **Skills:** General skills, training and quality, and scale.

- **Infrastructure:** Transport, utilities, and other public infrastructure.
- **Regulatory relief:** Policy and good governance support through for example environmental, land use and planning regulation.
- **Innovation and R&D:** Adoption of innovative technologies, business models and new technologies.
- **Natural resource endowment:** Diverse and unique natural resources are available to underpin economic growth in the Region.

3.7.3: Key Economic Constraints

- ▶ A narrower industrial base in an individual regional economy implies a greater exposure to boom-and-bust cycles and associated social costs. Hence, public interventions aimed at increasing regional development should encourage a degree of industrial diversity, to foster community resilience while building local leadership capacity in order to enable a region to capitalise on opportunities.
- ▶ The anticipated growth in agricultural, mineral and manufacturing exports from SA is likely to place pressure on the country's logistics infrastructure, from handling/facilities to transport (road and rail) and the shipping ports. Industry players (such as the CGA) have expressed concern over the country's logistics systems, after struggling with port congestion and a shortage of refrigeration equipment in recent years.

- ▶ Implementation risk continues to threaten the SA government's efforts to reform the agriculture and mining sectors.
- ▶ Consumers are expected to increasingly emphasise safety, reliability of quality and supply, and ethics in food production and manufacturing.

3.7.4: Key Influencing Factors

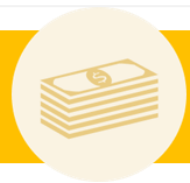
The following factors are determined as prominent influencers that currently impact or will, in future, impact the development of the Region:

- ▶ **Economic diversification:** Given the continuing uncertainty in the global economic climate and rising concerns about continued slow growth and potential stagnation, developing countries are increasingly challenged to diversify their economies in order to drive economic growth and offset the risks related to commodity-dependent

regions or small-scale production and exports. Diversification strategies that can deliver sustained, job intensive, and inclusive growth are required.

- ▶ **Growth in sectors with competitive advantage:** An important pillar of our Economic Reconstruction and Recovery Plan is to revitalise the manufacturing base and create globally competitive export industries in South Africa. Low economic growth is driving higher unemployment levels in the country, for the Vaal River economic region a greater focus on agriculture, manufacturing, tourism, and trade sectors is expected to leverage of the Regions competitive advantages and create jobs.
- ▶ **Regional infrastructure and connectivity:** Investments in infrastructure and coordinated policy reforms to reduce trade costs. Declining trade costs and increasingly efficient trade logistics support integration into regional and economies, achieving more diversified economies.

ECONOMIC PROFILE SUMMARY



GROSS VALUE ADDED

Total GVA: R436 billion at basic prices (2022), contributing only 3.31% to the National GVA.
 Highest municipal GVA – Emfuleni (R169 billion)
 Lowest municipal GVA- Dipaleseng (R6,7 billion)



GVA GROWTH

GVA grew from R243 billion in 2011 to R436 billion in 2022

 Average GVA growth rate over 2011-2022 was 5.45% for the region (lower than the national average 6.45%),



GVA PER CAPITA

GVA per capita: R231 893 (2021)
 Highest in Metsimaholo: R517 481
 Lowest in Dipaleseng: R114 713

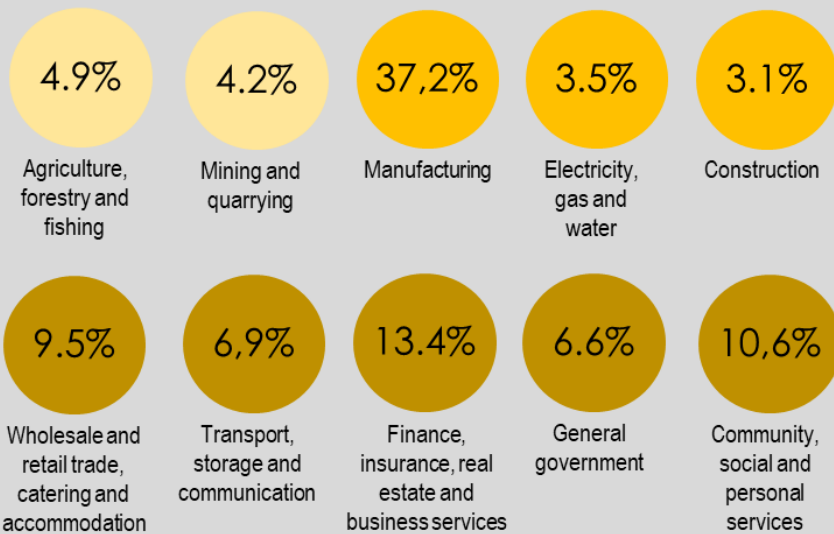
 The regional GVA per capita is higher than the national average (R204 527)



GVA PER SECTOR

Primary Sector- 9% (Agriculture, & Mining)
Secondary Sector- 44% (Electricity, Manufacturing, Construction)
Tertiary Sector- 47% (Trade, Transport, Finance, Government, Community Services)

GVA CONTRIBUTION PER SECTOR



ECONOMIC OPPORTUNITIES



Value Generation

- Manufacturing
- Mining/ exploration
- Agriculture and agroprocessing
- Personal services
- Residential real estate
- Tourism

Employment Generation

- Manufacturing
- Agriculture and agroprocessing
- Commercial activities
- Services and trade
- Education
- Tourism

FOCUS ECONOMIC SECTORS/ INDUSTRIES



- Agriculture and Agro-processing
- Mining and Quarrying
- Manufacturing
- Construction
- Personal Services
- Tourism
- Education
- SEZ

3.8: Regional Governance Profile

- ▶ The governance structure of the municipalities portrays a mixed picture though the elements that are of concern are significant and could be debilitating.
- ▶ Many municipalities are in financial distress and have severe human resource shortages; and only one municipality has received a clean audit.
- ▶ Poor management has resulted in limited infrastructure provision, maintenance and upgrades, which largely has brought about the Vaal River's crisis.
- ▶ Four of the eight municipalities are in dire financial crisis which explains why infrastructure deterioration is such a problem. It raises concerns about the implementation of VRRSDF, as the latter will require financial commitments from all project stakeholders. There will be a need for assistance.
- ▶ The presence of multiple entities in the Region increases project implementation complexities which will impact the outcome of the VRRSDF. Hence, cooperative governance must also be facilitated through local municipalities, districts and provinces involved as well as the national government to align regional resources and capabilities to the development of the Region. This can assist to solve the issue of financial distress and address poor management issue.
- ▶ The good level of SPLUMA compliance of the municipalities sends a positive signal. The current level of SPLUMA

compliance provides certainty about the spatial development direction of the municipalities, which in turn gives confidence to the prospective investors regarding what type of development can take place and where. In many project municipalities, national and provincial departments provided financial and technical assistance to ensure that the municipalities become SPLUMA compliant. This sets an excellent example of inter-government cooperation and collaboration.

- ▶ Similar cooperation may be required to implement the VRRSDF as many project municipalities may require financial and technical resources from higher-order government bodies to implement the VRRSDF effectively.

3.9: Key Opportunities and Challenges

Following from the status quo analysis Key Opportunities and Challenges were extracted to crystallise the issues at hand and to direct the way forward for the spatial development framework.

3.9.1: Key Opportunities

3.9.1.1: A National Priority

The Vaal River is a recognised national priority area in terms of the NDP and NSDF. This affords the area high ranking and should give it national buy-in, commitment and support. It also gives the area focus. The focus for the area should achieve improved protection, conservation, and meaningful and sustainable development.

The opportunity lies in getting the area the right kind of attention, funding, and commitment to drive development initiatives and projects so that meaningful change and growth can be attained – growth being beneficial for all people and all sectors.

3.9.1.2: Agricultural Diversity

Agricultural production is an opportunity not only because of the high potential agricultural land, good rainfall, good climate, established farming, etc., but because its value is also recognised at national level giving it the necessary impetus to obtain funding, commitment, and resources. All kinds of agricultural activities are deemed valuable, though particular focus is placed on agro-processing, agri-villages, agri-parks and commercial farming. Agriculture will remain relevant and can be encouraged given that we remain the food basket for Africa, and it is a valued sector for job creation and livelihood enablement.

The agricultural profile for the Region is beneficially diverse allowing for a host of farming activities – diverse in type, scale, location, beneficiaries, etc. However, while farming can employ unskilled labour, the activity of farming nowadays is far from being unskilled. To farm successfully requires knowledge, experience, funding, resources and facilitation. For these reasons national policy support is a necessity.

3.9.1.3: Economic Drivers

The Region has a range of good economic drivers that can result in good economic development. This is enormously beneficial and should not be under-valued. The drivers can achieve good

economic diversification, which is needed and will contribute to regional economic stability, while also allowing existing thriving sectors to grow stronger. While some sectors have greater employment spin-offs than others, all employment opportunities are beneficial for the Region and should be supported.

While economic growth should explore opportunities in new and / or untapped markets, it is almost more important for economic growth initiatives to find ways to strengthen existing and even declining sectors, since such decline will bring with it immediate and continued job losses, which the Region can ill afford. It is critical to sustain jobs, to enable people and facilitate the economic drivers. Finding the stimuli for economic growth is essential. The concern lies with finding and sustaining the stimuli that will lead those drivers into fully fledged economic development in the sectors of tourism, agriculture, recreation, mining, industry and logistics. The role of infrastructure provision, maintenance and growth in this regard should not be underestimated.

3.9.1.4: Environmental Protection and Tourism

Large areas of the study area are already flagged for protection and / or have been defined as CBAs. This can expedite land use change and development, for one, it secures where no land use development will be permitted, and for another can enable the Region to prepare dedicated development guidelines for development in or near protected areas so that such development which should be tourism, eco-tourism, recreation and nature-based can be expedited. Tourism development has

a tremendous employment multiplier, and this opportunity should be harnessed not by being in fear of development, but rather by planning for and guiding development to be aligned with what is possible and beneficial for the Region.

3.9.1.5: Good Connectivity

The Region boasts good regional and local connectivity, though the quality of roads may be compromised. The area is bisected by the N1, N12, N14, N3, R59, R53, R54, R57, R82, R42, R 551, R557, R553, R550, R549, R716, etc. These roads offer radial mobility in nearly all directions allowing ample movement of people, goods, and services in, out and through the Region.

Internal mobility is equally good, with movement between centres, CBDs, nodes, employment areas, etc. considered efficient and effective.

Connectivity is dominated by road transport, though rail infrastructure exists. However, rail operations are constrained at a national level which has impacted rail's competitive advantage. While rail has an important role to play in freight and passenger movement, much of rail's transportation role has been absorbed by road infrastructure. It is therefore important to plan largely around road transport more than rail transport, since presently and unfortunately rail transport cannot deliver on the needs of people and freight.

There is a definite opportunity to build on the Region's good connectivity if not as a sector per se, then as an aid to stimulate other sectoral development proposals.

3.9.1.6: Higher Education

In a growing economy there will be a demand for higher education, and this opportunity lies within the heartland of the study area. The Region already accommodates many schools and two tertiary institutions. There may be an opportunity to expand on specialised schools and include colleges and universities of technology-type institution, where tertiary education can be attained but in a more practical hands-on way.

Though two tertiary institutions have already called Vanderbijlpark home, such could be expanded to create a student hub / village. It could be additionally improved if these institutions could tweak their tertiary education in directions that could benefit the Region, such as education in tourism management, agriculture practices and farming, mining, logistics, project management, etc. These skills would enable local development by giving local people a much-needed skill set that will support the local economic drivers.

3.9.1.7: Co-ordination

The local municipalities that constitute the study area are all SPLUMA compliant and in general their land use policies and development plans align with one another. And all these plans speak to one another, which means much has been achieved towards co-ordinated and integrated development, even across boundaries. This can and should be harnessed for the VRRSDF where project implementation will in all likelihood require cross-

border co-operation and co-ordination. This should also play an important part in the approval of land use development applications, particularly where cross-border inputs are a requirement. The municipalities should continue to work together for the greater good of the Region. Governing structures already exist providing a meaningful opportunity for efficient and effective interaction to achieve on the ground implementation.

3.9.2: Key Challenges

3.9.2.1: Demise of the River

The most pertinent challenge for the RSDF is the imminent threat of losing the River. While physically it will always be there, all its pent-up potential is on the verge collapse.

First and foremost, the River is a resource of fresh water for human consumption to more than 45% of South Africa's population. However, its water was classified by the Human Rights Commission as being unfit for human consumption and recently traces of cholera were found in it.

It means that all water extracted from the River must be purified above normal processes to get it to an acceptable level where it can be distributed into the urban piped network. It means the purification works work extra hard and consequently may fall into distress. The resultant health impact is a concern and will most likely be hardest on the poor and marginalised.

In addition, the economic-resource value of the River is tapering off, while in reality, given a healthy River, it should be on a strong

upward trajectory. The River, and for that matter, vast parts of the study area have significant economic growth potential all hinged on a healthy River. The River is a national treasure that should offer abounding tourism, eco-tourism, active and passive recreation, and major and minor development investment opportunities. None of this can be accomplished owing to the demise of the river system. Today sewer accumulates on the banks of the River; Inkberry, which is highly poisonous to livestock, has overwhelmed the banks of the River of farming properties; it is unsafe to swim in or for water sports; and the stench renders all river properties unviable for growth-generating development.

The economic benefit lost by the river, is almost immeasurable. It is value lost to the local economy, regional economy, job opportunities, income for the municipalities, funding for projects by the municipality and more job opportunities. The River is an unbeatable resource that should offer only benefits and bring with it untold economic multipliers.

3.9.2.2: Poor Infrastructure

Of similar importance is the poor level of infrastructure, which is becoming economically debilitating.

While the Region may have a large labour force and valuable economic drivers not easily found elsewhere, most of it cannot come to fruition without upgrading, expanding, and fixing all poor infrastructure. And the latter must be seen as ongoing investment and ongoing commitment.

Poor infrastructure and poor maintenance relate to all components of municipal infrastructure provision, though there is greater emphasis on sanitation infrastructure, water supply, roads, stormwater, and electricity. The poor state of infrastructure provides opportunities to develop better infrastructure and utilise sustainable procurement processes to reduce carbon footprint.

While the impact of loadshedding is being felt, its calculated impact on small businesses, the manufacturing, mining, intensive agriculture and logistics sectors, etc. and associated job security is not fully grasped. Job and business shedding can at any time have a detrimental impact on the Region's economy which is still highly reliant on the primary and secondary sectors where interrupted electricity supply is difficult to circumvent.

Local roads are in a poor state, with potholes, broken roads and unmaintained stormwater channels. Problems are prevalent in the Region's economic heartland (on main roads, in CBDs and industrial areas) where one would want to promote economic activity and growth.

Poor infrastructure leads to poor or even non-development. All land use development applications must prove they have access to municipal services before approval can be granted. The result is no approvals and therefore no development.

All development is important whether it is a bed-and-breakfast establishment or a new manufacturing site. All need road access, all need water, sanitation and electricity and all need stormwater management; and if these services are not available within capacity no development can follow through.

Since connectivity is a Key Opportunity, ailing and failing road infrastructure needs urgent attention.

3.9.2.3: Declining Economic Sectors and Unemployment

The iron and manufacturing sectors that are experiencing decline are of great concern. These sectors shed employment, thereby increasing the unemployment rate in the Region and more so of unskilled and semi-skilled labour. The area already suffers from high unemployment and high youth unemployment, i.e. it has high waste on its labour force. Those hardest hit by economic decline are the unskilled and low-skilled as they do not have resources to fall back on and do not have wide-ranging alternatives, making them socio-economically highly vulnerable. The knock-on effect of growing unemployment is innumerable, and ultimately leads to regional downfall.

It is essential to seek ways to stimulate the economic sectors that already exist, to intervene where reasonably possible in those sectors that experience decline and to stimulate the drivers that will see to new sectoral developments. The goal should be to retain the Region's existing jobs and create a platform for new jobs. Where there are jobs, there is growth and where there is growth there is social betterment and where there is social betterment there is more growth and more betterment and so on. Positive economic cycles should be established. At the heart of this is infrastructure upgrades, expansion, maintenance, implementation, and service rendering.

3.9.2.4: Fragmented Urban Form

The demand for housing remains high and a priority, not only because it is right for people to have homes and live safely and securely, but also because non-supply of housing leads to sprouting and growing of informal settlements which in turn lead to fragmented urban form. Fragmented urban form is expensive, places pressure on infrastructure supply and upgrades and is generally more costly than planning for housing upfront. The challenge is to find and service available land and catch up on housing demand and supply.

3.9.2.5: Poor Administration and Accountability

The distress of many local municipalities is a concern. It has resulted in decaying and overburdened infrastructure and services, lack of service rendering and lack of fulfilling constitutional tasks and mandates. The result is a multiplier of decline first seen in the urban areas and then transferring to the hinterland. The evidence of meagre governance is visible across the Region.

It is Government's responsibility to perform its tasks and mandates so that the private sector can perform its. Private sector does not have the capacity to build roads, lay sewer lines, establish water purification plants, provide water pipelines to every house, build wastewater treatment works, build power stations and establish a power grid – these are the mandated responsibilities of government. When done, the private sector can establish businesses, build manufacturing sites, discover sectoral opportunities, take on new initiatives, start farming, build new townships, develop Technikons, etc. Once Government has executed its duties, the private sector can explore the Region's latent opportunities. The private sector is generally creative and constant in seeking new opportunities. When new developments are not forthcoming it is generally because the private sector is burdened with constraining infrastructure and so it cannot find a way to build and expand the economy.

4: SPATIAL DEVELOPMENT VISION AND OBJECTIVES

A key component of any RSDF is an approved and adopted Vision and its associated objectives. These are important for governance and management; consideration of land use development applications and development projects; and principally to direct the Spatial plan itself.

The agreed-upon and accepted Vision and Development Objectives for the Vaal River Region are contained below.

4.1: Spatial Development Vision

SPATIAL VISION

A spatially connected Vaal River Region actively driving progress and innovative development.

Figure 11: Spatial Development Vision

Defining the Vision are the following core statements:

- To achieve functional spatial integration and development by protecting urban and rural resources; and

using and protecting the vast opportunities of the Region as equitable assets.

- The VRRSDF should actively drive economic development and job creation through the optimal utilisation of all urban and rural resources – all economic development and all job creation opportunities are important to the Region.
- The Vaal River Region governments urgently deal with the state of the Vaal River and implement all measures to restore it to health, which will include to maintain, restore and enhance all ecological ecosystems to achieve their sustainable economic and environmental development.
- The Vaal River Region governments to urgently re-instate, upgrade and expand all infrastructure systems.
- The Vaal River Region to drive inclusive socio-economic development, job creation and poverty alleviation.
- Through good governance to achieve cooperative cross-border alliances and the development aims of the Region; and to be consistent with the NSDF's transformation agenda.

4.2: Development Objectives

Figure 12 depicts the agreed spatial development objectives.

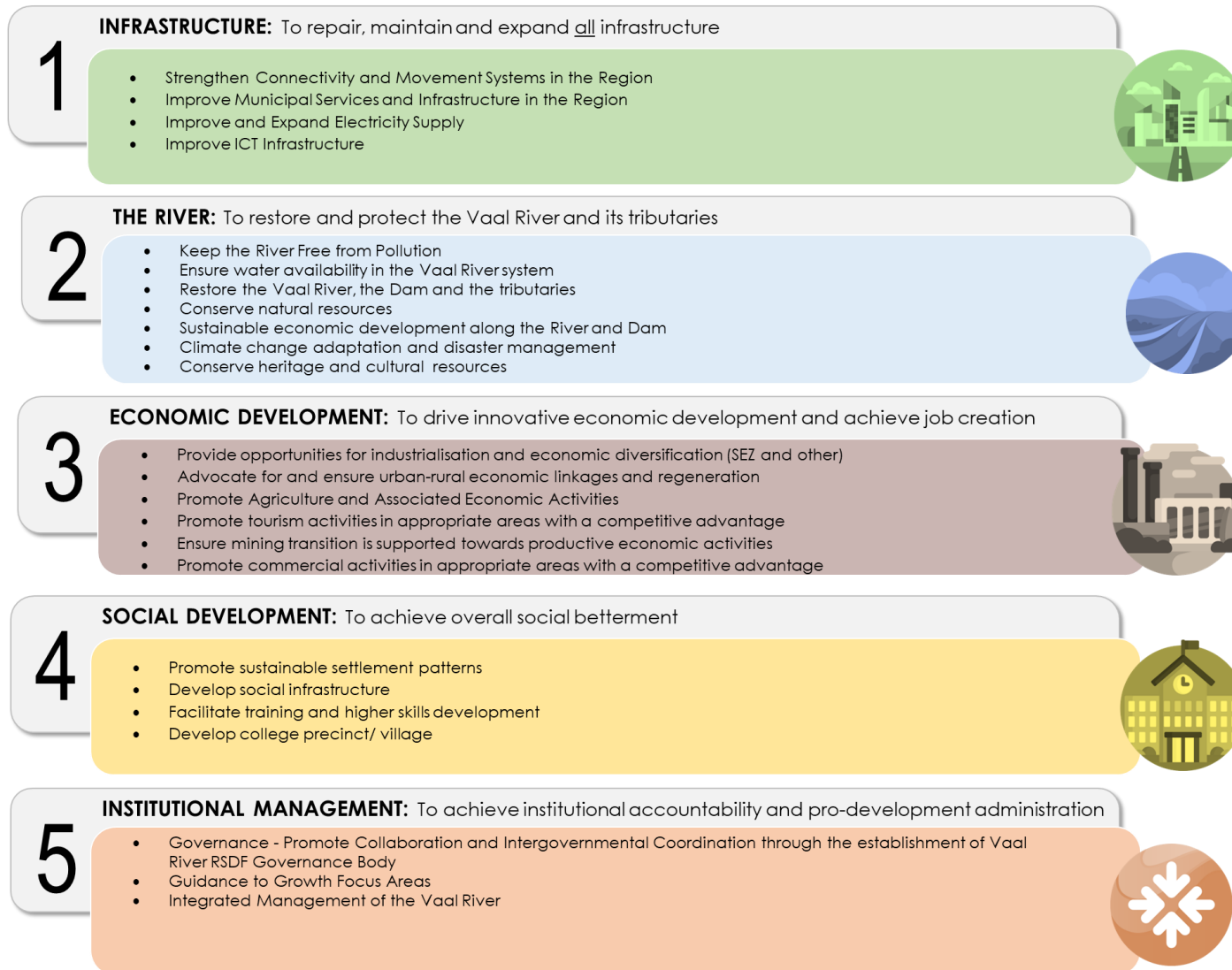


Figure 12: Spatial Development Objectives

5: SPATIAL DEVELOPMENT PLANNING

5.1: Macro Spatial Structure

Considering the status quo analysis it is clear that all of the study area is not uniform. It comprises unique and diverse subregions. Each subregion has its own composition, character, use and spatial form, and for those reasons varies from the other subregions. This finding re-affirms the output of the 2019 Feasibility Study and is important in formulating a spatial development concept and the spatial development framework.

Over the entire study area four distinct subregions are discernible.

5.1.1: Vaal Urban Core Subregion



VAAL URBAN CORE SUBREGION

The Vaal Urban Core is located central to the primary study area and comprises the southern part of Gauteng and the northern

part of Free State, thus including Meyerton, Vereeniging, Sebokeng, Evaton, Vanderbijlpark, Sasolburg and Zamdela. The area hosts an array of industrial and manufacturing activities: steel and iron industries in Meyerton, Vereeniging and Vanderbijlpark; petro-chemical industries in Sasolburg; and the R59 manufacturing corridor in Meyerton linking through to Alberton. It is most certainly the economic heartland of the study area.

The status quo analysis showed this area to have:

- ▶ The highest population density.
- ▶ The highest concentration and distribution of informal dwelling units and housing projects.
- ▶ The highest proportion of land used for economic activities with its land cover dedicated to residential development, industrial use, commercial use and roads.
- ▶ A significantly large concentration of municipal economic development projects including commercial, industrial, mining, and residential.
- ▶ The highest proportion of GVA at current prices; growth of GVA; and GVA per capita (except for Deneysville which also shows a high ranking).
- ▶ The highest proportion of crime rate with a leaning towards Midvaal, Three Rivers and the Vaal Dam, which are also the areas with the highest household income, i.e., greater affluence.

- ▶ The highest and second highest levels of literacy and higher education, which in part can be ascribed to the tertiary education institutions in Vanderbijlpark.
- ▶ The highest ranking for towns with most of the sub-area comprising 'Urban Core' which ranks higher than Regional Anchors.
- ▶ The least socio-economically vulnerable area; and
- ▶ Extreme unemployment disparity with one portion having the lowest unemployment rate and another portion having

the highest unemployment rate, but this is characteristic of urban concentration areas in South African cities.

The central urban area is unique in its composition. It is mostly urbanised and commercialised as evidenced by the status quo findings. It is the heartland of the study area and its central positioning is beneficial for improved accessibility, proximity and integration. Fortunately, the subregion has a good radial transportation framework which can support regional integration and connectivity.

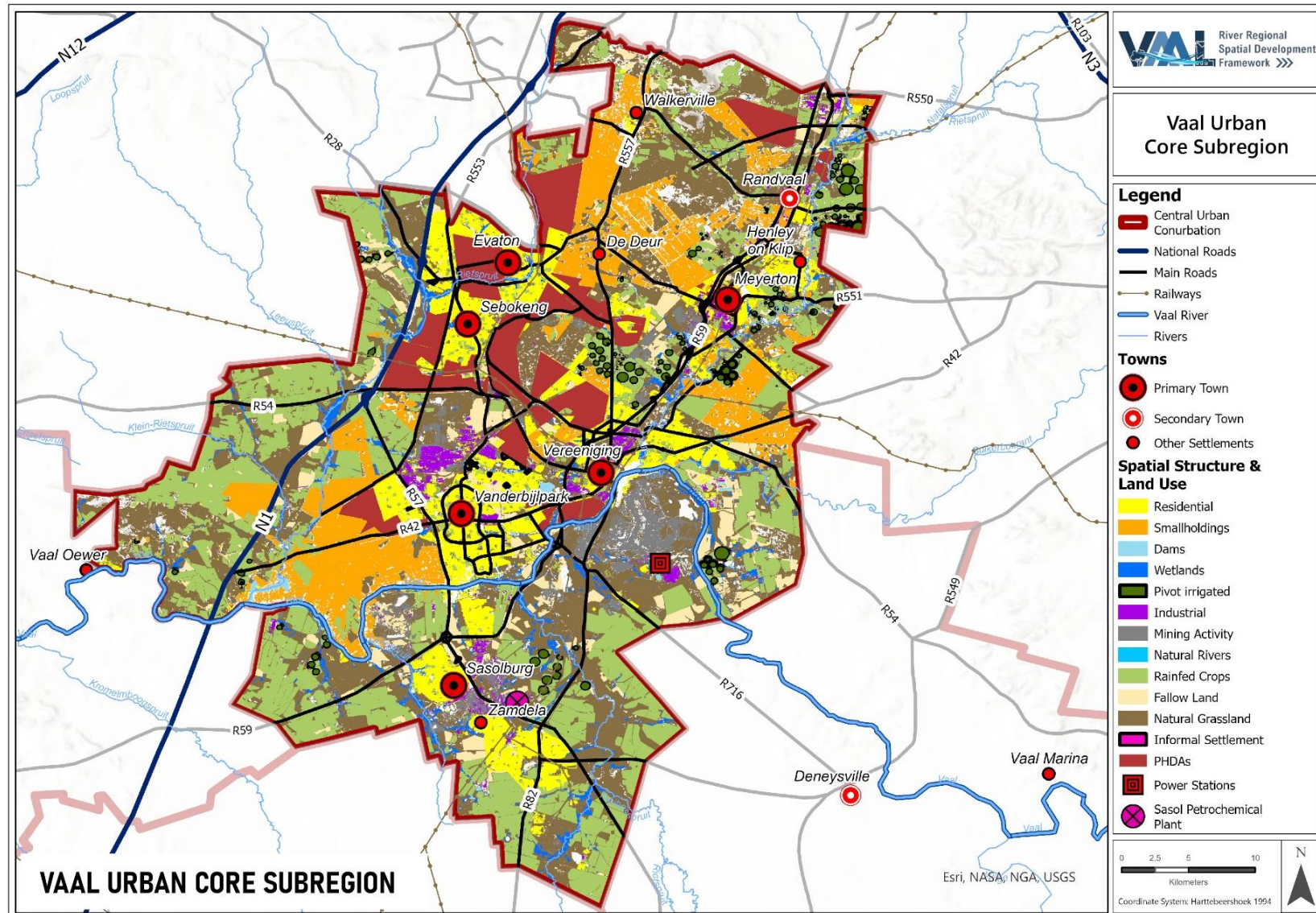


Figure 13: Vaal Urban Core Subregion

5.1.2: Dome-Parys Subregion



This subregion is located on the western boundary of the primary study area and straddles the Free State and North-West, with a small area forming part of Gauteng. It includes Vredefort Dome, Parys and Vredefort town and their hinterlands, and parts of the Vaal River. The subregion's prime components are conservation, tourism and agriculture.

According to the status quo, the area exhibits the following characteristics / composition:

- ▶ It has of the highest undulating topography, which is an outcome of its dome formation and has produced scenic landscapes, and ideal opportunities for tourism, eco-tourism and recreation-based tourism.
- ▶ It has moderate annual rainfall (1200mm/pa) which supports crop farming and the natural landscape creating

wooded areas along the ridges and fertile land in the valleys.

- ▶ All of the dome-area is a protected world heritage site and therefore faces few threats or vulnerabilities. This has afforded the subregion strength in protecting other conservation-sensitive areas.
- ▶ The land cover is agricultural and natural land, classified as grassland biome. As for biodiversity and ecosystems the area exhibits an ecological support zone, very little modified and degraded areas (only to the east of the Vaal River), natural areas, ecological corridors, the Dome World Heritage Site and critical biodiversity areas.
- ▶ Residential development is focused in Parys, Vredefort and Vaal Oewer, with population density highest in Parys but low overall;
- ▶ Parys and Vredefort register as rural service centres.
- ▶ Literacy and higher education are moderate and unemployment relatively low since most of the rural areas is actively used for rural-related land uses;
- ▶ The subregion generally boasts moderate to high land capability, with commercial agriculture blended with tourism uses; and
- ▶ All of the subregion forms part of an identified renewable energy / power corridor, which sets this subregion apart from the rest of the study area.

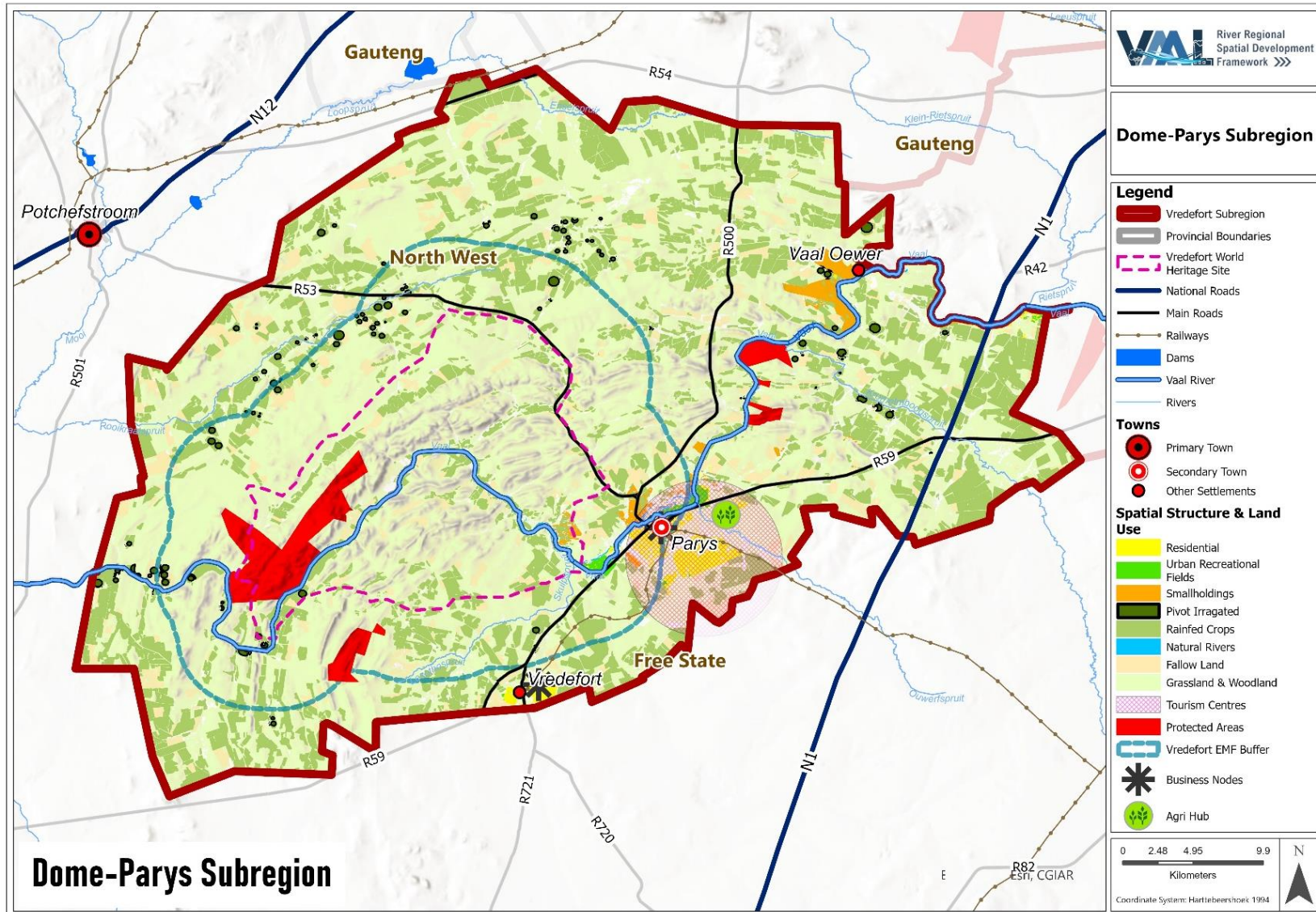


Figure 14: Dome – Parys Subregion

5.1.3: Vaal Dam Subregion



At its heart is the Vaal Dam, which covers a 320skm-surface area and is environmentally, and as a water-supply resource, critically important to the study area and all of Gauteng. This subregion includes the towns of Vaal Marina, Deneysville and Oranjeville which are all located on the shores of the Dam. The subregion also includes the town of Villiers, which is located on the N3 along the Vaal River. The area's hinterland is agricultural land. Most of this area falls in the Free State, though a small part is in Mpumalanga.

The status quo analysis found this area to have:

- ▶ Some undulating topography, but most of the land is accessible and suitable for general farming practices. This coincides with its land capability which is low to moderate and its economic land cover which designates the area for

agriculture combined with natural land and residential purposes.

- ▶ Vegetation comprising mostly natural grasslands and agriculture, which includes significant commercial pivot irrigation / farming (especially around the southern parts of the Dam) but also rainfed commercial cultivation. There is little fallow land as most of the subregion is commercially farmed.
- ▶ Ecosystems that are not under threat or vulnerable are because the land is already used for commercial farming, and the scenic areas along the northern boundary of the Vaal Dam are already protected, though these areas are not specifically and officially protected as conservation areas.
- ▶ Economic development projects focused on tourism and commercial – those being the sectors that provide opportunities.
- ▶ A general population where household income is high around the Dam and nearer to the central conurbation and low heading east.
- ▶ Literacy levels that are moderate to low; population density that is low all over the subregion.
- ▶ Low ranking towns within the subregion supported by higher order rural service centres outside the subregion and few built up areas, only around Deneysville, Vaal Marina, and Oranjeville and Villiers, while most of the land is covered by cultivated crops, grasslands, and waterbodies. Of these towns Villiers is the most developed

featuring the most high-order services, facilities, amenities and infrastructure. It is the most diversified and lends itself to tourism facilitation and development; industrial and agri-industry development; and logistics opportunities; and

- ▶ In terms of biodiversity and ecosystems, ecological support zones, modified and degraded areas, natural areas, and ecological corridors, but no protected areas.

While the Vaal Dam and Dome-Parys subregions have many similar attributes they are fundamentally different in their role

distribution between farming, conservation, recreation, tourism and their eco-focus. In short, the Dome-Parys subregion has a far greater prevalence for tourism and eco-tourism supported by agriculture, while the Vaal Dam subregion has a greater prevalence for agriculture, and in that commercial agriculture, supplemented by tourism and water-based recreation/tourism.

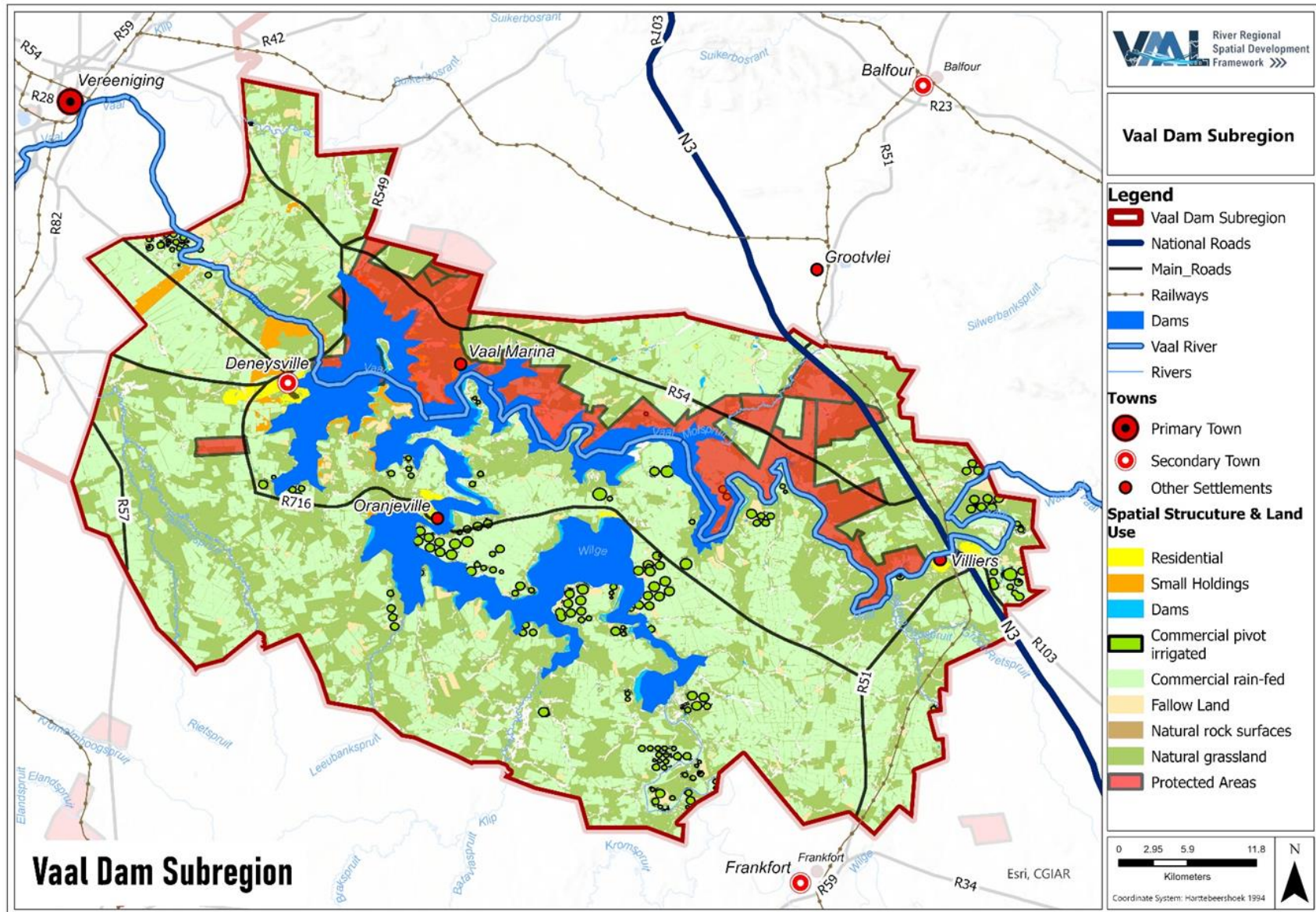


Figure 15: Vaal Dam Subregion

5.1.4: Hinterland



The fourth subregion is broadly defined and called the Hinterland. It constitutes all of the area outside the former three subregions but is still within the secondary study area boundary. It is a considerable area, by and large comprising rural land intercepted by rural service centres of varying sizes. There are three major towns in the Hinterland of which Potchefstroom and Kroonstad (Maokeng) are far more prevalent than Ventersdorp. However, each functions in its own right, with its own unique role and composition, and supports its rural landscape. These in turn are supported by a host of smaller service centres scattered throughout.

What makes the Hinterland different to the Dome-Parys and Vaal Dam subregions is that the Hinterland's prime land cover, biome and land capability is centred on agriculture, and only agriculture. Its landscape is generally flat and most prominent land use activity is commercial farming. Tourism, recreation, eco-tourism and waterbodies do not prevail as they do in the other two more rural subregions. Given prevailing climate, rainfall and agricultural potential the Hinterland's land use is destined to stay this way. Government's agricultural priorities ensure that this area will remain protected for agricultural production since agriculture remains a prominent national priority.

The Hinterland's impact of the primary study area is less significant than the other three subregions essentially because of its singular land use and because of its detachment from the Vaal River.

While the three major towns in the Hinterland, viz. Kroonstad, Potchefstroom and Ventersdorp, support their hinterland, have influential roles to play and are destined for development based on their municipal spatial development frameworks, they do not add meaningful value to the VRRSDF in particular the primary study area. It is for this reason that the three subregions were drawn out as leading areas that will undoubtedly shape the outcome of the VRRSDF.

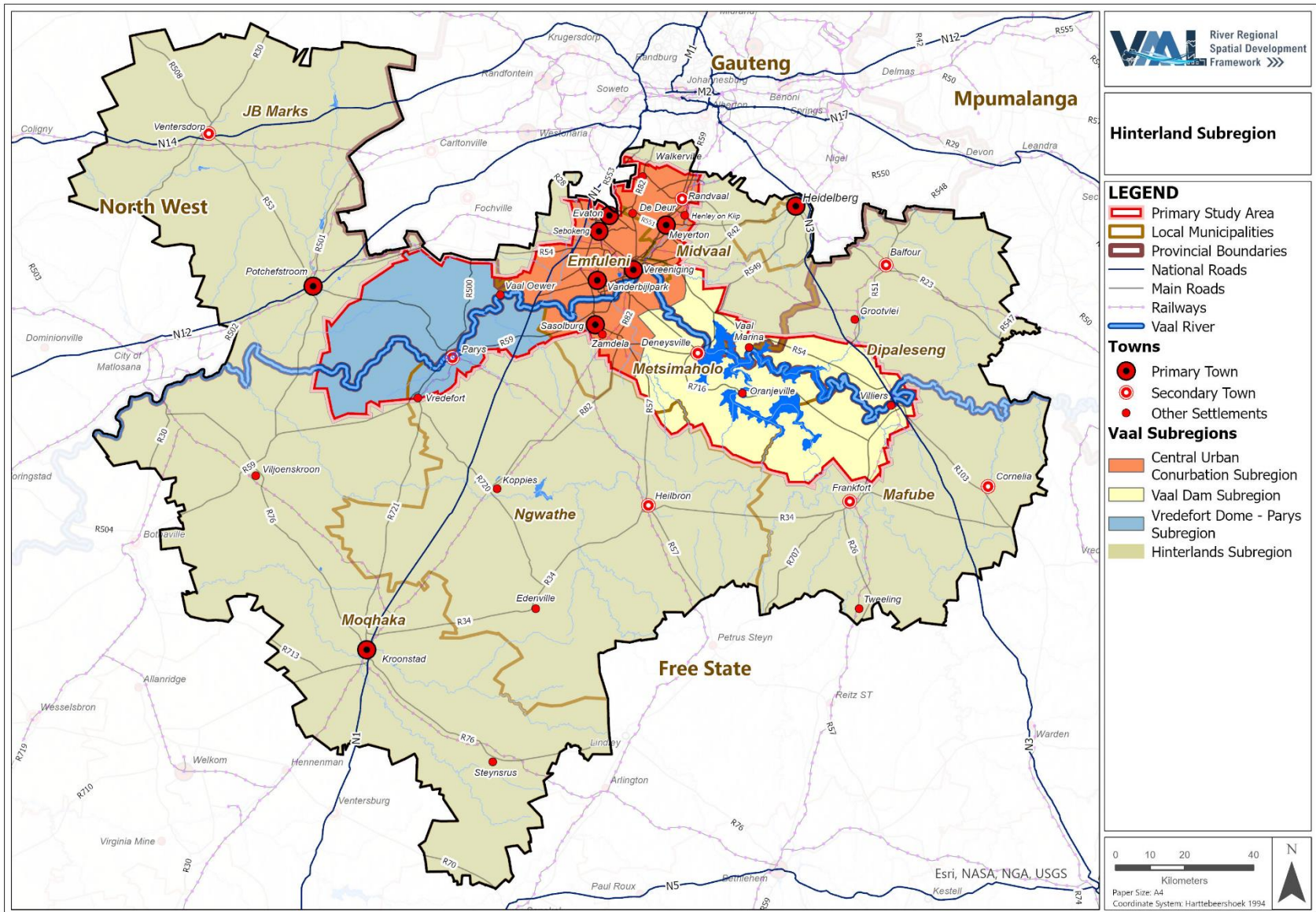


Figure 16: Hinterland Subregion

5.2: Spatial Planning Principles

Based on the status quo analysis, its findings and the key opportunities and challenges; knowledge of good spatial planning; and the desire to attain the best outcomes for the Vaal River Region the following Spatial Development Principles were assembled to guide the VRRSDF.



Figure 17: Five Spatial Planning Principles

There are **five spatial planning principles**:

- ▶ Institutional management,
- ▶ Growth focus,
- ▶ Connectivity,
- ▶ Concentration, and
- ▶ Conservation

They are relevant to the entire study area and in particular to the three primary subregions. These principles will ensure that all proposals are focused on what is good for the Region, and hence, they should underpin each decision and each project moving forward.

Each spatial planning principle is unpacked below.

5.2.1: Institutional Management



Good institutional management is so important, it has been illustrated to encapsulate the other spatial principles, giving it higher ranking. Though the other principles are also important, good institutional management is key in determining the success of the entire VRRSDF.

The analysis found that generally governmental management is lacking, institutional capacity is limited and most municipalities are in distress. The evidence of this is visible in infrastructure deterioration across the Region and across the sectors, viz. water, sanitation, roads, rail, social services, pollution, etc.

Good institutional management is the golden key that will unlock all the potential for the Region. Governmental management must be assisted to enable it to deliver on its mandated tasks so that private sector can act on the area's latent opportunities to produce development and the much-wanted and urgently needed economic growth.

For the entire study area, which translates to four provinces, four district municipalities and eight local municipalities, the issues of financial distress, lack of capacity, etc. must be looked into.

5.2.2: Growth Focus



To provide livelihoods, social betterment, quality of life and more, economic growth is absolutely crucial. No other factor has such an incredible multiplier effect and positive impact on society achieving the upliftment of its citizens. Economic growth creates jobs, which improves people's lives allowing for greater choice and improved quality. It increases the rates base which helps government to meet its responsibilities, to improve engineering and social infrastructure, and improve the health and welfare of its citizens. Jobs lead to social betterment and this reduces crime and instability.

Therefore, fundamental to the approach is the absolute need to achieve economic growth as widely as possible. This means, to NOT negate one sector over another or to be uninterested in small-scale activities. Any growth at any scale is beneficial for the Region. As long as it is growth it should be encouraged, and

nothing should stand in its way provided it can fit and respect its surrounding environment and context.

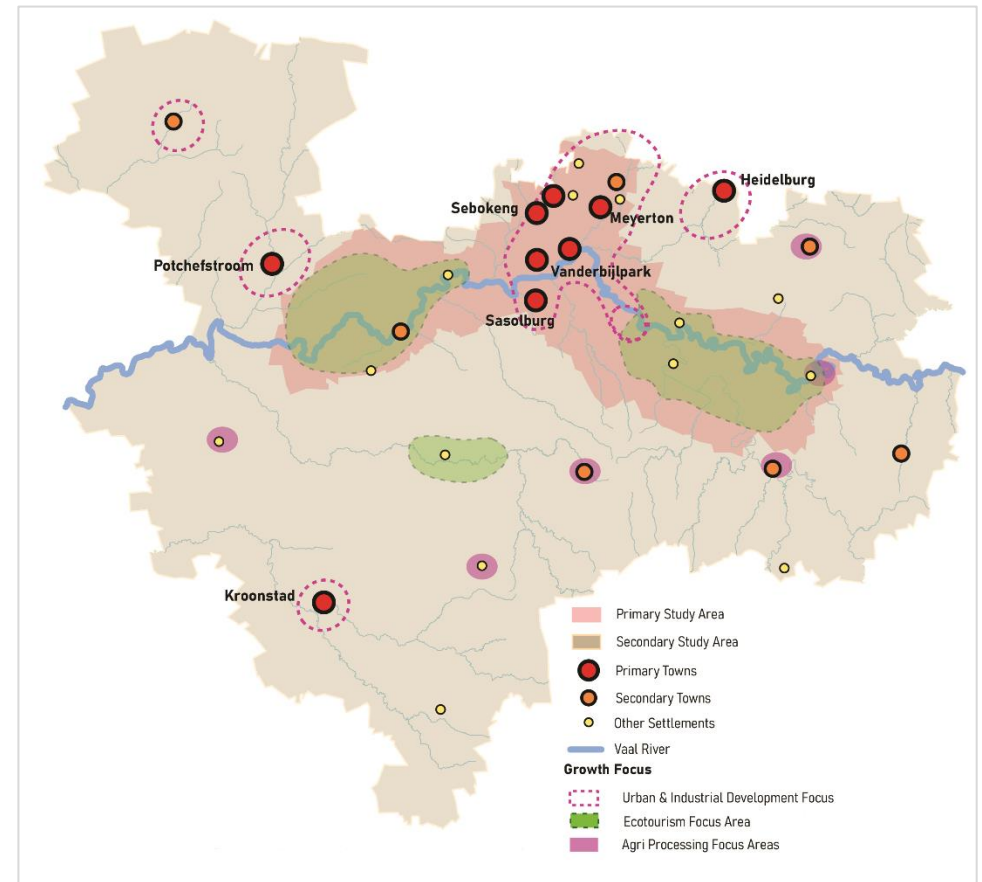


Figure 18: Concept- Growth Focus

In the Vaal Urban Core, the growth focus is easy to understand. It obviously means industrial, commercial, retail, corridor, and all kinds of development. However, it also means there is value in

the development of a crèche, nail bar, barber shop, tavern, home office, home industry, etc. There is also value in residential development, as these developments in the right areas, in formalising land, in providing housing, etc. also achieve growth, provide jobs, and expand the Region's tax base.

Growth Focus is also important in the Dome-Parys and Vaal Dam subregions, though there the growth focus looks vastly different. Here, industrial, corridor and large-scale residential developments are undesirable, but tourism, eco-tourism, water-based tourism, agri-parks, agri-villages, commercial farming, etc., are all most desirable and advantageous in affirming each subregion's character and content.

5.2.3: Connectivity



Connectivity happens through the 'veins' that sustain life to the Region. Fortunately, the Region is nationally, regionally and locally well-connected through good regional transport routes. However, these connections are under threat from evident infrastructure deterioration. The current regression must be halted, and efforts must be made to expand and improve connecting infrastructure particularly in the light of the Growth Focus spatial principles. Whether small or abundant economic growth is attained, connections to the rest of the region and beyond are essential. Connections do not only relate to roads, though roads are the major life-carrying veins of this

Region, but they also relate to rail, public transport, air linkages, telecommunications, etc.

Connectivity within and beyond areas of concentration enable functionality, by enabling the flow of people, goods and service. For that reason the 'veins' must be continually maintained and upgraded to keep track of growing demands.

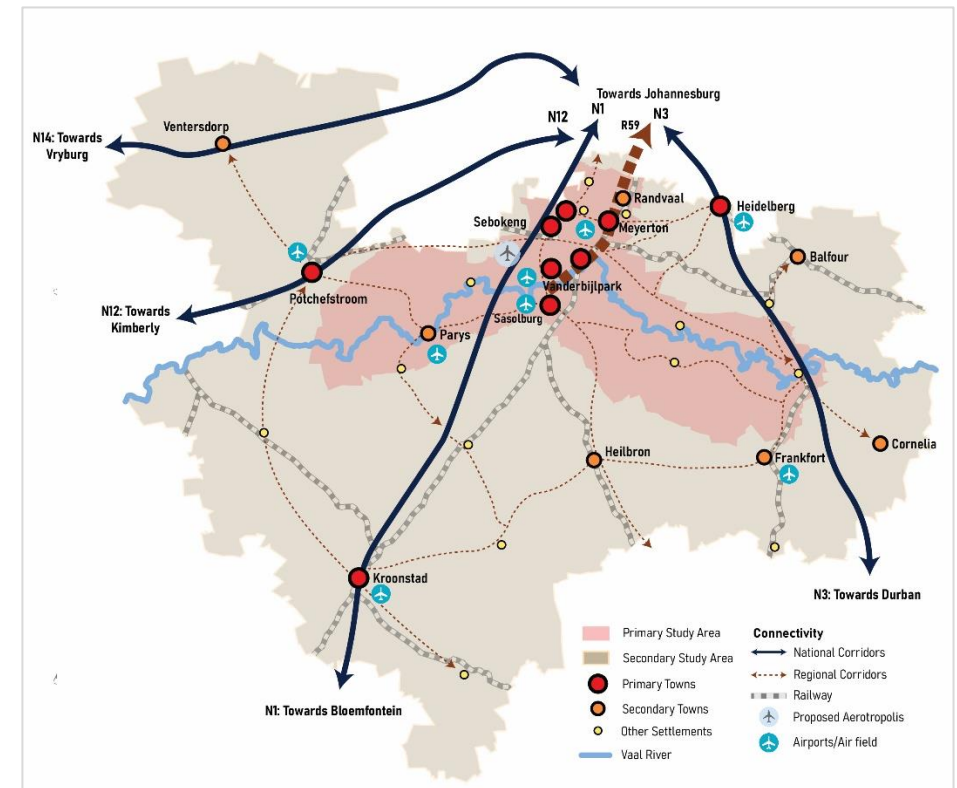


Figure 19: Concept- Connectivity

Connectivity is ensuring all relevant components are physically or virtually connected to achieve integration, efficiency, growth and development. It is connecting neighbourhoods to business areas, people to jobs, children to schools and learning, the sick to health care – viz. it is about making resources accessible.

5.2.4: Concentration



Economic growth, good connections and viable service rendering are best achieved in areas of concentration. Expansive and low-density areas are difficult and expensive to service and have difficulty creating backward and forward linkages. They do not make for efficiency. Thus, areas of concentration are desirable.

Such concentration goes way beyond the notion of residential densification, though the latter is important, but extends to creating economic clusters, tourism hubs, agricultural zones, mining areas, etc. It is about grouping and clustering so that focused service delivery, growth and connections can be attained. It is about servicing the right land, providing housing in the right areas, and integrating the marginalised into urban society. It is about re-inventing decaying CBDs, about protecting rural areas, and ensuring conservation of prime resources. It is also about abiding by defined settlement hierarchies so as to avoid urban spillage, transgression of urban development boundaries and expanding urban areas beyond what is financially feasible for the municipality or Region.

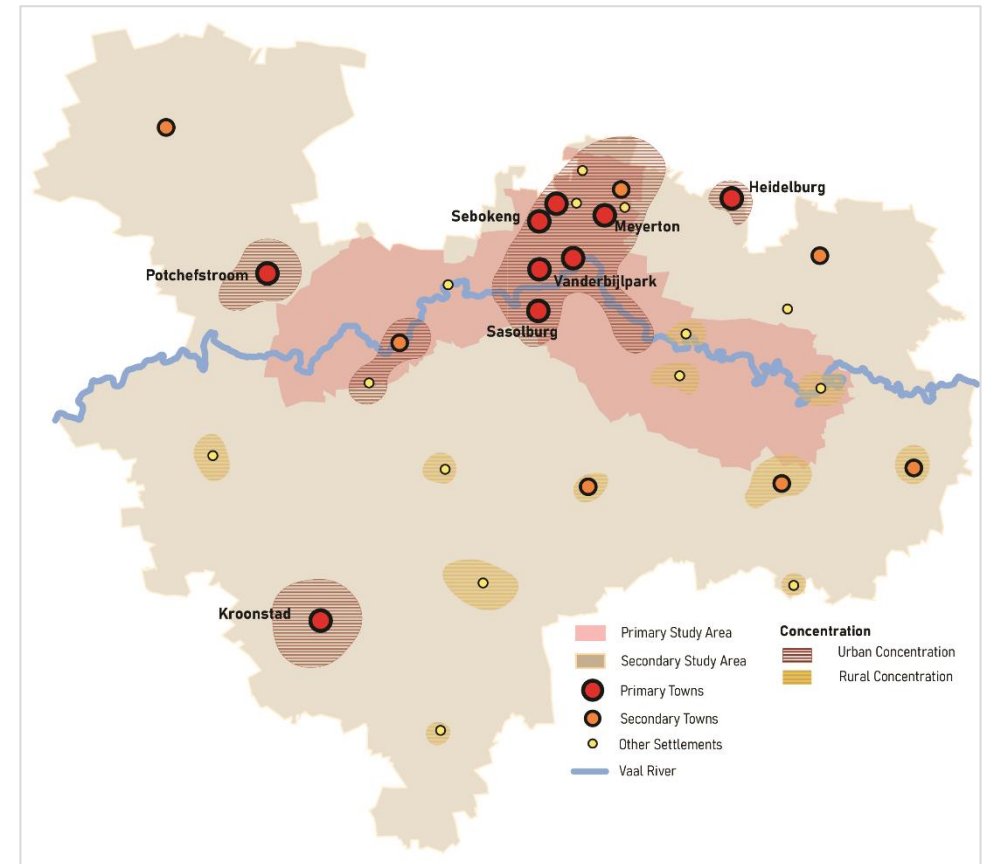


Figure 20: Concept- Concentration

Concentration facilitates public transport, social service delivery and efficient engineering services as it achieves much needed critical mass.

Concentration is also relevant to rural areas – to achieve concentrated tourism facilities, which could lead to the creation of a clear tourism route, concentration of agri projects can lead

the creation of viable agri-processing sites, concentration of overnight accommodation can lead to focused eco-conference facilities and venues. Concentration achieves mass, which spurs on higher level development, WHILE, importantly, protecting the larger area from unwanted intrusion. However, some intrusion at some point is necessary to achieve the desired outcome of concentration.

5.2.5: Conservation



Conservation should be a primary responsibility for all municipalities in this Region. The Vaal River is a national priority, the Vaal Dam a national life sustaining resource and the Vredefort Dome a recognised World Heritage site. These resources and all matters associated with them should be protected because of the incredible and irreplaceable value they hold.

Moreover, their preservation has direct economic growth benefits for the entire project area and in particular the two rural subregions. Conservation will also force desirable concentration, particularly in the Vaal Urban Core.

Conservation, however, extends beyond just the tourism and natural / ecological resources, it extends to conserving and expanding viable agriculture in the face of ever-growing food insecurity, conserving the urban economy that presently exists, protecting that which is unique to the area, such as Sasol's refinery and the dwindling steel industry. Conservation stretches across

sectors and is multi-faceted. Therefore, conservation is relevant to all three subregions, and it should be actively driven.

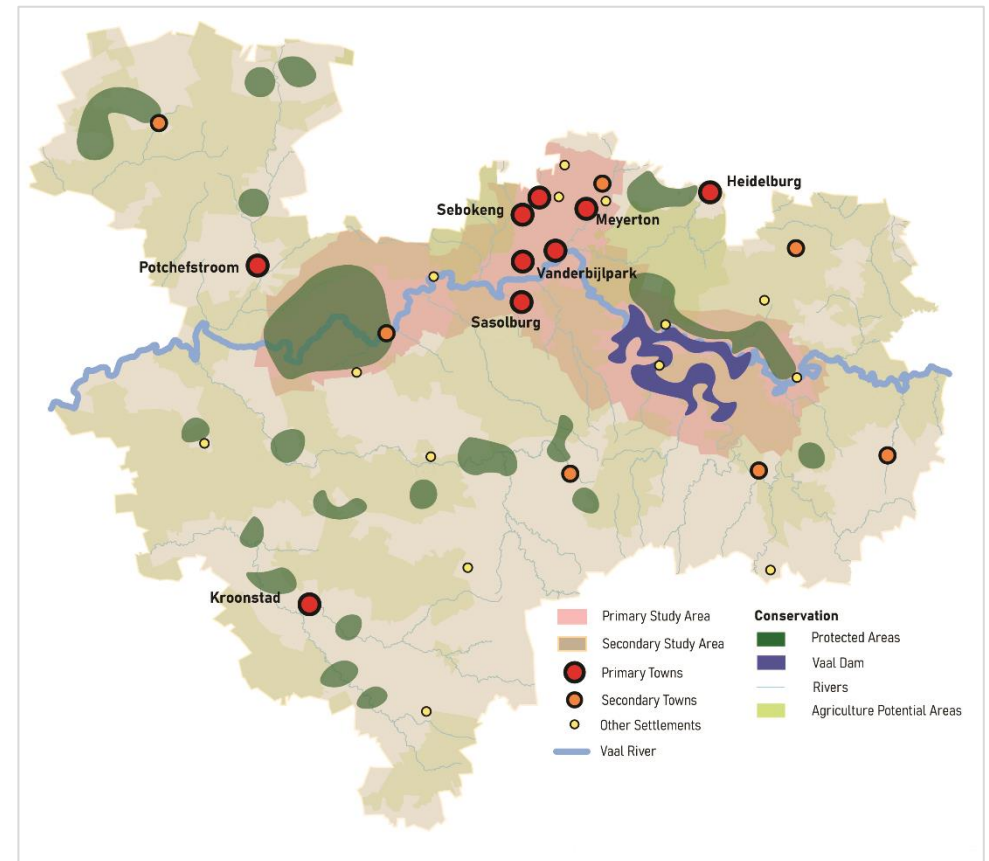


Figure 21: Concept- Conservation

5.2.6: Compliance with SPLUMA Principles

The SPLUMA principles contained in chapter 7 of the Act are summarised below:

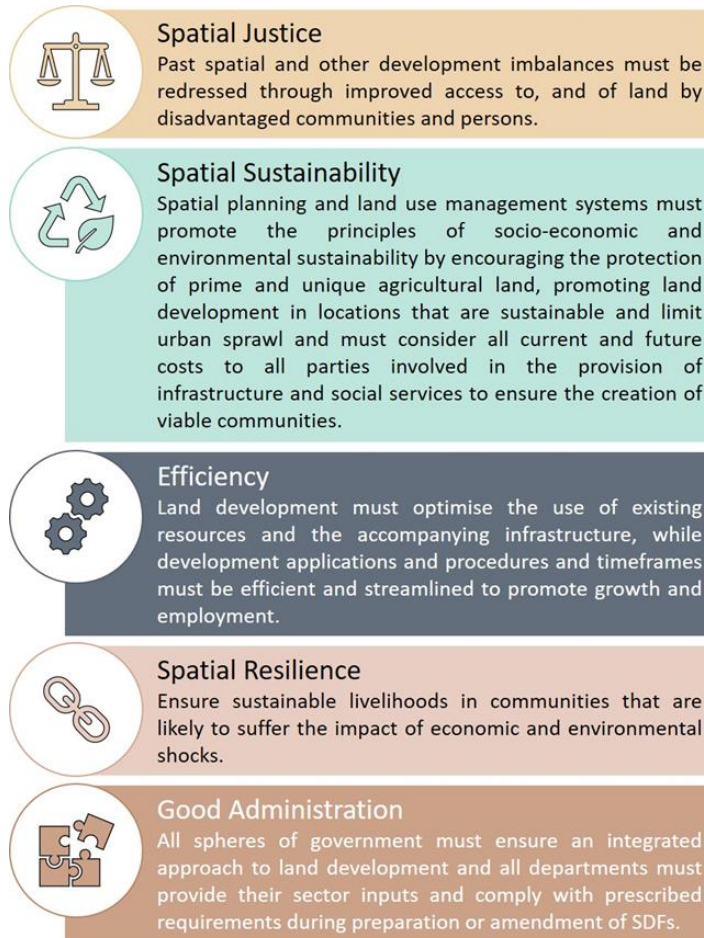


Figure 22: Summary of SPLUMA Principles

Table 6 is a simple matrix showing that the spatial planning principles for the VRRSDF are in line with the five SPLUMA principles and will thereby achieve the desired outcome of good spatial planning.

Table 6: Alignment with SPLUMA principles

SPLUMA PRINCIPLES	Spatial Justice	Spatial Sustainability	Efficiency	Spatial Resilience	Good Administration
APPROACH LEVERS					
Institutional Management					●
Growth Focus	●	●	●	●	
Connectivity	●	●	●	●	
Concentration		●	●		
Conservation	●	●	●		

5.3: Spatial Development Concept

The Spatial Development Concept for the Vaal River RSDF has been derived by incorporating:

- ▶ The Regional Context of the Vaal River Region,
- ▶ The Spatial Planning Principles (Growth focus, Connectivity, Concentration and Conservation), and
- ▶ Linking to the broader themes and the spatial context of the NSDF.

Within the context of the abovementioned inputs the Spatial Development Concept establishes the following key building blocks:

- ▶ Strong and functioning nodes in urban concentrations that are well connected with corridors and linkage systems at regional level, offering a wide range of high-order services, goods and opportunities combined with integrated residential areas supported by various housing typologies.
- ▶ Inner-urban connectivity remains critical, along all urban corridors/roads, to ensure the free movement of people, goods and services, to safeguard that the sub-region can remain economically competitive with the Gauteng City Region.
- ▶ In regions with primarily a rural character the spatial context is built around a single urban node that offers a meaningful range of high-order services, goods and opportunities combined with integrated residential areas supported by various housing typologies. These nodes

provide rural support for the farmlands that surround it, and so, there are several nodes for each rural subregion, but each node has a catchment area it supports. These nodes are functionally integrated with the rest of the region by means of corridors and linkage systems.

- ▶ A diverse combination and concentration of strategic national, regional and local-focused economic activities that allow for the creation, strengthening and maintenance of wellbeing, inclusive economic growth and the regional economy.
- ▶ The spatial concept establishes a network of distinct (and historically often administratively and politically independent) towns and nodes with strong, complex and unique interrelations linked to a resource base, which are well connected and supported through infrastructure.
- ▶ Often associated with each town, especially in the rural areas, are supportive tourism facilities or opportunities. By achieving rural connectivity these rural tourism hubs also become connected, which in turn support tourism development and the creation of tourism routes/meanders.

The Vaal River RSDF Spatial Development Concept emphasises the need for a functional and logical spatial structure based on incorporating:

- ▶ Functional regions within the context of the primary and secondary study area.

- ▶ Hierarchy of towns with a primary, secondary and other settlement ranking within the functional regions as per the NSDF.
- ▶ Common physical attributes in the Vaal Dam and the Vaal River system.
- ▶ High level of connectivity with National and Regional corridors supported by rail.
- ▶ Concentration of urban and industrial development, eco-tourism and agri processing activities.
- ▶ Functional urban concentrations and functional rural concentrations.
- ▶ Pristine and unique natural resource base.

The spatial development concept delivers a balanced approach to focus development that is supported by managed growth and

intensification at strategic locations which is determined by the principle of proximity. The greater the proximity of a location to major employment nodes or functional linkages, the greater the need for concentration and agglomeration which is linked to densification and intensification. Densification and intensification are therefore direct functions of proximity to and accessibility of employment and functional linkage opportunities.

Areas that are not close to major centres or functional linkage opportunities are then developed at lower intensities, not disregarding any local opportunity to the benefit of the local population. This allows for greater diversity in terms of development typologies across the regional context. These principles moreover align with the planning parameters put forward by the NSDF and NDP.

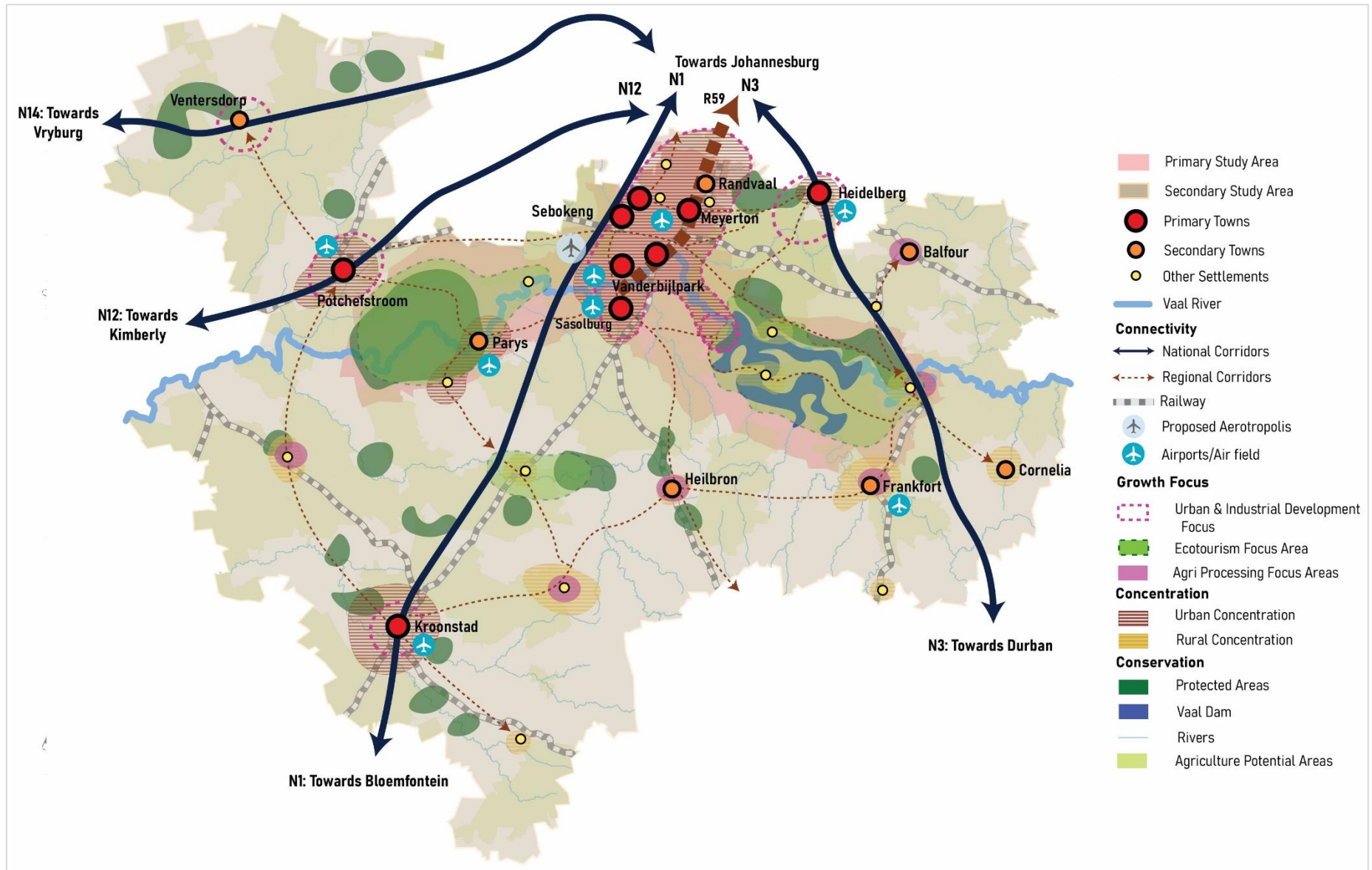


Figure 23: Spatial Development Concept

5.4: Linkages with Theory of Change

The Theory of Change (ToC) is an approach to planning and evaluating activities that aims to deliver identified long-term changes or outcomes, leading to a specific development change (vision). The ToC identifies the causes of problems that hinder progress and guide decisions as to which approach should be taken to effect the desired change. A ToC approach also involves the identification of the underlying assumptions, opportunities, and threats that are critical to achieving the desired planning change and are revisited throughout the planning process to ensure the desired planning outcomes (vision) can be achieved. Importantly the ToC approach considers the respective comparative advantages across economic sectors, spatial regions, municipalities, and districts, natural resources, and social infrastructure, the feasibility of certain outcomes and the potential uncertainties that may arise as part of the spatial planning change process.

The Theory of Change process involves three stages:

- ▶ Identifying long term outcomes desired, and articulating the assumptions associated with these outcomes,
- ▶ Using a 'backwards mapping' technique to understand the pathway to spatial change – identifying the necessary intermediate outcomes to be achieved to deliver the required spatial change,
- ▶ Identifying the interventions or activities, required to deliver the identified outcomes.

The process generates a visual map of the relationships between the vision, objectives, outcomes, and actions and articulates all assumptions about how interventions will generate the desired outcomes. Articulating these assumptions means that they can be tested, and where no causal relationship can be evidenced, more appropriate interventions, or pathways to change, are considered. The ToC provides a framework for evaluating spatial development impact, by making explicit the relationships between activities and desired outcomes, and by describing the 'chain of events' that relates one outcome to another.

The ToC for the Vaal River Region Spatial Development Framework largely focuses on taking advantage of the region's natural, spatial, social, economic, and institutional endowments and resources, whilst also acknowledging the challenges to be overcome. The overall goal is to transition towards achieving spatial transformation through robust, sustainable, innovative, and inclusive spatial development interventions. The developmental approach and ToC for the region is premised on four main levers:

- ▶ The first lever aims to CONSERVE the regions endowments (for example: fertile land, rivers and wetlands, fauna and flora, agriculture, and people) by identifying and then unlocking the socio-economic development potential of the region. In doing so, the identification of key assets and natural resources that form the regions competitive advantage through which

economic development and spatial transformation can be catalysed. This encourages investment to be focussed and directed towards spatial locations and key interventions that are more likely to yield a return on investment and longer-term benefits for the economy and people of the region.

- ▶ Once the endowments are identified and leveraged, the second and third levers should focus on CONNECTIVITY and CONCENTRATION. Through the process of connectivity and concentration, the potential of the region's resources is converted to tangible outputs and outcomes. The veins that connect people, places, and profits are supported through clustering so that focused service delivery, economic growth and multi-purpose networks can be expanded. Critical to the connectivity and concentration lever is the investment in the regions human capital allowing for a strong skilled and semi-

skilled labour force to actively participate in the region's economy. This lever includes the investment in not only road networks but other transport links such as rail, air, public transport, including infrastructure such as ICT platforms, telecommunications, and finance.

- ▶ The fourth lever recognises that the region should then progress into a GROWTH trajectory where established economic sectors and industries attract further investment, create more job opportunities, and generate meaningful urban-rural integration and development.
- ▶ The fifth lever recognises that all the spatial development interventions should be underpinned by GOOD GOVERNANCE ensuring transparency, efficiency, and ethical decision-making.

6: SPATIAL DEVELOPMENT FRAMEWORK

The Spatial Development Framework provides spatial development directives to guide the spatial development of the Vaal River Region. The proposals are prepared at a regional level and do not address site-specific or cadastral issues. Accordingly, these proposals should be read together with the municipal SDFs and any local SDFs that may exist.

The VRRSDF abides by all national plans and policies and therefore should carry weight in directing development on the ground. It is not the intention for the VRRSDF to override or be in conflict with the MSDFs, but where there is conflict between the VRRSDF and MSDF the proposed development should be assessed and reasoned based on the spatial planning principles that form the building blocks of the Spatial Development Framework.

Development is an absolute necessity for the Region and all municipalities should make every effort to accommodate development and job creation. This means it should find ways to accommodate and approve applications and accept innovation, provided the long-term sustainability of their area is secured. Here the municipalities may have to divert from their normal standards of development to approve applications that are off-the-grid in respect of electricity, water and sanitation if it is sustainable and that is what it takes to secure development and job creation. This will surely require amendments to their by-laws and land use management schemes and should be developed in their SDF review processes.

The Development Framework comprises a composite plan drawing everything planned and envisioned for the area together. It is however, discussed in the four functional subregions and in accordance with the Development Principles discussed in detail in the foregone section. It is done in this fashion to ensure that the framework adheres to the planning approach and principles that have followed from the planning process.

6.1: Dome- Parys Subregion



DOME-PARYS SUBREGION

This subregion is dominated by its rural landscape which mainly comprises protected natural areas and agricultural land. The protected natural areas are generally associated with the Vredefort Dome World Heritage Site and its buffer zone. Agriculture is widely practiced, mostly commercially, centred around crop and livestock production. The two primary towns are Parys and

Vredefort, both located along the R59. The subregion is bisected by the Vaal River which is an invaluable resource. Parys and Vaal Oewer are located along the River, thus, numerous tourism and accommodation establishments are found in both towns. Pollution of the River profoundly threatens tourism, recreation and agriculture, all of which are essential economic resources for the subregion.

The key spatial components of the subregion are:

- ▶ The Vredefort Dome Zone
- ▶ Conservation and Tourism Zone
- ▶ Agriculture and Tourism Zone
- ▶ Growth Containment Zone

Dome- Parys Subregion

at a glance

Affected Municipalities

Moqhaka, Ngwathe (Free State), JB Marks (North West), Emfuleni (Gauteng)

1 902 sq km
Area

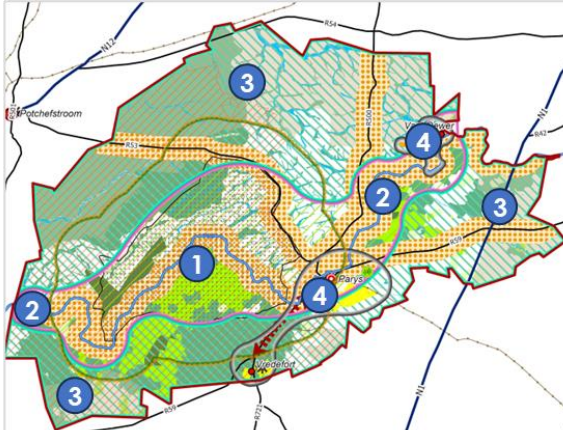
2030: 55 192
2050: 48 946
Estimated Population

Agriculture, Tourism, Government
Services
Key Economic Sectors

Development Opportunities/ Prosects

- Nature Based Tourism
- Adventure and Water Sports
- Renewable Energy Development
- High Potential Agric. Land
- Rural and Agric. Business
- Higher Edu., Innovation, Research
- Regional Connectivity
- Human Capital & Skills Development
- Country Estate/ Leisure Housing

Spatial Components



- 1 Vredefort Dome
- 2 Conservation and Tourism Zone
- 3 Agriculture and Tourism Zone
- 4 Growth Containment Zone

Development Challenges

- Lack of Economic Diversification
- ICT Coverage Gaps
- Lack of Public Transport
- Water Pollution
- Stressed Water Resources
- Housing and Service Gaps
- Poor Infrastructure Maintenance
- Unemployment & Population Decline
- Climate Change & Disaster Threats

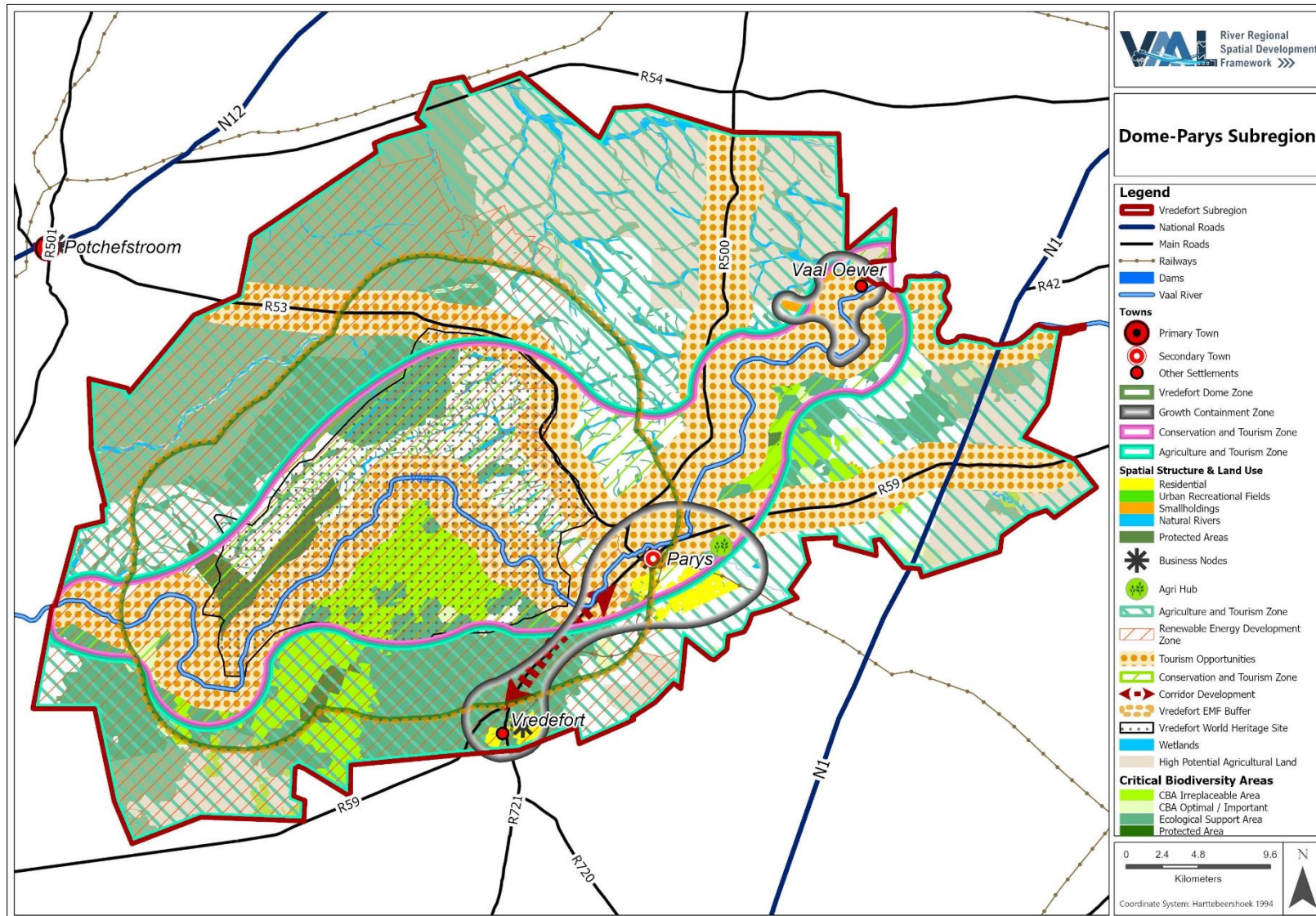


Figure 24: Spatial Development Framework for Dome-Parys Subregion

6.1.1: The Vredefort Dome

The Vredefort Dome World Heritage Site and its EMF buffer zone are both included in this zone. Agriculture and tourism are the two most important economic activities that take place in this area. While it is recommended that such activities be promoted in this zone, it is imperative that the utmost care be taken to ensure that they will not disrupt the natural and heritage value of the area. It is strongly suggested that this area be managed in a manner that is in accordance with the strategic goals of the EMF for the Vredefort Dome World Heritage Site. Table 7 summarises the zone's key spatial development guidelines.

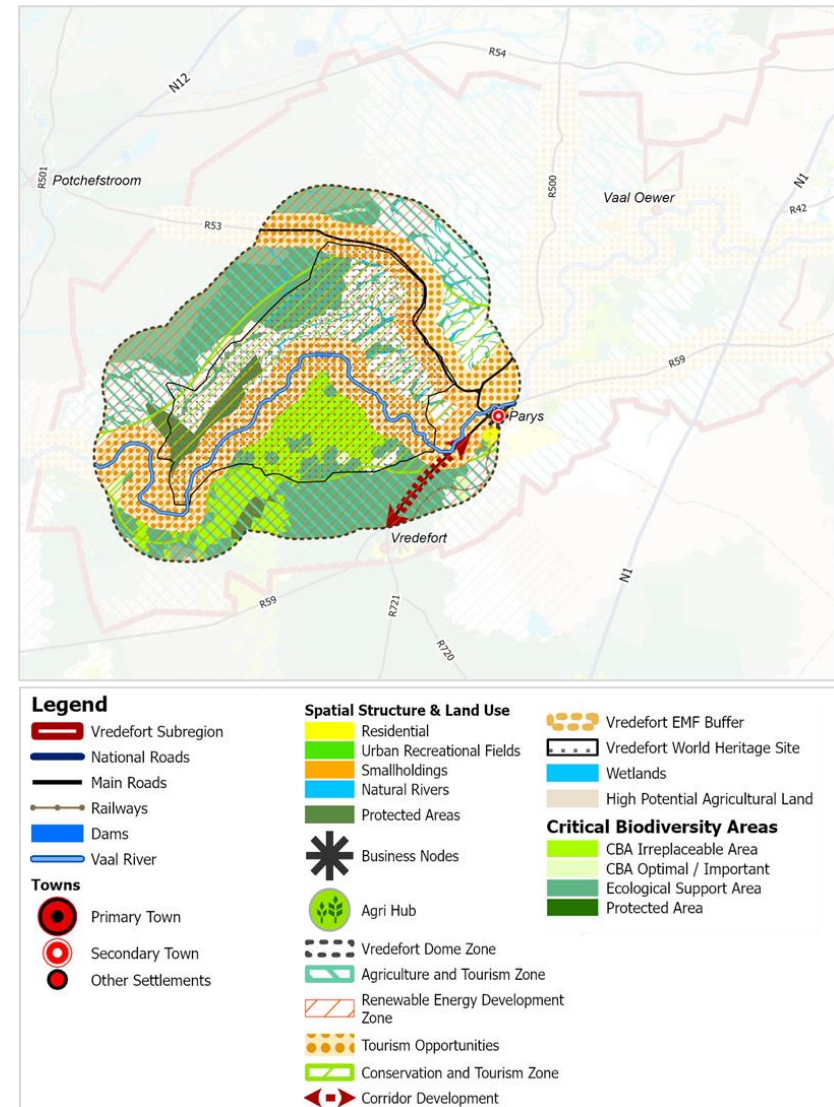


Figure 25: The Vredefort Dome (Dome-Parys Subregion)

Table 7: Spatial Development Guidelines for the Dome Area (Dome-Parys Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Make the Dome accessible by permitting tourism developments. Once it is known to people and they have experienced the area, they become invested. • Tourism development must be facilitated. However, it must be managed and be in harmony with the environment. • Agricultural activities prevail in the zone, specifically in the buffer area. These activities must be protected so that agriculture as a prime economic sector may continue. • No urban residential estates. However, low-density country or rural estates with high design standards and low spatial impact could be considered if the Vredefort Dome World Heritage Site EMF recommendations are followed.
Connectivity	<ul style="list-style-type: none"> • Repair and maintain all regional linkages that afford access to the Dome and its buffer zone. • Gravel roads are equally important in providing access to the Dome and all associated tourism and recreation facilities – repair and maintain continually. • Promote cellular and ICT connectivity throughout the area as tourists need to stay in touch with their businesses.

Principle	Spatial Development Guidelines
Concentration	<ul style="list-style-type: none"> • Develop a tourism development strategy for the Dome that will package development requirements, localities, design and new engineering standards, etc. for tourism establishments to ensure the area is sustainably and aesthetically developed. • It is best to concentrate development, even tourism and recreation developments, in defined areas so as to get clustering of similar uses. Clustering can occur around the Vaal River and in certain areas of the Dome. Grouped development will assist with road management. • A Dome meander could be developed whereby establishments are clustered along the foot of the mountains and along the more prevalent gravel roads. • Establishments may vary vastly in the services and facilities they provide.
Conservation	<ul style="list-style-type: none"> • Protect and conserve the essentially rural and natural scenic quality and integrity of the visual landscape scale vista, required to appreciate the immensity of the meteorite impact ring structure. • Protect and conserve the unique geology and identified geological points of interest in the VDWHS. • Conserve and manage terrestrial and aquatic biodiversity, CBAs, ESAs, and protected areas.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Manage the surface and groundwater resources in the VDWHS for the benefit of all recognised water users and natural services. • Prohibit and discourage new mining activities. • Consider the delineation of the WHS given spatial development trends and provide strategies to strike a balance between facilitating economic development and protecting this valuable heritage resource. • Within the WHS agriculture has an equally important role to play and should also be protected.

6.1.2: Conservation and Tourism Zone

This Conservation and Tourism Zone's main goal is to promote tourism and recreational activities while protecting and conserving agricultural and natural resources and natural landscape. The zone runs along the Vaal River and overlaps with the Vredefort Dome and its EMF Buffer zone. It also includes Venterskroon Private Nature Reserve, Nooitgedacht Private Nature Reserve, and Savannah Game Ranch . This zone is linked to the rest of the subregion via R53, R500, and R59. This zone contains a portion of the VDWHS buffer zone, which must be managed in accordance with the provisions of the VDWHS EMF. The Klerksdorp REDZ encompasses the western portion of this zone. Large-scale solar plant development is not recommended in this zone because it may disrupt the natural landscape. Table 8 summarises the key spatial development guidelines for this zone.

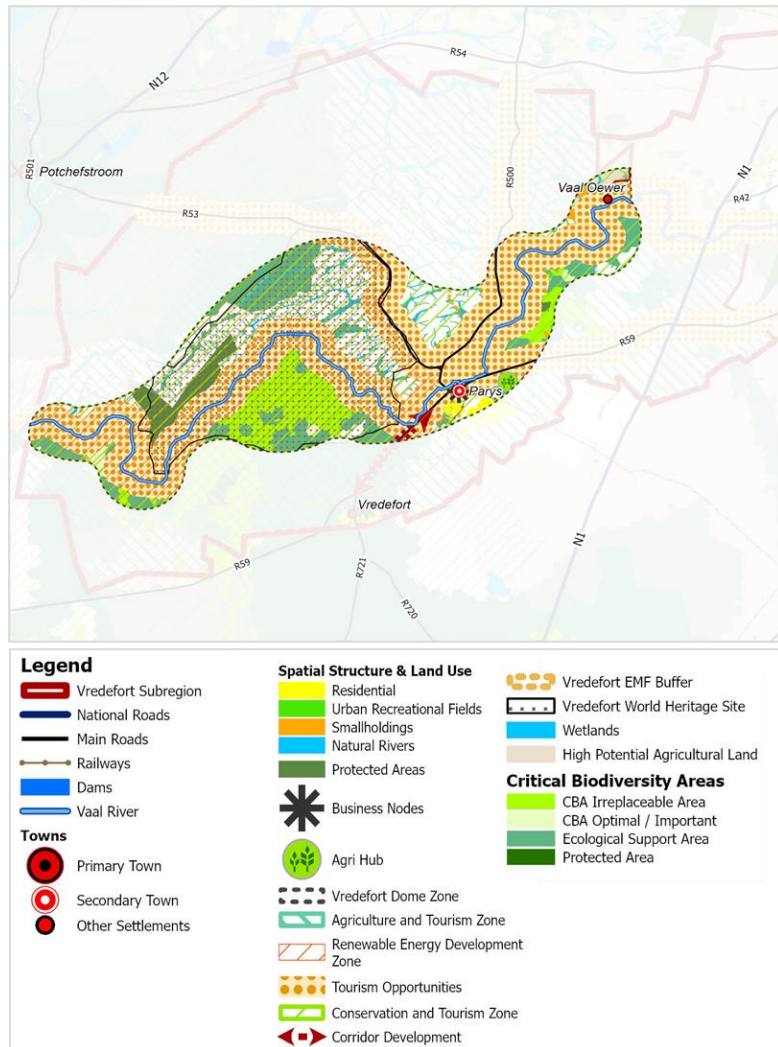


Figure 26: Conservation and Tourism Zone (Dome-Parys Subregion)

Table 8: Spatial Development Guidelines for Conservation and Tourism Zone (Dome-Parys Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Tourism and commercial recreation must be promoted and facilitated throughout the zone, specifically along the Vaal River. • Tourism can also occur on commercial farms where accommodation is provided for tourists, this will allow for favourable mixed uses. • Develop a tourism development strategy for the subregion that will package development requirements, localities, design and new engineering standards, etc. for tourism and recreation establishments to ensure the area is sustainably and aesthetically developed. • Allow farming in the existing agricultural areas. • Explore renewable energy development opportunities within the delineated REDZ.
Connectivity	<ul style="list-style-type: none"> • Repair and maintain all regional linkages that afford access to the subregion and its tourism and recreation facilities. • Gravel roads are equally important in providing access to these facilities, which, because of their very nature, have remote locations – repair and maintain continually. • Promote cellular and ICT connectivity throughout the area

Principle	Spatial Development Guidelines
Concentration	<ul style="list-style-type: none"> • Concertation of tourism and recreational facilities along the main roads and gravel roads, the Vaal River and in Parys, Vredefort, and Vaal Vaal Oewer. • Low impact tourism activities with the Vredefort Dome WHS and buffer area. • Tourism and recreation development will be diverse because of the diverse opportunities that prevail in this subregion.
Conservation	<ul style="list-style-type: none"> • Clean and protect the River and its aquatic impact buffer zone, but allow low impact tourism development as it is the means to give people access to and to retain the environment. With no development, conservation of privately-owned land is exceedingly difficult. • Protect the natural landscapes, nature reserves, CBAs, ESAs, the Vaal River, wetlands, agricultural areas, and heritage resources. • Protect the Dome and its buffer zone in accordance with the strategic objectives of the Vredefort Dome World Heritage Site EMF. • Adapt to mitigate climate change effects.

6.1.3: Agriculture and Tourism Zone

The Agriculture and Tourism Zone comprises of the peripheral areas of the subregion. This zone is primarily agricultural in nature, but it has a lot of tourism potential which is yet to be explored. This zone contains a portion of the VDWHS buffer zone, which must be managed in accordance with the provisions of the VDWHS EMF. For the remaining part, agricultural activities and tourism facilities must be promoted. Development of solar energy plants should be explored as this zone partly falls within the Klerksdorp REDZ. The general spatial development guidelines for this zone are described in Table 9.

Table 9: Spatial Development Guidelines for Agriculture and Tourism Zone (Dome-Parys Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Agriculture should be promoted (commercial and small-scale). • The growth focus should be to retain the status quo on the one hand and on the other to expand farming in alternative production processes. • Alternative production such as tunnels, hydroponics, intensive production units, etc. • Financial support to assist vetted agricultural entrepreneurs since start-up farming is exceedingly expensive. • Commercial farming is fundamental to the economic well-being of the subregion.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Agri-processing to be carefully investigated and planned to ensure it meets market demand, especially for commercial farming, because the latter will see to the long-term feasibility of an agri-processing plant. Small-scale farming alone has limited scope to ensure the feasibility and economic sustainability of an agri-processing facility. • Promote Agrivoltaics and explore renewable energy development opportunities within the delineated REDZ. • Tourism can occur on commercial farms where accommodation is provided for tourists, this will allow for favourable mixed uses.
Connectivity	<ul style="list-style-type: none"> • Road repair and maintenance as a matter of urgency as it impacts access to markets and support services – this includes all order of roads, tarred and gravel. • Connectivity is essential in accessing any agro-processing facility and product off-set markets.
Concentration	<ul style="list-style-type: none"> • Agri-processing / agri-village to be near Parys to strengthen Parys as an agricultural support centre. • Agriculture to occur throughout the subregion. • Balance between conservation of the Dome landscape and agricultural production, these to occur in an interrelated manner.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Along the Vaal River to afford access to water (water pollution to be resolved as a matter of urgency).
Conservation	<ul style="list-style-type: none"> • Agricultural sector must be protected (commercial farming and small-scale production). • Commercial production should remain the priority because the area is endowed with high potential agricultural land. Small-scale farming assists in providing for individual livelihoods, but they do not contribute to the production basket of South Africa and the mandate is to retain South Africa's agricultural production status. • Keep the River pollution free to safeguard human and livestock health. • Safeguard commercial farming / high potential agricultural land in the context of alternative energy production, such as solar or wind farms, which also require large land areas. Find synergy between these sectors. • Adapt to mitigate climate change effects.

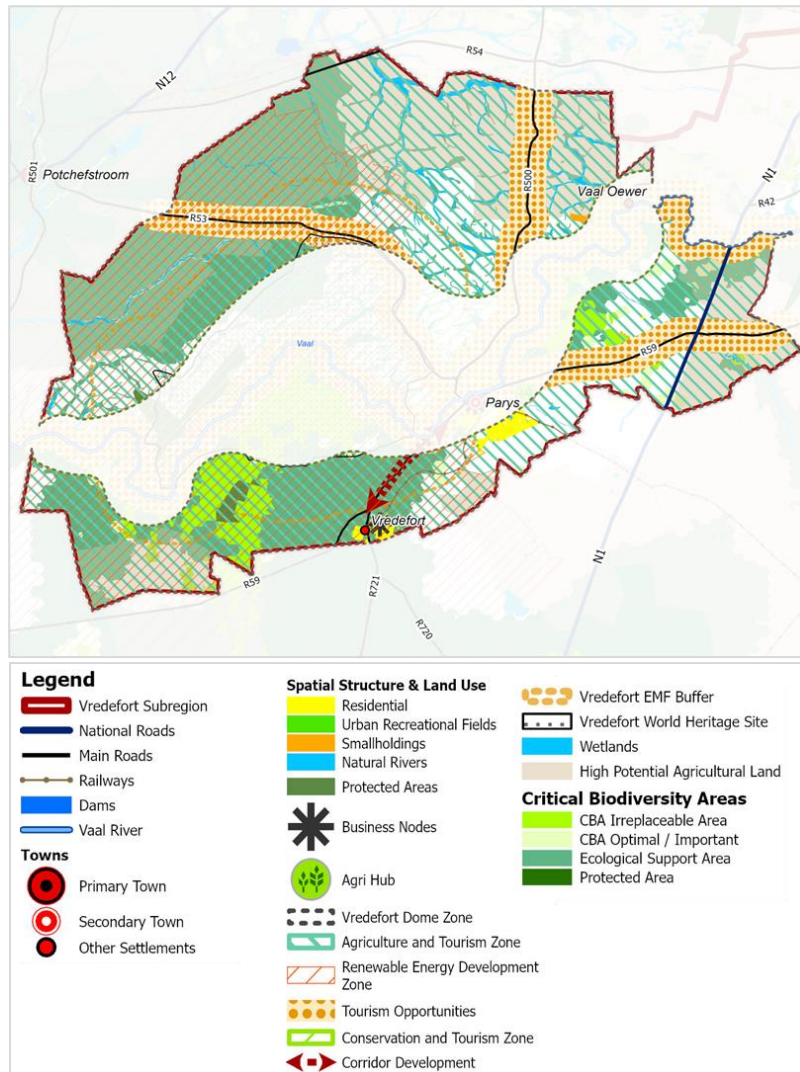


Figure 27: Agriculture and Tourism Zone (Dome-Parys Subregion)

6.1.4: Growth Containment Zone

This zone contains the subregion's three major settlements, namely Parys, Vredefort, and Vaal Oewer. These settlements house the majority of the subregion's population. Parys and Vredefort support agricultural activities and provide socioeconomic facilities to the rural surroundings. Vaal Oewer, on the other hand, is primarily a smallholdings type of settlement nestled on the banks of the Vaal River. These settlements have a variety of recreational and tourist accommodations. Because the subregion's future population growth is expected to be negative, no or limited geographic expansion of these settlements is anticipated. Nonetheless, the expansion of these settlements, if any, must be managed to avoid a negative impact on the surrounding natural and agricultural areas. While each settlement must be evaluated on its own merits in terms of current use and future output, there are some commonalities that should guide the future development of the zone as a whole. Table 10 summarizes the zone's key spatial development guidelines.

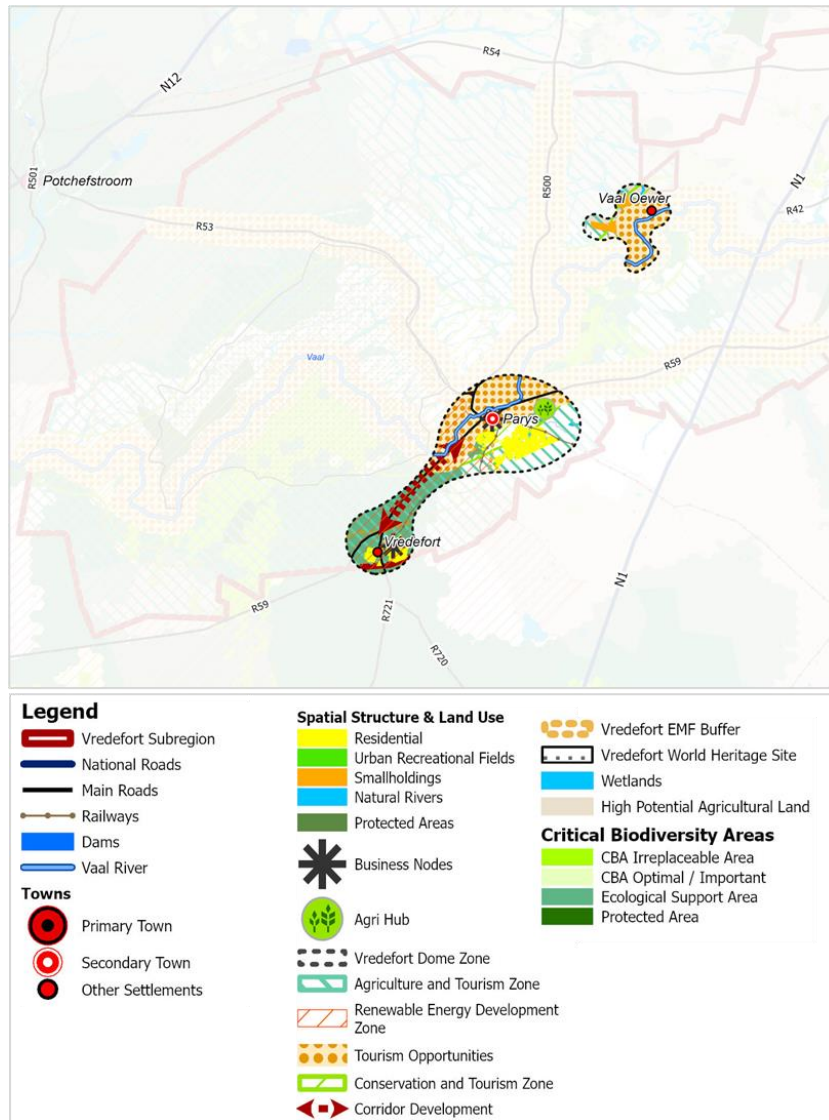


Figure 28: Growth Containment Zone (Dome-Parys Subregion)

Table 10: Spatial Development Guidelines for Growth Containment Zone (Dome-Parys Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> Multi-sectoral growth: business (all), residential (all), commercial (Parys and Vredefort), small scale industrial (Parys), rural and agricultural support services (Parys and Vredefort), tourism and recreation (all). High-income residential growth / estates are a municipal value-add and they further tourism and country living on the edge of Gauteng and North West. Estates and country living along Vaal River. Infrastructure repair and maintenance of all services as a matter of urgency, since the state of services is crippling all existing economic sectors and untapped economic opportunities. Protect small businesses as much of the towns' sustainability hinge on small businesses. A major intervention would be simply to re-establish standard service provision (water, access, electricity and sanitation).
Connectivity	<ul style="list-style-type: none"> Potchefstroom-Parys (R53 and R59); Sasolburg-Parys-Vredefort-Kroonstad (R59, R720 and R721) are the main routes for people, goods and services – to be continually repaired and maintained. Retain and strengthen connectivity between Parys and Vredefort, there may be potential for corridor development linking these two towns.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Investigate the future regional linkage between Kwa-Zulu Natal and North West Province as this will greatly impact Parys. Ensure the through-route benefits Parys and facilitates its development. • Ensure good cellular connectivity as this enable country-estate living and all towns being regarded as satellite towns from Johannesburg.
Concentration	<ul style="list-style-type: none"> • Urban development to take place within the urban areas and within their delineated urban development boundaries. • Plan for corridor development between Parys and Vredefort, which is already trending that way. While infill development over the 15km-stretch of road (R59) will take time it is certain to come to pass in due course. For this, need to resolve the delineation of the Vredefort Dome WHS which extends over the R59 thus restricting spatial integration. • Densification to be supported in the form of subdivisions and sectional title schemes within existing urban areas. • Strengthen Parys and Vredefort CBDs. • Support tourism development and commercial recreation in all urban centres. • Allow business development in Vaal Oewer if desirable. • Adapt transit oriented development principles and promote walkability in the towns.

Principle	Spatial Development Guidelines
Conservation	<ul style="list-style-type: none"> • Clean the River as its pungent odour and debris profoundly impacts tourism, commercial recreation and residential development. • Make every effort to conserve all heritage value in the towns – old houses, old buildings, old factories or mills, etc. • Protect estates, country living and tourism in all centres since they are municipal assets. • Identify all existing open spaces and promote a connectivity network.

6.2: Vaal Urban Core Subregion



The Vaal Urban Core is centrally located between the Dome-Parys Subregion and the Vaal Dam Subregion. Most of this area forms part of the Gauteng City Region. Within the Vaal River Region, it is the most urbanised area that draws into it the activities of the other subregions as it is so well connected, and so, has become the Region's economic heartland. It is home to a multitude of central business districts, industrial areas, a vast range of residential neighbourhoods, retail centres and development nodes. These are intercepted by natural areas, protected areas, mining activities and some but limited agricultural activities.

While this Subregion is not a demarcated entity and falls within two different provinces and straddles three local municipalities it has accumulated economic strength and value-add, and is moving towards much-needed economic diversification though this could

be stronger and faster. In support of economic strengthening five Vaal Special Economic Zone (SEZ) sites have been earmarked for the Vaal River Region and of these, three are found in the Vaal Urban Core.

The subregion is nudging the 1-million population mark, which as a composite area is growing into a meaningful and to-be-noted urban agglomeration.

Because this area straddles three local municipalities and two provinces development generally appears to be fragmented and unconsolidated. The VRRSDF therefore strongly proposes that a Vaal Urban Core spatial development framework be prepared specifically for this subregion - not only to consolidate all local proposals and plans into one plan, but to devise a local level strategy and development plan for integrated development, appropriate urban infill, what to

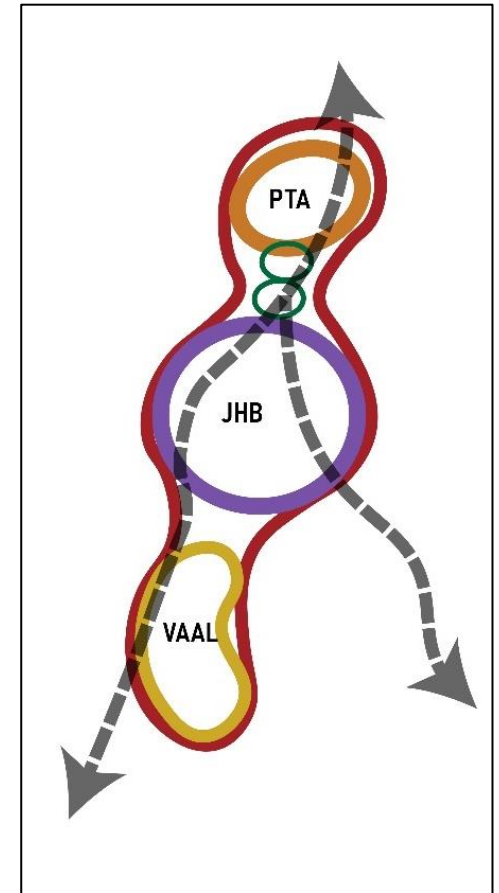


Figure 29: Gauteng Regions

do with the various agricultural holding complexes, where to focus social development projects and where to confine/encourage development.

In lieu thereof, the following are the key spatial components of the subregion:

- ▶ Commercial Development Zone
- ▶ Infill and Future Growth Zone
- ▶ R59 Industrial Development Corridor
- ▶ Urban Transition Zone
- ▶ Agriculture Zone

Vaal Urban Core Subregion

at a glance

Affected Municipalities

Emfuleni, Midvaal (Gauteng), Metsimaholo (Free State)

1 777 sq km
Area

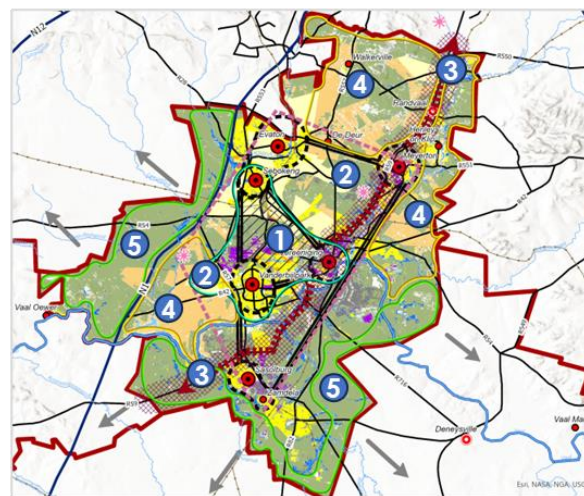
2030: 1 024 478
2050: 1 109 735
Estimated Population

Manufacturing, Finance and
Business Services
Key Economic Sectors

Development Opportunities/ Projects

-  SEZ & Manufacturing
-  Green Energy Development
-  Real Estate Development
-  Commercial Development
-  Higher Edu., Innovation, Research
-  Regional Connectivity
-  Aertropolis and Tradeports
-  Mining & Mineral Beneficiation
-  Agriculture and Processing

Spatial Components



- 1 Commercial Development Zone
- 2 Infill and Future Growth Zone
- 3 R59 Industrial Development Corridor
- 4 Urban Transition Zone
- 5 Agriculture Zone

Development Challenges

- Declining Manufacturing Base 
- Mine Closures 
- Urban Sprawl & Informal Growth 
- Water Pollution 
- Stressed Water Resources 
- Housing and Service Gaps 
- Poor Infrastructure Maintenance 
- Unemployment 
- Climate Change & Disaster Threats 

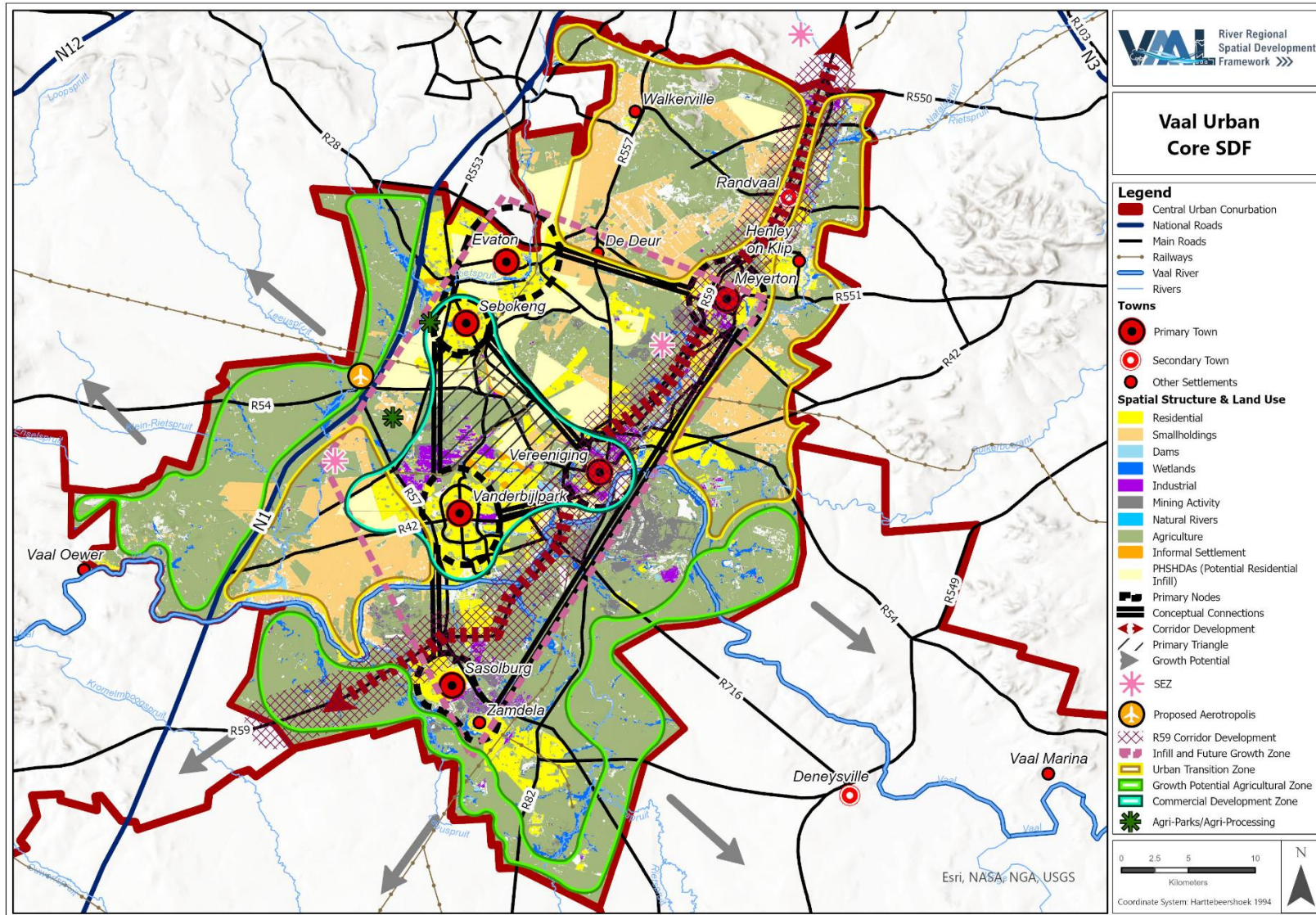


Figure 30: Spatial Development Framework for Vaal Urban Core Subregion

6.2.1: Commercial Development Zone

At the heart of the Vaal Urban Core are Sebokeng (emerging), Vereeniging and Vanderbijlpark CBDs. All three fall in Emfuleni LM. The triangle created by these is the development core, and thus, the place for crucial commercial (retail, business and industrial) development, densification and intensification. Within this area, land is available for all types of land uses which in turn can be supported by residential infill of a higher density than prevails currently.

The urban core accommodates many schools and education institutions, of which the VUT college campus and NW University campus are located on the eastern side of Vanderbijlpark. There is an opportunity to build on this strength. Given the need for technical tertiary education and training, these two campuses with additional tertiary college development, could see Vanderbijlpark diversify to include a college precinct which would incorporate student accommodation and all sorts of development associated with student life. While this opportunity will need time to mature, it certainly exists and should be promoted.

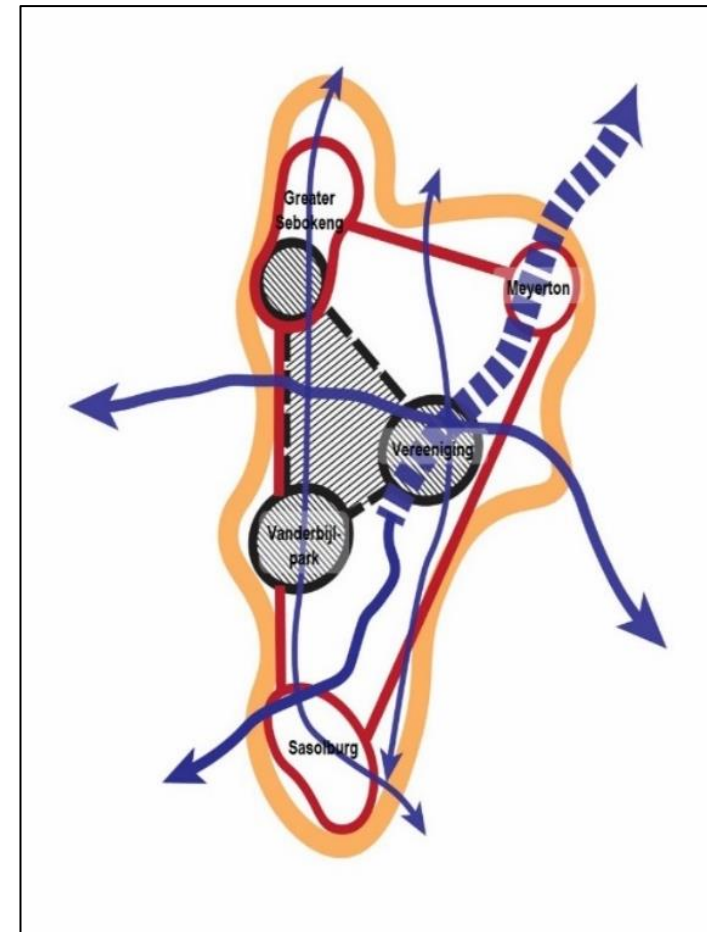


Figure 31: Emerging Vaal “Metro” / Triangle

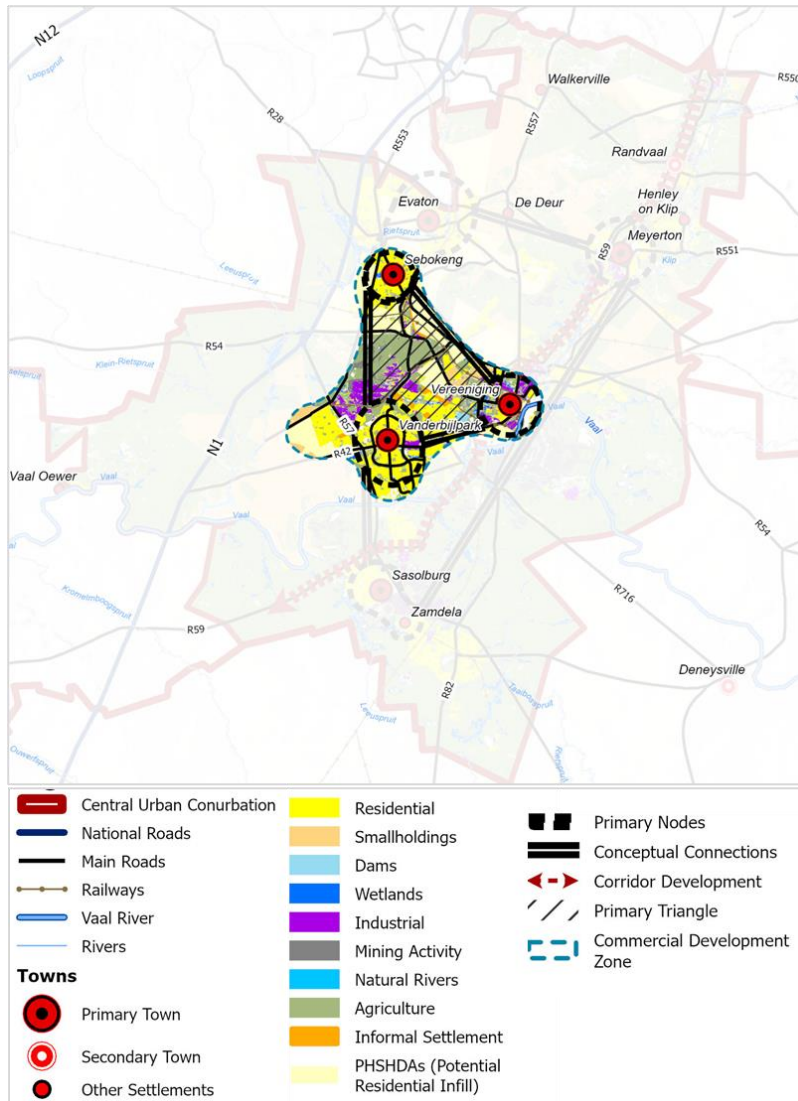


Figure 32: Commercial Development Zone (Vaal Urban Core)

Table 11: Spatial Development Guidelines for Commercial Development Zone (Vaal Urban Core)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> Stimulate economic growth, diversification and job creation. Industrial and commercial development to take place in already designated areas, so that infill of industrial land can take place and existing areas be strengthened. These areas by and large are well located, serviced and accessible via road and rail, which should facilitate development. Facilitate the SEZ development east of the N1. Explore opportunities to establish the region as a green energy development and research hub. Be pro-development by expediting land use applications, and by encouraging all development and all job creation. Proactive development and expedited land use applications can be largely achieved through incorporation of the Gauteng Provincial Environment Management Framework (GPEMF) Standard, which delineates zone 1 and 5 of the GPEMF as zoned with gazetted exclusions from having to undergo the full Environmental Impact Assessment (EIA) processes, thereby fast-tracking development. Revitalise Vereeniging CBD – formulate a precinct plan and economic strategy for the CBD. Development of higher density residential

Principle	Spatial Development Guidelines
	<p>apartment blocks could transform and give new life to the CBD.</p> <ul style="list-style-type: none"> • Ensure a hierarchy of nodes so as to rank and order all land use allocations and service provision. Nodes must be planned so that service rendering can be assured. • Subsidised housing programmes should continue on land already identified. Land availability within the primary zone exists and will achieve infill. Striving for higher densities is important. • Densification, infill, brownfields development, subdivision and sectional title schemes to be encouraged in the right areas – areas that can and should accommodate densification. • Attract economic development into the towns and increase job density. • Repair and upgrade all urban infrastructure, especially sanitation, water, roads and electricity so as to enable development and densification.
Connectivity	<ul style="list-style-type: none"> • Repair and maintain all roads. Fixing roads will encourage private sector investment. • Continually promote the R59-corridor development which plays a critical role for all urban centres in the urban core and in facilitating the Zwartkoppies SEZ's development.. • Retain commuter rail from Vereeniging via Sebokeng to Johannesburg.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Retain freight rail from Vereeniging along the R59 to Johannesburg and beyond. • Strengthen the R54 which presently serves as the NW-KZN corridor. • Ensure good connectivity along the R82 from Johannesburg to Sasolburg. Upgrade and expand the road.
Concentration	<ul style="list-style-type: none"> • Industrial development to be focused in existing and established industrial and commercial townships as far as it is viable; within the newly demarcated Kookfontein Vaal SEZ site; and along the R59. • Retail and nodal development to occur where development expansion has created demand but to occur in a structured and hierarchical manner. • Social development to occur in and around established nodes and in residential areas where such social services adhere to the residential character and are required in residential areas (such as crèches, schools, etc.). • Any tertiary facilities to be encouraged to locate towards the east of Vanderbijlpark to give strength to a college precinct. • Encourage and engage in brownfields development in the CBDs by transforming land uses and derelict land, and by densification in appropriate locations.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Create Sebokeng CBD based on the high-density mixed use precinct plan. • Adapt transit oriented development principles and promote walkability in the towns. • Establishment of an education institution that specialises in upskilling people in agriculture, renewable energy, manufacturing, and tourism and heritage services of the Vaal River Region area and supportive of job creation initiatives in this region.
Conservation	<ul style="list-style-type: none"> • Protect the existing economic strengths. • Retain existing industrial and commercial nodes. • Protect Vereeniging and Vanderbijlpark CBDs from decay, decentralisation and abandonment. • Prepare CBD precinct plans for the retention and upgrading of the CBDs. • Manage the CBDs and guard against informal trade, informal industry and informal housing which will create an informal CBD with no controls and management and will see to the demise of the core nodes. • Manage service delivery in the CBDs, upgrade and maintain roads, and implement firm refuse removal plans. Clean and upgrade the CBDs. • Promote environmentally sustainable development activities, including application of ecosystem-based adaptation principles in the Vaal Urban Core.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Identify all existing open spaces and promote a connectivity network

6.2.2: Infill and Future Growth Zone

Beyond the primary development zone is a larger area, which, including Greater Sasolburg and Meyerton, together with Greater Sebokeng forms a secondary urban sub-region. This becomes the Subregion's infill and future growth zone to include economic, social, retail and residential development starting to constitute an urban agglomeration area. This area is home to five established CBDs which should be consolidated to promote growth and diversification. Together they will be stronger than each fending for itself.

The area accommodates two SEZ sites, and has enough available land to accommodate other industrial and commercial developments, residential expansion and densification, protection of natural areas and natural features and corridor development.

To ensure focused development a subregional development boundary should be delineated to ensure sprawl is delimited and growth is nudged in the right direction. In this context the N1 should be a firm barrier which halts western expansion which is spatially removed, and moving away from the core, and is therefore, counterproductive.

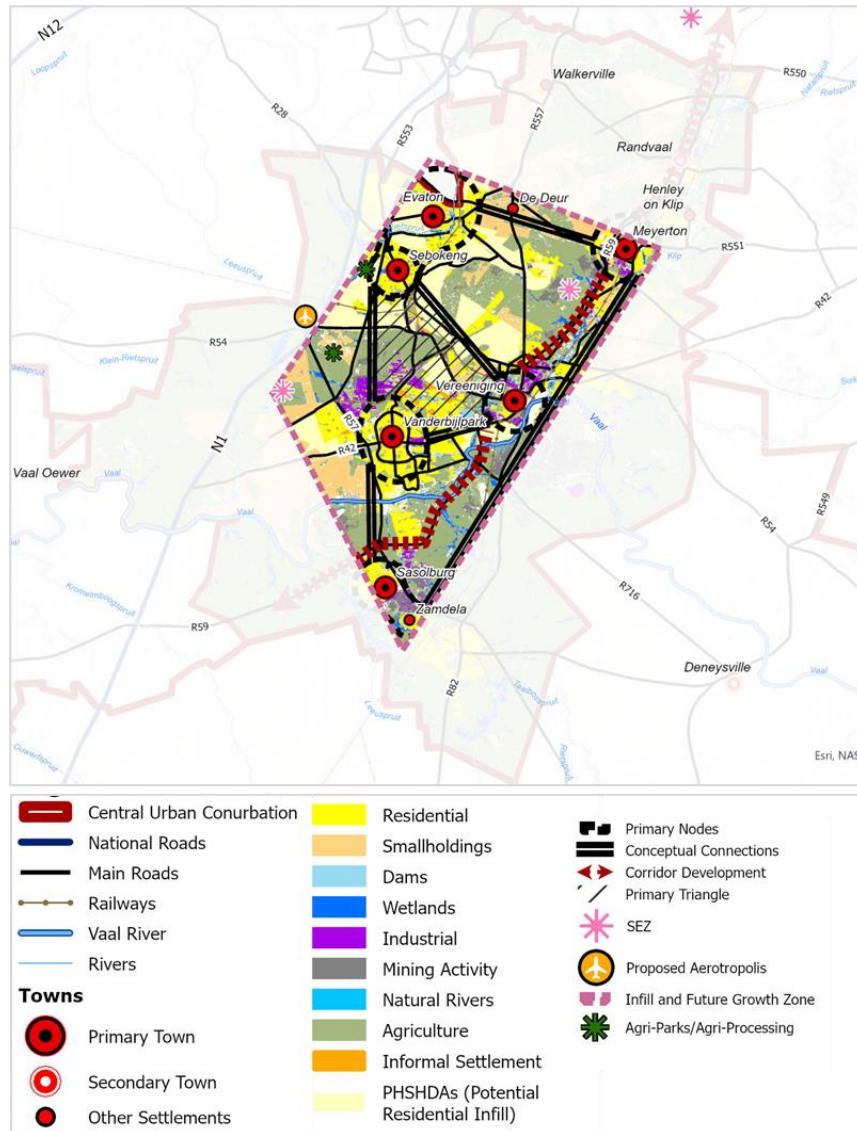


Figure 33: Infill and Future Growth Zone (Vaal Urban Core)

Table 12: Spatial Development Guidelines for Infill and Future Growth Zone (Vaal Urban Core)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> Stimulate economic growth, diversification and job creation. Facilitate the SEZs and encourage land take up in these designated areas. Encourage new technologies, clean industry, and manufacturing. Encourage industrial and commercial development in designated areas, since they are well located and serviced, which should facilitate development. Promote the R59 corridor development. Be pro-development through expedited land use applications and by encouraging all development and all job creation. Ensure a hierarchy of nodes so as to rank and order all land use allocations and service provision. Nodes must be planned so that service rendering can be assured. Subsidised housing programmes should continue on land already identified. Land availability exist and achieve and facilitate infill. Brownfields and greenfields development to be encouraged with improved densities and composition. Facilitate the River City Development. Growth to occur within the urban development boundary/ies and western expansion to be

Principle	Spatial Development Guidelines
	<p>contained by the N1 which is a firm and hard edge.</p> <ul style="list-style-type: none"> • Densification, infill, brownfields development, subdivision and sectional title schemes to be encouraged in the right areas – areas that can and should accommodate densification. • Repair and upgrade all urban infrastructure, especially sanitation, water, roads and electricity so that all pent-up development application can be implemented.
Connectivity	<ul style="list-style-type: none"> • Repair and maintain all roads – regional, metropolitan, local and neighbourhood. Fixing roads will encourage private sector investment. • Continually promote the R59-corridor development. • Strengthen connectivity to Heidelberg along the R42 and R551 which will experience a pull factor once the logistics hub at the Heidelberg SEZ has been built. • Retain commuter rail from Vereeniging via Sebokeng to Johannesburg. • Retain freight rail from Vereeniging along the R59 to Johannesburg and beyond. • Strengthen the R54 which presently serves as the NW-KZN corridor. • Ensure good connectivity along the R82 from Johannesburg to Sasolburg. Upgrade and expand the road.

Principle	Spatial Development Guidelines
Concentration	<ul style="list-style-type: none"> • Development and growth to be focused in the secondary area – the spatial area created between Greater Sebokeng, Greater Sasolburg and Greater Meyerton. • Prime area for concentrated human settlement development as there is land availability and good locality. Densification must be encouraged and to be attained through sufficient bulk service capacity. • Development to be confined by the urban development boundary/ies. • Adapt transit-oriented development principles and promote walkability in the towns. • Industrial development to be focused in existing and established industrial and commercial townships as far as it is viable; within the newly demarcated SEZ sites (Rietspruit and Kookfontein); and along the R59. • Development of Agri-processing (Agri-hub) and Agrivoltaics Technology Industries in Rietspruit. • Retail and nodal development to occur where development expansion has created demand but to occur in a structured and hierarchical manner. • Social development to occur in and around established nodes and in residential areas where such social services adhere to the residential character and are required in residential areas (such as crèches, schools, etc.).

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Tourism and recreation activities can be approved where appropriate.
Conservation	<ul style="list-style-type: none"> • Protect the existing urban areas from degradation. • Manage service delivery and road maintenance as means to conserve the urban agglomeration. • Achieve compact urban form. • Protect features, places and spaces with heritage value which are scattered all around the Vaal Urban Core. • Promote environmentally sustainable development activities, including application of ecosystem-based adaptation. • Identify all existing open spaces and promote a connectivity network

corridor. The corridor boasts better land prices than land in City of Ekurhuleni, facilitated land use development applications, some already serviced areas, excellent regional access, road and rail connectivity and valuable visibility. The corridor offers hope for economic growth and much needed employment creation. The corridor will support the growing residential hinterland, where, as per the Infill and Future Growth Zone residential densification and human settlement development will take place in earnest in the short to long term future.

6.2.3: R59 Industrial Development Corridor

The R59 connecting Alberton to Vredefort via Meyerton, Vereeniging, Vanderbijlpark and Sasolburg is gradually developing into an industrial development corridor. Its core area, with the most development impetus, stretches from the northern boundary of Midvaal LM to include Meyerton, Vereeniging and Vanderbijlpark. Midvaal LM is in full support of its development and actively drives and facilitates industrial and commercial development along the

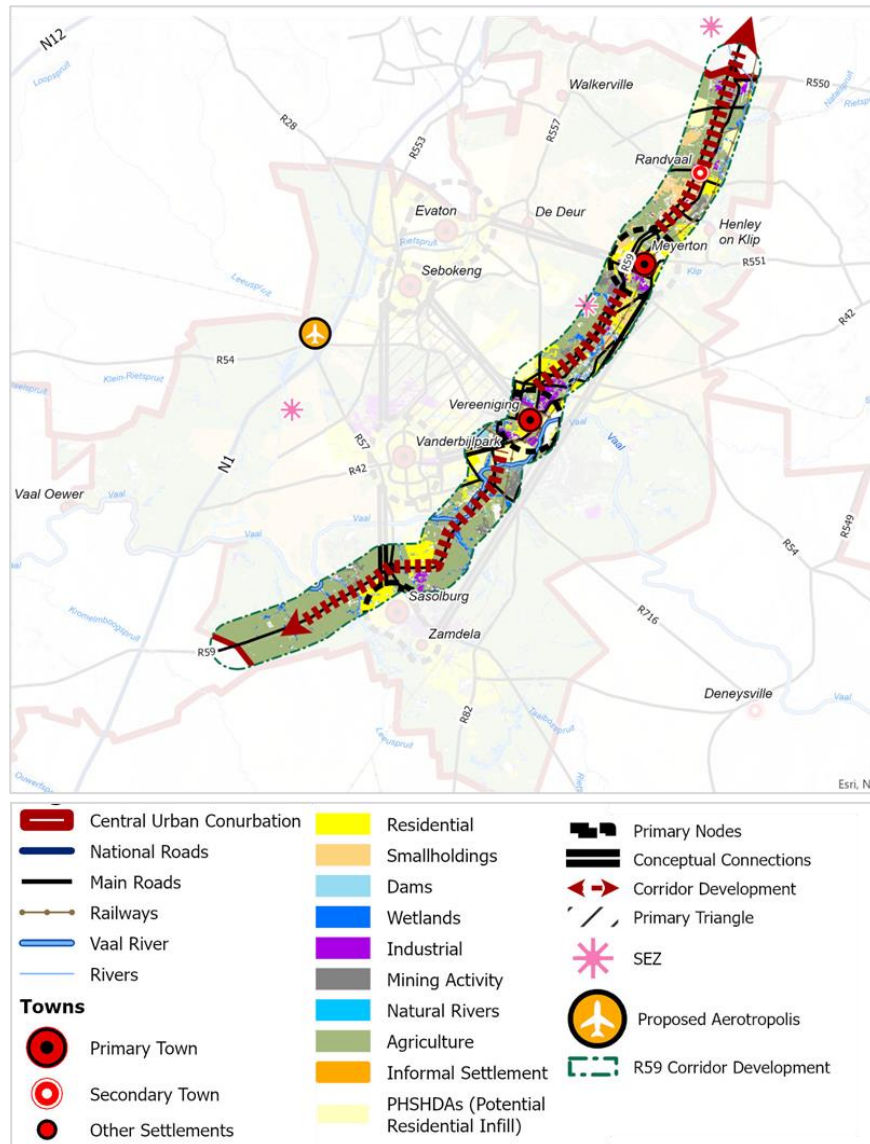


Figure 34: R59 Industrial Development Corridor (Vaal Urban Core)

Table 13: Spatial Development Guidelines for R59 Industrial Development Corridor (Vaal Urban Core)

Principle	Spatial Development Proposals
Growth Focus	<ul style="list-style-type: none"> Stimulate economic growth, diversification, and job creation. Promote commercial and industrial development along the R59. The development of economic clusters and intensification of economic activities should be promoted along this corridor. Facilitate the development SEZs and explore the opportunities of expanding them. Be pro-development through expedited land use applications and by encouraging all development and all job creation. Natural areas and the River must be protected and made accessible. There are plans for a River City, and these should be explored where the River can be made accessible without compromising on its well-being. For this proposal to be of any value the River's poor aesthetic and health state must be improved. Repair and upgrade all urban infrastructure, especially sanitation, water, roads and electricity.
Connectivity	<ul style="list-style-type: none"> Ensure the continued maintenance of the R59. Plan for its expansion. Unlock the R59 with the construction of class 3 feeder roads east and west of the corridor.

Principle	Spatial Development Proposals
	<ul style="list-style-type: none"> • Encourage the PRASA to reinstate its rail services which run parallel to the R59 which will facilitate commuter access. • Encourage freight rail services along the R59. • Strengthen connectivity to Heidelberg along the R42 and R551 which will experience a pull factor once the logistics hub at the Heidelberg SEZ has been built. • Ensure good connectivity along the R82 from Johannesburg to Sasolburg. Upgrade and expand the road.
Concentration	<ul style="list-style-type: none"> • Industrial development to be focused in the newly demarcated Vaal SEZ sites (Kookfontein and Zwartkopjies) and along the corridor. • Encourage the grouping of similar category manufacturing, commercial and industrial uses (including SEZs) in the same nodes and along the corridor. • Ensure appropriate densities even for commercial townships to achieve the best and most effective uses of land, while ensuring efficiency.
Conservation	<ul style="list-style-type: none"> • Ensure the creation of clean industrial environments. • Ensure there is no water pollution. • Ensure water and sanitation capacity so that new development do not overburden the failing system.

Principle	Spatial Development Proposals
	<ul style="list-style-type: none"> • No hazardous and noxious industrial uses permitted in the corridor. • Plan and manage service delivery.

6.2.4: Urban Transition Zone

The Vaal Urban Core is relatively well endowed with Agricultural Holdings most of which are under development pressure but in different ways. Some require more subdivisions; some bestow owners with a sense of country living; others want land use diversification to accommodate uses such as home industries, workshops, commercial and light industrial activities; others are under pressure for township establishment and residential densification; others are rampant with illegal land uses; and some include some form of agriculture. There is not a single solution for all agricultural holdings. These unique residential areas, which should have bridged the gap between urban living and agricultural farmlands have so transformed in the last 30 years that there is no golden remedy for all. The fact that most of these areas are in transition in some or other way is accepted, for that reason it is referred to as the Urban Transition Zone.

While each area must be evaluated on its own merit, determined what its current use is and future output should be, there are some commonalities which should inform the future development of these 'in-between' areas.

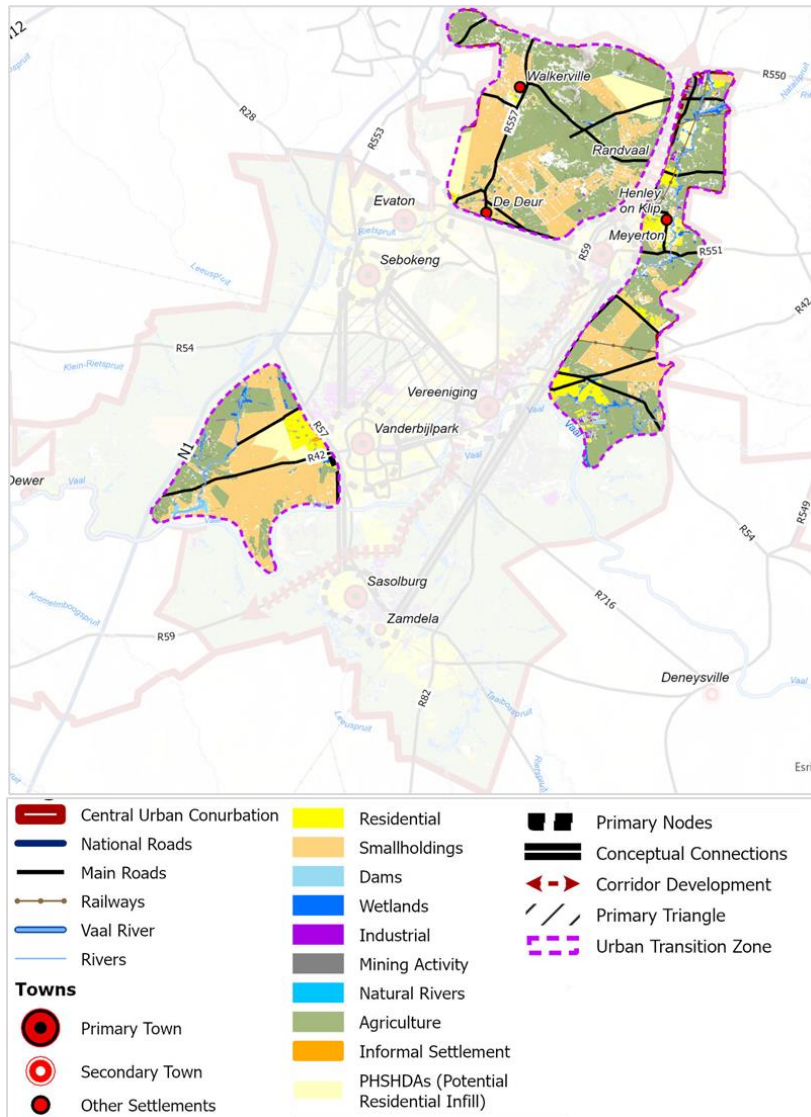


Figure 35: Urban Transition Zone (Vaal Urban Core)

Table 14: Spatial Development Guidelines for Urban Transition Zone (Vaal Urban Core)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> Determine a development theme for each area that understands the unique context, character and growth focus for each area, then encourage and facilitate development that conforms to the plan. Retain low-density living. Encourage tourism activities and facilities. Allow agri-processing and agricultural production as a transition between the urban and rural landscapes. Encourage development that will achieve some form of job creation. Natural areas (tributaries, water bodies, ridges, the River, etc.) must be protected and made accessible.
Connectivity	<ul style="list-style-type: none"> Repair and maintain all roads, including rural access and gravel roads.
Concentration	<ul style="list-style-type: none"> Allow country living to continue. Allow each area to develop according to its own theme which may be more biased to country living, agri-industry, home industry, or tourism, etc. Create an enabling environment for these areas to contribute to the economy.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Tourism and recreation activities to be encouraged and concentrated along the River and other natural or heritage areas where the natural or heritage value contributes to the proposed development and where this value should be protected. Access to such natural or heritage areas affords people an experience of it and so gets them vested in the need to protect and conserve such spaces / places.
Conservation	<ul style="list-style-type: none"> • Keep the River, all the tributaries, all the water bodies, riparian zones and natural areas from pollution. • Protect the River, tributaries, dams and associated areas for future generations. Keep them clean, allow some development to fund their retention and enforce development controls. • Allow development along the River, water bodies, tributaries and natural zones but only if they do not threaten the health of the water. • Allow developments in these areas to make use of alternative energy and services systems to lessen pressure on the municipality. • Protect features, places and spaces with heritage value which are scattered all around the Vaal Urban Core. • Promote environmentally sustainable development activities, including application of

Principle	Spatial Development Guidelines
	<p>ecosystem-based adaptation principles in the Vaal Urban Core.</p> <ul style="list-style-type: none"> • Identify all existing open spaces and promote a connectivity network

6.2.5: Agriculture Zone

The Agriculture Zone comprises the peripheral areas of the core subregion. It is generally agricultural in nature and is for the most part productively farmed. Given its rural composition there are tourism opportunities especially near quality natural features. The agricultural zone, though generally located beyond the Urban Transition Zone is exposed to urban encroachment which for now is managed by means of the urban development boundary. The agriculture zone relates to the areas beyond the core zone where agriculture is a primary land use.

There is one exception to the above, which is the proposed Vaal Aerotropolis located west of the N1, north of the R54 and south of the Klerksdorp-Vereeniging railway line (as shown in the accompanying figure). The Vaal Aerotropolis is a planned logistics and commercial node to grow around a planned airport. The project forms part of the Vaal SEZ and related initiatives. Given the project's current status the RSDf denotes it as a proposed aerotropolis development.

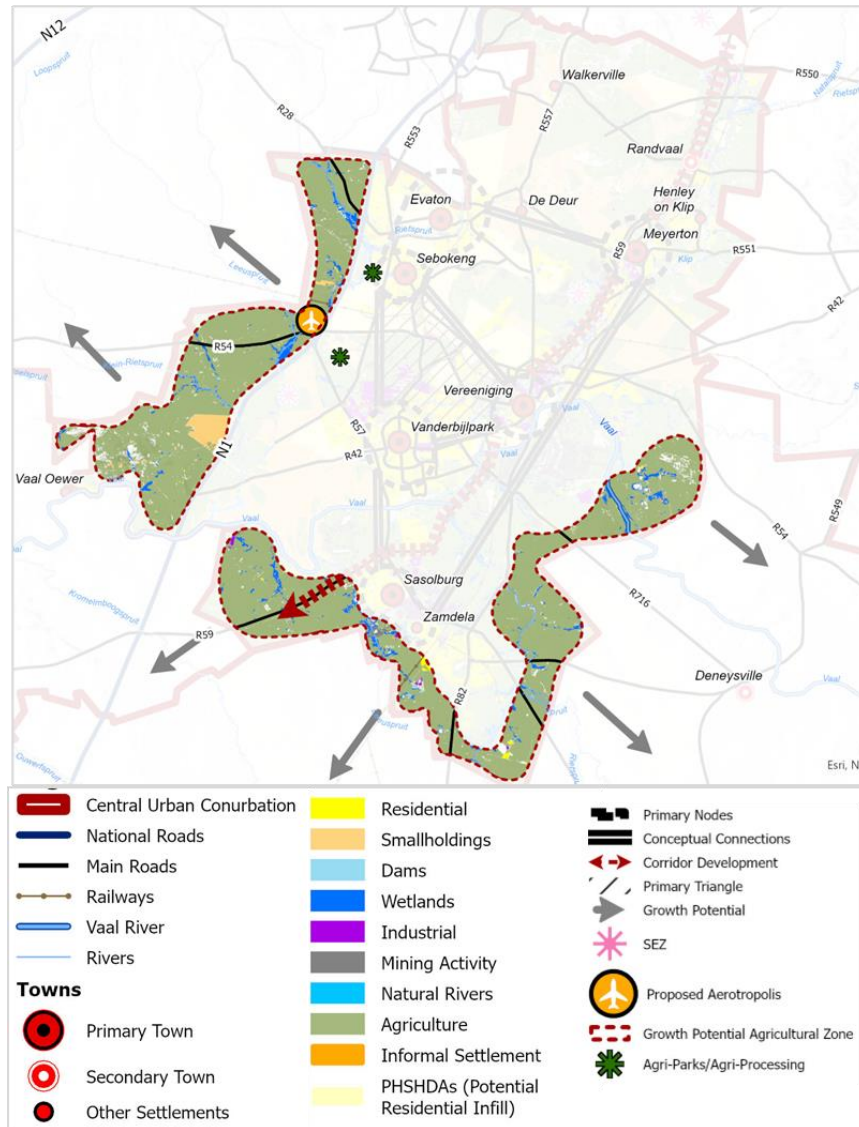


Figure 36: Agriculture Zone (Vaal Urban Core)

Table 15: Spatial Development Guidelines for Agriculture Zone (Vaal Urban Core)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Agricultural production, both commercial and small-scale farming. • Encourage tourism developments. • Estates and country living along Vaal River and in unique areas could be considered.
Connectivity	<ul style="list-style-type: none"> • Retain connectivity with the core area to facilitate product and tourism access. • Retain connectivity to markets.
Concentration	<ul style="list-style-type: none"> • Support tourism development. • Support water recreation along the Vaal River. • Develop commercial development, agri-processing and export facilities in the proposed Vaal Aerotropolis.
Conservation	<ul style="list-style-type: none"> • Clean the River in order to reinstate tourism, commercial recreation and residential development along the River • Protect high potential agricultural land. • Protect commercial farming activities. • Protect the areas from urban encroachment. Delineate the urban development boundary so that actively farmed areas and not subject to urban development.

6.3: Vaal Dam Subregion



VAAL DAM SUBREGION

The Vaal Dam subregion is most notably known by the Vaal Dam which covers a formidable 320 km². It is surrounded by natural areas and high-potential agricultural land. There are several towns that dot the landscape (Vaal Marina, Deneysville, Oranjeville and Villiers), providing country living and vacation homes. The towns are important to the subregion, but their growth potential is limited and is most notably centred on tourism, recreation and agricultural support services. However, country-living is growing more attractive as many people commute from these towns to Vereeniging, Vanderbijlpark, Meyerton and Sasolburg for work on a daily basis. This means residential development could become a valuable asset for the area, but this requires further investigation as there are definite infrastructure cost implications. Tourism is a prime economic sector most of which is centred around the Vaal Dam,

the Vaal River and the many tributaries that feed both. Increasingly cultural heritage is coming into the tourism scope.

There is prime opportunity in this area to promote active and passive recreation along and on the Vaal Dam, Vaal River and its tributaries. This significant waterbody offers excellent opportunities for water sports of all kinds and they bring with them associated tourism opportunities for accommodation, lodges, restaurants, etc.

Agriculture is as important as tourism, with commercial agriculture, both in crop and livestock production, being most dominant. Like the Dome-Parys subregion most of this area is farmed leaving little scope for growth in agricultural production. However, there is much emphasis on protecting and conserving agriculture at a national level. Mining is starting to creep into the area (south of Sasolburg) with increasing exploration of existing coal reserves.

The key spatial components of the subregion are:

- ▶ Conservation and Tourism Zone
- ▶ Agriculture and Tourism Zone
- ▶ Growth Containment Zone

Vaal Dam Subregion

at a glance

Affected Municipalities

Midvaal (Gauteng), Metsimaholo, Ngwathe, Mafube (Free State), Dipaleseng (Mpumalanga)

2 722 sq km
Area

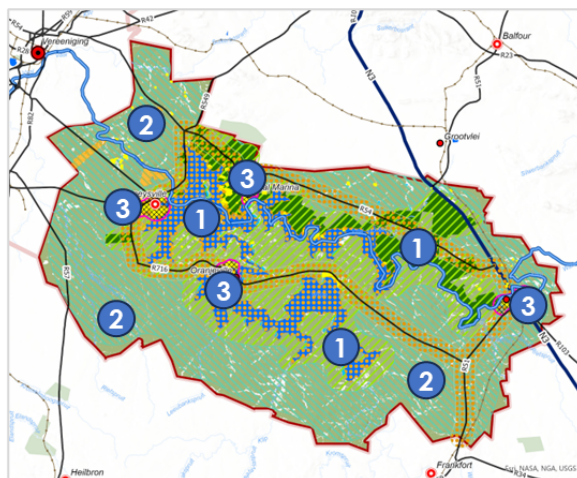
2030: 32 594
2050: 41 237
Estimated Population

Agriculture, Tourism
Key Economic Sectors

Development Opportunities/ Projects

-  Adventure and Water Sports
-  Leisure Tourism
-  High Potential Agric. Land
-  Rural and Agric. Business
-  Small-scale Industries
-  Regional Connectivity
-  Human Capital & Skills Development
-  Country Estate/ Leisure Housing

Spatial Components



- 1** Conservation and Tourism Zone
- 2** Agriculture and Tourism Zone
- 3** Growth Containment Zone

Development Challenges

- Lack of Economic Diversification 
- ICT Coverage Gaps 
- Lack of Public Transport 
- Water Pollution 
- Stressed Water Resources 
- Housing and Service Gaps 
- Poor Infrastructure Maintenance 
- Unemployment 
- Climate Change & Disaster Threats 

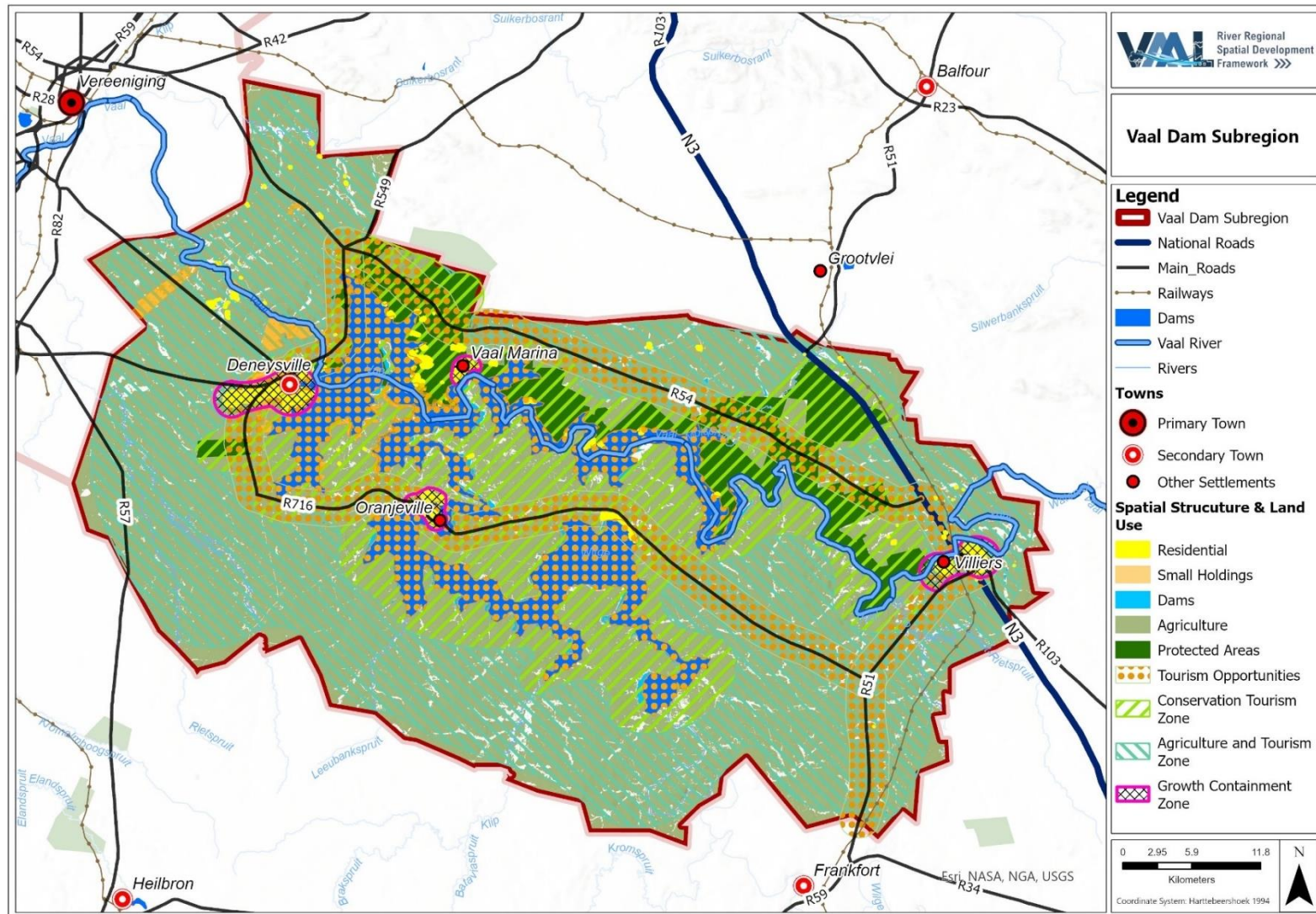


Figure 37: Spatial Development Framework for Vaal Dam Subregion

6.3.1: Conservation and Tourism Zone

The key objective of the Conservation and Tourism Zone promote tourism and recreational activities while protecting and conserving agricultural, water and natural resources. The Conservation and Tourism Zone include the Vaal Dam, the protected areas in the zone, and the immediate agricultural areas along the Vaal Dam and the Vaal River. This zone is linked to the rest of the subregion via R54, R51, and R716. This zone contains the settlements and towns located along the banks of the Vaal Dam. However, spatial development guidelines for these settlements are discussed later in this document (see Growth Containment Zone). Table 16 summarises the key spatial development guidelines for this zone.

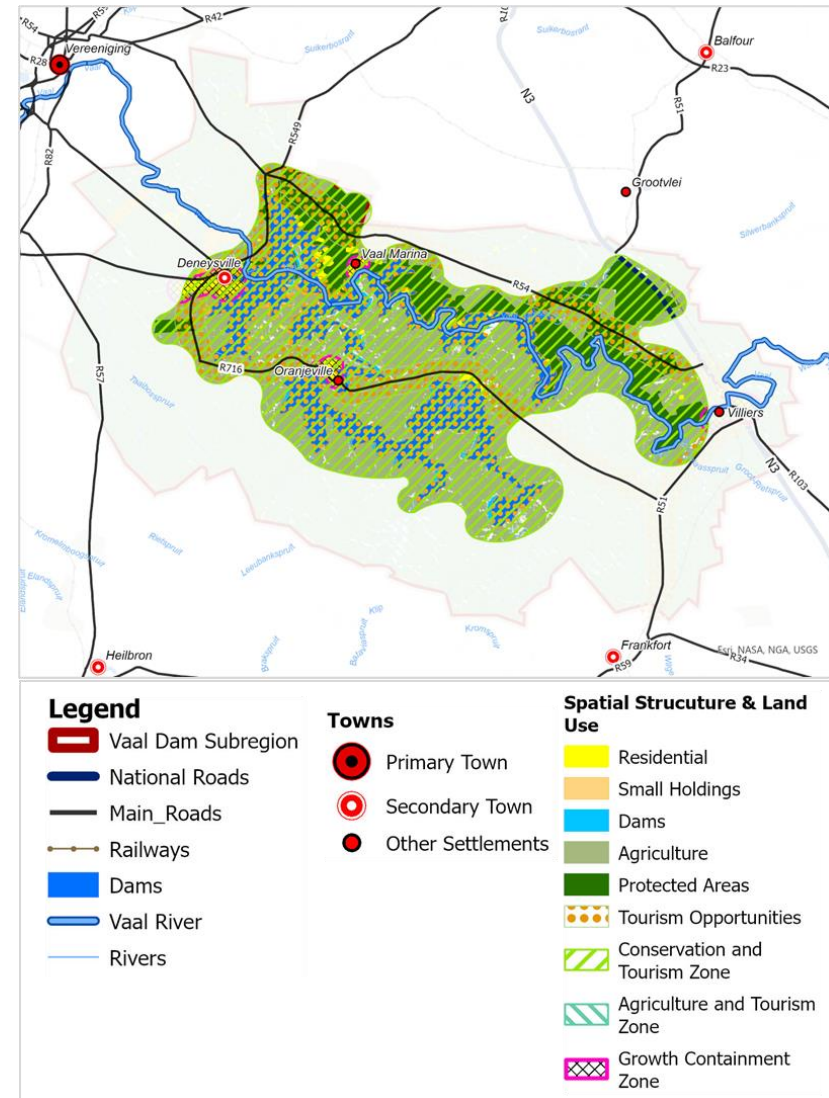


Figure 38: Conservation and Tourism Zone (Vaal Dam Subregion)

Table 16: Spatial Development Guidelines for Conservation and Tourism Zone (Vaal Dam Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Tourism and commercial recreation must be promoted and facilitated throughout the zone, specifically along the Vaal River and Vaal Dam. • Promote sustainable water sports and recreational activities in the Vaal Dam. • Tourism can also occur on commercial farms where accommodation is provided for tourists, this will allow for favourable mixed uses. • Develop a tourism development strategy for the subregion that will package development requirements, localities, design and new engineering standards, etc. for tourism and recreation establishments to ensure the area is sustainably and aesthetically developed. • Allow farming in the existing agricultural areas.
Connectivity	<ul style="list-style-type: none"> • Repair and maintain all regional linkages (R54 and R716) that afford access to the subregion and its tourism and recreation facilities. • Gravel roads are equally important in providing access to these facilities, which, because of their very nature, have remote locations – repair and maintain continually. • Promote cellular and ICT connectivity throughout the area

Principle	Spatial Development Guidelines
Concentration	<ul style="list-style-type: none"> • Concertation of tourism and recreational facilities along the main roads and gravel roads. • Low impact tourism activities along the Vaal River and Vaal Dam. • Tourism and recreation development will be diverse because of the diverse opportunities that prevail in this subregion.
Conservation	<ul style="list-style-type: none"> • Clean and protect the River and the Dam, and their aquatic impact buffer zone, but allow low impact tourism development as it is the means to give people access to and to retain the environment. With no development, conservation of privately-owned land is exceedingly difficult. • Protect the natural landscapes, nature reserves, CBAs, ESAs, the Vaal River, wetlands, agricultural areas and heritage resources. • Protect the nature reserves and integrate them with municipal planning instruments. • Adapt to and mitigate climate change effects.

6.3.2: Agriculture and Tourism Zone

The Agriculture and Tourism Zone includes the subregion's outlying areas. This zone is primarily agricultural in nature, but it has significant tourism potential that has yet to be realized. Several rural settlements can be found in this zone, particularly in the northwestern corner. Several rivers run through the area before joining the Vaal River/Dam. Furthermore, the area is dotted with a number of waterbodies. Table 17 describes the general spatial development guidelines for this zone.

Table 17: Spatial Development Guidelines for Agriculture and Tourism Zone (Vaal Dam Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> Commercial farming is fundamental to the economic well-being of the subregion. Agriculture should be promoted (commercial and small-scale). The growth focus should be to retain the status quo on the one hand and on the other to expand farming in alternative production processes. Alternative production such as tunnels, hydroponics, intensive production units, etc. Financial support to assist vetted agricultural entrepreneurs since start-up farming is exceedingly expensive. Agri-processing to be carefully investigated and planned to ensure it meets market demand,

Principle	Spatial Development Guidelines
	<p>especially for commercial farming, because the latter will see to the long-term feasibility of an agri-processing plant. Small-scale farming alone has limited scope to ensure the feasibility and economic sustainability of an agri-processing facility.</p> <ul style="list-style-type: none"> Tourism can occur on commercial farms where accommodation is provided for tourists, this will allow for favourable mixed uses.
Connectivity	<ul style="list-style-type: none"> Road repair and maintenance as a matter of urgency as it impacts access to markets and support services – this includes all order of roads, tarred and gravel. Connectivity is essential in accessing any agro-processing facility and product off-set markets.
Concentration	<ul style="list-style-type: none"> Agri-processing / agri-village to be near Villiers and Frankfort. Strengthen Frankfort as an agricultural support centre. (Note, Frankfort is located outside of the Vaal Dam Sub-Region but it can cater to the agri-processing needs of the sub-region.) Agriculture and agrivoltaics to occur throughout the subregion. Balance between conservation of water resources and agricultural production, these to occur in an interrelated manner.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> Along the Vaal River to afford access to water (water pollution to be resolved as a matter of urgency).
Conservation	<ul style="list-style-type: none"> Agricultural sector must be protected (commercial farming and small-scale production). Commercial production should remain the priority because the area is endowed with high potential agricultural land. Small-scale farming assists in providing for individual livelihoods, but they do not contribute to the production basket of South Africa and the mandate is to retain South Africa's agricultural production status. Keep the rivers, waterbodies, and Vaal Dam pollution free to safeguard human and livestock health.

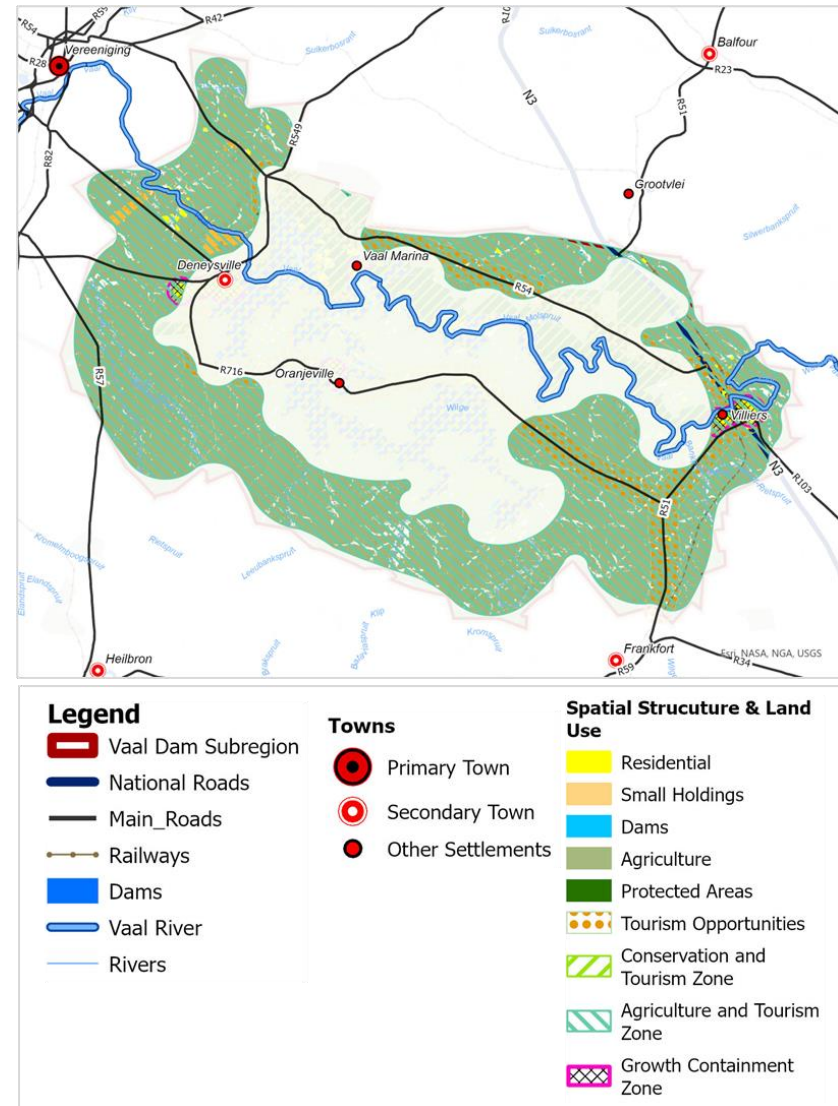


Figure 39: Agriculture and Tourism Zone (Vaal Dam Subregion)

6.3.3: Growth Containment Zone

This zone contains the four major settlements of the subregion, namely Oranjeville, Deneysville, Vaal Marina, and Villiers. On the bank of the Vaal Dam, Oranjeville, Deneysville, and Vaal Marina provide tourism and recreational opportunities. Because of their proximity to the Vaal Dam, these towns are ideal for high-income residential estates. Villiers promotes agricultural activities and provides socio-economic services to the rural community. Because of its location on N3, this town has excellent regional connectivity and therefore should be promoted for agricultural processing, small-scale industrial development and logistics opportunities.

The majority of the subregion's population lives in these settlements. The subregion is expected to experience population growth, particularly within these settlements; it is critical to manage this growth to avoid a negative impact on agricultural areas and the Vaal Dam. While each settlement must be assessed on its own merits in terms of current use and future output, there are some commonalities that should guide the zone's overall development. Table 18 summarizes the key spatial development guidelines for the zone.

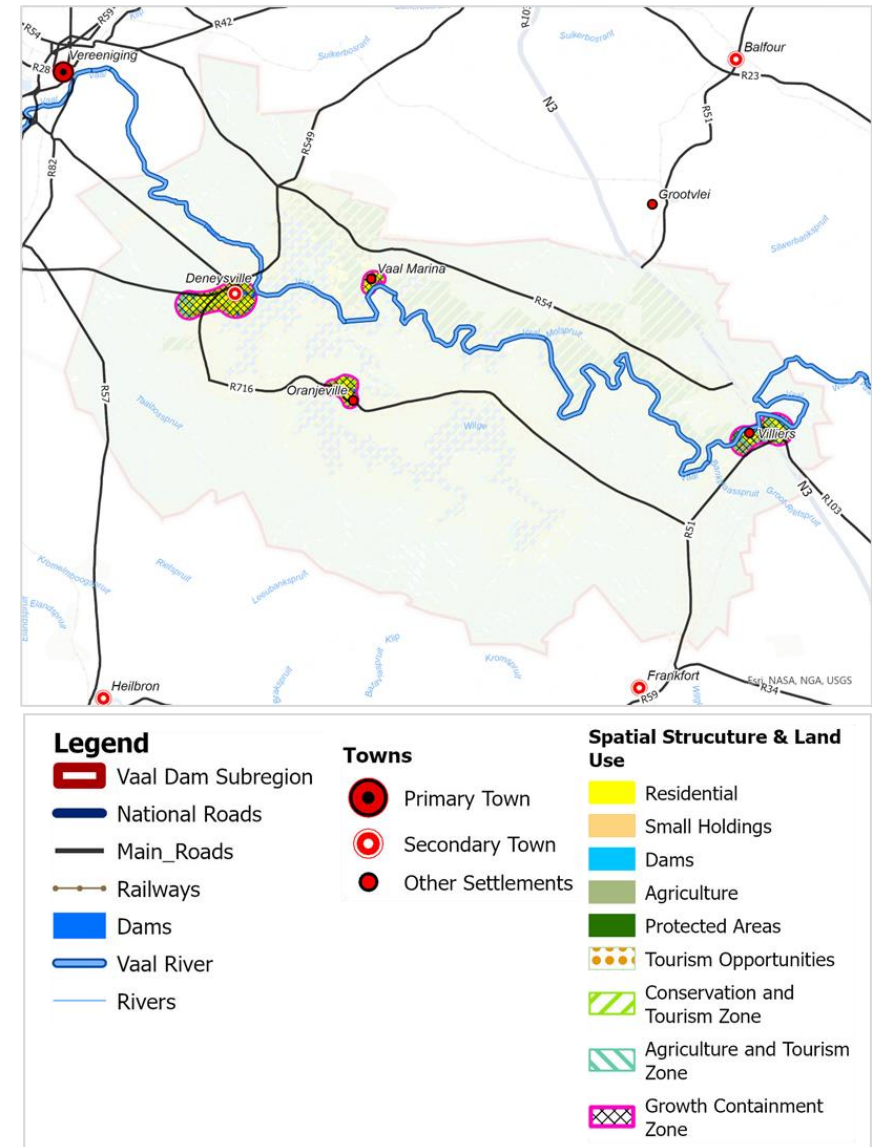


Figure 40: Growth Containment Zone (Vaal Dam Subregion)

Table 18: Spatial Development Guidelines for Growth Containment Zone (Vaal Dam Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Multi-sectoral growth: business (all), residential (all), commercial (all), small scale industrial (Villiers), rural and agricultural support services (Villiers), tourism and recreation (all). • High-income residential growth / estates are a municipal value-add and they further tourism and country living along the Vaal Dam in Ornajeville, Deneysville, and Vaal Marina. • Infrastructure repair and maintenance of all services as a matter of urgency, since the state of services is crippling all existing economic sectors and untapped economic opportunities. • Protect small businesses as much of the towns' sustainability hinge on small businesses. A major intervention would be simply to re-establish standard service provision (water, access, electricity and sanitation).
Connectivity	<ul style="list-style-type: none"> • R54 and R716 are the main routes for people, goods and services – to be continually repaired and maintained. • Retain and strengthen connectivity of zone with N3 and Vaal Urban Core Sub-Region. • Ensure good cellular and ICT connectivity as this enable country-estate living and all towns being regarded as satellite towns from Johannesburg.

Principle	Spatial Development Guidelines
Concentration	<ul style="list-style-type: none"> • Urban development to take place within the urban areas and within their delineated urban development boundaries (Villers, Vaal Marina, Oranjeville & Deneysville). • Densification to be supported in the form of subdivisions and sectional title schemes within existing urban areas. • Strengthen Villiers CBD. • Support tourism development and commercial recreation in all urban centres. • Adapt transit oriented development principles and promote walkability in the towns.
Conservation	<ul style="list-style-type: none"> • Clean the rivers, water bodies, and Vaal Dam as its pungent odour and debris profoundly impacts tourism, commercial recreation and residential development. • Protect estates, country living and tourism in all centres since they are municipal assets. • Identify all existing open spaces and promote a connectivity network.

6.4: Hinterland Subregion



HINTERLAND SUBREGION

The Hinterland constitutes what is known as the secondary study area. This area is very large and rather removed from the primary study area and also has less of a relationship with the Vaal River, which for all intents and purposes is the focus of this project. Since these areas are more remote their impact on any parts of the primary study area is less profound. This by no means renders those towns, areas or places as unimportant, they are just less relevant in this study. Nevertheless, the Development Framework acknowledges their part in the plan and therefore incorporates proposals pertaining to the entire Hinterland. It should be noted that the Municipal SDFs, which have been prepared with care and due diligence be considered as the most relevant spatial planning proposals for those areas. As for the VRRSDF the proposals made in this section are to supplement the MSDF and in no way override or replace the MSDF content and proposals.

The Hinterland covers an area of approximately 26 300km² and stretches from Kroonstad in the south to Ventersdorp in the north and from Heidelberg in the east to Potchefstroom in the west. It includes a magnificent rural region of South Africa which for the most part falls in the Free State and is known for its high agricultural production and vast commercial farms. This region is invaluable for South Africa's agricultural status and must be protected. To the east and west the area sort-of wraps around Gauteng.

The key spatial components of the subregion are:

- ▶ Agricultural Areas
- ▶ Tourism Areas
- ▶ Towns: Kroonstad, Potchefstroom, Ventersdorp, Heidelberg, Viljoenskroon, Koppies, Edenville, Heilbron and Frankfort etc.

Hinterland Subregion

at a glance

Affected Municipalities

Emfuleni, Midvaal, Lesedi (Gauteng), Metsimaholo, Ngwathe, Mafube, Moqhaka (Free State),
JB Marks (North West), Dipaleseng (Mpumalanga)

32 489 sq km
Area

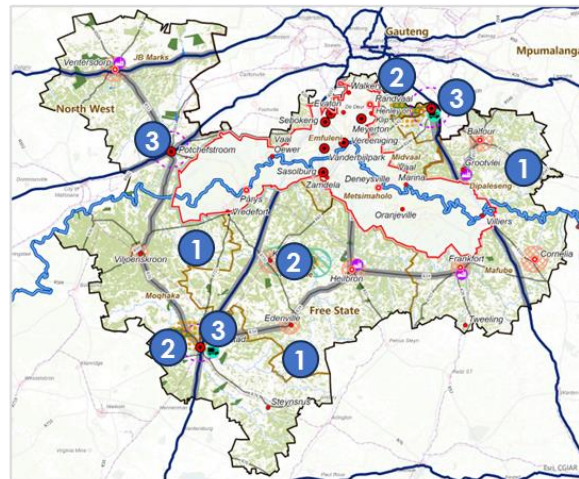
2030: 754 246
2050: 856 127
Estimated Population

Agriculture, Tourism, Manufacturing,
Education, Business and Finance
Key Economic Sectors

Development Opportunities/ Projects

-  Nature, Leisure, and Cultural Tourism
-  Agrivoltaics and Green Energy
-  Crop and Livestock Production
-  Rural and Agric. Business
-  Manufacturing and Industries
-  Commercial and Retail Development
-  Regional Connectivity & Logistics
-  Mining & Mineral Beneficiation
-  Country Estate/ Leisure Housing

Spatial Components



- 1** Agricultural Areas
- 2** Tourism Potential Areas
- 3** Towns (Potchefstroom, Kroonstad, Heidelberg, Frankfort, Balfour, Heilbron, Villiers, Ventersdorp, Viljoenskroon etc.)

Development Challenges

- Scattered Rural Settlements 
- ICT Coverage Gaps 
- Lack of Public Transport 
- Stressed Water Resources 
- Housing and Service Gaps 
- Poor Infrastructure Maintenance 
- Lack of Tertiary Institutions 
- Unemployment & Poverty 
- Climate Change & Disaster Threats 

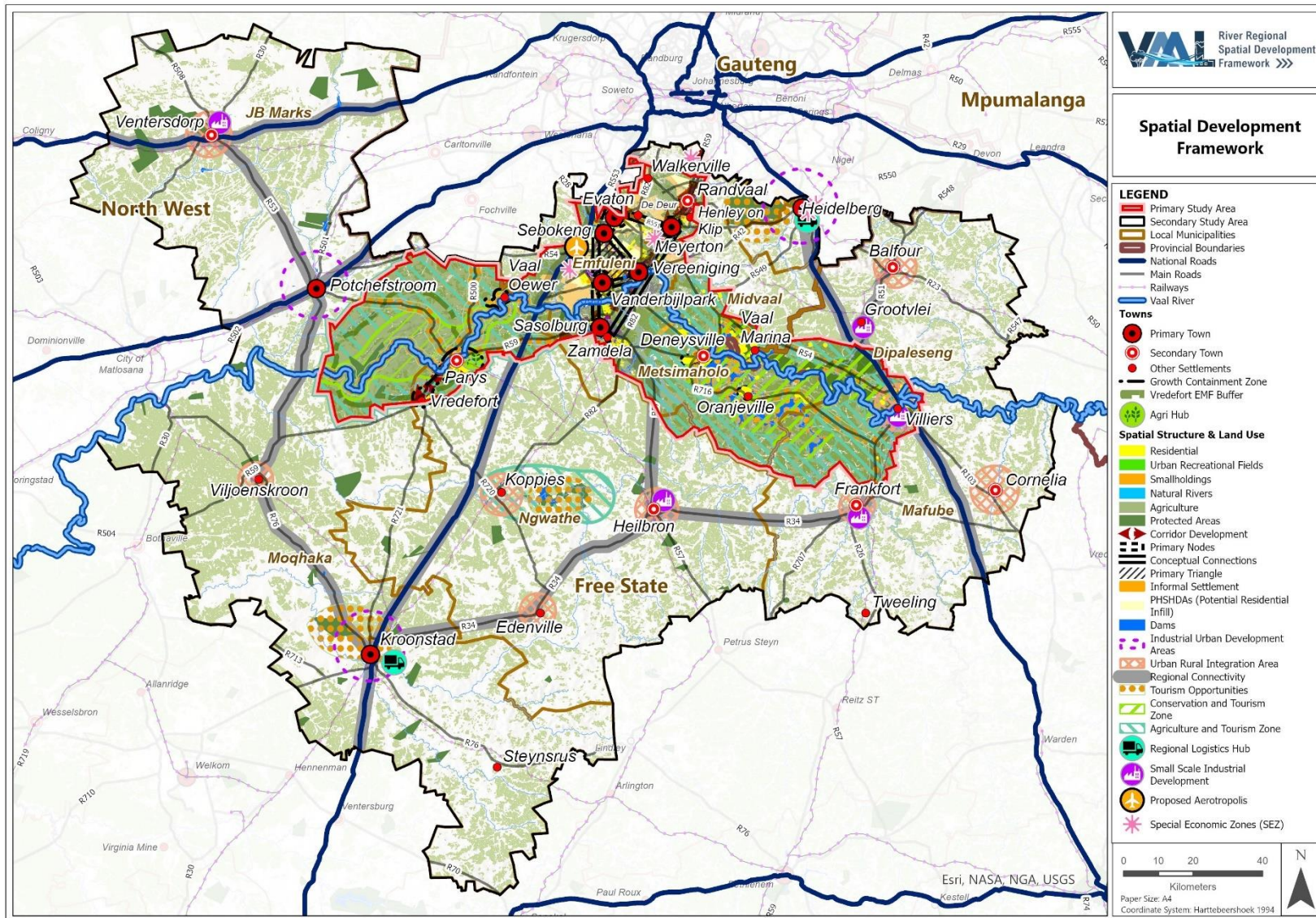


Figure 41: Spatial Development Framework for Hinterland Subregion

6.4.1: Agricultural Areas

The municipalities of the subregion are well known for their production of grain/maize, sheep, and cattle, as well as their contribution to national food security. Much of the subregion is located within the NSDF's National Resource Production Heartland, emphasizing the area's importance in resource production.

The hinterland subregion is primarily agricultural, with high potential agricultural land, the majority of which is productively farmed. These agricultural areas should only be used for agricultural and supporting activities. Small-scale tourism opportunities exist due to the rural composition of agricultural areas, particularly near quality natural features. The agricultural areas are dotted with several well-established agricultural settlements and towns that play critical roles in agricultural product processing and marketing as well as providing socioeconomic facilities to rural communities.

Table 19: Spatial Development Guidelines for Agricultural Areas (Hinterland Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Agriculture should be promoted (commercial and small-scale). • Establish the southern part of the region (Fezile Dabi District) as beef production belt. • The growth focus should be to retain the status quo on the one hand and on the other to expand farming in alternative production processes. • Promote green energy generation and Agrivoltaics. • Promote alternative production techniques such as tunnels, hydroponics, intensive production units, etc. • Provide financial support to assist vetted agricultural entrepreneurs since start-up farming is exceedingly expensive. • Commercial farming is fundamental to the economic well-being of the subregion and South Africa. • Continue mining in the existing mining areas as mining is an important economic sector and employment provider. Expansion of mining activities must be subject strict pollution control and rehabilitation measures.
Connectivity	<ul style="list-style-type: none"> • Consider road repair and maintenance as a matter of urgency as it impacts access to markets

Principle	Spatial Development Guidelines
	<p>and support services – this includes all order of roads, tarred and gravel.</p> <ul style="list-style-type: none"> • Connectivity (rural-rural and rural- urban) is essential in accessing any agri-processing facility and product off-set markets.
Concentration	<ul style="list-style-type: none"> • Agriculture to occur throughout the subregion. • Balance between conservation of the natural environment, tourism, recreation and agricultural production, these to occur in an interrelated manner. • Promote Frankfort as the main Agri-processing hub in the southern part of the subregion.
Conservation	<ul style="list-style-type: none"> • Protect high value agriculture land and utilise it for good use. • Manage competing land uses and limit urban sprawl and other activities to restrict development in agricultural areas. • Commercial production should remain the priority because the area is endowed with high potential agricultural land. Small-scale farming assists in providing for individual livelihoods, but they do not contribute to the production basket of South Africa and the mandate is to retain South Africa's agricultural production status. • Conserve vital water resources (Strategic Water Resource Areas in Moqhaka and JB Marks Municipalities), water bodies, dams, and rivers.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Delineate urban and rural settlement edges and limit settlement sprawl on agricultural lands. • Mitigate the effects of climate change on the agricultural sector. • For mining activities enforce strict pollution controls and rehabilitation parameters to preserve the environment as best possible, especially where water pollution of any water systems are concerned.

6.4.2: Tourism Potential Areas

The hinterland sub-region offers a variety of tourism opportunities, including nature tourism, heritage tourism and fly fishing. The prominent tourist attraction points are Koppies Dam, Suikerbosrand Nature Reserve, and Kroonstad. Apart from these, there are many nature and game reserves located in the sub-region that offer excellent tourism opportunities. Each tourist attraction points must be evaluated on their merits and a regional tourism strategy must be drafted. The public sector should invest in and support tourism and recreational activities to protect the natural areas, grow the economy, and create jobs. The general spatial development guidelines for the tourism areas are presented in Table 20.

Table 20: Spatial Development Guidelines for Tourism Areas (Hinterland Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Clean all waterbodies from pollution. • Tourism and commercial recreation must be promoted and facilitated where opportunities could exist. • Tourism can also occur on commercial farms where accommodation is provided for tourists, this will allow for favourable mixed use. • Areas surrounding Koppies Dam and Suikerbosrand Nature Reserve have well established tourism industries. These tourism areas must be promoted and protected. • A number of historical and heritage buildings and sites are located in Kroonstad and Potchefstroom. These sites must be exploited for promoting tourism activities. • Several nature reserves and game reserves dot the subregion. These sites must be promoted for tourism and recreational activities.
Connectivity	<ul style="list-style-type: none"> • Repair and maintain all regional linkages that afford access to the subregion and its tourism and recreation facilities. • Gravel roads are equally important in providing access to these facilities, which, because of their very nature, have remote locations – repair and maintain continually.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> • Promote cellular and ICT connectivity throughout the area as tourists need to stay in touch with their businesses.
Concentration	<ul style="list-style-type: none"> • Around Koppies Dam, Suikerbosrand Nature Reserve, and Kroonstad and along R82 (Battlefield Route). • Tourism and recreation development will be diverse because of the diverse opportunities that prevail in this subregion.
Conservation	<ul style="list-style-type: none"> • Clean and protect the water sources and waterways, but still allow development as it is the means to give people access to and retain the environment. With no development conservation of privately-owned land is exceedingly difficult. • Developments within critical biodiversity areas and nature reserves must be limited to those that add value to the public realm and local economy while also preserving the vital ecosystem services provided by these areas. • Protect the natural landscapes and conservation areas.

6.4.3: The Towns

The towns in the subregion are Kroonstad (Maokeng), Potchefstroom, Ventersdorp, Heidelberg, Viljoenskroon, Koppies, Edenville, Heilbron, Villiers, Frankfort, Cornelia, Balfour, and Grootvlei. They vary considerably in size, composition, and regional functionality. The various functions of the towns support the NSDF's polycentric notion of development. Kroonstad and Potchefstroom are major and growing urban centres that fulfil important regional roles, while also being support centres for their hinterlands. Kroonstad, being a major rail and road junction, has the potential to become a regional logistics centre. Heidelberg is emerging as an industrial centre and logistics hub with two SEZ sites located there, one of which is planned as a major logistics hub on the N3. Table 21 describes the spatial development principles for the towns.

Table 21: Spatial Development Guidelines for the Towns (Hinterland Subregion)

Principle	Spatial Development Guidelines
Growth Focus	<ul style="list-style-type: none"> • Polycentric and multi-sectoral growth to be promoted. • Infrastructure repair and maintenance of all services, since the state of services is crippling all existing economic sectors and untapped economic opportunities. • Ensure good connectivity is maintained to the major urban centres as these support agriculture and tourism across the secondary region. • Strengthen the urban centres in their rural support function. • Allow urban growth but with a framework of hierarchical development. • Urban residential expansion only around the towns within their urban development boundaries/ urban edges. • Promote Potchefstroom, Kroonstad, and Heidelberg as regional industrial and urban development centres. • Promote small scale industrial development in Ventersdorp, Heilbron, Frankfort, and Grootvlei. • Promote and support new industrialisation initiatives such as Vaal SEZ sites and agrivoltaics industries.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> Promote Kroonstad and Heidelberg as regional logistics centres/hubs. Strengthen all rural towns' functions of assisting farmers (agricultural silos, and processing and marketing of agricultural produce) and providing socioeconomic services to rural dwellers. These cities can be classified as Urban-Rural Integration Areas. Balfour, Villiers, Frankfort, Helibron, Edenville, Cornelia, Koppies, Viljoenskroon, and Vetersdorp are some of these towns. Frankfort has the potential to host an agri-hub catering to the needs of agricultural activities. Continue mining in defined areas as mining is an important economic sector and employment provider. It is also important in sustaining secondary industries which also provide jobs and add to the economic well-being of the Region.
Connectivity	<ul style="list-style-type: none"> All main routes, both road and rail, to be retained for good connectivity for people, goods and services – to be continually repaired and maintained. Retain and strengthen connectivity between major and minor centres and connectivity to the rural areas. Strengthen public transport facilities to ease the movement between the towns and rural settlements.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> Ensure good cellular and ICT connectivity as this enable country-estate living and promote local businesses. Promote connectedness by investigating the feasibility and opportunities of the regional town airports including facilitating business travel to facilitate potential investment activities.
Concentration	<ul style="list-style-type: none"> Urban development to take place within the urban areas and within their delineated urban development boundaries (or boundaries are to be delineated). Densification to be supported in the form of subdivisions and sectional title schemes within existing urban areas. This is valuable in smaller towns, and it saves on the expansion of engineering infrastructure to new townships. Strengthen the urban centres but ensure an appropriate settlement hierarchy as per the NSDF is retained. Commercial and industrial development to be concentrated around the main centres identified under the “growth focus” principle. Support tourism development and commercial recreation in all urban centres and around the water sources and waterways. Encourage heritage tourism associated with the Anglo-Boer war.

Principle	Spatial Development Guidelines
	<ul style="list-style-type: none"> Adapt transit-oriented development principles and promote walkability in the towns.
Conservation	<ul style="list-style-type: none"> Protect the agricultural sector and commercial food production around the towns. Established protected natural areas to conserve birdlife and wildlife. Make every effort to conserve all heritage value in the towns – old houses, old buildings, old factories or mills, etc. Protect the tourism industry. Protect existing businesses and industries. Protect small businesses as much of the towns' sustainability hinge on small businesses. A major intervention would be simply to re-establish standard service provision (water, access, electricity and sanitation). Delineate urban edge for each town and contain development within the delineated edges. For mining activities enforce strict pollution controls and rehabilitation parameters to preserve the environment as best possible, especially where water pollution of any water systems are concerned. Identify all existing open spaces and promote a connectivity network.

6.5: Composite Spatial Development Framework

Figure 42 displays the study area's composite spatial development framework. The composite spatial development framework must be read in conjunction with the previously described subregional spatial development framework and spatial development guidelines.

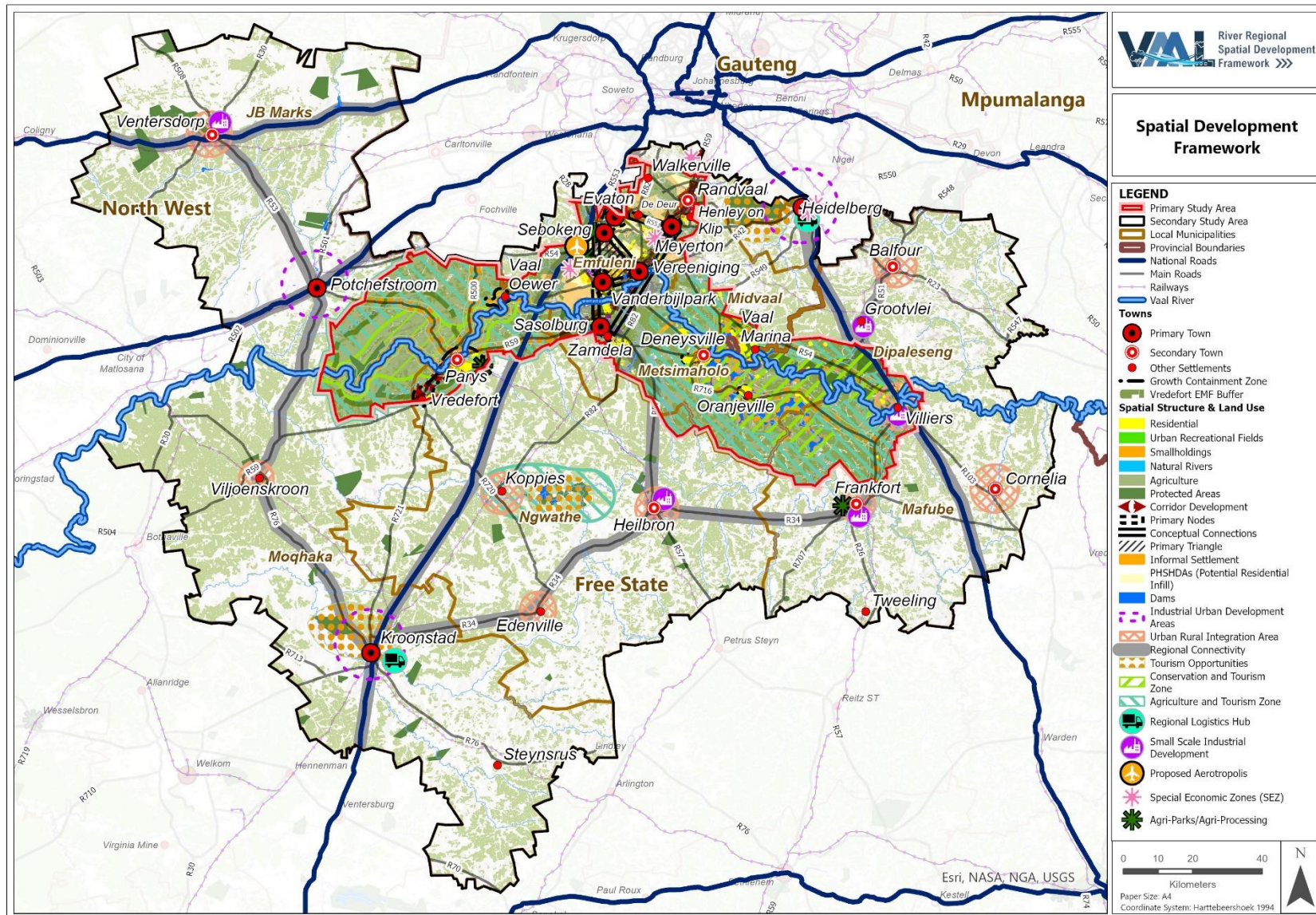


Figure 42: Composite Spatial Development Framework

7: DEVELOPMENT STRATEGIES AND IMPLEMENTATION PROPOSALS

Following from the foregone development Vision and Objectives, and supported by the Development Framework, Development Strategies and Implementation Proposals have been formulated for each of the Development Objectives. This section therefore comprises five subsections one for each Objective, which is further developed to define its content and intended output.

7.1: Objective 1: INFRASTRUCTURE: To Repair, Maintain and Expand Infrastructure



Objective 1: INFRASTRUCTURE

Improved economic growth, welfare, quality of life and human productivity all depend on the availability of infrastructure services including housing, electricity, water, sanitation, roads and railways. Economic opportunities are produced by offering well-

planned and managed infrastructure. And so, the efficiency of a Region's economy is negatively impacted by a lack of and decline in basic services. Thus, good infrastructure contributes to both growth in economic activity and an improvement in living standards for those who have to partake in the economic system. Furthermore, basic services are the cornerstone of a better quality of life and basic human dignity. Appropriate supplies of potable water and sanitary conditions are necessary for one's well-being and for this reason access to essential services like electricity, water, sanitation, and garbage is considered a basic human right.

This section, therefore, seeks to outline the infrastructure strategies to address the Vaal River Region's infrastructure challenges. The following development strategies were identified:

7.1.1: Sub-objective 1: Strengthen Connectivity and Movement Systems in the Region

The Region's movement system consists of roads, rail, and air transport. The mostly used mode of transport in the Region is road transport for commuting, followed by the rail transport which has limited access mainly used for freight. There are also several airfields in the region which are mostly used for freight. The Region's Road network is made up of national, provincial, and local roads, which provide essential links between various towns including the country's major urban centres such as Johannesburg, eThekweni, and Mangaung.

The regional economy amongst others relies on roads and railway infrastructure for connectivity and movement of goods and people. The high-order movement network must always be in good working order to facilitate the movement of people, goods, and services. Transportation infrastructure should enhance regional connectivity and ensure accessibility and mobility within the Region. The ensuing section describes the strategies and proposals for the strengthening of connectivity and transport network. It is essential that the recommendations of Green Transport Strategy prepared by the Department of Transport are followed to implement the proposals.

7.1.1.1: Roads and Corridors

Road Network

The area is well connected with a system of radial linkages emanating from Gauteng urban concentration. The major road network in the region is listed below and shown on Figure 43: Transport Network in the Region :



- Primary Network: National and certain provincial routes (N1, N3, N12, N14, R59, R42/Parts of K174 and K184, R551, R553/K45,) providing inter-regional connectivity and linking the major urban centres.
- Secondary Network: Certain provincial roads connecting the smaller urban centres with larger ones (R501/part of K140, R76, R54/K178, R549/Part of K83 & K135, R82/K57, R57, R34, R720, R721, R26, R716, R26, R76, R550, R53).

- Tertiary Network: All other roads providing local connectivity.

PWVs 18, 20, and 22 will improve east-west connectivity in the future, while PWVs 1, 5, and 13 will improve north-south connectivity. Because the exact date of construction of these roads cannot be determined at this time, the VRRSDF proposals are based on the existing road network.

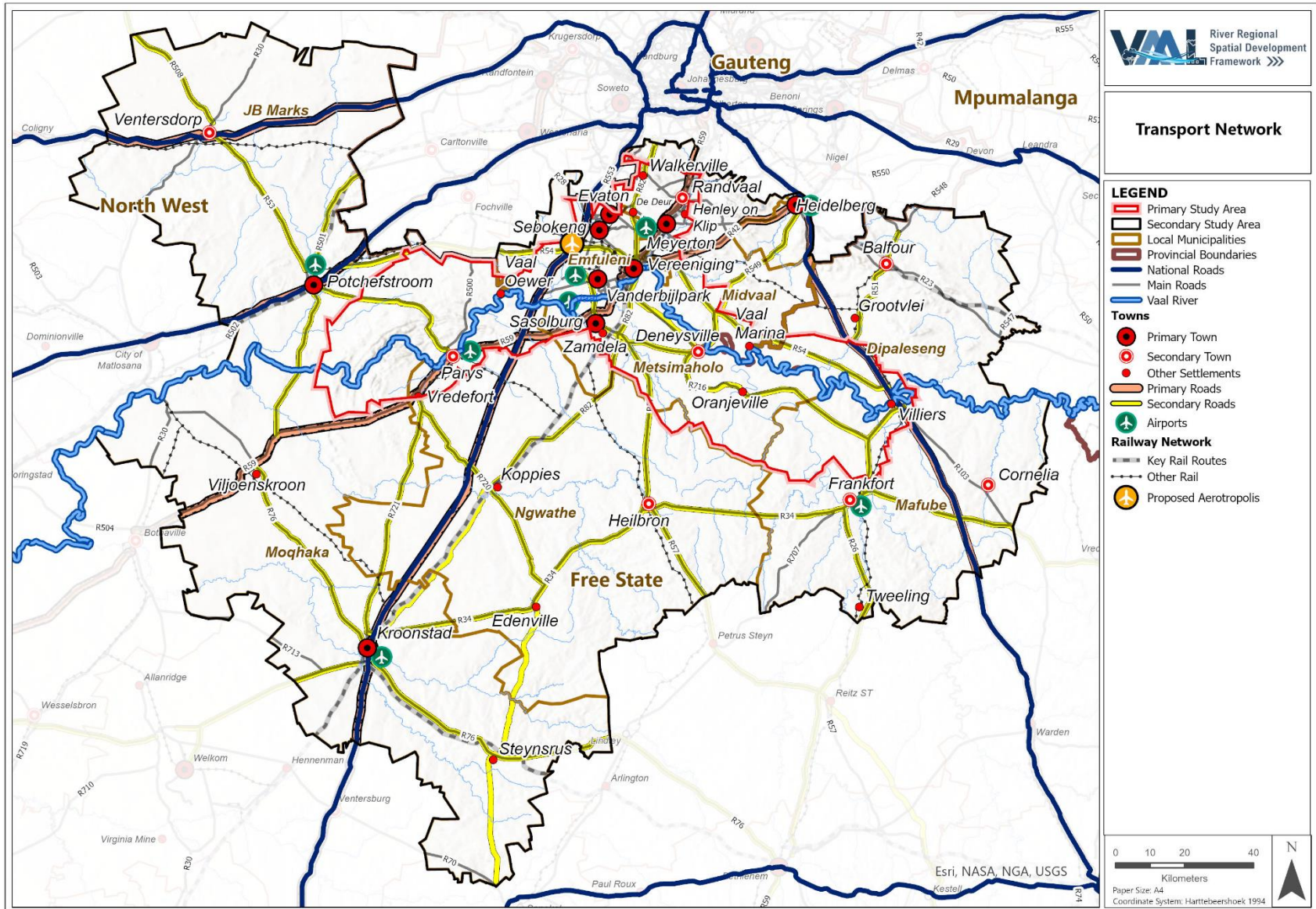


Figure 43: Transport Network in the Region

Development Corridors (DC)

Development Corridors are envisioned as transportation routes connecting major economic nodes. They provide vital links between economic nodes or hubs and an opportunity to connect those economic development nodes with their hinterlands and rural areas, integrating smaller and rural economies with larger urban economies and developing the area through which they pass. Land-use and transportation integration are important components of development corridors.

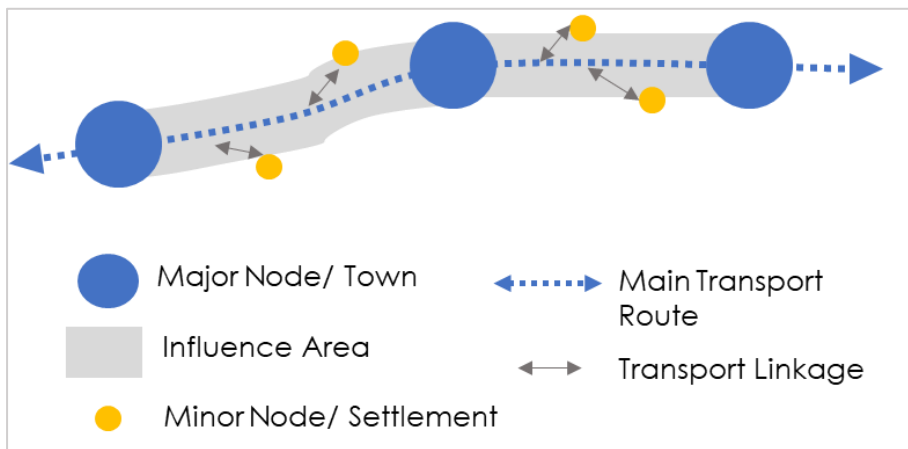


Figure 44: Corridor Development Concept

Development Corridors can serve several purposes, including promoting efficient movement of people and goods (Mobility Corridor), industrial and economic development along the main transportation network (Economic Development Corridor), faster movement of agricultural products and rural services (Rural Development Corridor), and tourism promotion by connecting

tourism nodes with urban centres (Tourism Corridor). Depending on the nature of the nodes it connects and the characteristics of the area it traverses, a corridor may serve a single or multiple functions.

The following Development Corridors are proposed in the region:

- ▶ **DC1- N3 Mobility and Economic Development Corridor:** This corridor runs through the Region's eastern portion and connects to seaports in Richards Bay and Durban. At present, this corridor primarily works as a mobility corridor. In the NSDF, this corridor is identified as a National Development Corridor, capable of stimulating economic activities. This corridor has the potential to boost economic development in the Region's east while also providing excellent connectivity to Johannesburg and eThekweni.

- ▶ **DC2- N1-Golden Highway Mobility and Rural Development Corridor:** This corridor facilitates agricultural products, goods and people movement and connects the region to Johannesburg, Bloemfontein, and the seaports of East London, Gqeberha, and Cape Town. Furthermore, this corridor connects Kroonstad to the Region's major economic centres. This corridor also covers the Golden Highway (R553/K45) and R57 route which connects Sasolburg with Johannesburg. This corridor allows Sebokeng residents to commute to economic centres in the Region and Gauteng. A significant portion of this corridor parallels the

N1 corridor. This corridor provides linkages to the Vaal SEZ located in Emfuleni Local Municipality.

- ▶ **DC3- N12 Mobility Corridor:** This corridor passes through Potchefstroom, facilitates goods and people movement and connects the Region's western part with Johannesburg and Kimberley.
- ▶ **DC4- N14 Mobility Corridor:** This corridor, which runs through Ventersdorp, facilitates the movement of goods and people and connects the Region's northwestern part with Johannesburg and various towns in the Northern Cape.
- ▶ **DC5- R59 Economic Development and Tourism Corridor:** This is an important corridor that connects major urban centres in the Region and tourism nodes in Parys and Vredefort. The western section of the corridor (from R76 in Viljoenskroon to R57 in Sasolburg) connects tourism nodes and rural areas near Vredefort, Viljoenskroon, and Parys. The eastern portion of the corridor (from east of R57 in Sasolburg) passes through some of the Region's major economic hotspots and connects the major urban centres (Sasolburg, Vereeniging, and Meyerton) with Johannesburg. This corridor provides linkages to the Vaal SEZ located in Midvaal Local Municipality. The development of this corridor is prioritised in the Sedibeng Growth and Development Strategy 3.

DC6- R42 Economic Development and Tourism Corridor

(parts of K174 and K184): This corridor provides excellent east-west connectivity in Region, connecting Heidelberg in the east to N1 in the west while passing through Vanderbijlpark and Vereeniging's economic centres. The upcoming Vaal River City is located on this corridor. This corridor connects the Vaal SEZ located in Lesedi Local Municipality with the rest of the Region. The Lesedi SDF identifies this road as a major activity spine towards the east of Heidelberg. This corridor also has significant tourism potential as it connects the Suikerbosrand Nature Reserve with Heidelberg and provides linkages with Vaal Dam. The Sedibeng Growth and Development Strategy 3 has proposed to prioritise the development of the R42 corridor.

- ▶ **DC7- R82 Tourism and Mobility Corridor (parts of K61 and K57):** This corridor begins in Koppies, a popular tourist destination, continues through Vereeniging, and ends in Johannesburg. This corridor will play an important role in providing mobility in the future, as the towns/settlements along it, such as Lakeside, Walkerville, De Deur, and Balmoral Estate, are expected to see significant population growth. Similar to R59 and R42, this corridor is considered for priority development in the Sedibeng Growth and Development Strategy 3.

- ▶ **DC8- R501, R76, R34 Rural Development Corridor:** This corridor provides critical east-west linkage in the southern part of the Region and links small and agricultural towns (Frankfort, Helobron, Edenville, Viljoenskroon) with regional anchors (Kroonstad and Potchefstroom) and national network (N1, N3, and N12). This corridor can play an important role in moving agriculture products and services from the rural areas to urban areas.

Critical Linkage Corridors

Critical linkage corridors are roads that connect development corridors to important towns that are not part of the development corridors. Although critical linkage corridors are not as important as development corridors, they are expected to play an important role in strengthening efficient connectivity throughout the region. The corridors that ensures that there is rural-urban linkage include DC1, DC2, DC5, CL3, CL4, and CL8. In the region, the following critical linkage corridors are proposed:

- ▶ **CL1-R51:** This corridor connects Balfour and Grootvlei to the N3 corridor.
- ▶ **CL2-R551 (part of K174):** This corridor connects Meyerton to R42, which connects to Heidelberg.
- ▶ **CL3-R53:** This corridor connects Ventersdorp and Potchefstroom.
- ▶ **CL4-R57:** This route connects Heilbron to Sasolburg and DC7.
- ▶ **CL5-R720:** This route connects DC5 and Vredefort to DC2, and Edenville.
- ▶ **CL6:** This corridor connects DC8, Frankfort, and Cornelia. A part of this route is currently a gravel road.
- ▶ **CL7-R76:** This corridor connects DC2, DC8, and Kroonstad with Steynrus.
- ▶ **CL8- R54:** This corridor passes through the Region and connects Potchefstroom in the west to Villiers in the east. This corridor also connects to tourism nodes in Vaal Marnia and Deneysville, enables the movement agricultural products.

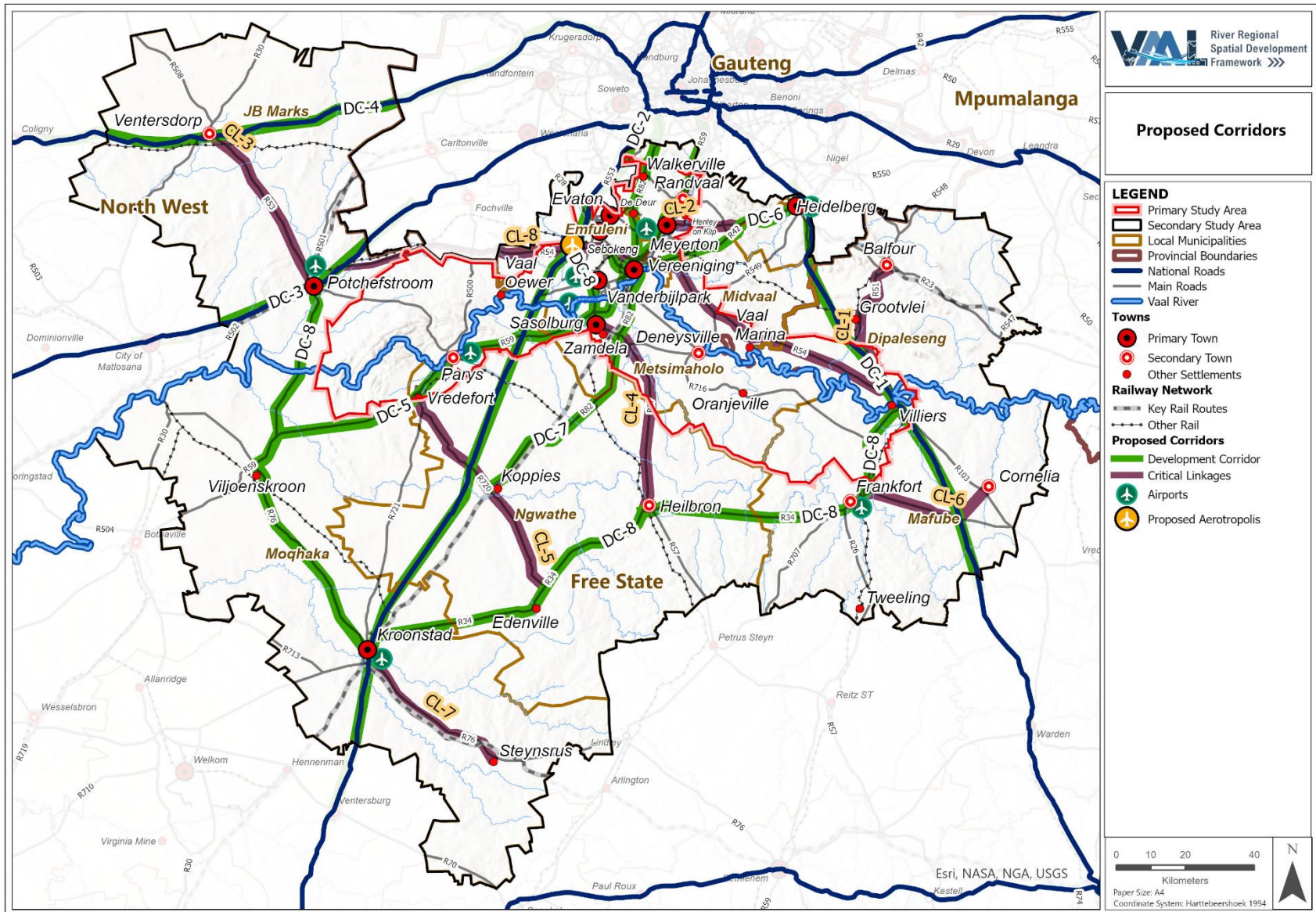


Figure 45: Proposed Development and Critical Linkage Corridors

Road Conditions Improvement

- ▶ Repair and maintain existing roads throughout the Vaal River Region (Viljoenskroon, Kroonstad, Steynsrus, Frankort, Villiers, Cornelia, Tweeling). Most of the roads have severe potholes and other road hazards which make travelling dangerous and slow.
- ▶ Upgrade/ strengthen key regional corridors and roads: R59, R42, R551, R54, R34, R82, R51, R76, R501, R53 & R549
- ▶ Tar gravel roads to improve access and stormwater management. These roads include:
 - Road linking Greater Tweeling with Heilbron (\$1430).
 - Road linking Sasolburg and Heilbron (as an extension on R723).
 - Road linking Cornelia and Frankort (between R34 and R103).
 - Road linking Tweeling and Mafahlaneng (\$1410).
 - Road linking Oranjeville with Heilbron (\$158).
 - Road linking Oranjeville with Frankfort (\$159). These roads play a significant role in linking the agricultural hinterland with the urban area.
 - Evaton, Sebokeng, Sharpeville and Boipatong gravel roads.
 - R82 phase 3 (between D1073 (Walkerville) and K164 (De Deur))
 -
- ▶ Institute good stormwater management including attenuation and institute existing infrastructure repair and maintenance.
- ▶ Develop new roads in new extensions throughout the Region to ensure accessibility. Some of these areas include Frankort Ext 9, Villiers, Cornelia, Tweeling, Viljoenskroon, Kroonstad and Steynsrus.
- ▶ Upgrade Road S163 between Heilbron and Koppies and improve access to Koppies Dam Nature Reserve.
- ▶ Update of Roads and transportation Master Planning and ensure all areas have recently approved (by local, provincial and national roads authorities) roads transport Master Planning available.
- ▶ Develop the following roads:
 - Construct Sebe Road in Evaton
 - Extension of William Nicol Road up to Barrage Road
 - Extension of Piet Retief Boulevard (link with Hendrik Van Eck Place Boulevard)
 - Construct access road to the western portions of Kwakwatsi (onto Station Street)
 - Construct a road connecting Kwakwatsi to the Koppies urban area.
 - Construct a road(s) connecting the Greenland's Road to the Thambo and Mapetla precincts.
 - Upgrade access roads to Zamdela.

7.1.1.2: Railway

Freight Rail

The freight rail network in the region is well-developed. The Region has a good availability of rail network. The region falls into two freight rail infrastructure zones (see Figure 46). The Gauteng Freight Ring and Central Core Zone covers the majority of the Region and connects to Gauteng, North West, Mpumalanga (Maputo Corridor), Limpopo (Northern System), and ports in the Western Cape and Eastern Cape via the Western and Southern Cape System and the Eastern and Central Port System, respectively. The Coal line, NATCOR, and Eastern port system covers the region's southern side, connecting to coal-producing areas in Mpumalanga and eastern ports in Durban and Richards Bay. Given the region's strategic location and the presence of industrial activities, the rail network will play an important role in the region's development.

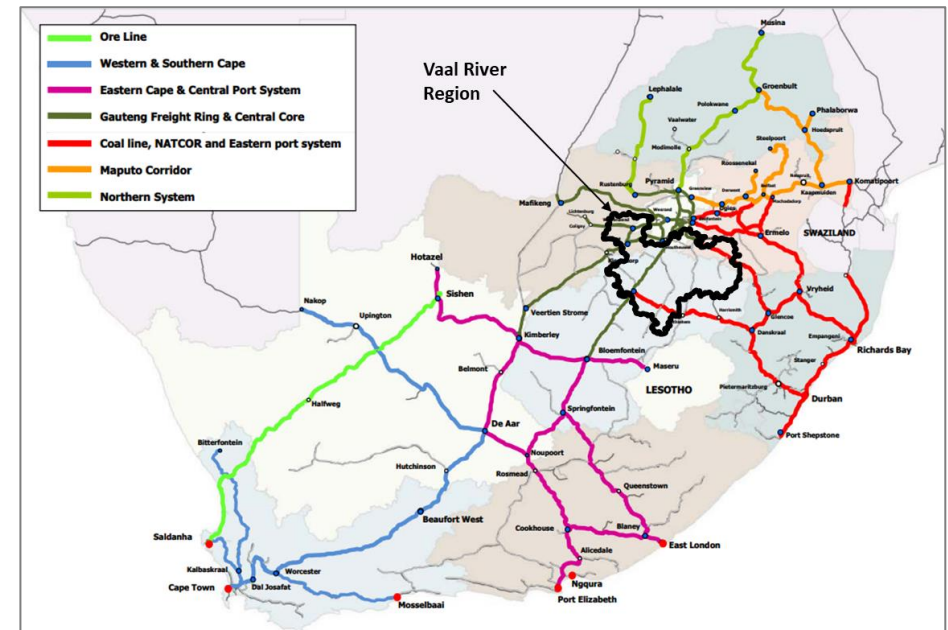


Figure 46: Regional Freight Rail Network

It is worth noting that the country's rail network is underutilized, and many rail lines are in poor condition. For example, the rail network to Parys is non-functional. Minor rail lines in the region, such as the one connecting Parys, face uncertain futures. They can, however, play an important role in local development, particularly in rural development and agricultural exports. As a result, the Region must take steps to ensure that the rail network's future existence and use contribute to the local economy.

Commuter Rail

Rail system is the least used mode of transport in the region for commuting. Gauteng Metrorail, the only commuter rail system in the region, connects Meyerton and Vereeniging with Johannesburg. The existence and use of this railway line must be protected because it will contribute to the region's local economic development and will facilitate passenger movement between the region and the rest of Gauteng. It is also necessary to investigate the feasibility of expanding Metrorail services to other towns in the region. Simultaneously, in order to attract more commuters, the safety and facilities of major rail stations should be improved.

Rapid Rail and Highspeed Rail

The current population of the region does not support a rapid rail transit system (similar to Gautrain). However, the development of a new rapid rail transit system or the expansion of the existing Gautrain network to connect the Vaal Urban Core (Sasolburg, Sebokeng, Vanderbijlpark, Vereeniging, and Meyerton) with Gauteng's major urban centres should be investigated in the future.

To facilitate rapid regional passenger movement, the National Rail Policy White Paper, 2022 proposes developing regional rapid rail transit connecting the country's major urban centres. Gauteng-Bloemfontein has the potential to be a regional rapid transit route, according to the White Paper. Though the route's

alignment has not yet been determined, it is proposed that it pass through the Vaal Urban Core and Kroonstad, allowing for rapid regional passenger movement. The White Paper also suggests building a high-speed rail network to connect major metropolitan areas. The routes of the high-speed rail network have yet to be identified, but the region should piggyback on any rail development projects that may pass through the region.

7.1.1.3: Public Transport

The most dominant form of public transport in the region is taxi/minibuses followed by buses. Rail and air transport are the least used forms of transport which are mainly used for freight. There is a need for maintaining and upgrading various taxi ranks in the region since this is the most dominant form of public transport in the region:



- ▶ Upgrade taxi routes in the Relebohile area, R42 and R549 linking Ratanda and Heidelberg,
- ▶ Maintain Meyerton Station (major modal transfer point), with the construction of a pedestrian bridge over the R59 freeway linking Sicelo with the station.
- ▶ Informal taxi ranks that should be formalised to improve taxi services include Sarafina, Lusaka / Kanana, Ikageng, Mohadin, Namahadi, Frankfort, Tumahole.
- ▶ Upgrade the existing formal taxi ranks including Sentra / Zio pick-up point, Checkers Centre, Mokwallo,

Matlwangtlwang, Refengkgotso, Qalabotjha, Ntswanatsatsi, Mafahlaneng, Tweeling.

- ▶ Construction of taxi ranks in Mamello (Extension 23), Phomolong (Extension 8), entrance of Zamdela, Sasolburg CBD, Harry Gwala, Parys, Edenville, Frankfort CBD, Fredefort CBD, Vanderbijlpark (Erven 112 and 165), Vereeniging, Bedworthpark, Evaton, Three River, Boitumelo.
- ▶ Upgrade bus stations in Rammulotsi, Viljoenskroon, Vanderbijlpark, Vereeniging, Bedworthpark, Evaton, Three River, and Boitumelo.
- ▶ Develop and strengthen non-motorised transport network and corridors within the major towns and settlements.

7.1.1.4: Airports

There are eight airfields in the Region, namely the Vanderbijlpark Airport, Aeroaal (Vereeniging), Tedderfield Airfield, Heidelberg Airport, Potchefstroom Airport, Frankfort Airfield, Kroonstad Airfield, Koppies Airfield, Parys Airfield, and Heilbron Airport.

- ▶ Kroonstad airfield has potential of being a national freight hub and dry harbour facility due its location (close to N1). This could be explored.
- ▶ Parys airfield supports tourism and commercial development. It also has a quick link to N1 via R59.
- ▶ Heilbron airfield is considered a small airport and can only serve one aircraft at a time.

- ▶ Frankfort airfield is currently well-maintained and could also be explored for freight services given its proximity to the N3 and Heidelberg's SEZ.
- ▶ Emfuleni Local Municipality has proposed an aerotropolis (Vaal Aerotropolis) which will serve as a regional airport with logistics handling facilities.

7.1.2: Sub-objective 2: Improve Municipal Services and Infrastructure in the Region

Infrastructure plays a critical role in supporting various aspects of modern societies, economies, and human well-being. As discussed earlier, the region's population is expected to grow over time, even though the growth in the Region's municipalities and settlements will be uneven. Several towns within the region are expected to experience high to extreme growth pressure such as Sasolburg, Potchefstroom, Meyerton, Heidelberg, and several smaller settlements in Lesedi and Midvaal. This, therefore, imply that Capital Infrastructure Investment should mainly focus on these towns to ensure that the infrastructure is not overburdened over time due to the increasing demand, thus leading to infrastructure backlogs.



Regular maintenance will be of significance to ensure that the existing infrastructure cater services within its appropriate capacity. Furthermore, where lack of capacity has been identified, urgent upgrading and improvement in both water-

supply and sanitation infrastructure will be required to ensure improved access to water and sanitation throughout the region. However, infrastructure development should not only focus on the towns that are expected to expand significantly over time, while neglecting other settlements that also lack such services at present. To make sure that no areas are marginalized within the region in terms of service delivery despite their size the following approaches are proposed:

7.1.2.1: Improvement of Access to Water

Safe and sufficient drinking water and adequate sanitation are essential to ensure the health and well-being of humans and, they are necessary for economic development (Pérez et al., 2022). According to the Blue Drop Report (2022), most of the Water Supply Systems within the region are ranging from high-risk to critical risk ratings, indicating insufficient treatment capacity to supply current and future requirements. The challenges of water supply in the region vary from frequent burst due to ageing infrastructure, asbestos pipes for bulk supply, distribution losses, poor water quality and reliance on water tankers. The capacity of WTWs is a major challenge in Dipaleseng, Lesedi, and Midvaal Local Municipality. While ageing infrastructure and asbestos pipes are a major challenge in JB Marks, Mafube, Ngwathe, Metsimaholo, Moqhaka, Lesedi, and Midvaal Local Municipality. Moqhaka and Dipaleseng Municipality are faced with the raw water shortage.



It is, therefore, proposed that the existing Water Supply Systems be upgraded to meet the Blue Drop status requirement. Furthermore, considering the anticipated high to extreme growth pressure in several towns within the region over time, it is important to note that there is a need for improving and upgrading the capacity of the water supply systems in the population growth areas. The following approaches are proposed to improve the access to water supply in the region:

- ▶ Provision of water-supply infrastructure to areas that currently do not have such services including Namahadi, Calabutsha, Cornelia, Tweeling, Tedderfield (north), Sonlandpark, Parys, Koppies, Vredefort, Edenville, Heilbron and Naledi new extension.
- ▶ Establish a regular maintenance and repair program to ensure the proper functioning of water-supply infrastructure that would minimise disruptions, and prolong the lifespan of the facilities. Areas that have been identified to be most problematic in terms of water capacity include Sicelo area, Henley-on-Klip, Blignautsrus, Ohenumuri, Kookrus, Homestead Apple Orchards, Walkers Fruit Farms, Daleside, Golf View, Potchefstroom, the eastern parts of Riversdale, urban areas and along routes R59 and R82, Steynsrus/ Matlwangtlwang.
- ▶ Prioritisation of rainwater harvesting by piloting a programme that ensures all schools have Jojo Tanks for consumption, gardening, and cleaning.
- ▶ The re-use of wastewater (grey water), such as from dishwashing or washing machines, for non-potable

purposes such as flushing toilets, washing cars or watering gardens, reduces the demand for new and fresh water supplies.

- ▶ Implementing policies that support the provision of reliable and safe water-supply services, such as the Region's Water Services Development Plan.

7.1.2.2: Improvement of Access to Sanitation

Basic sanitation services involve the provision of a basic facility that is easily accessible to households and which can be operated sustainably.

According to the Green Drop National Report (2022), most of the WWTWs within the region fall

under high to critical risk categories (see Figure 47). This implies that these WWTWs are functioning beyond or will soon exceed their Design Capacity Utilisation. The challenges of sanitation in the region vary from frequent poor sewer reticulation, asbestos pipes, ageing sewer lines and pump stations leading to pipe bursts and sewer spillages. The capacity of WWTWs is a major challenge in all the municipalities. While ageing infrastructure, pump stations and asbestos pipes are a major challenge in JB Marks, Mafube, Ngwathe, Metsimaholo, Moqhaka, Lesedi, Emfuleni, and Midvaal Local Municipality. These, therefore, require urgent upgrading and refurbishment.

Furthermore, given the anticipated high to extreme growth pressure in several towns (Sasolburg, Potchefstroom, Meyerton, Heidelberg, and several smaller settlements in Lesedi and Midvaal) within the region over time, it is important to maintain,



improve, and upgrade the capacity of the WWTWs to make sure that they always function within the green drop requirement status. The WWTWs that fall within the population growth areas currently show to have low risk, but because there is an anticipated population growth over time, these are likely to be over-burdened. It is, therefore, proposed that these should be regularly maintained to ensure that they always operate within their required capacity. It is also essential to provide alternative power backup for the WWTWs, to make sure that these operate during load shedding. Proper maintenance of WWTWs will also ensure that the effluent is treated before being discharged into the Vaal River including several other rivers that deposit into the Vaal River. It is also important to note that if the WWTWs that falls outside the Vaal Region in the neighbouring eastern side have the potential of polluting the river if they are not well maintained. The following approaches are proposed to improve the access to sanitation in the region:

- ▶ Upgrading and rehabilitating the WWTWs in the Region including Cornelia, Tweeling, Villiers, Frankort, Rietspruit, Leeuwkuil, Kroonstad, Sebokeng, Meyerton, Ohenimuri, Heidelberg, Eye of Africa, Bantu Bonke, Vaal Marina and Ratanda. This will prevent breakdowns and ensure optimal performance. Sufficient resources should be allocated to ensure continued maintenance and repair works on all infrastructure.
- ▶ Improving the existing sewer pump stations, which are currently in a poor state, comprising Heineken Pump

Station, Roshnee/Rust-ter-Vaal, Ewelme Street, Evaton, Molotlegi Street, Botha and Mooidraai extension.

- ▶ Constructing bulk sewer pipeline networks to new extensions and other areas that lack such services which include Sonlandpark, Namahadi, Cornelia, Tweeling, Calabutsha, Themba Khubeka extension, and Naledi new extension.
- ▶ Establishing a management programme and schedule for regular maintenance and construction of new infrastructure to duly address blockages, burst pipes and sewer spillages.
- ▶ In areas where conventional sewer systems are not feasible, promote alternative sanitation solutions such as ventilated pit latrines, composting toilets or decentralized wastewater treatment systems. Engage local communities in the planning and implementation of these solutions. Also consider developing on-site treatment plants (approved by DFFE) so that sewage spillage can be controlled and managed to keep the river free from pollution
- ▶ There is also a proposed regional wastewater treatment plant (Sedibeng Regional Sewer Scheme) which is aimed at addressing the sewer problems of the Sedibeng District Municipality and its LMs namely Midvaal, Emfuleni and Lesedi. However, it should be noted that this project is currently facing various issues and should be made a priority to ensure its complete implementation.

7.1.2.3: Stormwater Management

The Vaal region is a flood bound area, with flood hazard index ranging from low to high. The vast majority of the region is attributed by medium flood hazard index, followed by medium-to-high and high flood hazard index covering small pockets around Balfour, Grootvlei, and southern part of Heilbron. Furthermore, the urban areas within the region are susceptible to flooding due to the impermeable surfaces and poor maintenance of drainage infrastructure. This implies that there is a possibility of flood hazard occurrences in the region. Therefore, there is a need to ensure stormwater management in the region including improving, expanding, and maintaining the existing stormwater drainage infrastructure and ensuring proper delineation and management 1:100-year flood-lines. Human settlement and hard construction should be prohibited inside flood lines. Residents of any existing residential developments that are within 1:100 flood lines must be made aware of potential flood threats as per Section 144 of National Water Act and they should be urged to relocate to safe areas.

7.1.3: Sub-objective 3: Improve and Expand Electricity Supply

The availability of electricity can considerably improve people's quality of life. Access to electricity could promote regional economic growth in addition to a range of other social benefits. The region and the surroundings comprise



of thirty-three transmission substations where most of them are rated to have available capacity, while a few have limited and no capacity. The substations that have available capacity include Bernina, Westgate, Taunus, Olympus, Princess, Rigi, Etna, Makalu, Lomond, Kookfotein, Lulamisa, Caighall, Fordsburg, Prospect, Kwagga, Jupiter, Eiger, Snowdown, Lepini, Sebenza, Croydon, Thuso, Brenner, Pieterboth, and Nevis. While transmission substations with limited capacity include Scaffell, Esselen, Njala, and Benburg. The substations with no capacity comprise Hera, Glockner, and Minerva.

Most of the substations that fall within the region are rated as having available capacity including Olympus, Rigi, Makalu, Kookfotein, and Snowdown. There is only one substation that fall within the region that is rated as having no capacity being the Glockner substation. It is, therefore, proposed that the Glocker substation be upgraded.

The Vaal River Region can improve access to electricity through the following approaches:

- ▶ Upgrading existing substations and constructing new substations to accommodate new developments (Meyerton, Sonlandpark, Makou, Balfour, Greylingstad, area south of Ikageng / N12, etc.).
- ▶ Expanding electrification in rural areas and areas that do not have electricity such as Mamello, Sicelo, new developments along the R59 and R82, and Northleigh Extension in Rammulotsi.

- ▶ Municipalities are encouraged to address the issue of illegal electricity connections to avoid loss of revenue, thus municipalities' ability to pay Eskom.
- ▶ The Region should focus on providing alternative energy sources to households without access to electricity, such as small photovoltaic systems (such as a 50w system), gel fuel stoves, solar cookers, hot bags (for cooking), LP gas, small wind turbines, biogas digesters, and more effective and sustainable wood-fuel use.
- ▶ Planned housing developments should install solar panels to relieve pressure on grid supply.

Renewable Energy

Globally, renewable energy is a significant resource that can meet from the smallest to the largest needs for fuels, heat, and power in a sustainable manner (Twidell, 2021). The Vaal Region has potential for renewable energy even though it is limited. As mentioned earlier, South Africa currently has 11 gazetted Renewable Energy Development Zones (REDZ) where wind and solar power generation can occur in concentrated areas. The western part of the Vaal River Region (Vredefort dome area) is part of the Klerksdorp Renewable Energy Development Zone (REDZ 10), where large-scale solar photovoltaic energy facilities could be established. However, it is essential to note that the REDZ10 overlaps with the Vredefort Dome, a world heritage site and high-potential agricultural areas. Therefore, a balanced

approach will be required to benefit from the REDZ while protecting natural and heritage resources.

Furthermore, opportunities for renewable energy in the region are not only limited to solar power energy since the Vaal Dam also has hydropower potential. However, based on the assessment that was undertaken, it was discovered that the Vaal Dam could generate 6 megawatts which is low and would not be able to meet the country's growing power demand (Schroeder et al., 2021). Rand Water has recently proposed a hydropower plant with a capacity of 740 kW which will help Rand Water become self-sustainable and surplus power will be supplied to ESKOM. In addition to the above renewable energy development opportunities, the various Vaal SEZ sites and implementing agrivoltaics can help providing wider energy security for the region. However, before implementing renewable energy projects, energy audits and efficiency principles must be applied to determine optimal demand.

7.1.4: Sub-objective4: Improve ICT Infrastructure

In today's digital world and to participate in the Fourth Industrial Revolution, digital connectivity has become essential. South Africa has one of the lowest levels of digital connectivity among the BRICS countries. While mobile networks cover the vast majority

of South Africa, optic fibre and broadband connections do not. Most ICT infrastructure is installed and operated by private companies. It is unknown whether a comprehensive dataset demonstrating the availability and quality of ICT infrastructure in the Region's towns and villages exists.



The NDP supports the nationwide rollout of broadband as a means of creating a more inclusive and equitable information society and knowledge economy. It is well known that the availability of high-speed internet infrastructure is negligible in rural and small-town areas, preventing them from participating in the digital movement. To ensure equitable growth throughout the region Municipalities and government agencies should incentivise and encourage companies to expand their ICT networks in the small towns and rural areas. The various Vaal SEZ sites can be used to assist as a catalyst for delivery ICT infrastructure in the region.

It is important to note that in order to conserve the environment, natural resources, and ecosystems, any infrastructure expansion project must be evaluated in light of current environmental and biophysical conditions, sensitive environments, and places designated for future protection and conservation.

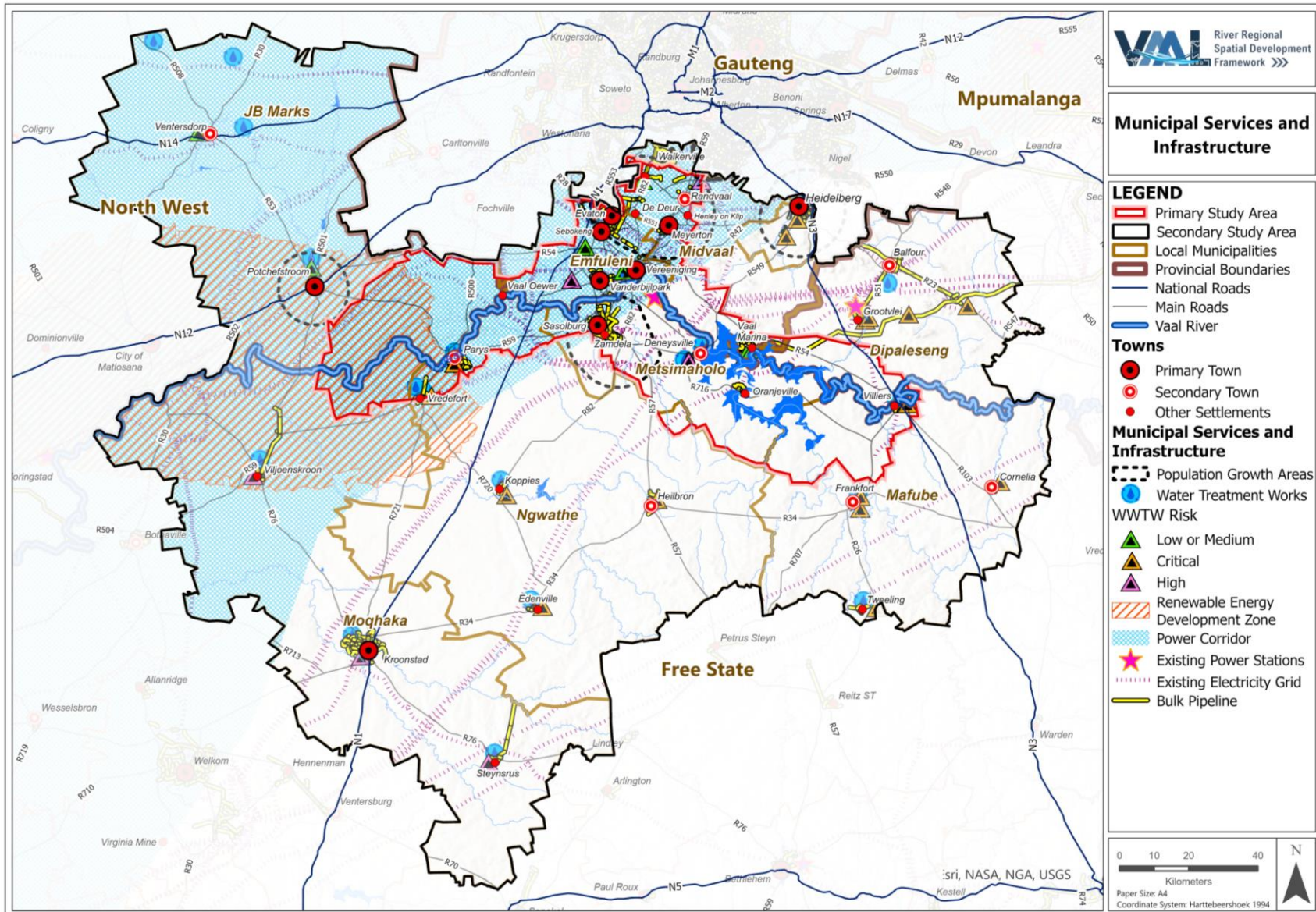


Figure 47: Municipal Services and Infrastructure

7.1.5: Implementation Action Plan

Table 22: Implementation Action Plan: Infrastructure Development and Maintenance.

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Sub-objective 1: Strengthen Connectivity and Movement Systems					
Strengthen/ upgrade key regional corridors: R59, R42, R551, R54, R34, R82, R51, R76, R501, R53 & R549.	High		2030	Municipalities	Provincial Department of Road and Transport
Develop or review transport sector plans of municipalities with due consideration of development corridor proposals and prepare a comprehensive roads and transport masterplan	High		2030	Department of Transport	of Municipalities
Construction and upgrading of public transport infrastructure in the region (taxi ranks, bus stations/stops).	High		2030	Municipalities	Department of Transport
Undertake a feasibility study to determine the necessity of a multi-modal logistics hub that can support the SEZs and other industrial activities.	High		2030	Municipalities	Department of Transport
Construct, improve, upgrade, and maintain the railway infrastructure throughout the region.	High	Entire region	2030	PRASA	
Upgrading of airfields in the region for commercial, tourism and freight services.	Medium	Kroonstad, Parys, Heilbron, and Frankort	2050	Aviation	Department of Transport
Sub-objective 2: Improve Municipal Services and Infrastructure					

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
<p>Improve access to water by:</p> <ul style="list-style-type: none"> Expand water supply infrastructure to new extensions and areas that do not have these services. Establishing a regular maintenance and repair program (annually). Implementing monitoring program. Developing a reporting system. 	High	<p>Bulk Water Pipeline network: Namahadi, Calabutsha, Balfour (Siyathemba), Cornelia, Tweeling, Eikenhof, Tedderfield (north), Sonlandpark, Parys, Koppies, Vredefort, Edenville, Heilbron and Naledi new extension.</p> <p>Improve WTW Capacity: Balfour (Fortuna), Sicelo area, Henley-on-Klip, Blignautsrus, Ohenumuri, Kookrus, Homestead Apple Orchards, Walkers Fruit Farms, Daleside, Golf View, Potchefstroom, the eastern parts of Riversdale, urban areas and along routes R59 and R82, Steynsrus/ Matlwangtlwang.</p>	2030	Municipalities	DWS, Rand Water

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
<p>Improve access to sanitation:</p> <ul style="list-style-type: none"> • Upgrade and rehabilitate WWTWs. • Improve and maintain existing sewer pump stations. • Construct bulk sewer pipeline networks to new extensions. • Promote alternative sanitation solutions such as pit latrines, composting toilets, or decentralized wastewater treatment systems (in areas where conventional sewer systems are not feasible). • Establishing a regular maintenance and repair program (annually). • Establishing a regular maintenance and repair program. • Implementing monitoring program. • Developing a reporting system. 	High	<p>WWTWs: Cornelia, Tweeling, Villiers, Frankort, Rietspruit, Leeuwkuil, Kroonstad, Sebokeng, Meyerton, Ohenimuri, Heidelberg, Eye of Africa, Bantu Bonke, Vaal Marina, Ratanda</p> <p>Sewer Pumpstations: Heineken Pump Station, Roshnee/Rust-ter-Vaal, Ewelme Street, Evaton, Molotlegi Street, Botha and Moidraai extension</p> <p>Sewer Pipeline network: Sonlandpark, Namahadi, Cornelia, Tweeling, Calabutsha, Themba Khubeka extension, and Naledi new extension.</p>	2030	Municipalities, ERWAT	DWS

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Upgrade existing substations and constructing new substations to accommodate new developments.	High	Meyerton, Sonlandpark, Makou, Balfour, Greylingstad, area south of Ikageng / N12, and Glockner substation.	2030	Municipalities	ESKOM
Sub-objective 3: Improve and Expand Electricity Supply					
Expand electrification in rural areas and areas that do not have electricity.	High	Mamello, Sicelo, new developments along the R59 and R82, and Northleigh Extension in Rammulotsi.	2030	Municipalities	ESKOM
Get rid of illegal electricity connections.	High	Entire project area.	2025	Municipalities	ESKOM
Provide alternative energy sources (renewable energy) to households without access to electricity: <ul style="list-style-type: none"> • Install small photovoltaic systems. • Install small wind turbines. • Construct hydropower plant. • Explore use biogas digesters. • Encourage effective and sustainable wood-fuel use. • Encourage Agrivoltaics 	Medium	Entire project area.	2030	Municipalities	ESKOM, Rand Water
Sub-objective 4: Improve ICT Infrastructure					

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Rollout highspeed internet connectivity throughout the Region.	Medium	Entire project area.	2025	Fibre network companies,	Municipalities, Department of Communications and Digital Technologies
Incentivise and encourage companies to roll out highspeed internet connectivity in the small towns and rural areas.	Medium	Entire project area.	2025	Municipalities	Department of Communications and Digital Technologies

7.2: Objective 2: THE RIVER: To Restore and Protect the Vaal River and its Tributaries



Objective 2: THE RIVER

The Vaal River supports approximately 60% of the country's economy and 45% of its population. Despite the River's critical role in supporting the country's economy and population, the river faces serious challenges. According to a report by the South African Human Rights Commission, the Vaal River is severely polluted, and the levels of contamination have reached a critical point. The report also stated that the Vaal River's water is not suitable for human consumption or recreational activities (Mnguni, 2022), which is supported by the recent finding of cholera in the water. The severe levels of pollution have serious impacts on the environment, aquatic life, human health and economic activities such as agriculture, fishing, recreation and tourism.

The dire state of the Vaal River calls for concerted efforts from all stakeholders to restore the health of the River and mitigate the pollution problems by implementing stricter regulations, augmenting the capacities of the existing wastewater treatment facilities and developing new wastewater treatment facilities. The Region also faces challenges related to the collection of wastewater, storm water collection and management – a lot of water is 'lost' because of poor storm water collection and management, leaking pipes, and failing infrastructure.

It is important to acknowledge the limited water availability while planning for the future. To ensure the Region's long-term sustainability, all future development should use water sparingly, promote water conservation, recycle, and reuse wastewater, and ensure the quality of discharged water.

7.2.1: Sub-objective 1: Keep the River Free from Pollution

Pollution is one the biggest concerns for the Vaal River. The Vaal River and its tributaries are the ultimate recipients of untreated or poorly treated wastewater from towns, settlements, and mines. As a result of population growth more pressure is placed on wastewater infrastructure resulting in a dysfunctional system comprising leaking sewer pipes, and under capacitated pump stations and wastewater treatment plants (WWTW). In addition,



raw sewage from informal settlements reaches the Vaal River thereby increasing the level of water pollution.

Both structural and non-structural measures are required to keep the rivers in the Region pollution free. The structural measures include:

- Connecting all settlements to sewer networks,
- Developing sufficient wastewater treatment capacities,
- Eliminating spillage of sewage,
- Separating the stormwater network from the sewage network,
- Maintenance of sewer network, pumpstations and WWTWs.
- Preventing solid waste to enter water bodies.

It is to be noted that the structural measures required to prevent pollution are covered under Objective 1: Infrastructure Development.

Non-structural measures required to keep the rivers pollution free include the following:

- ▶ **Promoting sustainable agriculture practices:** Agriculture is one of the Region's most important economic sectors. Adopting sustainable agricultural practices by promoting the use of responsible fertilisers and pesticides, adopting soil control erosion techniques, and promoting conservation tillage methods can reduce the amount of

harmful chemicals and nutrients being discharged to the river system. At the same time, climate-smart agricultural practices that increase resilience and reduce vulnerability to climate change must be promoted. Using drought-tolerant crops; improving water management through efficient irrigation techniques; implementing soil conservation measures; and implementing agroforestry practices are some examples. It is important to educate farmers about sustainable and climate resilient agriculture techniques to reduce water consumption, water pollution, and climate change vulnerabilities. The national and provincial departments of Agriculture should take the lead in promoting sustainable and climate resilient agricultural practices. It may be pertinent to mention DALRRD's LandCare program has similar objectives and promotion of sustainable agriculture practices can be implemented through this program.

- ▶ **Raising community awareness:** Raising community awareness for water pollution issues is an effective way for the public to learn about pollution issues and their impact and know their roles in preventing water pollution and monitoring their local water resources. The Department of Water and Sanitation (DWS) annually organises its 'Clear Rivers' campaign to raise community awareness about the impact of pollution into water resources. This program could be expanded to the various parts of the study area and sustained over a longer duration with the help of the municipalities and NGOs.

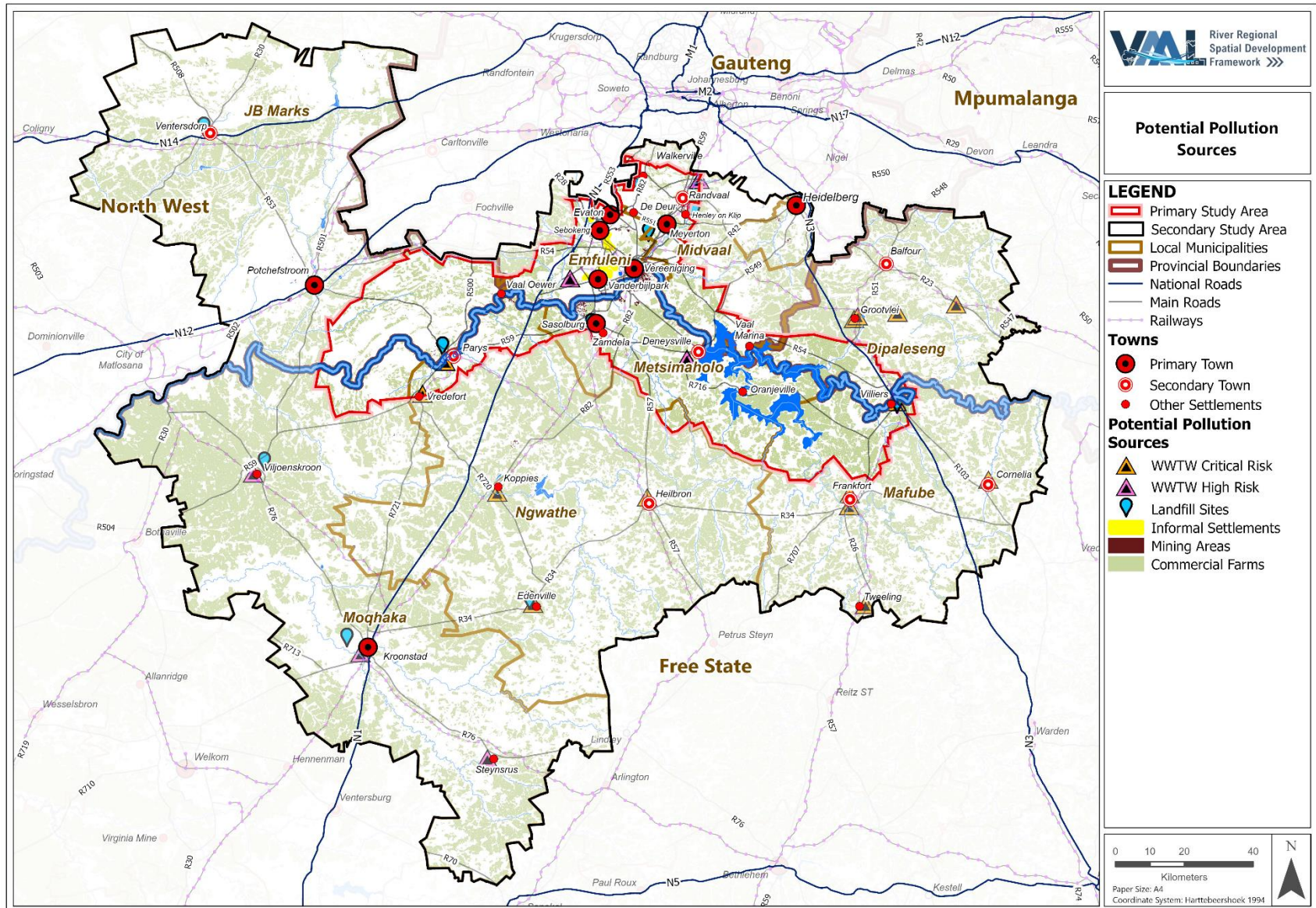


Figure 48: Potential Water Pollution Sources

7.2.2: Sub-objective 2: Ensure Water Availability in the Vaal River System

The population and economic activities of the delineated Vaal River Region and areas that draw water from the Vaal River will continue to grow, resulting in ever growing demand for water resources. As the water balance in the Vaal River is already disturbed/ out of balance/ in distress, the future demand for water needs to be met by reducing demand and sourcing water from other sources. The key interventions required to ensure long-term water supply are provided in the following section.



(a) Conserve Water and Manage Water Demand

Due to the large population and economy the Vaal River Region supports, it is important to maintain a positive water balance in the river system. Innovative water conservation, demand-management measures and strict regulatory mechanisms can potentially reduce water wastage and improve water availability in the river system.

The importance of implementing water conservation (WC) and water demand-management (WDM) measures have also been highlighted in the draft National Water Resources Strategy 3 (NWRS-3). The NWRS-3 puts forward the following proposals for implementing WC/WDM:

- ▶ Obtain and monitor WC/WDM plans from all water management, and water and sanitation services institutions.
- ▶ Promote appropriate measures to influence the reduction in water wastage and ensure compulsory metering and billing.
- ▶ Ensure that the water-users associations and end users understand the need to modernise their water conveyance systems and irrigation equipment.
- ▶ Drive the reduction of physical leakage as part of the WC/WDM programmes through improved regulation and compliance.
- ▶ Encourage water management and services institutions to use the latest technologies in water release and distribution systems.
- ▶ Encourage all water-service authorities to submit monthly water balances so as to assist in monitoring the state of non-revenue water.

The DWS (then Department of Water and Forestry) identified several WC/WDM measures in the report titled “*Potential Savings through WC/WDM in the Upper and Middle Vaal Water Management Areas*” (2006). In it measures are provided for the key water-user sectors viz. industry, power, mining, irrigation and urban(municipal). In 2008, SALGA prepared a framework for water conservation and water demand management for use by municipalities. The DWS recently published WC/WDM implementation guidelines for the mining sector. However, similar

WC/WDM guidelines and frameworks have not been found for the industrial, power generation, and agriculture sectors.

It is suggested the DWS prepare WC/WDM measures and update old WC/WDM measures for the Vaal River Region and the water service authorities, water service providers, and major water users such as Rand Water, municipalities, Midvaal Water, Sedibeng Water, ESKOM, industries, mines and agricultural users to follow the WC/WDM measures. It is worth noting that, City of Tshwane has put forward an ambitious plan to reduce water requirements by using recycled water, and Rand Water has pledged to cap the water requirements at 1600 Ml/d (Project 1600). Stakeholders must take appropriate measures and provide all possible supports to ensure the success of these initiatives. Proper implementation of WC/WDM measures and other initiatives, discussed below, would help maintain a positive water balance in the Vaal River system (see Figure 49).

(b) Diversify Water Mix

Wastewater Recycling: In the absence of viable alternative water-supply options and considering the ever-growing demand for water, it is suggested that wastewater be recycled to reduce the load on the Vaal River. Properly treated wastewater could be used for industrial, power generation and several other purposes. A proportion of this wastewater, after treating, must be released into the Vaal River to ensure enough water is available for environmental services and to meet the needs of downstream users. Properly treated wastewater would help keep pollution at

levels acceptable for downstream agriculture and meet other downstream needs.

Mine Desalination and Use of AMD: The presence of many old mine voids in the Region contributes to the generation of acid mine drainage (AMD). AMD carries metals and mineral salts and cannot be used if not properly treated. Treated AMD can be used for industrial purposes or be released into local streams to increase water availability in those rivers and the Vaal River. This, however, would require high capital and operating expenditures. A detailed study would be required to establish the actual benefits of such an initiative before starting to treat AMD.

Ground Water Utilisation: Approximately 27% of recharged groundwater is suitable for human consumption, but the estimated groundwater use in the Vaal WMA is less than 5% of the recharge from rainfall. This indicates that groundwater is available for future development in the Vaal WMA. Despite the availability of groundwater in the region, its extraction may cause sinkholes and property damage in areas with dolomite and weak soils (Muller & Maree, 2019). In addition, groundwater use will reduce base flow by the amount used and reduce the availability of water for ecological services; excessive groundwater use may eventually lead to resource depletion. It is suggested that DWS and municipalities conduct local investigations to identify potential groundwater sources and monitor the availability of groundwater from these sources on a periodic basis to eliminate overuse.

Rainwater Harvesting: Rainwater harvesting is a valuable component of a water management strategy and can contribute to the water security of households (Borja-Vega/The World Bank, 2020). The rainwater harvesting technique may involve the collection and storage of rainwater for immediate or future use from rooftops or other surfaces. Municipalities can play a significant role in encouraging rainwater harvesting and improving its implementation in numerous ways. Utilising government subsidies as incentives can promote the installation of rainwater harvesting systems and increase the number of users, especially among low-income households. Municipalities may also consider offering property rate rebates to buildings with rainwater collection systems.

(c) Inter-basin Water Transfer

The existing water balance in the Vaal River system is almost at balance. The system will not be able to meet future demand even if all the proposals mentioned above are implemented. However, there are proposals and plans to transfer water from Polihali Dam located in the Lesotho Highlands (LHWP Phase 2 project) to the Vaal River. If all proposals are implemented and water is supplied from the Polihali Dam, the Vaal River will be able to meet the demand until 2046 (Department of Water and Sanitation, 2020). The LHWP Phase 2 project has been delayed by a few years and is expected to supply water to the Vaal River by 2025. This project should be given utmost priority by all stakeholders to ensure water security for the Vaal River Region and the economic heartland of the country. Even after LHWP2 has been completed, it will be

necessary to continue monitoring the Vaal River's water availability, and planning the future actions required to maintain water security. There are still opportunities to increase water availability by sourcing water from uThukela River. Sourcing water from uThukela River (uThukela Water Project/ TWP) will become necessary after 2045 (see Figure 49).

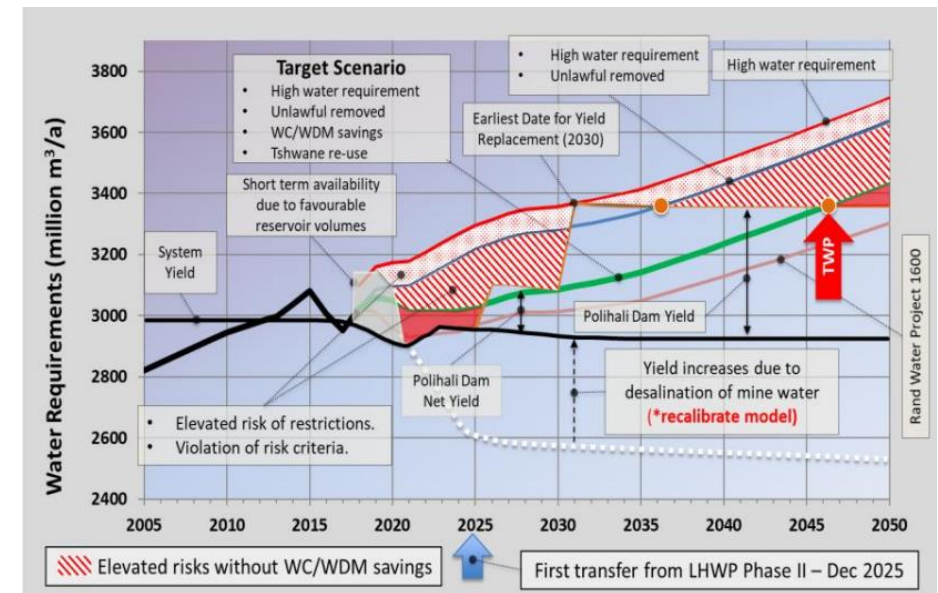


Figure 49: Water Availability Scenarios in the Vaal River System (Integrated Vaal River System)

Source: Department of Water and Sanitation, 2020

7.2.3: Sub-objective 3: Restore the Vaal River and its Tributaries

The condition of the Vaal River and its tributaries is in a dire state owing, but not limited to, rapid urbanisation, over-exploitation of water resources and water pollution. The over exploitation of water resources and pollution of the River have unintended consequences on the health of the river system and environmental sustainability. The key proposals for restoring the River's health are discussed below:



7.2.3.1: Channel Stabilisation and Erosion Control

To avoid obstructions and manage flow, rivers must be cleansed of debris, excess sediment, and invasive species. Flow management may include channel realignment as well as the construction of dams, weirs, or levees to regulate water levels and velocity. Furthermore, bank stabilisation and vegetation control are essential for preventing excessive erosion or sedimentation. Implementing land use, development, and water use policies and recommendations can help prevent activities that cause river channel instability and erosion, such as deforestation, urbanisation, and mining. It is advised that comprehensive research be conducted to determine the health of rivers and riverbanks and adopt appropriate corrective actions.

7.2.3.2: Restore Health of Wetlands

Wetlands are natural filters that remove pollutants and improve water quality. Restoring wetlands can aid in nutrient-load reduction, biodiversity enhancement, and overall ecosystem health. Most of the wetlands in the project area are either endangered or in critically endangered conditions. It is therefore recommended that the wetlands must be restored to their health by developing restoration plans and engaging with relevant communities and stakeholders. The process of restoration of wetlands may also involve controlling invasive species, promoting wildlife, re-establishing natural waterflows, controlling nutrient flow and eutrophication, and introducing native plants and wildlife.

7.2.3.3: Maintain Aquatic Impact Buffer Zone along Rivers and Wetlands

Aquatic buffer zones can be seen as barriers between human activities and sensitive water resources to protect them from adverse negative impacts. Aquatic impact buffer zones typically include a riparian zone of native plants along the water body and a strip of terrestrial vegetation zone separating the riparian zone from human activities. Aquatic impact buffer zones can help maintain basic aquatic processes, reduce impacts on water resources from upstream activities and adjoining land uses, and provide habitat for aquatic, semi-aquatic, and terrestrial species (Macfarlane & Bredin, 2017), and bank stabilisation.

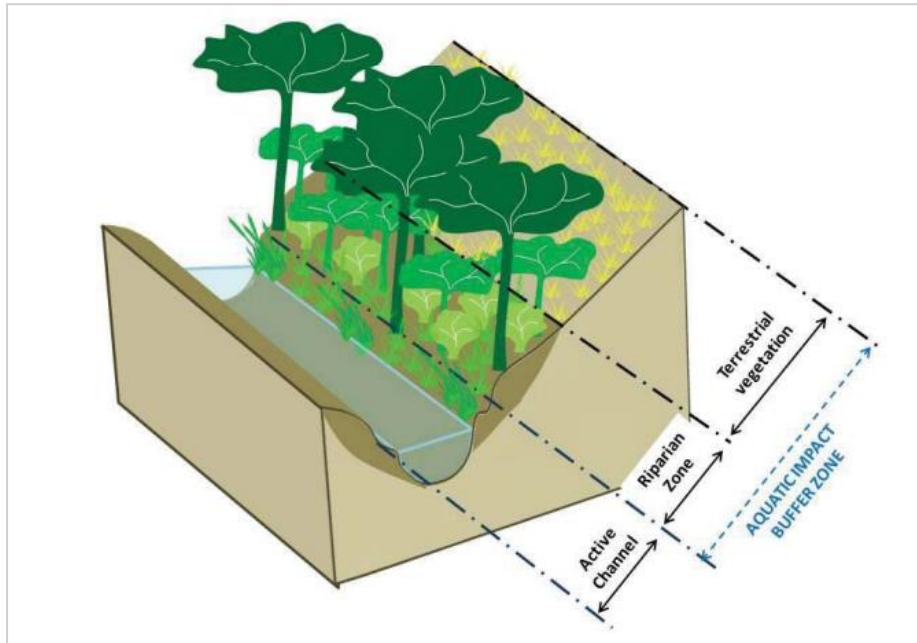


Figure 50: Aquatic Impact Buffer Zone

Source: Macfarlane & Bredin, 2017 (Water Research Commission)

The Gauteng C Plan recommends maintaining a buffer of 100m along the Vaal River in non-urban areas and 32 m in urban areas. The Vaal River Complex Regional Structure Plan of 1996 recommends maintaining a 100-m buffer along the Vaal River and its tributaries (Riet Spruit, Klip River, Suiker-bosrant River, Wilge River, Taibos Spruit, and Leeuw Spruit,) and not allowing buildings, structures, and caravan parking within 100m of the river base line.

The 100m buffer may not be suitable for all areas. Hence, the municipalities, in collaboration with the Department of Forestry,

Fisheries, and the Environment (DFFE) and the Department of Water and Sanitation (DWS), should demarcate the aquatic buffer zones and define suitable management measures to maintain buffer functions in their environmental protection plans and policies, spatial development frameworks, and or land use schemes. The management measures should be developed after reviewing the need to integrate protection requirements with social and development imperatives. The municipalities, DFFE and DWS should undertake periodic monitoring of buffer zones and ensure that they are implemented and maintained effectively (Macfarlane & Bredin, 2017).



Figure 51: Vaal River with Riparian Vegetation (photo taken at Vaal Oewer)

7.2.3.4: Community Education and Awareness

No river restoration project can succeed without the active support of communities. Municipalities, DWS, DFFE and NGOs should raise awareness among local communities about the importance of the river system and their role in its restoration. It is necessary to educate them about sustainable water use, pollution prevention and the benefits of a healthy river ecosystem. Further, community participation should be encouraged in monitoring the health of the ecosystem and implementing restoration initiatives.

7.2.3.5: Monitoring and Adaptive Management

It is necessary to establish a comprehensive monitoring program to track the progress of restoration efforts and assess the effectiveness of different interventions. DWS, DFFE, and municipalities should regularly review the data collected and adjust management strategies accordingly. This adaptive approach ensures that restoration efforts are evidence-based and can be modified as needed.

7.2.4: Sub-objective 4: Conservation of Natural Resources

The study area is blessed with natural and heritage resources of varying nature and type. The resources must be conserved and exploited sustainably so that they can persist for future generations. Conservation of natural resources specifically, rivers, wetlands, and natural vegetation will help increasing resilience and adaptability to the effects of climate change. The following section describes the proposals relevant to this theme.



7.2.4.1: Conserve Surface Water Resources and Wetlands

The major surface water resources in the study area are the Vaal River, its tributaries, dams and wetlands. The previous sections provide a number of proposals to restore these resources.

7.2.4.2: Conserve Strategic Water Source Areas

Five strategic water source areas (SWSA) partly or fully fall within the secondary study area (in JB Marks and Moqhaka municipalities). These SWSAs have a high groundwater recharge rate, and the groundwater resource is of national importance. Therefore, it is paramount to preserve the quality and quantity of groundwater in these SWSAs, as degradation of either can have far-reaching consequences. The quantity and quality of groundwater are affected by pollution and surface hardening that prevents infiltration. It is, therefore, important to ensure that

these areas are free of any large-scale hard surfaces, such as urban and industrial development, and any development that can impact the aquifers, such as mining and shale gas extraction activities. JB Marks and Moqhaka municipalities should strictly consider any development applications that fall within the SWSAs. Any plans for development in these areas must account for the infiltration of rainwater to allow for recharge. It is suggested that permeable pavements to be promoted in these regions. It is to be noted the South African Guidelines for Sustainable Drainage System, prepared by Water Research Commission, provide guidelines for permeable pavements.

The Department of Water and Sanitation (DWS), together with the Department of Forestry, Fisheries, and the Environment (DFFE), the Department of Cooperative Governance (DCoG), and the municipalities, should ensure that guidelines relating to the protection of SWSAs are developed and incorporated into cross-sectoral planning measures such as any revisions to the National Development Plan, Integrated Development Plans, and Spatial Development Frameworks at the national, provincial, and local government levels. The Department of Water and Sanitation should also strengthen and re-build the water resources monitoring network and monitor groundwater abstractions from boreholes, especially in the SWSAs (Le Maitre et al, 2018).

7.2.4.3: Conserve Nature Reserves and Critical Biodiversity Areas

The study area (both primary and secondary) contains 61 nature reserves including Suikerbosrand Nature Reserve and Vaal Dam

Nature Reserve within the primary study area, and Koppies Dam Nature Reserve, Viljoenskroon Nature Reserve, Shoonspruit Nature Reserve within the secondary study area. Not all of the 61 nature reserves are formally protected and under management or ownership of government agencies. Despite the status of protection and ownership, all nature reserves play vital roles in conserving biodiversity and ecosystems. These nature reserves should be conserved and limited human activities should be allowed in them. Nevertheless, wherever possible these nature reserves should provide low-intensity and nature-based tourism and recreation activities, and natural products and services to local communities. The tourism opportunities offered by the nature reserves also promote urban-rural integration.

The study area also contains several critical biodiversity areas (CBAs) and Ecological Sensitive Areas (ESAs) and ecological corridors which are critical for conserving biodiversity and maintaining ecosystem functioning. The CBAs, ESAs, ecological corridors are currently managed through provincial environmental plans and frameworks. A regional environment management framework can provide a set of uniform guidelines for managing these areas across the study area.

7.2.4.4: Conserve Vredefort Dome World Heritage Site

Vredefort Dome World Heritage Site (VDWHS) is amongst the top three oldest clearly visible meteorite impact sites in the world. It is a prominent topographical feature of international significance that is largely situated in the Region with portions in Parys and Vredefort regions. The Vredefort Dome World Heritage Site is the

Region's prime adventure tourism sites with numerous tour operators and accommodation facilities catering for the needs of campers, hikers, rock climbers, canoeists and white-water rafters. The two most common types of land uses in the VDWHS are agriculture and tourism. A wide range of agricultural uses consisting of irrigated cultivation, dry land cultivation, orchards, grazing, feedlots, chicken hatcheries and game farming occur. Tourism related uses such as accommodation, wedding venues and team building facilities are common in the area. Properties with mixed land uses, where tourism and agricultural activities occur together are also common.

The rural and natural scenic quality of the VDWHS, as well as the integrity of the visual landscape, should be preserved in order to appreciate the enormity of the meteorite impact ring structure. VDWHS, fortunately, is managed through the VDWHS EMF, which has statutory status. The VDWHS has defined a core area that includes "crater event" sites of exceptional heritage value. As an extension of the designated core area, a buffer zone of approximately 5 kilometres has been established.

It is proposed that all relevant stakeholders continue and support the existing proposals and guidelines relating to the preservation and conservation of the VDWHS while sustainably exploiting its tourism and economic development prospects, and urban-rural integration opportunities.

7.2.4.5: Conserve Agricultural Resources

Sustainable economic growth and food security depend critically on the protection and appropriate use of high potential agricultural land. Land with high agricultural potential located near human settlements is often the target of non-agricultural development pressure; at the same time, the negative social impacts associated with such settlements can have a substantial negative effect on the land's production potential. Protecting high-potential agricultural land should be a top priority, and policies should be put in place to foster an environment that allows farming to thrive for the long term.

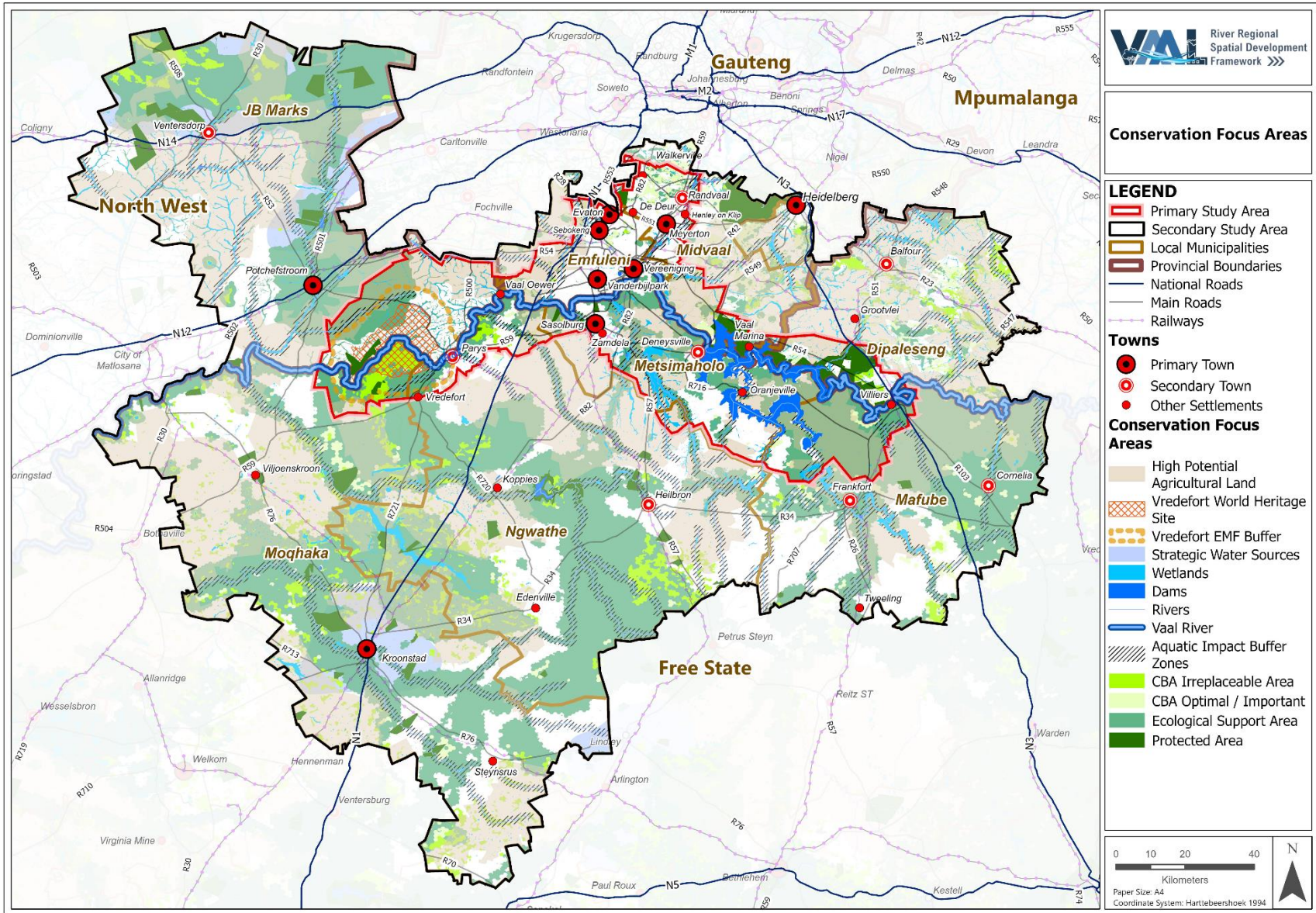


Figure 52: Conservation Focus Areas

7.2.5: Sub-objective 5: Promote Sustainable Economic Development along the River and Dam

7.2.5.1: Promote Tourism and Economic Activities

The municipalities and government agencies should take advantage of the Vaal River's natural beauty and recreational opportunities by creating and promoting tourism and recreational activities like river cruises, houseboat rentals, water sports, fishing, wildlife viewing and adventure activities. The municipal plans and land use schemes should support the establishment of hotels, resorts, restaurants and other tourism-related businesses along the River and Vaal Dam. In addition to business and leisure, residential development should also be promoted in these areas. Any development along the river must be according to the provisions of the Vaal Structure Plan, municipal land use schemes, and other relevant guidelines and legislations. Stringent environmental safeguards must be adopted for the design and implementation of the tourism sites.



7.2.5.2: Increase Access to the River

It is also necessary to improve public access to the River by establishing publicly accessible recreational areas. Some stretches of the bank, specifically within Vanderbijlpark, the proposed Vaal River City, Three Rivers and Duncanville, and along Emfuleni Drive and Mario Milani Drive should be considered for the development of such recreational spaces in the form of riverfront

development. Riverfront development serves as an additional buffer, creating a recreational space between the river and the surrounding urban areas and restricting flood water to enter urban areas. Riverfront development allows residents to enjoy the riverfront and its surroundings by including parks, walkways and areas for festivals, firework displays and concerts.



Figure 53: Examples of Riverfront Development

Promotion of economic and leisure activities will require the development of additional infrastructure such as improving transportation networks, developing embankments and marinas, and expanding water and sanitation infrastructure. It is critical to ensure that the development of economic activities and recreational areas along the River are carried out in a responsible and sustainable manner, taking into account social, economic, financial, and environmental factors, and considering inputs from key stakeholders such as Rand Water, DFFE, and DWS.

7.2.6: Sub-objective 6: Climate Change Adaptation and Disaster Management

Changes in South Africa's climate will likely lead to variations in rainfall patterns, intensity of storms, droughts, flood extremes, changes in runoff, water availability, ecosystem imbalances, changes in biodiversity, and will also present challenges to crop production. The Region, specifically parts of the primary study area, has already experienced flooding recently due to severe rainfall. The magnitude of the threats posed by climate change is uncertain and can significantly alter the spatial and temporal availability of water, thereby aggravating water-related stresses and negatively impacting developmental needs (Remilekun et al., 2021). As the Vaal River is fast approaching full utilisation of its surface water yields and becoming dependent on water supplied from other river basins, it is anticipated that the intensification of climate variability and increasing water demand will result in water and food insecurities. Considering the threats posed by climate change, the region must be ready to adapt to it and be prepared to mitigate the impacts of any disasters caused by it. The following action items



are recommended to adapt to climate change and to mitigate the negative impact of natural disasters:

7.2.6.1: Assess Vulnerability

A comprehensive assessment of climate change impacts on the Region is required to identify key sectors that are most vulnerable, such as water resources, agriculture, and infrastructure. The assessment will aid in prioritising the sectors that require adaptation efforts.

To prioritise intervention locations, it is also essential to identify current and potential disaster hotspots and climate change threats. Figure 54 depicts the regions of the Region that are prone to natural disasters. It indicates that the eastern and southern portions of the Region (areas surrounding Balfour, Cornelia, and Styensrus) are susceptible to drought; the eastern, southern, northwestern, and central portions (portions of the municipalities of Dipaleseng, Mafube, JB Marks, Moqhaka, and Ngwathe) are susceptible to flooding; and wildfires can occur in various patches of the project area. A vulnerability assessment must be conducted to determine the effects of climate change and disasters on the region, especially in disaster-prone areas.

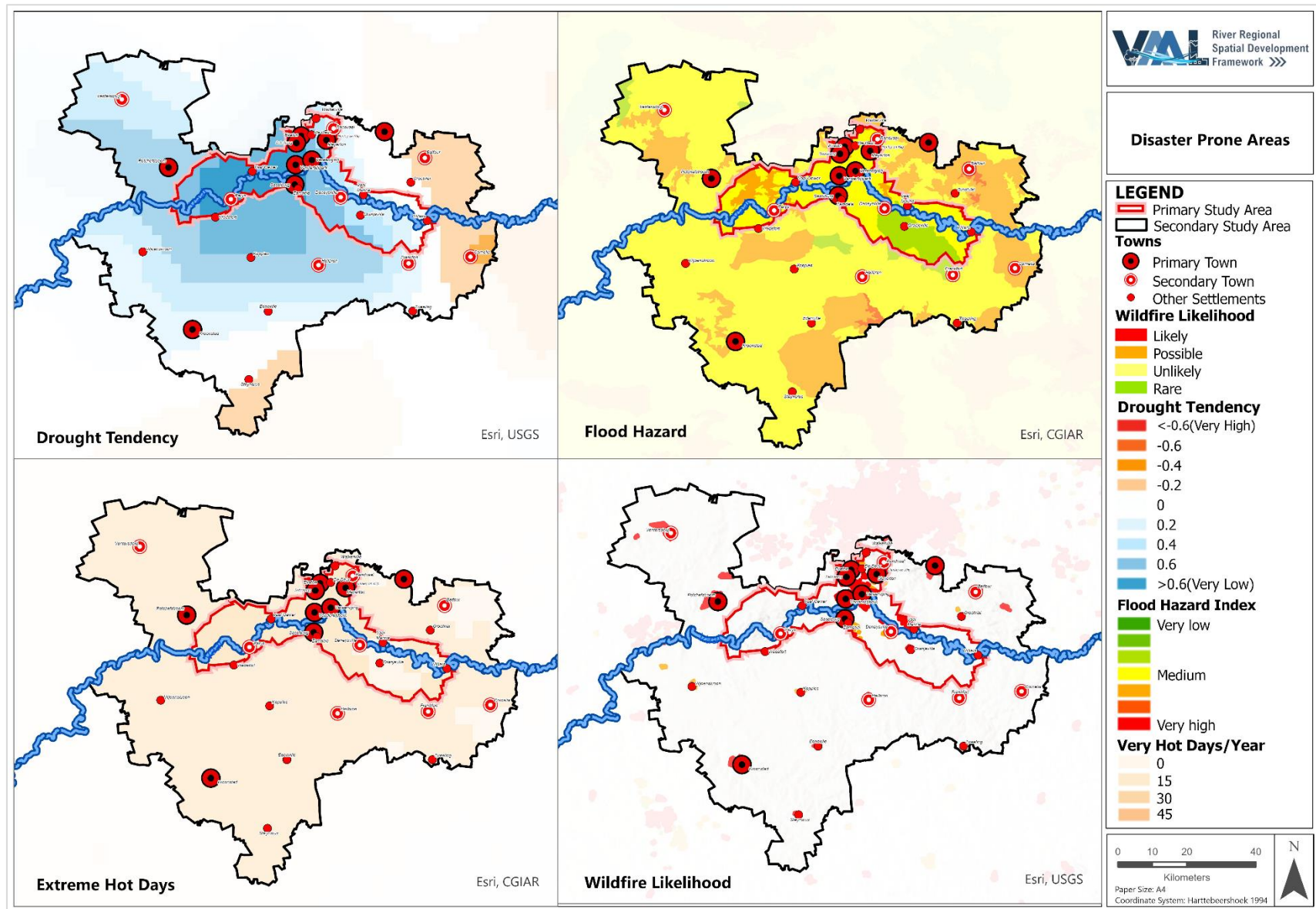


Figure 54: Disaster Prone Areas

7.2.6.2: Manage Water Resources

Develop water resource management plans that consider changing precipitation patterns, increased variability and the possibility of droughts or floods. Improving water storage and infrastructure, implementing water demand management strategies, promoting water-efficient practices, and exploring alternative water sources may all fall under this category. It is worth noting that DWS uses the "Integrated Vaal River System (IVRS)" to model and monitor water availability and consumption. DWS must run this model on a regular basis and inform water users of the results. This will aid in avoiding delays in recognizing and responding to the emergence of drought conditions, as well as other operational issues (Muller & Maree, 2019).

7.2.6.3: Develop Resilient and Green Infrastructure

Improve the resilience of critical infrastructure, such as roads, bridges, dams, barrages, embankments, and water-supply systems to withstand the effects of climate change. Consider changing rainfall patterns, flooding and rising temperatures when designing, maintaining, and retrofitting infrastructure. In developing resilient and green infrastructure consider the guidelines of the Sustainable Urban Drainage Systems (SuDs) developed by GDARDE. The SuDs guidelines provide guidance on how to develop urban drainage infrastructure that can withstand the impacts of climate change such as flooding. These guidelines may need to be modified to use in the areas outside Gauteng.

7.2.6.4: Adopt Climate Smart Technologies

Climate Smart Technologies are a set of clean, low-greenhouse-gas-emitting technologies that promote adaptation and mitigation in order to attain resilience to climate change impacts in the short, medium, and long term across all sectors. To build resilience against climate change impacts, it is important to adopt climate smart technologies in all sectors, especially in agriculture, transportation, industries, and municipal service delivery, to minimise water and energy consumption and pollution. Example of climate smart technologies include, but not limited to, solar powered drip irrigation system, agrivoltaics, use of biofuel and green hydrogen for transportation and industrial purposes, use of solar power to run WTWs and WWTWs, and green buildings.

7.2.6.5: Ensure Disaster Preparedness

Create and implement comprehensive and robust disaster preparedness and response plans that take climate change risks into account. To ensure timely and effective responses to climate-related disasters, develop early warning systems and emergency response protocols and engage with communities.

7.2.6.6: Develop Policy and Regulatory Framework

Create and enforce policies and regulations that factor climate change into planning and development processes. Climate change adaptation must be incorporated into land-use planning, water management plans, environmental impact assessments and building codes. Municipalities are expected to take the lead

on ensuring that their spatial development frameworks and land use plans take into account the impact of climate change.

7.2.6.7: Collaborate and Build Capacity

Raise awareness about the effects of climate change, train communities and agencies on adaptation strategies, and empower them to participate in decision-making processes. To address climate change challenges, encourage collaboration among government agencies, local communities, businesses, and other stakeholders. Cooperate at the regional and international levels to share best practices, knowledge and resources for effective climate change adaptation.

7.2.6.8: Ensure Development Objectives align to Sustainability Principles

Ensure the resilience of environmental infrastructure that will support the long-term sustainability of the region. Future development needs to be implemented sustainably within the carrying capacity limits of the natural environment. All development projects need to be considered under different climate change scenarios including mitigation and adaptation principles. An example of an ecosystem based approach can be sourced through the CSIR's ecosystem based adaptation (EbA) principles for new developments/projects, as well as international best practice standards.

7.2.7: Sub-objective 7: Conserve Heritage and Cultural Resources

The Region contains the following national heritage sites:

- ▶ Sharpeville Memorial Garden, Sharpeville Exhibition Centre, Vereeniging,
- ▶ Sharpeville Massacre victims Grave Sites, Phelindaba Cemetery, Vereeniging,
- ▶ Sharpeville Police Station, Vereeniging, and
- ▶ Grave of Rev. Zaccheus Richard Mahabane, Seeisoville Cemetery, Maokeng, Kroonstad.

In addition, the Region contains several sites that are designated as provincial heritage sites or placed on the heritage register. A few examples of these sites are the following (a comprehensive list is provided in Annexure A):

- ▶ Dutch Reformed Church, H F Verwoerd Street, Heidelberg
- ▶ Anglo-Boer War Blockhouse, Randvaal
- ▶ Old Magistrate's Office, Murray Street, Kroonstad
- ▶ Old Magistrate's Court, Van Reenen Street, Frankfort
- ▶ Parys Museum, Parys
- ▶ Dutch Reformed Church, Parys
- ▶ Old Berlin Mission Station, Potchefstroom
- ▶ House of President M W Pretorius, Potchefstroom
- ▶ Old Fort and Cemetery, Potchefstroom

In addition to the national and provincial heritage sites, there could be sites that the respective municipality may consider having heritage value and be worth conserving. The heritage sites

in the Region offer tourism and local economic development opportunities that need to be exploited. At the same time, it is crucial to conserve and protect the heritage sites from untoward development. The National Heritage Resources Act empowers municipalities to protect heritage areas through their zoning schemes or by-laws. It is suggested that the municipalities use these instruments to protect the heritage areas by defining heritage overlay zones in their land use schemes (Steenkamp, 2021).

The overlay zone should ensure that:

- ▶ heritage sites are graded or classified in accordance with National Heritage Resource Act provisions (Act 25 of 1999),
- ▶ municipal approval is required for the demolition, renovation, partition, or alteration of any building, as well as the removal or addition of any trees, and
- ▶ new developments maintain the character and heritage value of the area.

The overlay zone may also include guidelines for urban design, vistas, streetscapes, and landscaping of the intended development within the overlay zone.

7.2.8: Implementation Action Plan

Table 23: Implementation Action Plan: Vaal River Restoration

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Sub-objective 1: Keep the River Free from Pollution						
Develop necessary infrastructure to prevent water pollution (discussed under Objective 1)	High			2030	Municipalities	DWS
Adopt sustainable and climate resilient agricultural practices	High		Entire project area	2040	DALRRD (LandCare Program)	DFFE
Raise community awareness about river pollution	Medium		Entire project area	Annually	DWS (Clear Rivers Program)	DFFE, municipalities, NGOs
Monitor pollution levels in the river system	High		Entire project area	Annually	DWS, Rand Water	DFFE

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Detect pollution sources and taking corrective measures	High		Entire project area	As and when basis	DWS, municipalities, industries and mines in the region	
Sub-objective 2: Ensure Water Availability in the Vaal River System						
Prepare a regional water sector plan	High			2030	DWS	DFFE
Update WC/WDM plan and framework for municipalities/ urban sector	Medium			2030	DWS	SALGA
Develop WC/WDM plan and framework for the agricultural sector	Medium			2030	DWS	DALRRD
Develop WC/WDM plan and framework for the industrial sector	Medium			2030	DWS	DTIC
Develop WC/WDM plan and framework for the energy sector	Medium			2030	DWS	Dept of Energy, Eskom
Monitor the implementation of the regional water sector plan and WC/WDM plans				Operational	DWS	SALGA, DALRRD, DTIC, Dept of Energy, Municipalities
Eliminate unauthorised and illegal water usages	High		Entire project area	2025	Municipalities	DWS, Rand Water, Sedibeng Water
Ensure compulsory metering and billing of water usage	High		Entire project area	2025	Municipalities	DWS, Rand Water, Sedibeng Water
Conduct local investigations to identify potential groundwater sources and determine yield	Low		Entire project area	2040	Municipalities, DWS	

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Monitor the health of groundwater sources (prevent overutilisation)	High		Entire project area	Periodically	Municipalities, DWS	
Encourage rainwater harvesting	Low		Entire project area	2040	Municipalities	
Complete Lesotho Highlands 2 project and source water from this project	High			2025	DWS, National Departments	
Explore possibilities of sourcing water from uThukela River	High			2050	DWS, National Departments	
Undertake water audits and monitor the availability of water in the river system	High			Periodically	DWS, Rand Water	
Sub-objective 3: Restore the Vaal River and its Tributaries						
Development of Catchment Management Plan for the Key Rivers	Medium		Entire project area	2035	DFFE	DWS
Restore health of rivers and wetlands (Develop restoration plans, clean rivers and wetlands from debris and excessive sedimentation, stabilise banks, control invasive species, promote wildlife, manage waterflows, and control nutrients flow and eutrophication)	Medium		Entire project area	2035	DFFE, DWS	Municipalities
Delineate aquatic impact buffer zones along the rivers and wetlands and define buffer zone development regulations	Medium		Entire project area	2035	DFFE	DWS
Update and implement LUS, municipal SDFs, by laws, and environmental plans to protect the rivers, wetlands, and aquatic impact buffer zones	High			2035	Municipalities	DALRRD, DCOG

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Raise community awareness about river and wetland health restoration	Medium		Entire project area	Annually	DWS (Clear Rivers Program)	DFFE, municipalities, NGOs
Develop a monitoring framework for river and wetland restoration	Medium			2035	DWS	DFFE, municipalities, NGOs
Sub-objective 4: Conservation of Natural Resources						
Develop guidelines to protect strategic water source areas	Medium				DWS	DFFE
Develop a regional environmental management framework	High		Entire project area	2025	DFFE	Provincial Departments of Environment, Municipalities
Develop a regional bio-diversity sector plan	Medium		Entire project area	2025	DFFE	Provincial Departments of Environment, Municipalities
Update and implement LUS, municipal SDFs, by laws, and environmental plans to protect strategic water source areas	Medium		JB Marks and Moqhaka municipalities	2035	Municipalities	DALRRD, DCOG
Update and implement LUS, municipal SDFs, by laws, and environmental plans to protect Vredefort Dome World Heritage Site, CBAs, nature reserves, agricultural land, and natural assets	High		Entire project area	2025	Municipalities	DALRRD, DCOG
Sub-objective 5: Promote Sustainable Economic Development along the River and Dam						
Develop a tourism master plan to promote river-based tourism	Medium		Entire project area (specifically along the Vaal River, Vaal	2030	Municipalities	Department of Tourism

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
			Dam and Koppies Dam)			
Riverfront Development/ Revitalisation	Low		Emfuleni, Metsimaholo	2040	Emfuleni, Metsimaholo Municipalities	
Sub-objective 6: Climate Change Adaptation and Disaster Management						
Assess climate change impacts and identify the most vulnerable sectors	High		Entire project Area	2030	DFFE, DWS, Municipalities, SANRAL, Rand Water	
Develop comprehensive and robust disaster preparedness and response plans, including early warning systems, emergency response protocols	High		Entire project Area	2030	DFFE, DWS, Municipalities, SANRAL, Rand Water	
Update LUS, SDFs, policies and regulations that factor climate change into planning and development processes.	High		Entire project Area	2030	Municipalities	DFFE, DWS, DCOG, DALRRD
Identify ecosystem risks and carrying capacity limits, ensure that all development (infrastructure, economic, and social) is done sustainably	Medium		Entire project area (specifically along the Vaal River, Vaal Dam and Koppies Dam)	2035	DFFE	DWS, Municipalities
Sub-objective 7: Conserve Heritage and Cultural Resources						

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Update LUS, SDFs to conserve Heritage sites and integrate them surrounding built environment	Medium		Entire project Area	2030	Municipalities	SAHRA

7.3: Objective 3: ECONOMIC DEVELOPMENT: To Drive Innovative Economic Development and Achieve Job Creation



Objective 3: ECONOMIC DEVELOPMENT

In response to the needs of distressed regions requiring urgent attention to bring about national spatial transformation and economic transition, the NSDF identified National Spatial Action Areas (NSAAs), which require integrated and intergovernmental action (strategies) of both regional and national interest. Although the National Spatial Transformation Corridor related to the Central Innovation Belt (NSCIB) extends beyond the boundaries of the Vaal River Region for the purposes of this study, a part of the NSCIB is located in the Vaal River Region Spatial Development Framework (VRRSDF). Of the five National Resource Risk areas, the Upper Vaal River catchment area also forms a part of the demarcated Vaal River Region SDF. In support of the NSDF's requirement for intergovernmental co-operation and for spatial

alignment with the NSDF, as well as in the interest of this Region, the components for spatial transformation and economic transition in the Region include:

- ▶ The Vaal River Region Spatial Transformation and Economic Transition Focus Area (VRRETR): This development component aims to ensure spatial transformation and economic transition in the Region by supporting National Government's initiatives in this regard as contained in the NSDF's Central Innovation Belt National Spatial Transformation and Economic Transition Region (NSTETR) and the National Resource Risk Area related to the Upper Vaal Catchment (RRA).
- ▶ The Economic Transformation Intervention Areas (ET): This development component represents a strategic approach to fostering competitive economic development in the geographically and socio-economically diverse Vaal River region. It is informed by an integrated multi-disciplinary understanding of economic development, one that recognises the interconnectedness of socio-spatial and economic dimensions in creating sustainable, equitable, and inclusive economies.

The components for spatial transformation and economic transition in the Vaal River Region include six core sub-objectives:

- ▶ Industrialisation and economic diversification
- ▶ Urban-rural regeneration
- ▶ Agriculture
- ▶ Tourism
- ▶ Mining
- ▶ Commercial activities and services

The Vaal River economic development region constitutes eight key local municipalities, namely, Emfuleni and Midvaal that form part of the Gauteng province, Mafube, Metsimaholo, Moqhaka, and Ngwathe forming part of the Free State province, Dipaleseng representing the Mpumalanga province and JB Marks historically

constituting Ventersdorp and Tlokwane City forming part of the Free State province. The region is characterised by diverse economic activities including agriculture, mining, industry, manufacturing, construction, commercial services and trade, education, and tourism.

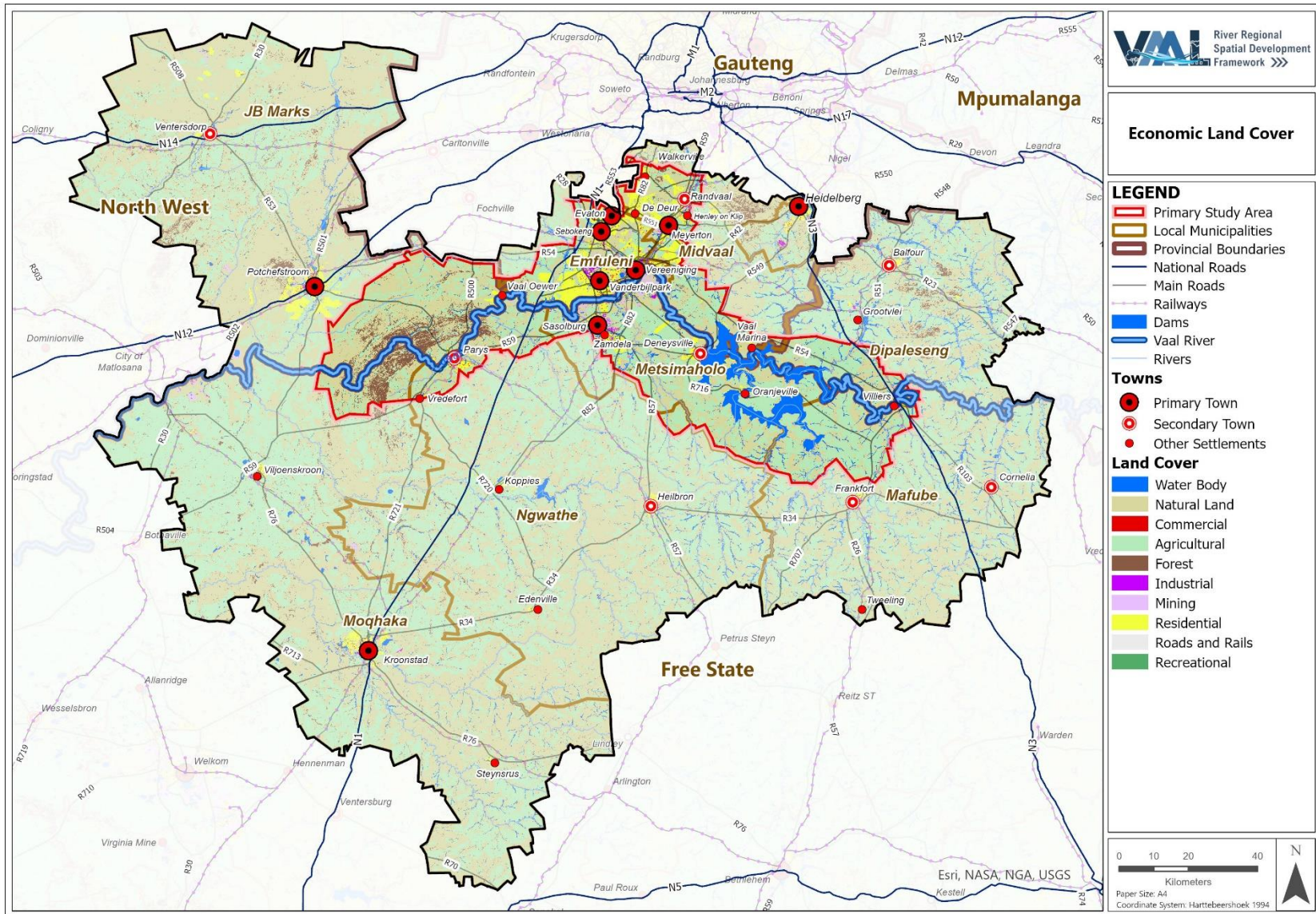


Figure 55: Economic Land Use/ Cover for the Region

The combined GVA of the nine local municipalities forming the Vaal River region contributes 3.31 percent (2022) to the national gross value added (NGVA). The Region is a critical industrial hub in South Africa which also provides extensive commercial agriculture and coal for energy generation (although the mining sector is declining as many mines in the region are approaching end-of-life of mine). The economically dominant municipalities are Emfuleni, Metsimaholo, and JB Marks.

Figure 55 highlights the key spatial land use patterns for the Vaal River Region, including for the purposes of this section industrial areas, agricultural areas, tourism (natural land and water bodies), mining areas, commercial areas and towns.

The region has valuable environmental and economic assets such as the Vaal Dam, Vredefort Dome, Parys, Petro-Chemical developments in Sasolburg, the iron and steel industry (ArcelorMittal) in Vereeniging (although declining), tourism, agriculture, and agro-processing activities, as well as well-established tertiary institutions like the Vaal University of Technology and North West University serving as the region's innovation and technology custodians. These provide important drivers for economic development including:

- ▶ The region reflects mixed economic use patterns with agriculture, mining, manufacturing, and the potential to develop tourism.
- ▶ The Vaal River region has strong regional linkages to major economic cores like Johannesburg, Ekurhuleni, and the Vereeniging-Vanderbijlpark complex. These include routes R59, R82, and the N12.

- ▶ The Vaal River region comprises established commercial farming, a unique tourism sector, mining (although declining), and manufacturing linked to the petrochemicals sector around Sasolburg.
- ▶ Smaller settlements and agricultural holdings in the surrounds are dependent on the urban centres for employment and economic opportunity highlighting the importance of Rural-Urban integration.
- ▶ The local population is predominantly unskilled, and unemployment levels are high compared with provincial and national averages providing a strong push for upskilling and available labour for the expansion of economic activities.

The objective is supported by the following spatial development strategies:

- ▶ Providing opportunities for industrialisation and economic diversification;
- ▶ Advocating and ensuring urban-rural economic linkages and regeneration;
- ▶ Promoting agriculture and associated agri-business and agri-industry;
- ▶ Promoting tourism activities in appropriate areas with a competitive advantage in respect of:
 - Eco-tourism and the accommodation sector
 - Agri-tourism
 - The Vaal River and aqua economy
 - Heritage areas/sites (see Annexure A)
- ▶ Ensuring mining transition is supported towards productive economic activities;

- ▶ Promoting commercial activities and tertiary services in appropriate areas with a competitive advantage.

7.3.1: Sub-objective 1: Promote Industrialisation and Economic Diversification

The municipalities and government agencies should take advantage of the Vaal River's existing industrial and economic opportunities and recognise the risks associated with declining or concentrated sectors. There remains an opportunity to encourage industrialisation through the development of manufacturing hubs and diversifying away from declining sectors such as mining while growing agriculture, tourism, and commercial services. The industrialisation and economic diversification plans need to focus on developing Urban-Rural linkages and integrating connectivity between these areas. Industrial activities may include for example: logistic hubs, industrial parks, manufacturing hubs, and community-led industrial "hives". Local municipalities can adopt enabling spatial planning practices that underpin growth in the diverse and expanding manufacturing sector, considering that the manufacturing sector of the Vaal River region contributes 5.4 percent (2022) to national manufacturing GVA and ten percent to the combined provincial manufacturing GVA for the four provinces. The manufacturing sector contributes 37% to the regional GVA.



Currently trade and manufacturing in the Midvaal local municipality are linked to the steel and petrochemicals sub-sectors. Several national retailers have also committed to ambitious localisation sourcing plans. The manufacturing sector also has the potential to expand into agri-processing activities including the production of biofuels, beer, ales, and salad dressings derived from primary agricultural products. Importantly, the challenge remains to establish effective economies of scale for the different manufacturing sub-sectors in the region. Despite the decline in employment in the manufacturing sector due to the challenging economic climate observed through the COVID-19 pandemic, the sub-sector still holds the potential for significant job creation in the future. It is noted that Gauteng and Mpumalanga have an advantage in manufacturing in the region that remains on par with the national average.

It is important to note that the Gauteng Provincial Government, together with the Department of Trade, Industry, and Competition and the Sedibeng District Municipality, has established the Vaal SEZ. The Vaal SEZ is expected to drive industrialisation, promote green energy development, green hydrogen development, boost job creation, and offer opportunities to emerging and new industrialists. The Vaal SEZ will partially help in achieving this strategy.

7.3.2: Sub-objective 2: Promote Rural-Urban Economic Linkages

The Vaal River Region is structurally separated into urban and rural areas with the rural areas remaining disconnected from core economic activities providing limited access by people to meaningful economic opportunity. A further important aspect to the agriculture, tourism, and commercial services sectors is the role and function of the so called second (or informal) economy. Informal sector services contribute significantly to the informal economy. Informal Trading should be seen as a positive development in the micro business sector as it contributes to job creation, alleviation of poverty, and SMME development.



7.3.3: Sub-objective 3: Promote Agriculture and Associated Economic Activities

The Vaal River Region includes commercial and small-scale farming activities where the commercial activity is generally positioned on highly fertile and productive land. Food security remains a global priority, with many countries facing rising food insecurity. While South Africa has an extensive agricultural production base, the country is faced with extreme inequality and many of its citizens face daily food insecurity challenges. Consequently, this sub-sector remains critical for long-term sustainable economic growth both within the country and



more importantly, for the Vaal River economy. Factors that affect the viability of the sub-sector include the location of agri-industries and their proximity to agricultural raw materials, low-cost labour, regionally inter-connected transport links and stable power supply. The following core criteria for the spatial development of agriculture and agri-processing:

- ▶ The agri-industry should be located near the agricultural product to be processed,
- ▶ The agri-industry should be located near an unskilled labour market,
- ▶ The agri-industry must have access to a major road networks,
- ▶ The agri-industry must have access to electrical power infrastructure and capacity and, in selected cases abundant water sources,
- ▶ Agri-industries should be grouped to achieve economies of scale,
- ▶ Agri-industries should preferably not be located on high-potential agricultural soils.

Given the region's potential for agriculture and agri-processing several agricultural activities are already well established including both commercial and, to a lesser extent, small-scale agricultural practices. The local municipalities are limited in their ability to expand agriculture due to pressures on productive land availability; however, opportunities exist for developing critical linkages between commercial and small-scale farming as well as agri-processing. The Free State (with a significant advantage),

followed by Mpumalanga and the North West province, have a higher concentration than the national average for agriculture and agri-processing.

The region also offers opportunities for developing agrivoltaics industries. These industries can be developed in the various SEZ sites and small towns in the hinterland sub-region.

7.3.4: Sub-objective 4: Promote Tourism and Associated Economic Activities

Nationally, there is a strong tendency towards nature-based tourism and nature-based tourist destinations within South Africa. As a result, areas with natural beauty are popular tourist attractions. Tourism provides a development mechanism to ensure a sustainable mix between the local community, people, culture, and environment; its contribution to potential growth may extend beyond local economies. The scenic Vaal River region holds strategic tourism potential, especially regarding local tourists and day-tourist visits originating from other parts of the region. The region is also home to multiple cultural, historic, and geological wonders, apart from the water-based tourism activities associated with the Vaal River and Vaal dam.



The Vaal River Region municipalities and government agencies should take advantage of the Vaal River's natural beauty and recreational opportunities by creating and promoting tourism and recreational activities like river cruises, water sports, fishing, wildlife

viewing, and adventure activities. The municipal plans and land use schemes should support the establishment of hotels, resorts, restaurants, and other tourism-related businesses along the river and Vaal Dam banks. In addition to businesses, leisure residential development should also be promoted in these areas.

Tourism is identified as a priority economic sector in the government's Medium-Term Strategic Framework (MTSF), which identifies the following overall priorities:

- ▶ Creating decent work and sustainable livelihoods
- ▶ Education
- ▶ Health
- ▶ Rural development, food security, and land reform
- ▶ The fight against crime and corruption and building cohesive and sustainable communities.

Tourism is also one of the six core pillars of growth as identified in the New Growth Plan (NGP) and is expected to contribute to the development of rural areas by growing the economy and creating jobs. Although the tourism sector currently forms a relatively small part of the local economy, the sector has a particularly high employment and income-generating capacity. The sector is also more accessible to unskilled labour and has the potential to offset the declining returns observed in the region's mining sector.

7.3.5: Sub-objective 5: Promote Mining Transition

The South African government has prioritised attracting investment into the mining and minerals primary sub-sector and is finalising the mining exploration strategy for the country with a core focus on the development of the upstream gas industry, due to its potential for job creation and broader economic development. However, the mining and quarrying activities in the Vaal River region are reaching the end-of-life-of-mine (LOM), this is reflected in the decline in the sub-sector and subsequent loss of jobs. Despite the expectations of investment for exploratory purposes, it is not expected that mining and quarrying will continue to be long-term drivers of economic growth within the region. This outlook is further exacerbated by volatility in the sector due to for example, exchange rate volatility and the global growth outlook. The long-term coal mining opportunities – on which the mining sector is based in the region also remain limited, further driving a limited growth outlook for mining and quarrying in the region. The North West province, followed by Mpumalanga have a competitive advantage in mining and minerals processing.



7.3.6: Sub-objective 6: Promote Commercial Services

High-value commercial services are supported through investment, skills development and both regional and national spatial integration. Commercial services are critically important to fuel economic growth, create employment opportunities and jobs, and raise living standards. Due to the complexity and characteristics of commercial services, organisation of commercial activities should provide flexibility depending on the time of the request, the moment of performance and the consumer behaviour. Commercial activities, services, and trade also benefit from innovation and often require skilled labour. The sub-sector has the potential to generate long-term employment opportunities within the Vaal River regional economy.



Mpumalanga has a significant advantage in the electricity, gas, and water sector. The Free State followed by Gauteng have a small advantage in transportation, storage, and communication. Gauteng has an advantage in the financial sector. The North West and Free State reflect a small competitive advantage in personal services.

7.3.7: Spatial Development Proposals

The proposals in this section support the economic transition and strategies set out above.

Figure 56 depicts the following components:

- ▶ Industrialisation and Economic Development Precincts (IEDP)
- ▶ Urban-Rural Regeneration and Integration Areas (URR)
- ▶ Agri-business and Agri-industry Focus Areas (AFA)
- ▶ Tourism Nodes and Sites (T)
- ▶ Mining Nodes and Sites (M)
- ▶ Commercial Economic Precincts (C)
- ▶ Vaal SEZ

Moreover, industrial, urban, and commercial development activities in Potchefstroom, Kroonstad, and Heidelberg should be encouraged. Small-scale industrial activities should be encouraged in Ventersdorp, Helibron, Frankfort, Villiers, and Grootvlei. Regional logistics hubs can be established in Heidelberg and Kroonstad.

7.3.7.1: Providing opportunities for industrialisation and economic diversification

For the purposes of agglomeration benefits, most of the industrial development, especially when it is extensive, should be directed towards Sedibeng and Fezile Dabi District Municipalities. Emfuleni, Midvaal, and Metsimaholo contribute a combined 8.6 percent to the provincial GVA for manufacturing, reflecting a 4.5, 1, and 3 percent contribution, respectively. Moqhaka and JB Marks contribute a further 0.4 percent each to PGVA.

The purpose of the Industrialisation and Economic Development Precincts (IEDP) is to create permanent jobs through the attraction of private investment, to create manufacturing and agri-industrial complexes in the region. These complexes will stimulate primary feedstock production and thereby unlock the region's potential competitive advantage in agriculture-based products, particularly those of high-value. There may be a need for smaller industrial developments and manufacturing throughout the Region. It is proposed that such types of industrial development be located in the Urban-Rural development nodes in the Region.

The proposed industrial developments are mostly situated in the central area and therefore related to proposals made by Sedibeng and Fezile Dabi DMs. The subject areas from Sedibeng include Leeuwkuil, Boipatong, Cyferpan, and Sebokeng CBD. While the subject areas from Fezile Dabi include The Chem City and Naledi Park. Furthermore, these proposed developments range from light to heavy industries which provides a good mix and scale of potential developments as outlined below:

Sedibeng District Municipality:

- ▶ Leeuwkuil light industrial uses: It is an established industrial area that is still largely undeveloped. It is highly recommended that the largely undeveloped/vacant land be occupied before additional land can be offered for industrial development within the Emfuleni LM.
- ▶ Boipatong (vacant): The proposed Boipatong industrial area is situated within the triangle bordered by the K45 (Frikkie Meyer Boulevard), K180 (Houtkop Road) and the K178 (Boy Louw

Street). By growing this industrial region, the Mittal industrial area will be extended north-eastward, resulting in an industrial band that stretches from the P155 (Golden Highway) to the Vereeniging-Johannesburg railway line.

- ▶ **Cyferpan (Access_K45): Heavy industrial:** The Cyferpan industrial area is a small industrial area proposed on the intersection of the K178 (Boy Louw Street) and the K45 (Golden Highway).
- ▶ **Sebokeng CBD: Industrial (largely vacant):** The Sebokeng CBD comprises a small industrial area. It is proposed that the vacant industrial stands within this industrial area be developed as hive-industries, which can be rented out to the local population of Sebokeng and Evaton.
- ▶ **Vaal SEZ (sites located at Lesedi, Midvaal, and Emfuleni) and R59 corridor** focusing on different industries including green hydrogen, green energy and agrivoltaics industries.

Fezile Dabi District Municipality:

- ▶ Invest in knowledge-intensive manufacturing and the expanding petrochemical industry (Petro-chemicals in Sasolburg).
- ▶ Invest in manufacturing subsectors, with prioritisation of those that are labour-intensive with niche markets (The Chem City industrial development and Naledi Park industrial development in the Sasolburg Industrial Area).
- ▶ An industrial park is proposed to be developed in Metsimaholo Local Municipality.
- ▶ The district also proposes rezoning public spaces for industrial development in suitable areas (Ngwathe LM).

Stages of Economic Diversification

Stage 1: Consider an appropriate incentive framework based upon a clear, transparent, and predictable business and investment climate.

Key steps include reviewing trade policies to remove bias against exporting and ensuring effective competition in product markets and in key services such as transportation, energy, and communications.

Stage 2: Consider effective policies to support the reallocation of economic resources to new activities.

Of particular importance are labour-market policies and access to finance. These determine the match between workers and jobs, and they help move economies away from declining sectors and from informal economic activity. Success comes by overcoming constraints to mobility, including barriers that limit the entry of women into the workplace.

Stage 3: Assess the current state of the local/district municipalities to establish whether there is a strong foundation on which to build a smart industrialisation and economic diversification initiative.

Gather information about current conditions with respect to the existing engineering infrastructure, the facilities, amenities, and housing available to residents, the ability of the municipality to deliver services, the governance structures and the available financial resources, including available skills and training facilities.

Stage 4: Consider the enablers

The assessment of the pre-conditions will assist in reaching an understanding of where a local/district municipality's challenges or 'pain points' are. This will guide the direction to leverage of the identified enablers:

- Metsimaholo currently is the largest manufacturing area in the Free State Province,
- Manufacturing is a major contributor to the Midvaal local economy,
- Commercial and manufacturing activities are located along the major transport routes earmarked for nodal development.

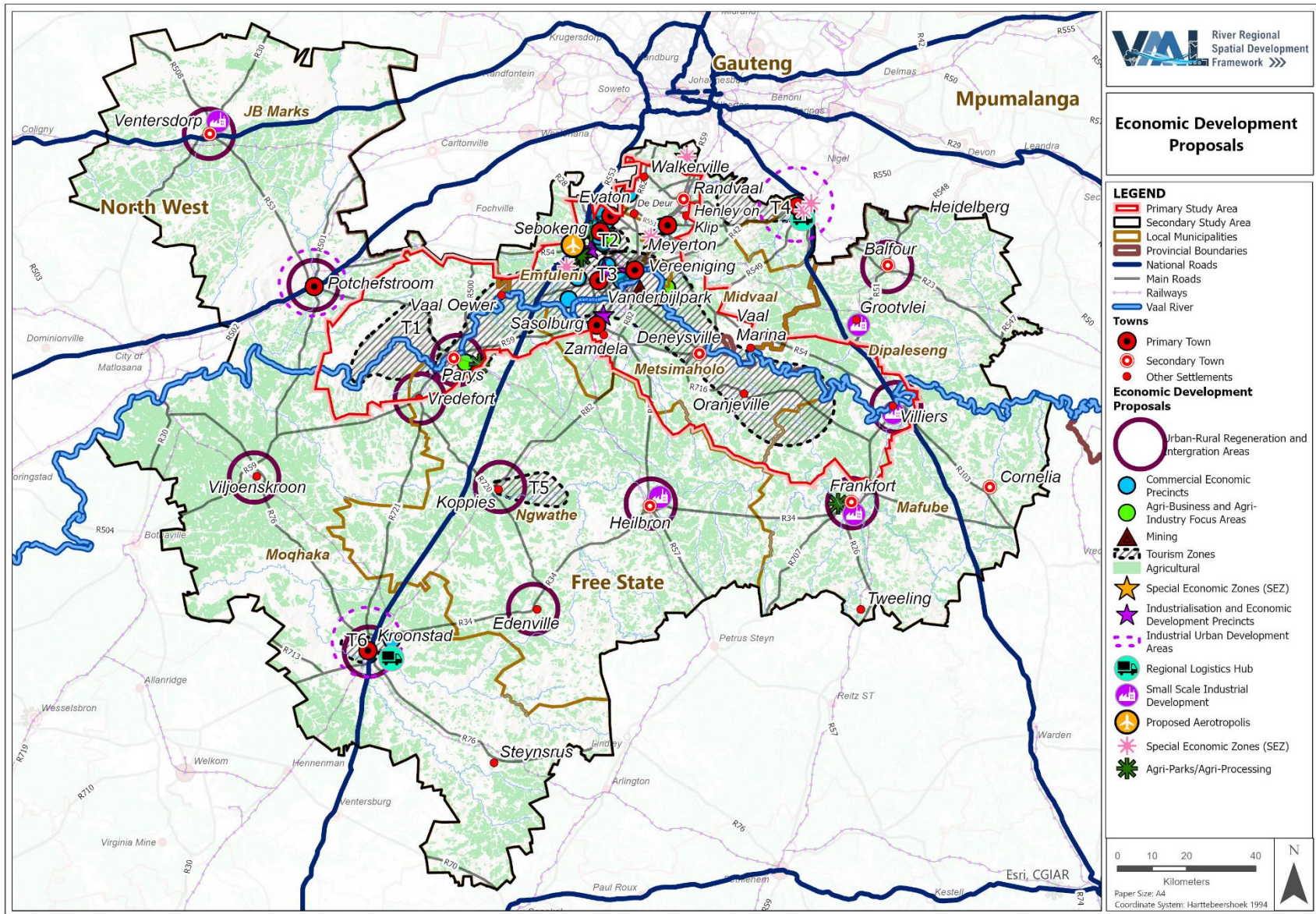


Figure 56: Economic Development Proposals

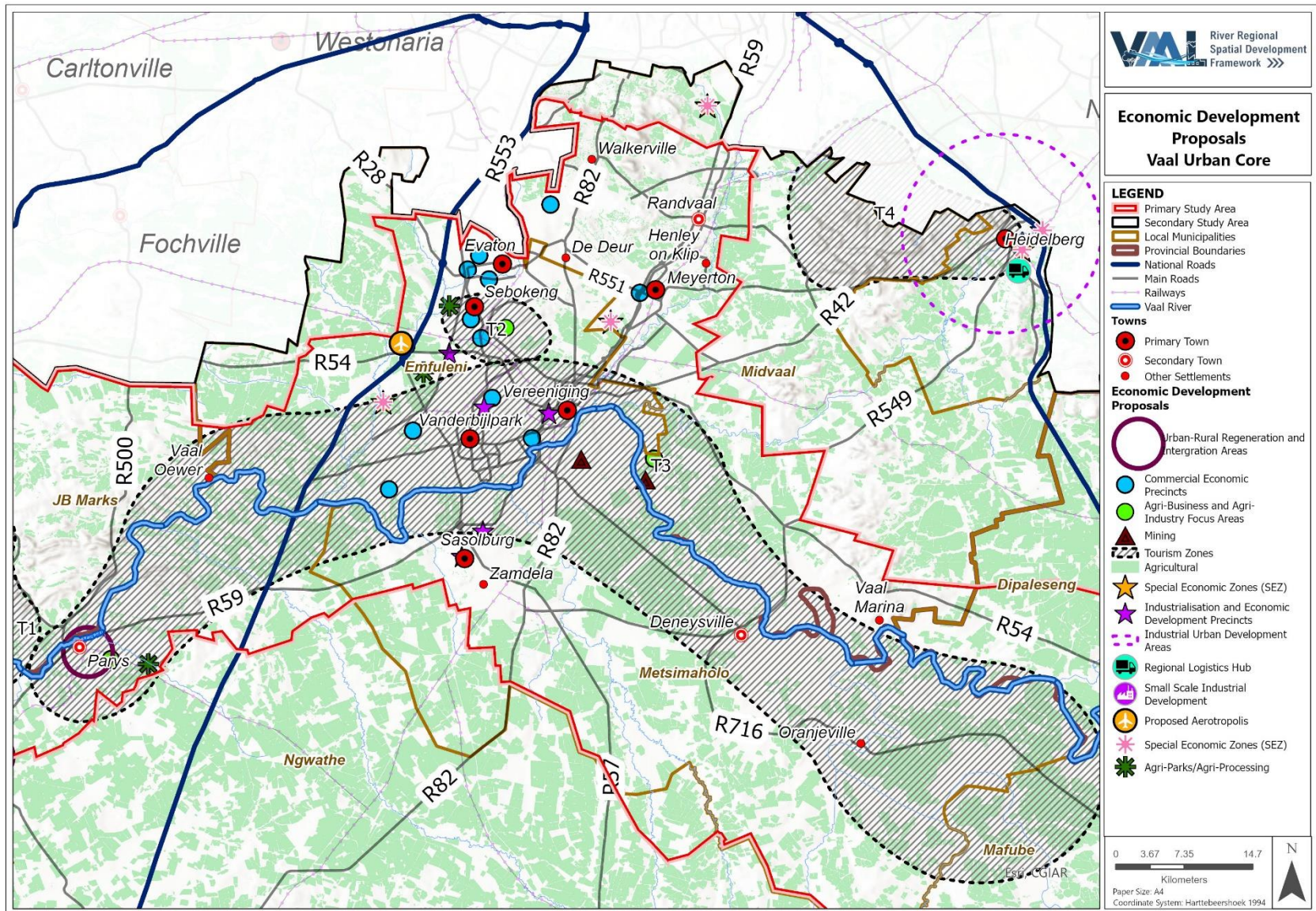


Figure 57: Economic Development Proposals- Vaal Urban Core

7.3.7.2: **Advocating and ensuring urban-rural economic linkages and regeneration**

In respect of Urban-Rural Regeneration, the overall strategy is to follow a regional approach in order to address challenges in declining rural areas. The strategy therefore aims to revitalise rural areas affected by disinvestment, poor infrastructure and low levels of economic development through alignment and prioritisation that promotes, and will result in, the spatial transformation and economic development of these areas. In order to support the overall strategy on urban-rural regeneration, the following towns and settlements are earmarked as Urban-Rural Regeneration and Intervention Areas as indicated in Figure 28. The following key Urban-Rural regeneration linkages are identified as follows:

- ▶ Rural Service Centres:
 - Parys, Balfour, Frankfort: Potential for agricultural growth through the development of supporting agro-processing industries, farmers' markets, and other initiatives that add value to local agricultural products.
 - Viljoenskroon, Heilbron: Predominantly rural or small farming towns that would benefit from the incorporation of measures that will grow the agricultural sector, for example: the provision of agricultural extension services, promotion of small-scale farming, or the establishment of local farmers' markets.
 - Ventersdorp, Vredefort, Koppies, Villiers, Edenville: Agriculture and tourism development potential.

- ▶ Rural towns and settlements that will benefit from access to small-scale farming activities, agri-processing, and tourism include:
 - Steynsrus, Oranjeville,
 - Tweeling, Cornelia,
 - Holly County, Vierfontein.
- ▶ Urban core and regional development anchors:
 - Sasolburg, Vereeniging, Vanderbijlpark, Evaton, Sebokeng, Meyerton, Zamdela, Deneysville, Randvaal, De Deur, Potchefstroom, and Kroonstad.

For the purposes of this strategy, Urban-Rural regeneration is defined as the development of local economy centres that provide services to the local economy (as opposed to the regional and subregional economy) and addresses community needs. The guidelines on the implementation of Urban-Rural Regeneration and development programmes should also provide coordination mechanisms for a concerted stakeholder effort towards the achievement of spatial transformation and economic development.

The drivers through which revitalisation can be achieved in Urban-Rural regeneration include:

- ▶ Establishing partnerships for Urban-Rural revitalisation;
- ▶ Creating Smart Urban-Rural regions;
- ▶ Establishing Urban-Rural regions as centres of economic development through enterprise development and support;
- ▶ Ensuring Urban-Rural economic and social infrastructure development;

- ▶ Mobilising underutilised public assets and resources for Urban-Rural regeneration;
- ▶ Ensuring Urban-Rural revitalisation through marketing investment, retention and attraction;
- ▶ Provide for secondary Urban-Rural growth areas;
- ▶ Promote them as secondary nodes in support of corridor development;
- ▶ Promote compact urban development and combat urban sprawl;
- ▶ Promote focused investment and managed growth;
- ▶ Encourage the use of a single land use management system (township formalisation);
- ▶ Encourage social inclusion areas focus investment in people rather than places.

7.3.7.3: Promoting agriculture and associated agri-business and agri-industry

In the Agricultural Focus Area (AFA) and Urban-Rural Regeneration and Integration Areas (URR), the establishment and upgrading of agri-businesses and agri-industries must be supported in order to promote economic transition and to unlock the economic development potential in the Region. Therefore, proposed agricultural developments are situated in all three sub-regions of the study area: Sedibeng, Fezile Dabi, and Dr Kenneth Kaunda District Municipalities. The subject areas from Sedibeng District Municipalities (DM) include: Rietkuil Agri-Hub, Sebokeng Agri-Park, and Bantu Bonke (potential agri-villages). Subject areas from Fezile Dabi DM include: the Farm Mooidraai 44. The portion

covered by the Gert Sibande DM is already predominantly agricultural, whereas the Dr Kenneth Kaunda DM identifies some parts of the study area as high-potential agricultural land, as depicted in Figure 28.

The following types of businesses and agri-industries are examples of proposals aimed at growing the agriculture and associated agri-business and agri-industry outcomes:

- ▶ Field crop such as maize and milling co-operations;
- ▶ Agricultural product beneficiation, processing and packaging;
- ▶ Horticulture farming processing co-operations;
- ▶ Natural veld grazing and animal products;
- ▶ Abattoirs and meat processing and packaging industries;
- ▶ Fishing-related industries, including tourism-related industries along the Vaal River and fly fishing inland.

The proposal in this section supports the implementation of integrated urban-rural rural Agri-Hubs and Agri-Parks concept through the Region and in each District consisting of the following components:

- ▶ Rietkuil Agri-Hub,
- ▶ Parys Agri-Park
- ▶ Sebokeng Agri-Park, and
- ▶ Bantu Bonke (potential agri-villages)
- ▶ Vaal Aerotropolis Agrihub and Agriprocessing and export facility
- ▶ Zwartkopjes Agri-processing and facility

The NSDF also provides for the transformation and economic transition of regions that reflect high potential for agricultural opportunities recognising that these should be optimised, and that the establishment of small-scale farming activities, agri-enterprises and agri-led industrialisation must be supported. These are captured in the Agricultural Focus Area (AFA) discussed above.

7.3.7.4: Promoting tourism activities in appropriate areas with a competitive advantage

Tourism Zones are proposed throughout the Region and overlap with other macro land use areas such as the Urban-Rural Regeneration and Integration Areas (URR), Agri-business and Agri-industry Focus Areas (AFA), Tourism Nodes and Sites (T), Heritage Nodes and Sites (H), and Commercial Economic Nodes and Sites (C).

Tourism zones are areas where tourism must be actively promoted because it can contribute tremendously towards the local economy of the Region. However, all activities are subject to other provisions of the VRRSDF as well as applicable legislative requirements. The Tourism Zones are merely an indication of the areas where the Region should focus its efforts and resources to attract tourism and therefore contribute towards economic activity, job creation, and the provision of services. For the purposes of the VRRSDF, the Tourism Zones (T) are thus geographical areas or zones in the Region that have been designated or possess common or diverse cultural and environmental characteristics that would support and attract

tourism to the area through its natural and cultural/heritage resources. It includes tourism nodes and sites.

Tourism nodes are functional areas or places that encompass one or more sites of natural beauty, natural resources, or heritage sites that attract tourists, visitors, or holiday makers and that provide tourists with other facilities such as overnight accommodation, restaurants, and activities.

Proposed tourism developments and proposals are found across the study area as shown in Figure 56.

The subject areas are identified as follows:

- ▶ Sedibeng includes: Sharpville Struggle, Three Rivers, River Road, River Front, Walkerville, Sebokeng Struggle, Suikerbosrand, R42 Scenic, R54 Marina, R550 Klip Route; and Vanderbijlpark (Emerald Casino).
- ▶ Fezile Dabi includes: Parys, Deneysville and Oranjeville; and
- ▶ Dr Kenneth Kaunda is the Vredefort Dome.

Subsequently, Tourism Zones are proposed as follows: Tourism Zones (T):

- ▶ **T1: Vredefort Buffer Zone** consisting of:
 - Vredefort Dome Heritage Site.
- ▶ **T2: Heritage Nodes** consisting of:
 - Sharpville Struggle, Sebokeng Struggle,
 - Various other heritage sites in and around Sedibeng (see Annexure A).
- ▶ **T3: The Vaal River** consisting of:

- Flyfishing nodes consisting of: Parys, Deneysville and Oranjeville where flyfishing activities may take place.
- Scenic Routes: Three Rivers, River Road, River Front, Walkerville, R42 Scenic, R54 Marina, R550 Klip Route.
- Vanderbijlpark Emerald Casino.

► **T4: Suikerbosrand Nature Reserve**

► **T5: Koppies** consisting of: the town, Koppies dam and nature reserve

► **T6: Kroonstad** consisting of: the town, Bloemhoek dam, Valsrivier and surrounding game and nature reserves.

The protection and management of ecological infrastructure, national resources and protected areas that are regarded as critical for the transformation and economic transition of the Region are provided for in Objective 2 as described in Section 7.3. Tourism is a prominent feature and theme throughout the entire VRRSDF and also one of the transformation components. The overarching strategy is to develop the tourism sector, including creative industries such as the film-making industry.

7.3.7.5: Ensuring mining transition is supported towards productive economic activities

The South African government has prioritised attracting investment into the mining and minerals primary sub-sector and is finalising the mining exploration strategy for the country with a

core focus on the development of the upstream gas industry, due to its potential for job creation and broader economic development. However, the mining and quarrying activities in the Vaal River region are reaching the end-of-life-of-mine (LOM), this is reflected in the decline in the sub-sector and subsequent loss of jobs. Despite the expectations of investment for exploratory purposes, it is not expected that mining and quarrying will continue to be long-term drivers of economic growth within the region. This outlook is further exacerbated by volatility in the sector due to for example, exchange rate volatility and the global growth outlook. The long-term coal mining opportunities – on which the mining sector is based in the region also remain limited, further driving a limited growth outlook for mining and quarrying in the region. The focus of this sub-objective is to maximise growth where possible from the existing mining operations and consider a transition away from mining towards industrial, commercial, agricultural and tourism activities that will ensure long-term sustainable economic growth in the region. The areas that will be most affected by a transition away from mining include: Moqhaka, Metsimaholo, and Emfuleni. Though, no new development works, or mining proposals have been identified, possibilities of sand mining and gravel quarrying in Mafube should be explored. However, there are existing mining activities in the study area. The existing mines are situated in the central area and include:

- Bantu Bonke (Sand quarry along the Vaal River), and
- New Vaal Colliery (coal mine).

7.3.7.6: Promoting commercial activities in appropriate areas with a competitive advantage

Currently trade and manufacturing in the Midvaal local municipality are linked to the steel and petrochemicals sub-sectors. Although the steel sector is in rapid decline and efforts to move into higher demand secondary sectors are needed to offset the potential job losses related to the decline in this sector. Several national retailers have also committed to ambitious localisation sourcing plans. The manufacturing sector also has the potential to expand into agri-processing activities including the production of biofuels, beer, ales, and salad dressings derived from primary agricultural products.

Proposed commercial developments are also mostly situated in the central area being from Sedibeng, thus including:

- ▶ Savannah City,
- ▶ Sicelo,
- ▶ Mamello,
- ▶ Evaton,
- ▶ Beverley Hills,
- ▶ Palm Springs,
- ▶ Boipatong,
- ▶ Bophalong, and

- ▶ Sebokeng.

Further commercial activities are also identified through the Emfuleni Local Municipality Spatial Development Framework which identifies the **Vaal River City concept**. This is expected to represent a R1.4 billion investment into a new mega-city project and airport south of Johannesburg that will comprise of a mixed-use metropolitan city development, an international airport, along with logistics, manufacturing, and agricultural hubs, including up to 5,000 residential units. The development is expected to attract skilled labour and potentially deliver up to 7,000 new jobs.

- ▶ **Kroonstad (Maokeng)** as the third largest city in the Free State is also earmarked for further commercial and industrial development given its spatial location and support network specifically for commercial agriculture.
- ▶ A **special economic zone (SEZ)** has been identified for the development of a logistical hub in Emfuleni. This is an important flagship project within the Vaal River region. The potential components of the Logistics Hub include a Transnet container depot, an Industrial Development Zone, an airport, warehouses and storage Facilities, and Intelligence Information Infrastructure.

7.3.8: Implementation Action Plan

Table 24: Implementation Action Plan: Economic Development

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Sub-objective 1: Providing opportunities for industrialisation and economic diversification					
Provide opportunities for industrialisation and economic diversification.	High	Entire project area	2030	Collaboration of local, district , provincial and national governments	DTIC, DALRRD, COGTA
Support large-scale regional economic and employment change in the region through innovation, diversification, adaptation and the repurposing of existing industrial land and associated infrastructure.	Medium	Entire project area	2027	Local municipalities within the Region	DTIC, DALRRD, COGTA
Introduce a special collaborative programme in government (provincial sector department and municipalities)	High	Entire project area	2025	Local and provincial governments	DTIC, DALRRD

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
with a specific focus on ensuring innovation and economic diversification.					
Develop a focussed economic development strategy, with a focus on diversification, investment attraction and skills development. The strategy should be formulated in a collaborative manner, including key regional stakeholders such as agricultural forums, mining houses, tourism councils, labour organisations, large investors, and environmental action groups.	High	Entire project area	2025	Local and provincial governments	DTIC, DALRRD, Department of Minerals and Energy (DME), Department of Tourism (DoT), Chambre of Commerce.
Avoid approving applications and proposals for land-uses that reduce stream flow or affect water quality (e.g. mining operations).	High	Entire project area	2025	DALRRD	Local and provincial governments
Promote the diversification of the local economy by creating an enabling environment.	Medium	Entire project area	2027	Local and provincial governments	All

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Promote and facilitate the development the Vaal SEZ.	Medium	Entire project area	Ongoing	Collaboration of local, district, provincial and national governments	DTIC, DALRRD
Ensure that ecological infrastructure is maintained because it supports water security, food security and disaster risk reduction.	High	Entire project area	Ongoing	Local and provincial governments	DFFE
Sub-objective 2: Advocating and ensuring urban-rural economic linkages and regeneration					
Revitalise rural areas affected by disinvestment, poor infrastructure, skills deficits and low levels of economic development, through alignment and prioritisation that promotes, and will result in, the spatial transformation and economic development of these areas as follows:					
Expedite urban and rural land reform.	Medium	Entire project area	Ongoing	Department of Planning, Monitoring and Evaluation (DPME), DALRRD	Local Municipal Authorities, Provincial Departments
Strengthen the Regional Development Anchors and Rural Service Centres as focal points.	Medium	Entire project area	Ongoing	DPME, DALRRD, Local municipalities.	Local Municipalities

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Promote local economic development, fight poverty and limit income leakage.	Medium	Entire project area	Ongoing	DALRRD, DPME, Local municipalities	Provincial municipalities
Establish a joint public-private action group to manage the threat to Vaal River Region's water and productive land resources prioritising the impact on formal and informal urban sprawl.	High	Entire project area	2025	DPME	DFFE

Rural-Urban regeneration must be coupled with land reform, of which the following should form the key for rural development:

Government must ensure that tenure reform and restitution and redistribution lead to tenure security, a just economic transformation, and sustainable development.	Medium	Entire project area	Ongoing	DALRRD, DPME, DFFE	Local municipalities
Create opportunities that ensure sustainable livelihoods in rural areas and marginalised areas to promote transformation of communities and the economy in general and to attract private investment in marginalised areas.	Medium	Entire project area	2030	DALRRD, DPME	Local municipalities

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Improve the transportation networks and enhance urban-rural and rural-rural connectivity.	Medium	Entire project area	2035	Department of transport (DoT)	Provincial municipalities
Encourage communities and traditional leaders to participate in rural development where land rights have been restored and where there is agri-tourism, agriculture, and eco-tourism potential.	Low	Rural development nodes, Agriculture nodes, and Tourism nodes	2025	DALRRD	Local municipalities, Traditional leaders
Ensure small-town redevelopment and regeneration to support the rural communities.	High	Small-town nodes	2030	Local municipalities	Provincial municipalities, DALRRD
Develop guidelines for Urban-Rural regeneration and integration.	Medium	Urban-rural regeneration nodes	2025	DPME and DALRRD	Local municipalities
Sub-objective 3: Promoting agriculture and associated agri-business and agri-industry					
Consolidate existing small-and medium-scale agriculture support programmes, protect and optimise high-value agricultural land, and strengthen the	Medium	Agriculture zones	2030	DALRRD	Provincial and Local municipalities

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
focus on job-intensive agro-processing in the area.					
Provide for agri-business and agri-industries in areas such as: <ul style="list-style-type: none"> • Rietkuil Agri-Hub, • Sebokeng Agri-Park, and • Bantu Bonke (potential agri-villages) • Vaal Aerotropolis Agri Hub • 2. Agriprocessing Emfuleni and Zwartkoppjes • 3. Agrivoltaics - Emfuleni and Zwartkoppjes 	High	Agriculture zones: Rietkuil Agri-Hub, Sebokeng Agri-Park, and Bantu Bonke (potential agri-villages)	2030	DALRRD	Provincial and Local municipalities
Establish a joint public-private action group to manage the threat to Vaal River Region's water and productive land resources prioritising the maintenance of productive agriculture, especially for small scale farmers close to urban centres.	High	Entire project area	2025	DALRRD	All stakeholders

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Promote agrarian transformation as set out elsewhere in these strategies.	Medium	Agriculture zones	2030	DALRRD	Provincial and Local municipalities, Traditional leaders
Ensure and support the development of agri-processing and agri-hubs.	High	Agriculture zones and identified agri-hubs	2027	DALRRD	Provincial and Local municipalities
Agrarian transformation in the Region must aim to increase agricultural production through:					
The optimal and sustainable use of natural resources.	High	Entire project area	Ongoing	DFFE, DALRRD	Provincial and Local municipalities
The use of appropriate technologies to ensure food security.	Low	Entire project area	Ongoing	DALRRD, Department of Science and Innovation (DSI)	Provincial and Local municipalities
Investment in restoring and maintaining ecological infrastructure in support of water security, food security and disaster risk reduction strategies including those related to climate change.	Medium	Entire project area	Ongoing	DFFE, Department of Science and Innovation (DSI)	Provincial and Local municipalities
Sub-objective 4: Promoting tourism activities in appropriate areas with a competitive advantage					

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Vaal River Region tourism activities: Enhance the rural tourism experience, especially along heritage corridors for example the Vredefort Dome.	Medium	Heritage corridors, Tourism corridors	2030	Department of Tourism (DoT)	Local Municipalities
Develop the “Biodiversity and Blue economies” within the Region.	High	Entire project area	2030	DFFE	Provincial and Local municipalities
Promote eco-tourism, agri-tourism and the accommodation sector in appropriate areas and areas with agglomeration benefits.	High	Heritage corridors, Tourism corridors	2030	Department of Tourism (DoT)	Local Municipalities
Promote tourism through heritage sites and exposure to them through targeted marketing campaigns.	Medium	International, Regional, National, Local	2026	Department of Tourism (DoT)	Local Municipalities
Support the provision of land uses and activities that compliment tourism and the Tourism Zones in general, such as the catering and the accommodation industry, laundry services, food provision, aqua-activities, bird-watching, security	Medium	Tourism zones	2035	Provincial, District and Local municipalities	Department of Tourism (DoT), DALRRD

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
<p>services, guided walks, boating, water-skiing, and fishing:</p> <ul style="list-style-type: none"> Local Municipalities must ensure that land use regulations promote and simplify the provision of land uses and activities that complement tourism, such as the catering and accommodation industry. 					
Sub-objective 5: Ensuring mining transition is supported towards productive economic activities					
<p>Support existing mining operations while transitioning away from mining and end-of-life mines. The existing mines are situated in the central area and include:</p> <ul style="list-style-type: none"> Bantu Bonke (Sand quarry along the Vaal River) and New Vaal Colliery (coal mine). 	Medium	Mining zones and mining corridors	Ongoing	DME	Provincial and Local municipalities
<p>Develop a mining transition strategy that identifies core industrial, tourism, and commercial activities that could be developed to ensure the mining-linked towns remain sustainable and alternative</p>	Medium	Mining zones and mining corridors	2025	DME	DALRRD, Provincial and Local municipalities

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
income is generated to absorb the job losses related to mining decline.					
Prioritise a mining transition through: <ul style="list-style-type: none"> • Expediting mining and rural land reform. • Strengthen the Regional Development Anchors and Rural Service Centres as focal points. 	Low	Mining zones and mining corridors	Ongoing	DALRRD, DME	Provincial and Local municipalities
Promote local economic development, fight poverty and limit income leakage.	High	Mining zones and mining corridors	Ongoing	DALRRD, DME, DPME	Provincial and Local municipalities
Sub-objective 6: Promoting commercial activities in appropriate areas with a competitive advantage					
Support large-scale regional economic and employment change in the region through innovation, diversification, adaptation and the repurposing of existing industrial land and associated infrastructure towards commercial and services orientated infrastructure.	High	Across the region	Ongoing	DTIC, Local municipalities	Provincial and Local municipalities, industrial sector bodies
Introduce a special collaborative programme in government (provincial	Medium	Across the region	2027	Provincial municipalities	Local municipalities

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
sector department and municipalities) with a specific focus on ensuring commercial diversification.					
Develop a focussed economic development strategy for commercial activities with a focus on diversification, investment attraction and skills development. The strategy should be formulated in a collaborative manner, including key regional stakeholders such as agricultural forums, mining houses, tourism councils, labour organisations, large investors and environmental action groups.	High	Commercial and Industrial zones and corridors	2025	DTIC	Provincial and Local municipalities
Prioritise the proposed commercial developments situated in the central area being from Sedibeng, thus including Savannah City, Sicelo, Mamello, Evaton, Beverley Hills, Palm Springs, Boipatong, Bophalong and Sebokeng.	Medium	Commercial and Industrial zones and corridors	Ongoing	Provincial and Local municipalities	Provincial and Local municipalities, DTIC, DALRRD, DPME

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Implementation Agency	Support Implementation Agency
Align spatial planning initiatives in the region to the Vaal River City development and logistics hubs.	Medium	Commercial and Industrial zones and corridors, Vaal River City development	Ongoing	Provincial and Local municipalities	Provincial and Local municipalities, DALRRD, DPME
Ensure spatial network alignment between Kroonstad (Maokeng), the Vaal River City, and the SEZs to ensure economic growth within the commercial, industrial, and agricultural sectors benefit from appropriate road and rail transport linkages, industrial hubs, and commercial connectivity.	Medium	Commercial and Industrial zones and corridors, SEZs	Ongoing	Provincial and Local municipalities	Provincial and Local municipalities

7.4: Objective 4: SOCIAL DEVELOPMENT: To Achieve Overall Social Betterment



Objective 4: SOCIAL DEVELOPMENT

This development objective represents a strategic approach to fostering comprehensive social development in the geographically and socio-economically diverse Vaal Region. This framework is informed by a holistic understanding of social development, one that recognises the interconnectedness of socio-spatial and economic dimensions in creating sustainable, equitable and inclusive communities.

At its core, the objective is guided by four fundamental strategies:

1. **Sustainable Settlement Patterns:** The aim here is to develop sustainable and integrated human settlements, with a focus on optimising land-use efficiency and the creation of diverse, and vibrant settlement patterns that are adapted to local conditions and population sizes within the Vaal

River Region. This strategy, therefore, acknowledges that a 'one-size-fits-all' approach is not viable for such a diverse region. As such, the proposal includes different residential densities and types of settlements, from small local towns to larger development anchors. This holistic approach aims to create well-balanced, resilient communities where local resources are optimally utilised, and opportunities for social and economic growth are maximised.

2. **Social Infrastructure:** The sub-objective places great emphasis on the importance of accessible, high-quality social infrastructure. It seeks to establish a well-distributed network of social services catering to varying population sizes and needs. This objective underscores the essential role of robust and accessible social infrastructure in enhancing the quality of life and fostering social development within the Vaal Region.
3. **Training/Higher Skills Development:** Recognising that education and skill development are fundamental drivers of social mobility and economic prosperity, this objective advocates for establishing and expanding diverse educational and vocational training opportunities across the Region. This includes strengthening formal education, promoting lifelong learning, and supporting initiatives that provide skills for the emerging digital economy.
4. **College Precinct or Village:** This objective underscores the transformative potential of higher education institutions as hubs of learning, innovation, and community development. The proposed establishment of a College

Precinct in Vereeniging aims to foster a vibrant and inclusive learning environment while also serving as a catalyst for local economic development and integration.

These sub-objectives interweave to form a coherent and integrative social development vision for the future of the Vaal River Region. This vision reflects the realities of the Region, acknowledging the challenges that come with inequality and uneven development while also seeking to leverage the opportunities that arise from the region's unique socio-cultural and natural assets. As such, these sub-objectives represent a pivotal tool for guiding future growth and development in a socially just, economically robust, and environmentally sustainable way.

7.4.1: Sub-objective 1: Sustainable Settlement Patterns

The Regional-Rural Development Model, put forward by the NSDF as one of its spatial development levers, has been taken as a point of departure for sustainable settlement patterns in the Vaal River Region. This model takes a systemic view and proposes the soft delineation of polycentric functional regions that have:



- ▶ At least one well-connected regional development anchor, located both within the region and on the national transport network to 'anchor' the region as a whole in, and connect it to the national space economy; and
- ▶ Social, cultural, historical, economic and cultural characteristics and attributes that would make the

development of a 'functional rural region' possible over time, and the potential for intra-regional rural-rural and rural-urban trade between towns and villages in the region.

The underlying principles are guided by elements such as the specific location, the inherent potential, and the optimal balance between the necessity for spatial planning and development to boost growth and transformation. This pertains to natural, environmental, urban and rural areas, while aiming to consolidate nodes in an efficient, productive and responsible way. These elements of spatial transformation and development are designed to foster unity in the spatial, social and economic spheres in a sustainable and resilient manner.

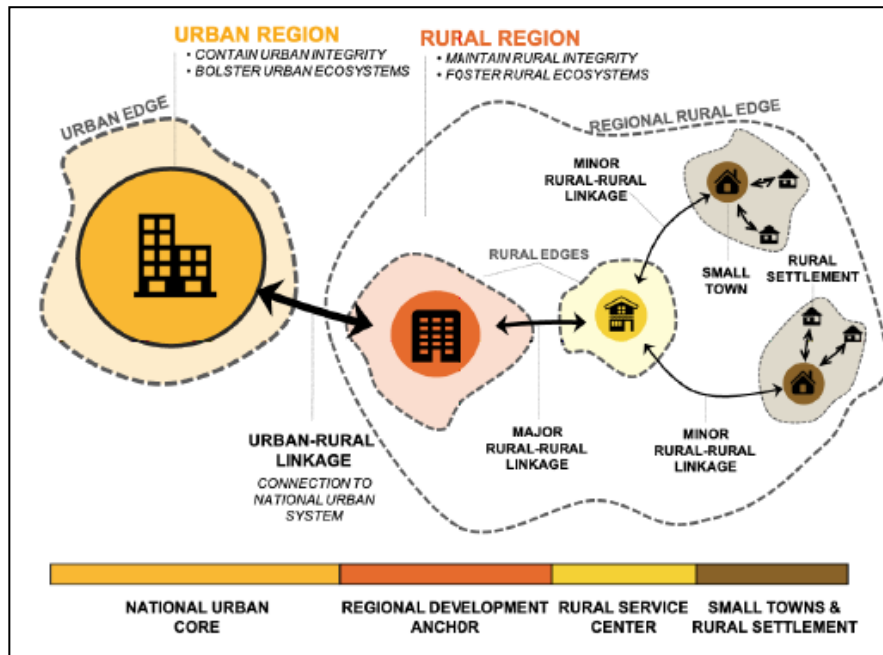


Figure 58: NSDF Regional- Rural Development Model

Source: NSDF, 2022

This will improve service delivery and infrastructure provision across all spatial systems within the Vaal River Region. The transformation aims to address the current disintegration of local spatial systems, optimally reflecting regional growth, spatial and developmental unity without compromising the natural environment. Thus, there is a need for improved and new infrastructure investment in the identified areas for rural and urban-focused spatial systems. The goal is to create a setting that encourages spatial justice, inclusiveness and opportunities for the Region's population. The applicability of the model is contextualised in the ensuing Tables.

Table 25: Vaal Urban Core

Vaal Urban Core	Population Size in relation to Service Level	Development Guidelines
Sasolburg, Vereeniging, Vanderbijlpark, Evaton, Sebokeng, Meyerton, Sicelo, Heidelberg, Zamdela	Service town for more than 60 000 people	<ul style="list-style-type: none"> • Refer to Table 36: Services for 60 000-plus People • Serves as a crucial hub for its surrounding areas, providing a range of important services and amenities. • Advocate for varied residential densities to meet diverse housing needs. Higher-density developments should ideally be positioned around public transit nodes and commercial hubs to support walkability and reduce reliance on private vehicles.

Vaal Urban Core	Population Size in relation to Service Level	Development Guidelines
Deneysville, Randvaal, De Deur, Ratanda	Small Service town for 10 000 to 19 000 people	<ul style="list-style-type: none"> • Refer to Table 33: Services for 10 000 to 19 999 People • Focus is on enhancing economic opportunities while also addressing social, environmental and spatial aspects. • Strive for balanced residential development that optimises the use of land, preserves natural resources and promotes a sense of community. • Incorporate diverse housing types, including affordable options, to accommodate varying household sizes and income levels.

Table 26: Regional Development Anchors

Regional Development Anchors	Population Size in relation to Service Level	Development Guidelines
Potchefstroom and Kroonstad	Service town for more than 60000 people	<ul style="list-style-type: none"> • Refer to Table 36: Services for 60 000-plus People • Moderate to High Residential Densities: With the town serving as a regional hub, it should aim for increased residential densities, to accommodate a diverse population and workforce. • Given the potential presence of rural communities in the broader region, the town should house facilities that support agricultural activities, such as agri-processing industries, agricultural extension services, and markets for farmers to sell their produce. • The initiatives for land reform in peri-urban areas should be associated with Agri-Hubs or FPSUs.

Table 27: Rural Service Centres

Rural Service Centres	Population Size in relation to Service Level	Development Guidelines
Parys, Balfour, Frankfort	Service town for 40 000 to 59 999 people	<ul style="list-style-type: none"> • Refer to Table 35: Services for 40 000 to 59 999 People • Focus is on creating a sustainable and vibrant regional hub that can meet the diverse needs of a growing population and surrounding areas. • Plan for mixed-density residential development, with medium to higher densities around the town centre and transportation hubs, transitioning to lower densities in peripheral areas. This can promote walkability and efficient use of services. • Facilitate the growth of agricultural industries by supporting agro-processing industries, farmers' markets, and other initiatives that add value to local agricultural products
Viljoenskroon, Heilbron	Service town for 20 000 to 39 999 People	<ul style="list-style-type: none"> • Refer to Table 34: Services for 20 000 to 39 999 People • The goal should be to ensure self-sustaining communities that can cater to the basic needs of the populace while offering a foundation for growth and development. • Plan for medium-density residential development to optimise land use and provide affordable housing options. This includes an appropriate mix of housing types and sizes to accommodate varying household needs. • As predominantly rural or farming towns, incorporate measures that support the local agriculture sector. This could include the provision of agricultural extension services, promotion of small-scale farming, or the establishment of local farmers' markets.
Ventersdorp, Vredefort, Koppies, Villiers, Edenville	Small Service town for 10 000 to 19 999 People	<ul style="list-style-type: none"> • Refer to Table 33: Services for 10 000 to 19 999 People • Focus is on enhancing economic opportunities while also addressing social, environmental, and spatial aspects. • Strive for balanced residential development that optimises the use of land, preserves natural resources, and promotes a sense of community. • Incorporate diverse housing types, including affordable options, to accommodate varying household sizes and income levels.

Table 28: Other towns/Settlements

Regional Development Anchors	Population Size in relation to Service Level	Development Guidelines
Tweeling, Cornelia	Small local town for 5 000 to 9 999 people.	<ul style="list-style-type: none"> • Refer to Table 32: Services for 5 000 to 9 999 People • Serves as a critical linkage between rural areas and larger urban centres, providing services and opportunities to its own residents and those in the surrounding countryside. • Strive for medium-density residential areas, reflecting the town's role as a transition between rural and urban lifestyles. These densities should support the provision of services and amenities without promoting urban sprawl.
Holly County, Vierfontein, Vaal Marina	Local service node for less than 4 999 people.	<ul style="list-style-type: none"> • Refer to Table 31: Services for 1 000 to 4 999 People • Preserving the natural and rural character of the area while ensuring the necessary infrastructure and services for the residents are adequately provided. • Develop compact and contiguous settlements to preserve agricultural lands and natural habitats, reducing fragmentation of these valuable lands. • Facilitate access to agricultural training, resources, and land for local residents to engage in small-scale farming activities. This supports rural livelihoods and promotes food security.

For informal settlements, the focus should be on the in-situ upgrade of existing informal settlements, prioritising the provision of essential services such as clean water, sanitation, electricity, and waste management to enhance the quality of life for residents. Simultaneously, establish measures to limit the expansion of new informal settlements by promoting affordable housing projects and creating economic opportunities in designated development areas (See Section 7.4.1.1 below). Informal settlements should also be integrated into the broader

urban fabric through improved connectivity and access to social services, education, and healthcare.

7.4.1.1: Housing

Future housing demand is influenced by the current housing supply gap and the amount of housing required to accommodate population growth. It is estimated that the current housing supply gap in the Region is slightly more than 27,500 units.

As illustrated in Figure 7 and Figure 59, population growth in the Region's municipalities and towns will be uneven. It is anticipated that Sasolburg, Potchefstroom, Meyerton, Heidelberg, and several smaller settlements in Lesedi and Midvaal will experience high to extreme levels of population growth. Sebokeng, Vereeniging, Kroonstad, Parys, Vrededorp, and Frankfort, as well as numerous smaller communities in Free State, will likely experience population declines.

Uneven population growth in towns and municipalities will result in uneven housing demand. Table 29: Additional Housing and Residential Land Requirements (2050) demonstrates the number of additional housing units required to accommodate future population growth and close the current vacancy. JB Marks municipality is anticipated to require the most housing units, followed by Emfuleni, Metsimaholo, Midvaal, and Lesedi.

Future housing is proposed to be constructed at a gross density of 50-100 HH/ha to limit urban sprawl and improve infrastructure and municipal service delivery. By 2050, the region will require 3 992 hectares of new residential land at a gross density of 50 dwelling units per hectare and 1 996 hectares of land at a gross density of 100 dwelling units per hectare.

Table 29: Additional Housing and Residential Land Requirements (2050)

Municipality	New Households (@3.5 HH size)- 2022-2050	Current Gap (HH or DU)	Total HH (DU) required	Residential Land Required (ha)- 50du/ha	Residential Land Required (ha)- 100 du/ha
Metsimaholo	29 371	5 749	35 120	702	351
Mafube	-	2 593	2 593	52	26
Moqhaka	-	3 874	3 874	77	39
Ngwathe	-	3 234	3 234	65	32
JB Marks	52 861	10 414	63 275	1 266	633
Midvaal	37 569	2 495	40 064	801	401
Emfuleni	-	29 419	29 419	588	294
Lesedi	15 547	1 742	17 289	346	173
Dipaleseng	3 237	1 477	4 714	94	47
Total	138 585	60 997	199 582	3 992	1 996

Source: Calculations based on CSIR Greenbook and StatsSA Census 2022 Information

Table 30 depicts the towns and settlements where population growth will necessitate the addition of more than 1,000 dwelling units. The highest number of additional housing units will be required in Potchefstroom, followed by Sasolburg, Heidelberg GT,

and Meyerton. As stated previously, many towns and settlements will experience a population decline; therefore, no additional housing units will be required in these settlements/ towns. However, the existing backlogs in housing provision must be addressed in all towns and settlements.

Table 30: Settlements Requiring 1000 + Additional Housing Units

Settlement	Population growth (2011-50)	Additional Housing Unit Requirements
Potchefstroom	160 268	45 791
Sasolburg	88 408	25 259
Heidelberg GT	83 366	23 819
Meyerton	82 856	23 673
Lakeside	22 183	6 338
Balmoral Estate	18 195	5 199
Deneysville	11 950	3 414
Ratanda	9 346	2 670
Ventersdorp	8 942	2 555
Walkerville	7 478	2 137
Risiville	7 007	2 002
Brenkondown	5 411	1 546
Balfour	3 789	1 083

Source: Calculations based on CSIR Greenbook, Quantec, and StatsSA 2011 Information

It is suggested that municipalities use infill development to find suitable spaces within existing urban edges to accommodate additional dwellings. Expanding any urban edge may only be required if the existing urban edge cannot accommodate the additional housing units and supporting facilities. The municipalities must also assist the Department of Human Settlements in improving informal settlements and providing subsidised housing to low-income families. It should also be noted that there are PSHDAs proposed in Vanderbijlpark, Vereeniging, Sebokeng, Sasolburg, Potchefstroom, and Ventersdorp.

(Note: The Johanna Jacobs Private Nature Reserve appears to be designated as PSHDA by DHS. It is recommended that DHS investigate the situation with GDARDE and take appropriate steps.)

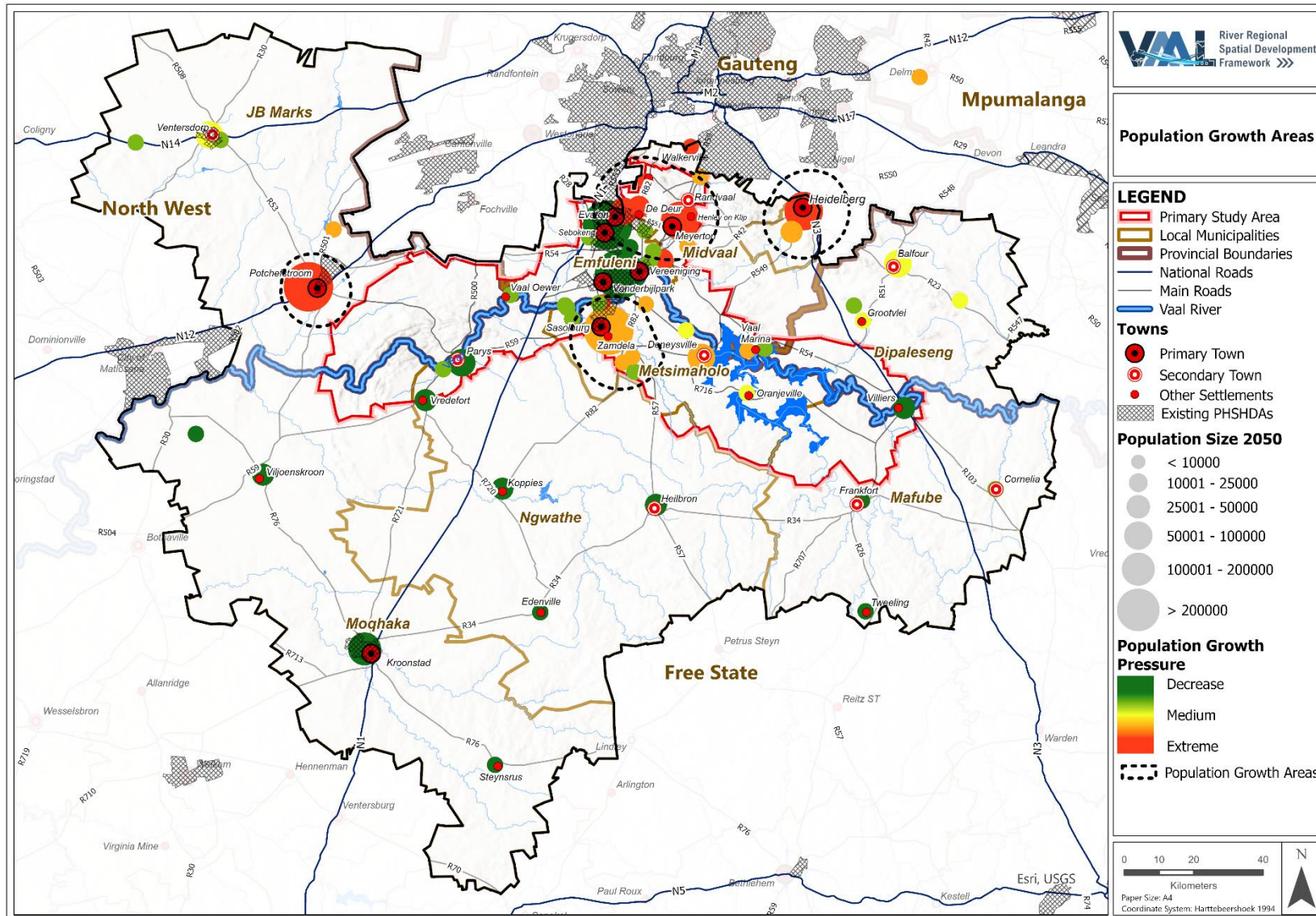


Figure 59: Population Growth Areas and PSHDAs

7.4.2: Sub-objective 2: Social Infrastructure

This strategy provides an intricate blueprint for guidelines that focus on the provision of social infrastructure in the Vaal River Region. Drawing from the CSIR Guidelines for Differentiated Provision of Social Services and the NSDF Social Services Wheel, the data presented offers vital parameters for designing and developing public facilities and services that cater to communities of various sizes within the Region.



The information segregates the requirements into diverse sectors such as Health, Education, Social Development, Community Halls, Libraries, Sports, Parks, and Cemeteries, along with Middle and Higher Order facilities integral to Government Service Clusters or Thusong Centres. Each sector is further divided into specific facility types, aligned with a distinct population threshold that the particular facility is projected to serve. The inclusion of maximum accessible distance (in kilometres) for each service underscores the importance of ease of access for the populations served, directly impacting the effectiveness of social development interventions.

The implications of this thorough population-centred approach are far-reaching. By tying infrastructure planning and development to the size of the population and its corresponding social-service's needs, these guidelines foster environments that are not only sustainable, but also equitable and conducive to the

flourishing of community life within the Vaal River Region. This alignment holds significant potential to enhance the quality of life, foster inclusivity, and ultimately contribute to the development of resilient, thriving communities.

Table 31: Services for 1 000 to 4 999 People

Sector	Facilities and Thresholds
Health	A satellite or mobile clinic should be ideally located within a 5km radius.
Education	For education, a small primary school should ideally serve a population of 1,000 (with an enrolment of 135 learners) to 2,199 (with an enrolment of 310 learners), and it should be within a 5km radius. A small secondary school should be available for populations of 2,000 (with an enrolment of 200 learners) to 3,999 (with an enrolment of 400 learners) within a 5km radius.
Social Development	A crèche should serve a population of 2,400 to 3,500 within a 5km radius. A social grant pay point should be available for every 100 beneficiaries within a 5km radius.
Government Service Cluster	A mobile e-Government service (with a minimum of Home Affairs & SASSA services at least once a month) should be accessible to a population of 2,000 to 9,999 within a 25/40km radius.

Sector	Facilities and Thresholds
Sports	Sports facilities should ideally be available to populations of 3,000 or more within a 5km radius.
Parks	A community park should ideally be within 5km for every 2,000 people.
Cemeteries	Cemeteries should ideally provide 0.26ha per 1,000 people.

Table 32: Services for 5 000 to 9 999 People

Sector	Facilities and Thresholds
Health	A basic clinic should be ideally within a 5km radius.
Education	A medium-sized primary school should cater to a population between 2,200 (enrolling 311 students) and 4,399 (enrolling 620 students) within a 5km radius. A medium-sized secondary school should cater to a population between 4,000 (with 401 enrolled students) and 5,999 (with 600 enrolled students), also within a 5km radius.
Social Development	Crèches should ideally be within a 5km radius for populations of 2,400 to 3,500. Social grant pay

Sector	Facilities and Thresholds
	points should be within a 5km radius for every 100 beneficiaries.
Government Service Cluster	Mobile e-Government services (with a minimum of Home Affairs & SASSA services at least twice a month) should be accessible to a population of 2,000 to 9,999 within a 25/40km radius.
Libraries	A basic public library should serve a population between 5,000 to 24,999 within a 5km radius.
Sports	Sports facilities should ideally be available to populations of 3,000 or more within a 5km radius.
Parks	A community park should ideally be within 5km for every 2,000 people.
Cemeteries	Cemeteries should ideally provide 0.26ha per 1,000 people.

Table 33: Services for 10 000 to 19 999 People

Sector	Facilities and Thresholds
Health	A small clinic should be within a 5km radius.

Sector	Facilities and Thresholds
Education	A medium-sized primary school should serve populations between 2,200 (with an enrolment of 311 students) and 4,399 (with an enrolment of 620 students) within a 5km radius. A medium-sized secondary school should cater to a population between 4,000 (with 401 enrolled students) and 5,999 (with 600 enrolled students) also within a 5km radius.
Social Development	Crèches should ideally be within a 5km radius for populations of 2,400 to 3,500. Social grant pay points should be within a 5km radius for every 100 beneficiaries.
Government Service Cluster	Multi-Purpose Community Centre (MPCC)/Thusong Satellite Centres (with a minimum of weekly Home Affairs & SASSA) should be accessible to populations between 10,000 to 19,999 within a 25/40km radius.
Libraries	A basic public library should serve a population between 5,000 to 24,999 within a 5km radius.
Sports	Sports facilities should ideally be available to populations of 3,000 or more within a 5km radius.

Sector	Facilities and Thresholds
Parks	A community park should ideally be within 5km for every 2,000 people.
Cemeteries	Cemeteries should ideally provide 0.26ha per 1,000 people.

Table 34: Services for 20 000 to 39 999 People

Sector	Facilities and Thresholds
Health	A standard clinic should be accessible within a 5km radius.
Education	Medium-sized primary and secondary schools should cater to certain population ranges within a 5km radius: 2,200 to 4,399 (with an enrolment of 311 to 620 students) for primary schools, and 4,000 to 5,999 (with an enrolment of 401 to 600 students) for secondary schools.
Social Development	Crèches and social grant pay points should be within a 5km radius for populations of 2,400 to 3,500 and every 100 beneficiaries, respectively.
Community Hall	A D-grade hall should be within a 10km radius for populations between 15,000 and 19,999.

Sector	Facilities and Thresholds
Libraries	A basic public library should cater to a population between 5,000 to 24,999 within a 5km radius.
Sports	Sports facilities should be available to populations of 3,000 or more within a 5km radius.
Parks	A community park should ideally be within 5km for every 2,000 people.
Cemeteries	Cemeteries should ideally provide 0.26ha per 1,000 people.
<i>Middle & Higher Order Facilities (preferably as part of a Government Precinct or Thusong Centre / Cluster)</i>	
Community Halls	A C-grade hall should be within a 15km radius for populations between 20,000 to 29,999.
Government Service Cluster	A small Thusong Centre/ Government Precinct with Home Affairs, SASSA, SAPS and Labour Office should serve populations between 20,000 to 59,999 within a 25/40km radius.
SASSA	A SASSA office should be accessible within a 40km radius for populations between 30,000 to 120,000.
Home Affairs	A Home Affairs Office should serve populations between 20,000 to 200,000 within a 25km radius.

Sector	Facilities and Thresholds
Social Development	Both a Children's Home and a Home for the Aged should be within a 25km radius for populations between 20,000 to 60,000.

Table 35: Services for 40 000 to 59 999 People

Sector	Facilities and Thresholds
Health	A standard clinic should be accessible within a 5km radius for populations between 20,000 and 39,999, while a large clinic should serve populations between 40,000 and 59,999 within a 10km radius.
Education	Medium-sized primary and secondary schools should cater to certain population ranges within a 5km radius: 2,200 to 4,399 (with an enrolment of 311 to 620 students) for primary schools, and 4,000 to 5,999 (with an enrolment of 401 to 600 students) for secondary schools.
Social Development	Crèches and social grant pay points should be within a 5km radius for populations of 2,400 to 3,500 and every 100 beneficiaries, respectively.

Sector	Facilities and Thresholds
Community Hall	A C-grade hall should be within a 15km radius for populations between 20,000 and 29,999. For populations between 30,000 and 59,999, a B-grade hall should be within a 15km radius.
Libraries	A basic public library should cater to a population between 5,000 to 24,999 within a 5km radius. For populations between 50,000 to 150,000, a branch public library should be within a 10km radius.
Sports	Sports facilities should be available to populations of 3,000 or more within a 5km radius.
Parks	A community park should ideally be within 5km for every 2,000 people.
Cemeteries	Cemeteries should ideally provide 0.26ha per 1,000 people.
Middle & Higher Order Facilities (preferably as part of a Government Precinct or Thusong Centre / Cluster)	
Government Service Cluster	A small Thusong Centre/Cluster or MPCC with a range of government services, including SASSA, Home Affairs, and SAPS should serve populations between 20,000 to 59,999 within a 25/40km radius.

Sector	Facilities and Thresholds
SASSA	A SASSA office should be accessible within a 40km radius for populations between 30,000 to 120,000.
Home Affairs	A Home Affairs Office should serve populations between 20,000 to 200,000 within a 25km radius.
Social Development	Both a Children's Home and a Home for the Aged should be within a 25km radius for populations between 20,000 to 60,000.

Table 36: Services for 60 000-plus People

Sector	Facilities and Thresholds
Health	A large clinic should serve populations from 40,000 to 59,999 within a 10km radius. A community health centre should be accessible for populations of 60,000 to 149,999 within a 10km radius. A general hospital should serve populations of 150,000 to 900,000 within a 30km radius.
Education	Medium-sized primary and secondary schools should cater to certain population ranges within a 5km radius: 2,200 to 4,399 (with an enrolment of 311 to 620 students) for primary schools and 4,000 to

Sector	Facilities and Thresholds
	5,999 (with an enrolment of 401 to 600 students) for secondary schools.
Social Development	Crèches and social grant pay points should be within a 5km radius for populations of 2,400 to 3,500 and every 100 beneficiaries, respectively.
Community Hall	A B-grade hall should be within a 15km radius for populations between 30,000 and 59,999. For populations between 60,000 and 300,000, an A-grade hall should be within a 15km radius.
Libraries	A basic public library should cater to a population between 5,000 to 24,999 within a 5km radius. For populations between 50,000 to 150,000, a branch public library should be within a 10km radius.
Sports	Sports facilities should be available to populations of 3,000 or more within a 5km radius.
Parks	A community park should ideally be within 5km for every 2,000 people.
Cemeteries	Cemeteries should ideally provide 0.26ha per 1,000 people.
Middle & Higher Order Facilities (preferably as part of a Government Precinct or Thusong Centre / Cluster)	

Sector	Facilities and Thresholds
Government Service Cluster	A government precinct or large Thusong Centre with permanent Home Affairs, SASSA, SAPS & Labour offices (and possibly incorporating a Clinic & Court) should serve populations between 60,000 to 200,000 within a 25/40km radius.
SASSA	A SASSA office should be accessible within a 40km radius for populations between 30,000 to 120,000.
Home Affairs	A Home Affairs Office should serve populations between 20,000 to 200,000 within a 25km radius.
Social Development	Both a Children's Home and a Home for the Aged should be within a 25km radius for populations between 20,000 to 60,000.

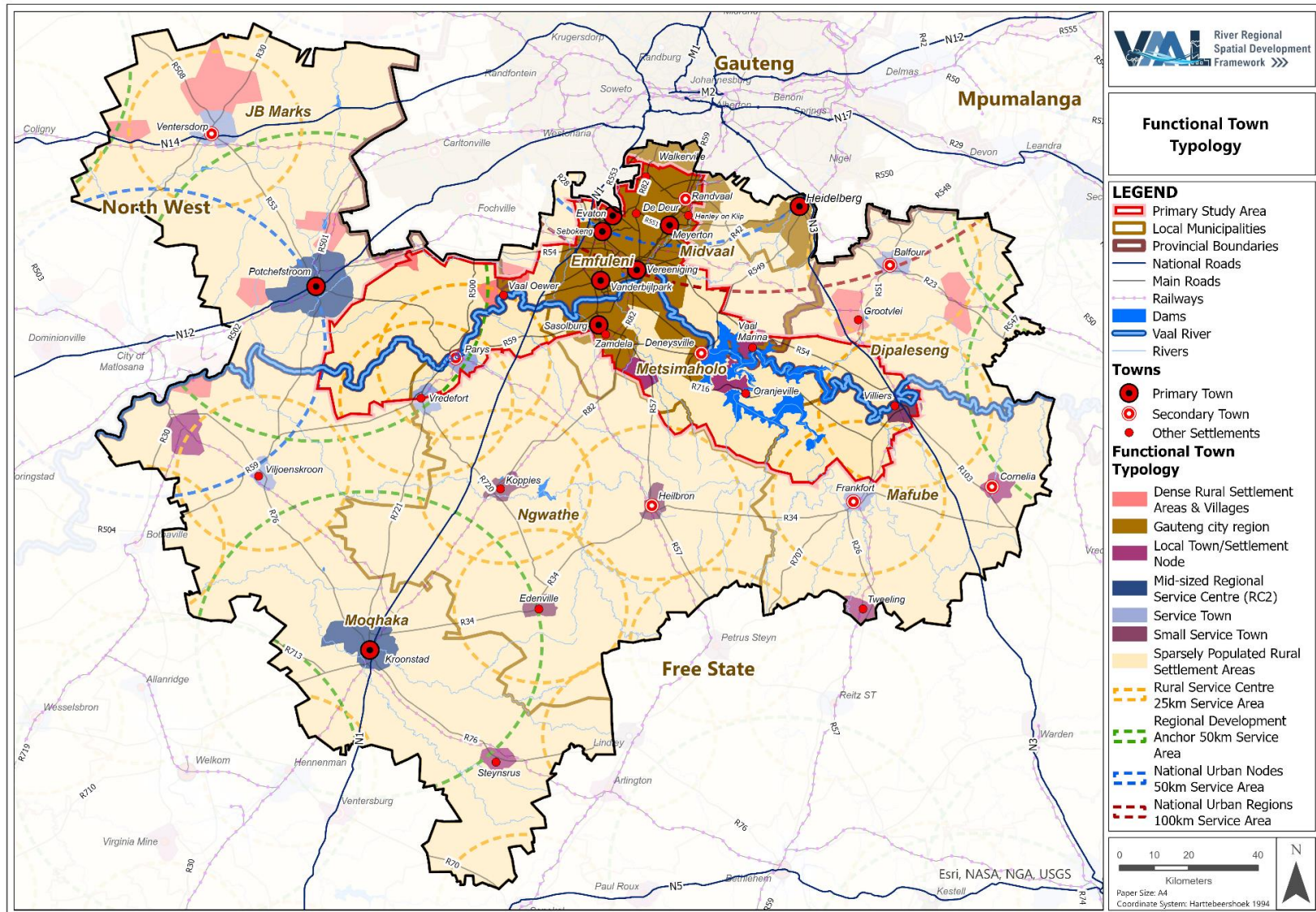
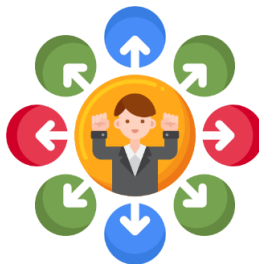


Figure 60: Functional Town Typology for Social Facilities Provision

7.4.3: Sub-objective 3: Training/ Higher Skills Development

This strategy focuses on Training or Higher Skills Development, guided by the necessity for equitable access to quality education and vocational training across the Vaal River Region. The concept of spatial justice, underpinning the country's National Spatial Development Framework (NSDF), strongly advocates for a distribution of public goods and services that eradicates spatial biases, favouring a more inclusive and equitable landscape.



In line with this, the subsequent strategies have been carefully curated to serve communities of all sizes within the Region. These initiatives are designed to foster a knowledgeable society, competent workforce and dynamic economy conducive to the Vaal River's broader developmental goals and South Africa at large.

Recognizing the diverse contexts and unique challenges present across the Region, stakeholders are encouraged to contemplate these proposals, adapting and optimising their implementation to best meet local needs and ensure viability. The following proposals serve as a roadmap towards achieving spatial equity and catalysing socio-economic development, providing a pathway for a better future for the Region.

7.4.3.1: Community-Based Training Centres

Establish local training centres in townships and underprivileged areas, which should provide vocational and skills development training in line with South Africa's National Skills Development Strategy (NSDS).

7.4.3.2: Hybrid Higher Education Institutions

Promote partnerships with the Region's institutions of learning such as the North West University and TVET colleges to offer hybrid learning models that combine online and in-person classes. Locate campuses in areas with reliable public transportation and internet connectivity to facilitate learning.

7.4.3.3: E-Learning Hubs with Support Services

Develop e-learning hubs in line with South Africa's e-Education strategy. Along with digital learning resources, these hubs should provide support for digital literacy, which is critical in bridging the digital divide in the Vaal River Region's communities.

7.4.3.4: Enterprise Development and Mentorship Programs

Develop spaces that encourage entrepreneurial activities and provide access to mentorship. This aligns with South Africa's National Small Business Strategy and could involve collaboration with local Small Enterprise Development Agency (SEDA) offices.

7.4.3.5: Industry-Academia Partnerships

Encourage partnerships between local industries and academic institutions, facilitating internships, apprenticeships and work-integrated learning. This could align with the goals of Sector Education and Training Authorities (SETAs).

7.4.3.6: Transformation of Public Libraries

Upgrade public libraries into community learning centres. These facilities could offer adult basic education and training (ABET) programmes, in addition to various professional development courses.

7.4.3.7: Transport and Housing Solutions

Develop affordable housing options and robust public transportation links near training facilities. This aligns with the broader objectives of the NDP, making education more accessible for all South Africans.

7.4.3.8: Community Engagement

Involve local communities in the planning and implementation of these facilities. Community participation is a key part of the IDP process, ensuring that services meet the community's needs and receive their support.

7.4.4: Sub-objective 4: College Precinct

As part of the concerted efforts to further the cause of spatial development within the Vaal River Region, the expansion of higher education access stands as a key objective. Vereeniging, a city characterised by its urban vibrancy, industrial strength and demographic potential,



has been identified as the ideal location for the establishment of the College Precinct. This strategy affirms Vanderbijlpark as the optimal choice considering its desirable attributes, such as its strategic centrality, robust infrastructure and economic dynamism as detailed below:

- ▶ **Centrality:** Vereeniging is strategically located at the heart of the Vaal River Region or future metropolitan area. This central positioning lends itself to exceptional accessibility, ensuring that students from diverse areas within the Region can conveniently reach the precinct. This centrality aligns with the principle of spatial justice, facilitating equitable access to higher education.
- ▶ **Infrastructure:** Vereeniging is well-equipped with a robust network of roads, ensuring seamless connectivity. In addition, it is home to two tertiary learning campuses. This strong Infrastructure infrastructural backbone is critical in facilitating student contact.
- ▶ **Population Demographics:** Vereeniging is one of the most populous cities in the Vaal Triangle and therefore presents a significant potential student base. A diverse student

community enriches the educational experience and fosters a vibrant campus life.

- ▶ **Proximity to Johannesburg:** Vereeniging's nearness to Johannesburg, a premier economic hub in Africa, offers students unparalleled access to internships, job placements and industry interactions. This proximity could facilitate a strong industry-academia linkage, significantly enhancing the value of the educational programs offered by the College Precinct.
- ▶ **Existing Educational Institutions:** The presence of existing educational institutions within Vereeniging testifies to a

conducive environment for learning. The proposed College Precinct can integrate into and further enrich this established academic ecosystem.

Opting for Vereeniging as the location for a College Precinct aligns perfectly with the spatial justice goals embedded in the National Spatial Development Framework and SPLUMA. This decision is not merely about constructing an educational institution; it is about embracing an opportunity to strategically boost access to quality higher education, stimulate socio-economic growth, and support the comprehensive development vision for the Vaal River Region.

7.4.5: Implementation Action Plan

Table 37: Implementation Action Plan: Social Development

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Agency	Implementation	Support Implementation Agency
Sub-objective 1: Sustainable Settlement Patterns							
Implement a hierarchy of activity nodes based on the Regional-Rural Development Model.	Short		Entire area	project	2028	Local municipalities within the Region	DALRRD, Department of Cooperative Governance and Traditional Affairs (CoGTA)
Implement zoning regulations to promote mixed-use development and densification in identified areas.	Continual		Entire area	project	Continual	Local municipalities within the Region	DALRRD, Department of Cooperative Governance and Traditional Affairs (CoGTA)
Develop or improve public transportation networks to facilitate mobility and access to services across the region.	Short		Entire area	project	2025	Local and provincial governments	SANRAL, Department of Transport
Sub-objective 2: Social Infrastructure							

Project/ Programme	Priority Rating (high-medium-low)	Geographic Extent	Timeframe	Lead Agency	Implementation Agency	Support Agency
Carry out a needs assessment to understand the current state of social infrastructure and the specific needs of different communities.	Medium	Entire area	project 2023	Department of Planning, Monitoring and Evaluation (DPME)	Local Authorities, Provincial Departments, Statistics South Africa (Stats SA)	Municipal, Provincial
Source funding and partnerships to support the development of social infrastructure.	Medium	Entire area	project 2030	National Treasury	Local Authorities, Provincial Departments, DBSA	COGTA, Municipal
Sub-objective 3: Training/Higher Skills Development						
Establish partnerships with higher education institutions, industry partners, government agencies, and NGOs to provide training programs, resources, and facilities.	Medium	Entire area	project 2030	Department of Higher Education and Training (DHET)	Sector Education and Training Authorities (SETAs), National Skills Authority (NSA), Universities and Technical and Vocational Education and Training (TVET) Colleges	
Create a development plan for establishing community-based training centres, e-learning hubs, enterprise	Medium	Entire area	project 2030	Department of Higher Education and Training (DHET)	Sector Education and Training Authorities (SETAs), National Skills Authority (NSA),	

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Agency	Implementation Agency	Support Implementation Agency
development programmes, and industry-academia partnerships.							Universities and Technical and Vocational Education and Training (TVET) Colleges
Monitor and evaluate the effectiveness of training programs and partnerships, as well as the impact on job creation and economic development.	Medium		Entire project area	2030	Department of Higher Education and Training (DHET)		Sector Education and Training Authorities (SETAs), National Skills Authority (NSA), Universities and Technical and Vocational Education and Training (TVET) Colleges
Sub-objective 4: College Precinct							
Conduct a feasibility study to establish a college precinct in Vereeniging, taking into account various factors.	Medium		Entire project area	2028	Department of Higher Education and Training (DHET)		Local Municipalities, Universities and Technical and Vocational Education and Training (TVET) Colleges, Department of Public Works (DPW)
Engage with stakeholders (government agencies, higher education institutions, industry partners) to develop a blueprint for the College Precinct.	Medium		Entire project area	2028	Department of Higher Education and Training (DHET)		Local Municipalities, Universities and Technical and Vocational Education

Project/ Programme	Priority (high-medium-low)	Rating	Geographic Extent	Timeframe	Lead Agency	Implementation Agency	Support Implementation Agency
							and Training (TVET) Colleges, Department of Public Works (DPW)
Source funding and partnerships to support the development of the College Precinct.	Medium		Entire project area	2028	Department of Higher Education and Training (DHET)		Local Municipalities, Universities and Technical and Vocational Education and Training (TVET) Colleges, Department of Public Works (DPW)

7.5: Objective 5: INSTITUTIONAL MANAGEMENT: To Achieve Institutional Accountability and Pro-Development Administration



Objective 5: INSTITUTIONAL MANAGEMENT

This objective entails the following sub objectives:

- ▶ Governance - Promote Collaboration and Intergovernmental Coordination through the establishment of Vaal River RSDF Governance Body.
- ▶ Align and Coordinate Land Use Management Mechanisms
- ▶ Integrated Management of the Vaal River

These actions pertain to the developmental context and facilitation of development processes to attain a pro-development approach within the constitutional mandates of national, provincial and local government structures.

7.5.1: Context of the VRRSDF Study Area

The VRRSDF Study Area comprise of a geographical area characterised by distinctive economic, social and natural features which is functional and cross over municipal and provincial boundaries.

The quality of management practices is key to improving performance, productivity, service delivery and a positive attitude towards development within the tiers of the public sector.

The Vaal River RSDF consists of:

- ▶ Four Provinces (Gauteng, Free State, Mpumalanga and North West).
- ▶ Four District Municipalities (Sedibeng, Fezile Dabi, Gert Sibande and Dr. Kenneth Kaunda).
- ▶ Nine Local Municipalities (Midvaal, Emfuleni, Lesedi, Metsimaholo, Ngwathe, Mafube, Moqhaka, Dipaleseng and JB Marks).

7.5.2: Sub Objective 1: Governance - Promote Collaboration and Intergovernmental Coordination through the establishment of Vaal River RSDF Governance Body

Regional integration and growth can only be achieved through a dedicated and coordinated approach. This underscores the importance of establishing a functional Governance Body to ensure regional integration and development of the VRRSDF region by driving implementation through collaboration.



Broadly “Regional Governance” refers to the rules, procedures and practices used by institutions at regional level which will be the backbone of the VRRSDF implementation process. In light of the implementation of VRRSDF, governance refers to: -

- ▶ Establishing structures and processes that are designed to ensure accountability, transparency, responsiveness, the rule of law, stability, equity and inclusiveness, empowerment, and broad-based participation.
- ▶ Upholding the norms, values and rules of the game through which public affairs are managed in a manner that is transparent, participatory, inclusive and responsive.

7.5.2.1: SPLUMA and Regional Governance

The legislative context of a region is linked to the term 'regional planning' mentioned Schedule 4 of the Constitution which is a functional area of concurrent national and provincial

competence thereby highlighting the role of provincial and national governments. SPLUMA establishes an integrated spatial planning system in South Africa which is built on:

- ▶ The preparation of spatial development frameworks,
- ▶ Principles, norms and standards for spatial planning, land use management and development planning,
- ▶ Land use mechanisms through land use schemes, and
- ▶ Procedures and processes to deal with land development.

The effective implementation of the spatial planning system is built and founded on the constitutional and legislative mandates of all authorities and role players in the development context whether at municipal, district, or provincial level. To ensure collaboration, national, provincial government and municipalities must participate in the spatial planning and land use management processes that impact on each other, to ensure (i) coordination, (ii) consistency and (ii) harmony in the plans and approaches. Collaboration is directed by SPLUMA and the Inter-governmental Relations Framework Act, 2005 (IGRFA) provides for mechanisms for establishing structures that promotes engagement and collaboration at all levels of government.

The success of implementing the VRRSDF vision, objectives and strategies hinges on positive regional governance embracing functional collaboration and engagements within the context of municipal, district municipal, provincial and national planning and development responsibilities and functions.

The declaration and delineation of the VRRSDF region in terms of SPLUMA automatically brings into play the responsibilities and

legislative mandates of all levels of government and sector departments towards municipal and regional development management by means of municipal spatial development frameworks, land use schemes and development application processes. It is to be noted that, the affected municipalities, provinces, and national departments have their own political and institutional structures to discharge their responsibilities. Despite that, a new structure or governance body would be required to effectively implement the VRRSDF. In plain sight, creating a new structure or governance body, in addition to existing structures, to manage and implement the VRRSDF, would seem to be counterproductive; however, such body may fulfil a primary coordinating role which may perform the functions of:-

- ▶ Effective collaboration and cooperation between government, non-government and other institutions that are functioning in the developmental sector and in the region.
- ▶ Focus on alignment of government actions and capital investment, partnerships that development and any other development initiatives.

Considering the above, the principles that will drive the VRRSDF Governance Body are:

- ▶ **Association:** Common vision and common performance appreciation.
- ▶ **Transformation:** Driving the Transformation Agenda consistent with SPLUMA principles and NSDF.

- ▶ **Ecological Sustainability:** In all the endeavours of the structures to be created, strengthened and joined together, we will ensure the protection of the Region's natural resource endowment and the maintenance of its ecological sustainability.
- ▶ **Climate Change Adaptation:** Develop climate change adaptation policies for all sectors and enforce them through existing tools such as spatial development frameworks, land use schemes, water management plans, agricultural plans, environmental impact assessment and building codes.
- ▶ **Participation:** Allow for proactive and constructive participation through existing and proposed planning and development structures.
- ▶ **Harmonisation:** Ensure that all human settlements, economic activities, and ecosystems in the Region co-exist in a harmonious way.
- ▶ **Regional-Rural Development:** Regional development initiatives will be based on and driven by the Regional-Rural Development Model as set out in the NSDF, with a recognition of the economic and social roles that different settlements must play in accordance with the 'Social Services Wheel' as provided in the NSDF.

7.5.2.2: Governance Body Structure

The proposed VRRSDF Governance body is expected to be a hierarchical structure led by political leaders and supported by technical organisations. A VRRSDF Governing Board made up of the Premiers of the affected provinces would oversee the VRRSDF's implementation. The Premiers will meet biannually to review implementation progress and ensure efficient interprovincial collaboration. The Premiers will take on the role of chair of the Governing Board on a rotational basis. In addition to the Governing Board, there will be an annual meeting of key senior political office holders such as MECs, Premiers, and MMCs to evaluate VRRSDF implementation and ensure effective collaboration and coordination. The Governing Board will be backed by a Technical Steering Committee made up of senior technical officials such as Director Generals from the key national and provincial departments. The Technical Steering Committee is expected to convene quarterly to monitor VRRSDF implementation, address high-level implementation issues, and ensure collaboration and coordination among government

departments. The Technical Steering Committee would be assisted by the Technical Committee comprising of the Workstream Leaders, who would include Chief Directors and Municipal Executive Directors. Each Workstream is effectively a program or collection of thematic projects. The following workstreams are proposed for VRRSDF implementation:

- ▶ Spatial Planning and Infrastructure Development
- ▶ The River and Environmental Management
- ▶ Economic Development
- ▶ Social Development
- ▶ Institutional Management

For each Workstream, there will be a set of projects which are to be managed by Project Managers. Depending on the nature of the project, Project Managers may be selected from national departments, provincial departments, state-owned enterprises, or municipalities.

The figure below depicts the governance body structure:

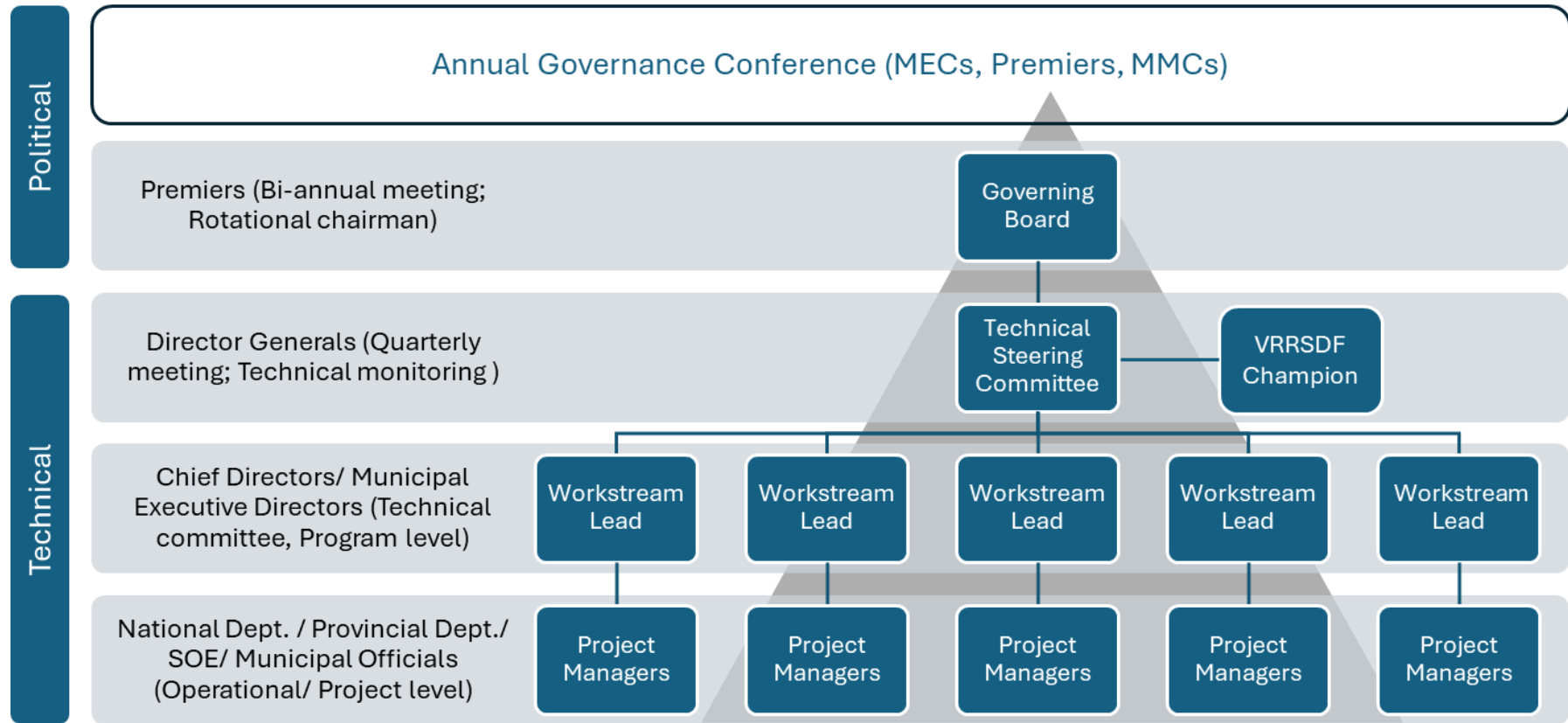


Figure 61: VRRSDF Governance Body Structure

The bottom tiers of the Governance Body i.e. Project Implementation Unit will carry out the majority of the VRRSDF implementation. The implementation of VRRSDF will involve

developing workstream interfaces, appointing project managers to execute projects, and defining a set of tasks for workstream leaders and project managers to complete.

7.5.3: Sub Objective 2: Guidance to Growth Focus Areas

7.5.3.1: Development Context

Within the context of the spatial transformation agenda, SPLUMA directs spatial transformation using spatial planning mechanisms to eliminate poverty and inequality while creating conditions for inclusive growth and development at all levels.



The VRRSDF identified four functional regions with specific spatial components linked to development proposals that impact or guide the spatial context of the subregion at local level. In principle each sub region with the spatial components resembles a potential growth focus area that will require specific alignment and refinement of the municipal planning directives and plans.

To refresh, the following subregions with the spatial components were identified and include:

► Vaal Urban Core Subregion

The following are the key spatial components of this subregion:

- Commercial Development Zone
- Infill and Future Growth Zone
- R59 Industrial Development Corridor
- Urban Transition Zone
- Agriculture Zone

► Dome-Parys Subregion

The key spatial components of the subregion are:

- The Vredefort Dome Zone
- Conservation and Tourism Zone
- Agriculture and Tourism Zone
- Growth Containment Zone

► Vaal Dam Subregion

The key spatial components of the subregion are:

- Conservation and Tourism Zone
- Agriculture and Tourism Zone
- Growth Containment Zone

► Hinterland Subregion

The key spatial components of the subregion are:

- Agricultural Areas
- Tourism Areas
- Functional urban area

7.5.3.2: Strategic Guidance to Development

As a strategic planning instrument, a RSDF does not confer on any person the right to use or develop land. To ensure alignment and facilitate implementation, the relevant guidance will have to be included in Municipal SDFs that have a more direct link to land use management at a local scale through the Municipal SDFs.

Municipalities prepare, update and implement their spatial development frameworks through the preparation of a wall-to-wall land use schemes.

The VRRSDF serves as a starting point for decisively addressing the regional development challenges conceptualised in specific spatial context to integrate and align specific development proposals within the context of the spatial Vision and objectives which has a national, provincial, district and local municipal spatial impact or effect.

Spatial proposals for each of the subregions and spatial components of the subregion provide direction in the pursuit of the spatial concept. It is important to emphasise that the spatial proposals be regarded as *direction-giving*, meaning they are aimed at:

- ▶ Guiding, coordinating and prioritisation stakeholder action and investment decisions at a regional scale.
- ▶ Providing a cohesive regional context to provincial and local spatial planning.
- ▶ The spatial proposals *should not be interpreted as detailed land-use planning and management, which is the mandate of local municipalities.*

To achieve the VRRSDF development concept and implement the spatial proposals it should promote and stimulate guiding actions to improve and update spatial plans and land development mechanisms at municipal local level such as:

- ▶ Key land use and development concepts and approaches.
- ▶ The identification of the unique elements of the functional region directed by the identified spatial components.

- ▶ The protection and sustainable use of *natural and cultural resources.*
- ▶ The strengthening and diversification of *the regional economy* to ensure greater long-term viability and sustainability, including a specific focus on the key spatial network elements of the tourism and niche agricultural sectors.

Specific land use management controls and processes will be required for each subregion in order to attain the desired development content and form.

To align development mechanisms would be ideal, but not practical in many respects since each Municipality remain the authorities of first instance, thereby deciding its own process or approach in facilitating development.

To enable and guide the Municipalities to develop their own planning and development guidelines or mechanisms the following factors may be considered:

- ▶ The principles contained in planning law and policy directive of the municipality.
- ▶ The municipality's planning vision and principles as set out in its Spatial Development Framework and Integrated Development Plan.
- ▶ Desired spatial form, including but not limited to the development of public and private land, infrastructure investment, utilization of space, spatial reconstruction, location and nature of development, urban edge, scenic

routes, areas of strategic intervention, mitigation of development impacts.

- ▶ The principles as set out in an approved spatial development framework or a policy plan.
- ▶ Environmental and heritage protection and conservation.
- ▶ The principles of co-operative governance and the duties and objectives of local government as set out in the Municipal Systems Act and the National Constitution.

7.5.3.3: Broad Directives for Growth Focus Areas

The following section provide context in terms of broad development directives that may be considered by municipalities to update or align SDF's and or land development mechanisms per sub region of the VRRSDF.

(a) Vaal Urban Core Sub region

- ▶ Enabling controls to encourage small scale economic development. This principle accepts that small-scale development is as important as large-scale developments, but because fund and resources for small-scale businesses are limited, the local municipality should foster ways to assist small-scale developments and developers. While, for example, a barber shop may only employ 3 or 4 people, many barbershops collectively play a role in alleviating unemployment. Smaller developments should be able to apply for land use rights via amended procedures such as consent use rights and alternative service provision systems, typical off-the-grid permissions or alternatives.

- ▶ Clean industrial and commercial development.
- ▶ Promote public access to the Vaal River through the creation of recreational spaces along the riverbank.
- ▶ Conserving rivers, wetlands, high potential agricultural land, cultural and natural assets.
- ▶ Ensure the overlay zones achieve alignment with the SDFs.

(b) Dome-Parys Sub region

- ▶ Guiding tourism development on agricultural land and in environmentally sensitive areas.
- ▶ Tourism Incentive Establishments within the context of existing farming infrastructure with limited or no footprint expansion.
- ▶ Environmental land use management guidelines within the context of the World Heritage site.
- ▶ Conserving rivers, wetlands, high potential agricultural land, cultural and natural assets.
- ▶ Align development controls cross border to ensure consistency and coordination.
- ▶ Reduction in application processes may be implemented subject to positive comments from key sector departments.

(c) Vaal Dam Sub region

- ▶ Finer-grained tourism development on agricultural land and environmental sensitive areas with limited or no footprint expansion.
- ▶ Conserving rivers, wetlands, high potential agricultural land, cultural and natural assets.

7.5.4: Sub Objective 3: Integrated Management of the Vaal River

Given the importance of the Vaal River in sustaining and supporting a large population and economy, ensuring water security in the Vaal River Region is critical. However, water security is jeopardized by institutional weaknesses caused by, among other things, operational issues, a lack of financial resources, and a lack of coordination and support among stakeholders (Muller & Maree, 2019). The municipalities and Rand Water have faced operational and financial challenges in maintaining water and sanitation infrastructure. National and provincial governments must support and monitor these entities to ensure the provision and maintenance of water and sanitation services, as well as water security.



Because the performance of those government agencies affects the general public and private entities, a collaborative approach involving stakeholders at various levels is required to ensure water security and water health. Residents and community organizations, NGOs, CBOs, business associations, industry associations, farmers' associations, research and academia, SALGA, and government agencies are and should be among the stakeholders. Raising awareness among stakeholders and soliciting their input will aid in taking a collaborative approach to planning and implementing projects and programs to ensure water security.

It is worth noting that the Minister of Water and Sanitation established the Vaal Orange Catchment Management Agency (CMA) in accordance with the National Water Act, Act 36 of 1998, and notified the agency's establishment in 2022. The Vaal Orange CMA is in charge of managing the entire Vaal Water Management Area (WMA) and coordinating with other institutions involved in water-related matters. Other responsibilities of the agency include investigating and advising interested parties on the protection, use, development, conservation, management and control of water resources in its water management area, developing a catchment management strategy, co-ordinating related activities of water users and water management institutions within its water management area, and promoting community participation in the protection, use, development, conservation, management, and control of water resources in its water management area. As a result, the Vaal Orange CMA is expected to play a critical role in ensuring a coordinated and integrated effort in managing the Vaal River and restoring its health.

7.5.5: Implementation Action Plan

Table 38: Implementation Action Plan: Institutional Management

Strategy	Actions	Lead Institution	Timeframe
Promote Collaboration and Intergovernmental Coordination through the establishment of Vaal River RSDF Governance Body	<ul style="list-style-type: none"> Establish the VRRSDF Governance Body – Include provision of regional spatial governance / regional intergovernmental structures in review of Intergovernmental Relations Framework Act 	COGTA DALRRD	Short Term
	<ul style="list-style-type: none"> Frame establishment procedures with inclusion of: <ul style="list-style-type: none"> Establish Terms of Reference. Determine forum and sub forums and functionality. Nominate Intergovernmental and technical representatives and lead per sub forum. Nominate representatives per District to align: <ul style="list-style-type: none"> local spatial planning Land use management Overlay zone development. Decision making collaboration and information sharing 	VRRSDF Governance Body All District Municipalities	Short Term
	<ul style="list-style-type: none"> Intensive investment in skills development to capacitate local government officials, to better execute provision of basic services which serves as the basis to attract investments. 	SALGA, COGTA, DPME, DALRRD	Short term
Guidance to Growth Focus Areas	<ul style="list-style-type: none"> Local municipalities to align or improve development mechanisms in support of the proposals of the VRRSDF within the context of the four functional subregions and spatial components 	Local Municipalities District Municipalities	Short Term

Strategy	Actions	Lead Institution	Timeframe
		With guiding support and contributions from COGTA and DALRRD.	
Integrated management of the Vaal River	<ul style="list-style-type: none"> • Address institutional weaknesses affecting operational and financial capacities of Rand Water, municipalities, and entities responsible for ensuring water security and provisioning of water and sanitation infrastructure. • Promote collaboration among the stakeholders (general public, communities, business, industrial and farming associations, SALGA, DWS, Rand Water, municipalities, and other relevant government agencies) and solicit input from them in planning and executing projects to ensure water security in the region. • Establish and operationalise Orange Vaal River Catchment Management Agency. 	DWS VRRSDF GF District Municipalities Local Municipalities	

8: VRRSDF IMPLEMENTATION GUIDE

It is imperative to acknowledge that executing capital projects will not guarantee the execution and perpetuity of VRRSDF. A number of current plans and policies will need to be redirected, resources will need to be allocated, and cooperation from various branches and areas of government will be necessary for the implementation of VRRSDF. The establishment of the Governing Board, Technical Steering Committee, and Project Implementation Unit, early political and organizational support, alignment of the strategies and plans of the relevant entities, and resource sharing for VRRSDF implementation are all necessary to ensure VRRSDF continuity in the face of technical, structural, and political changes. The main action items for implementing the VRRSDF are highlighted in the following section.

8.1: Implementation Actions

8.1.1: Awareness Raising, Political and Organisational Buy-in

The VRRSDF comprises an area governed by several bodies. A great number of national and provincial departments, as well as other government bodies, are also active in the region's development, either directly or indirectly. All of these organizations are mandated with distinct tasks, and the implementation of the VRRSDF may be considered an additional duty for them. As a result, there is a need for formal agreement

among involved governmental, institutional, and technical organisations to support VRRSDF, participate in multistakeholder activities, and give proper consideration VRRSDF recommendations and proposals.

Raising awareness about the project and establishing consensus on the outcome and influence of VRRSDF on the region's overall development is a necessary step toward attaining agreement. By raising awareness and fostering consensus, relevant stakeholders will be encouraged to participate in the process from the start, resulting in political and organisational buy-in and ownership, as well as the eventual mainstreaming of VRRSDF into their own policies, programs, and action plans.

The Implementation VRRSDF is significantly reliant on the VRRSDF Governance Body's operational success. The governance body, which will include political, institutional, and technical bodies, will be led by political leaders. Political leadership will help to increase public support for the VRRSDF, making it a topic of discussion in political campaigns and policy discussions. The establishment of the VRRSDF Governing Board and the organisation of the annual VRRSDF Governance Conference involving MECCs, Premiers, MMCs, and important political leadership will help mobilise resources, lobby for and support the implementation of the VRRSDF. Most importantly, the involvement of political leadership will ensure support from the departments overseen by them.

8.1.2: Strategic and Budgetary Alignment

As a strategic document VRRSDF guides the development of the Vaal River region which includes parts of four provinces. It is important to realise that VRRSDF does not replace the existing development initiatives, plans, and frameworks prepared by the various development agencies, government entities, and private bodies. It rather seeks for better alignment and coordination of these initiatives and stakeholders to unlock the development potential of the region.

The alignment and coordination among the stakeholders will need to be at strategic and budgetary levels. Strategic alignment is pivotal in aligning policy initiatives of stakeholders and ensuring governance is responsive and reflective of the regional priorities. Strategic alignment between spheres of government will necessitate cooperation, whereby the plans and initiatives of one sphere support those of another.

To achieve strategic alignment, all stakeholders, particularly government agencies, must achieve a common understanding and agreement on the tasks necessary to implement the VRRSDF and put coordinated effort to fulfil those tasks. Each entity must take responsibility of the tasks allocated to it.

Senior political and technical leaders will play key roles in ensuring strategic alignment by providing top-level direction and guidance for the VRRSDF Governance Body, linking key entities' (such as municipalities, national and provincial and sector departments) operational systems and processes to VRRSDF's

vision and objectives, and monitoring the progress of VRRSDF implementation.

Strategic alignment needs to be supported by aligning the budgets of relevant entities. Budgetary alignment will ensure that government spending is in line with regional development goals, that regional development priorities are budgeted for during the planning cycle, and that projects are implemented with the assigned funds. The budget alignment process may include comprehensive agreements among appropriate government bodies from every sphere, guided by the VRRSDF Governance Body. Budgetary alignment would not only help to achieve VRRSDF proposals, but it will also encourage fiscal discipline and sustainability, as well as the integrity and accuracy of budgetary predictions.

8.1.3: Resource Sharing

Resource sharing between implementation agencies can result in a variety of positive outcomes, including greater organisational efficiency and effectiveness. Complex challenges and issues surrounding VRRSDF implementation can often be addressed by pooling expenses and risks and focusing on a common solution. The VRRSDF agencies should explore for ways to sharing resources. The sharing of resources can be defined at the workstream level, where workstream leaders can identify the resources needed to deliver VRRSDF objectives and proposals, as well as the sources of those resources. The categories listed below are examples of where resources can be shared to ensure effective VRRSDF implementation.

- **Human Resources:** Sharing people and skills across different workstreams and agencies can help improve efficiency and increase the availability of competent personnel.
- **Project and Service Delivery:** An integrated approach to project and service delivery helps to reduce duplication of effort and promote efficiency. Initiatives to streamline or consolidate project and service delivery might result in a variety of opportunities for sharing technology and processes.
- **Professional Support:** The implementation of VRRSDF necessitates professional assistance, particularly in marketing, investment promotion, research, and skill development. Given the paucity of capacity in many municipalities, these functions can be pooled and handled at the higher levels.
- **Information and Knowledge Management:** The VRRSDF must be updated in light of new information and circumstances. It is critical that information and knowledge be shared among agencies to improve planning and project implementation. A web-based system can be developed to aid information and knowledge sharing and management.

8.1.4: Capacity Building

Investing in training and capacity-building programs for public officials involved in the VRRSDF's implementation is critical to ensuring that applicable and appropriate skills are developed to

carry the VRRSDF forward. Due to a lack of resources in local and district municipalities, new staff may need to be recruited; however, the emphasis should be on upskilling current public officials rather than increasing the number of personnel through new recruitment.

Education institutions, non-state actors, and higher government departments may all need to actively participate in the capacity building initiatives. Providing public officials and stakeholders with the necessary skills in the areas of spatial and regional planning, spatial economics, GIS, climate change mitigation, data analytics, decision making, public finance management, budgeting, program and project management is the aim of capacity building initiatives.

8.1.5: Project Implementation Unit

The Project Implementation Unit will play the lead role in putting the VRRSDF's proposed plans and projects into action and informing the VRRSDF Steering Committee and Governance Body of the results. Project planning, resource management, communication management, and project risk management are the additional responsibilities assigned to this unit. Project managers and workstream leaders from municipalities and other government organisations will make up this unit. Staff from public agencies will provide support for this unit. The Project Implementation Unit is cross functional in nature where the resources are shared among the workstreams based on the project objectives.

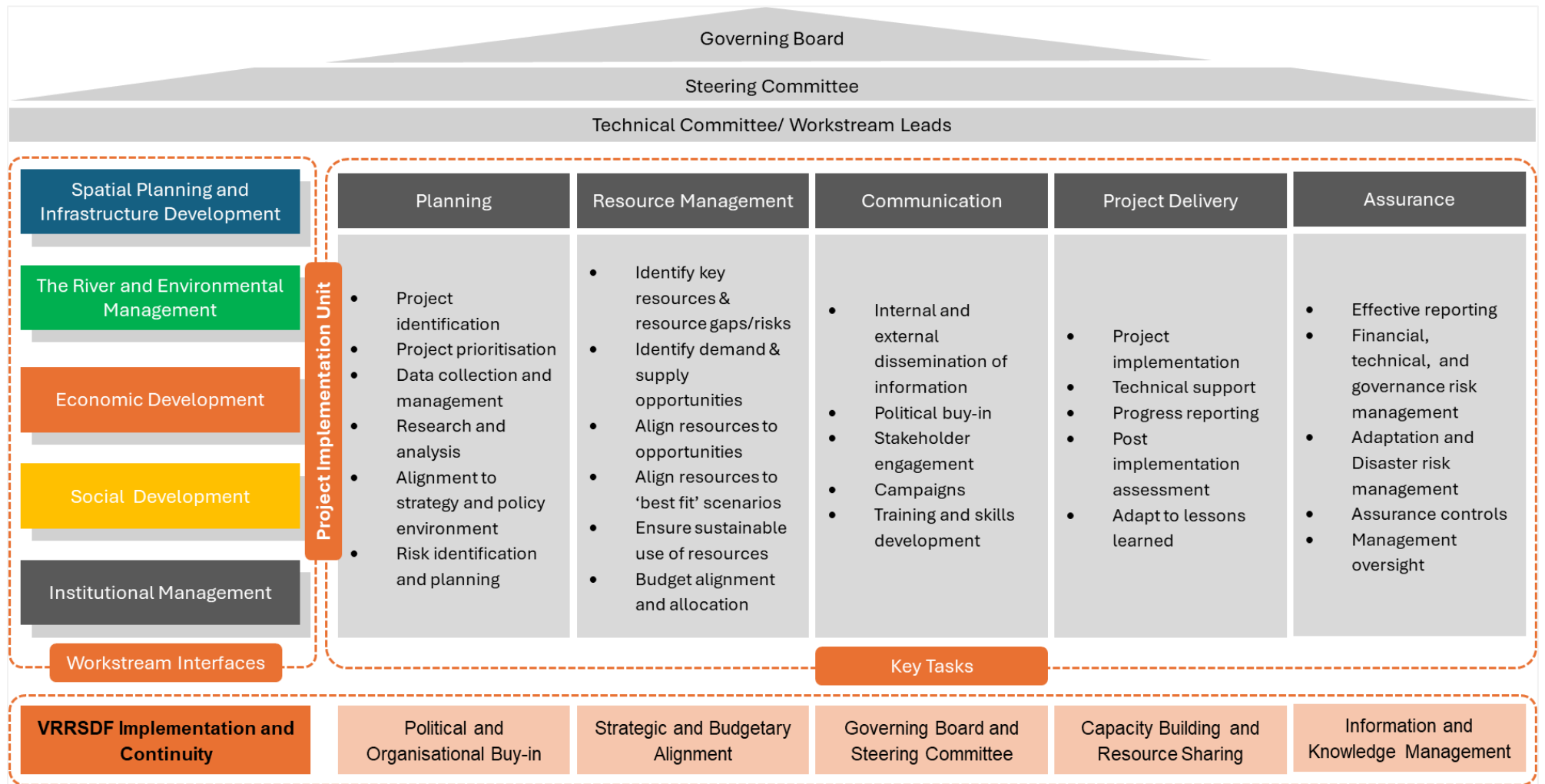


Figure 62: VRRSDF Implementation Operating Model

8.2: Roles and Responsibilities in VRRSDF Implementation

The table below defines roles of the key entities involved in the implementation of VRRSDF.

Table 39: Roles of key entities involved in the implementation of VRRSDF

Body	Role	Linked to the VRRSDF	Alignment Required
DALRRD - Spatial Planning and Land Use Services	<ul style="list-style-type: none"> • Provide Spatial Planning, Land Use Management and Environmental services in liaison with National office. • Provide spatial planning information services in liaison with National Office. • Provide support to implementation of SPLUM legislation. • Provide technical support to rural development. • Provide technical support to land reform. 	<ul style="list-style-type: none"> • Provide support to CoGTA in championing the lead of the VRRSDF through backroom support and strategic guidance. • Provide spatial directives towards the alignment of all spatial frameworks at provincial, district and local level to ensure consistency with Section 12 and 25 of SPLUMA. 	<ul style="list-style-type: none"> • Future business plans to support VRRSDF implementation
Department Cooperative Governance and Traditional Affairs – Gauteng (CoGTA)	<ul style="list-style-type: none"> • To support municipalities to create an enabling environment for economic growth. • The main task of CoGTA is to provide the necessary support and strengthen municipalities in terms of Section 154 of the Constitution. • Therefore, support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and to perform their functions as per Schedule 4 A 	<ul style="list-style-type: none"> • Taking the lead role in implementing VRRSDF (championing) and monitoring its progress. • Facilitate sessions for collaboration of the governance structure. • Dedicate broad workstream unpacking and inputs to guide implementation and monitoring at provincial, district and local level. • Contribute to all aspects where SDF's (at all levels) alignment and improvements is required to enhance the implementation of the VRRSDF. 	<ul style="list-style-type: none"> • Future business plans to support VRRSDF implementation

Body	Role	Linked to the VRRSDF	Alignment Required
	<p>and B of the Constitution amongst other functions</p>	<ul style="list-style-type: none"> • Identification of lessons learnt from the engagements during the SDF working sessions. • Creating communication material necessary to 'sell' the plan to sector departments, provincial governments and municipalities. • Informing the public through relevant information sharing channels. • Regular communications to the professions concerned with the built environment, including the private sector, so that all new developments contribute to furthering the intent of the plan. • Provide formal conduits for political and technical intergovernmental collaboration, cooperation, integration, and harmonisation in the initiation, strengthening and support of spatial, social, and economic development in the in the VRRSDF area. 	
<p>District Municipalities</p>	<ul style="list-style-type: none"> • Provide support and capacity to local municipalities to achieve equitable development and economic growth 	<ul style="list-style-type: none"> • Assist and capacitate local municipalities. • Promote economic development in the district. • Facilitate integrated development planning. • Provide support to officials in low-capacity municipalities (that in some cases do not have town planners) by explaining what is 	<ul style="list-style-type: none"> • District SDF • DDM One Plan • Sectorial Plans (Housing, Infrastructure etc.)

Body	Role	Linked to the VRRSDF	Alignment Required
		required, provide a series of educative documents written in an easily readable way, clarifying that the plan may be developed in partnership with the Workstreams	
Local Municipalities	<ul style="list-style-type: none"> • Ensure the provision of services to communities in a sustainable manner. • Promote social and economic development. • Promote a safe and healthy environment. 	<ul style="list-style-type: none"> • Adapt VRRSDF development principles in planning and decision making. • Implement VRRSDF proposals and projects. • Collaborate with each other and national and provincial departments in implementing VRRSDF. • Encourage the involvement of communities and community organisations in planning, conservation, and climate change adaptation. 	<ul style="list-style-type: none"> • Municipal SDF & LUS • Sectorial Plans (Housing, Infrastructure etc.)
DWS	<ul style="list-style-type: none"> • DWS Mandated in terms of the National Water Act, 1998 and Water Service Act, 1997. • DWS enforces regulatory measures that ensure the provision of safe water and the effective management of wastewater. To this end, it implements the green and blue drop certification programmes, which are incentive-based regulatory tools that measure the capacity and environmental, financial, technical and quality 	<ul style="list-style-type: none"> • Collective approach in protecting and enhancing and management the Vaal River System as a national asset. • Enforcement of compliance to all water and wastewater treatment works at municipal level. • Reconciliation Strategy for The Vaal River System. 	<ul style="list-style-type: none"> •

Body	Role	Linked to the VRRSDF	Alignment Required
	compliance of water service institutions.		
Rand Water	<ul style="list-style-type: none"> • Rand Water deliver and supply world-class affordable, reliable and good quality water and related services to all stakeholders through safe, efficient transport, sustainable and innovative business practices. • Rand Water is the largest bulk water utility in Africa and is one of the largest in the world, providing bulk potable water to more than 11 million people in Gauteng, parts of Mpumalanga, the Free State and North-West province. • Rand Water is overseen by the Department of Water and Sanitation. 	<ul style="list-style-type: none"> • Collaborative inputs in SDF proposals. • Commenting authority on all development applications considered by local municipalities. 	<ul style="list-style-type: none"> •

8.3: Monitoring and Evaluation of VRRSDF Implementation

Monitoring and evaluating the implementation of VRRSDF is vital for assessing its efficacy, identifying areas for improvement, and ensuring accountability. The monitoring and evaluating of the VRRSDF to be carried out at two levels: at the higher level the Steering Committee and Governance Body will monitor and

evaluate the overall progress of VRRSDF Implementation, and at the lower level the Project Implementation Unit will monitor progress of individual projects.

The higher-level monitoring and evaluation will look to find out if the broad VRRSDF suggestions are being appropriately implemented and if the VRRSDF is achieving the expected results. The evaluation results may lead to changes to important strategies, plans, and proposals. The figure below describes the

process of higher-level monitoring and evaluation. It should be noted that the Project Implementation Unit may need to provide relevant information to the Steering Committee and Governance Body for monitoring and evaluation purposes.

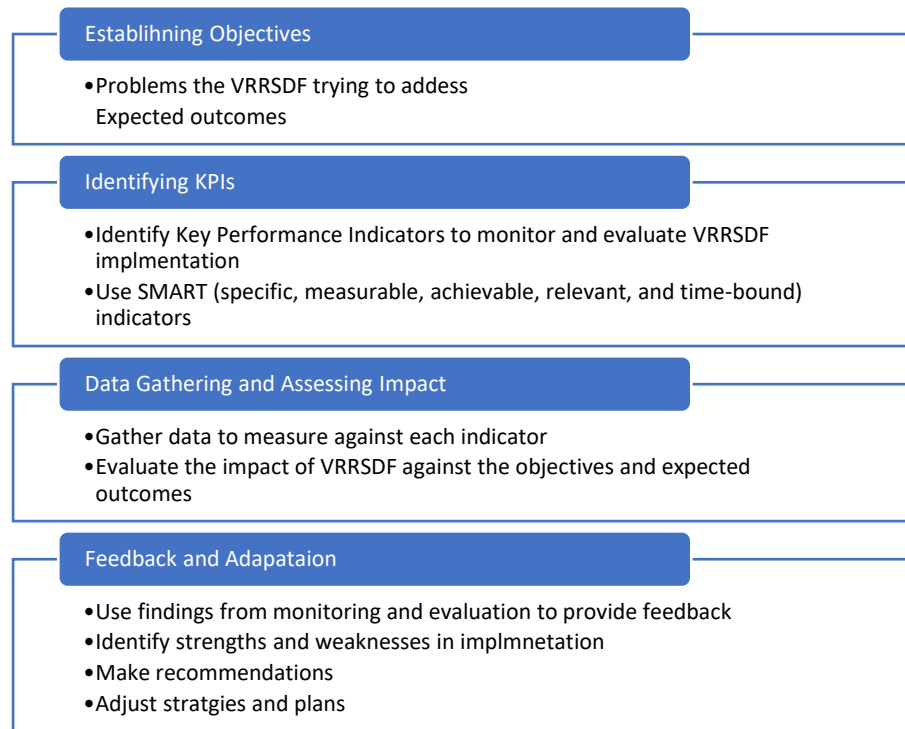


Figure 63: Monitoring and Evaluation of VRRSDF Implementation

It is to be noted that monitoring and evaluation of VRRSDF is a continuous and iterative process that takes place throughout the VRRSDF lifespan. As conditions change and new information

becomes available, it is critical to continue evaluating the VRRSDF's success and making any revisions.

At a lower level, workstream leads and project managers will monitor the projects to ensure that they are completed on time, within budget, and within regulatory guidelines. The figure below depicts a general overview of the project monitoring process.

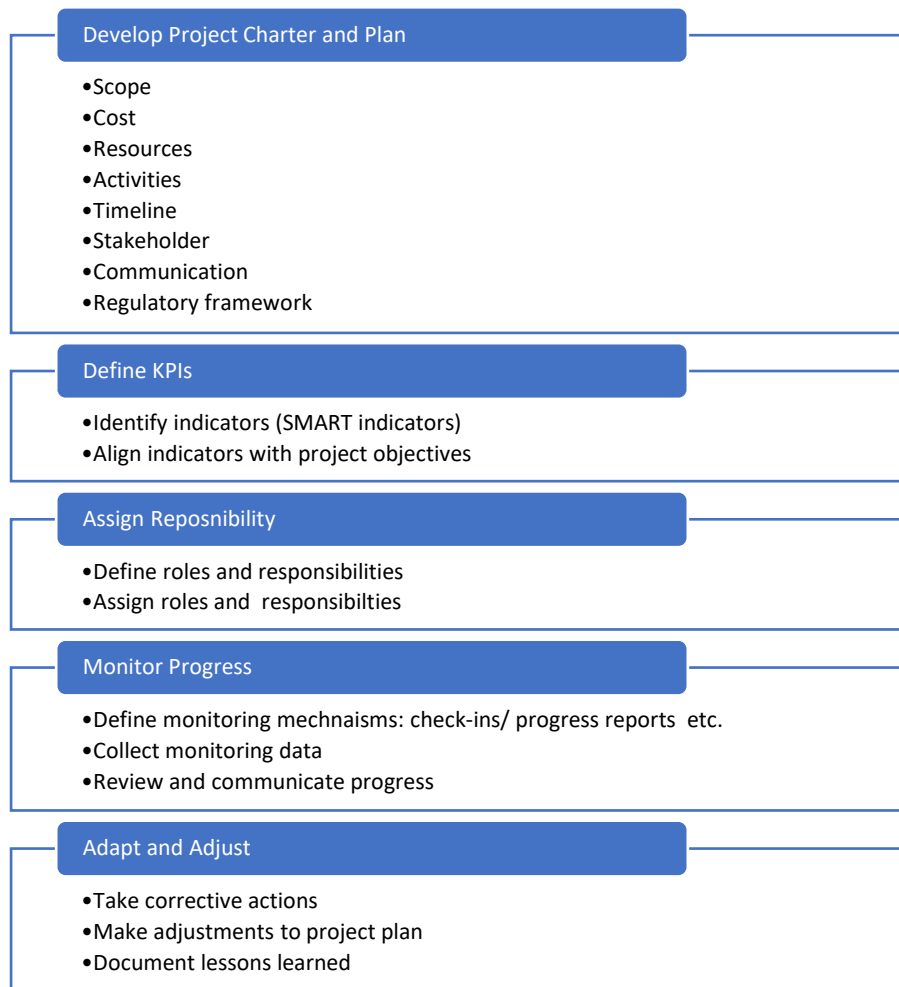


Figure 64: Project Progress Monitoring

8.4: Reviewing the VRRSDF

As per SPLUMA Section 18(2), “the Minister must review the regional spatial development framework at least once every five years from the date of its last publication or amendment and may, after consultation with the Premier and the Municipal Council responsible for a geographic area, propose amendments to the regional spatial development framework”. Therefore, it is recommended that the VRRSDF be evaluated five years following its adoption. However, only exceptional circumstances will allow for an early review of the VRRSDF. Such events can include, but are not limited to, significant infrastructure and economic investment, a widespread natural disaster, the collapse of one or more important economic sectors, and significant institutional and structural changes.

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ANNEXURE A: PROVINCIAL HERITAGE SITES AND HERITAGE REGISTER SITES

Gauteng

Lesedi

- 60 Strydom Street, Heidelberg
- De Rust Farmstead, Boschhoek, Heidelberg
- Old Residence, H F Verwoerd Street, Heidelberg
- Dutch Reformed Church, H F Verwoerd Street, Heidelberg
- Boer Houses and Farmyard, Suikerbosrand Nature Reserve, Diepkloof, Heidelberg
- NZASM Station, Voortrekker Street, Heidelberg
- Volk School Primary, Begeman Street, Heidelberg

Emfuleni

- Vereeniging Country Club, Milani Drive, Vereeniging
- Archaeological Site, Duncanville, Vereeniging
- Anglo-Boer War Blockhouse, Witkop, Vereeniging
- Klip River Quarry, Archaeological Site, Vereeniging
- Dutch Reformed Church, Vereeniging
- Redan rock engraving site, Kookfontein, Vereeniging
- Vuka Cemetery, Dubula Street, Sharpeville, Vereeniging
- Our Lady of Fatima Roman Catholic Church, corner Hulwana and Malisa Streets, Sharpeville, Vereeniging
- Sharpeville Community Hall, Sharpeville, Vereeniging

Free State

Mafube

- Post Office, Van Reenen Street, Frankfort
- Police Station, Van Reenen Street, Frankfort
- Old Magistrate's Court, Van Reenen Street, Frankfort

Ngwathe

- Weillbach House, Leeuwpoort, Heilbron
- Vegkop Battlefield, Vegkop Battlefield, Heilbron
- Old farmhouse, Leeuwpoort, Heilbron District
- Railway station, Heilbron
- Old magistrate's office (Parys Museum), Liebenbergtrek Street, Parys
- Nederduitse Gereformeerde Mother Church, Hefer Street, Parys
- Nederduitse Gereformeerde Church, Church Street, Vredefort
- Nederduitse Gereformeerde Church Hall, Church Street, Vredefort
- 30 Charl Cilliers Street, Vredefort
- Vredefort Road Concentration Camp Cemetery, Prospect, Koppies
- Corrugated iron house, Wessels Street, Edenville,

Moqhaka

- Farmhouse, Congleton, Kroonstad
- Kroonstad North Nederduitse Gereformeerde Church, Reitz, Symond and Malherbe Streets, Kroonstad
- Old Market Square Post Office and prison-cells, 66 Murray Street, Kroonstad
- Old market building, Market and Murray Streets, Kroonstad
- Town Hall and Leaping Fountain, Church Street, Kroonstad
- Old Magistrate's Office, Murray Street, Kroonstad
- Nederduitse Gereformeerde Mother Church and Sarel Cilliers Statue, Church Square, Kroonstad
- Farmhouse and cooler, Thornvale, Viljoenskroon
- Town Hall, cnr Steyn and Van Riebeeck Streets, Steynsrus

Metsimaholo

- Farm school, Taaiboschspruit, Sasolburg
- Muller House, Wonderfontein, Sasolburg

North West

JB Marks

- Old Powder Magazine, Wolmarans Street, Potchefstroom
- 74 Dr James Moroka Avenue, Potchefstroom
- 76 Dr James Moroka Avenue, Potchefstroom
- 72 Dr James Moroka Ave, Potchefstroom
- Old Berlin Mission Station, Sol Plaatjie Avenue, Potchefstroom
- House of President M W Pretorius, Thabo Mbeki Avenue, Potchefstroom

- Old Fort and Cemetery, Potchefstroom
- Dutch Reformed Church, Walter Sisulu Avenue, Potchefstroom
- Old Police Station, 25 OR Tambo Street, Potchefstroom
- Old Post Office, OR Tambo Street, Potchefstroom
- Oak Avenue, Peter Mokaba Street, Potchefstroom
- St Mary's Anglican Church, Auto Avenue, Potchefstroom
- Town Hall, Walter Sisulu Avenue, Potchefstroom
- Carnegie Library, Walter Sisulu Avenue, Potchefstroom
- Historic Reformed Church Complex, Molen Street, Potchefstroom
- Administration Building, Potchefstroom College of Agricultural, Potchefstroom
- Selborne Hall, Potchefstroom College of Agricultural, Potchefstroom
- Old Reformed Church, Maury Avenue, Potchefstroom
- W D Pretorius House, Church Street, Potchefstroom
- Heimat, Potchefstroom University for Christian Higher Education, Potchefstroom
- Old Magistrate's Office, Greyling Street, Potchefstroom
- Goetz-Fleischack House, Gouws Street, Potchefstroom
- Superintendent's Residence, Witrand Care and Rehabilitation Centre, Potchefstroom
- Roets House, 61 Tom Street, Potchefstroom
- The Northern Wing of the Nutrition and Family Ecology Building of the Potchefstroom University
- Rectors Residence, 1 Calderbank Avenue, Potchefstroom
- Main Building, Potchefstroom University, Potchefstroom

»» Vaal River Regional Spatial Development Framework

- JB Marks Grave Site, Toevlug, Ventersdorp
- Krugerskraal, Tygerfontein,
- Farmstead, Buffelsdoorn, Potchefstroom

(Source: South African Heritage Resource Agency,
<https://sahris.sahra.org.za/>, retrieved on 07 September 2023)