

Central Karoo District Municipal Spatial Development Framework (SDF)

Final Version

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Western Cape
Government

BETTER TOGETHER.

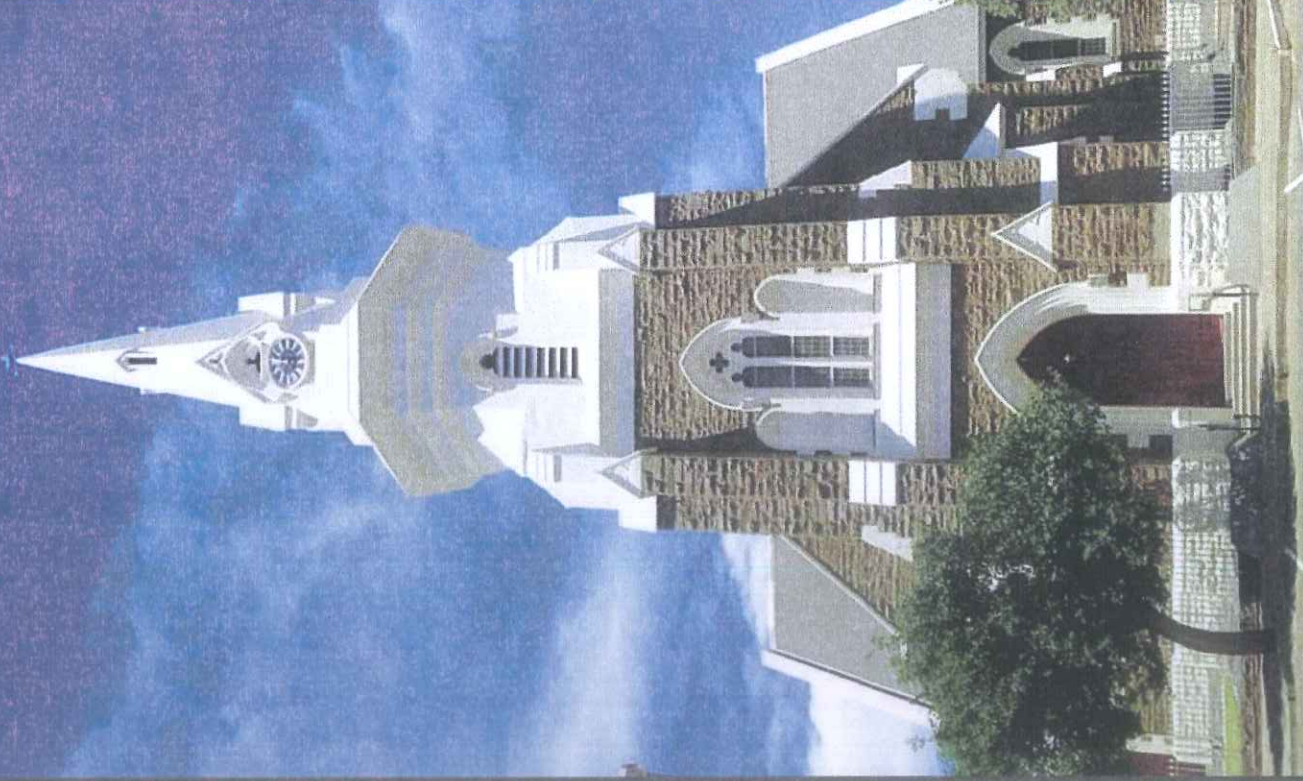


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List of Acronyms

CBA – Critical Biodiversity Area	NPDG – Neighbourhood Partnership Development Grant
CBD – Central Business District	NEMA – National Environmental Management Act
DEA&DP – Department of Environmental Affairs and Development Planning (WCG)	NHRA – National Heritage Resources Act
DRDLR – Department of Rural Development and Land Reform	NMT – Non-Motorised Transport
DM – District Municipality	NPC – National Planning Commission
ECD – Early Childhood Development	PSDF – Western Cape Provincial Spatial Development Framework, 2014
FET – Further Education and Training	PAM – Prince Albert Municipality
FLISP – Financed Linked Individual Subsidy Programme	SDF – Spatial Development Framework
GDP – Gross Domestic Product	SGD – Shale Gas Development
GPS – Growth Potential of Town's Study	SPLUMA – Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)
HDI – Human Development Index	SQ – Status Quo
HSP – Human Settlement Plan	WC – Western Cape
IDP – Integrated Development Plan	WCG – Western Cape Government
ISC – Intergovernmental Steering Committee	WWTW – Waste Water Treatment Works
LUPA – Land Use Planning Act, 2014 (Act 3 of 2014)	
MSA – Municipal Systems Act, 200 (Act 32 of 2000)	
MSDF – Municipal Spatial Development Framework	
MTREF – Medium Term Revenue and Expenditure Framework	
NDP – National Development Plan	

CHAPTER 1: INTRODUCTION & BACKGROUND TO THE CENTRAL KAROO SDF

1. INTRODUCTION

1.1. PURPOSE OF THE REPORT

The purpose of this report is to update and synthesize the 2014 Central Karoo SDF, with a view to:

- 1) Establish the **existing level of development** of the Central Karoo District Municipality;
- 2) Review and update the **key issues and opportunities** in the District as they relate to its future spatial development;
- 3) Review and update the **spatial vision** of the municipality, to bring it in line with the 4th generation 2017/18 Central Karoo IDP; and
- 4) Review and update the **Spatial Development Framework proposals**.

It should be noted that this SDF is not an entirely new SDF for the Central Karoo, but simply seeks to update and synthesize the SDF that was developed for the Central Karoo in 2014.

The Central Karoo District SDF will mainly focus on the following:

- Identifying the structure and role of settlement, transportation, and regional services infrastructure across and between the local municipalities within the District area;
- Classifying areas that require protection and conservation (i.e. protected areas), which include threatened ecosystems, critical biodiversity areas, valuable agricultural land, water catchment areas and other resources of value within the District;

- Identifying growth nodes, priority investment areas and areas of rural decay within the District;
- Classifying areas that require protection and conservation (i.e. protected areas), which include threatened ecosystems, critical biodiversity areas, valuable agricultural land, water catchment areas and other resources of value within the District;
- Resolving contradictions between the planning visions of the District's local municipalities;
- Describing the general urban design principles to be applied in all settlements located in the District. Critically, the District SDF must guide local municipalities in the development of their own SDF's, without impeding on local-level planning detail. The District sets the framework and context for local municipalities to work within. It is also critical that the District aligns to the Provincial and National planning and policy context. It is therefore clear that the District must operate within fairly well defined (at the conceptual level) policy and planning context and therefore is constrained to this insofar as possible proposals that can be made. The SDF must both guide and be guided by municipal sector plans, as illustrated in Figure 1.1 below.

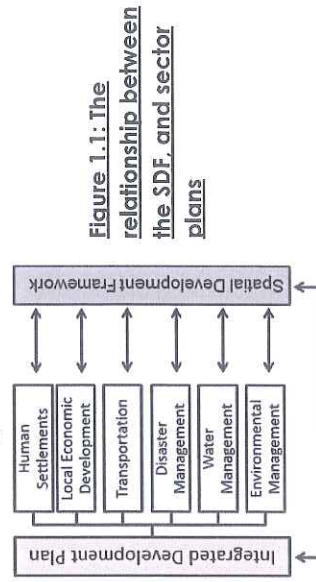


Figure 1.1: The relationship between the SDF, and sector plans

1.2. PROCESS AND TIMEFRAMES

1.2.1. SDF AMENDMENT PROCESS

The procedure to amend a Spatial Development Framework is set out in the Municipal Systems Act, 2000 (Act 32 of 2000), the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) and the Western Cape Land Use Planning Act, 2014 (Act 3 of 2015). In short, the process entails the following:

- 1) The municipality decides whether or not to establish an Intergovernmental Steering Committee;
- 2) Members of Council to be given reasonable notice of the amendment;
- 3) The proposal to amend must be published in the media in at least 2 official languages;
- 4) The municipality must inform the provincial minister in writing of their intent to amend the SDF;
- 5) Municipality must establish a project committee;
- 6) If an ISC is established, then provincial and other departments must be invited to sit on it and provide input on the SDF amendment;
- 7) Once available, the draft SDF amendment must be made available for public comment for a period of 60 days.
- 8) The Project Committee must consider all comments received and compile a final SDF for council adoption;
- 9) SDF amendment is presented to council for approval or further amendment;
- 10) Once adopted, a notice of adoption must be placed in Provincial Gazette within 14 days;
- 11) The amended SDF submitted to provincial minister within 10 days of Council approval;

1.2.2. METHODOLOGY

The broad method to be followed in the amendment of the SDF is set out below.

The methodology follows a clear logic:

- 1) First, determine the **rationale** for the amending the current SDF which will inform the development of a problem statement;
- 2) Second, determine what the **policy and legislative context** is within which the SDF must be developed, while being cognisant of the fact that one doesn't operate in a policy vacuum;
- 3) Third, undertake a **status quo assessment** or 'state of development' of the district in terms of its natural environment, socio-economic development and built environment and identify the **key issues and opportunities** in the district;
- 4) Fourth, the spatial vision and concept will be assessed for its continued relevance, or if it needs to be revised, which will be the overarching framework that guides all subsequent policy interventions;
- 5) Finally, the spatial policy proposals, key directive and key protective actions will be identified for the district. These actions may either entail reaffirming those of the 2014 SDF, or devising entirely new proposals. Such actions will form the basis of an implementation plan.

Figure 1.2 illustrates broadly the process and products that will be developed in this SDF amendment.

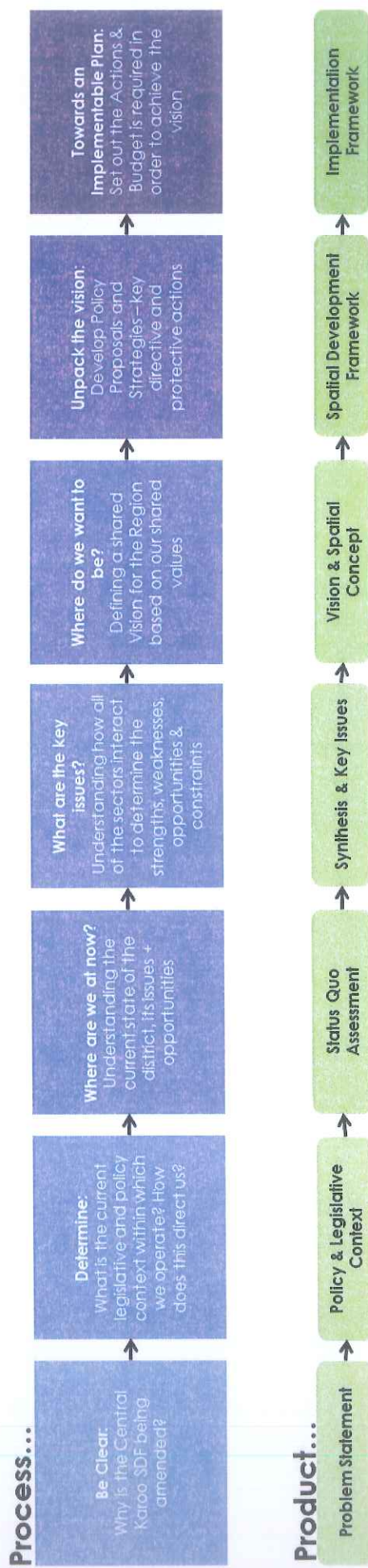


Figure 1.2: The methodology in undertaking the SDF amendment – identifying both the process to be followed and the product to be developed

1.2.3. PROCESS AND PUBLIC PARTICIPATION

The following sets out key steps in the drafting of the Central Karoo MSDF:

- A media notice of intention to review the Central Karoo SDF was made on 16 January 2018.
- Chapter 1, 2 and 3 (the Status Quo Report) was presented to the Intergovernmental Steering Committee on 11 May 2018.
- On 31 October 2018, the Status Quo report was presented to Council for approval and subsequently on 12 November 2018 at the Central Karoo Economic Development Conference.
- On 19 March 2019, draft Central Karoo SDF (chapter 4) was presented to the Intergovernmental Steering Committee and Council.
- Following comments received in April and May 2019, a revised draft was presented to the Central Karoo District Council.
- On the 28th of June 2018, the Central Karoo District Council approved that a 60-day public participation process be undertaken.
- A Provincial Gazette notice was placed on 6 September 2019, making it known that the MSDF was available for public comment (in Provincial Gazette No. 8145 of 6 September 2019).
- The public notice was also placed in Die Courier, making it known that the SDF was available for public comment (placement date 4 October 2019).
- The public participation process took place between 11 September 2019–11 November 2019.
- Following comments received, the MSDF was redrafted and a finalised copy handed to the District Municipality for approval in February 2020, for the approval of Council.

1.3. STRUCTURE OF THIS REPORT

Chapter 1 of the SDF provides the introduction, and sets the purpose of the SDF, the process to be followed, the method used and provides a high-level problem statement that sets out why the SDF amendment is required. **Chapter 2** of the SDF sets out the policy and legislative context – giving the primary policy informants to the SDF, which sets the scene for the direction of the SDF. **Chapter 3** provides the existing level of development or status quo of the municipality – looking at the state of the ecological, socio-economic and built environment assets of the municipality, as well as drawing out the key issues. **Chapter 4** sets out the **Spatial Proposals** for the Central Karoo, including a spatial vision, objectives, principles and strategies for implementation. **Chapter 5** sets out the **Implementation Framework**, clearly articulating policies, guidelines and implementation actions required for the implementation of the SDF, as well as the institutional arrangements for implementation.

1.4. PROBLEM STATEMENT

The Central Karoo District Municipality seeks to update and amend its 2014 Spatial Development Framework to bring it in line with the 2017/18 4th Generation Integrated Development Plan, as well as to update to include the latest intelligence as it relates to the region. Since the SDF was approved in 2014, there have been changes to the policy landscape which impacts upon the viability of the SDF. In addition, new data has shed light on changing economic and social conditions in the region, which necessitates the need for the SDF to be amended to address these. Some of the key changes relate to:

- Updated Critical Biodiversity Area information and Biodiversity Spatial Plans;
- New population growth figures, economic data, and service level data; and
- An evolving policy position on shale gas extraction;

1.5. BRIEF OVERVIEW OF THE CENTRAL KAROO DISTRICT MUNICIPALITY

The Central Karoo District Municipality (CKDM) is one of five Category C District municipalities in the Western Cape Province. The N1 (National road) and main railway cuts through the District in a northeast – southwest direction, connecting it to Cape Town (300km south west of the District) and Johannesburg (1000km north east of the district). Refer to the **figure 1.3** which provides a locality map of the district.

The CKDM covers a total area of 38 852km², making it the largest district municipality in the province. It stretches approximately 400km from its furthest south east point to its furthest north-west point, and includes the towns of Beaufort West, Laingsburg and Prince

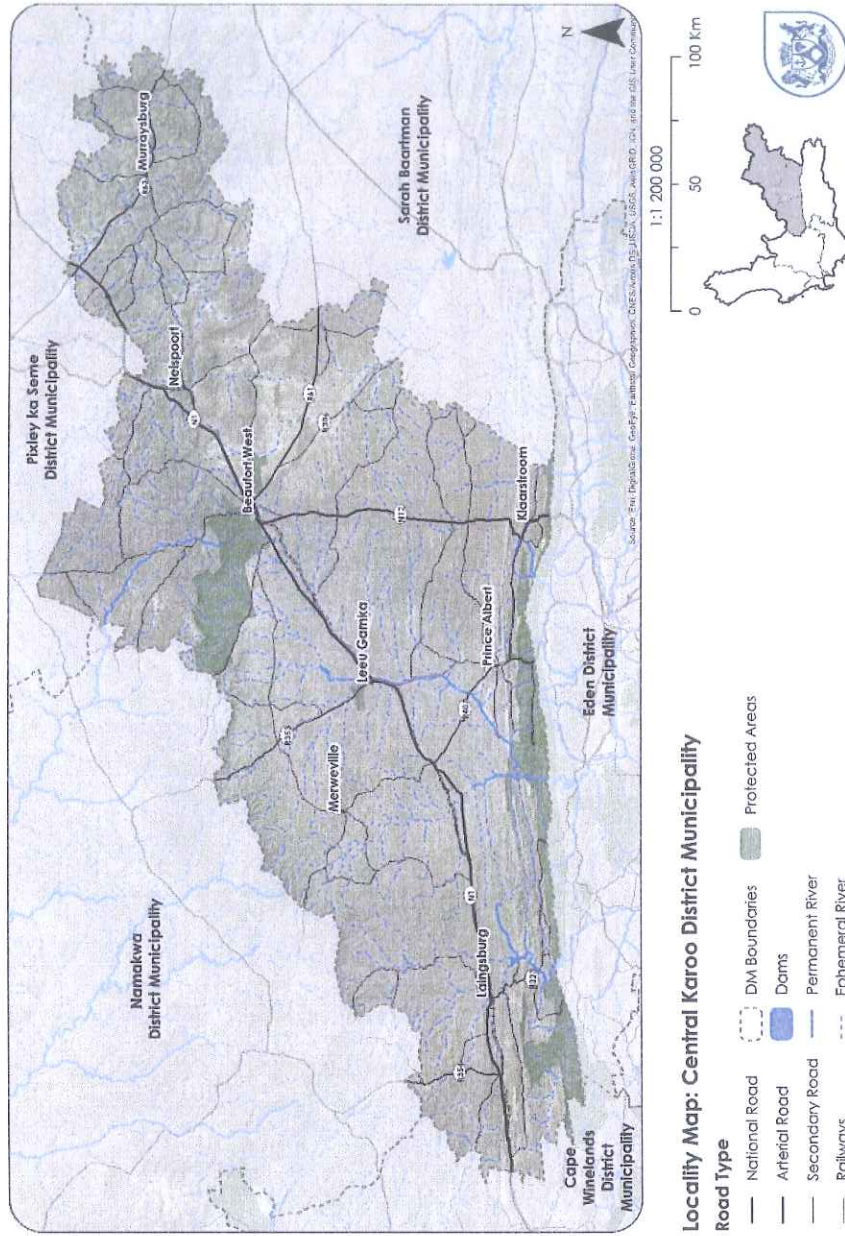


Figure 1.3: A Locality map of the Central Karoo

Albert (also the names of the 3 local municipalities within the district).

The Central Karoo is a low rainfall desert region, located on South Africa's central high-plateau and in the rain shadow of the Cape Fold mountains. It is classified as a cold desert climate (BWk) in terms of the Koppen climate classification. This means that a dry climate prevails, with generally low relative humidity.

Rainfall generally falls predominantly from thunder storms that occur in late summer (peaking in March), with the mountainous areas in the far north east receiving the most rains. Summer days can be brutally hot, with day-time peaks occasionally reaching 40 degrees Celsius, although early summer mornings are often cool and pleasant. Winter days are mild and warm, with the nights and mornings being cold – often experiencing frost. The Central Karoo is known for its fresh air, wide open cloudless skies and spectacular night time sky, showcasing a night sky that is often

seen anew by visitors due to its superb clarity and expanse. The area's ecosystem is xerophytic in nature. That is, the habitat is particularly drought-hardy; and the ecosystem is mostly composed of flora and fauna from the Nama-Karoo biome, with some Succulent Karoo and Fynbos.

The CKDM is surrounded by the Eden District Municipality to the south (Western Cape), the Cacadu District Municipality to the east (Eastern Cape), the Pixley-ka-Seme District Municipality in the north and the Namakwa District Municipality in the north-west (Northern Cape).

As per the 2016 Community Survey, the population of the Central Karoo stands at some 74 247 people living in 21 980 households, making it extremely low density and sparsely populated. 8.5% of these households recorded as having no income in 2016, with the teenage pregnancy rate standing at 13.3%, indicating a high poverty level in the region. The average GDP growth rate between 2005 and 2015 was 3.4%, with a much more muted growth rate after 2015, reflecting the national average which was also depressed. Employment growth, however, has been much lower at an annual average growth rate of 1% per annum between 2005 and 2015, which unfortunately has not kept up with the population growth rate during the same period. The 3 largest economic sectors in the region are commercial services (42.3% of the economy), government, community, social and personal services (29.7%) and agriculture, forestry and fishing (16.8%).

The main functions of a District Municipality as prescribed in the Constitution include:

- To plan for the development of the District Municipality as a whole;
- Supply of bulk water, sewer and electricity provision for a large portion of the local municipalities within the District;
- Provide for waste disposal sites for the District;
- Regulate passenger transport services for the District;
- Municipal Health Services provision for the District;
- Firefighting Services for the District;
- Control of cemeteries within the District;
- Control of the fresh produce markets and abattoirs in the District;
- Promoting local tourism for the District; and
- Municipal Public Works services for the District area.

CHAPTER 2: POLICY AND LEGISLATIVE CONTEXT

2 POLICY AND LEGISLATIVE CONTEXT

The purpose of this chapter is to briefly provide a summary of the policy and legislative landscape that has a bearing on the Spatial Development Framework for the Central Karoo. The chapter will seek to crystallize the key informants from each policy or piece of legislation and provide clear direction for the SDF proposals.

The intention of this chapter is not, however, to provide either an exhaustive list of relevant legislation and policy, or to comprehensively summarise the above-mentioned, but to tease out the key policy and legislation drivers that impact the SDF.

2.1 RELEVANT NATIONAL POLICY AND LEGISLATION

2.1.1 THE NATIONAL DEVELOPMENT PLAN 2030

The National Development Plan, 2030, is the supreme and overarching plan for South Africa that sets out the most crucial objectives and actions that need to be undertaken in the Republic of South Africa in order to eliminate poverty and reduce inequality by 2030.

The following sets out some of the key interventions that the NDP seeks to achieve:

- Significantly reduce unemployment and increase the size of the economy through a range of actions.

- Invest in economic infrastructure, such as electricity, water, public transport and broadband networks.
- Enhance environmental sustainability and resilience.
- Develop an inclusive rural economy through agri-processing and agriculture, tenure security, land reform.
- Increase trade within Southern Africa.
- Transform our human settlements, by co-locating places of work and human settlements, densifying our settlements and improving public transport.
- Improve education, training and innovation at all levels of the education system.
- Improve the health outcomes of the country.
- Enhance and ensure social protection and build safer communities.
- Build a capable state.
- Fight corruption.
- Promote nation building.

While the NDP is an extensive plan with a significant amount of detail, SDFs are envisioned to be local tools through which the NDP should be implemented.

2.1.2 INTEGRATED URBAN DEVELOPMENT FRAMEWORK (IUDF)

The IUDF's core objective is spatial transformation, drawing its mandate from the NDP and the realisation that urbanisation is an increasing challenge, as well as an opportunity for South Africa. The IUDF essentially proposes a growth model for urban areas in South African that promotes compaction, connectedness, and coordinated growth in respect to land, transport,

housing and job creation. The goal of the IUDF is to create efficient urban spaces by reducing the travel costs and improving public transport, aligning land use and transport planning, increasing densities, and promoting mixed land uses so that people and live and work in the same places and spaces.

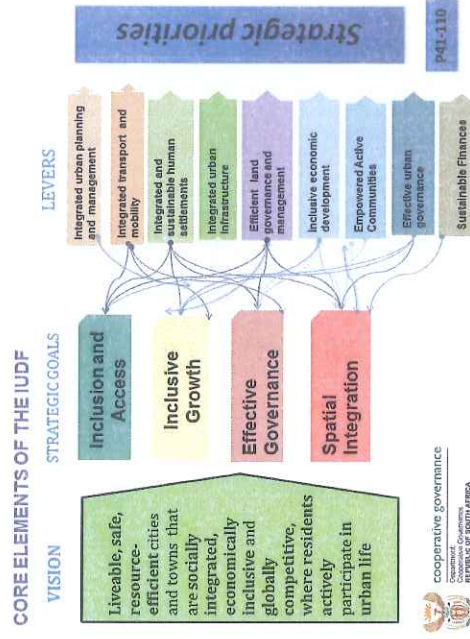


Figure 2.1: The Vision, Strategic Goals and Levers in the Integrated Urban Development Framework (COGTA, 2016)

It should be noted that the implementation of the IUDF is dependent on several critical dependencies, such as a competent and capacitated administration, integrated planning, integrated budgeting, and integrated implementation between all spheres of government and political and administrative will. The IUDF itself recognises these dependencies.

2.1.3 THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013)

SPLUMA establishes a process to develop an SDF, as well as the minimum content requirements of an SDF. An SDF must achieve the following:

- Create, and be informed by, a longer term spatial vision;
- Guide the planning of all spheres of government;
- Identify risks associated with particular developments;
- Identify and quantify engineering infrastructure needed for future growth; and
- Provide the spatial expression of the coordination, alignment and integration of all sector plans.

SPLUMA also includes a set of **5 development principles** which must guide the preparation, adoption and implementation of any SDF, policy and/or by-law concerning spatial planning and the development or use of land. These principles are set out below:

Spatial Justice refers to the need to redress the past apartheid spatial development imbalances and aim for equity in the provision of access to opportunities, facilities, services and land. In the broadest sense, it seeks to promote the integration of communities and the creation of settlements that allow the poor to access opportunities.

Spatial Sustainability essentially refers to a sustainable form of development. A part of this means promoting less resource consumptive development typologies, compaction, pedestrianisation, and mixed-use urban environments which allow for the development of a functional public transport system and space economy. A spatially sustainable settlement will be

one which has an equitable land market; while ensuring the protection of valuable agricultural land, environmentally sensitive and biodiversity rich areas, as well as scenic and cultural landscapes. A core component of spatial sustainability ultimately seeks to limit urban sprawl.

Efficiency refers to the need to create and restructure our settlements in order to optimise the use of space, energy, infrastructure, resources and land. Inherent in this statement is the need to promote densification and urban (as opposed to suburban) development typologies either in new build or retro-fitting exercises, gradually over time. Efficiency also has to do with the manner in which the settlement itself is designed and functions; which ought to reduce the need to travel long distances to access services, facilities and opportunities. Efficiency also refers to decision-making procedures which should be designed to minimise negative financial, social, economic or environmental impacts.

Spatial Resilience in the context of land use planning refers to the need to promote the development of sustainable livelihoods for the poor (i.e. communities that are most likely to suffer the impacts of economic and environmental shocks). The spatial plans, policies and land use management systems should enable the communities to be able to resist, absorb and accommodate shocks and to recover from these shocks in a timely and efficient manner. This includes the preservation and restoration of essential basic infrastructure and functions, and also long-term adaptation in order to ensure increased resilience in terms of future shocks (United Nations Office for Disaster Risk Reduction, 2009).

Good Administration in the context of land use planning refers to the promotion of integrated,

consultative planning practices in which all spheres of government and other role-players ensure a joint planning approach is pursued. Furthermore, it is critical that decisions made in terms of land use planning seek to minimise the negative financial, social, economic and environmental impacts of a development. Furthermore, 'good administration' in the context of land use planning, refers to a system which is efficient, well run, and where the timeframe requirements are adhered to.

Key message: spatial planning is a normative (value driven) process that must be underpinned by these 5 principles and seek to jointly guide all actors in space.

2.1.4 MUNICIPAL SYSTEMS ACT, 2000 (ACT 32 OF 2000)

Section 24 of the MSA notes that planning undertaken by a municipality must be aligned with, and complement, the development plans and strategies of other affected municipalities and organs of state to give effect to the principles of co-operative governance contained in Section 41 of the Constitution. It further notes that municipalities must participate in national and provincial development programmes as required in section 153(b) of the Constitution, and it requires municipal planning to reflect this as well.

Key message: Planning must be joint, integrated and aligned and express all spheres of government development plans and programmes within the municipal space.

2.1.5 THE LOCAL GOVERNMENT: MUNICIPAL PLANNING AND PERFORMANCE MANAGEMENT REGULATIONS, 2001 (LG: MP&PM REGULATIONS)

Chapter 2 of the LG:MP&PM regulations, published in terms of the Municipal Systems Act, 2000 (Act 32 of 2000), provides some detail as to what SDFs should seek to achieve. Most importantly, SDFs must set out the desired spatial form on the municipality, contain strategies and policies of how these will be met, and set out basic guidelines for the land use management system, amongst other things. It should be noted that SPLUMA provides greater detail to these requirements.

2.1.6 IMPLICATIONS FOR THE CENTRAL KAROO MUNICIPALITY

National legislation and policy make it very clear that SDFs should seek to redress past imbalances, be transformational, whilst facilitating private sector development and confidence. The implication is that Central Karoo Municipality must endeavour to create more resilient, integrated and dense urban settlements that provide higher quality urban environments than is currently the case and that provide healthy, happy and inspiring environments in which people, the economy and the natural environment can flourish.

2.2 RELEVANT PROVINCIAL POLICY AND LEGISLATION

2.2.1 THE WESTERN CAPE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK

The logic underpinning the PSDF's spatial strategy is to:

Capitalise and build on the Western Cape's comparative strengths (e.g. gateway status, knowledge economy, lifestyle offering) and leverage the sustainable use of its unique spatial assets;

Consolidate existing and emerging regional economic nodes as they offer the best prospects to generate jobs and stimulate innovation;

Connect urban and rural markets and consumers, fragmented settlements and critical biodiversity areas (i.e. freight logistics, public transport, broadband, priority climate change ecological corridors, etc.); and

Cluster economic infrastructure and facilities along public transport routes to maximise the coverage of these public investments, and respond to unique regional identities within the Western Cape.

The PSDF includes four spatial themes namely; **Resources, Space Economy, Settlement and Spatial Governance**. The first three themes, which have a spatial component, resulted in the development of 13 spatial policies. The fourth theme, spatial governance, explored the governance structure required in order to implement the PSDF.

The key spatial policies in respect of the Central Karoo are:

- **POLICY R1:** Protect biodiversity and ecosystem services.
- **POLICY R2:** Safeguard inland and coastal water resources, and manage the sustainable use of water.

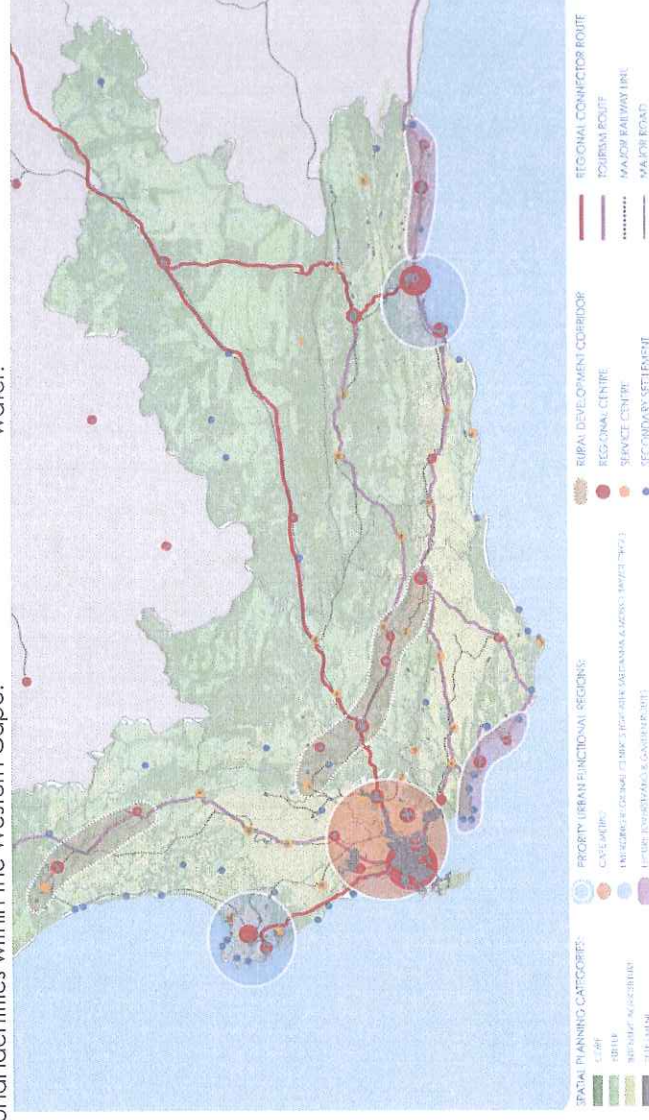


Figure 2.2: The PSDF Composite Map

- **POLICY R3:** Safeguard the Western Cape's agricultural and mineral resources, and manage their sustainable and productive use.
- **POLICY R4:** Recycle and recover waste, deliver clean sources of energy to urban households, shift from private to public transport, and adapt to and mitigate against climate change.
- **POLICY R5:** Protect and manage provincial landscape and scenic assets.
- **POLICY E1:** Use regional infrastructure investment to leverage economic growth.
- **POLICY E2:** Diversify and strengthen the rural economy.
- **POLICY E3:** Revitalise and strengthen urban space-economies as the engine of growth.
- **POLICY S1:** Protect, manage and enhance the provincial sense of place, heritage and cultural landscapes.
- **POLICY S2:** Improve provincial, inter- and intra-regional accessibility.
- **POLICY S3:** Ensure compact, balanced and strategically aligned activities and land uses.
- **POLICY S4:** Ensure balanced and coordinated delivery of facilities and social services.
- **POLICY S5:** Ensure sustainable, integrated and inclusive housing planning and implementation.

The PSDF composite map (see Figure 2.2) graphically portrays the Western Cape's spatial agenda. In line with the provincial spatial policies, the map shows what land use activities are suitable in different

landscapes and highlights where efforts should be focused to grow the provincial economy.

2.2.2 THE WESTERN CAPE LAND USE PLANNING ACT, 2014 (ACT NO. 3 OF 2014)

The Western Cape Land Use Planning Act, 2014 (Act 3 of 2014) echoes much of what SPLUMA seeks to achieve from a spatial planning perspective, adding some detail in terms of the process that may be used to develop a Spatial Development Framework, content requirements of SDFs, as well as setting out the functions of municipalities and provincial government.

In brief, LUPA allows municipalities to follow 2 different processes in developing SDF's – one with an Intergovernmental Steering Committee and one without. The Central Karoo has decided to establish an Intergovernmental Steering Committee.

2.2.3 THE WESTERN CAPE HUMAN SETTLEMENTS FRAMEWORK (2017)

The Living Cape Framework aims to support a departure from the current housing delivery model. The focus of the Framework is explicitly on improving the quantity and quality of human settlements, where these settlements are understood as holistic spaces comprising of land, housing, social, economic and networked infrastructure, and communities (DHS, 2017).

Minister Madikizela, the Minister of the Department of Human Settlements in the Western Cape, emphasized the following three strategic objectives during his

engagement with local municipalities in January & February 2017, namely seeking to:

1. Accelerate the provision of housing opportunities within the Affordable Housing Market (GAP Market);
2. Accelerate the upgrading of informal settlements, including the provision of basic interim services to ensure adequate living conditions for all residents in the Western Cape; and
3. Ensure that the most deserving individuals are prioritized when providing housing opportunities.

2.3 DISTRICT PLANNING INFORMANTS

The purpose of this section is to ascertain and set out the planning informants that exist in the District Municipality as it relates to spatial planning and land use management.

2.3.1 THE CENTRAL KAROO SPATIAL DEVELOPMENT FRAMEWORK, 2014 (CK SDF)

As has been stated previously, the 2014 Central Karoo SDF forms the basis upon which this review and amendment takes place. The intention is to gauge the continued relevance of the 2014 document, as well as update the intelligence, information, and policies in the SDF. Similarly, this amendment process will synthesize the old SDF into a more useful and shorter format.

Therefore, the existing Central Karoo Status Quo reports and policy proposals will be put to use as the basis for this SDF moving forward.

2.3.2 THE 2017 - 2022 CENTRAL KAROO INTEGRATED DEVELOPMENT PLAN (IDP)

The vision of the Central Karoo is that of *Working Together in Development and Growth* in order to ensure that the Central Karoo becomes a place where *economic growth, social development and sustainability is achieved whilst maintaining the rural character, as well as embracing and developing the diversity of the communities.*

There are 7 **strategic objectives** articulated in the IDP, relating to:

1. Facilitating **good governance** principles, and effective stakeholder participation;
2. Building a **well capacitated workforce**, skilled youth and communities;
3. Improve and maintain **district roads** and promote **safe road transport**;
4. **Prevent and minimize** the impact of possible **disasters** and improve **public safety**;
5. Promote safe, healthy and socially stable communities through the provision of a **sustainable environmental health service**;
6. Promote **regional economic development**, tourism and growth opportunities; and
7. Deliver a **sound and effective administrative and financial service** to achieve sustainability and viability in the region.

Overall, the IDP represents the 5-year plan for the development of the municipal area.

2.3.3 THE CENTRAL KAROO RURAL DEVELOPMENT PLAN (2017)

The revised Central Karoo District Rural Development Plan includes the integration of the Agri-Park Initiative and accompanying Department of Rural Development and Land Reform projects into Local Municipal IDPs and SDFs. It also aims to assist

municipalities and other sector departments to invest in a coordinated manner in order to enable the development and functioning of the Central Karoo District Agri-Park. Detail of this is provided in chapter 3.

2.3.4 THE MUNICIPAL ECONOMIC REVIEW AND OUTLOOK (MERO, 2018)

The Municipal Economic Review and Outlook (MERO) is an annual research publication produced by the Provincial Treasury of the Western Cape Government. The first edition of the MERO was published in 2012. It is aimed at informing policymakers at municipalities on key economic issues that affect policy, planning and budgeting.

The following points will set out key information as abstracted from the Municipal Economic Review and Outlook as it pertains to the Central Karoo:

- In terms of the spatial distribution of provincial infrastructure spend, the Central Karoo received a total investment of **R128.1 million in 2017/18**, which represents 1% of the total infrastructure spend in the Province. This is broadly reflective of the population of the Central Karoo which makes up 1.18% of the total population of the Western Cape.
- The **Gini-coefficient** for the Central Karoo, which measures degree of income inequality, appears to show a slow trend of increasing income inequality from a low of **0.55 in 2010 to 0.575 in 2016**. This means that the region is becoming more unequal, even though it has the lowest levels of income inequality in the Province.

- Despite the above, the **Human Development Index** has shown a positive increase from **0.60 in 2010 to 0.68 in 2016**, which is a positive sign of improved human development conditions in the region. This therefore reflects that while asset and income inequality is worsening, access to basic services is improving.

- **Economic growth** has slowed considerably in the last 5 years, to an average **GDPR of 2.1% per annum**. 2016 was a particularly bad year with GDPR contracting in that year by 1.2%. This was attributable to the drought, political and policy uncertainty at the national level, and a volatile Rand. It is anticipated that 2017 and 2018 will register, at best, muted growth if national trends are indicative of the regional trend.

- Agriculture is far more significant in the Central Karoo as a proportion of the economy, than what it is in the rest of Western Cape.

2.3.5 CENTRAL KAROO SOCIO-ECONOMIC PROFILE (2016)

The following are some of the key highlights from the Socio-Economic Profile for the Central Karoo.

- In 2018, the population was predicted to be **75 688 with 22 460 households**, meaning an average of **3.37 persons per household**. This indicates a trend of decreasing numbers of people per household when compared to 2011 (population: 71 011; households: 19 220; ppl/household: 3.69); 2001 (pop: 60482, hh: 15 508; ppl/hh: 3.9); and 1996 (pop: 55776; hh: 12 971, ppl/hh: 4.3);
- The **matric pass rate** in 2015 was at 88.6%;

- The Central Karoo's **GDPR** was R1,98 billion at the end of 2015, which made up 0.5% of the Western Cape economy of R391.6 billion. Of this, the primary sector contributed R333.45 million (or 16.8%), the secondary sector made up R145.96 million (8%) and the tertiary sector contributed R1 426.97 million (72%). The figures below illustrate the absolute contribution of each sector to the economy, together with growth trends and the employment numbers that each sector contributes.

GDP	2015	Trend 2005 – 2015	Recovery 2010 – 2015
	RS1.08 million	2.0%	2.3%
Employment	299	-0.9%	-0.8%
	Skilled	16	-2.3%
	Semi-skilled	101	+1.6%
	Low-skilled	73	-1.7%
	Informal	109	0.8%
Skill Levels			0.9%

Figure 2.3: The GDP and Employment provided in the Primary Sector (Central Karoo LG SEP, 2016)

GDP	2015	Trend 2005 – 2015	Recovery 2010 – 2015
	R94.88 million	8.1%	3.7%
Employment	1 138	3.2%	1.7%
	Skilled	38	2.5%
	Semi-skilled	322	0.6%
	Low-skilled	206	-1.0%
	Informal	572	8.1%
Skill Levels			7.2%

Figure 2.4: The GDP and Employment provided in the Manufacturing part of the Secondary Sector (Central Karoo LG SEP, 2016)

GDP	2015	Trend 2005 – 2015	Recovery 2010 – 2015
	R333.45 million	4.2%	0.4%
Employment	4 205	-1.5%	4.2%
	Skilled	174	0.6%
	Semi-skilled	1 479	-1.6%
	Low-skilled	1 995	-2.4%
	Informal	557	2.1%
Skill Levels			4.2%

Figure 2.5: The GDP and Employment provided in the Construction part of the Secondary Sector (Central Karoo LG SEP, 2016)

GDP	2015	Trend 2005 – 2015	Recovery 2010 – 2015
	R837.49 million	2.9%	1.9%
Employment	6 731	2.5%	0.8%
	Skilled	691	0.3%
	Semi-skilled	2 292	-0.3%
	Low-skilled	819	-0.1%
	Informal	2 929	8.5%
Skill Levels			2.6%

Figure 2.6: The GDP and Employment provided in the Commercial Services part of the Tertiary Sector (Central Karoo LG SEP, 2016)

GDP	2015	Trend 2005 – 2015	Recovery 2010 – 2015
	R589.48 million	3.6%	3.2%
Employment	5 918	2.5%	2.0%
	Skilled	1 519	2.3%
	Semi-skilled	1 593	2.7%
	Low-skilled	2 379	1.3%
	Informal	427	16.5%
Skill Levels			8.7%

Figure 2.7: The GDP and Employment provided in the Government, Community, Social and Personal Services part of the Tertiary Sector (Central Karoo LG SEP, 2016)

- In **GDPR terms**, largest 3 sectors of the economy were commercial services (42.3%), government, community and social services (29.7%) and agriculture (16.8%).
- Despite a 10-year average GDPR growth rate of 3.4% per annum between 2005 and 2015, the **employment growth rate** was only 1% per annum during this period. This points to 'jobless growth' in the region which is evident in the increased inequality. Poverty headcount has subsequently increased in the Central Karoo from 2.4% to 3.1% whilst poverty intensity has increased from 40.6% to 41.1% between 2011 and 2016, despite these metrics being on the decline in the Western Cape during the same period.
- In **employment terms**, the largest employer in the district was commercial services (6731 people);

government, social and personal services (5918 people employed); and agriculture (4205 people).

- In 2016, 62.9% of **households** were classified as low income households (earning below R50 613 per annum), 29.5% are classified as middle income households (earning between R50 614 and R404 901 per annum), and 4.6% as high income households (earning above R404 902 per annum). Indigent households increased in the Central Karoo between 2014 and 2015, despite the Western Cape registering a decline during the same period.

- In terms of **health facilities**, the Central Karoo has 8 fixed clinics, 9 mobile or satellite clinics, 1 community day centre, and 4 district hospitals and 1 regional hospital. Concerningly, the immunisation rate in the Central Karoo is only 74.8% compared to 88.8% for the entire Western Cape, whilst the child malnutrition rate is 10.9% compared to 2.4% for the Western Cape. Births to teenage mothers is 13.3%, compared to 5.5% for the Western Cape.

- Access to **basic services**, such as piped water within 200m of a household, electricity, sanitation and refuse removal all registered significant increases between 2011 and 2016. This reflects in the improved Human Development Index for the region. Formal housing made up 97.8% of all housing stock in the region in 2016, which is far above the national and provincial levels.

- In terms of **safety and security**, between 2015 and 2016, the murder rate experienced a significant (46.8%) increase from 36 to 53 murders per 100 000; sexual offences increased by 16.4%; drug

related crime increased by 1.6%; driving under the influence decreased by 8.1%; and residential burglaries increased by 3.4%. These increases indicate a District in social distress, possibly caused in part by increasing unemployment, poor education outcomes and poverty levels.

- The following sets out the number of persons on the housing waiting list (as at May 2017):

o Beaufort West Municipality:	5275
o Beaufort West (town):	4125
o Murraysburg:	746
o Nelspoort:	227
o Merweville:	176
o Laingsburg Municipality:	548
o Laingsburg Town:	516
o Matjiesfontein:	32
o Prince Albert Municipality:	1364
o Prince Albert Town:	956
o Leeu Gamka Town:	287
o Klaarstroom Town:	121

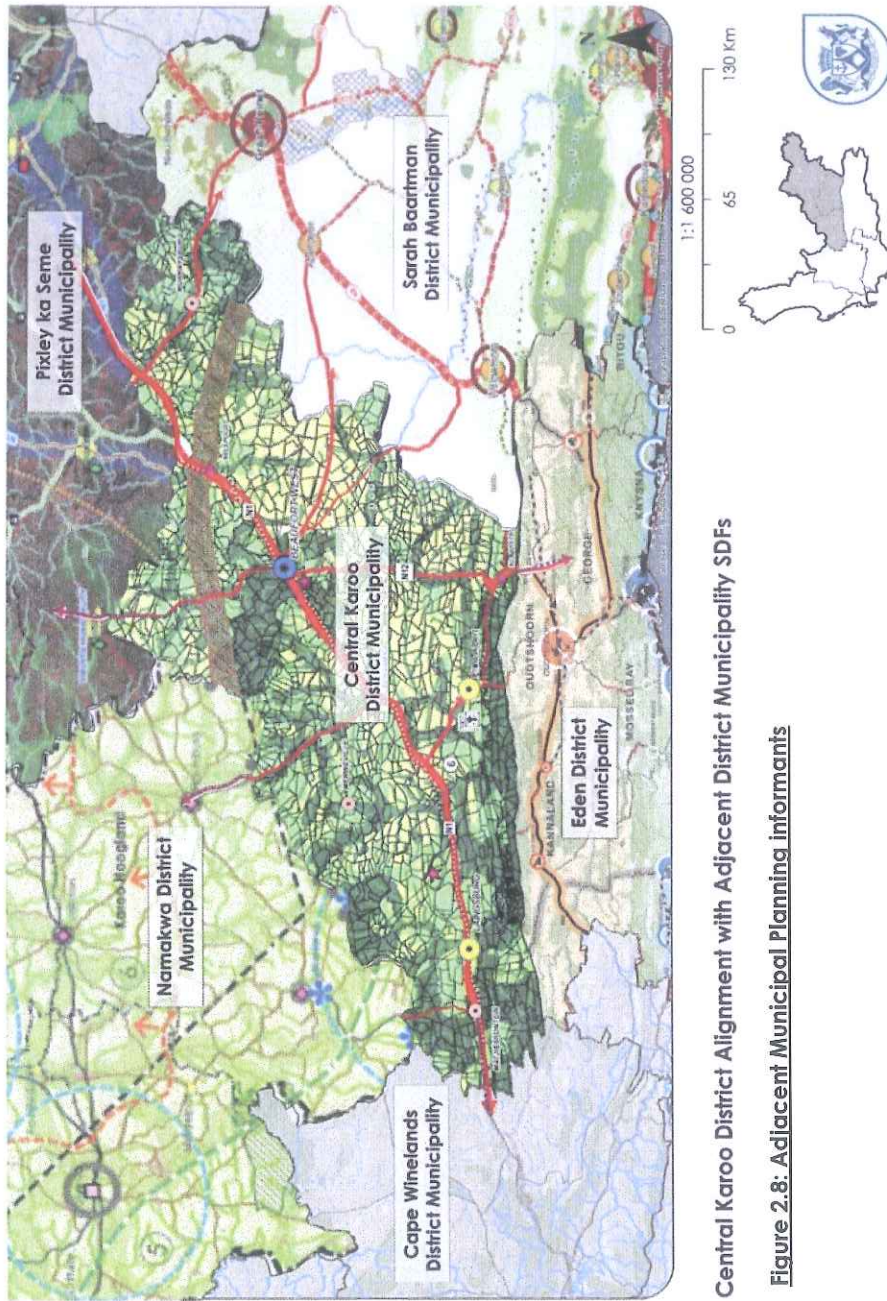
2.4 ADJACENT MUNICIPAL INFORMANTS

The purpose of this section is to the test horizontal alignment between the Central Karoo and all adjacent municipal SDF's; primarily to check for areas of potential conflict, and to prevent contradictory spatial proposals.

Greater detail is provided in the subsections that follow, however it can be seen that the Central Karoo is surrounded by 5 other district municipalities – Namakwa to the north-west, Pixley ka Seme to the north east, Sarah Baartman to the east, Eden to the south and Cape Winelands to the west.

The expansive area covered by these adjacent municipalities varies from temperate forests and well-watered verdant landscapes in the south, to dramatic mountain-covered fynbos areas and vineyards in the west to desert and semi-desert arid flatlands in the north and Albany thicket type landscape and vegetation to the east.

Whilst no major areas of conflict are identifiable at this scale, it should be noted that an initiative is underway – under the leadership of SALGA and the Karoo Development Foundation – in which the karoo towns have come together to develop a Small Towns Regeneration and Regional Economic Development Strategy. This regional initiative seeks to bring together places of similar challenge and opportunity to collectively create a more prosperous future in these fragile yet unique places.



Central Karoo District Alignment with Adjacent District Municipality SDFs

Figure 2.8: Adjacent Municipal Planning Informants

2.4.1 NAMAKWA DISTRICT SDF (NORTH WEST)

The Namakwa District is located to the north-west of Central Karoo District in the Northern Cape Province. The districts share two main road connections; namely, the R354 between Matjiesfontein and Sutherland, and the R353 between Leeu Gamka and Fraserburg.

Regarding alignment issues, Namakwa has earmarked much of the land which forms the border of the two municipalities as a critical biodiversity area (i.e. non-statutory conservation areas). Therefore, the municipality seeks to encourage private land-owners to protect, conserve, and rehabilitate land back to a natural condition where possible. Furthermore, Central Karoo District will need to be cognisant that Namakwa has identified two sites on the border for renewable wind energy projects, there are five existing mines on the District border, and the Square Kilometre Array (SKA) project crosses into the Central Karoo District area. These projects and land uses will impact on types of developments that Central Karoo District may consider in that area.



Figure 2.9: The Namakwa District SDF

2.4.2 PIXLEY KA SEME DISTRICT SDF (NORTH EAST)

Pixley District, as it is known, is located north of Central Karoo in the Northern Cape Province. The N1 national highway, connecting Cape Town and Johannesburg, is the most prominent shared feature between the two Districts as well as the N12 which branches off to Kimberly. The districts also share a number of smaller road connections including the R381 between Beaufort West and Loxton; and the R63 between Victoria West and Murraysburg.

Regarding alignment issues, the Pixley District has identified a series of critical biodiversity areas along the municipal border; particularly in the vicinity of, and to the east of the R381 near Loxton. In addition, the Pixley District recognises the national roads as a strategic asset. The most recent Pixley District SDF highlights a desire to encourage the development of economic activity along the national roads (i.e. the N12 and N1) through the use of a 'development corridor' approach. Nevertheless, development should be done in a responsible manner as to not impact regional mobility.

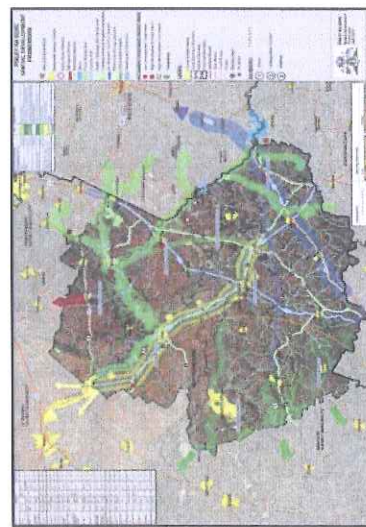


Figure 2.10: The Pixley District SDF

2.4.3 SARAH BAARTMAN DISTRICT SDF (EAST)

The Sarah Baartman District is located to the east of the Central Karoo in the Eastern Cape Province. Key transport routes linking the two districts are the R63 between Murraysburg and Graaff-Reinet, and the R61 between Beaufort West and Aberdeen. These routes experience extremely high traffic over the holiday periods when people travel between the Western and Eastern Cape Provinces.

The only major alignment issues identified include the desire to conserve critical biodiversity areas in the northern parts of the Sarah Baartman District in the vicinity of Nieu-Bethesda and the R63 corridors. Likewise, the Sarah Baartman District has earmarked land north of Aberdeen, and north of Graaff-Reinet for the purposes of shale gas extraction. These critical biodiversity areas and shale gas extraction areas border the Central Karoo District and may have implications for land use along the borderlands.



Figure 2.11: The Sarah Baartman District SDF

2.4.4 GAREDEN ROUTE DM SDF (SOUTH)

Located to the south of the Central Karoo, this is the most economically vibrant municipality that is in the closest proximity to the major towns of the Central Karoo. They create many opportunities for the Central Karoo which must be explored relating to tourism.

The Swartberg mountain range forms the border between the Garden Route and Central Karoo. Most of the land along the border is statutorily protected as nature reserves or mountain catchment areas. This will have an impact on development opportunities along the borderlands. Key transportation routes between the two municipalities include the Swartberg Pass between Oudtshoorn and Prince Albert (the R328), as well as the Meiringspoort Pass (N12) between De Rust and Klaarstroom, continuing on to Beaufort West. The two municipalities also share the lesser-travelled, but historically significant, Seweweeks Poort route (R323) which traverses between Laingsburg and Ladismith. The key message here is that there are a number of scenic passes and poorts the two municipalities share which could be better-leveraged for tourism purposes.

The Garden Route District has notionally indicated through its SDF that it wishes to upgrade the N12 corridor between De Rust and Klaarstroom to promote better connectivity with the interior. And the District wants to create an additional route to better connect Laingsburg (and the N1) with the Klein Karoo, and onwards to Riversdale and Stilbaai. However, these projects are not carried through to the SDF's implementation tables, and it is not clear if the District intends to proceed with these projects.



Figure 2.12: The Garden Route District SDF

2.4.5 CAPE WINELANDS DISTRICT SDF (WEST)

To the west, the Central Karoo is connected to the Cape Winelands District via the N1. This is the arid, sparsely populated part of the Cape Winelands, with the closest town to the western border of the Central Karoo being Touwsriver, in the Cape Winelands. Most of the land along the municipal border is currently being used for agriculture purposes. Currently, there are no apparent alignment issues between the two Districts.

2.5 LOCAL MUNICIPAL PLANNING INFORMANTS

The following section briefly sets out the key informants from the IDP of the three local municipalities within the Central Karoo.

2.5.1 PRINCE ALBERT MUNICIPALITY IDP

The 2017-2022 IDP for Prince Albert clearly sets out the vision for the 5-year period, being to create **an area characterised by a high quality of living and service delivery**.

The Development strategy is to ensure a sustainable Prince Albert, where all sectors are aligned for the betterment and benefit of the municipal area as a whole. To create an enabling environment for the inhabitants of Prince Albert towards guaranteed job opportunities and thus a better livelihood and citizen satisfaction.

The municipality has also identified seven Strategic Objectives (SO), being:

- SO 1: To promote sustainable integrated development through social and spatial integration that eradicates the apartheid legacy.
- SO 2: To stimulate, strengthen and improve the economy for sustainable growth.
- SO 3: To improve the general standards of living
- SO 4: To provide quality, affordable and sustainable services on an equitable basis;
- SO 5: To maintain financial viability & sustainability through prudent expenditure, and sound financial systems.
- SO 6: To commit to the continued improvement of human skills and resources to deliver effective services.

- SO 7: To enhance participatory democracy.

The above are critical informants to the SDF review for the municipality, as it assists in framing the spatial vision and priority action areas.

- 2) Sustainable economic growth by leveraging competitive advantages of the region;
- 3) A well-run administration that is efficient, effective and has the right skills mix;
- 4) Ensure financial sustainability; and
- 5) Be a transparent organisation.

2.5.2 LAINGSBURG MUNICIPALITY IDP

The 2017-2022 IDP for Laingsburg clearly sets out the vision for the 5-year period, being to create **a destination of choice where people come first**.

The municipality has **six priorities** as set out below.

- Priority 1: Environmental & spatial development
- Priority 2: Local economic development
- Priority 3: Basic service delivery
- Priority 4: Social and community development
- Priority 5: Institutional transformation
- Priority 6: Financial viability

2.5.3 BEAUFORT WEST IDP

The vision of the 2017 – 2022 IDP for Beaufort West is to be the economic gateway in the Central Karoo, where people are developed and live in harmony together. The mission further unpacks this, providing directives regarding **service delivery**, growing the **economy, staff, a well-run administration**, ensuring **financial sustainability**, to be a safe place and to reduce poverty by focusing on sports and recreation.

The five priority areas are:

- 1) Service to the people – seeking to improve and maintain basic service delivery through infrastructure development;

2.5.4 THE LOCAL MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORKS OF BEAUFORT WEST, PRINCE ALBERT AND LAINGSBURG

A composite of all three local municipal SDF's is shown in Figure 2.12 below, which illustrates the following:

- The need for continuity in the 'green network' of ecological corridors is important at the landscape scale;
- Mountain passes and scenic routes contribute to the competitive advantage of the region;
- Riverine corridors contribute to ecological and biodiversity connectivity to core critical biodiversity areas;
- The critical importance of the N1 highway to connect the region to the rest of South Africa and other regional connector roads, such as the N12 connecting the region to the Southern Cape; and
- The need to ensure that the carrying capacity of the land is respected in agricultural grazing practices in order to prevent degradation of the land and potential desertification.

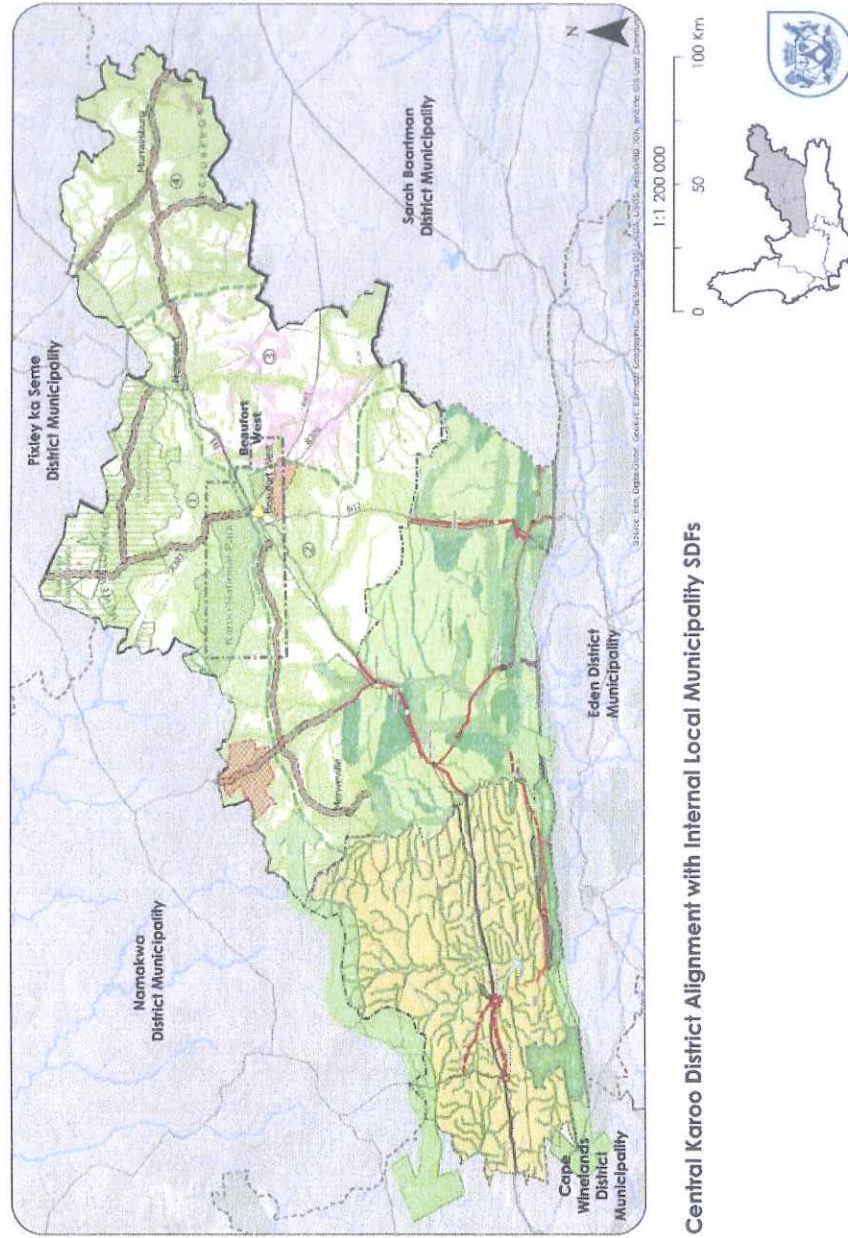


Figure 2.13: A composite map of all 3 local municipal SDF's in the Central Karoo

CHAPTER 3: STATUS QUO ASSESSMENT: CURRENT STATE OF THE MUNICIPALITY

3 STATUS QUO ASSESSMENT – CURRENT STATE OF THE MUNICIPALITY

The purpose of this chapter is to give a brief overview of the existing state of development of the Central Karoo District Municipality. This section provides an overview of the key biophysical, natural, socio-economic and built environment sectors, their individual strengths, weaknesses, opportunities, and constraints. Following this, a synthesis will be undertaken, identifying the key issues that arise to be taken forward in the Spatial Development Framework.

3.1 THE BIO-PHYSICAL AND NATURAL ENVIRONMENT ASSESSMENT

The natural environment is the realm within which and the basis upon which all plant, animal and human life systems operate, including society, the economy and agriculture. In order to live sustainably, the natural environment should never be compromised to the point where its natural systems and services are unable to provide its ecological systems and services to both existing and future generations or people.

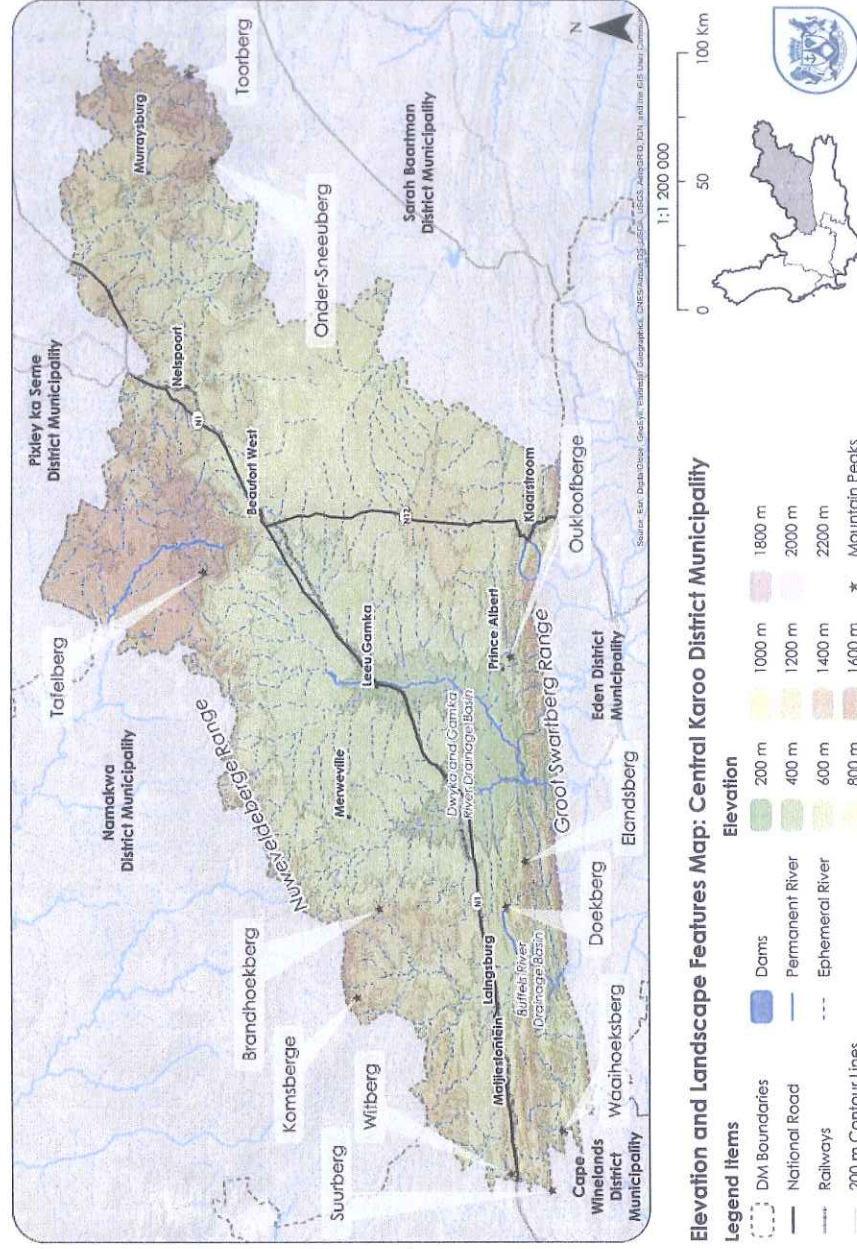
3.1.1 GEOLOGY, TOPOGRAPHY, LANDSCAPE CHARACTER & SCENIC ASSETS

The majority of the district consists of gently undulating plains; however, several mountain ranges provide for a dramatic contrast as illustrated on **Figure 3.1** showing the Swartberg mountain range in the south of the district, providing a natural barrier between the interior and the southern Cape coast. This range, one of the longest in South Africa, spans 230 km from

Laingsburg in the west to Willowmore and Uniondale in the east. The highest peak within the range is the Seweweekspoort at 2,325 m above mean annual sea level (amasl). This range of mountains comprises predominantly of the Table Mountain group, boasting

many impressive sand stone strata and rock formations.

The Nuweveld Mountain range to the north of Beaufort West ranges between 825 to 1,911 m. Toorberg to the south of Murraysburg forms part of the



Sneeuberg range which is the divide between the Central Karoo District and the Eastern Cape. The peak is 2,400 metres above sea level. Toorberg is known for its many watercourses.

Figure 3.2, showing the key geological formations of the Karoo, highlights 3 broad geological regions – a southern mountain region made up of the Dwyke, Witteberg, Bokkeveld and Table Mountain Group, a central region dominated by the Adelaide Group and a northern portion where Karoo Dolomite outcrops create the Sneeuwberg mountain range.

It should be noted that the region can be classified into broad scenic assets or places of significant landscape character as shown in Figure 3.3. As recognised by the Heritage and Scenic Resources Inventory and Policy Framework for the Western Cape (2013), the Central Karoo can be characterised into 4 broad landscape regions being:

- (1) the higher altitude 'Nuweveld Plateau';
- (2) the Nuweveld Mountain escarpment;
- (3) the lower altitude 'Die Vlakte' made up predominantly of Beaufort shales / Adelaide Group rock type; and
- (4) the Swartberg Mountains.

The view sheds on offer in the Karoo landscape reflects a silent, sparse and peaceful arid landscape.

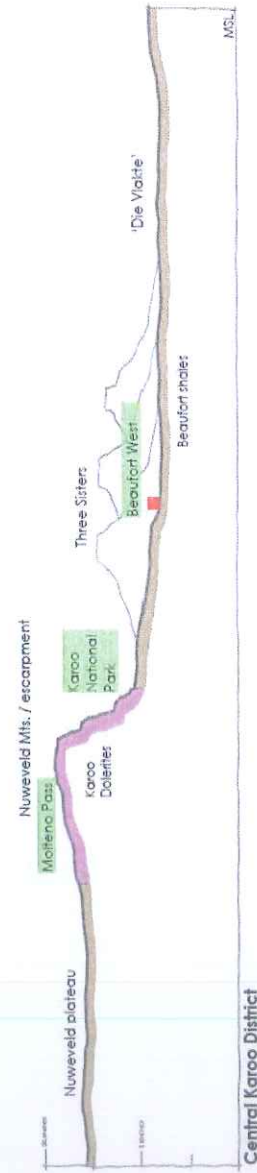


Figure 3.3 : Cross-section depicting landscape character of the Central Karoo

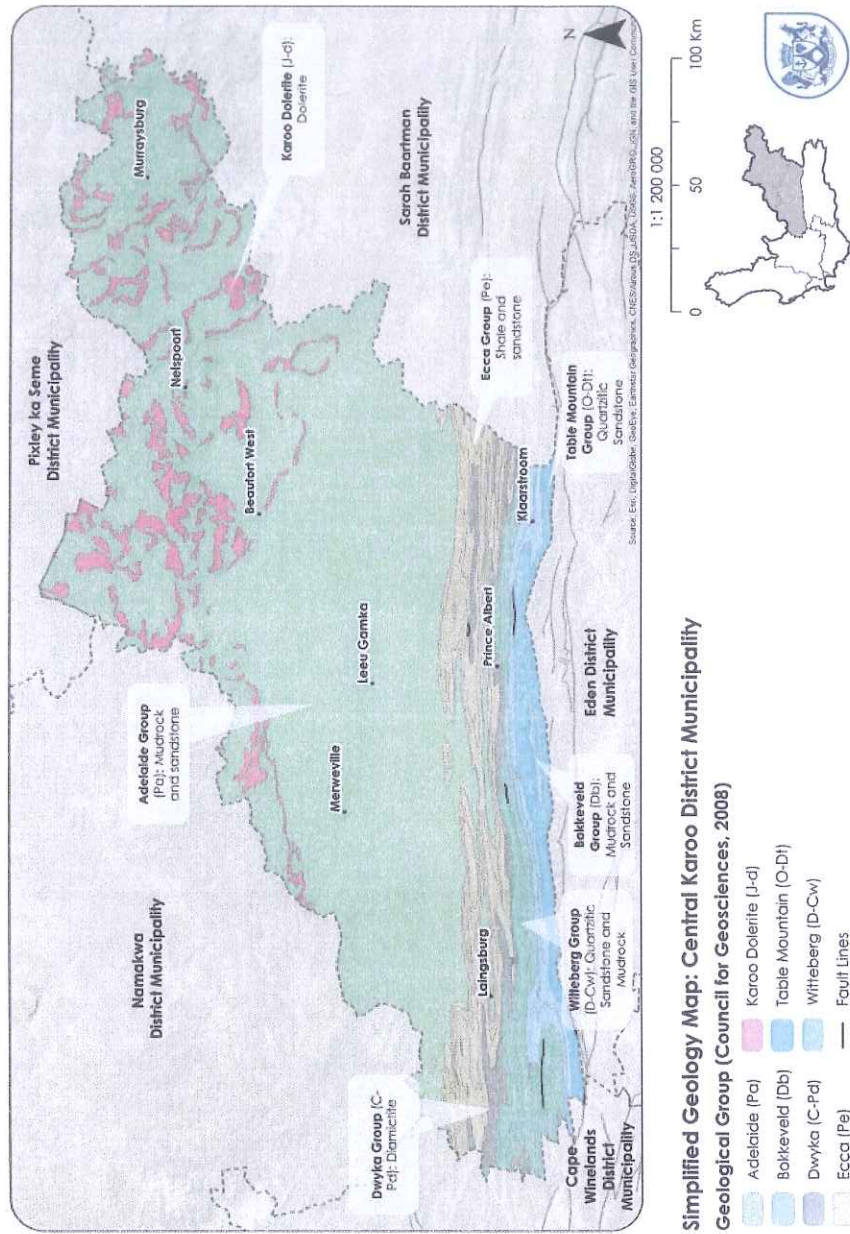


Figure 3.2 : Geological formations of the Central Karoo

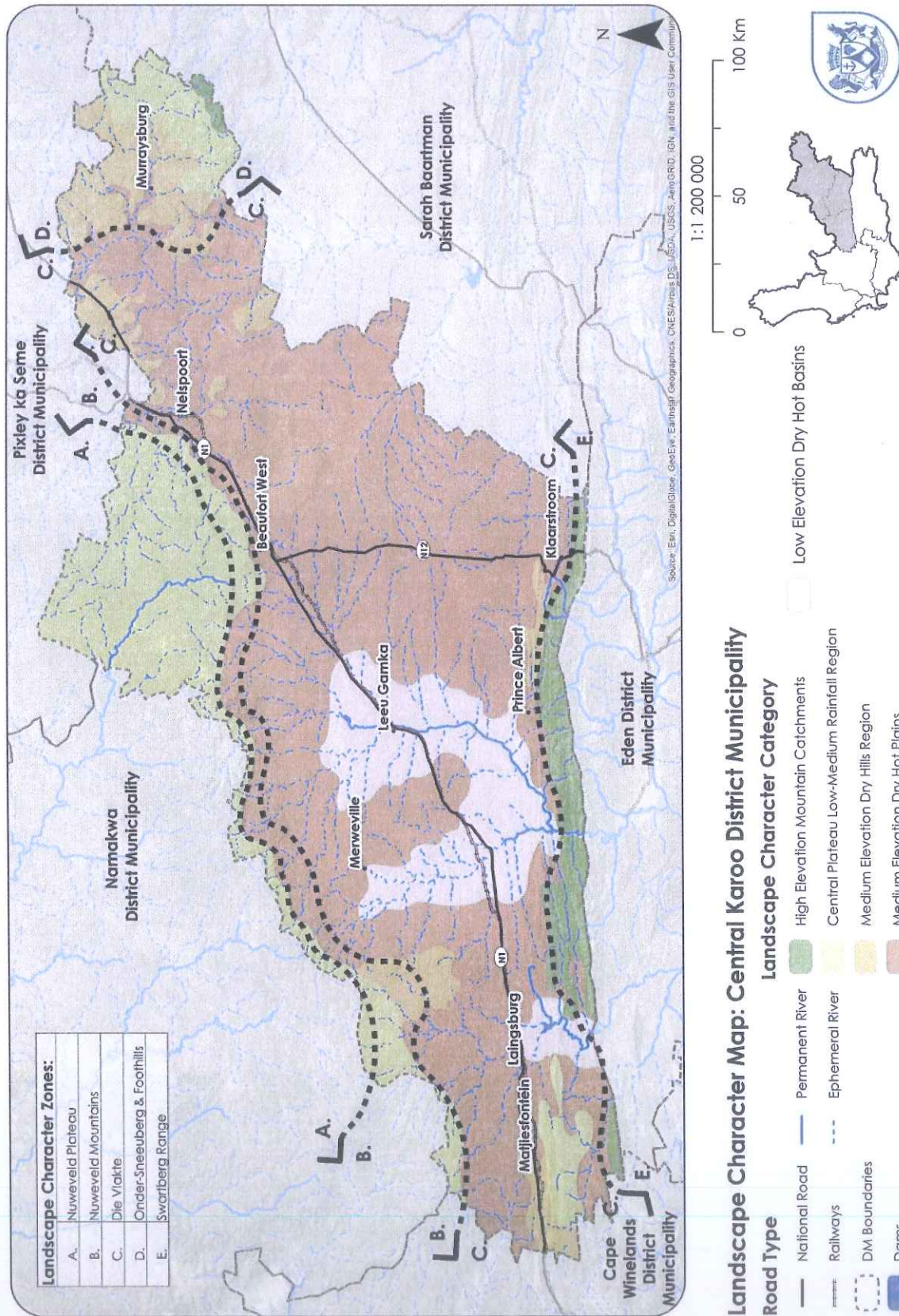


Figure 3.4 : Landscape Character zones of the Central Karoo

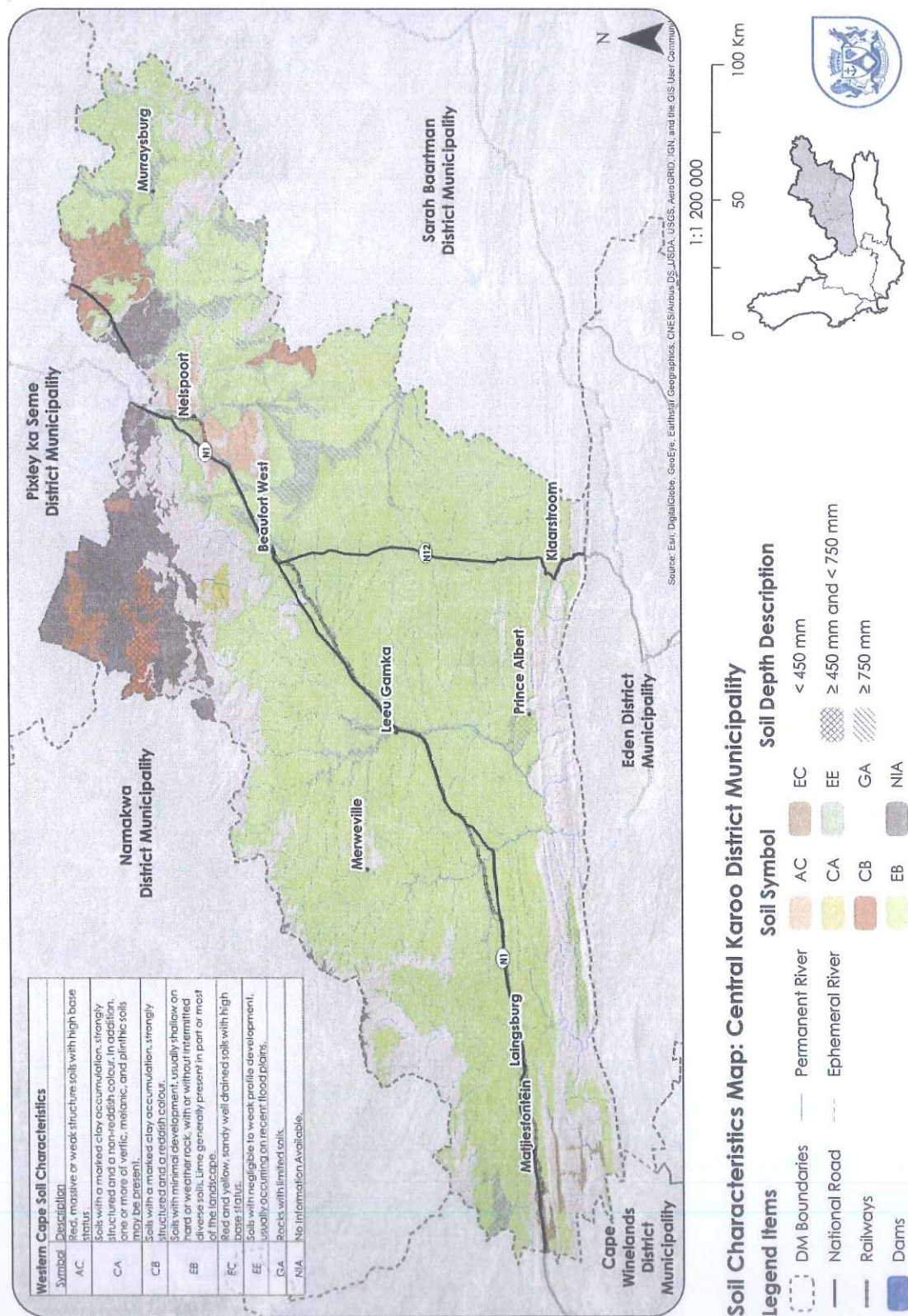


Figure 3.5: Soil types of the Central Karoo

3.1.2 CLIMATE & CLIMATE CHANGE

The Central Karoo is a low rainfall desert region, located on South Africa's central high-plateau and in the rain shadow of the Cape Fold Mountains. It is classified as a cold desert climate (BWk) in terms of the Koppen climate classification, which is the most widely used climate classification systems in the world, as can be seen from **Figure 3.6**. This means that a dry climate prevails, with generally low relative humidity.

Rainfall generally falls predominantly from thunder storms that occur in late summer (peaking in March), with the mountainous areas in the far north east receiving the most rains. Summer days can be brutally hot, with day-time peaks occasionally reaching 40 degrees Celsius, although early summer mornings are often cool and pleasant. Winter days are mild and warm, with the nights and mornings being cold – often experiencing frost.

The semi desert conditions which prevail within the Central Karoo are a result of the harsh arid climate. The average annual rainfall for the District is 260 mm per annum. The highest rainfall occurs to the south with the Groot Swartberg mountain range, on the north-eastern side of the municipality, which receives between 500 to 700 mm per annum. Despite this, approximately 75% of the remaining region receives less than 200 mm per annum. The majority of the rain falls between November (late spring) and April (early autumn), peaking in the late summer months of February and March.

Climate change is expected to produce higher temperatures with possibly lower rainfall in the medium to long term, although there is a very low degree of certainty of the impacts of climate change on rainfall with some studies suggesting that parts of the Western Cape may receive greater rainfall (Western Cape Climate Change Response Framework, 2016), with concurrent higher levels of evapotranspiration. Wind velocities are also expected to increase. These conditions will result in a reduction in Karoo vegetation with a potential increase in fires. Additionally, agriculture is expected to be negatively impacted with a decline in productivity and yield, resulting in a potential economic downturn in the region or the need to adopt far more drought-tolerant farming practices, plants species and approaches.

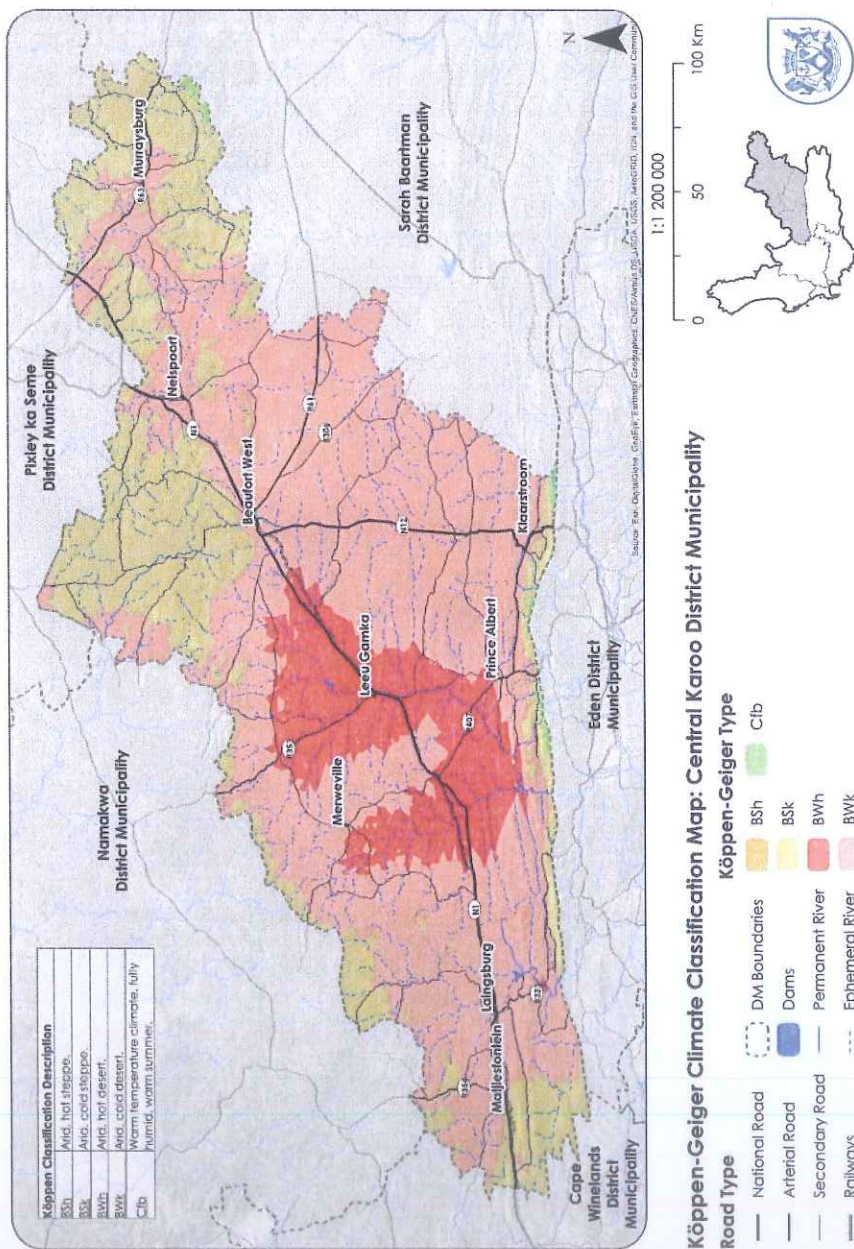


Figure 3.6 - Köppen-Geiger Climate Classification Map of Central Karoo District Municipality

3.1.3 WATER RESOURCES & HYDROLOGY

Most of its rainfall occurs in the summer during the months of February to April. The dry climate and erratic rainfall leads to surface run-off in the form of flash floods which fill up the usually empty dams. Due to the scarcity of precipitation and subsequent low levels of surface run-off, ground water sources are the primary source for the supply of potable water. The region is currently (2017/18 - 2019/20) experiencing a deep and prolonged drought of significantly below average rainfall and very low to empty dams, making ground water even more important in the region. The importance of episodic drainage lines and non-perennial streams as ecological infrastructure should not be underestimated in this regard. This ecological infrastructure provides significant ecosystem services by assisting in the conveyance of good quality water to various dams.

The Central Karoo District falls into 3 Water Management Areas – the Gouritz Water Management Area (WMA), which constitutes the greatest land area of the District; the Fish to Tsitsikamma WMA in the north-eastern portion of the district and extending to the Eastern Cape and the Lower Orange WMA, in a small northern portion of the District, extending into the expanse of the Northern Cape. The main rivers of the region, although mostly non-perennial in nature, are the Buffels and Geelbek Rivers, passing through Laingsburg, the Dwyka and Gamska River and the Sout River. Despite its arid conditions, there are many non-perennial rivers and tributaries that exist in the Central Karoo. Despite this, all aquatic habitats in the Central Karoo requires protection and suitable buffers to ensure their continued provision of ecosystem services.

Main dams in the Central Karoo are the Beaufort West Dam situated along the Kuits River and near to the

Gamska River; the Floriskraal Dam, situated along the Buffels River near Laingsburg and serving the needs of the Little Karoo; the Gamkapoort Dam situated at the confluence of the Gamska and Dwyka Rivers west of Prince Albert and serving local agricultural needs; the Leeu-Gamska Dam situated along the Leeu River between Beaufort West and Laingsburg and serving local agricultural needs; and the Oukloof Dam situated along the Cordiers River near Prince Albert and serving local agricultural needs. It should be

noted, however, that these dams are becoming less reliable as secure water sources, and ground water and key aquifers are playing a greater role in the water security of the region. See **Figure 3.7** to understand the spatial distribution of rainfall and **Figure 3.8** for a broad indication of ground water resource potential. What can be observed is that the southern mountain areas and north-eastern mountain areas receive the most rainfall, whilst the north-eastern mountain areas around Murraysburg, Nelspoort and

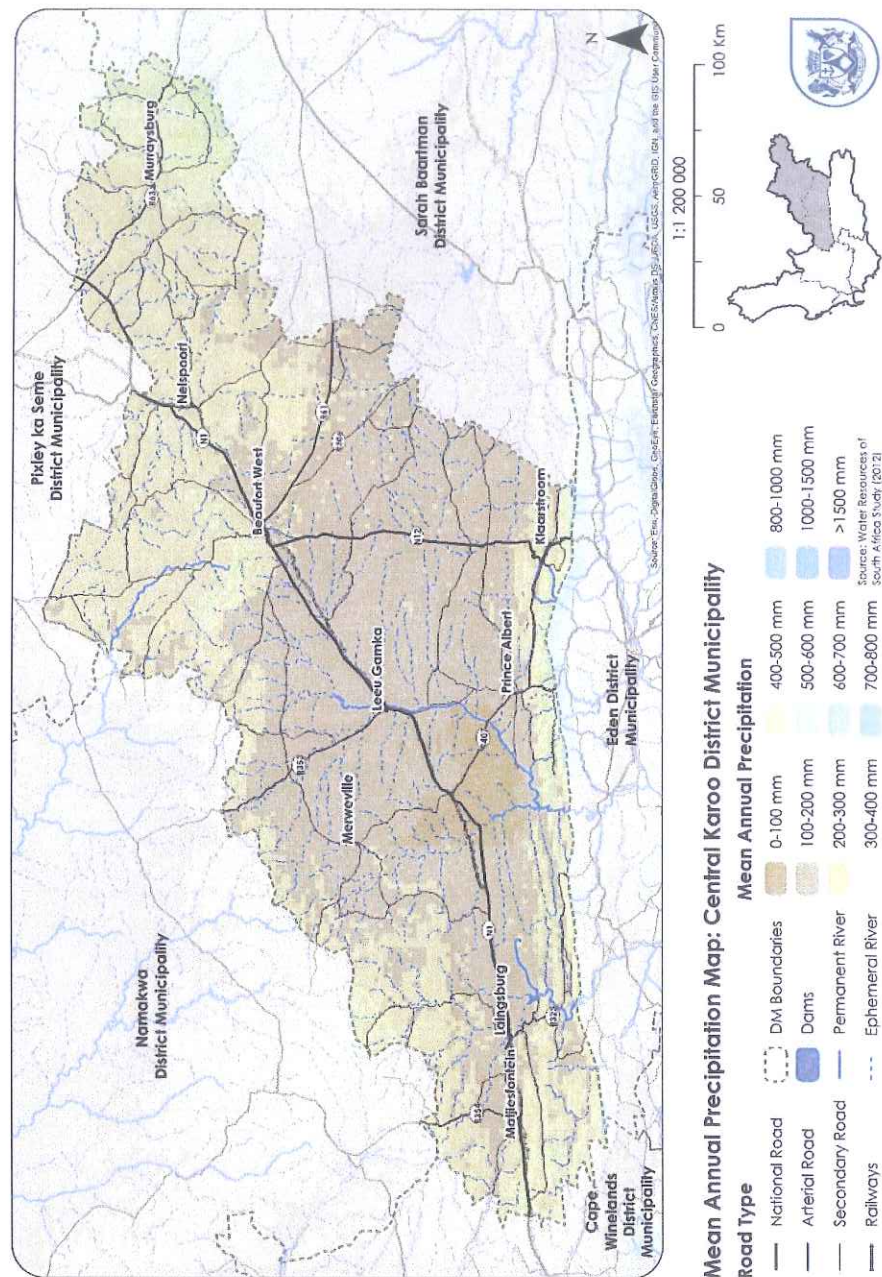


Figure 3.7: Mean Annual Precipitation Map for Central Karoo District Municipality

northern Laingsburg have the highest ground water resource potential. **Figure 3.9** shows the primary surface water resources in the region – illustrating the primacy of the Garkka River, as well as the 5 major dams for the region, 3 of which sit at the foot of the Swartburg Mountain area, and the remaining 2 in the town of Beaufort West and Leeu Garkka respectively. Of interest is that although Beaufort West is by far the largest municipality in terms of population it has one dam and it is the smallest of the 5. This illustrates the critical importance of ground water in this municipality.

Riparian ecosystems within the district, due to their proximity to water, have largely been transformed for agricultural related activities. Based on the National Protected Areas Expansion Strategy (NPAES) freshwater priorities, the district has 6399 km of major river reach, of which 1748 km can be considered critically endangered (27%) and 201 km (3%) endangered. Of the 249 sensitive wetlands identified, 107 comprise vlei type wetlands, 85 pans and 55 dam wetlands.

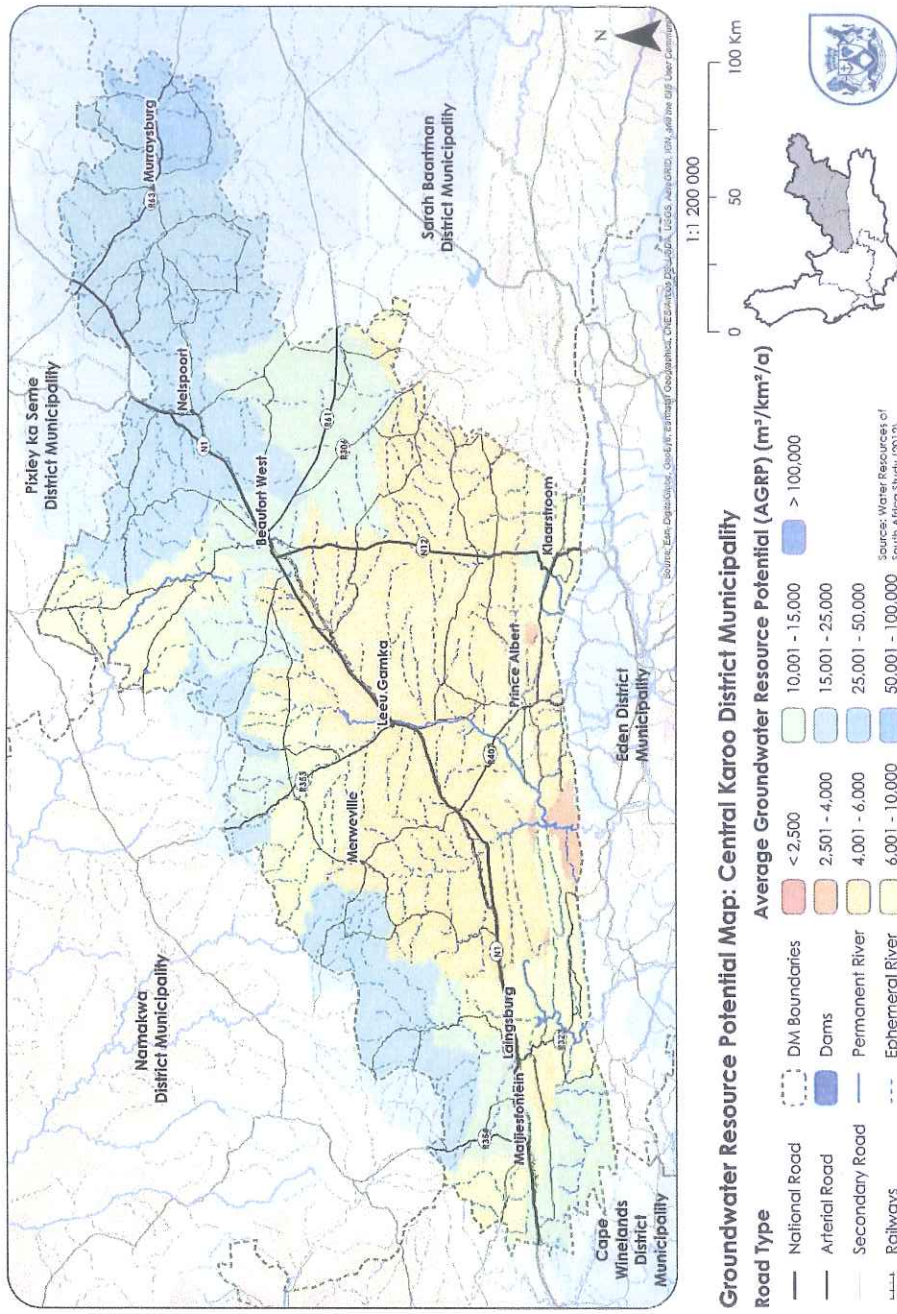
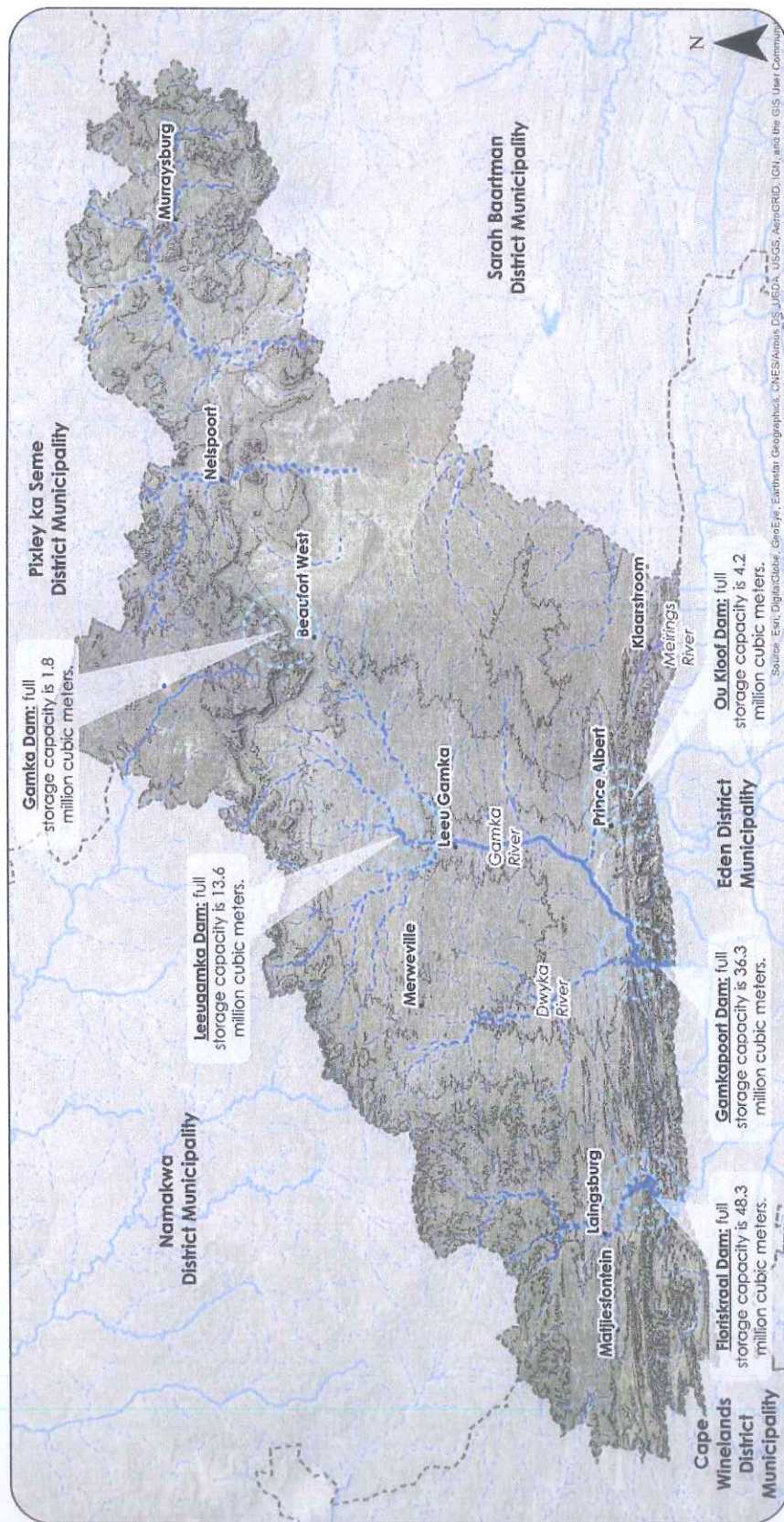


Figure 3.8: Ground Water Resource Potential of the Central Karoo



Area Surface Water Map: Central Karoo District Municipality

Road Type	River Order and Flow
National Road	DM Boundaries
Arterial Road	Order: 4 (Permanent)
Secondary Road	Order: 4 (Ephemeral)
Railways	Order: 2 (Ephemeral)
	Order: 2 (Permanent)
	Order: 3 (Permanent)
	Order: 3 (Ephemeral)
	Order: 1 (Permanent)
	Order: 1 (Ephemeral)

Figure 3.9: Rivers and Surface Water Map for Central Karoo District Municipality

3.1.4 AGRICULTURE

Broadly, there are three different agricultural practices occurring in the Central Karoo. The most widespread is livestock farming which is dominated by the sheep farmers (cattle and ostrich farming also occur in the district, but on a much smaller scale). The district has good grazing and some access to groundwater through the use of wind pumps. However, in order for these livestock farms to remain viable, they need to remain large enough to allow for a sustainable carrying capacity. Laingsburg and Prince Albert have the highest grazing capacity.

The second agricultural practice is based on the rain-fed cultivation of wheat which has a very limited occurrence in the southwest of the district. The final agricultural practice is that of irrigated crops which are prominent in the southern regions of the district. Irrigated crops include apricot, olive, wine grapes, peach, pear, prune, quince, onions, garlic and table grapes. The main constraints to irrigated crop production in this region are attributable to poor road infrastructure for the transport of delicate and fresh produce, distance to the market, availability and quality of water supplies, and the reliability of labour.

Agriculture's share of the District's economy fell from 15.4% to 9% between 1999 and 2009 but rebounded to 16.1% in 2017 (MERO, 2019). This may be as a result of both diversification in the District's economic activities, as well as deteriorating market conditions for agricultural products. Strengthening the District's agricultural production, agri-processing, and agribusiness opportunities remain a key focus for the region. The primary sector (which includes agriculture) contributed a significant 24.6% of all employment opportunities in the District in 2017.

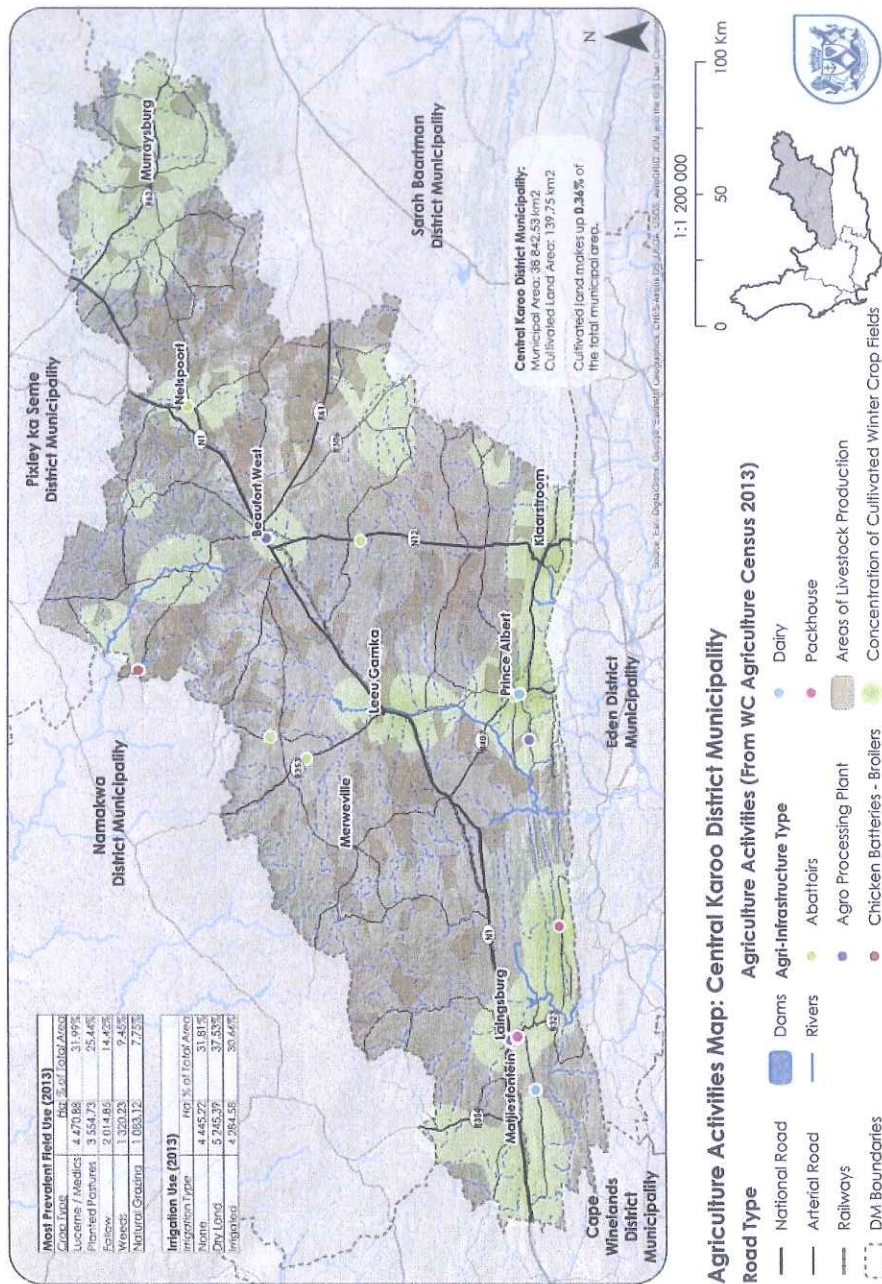


Figure 3.10: Agricultural activities map for Central Karoo District Municipality

3.1.5 BIODIVERSITY AND BIODIVERSITY CONSERVATION

The Western Cape Biodiversity Spatial Plan (WCBSP) was released in 2019 and provides updated biodiversity spatial data for the Central Karoo. This is a critical informant for the future development of the region, as it illustrates Critical Biodiversity Areas (CBA) which are terrestrial features (e.g. threatened vegetation type remnants) and aquatic features (e.g. vleis, rivers and estuaries), and the buffer areas along aquatic CBA features, whose safeguarding is critically required in order to meet biodiversity pattern and process thresholds. They are identified through a systematic biodiversity planning approach and represent the most land-efficient option to meeting all thresholds. The spatial tool is comprised of the Biodiversity Spatial Plan Map and contextual information and land use guidelines. The WCBSP recognises that the Central Karoo region could potentially contain important minerals (e.g. uranium) and fossil fuel (e.g. shale gas) resources which are currently under investigation and could result in high levels of transformation in an area that have to date had relatively low levels of transformation.

The Nama-Karoo Biome is the dominant biome of the region, making up roughly 70% of the landscape, the Succulent Karoo making up 13% in the Southern yet north-facing stretches of the region at the foot of the Swartberg Mountains and Fynbos making up 9% in the mountain regions of the district (see Figure 3.11 and Figure 3.12).

As stated in the Western Cape Biodiversity Spatial Planning handbook, the Nama Karoo is important for several threatened faunal species, such as the riverine rabbit (*Bunolagus monticularis*) which is restricted to riparian habitats in the Karoo. As with the Succulent Karoo, the Nama Karoo is too arid for cultivation but

has been impacted through overgrazing practices (Quoted from WCBSP, 2019).

As recognised in the 2014 SDF, approximately 88% of the land area of the Central Karoo is natural vegetation, 10.4% is degraded and 1.5% is transformed completely by urbanisation, cultivation, mining and dams. Protected areas within the district comprise 207 917 ha (5.78% of the district), with an

additional 9 077 ha (0.23% of the district) under conservation.

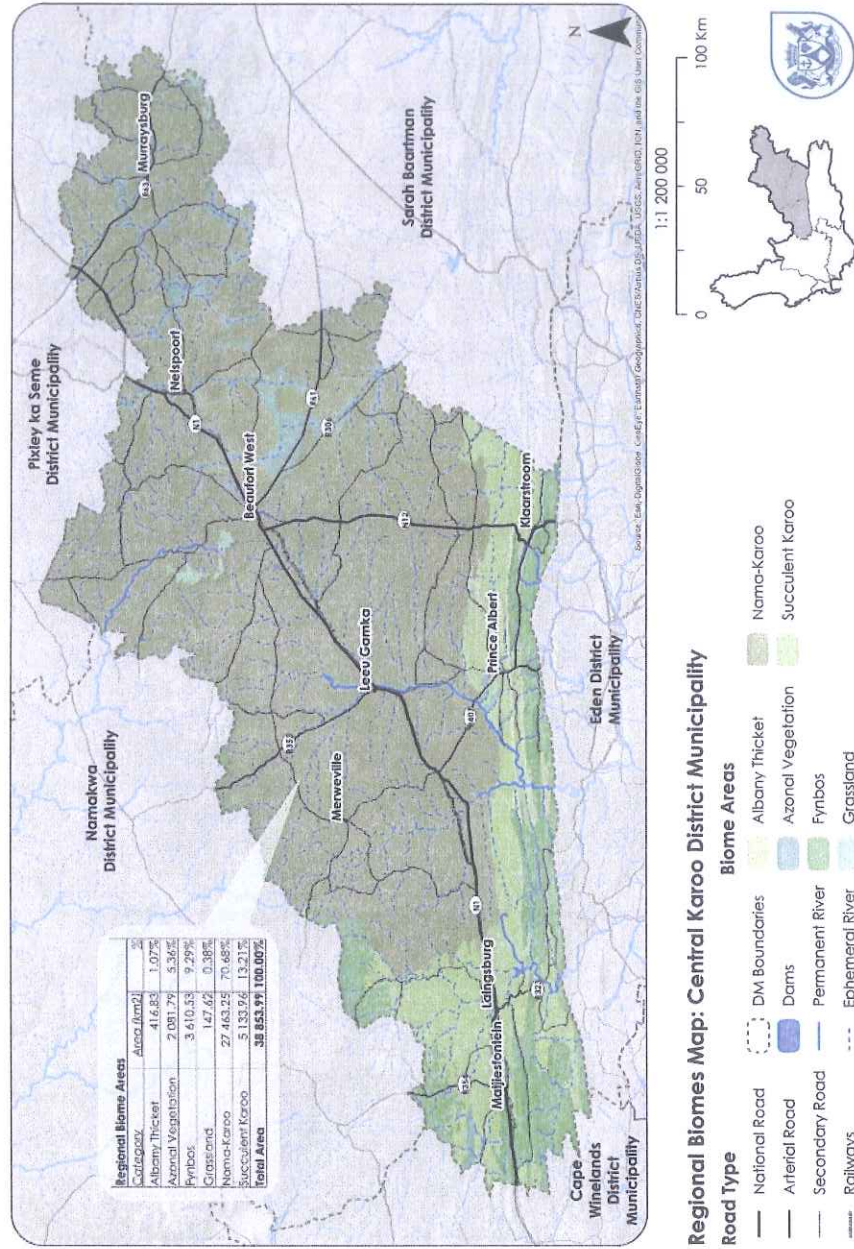


Figure 3.11: Biomes Map for Central Karoo District Municipality

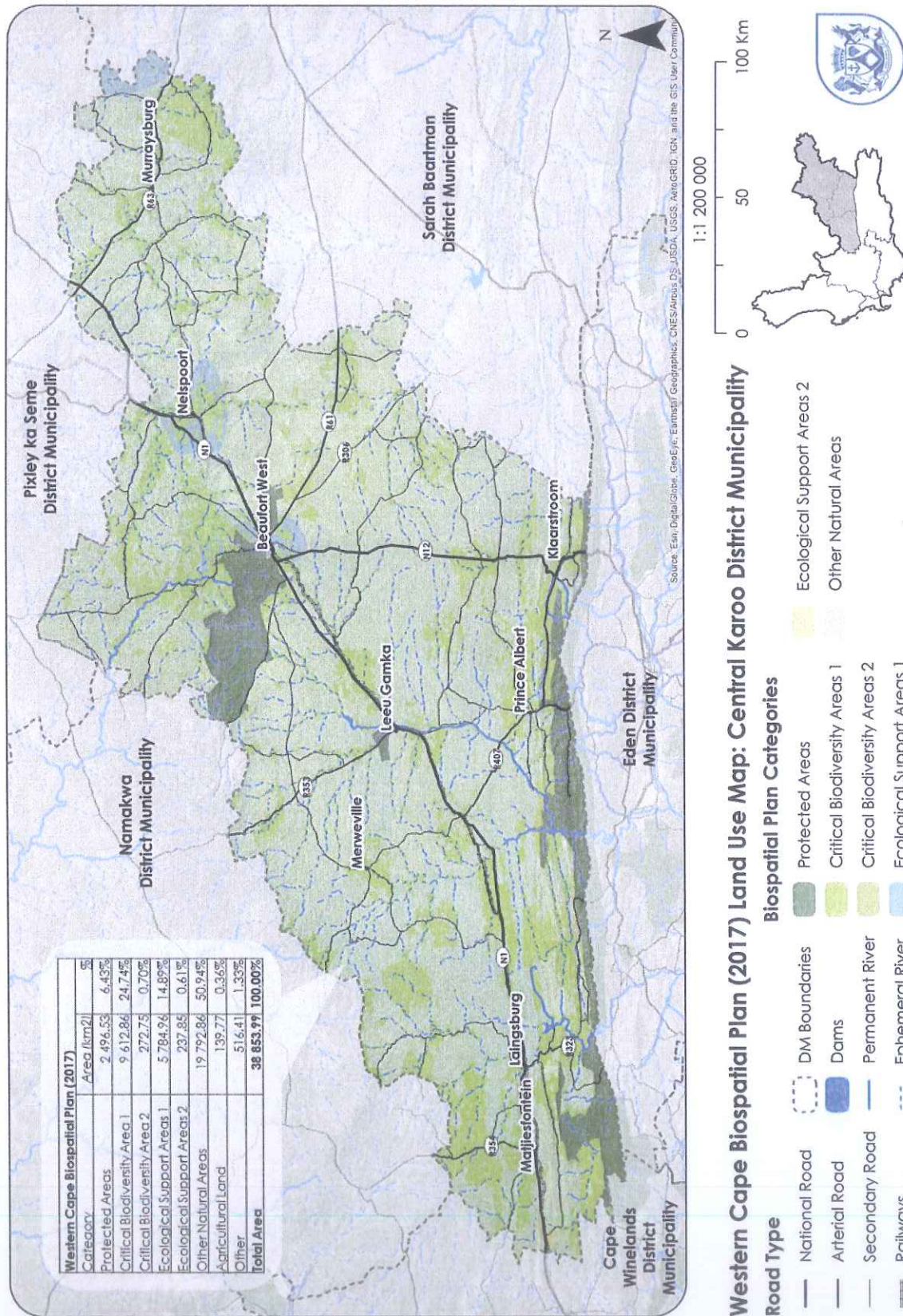


Figure 3.12: Biodiversity Planning Land Use Map for Central Karoo District Municipality (Western Cape Biodiversity Spatial Plan, 2017)

3.1.6 MINERAL RESOURCES

Central Karoo has mineral resources that have been underutilised, up until now. There are three mines currently located in the district which are predominantly quarries used for local building materials. One quarry is located on the R354 north of Matjiesfontein, one is adjacent to the R328 south of Prince Albert, and one is located in the vicinity of the intersection of the N1 and R63 (see **Figure 3.14**).

However, the District is on the cusp of major change in the mineral resources sector. Firstly, the Central Karoo has extensive uranium deposits which begin north of Prince Albert and Laingsburg and reach their highest density north of the N1 in the vicinity of Menweville. These deposits have attracted the attention of energy and mining conglomerates, but remain untouched. Currently, the area-south east of Beaufort West is undergoing a process for receiving prospecting rights.

Secondly, the region also contains expanses of gas-rich shale which are currently being explored by energy companies. Exploration permits may soon be granted for blocks which begin at latitude 33-degrees south and extend northward into the Northern Cape, and eastward into the Eastern Cape. This impacts Central Karoo in most areas north of Prince Albert and Laingsburg and the entire municipality of Beaufort West. The exact location of the most economically recoverable shale gas fields remains an information gap, with a potential 'sweet spot' being identified eastwards of the town of Beaufort West and westwards of Murraysburg.

As recognised in the Strategic Environmental Assessment for Shale Gas in the Karoo (CSIR, 2016), whilst the potential economic and energy impact of medium to large scale shale gas extraction could be

substantial, there are also potential environmental trade-offs which must be fully understood in order to be prevented or mitigated. The SEA makes several recommendations in respect to air quality, earth quakes, water resources, waste planning, ecological impacts, agriculture, tourism, health, sense of place, noise and spatial implications. It should be noted that the impact is dependent on the scale at which shale gas extraction takes place. Some of the key spatial impacts relate to:

- Towns experiencing higher than **expected growth in population** of persons seeking economic opportunities associated with shale gas. This places greater **service delivery demands** of housing, water provision, social services, electricity and roads;
- Increased **traffic volumes** and the corresponding **maintenance** and rehabilitation needs for roads;
- Potential **rail re-establishment** and laying new pipeline infrastructure for gas;
- Higher demands on **municipal planning capacity** to approve land use applications;
- Groundwater contamination; and
- Disturbing biodiversity, particularly CBA's.

It should be noted that a spatial representation of risk profiles has been undertaken for shale gas in the Karoo, we can be seen in **Figure 3.13**. It should be noted that it is desirable, should shale gas extraction occur, that the areas where it should take place should ideally be areas of low to moderate risk rather than high risk.

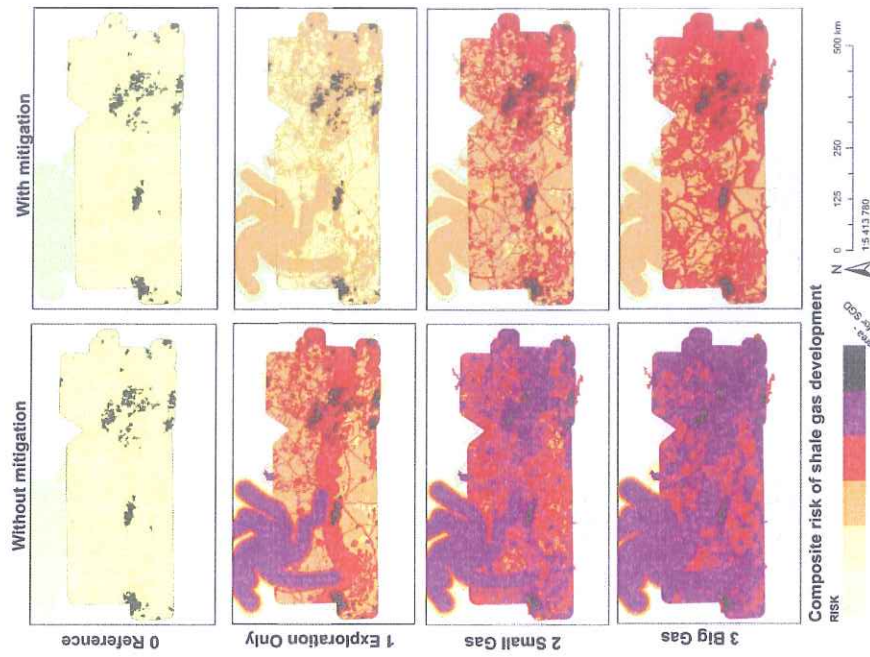
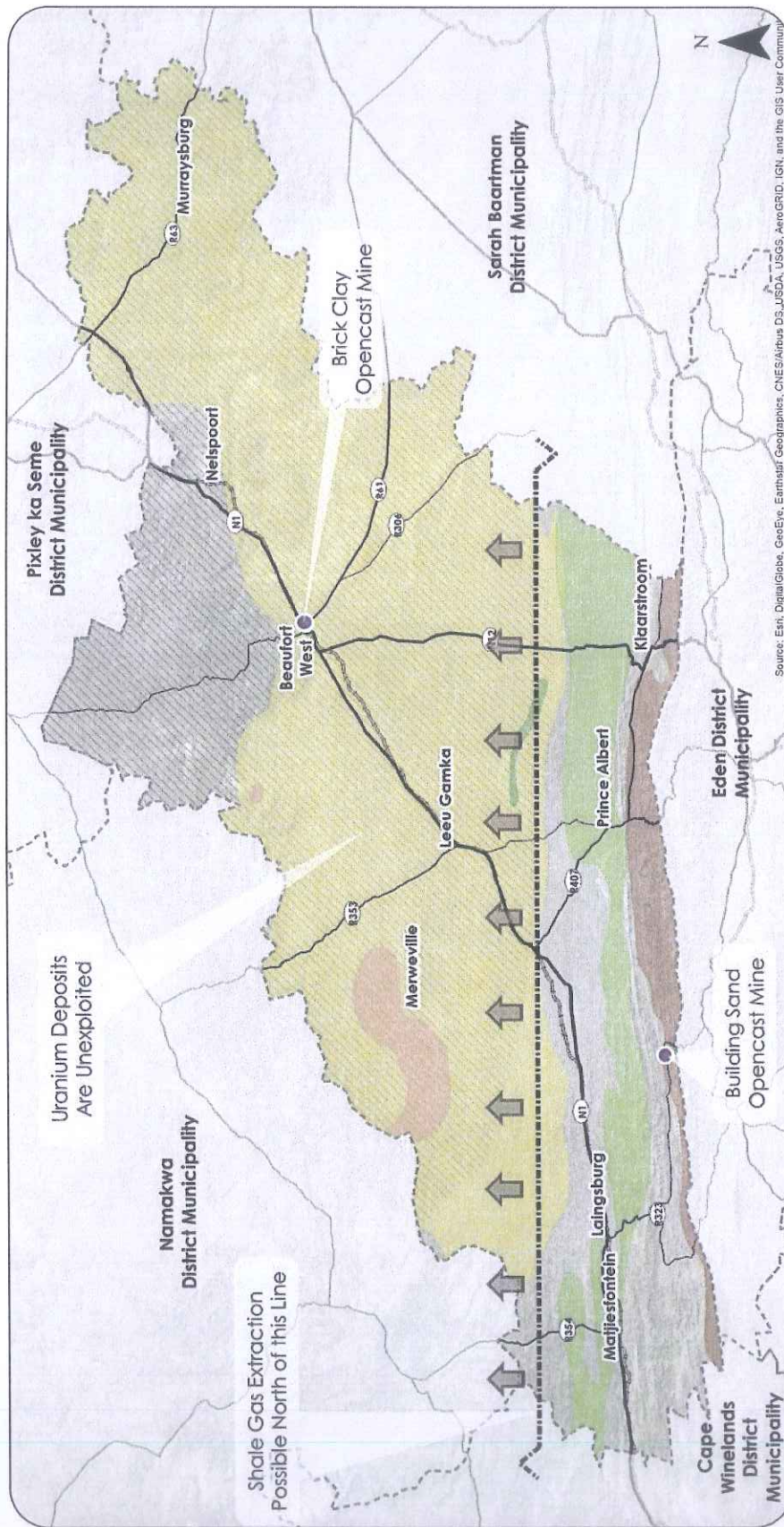


Figure 3.13 – Composite risk of shale gas development (CSIR, 2016)



Area Mineral Resources Map: Central Karoo District Municipality

Road Type Approximate Location of Mineral Deposits

- | | | | |
|-------------------|-------------|------------|--------------------------------|
| — National Road | Yellow | Uranium | Table Mountain Group Aggregate |
| — Arterial Road | Green | Gold | Natural Gas |
| — Railways | Purple | Pseudocool | Working Mines |
| --- DM Boundaries | Light Green | Gypsum | |
- Source: Economic Potential Mineral Resources of the Western Cape Study (2014) Council of Geosciences

Figure 3.14: Mineral Resources Map for Central Karoo District Municipality

3.1.7 SWOT OF THE NATURAL ENVIRONMENT

STRENGTHS

- The Central Karoo has large tracts of natural vegetation, with excellent statutory protection of mountain catchment areas. Mountain catchment areas are important for water supply and source protection which are protected under the Mountain Catchment Areas Act (Act 63 of 1970).
- Relatively compact settlements.
- Vast tracts of livestock range.
- Excellent scenic assets in the form of nature reserves, mountain passes, and heritage centres which can be better leveraged for tourism.

WEAKNESSES

- The Central Karoo's arid nature impacts the growth potential of towns, and the viability of agriculture in the region. The District is very dependent on groundwater whose extent is not fully understood.
- Agriculture practices have modified some riparian habitats.
- Sparsely located settlements, long travel distances and poor rail transport services are impeding the movement of people and agriculture products to major centres.
- Overgrazing has resulted in the degradation of large tracts of land and resulted in extensive soil erosion, with an associated decline in grazing potential and in water quality due to siltation.

OPPORTUNITIES

- Shale Gas exploration may present an opportunity for the District municipality to stimulate economic growth and job creation.
- A focus on the development of better transport infrastructure, along with agri-processing and agri-businesses may also help stimulate economic growth and job creation.
- The areas scenic and heritage assets, conservation areas, and farming areas can be better leveraged to support tourism.
- There are various renewable energy projects which have already been approved but have yet to be implemented due to electricity regulatory processes.
- Creation of climate change corridors, e.g. through protected area expansion resulting in upland-lowland links.
- Agricultural potential could be improved through veld rehabilitation and the implementation of sustainable agricultural practices.
- The establishment of a municipal shared services centre to improve the municipal capacity and reduce the amount of unregulated activities taking place which may negatively impact the environment.

THREATS

- Shale gas extraction may impact, in ways that may not be entirely mitigatable, the region's scenic qualities, as well as threaten biodiversity and the quality of groundwater.
- Climate change – a hotter, drier future could impact on the liveability of the region. The Central Karoo is an area of high-range warming (Smart-Agri climate change prediction).
- Natural disasters (e.g. drought, flash floods, veld fires). Veld in poor condition has low resilience to droughts and floods.
- Lack of capacity at the local level to monitor land use and regulate the impact of human activities on the environment.
- Farmers implementing inappropriate stocking rates on veld, which have low carrying capacity and are sensitive to overgrazing.
- Shale Gas extraction and uranium mining could negatively impact environmental health and human wellbeing if its impacts are not mitigated.
- Cumulatively, renewable energy developments (such as wind energy and solar PV) could have negative environmental impacts, e.g. by reducing bat populations which control agricultural insect pests.
- Invasive alien plants affect water quantity (including a reduction in groundwater recharge) and quality.

3.2 SOCIO-ECONOMIC CONDITIONS

The purpose of this section is to provide an overview of the prevailing socio-economic conditions in the Central Karoo, drawing on the latest intelligence that exists.

3.2.1 DEMOGRAPHIC PROFILE

Demographics is broadly defined as the study of population dynamics which is significantly influenced by a wide array of factors such as birth and death rates, migration patterns, age, race, gender and life expectancy. Demographics are a decisive factor in shaping our current socio-economic reality and is therefore critical when developing long term strategic plans.

According to Census 2011, the population of the Central Karoo was 71 011. **Figure 3.15** below illustrates the spatial distribution of the Central Karoo's residents. According to this survey, over 80% of the District's residents are concentrated in urban areas including Beaufort West, Laingsburg, Prince Albert, Murraysburg, and the other small towns and hamlets. Central Karoo's non-urban areas are sparsely populated.

According to the forecasts of the 2017 Socio-Economic Profile for the Central Karoo (WCG, 2017), the Central Karoo's population is estimated to **be 75 688 in 2018, compared to 71 011 in 2011**. This represents an annual average growth rate of approximately **0.91% per annum** or 6.59% within this 7-year period, which is lower than the growth rate that the Central Karoo experienced between 2001 and 2011 which was an annual average growth rate of 1.46%. The population of the Central Karoo is expected to grow to 80 584 by 2025 and **84 335 by 2030**, assuming the annual average growth rate of

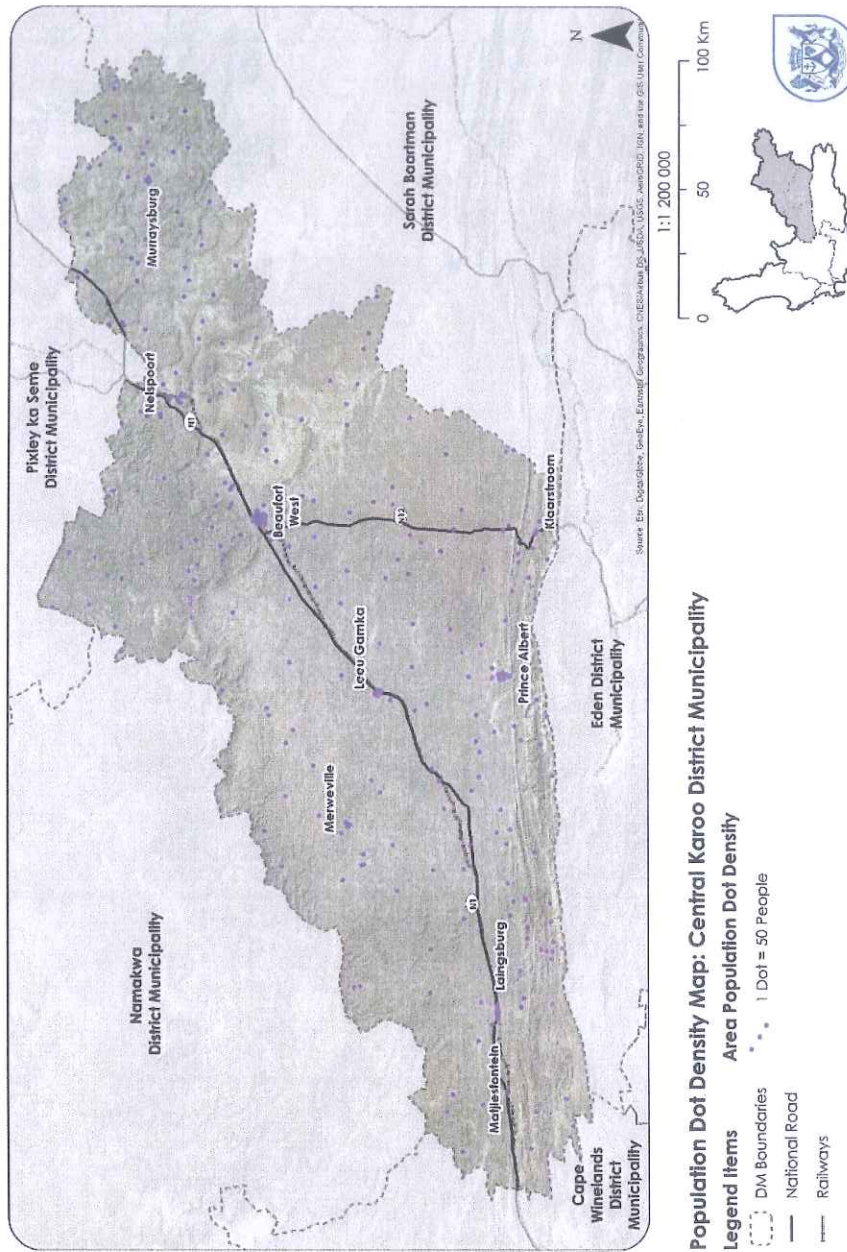


Figure 3.15: Population Density Map for Central Karoo District Municipality

0.91% persists. This trend of slowing growth rates is both a nationwide phenomenon and indicative of a stabilising population figure (Central Karoo SEP-LG, 2018).

Due to a predicted increase number of working age people (15 – 65 years) between 2011 and 2023, and a concurrent decrease in the number of children (0 – 14 years), the dependency ratio is expected to

significantly decrease from 58.0 in 2011 to 49.2 in 2023, as indicated in **Figure 3.16**, below.

Year	Children: 0 – 14 years	Working Age: 15 – 65 Years	Aged: 65 +	Dependency Ratio
2011	21 683	44 950	4 370	58.0
2018	20 430	49 643	5 616	52.5
2023	19 267	52 975	6 772	49.2

Figure 3.16: Changes in the Dependency Ratio for the Central Karoo between 2011 and 2023

It is estimated that there are **21 980 households in the Central Karoo in 2018**, meaning that there are, on average, 3.44 people per household, compared to 3.97 people per household in 2001. This means that household sizes are shrinking, and therefore despite the slowing population growth rate, the household growth rate may still be higher which has implications for land and space budgeting of municipalities.

The table below seeks to understand how the population of the Central Karoo is set to grow into the future, and correspondingly, how the number of households will increase and land requirements for these households will grow.

In summary, the population of the Central Karoo is anticipated to grow from **71 011 people and 20 643 households in 2011** to **84 335 people and 24 516 households in 2030**, assuming an annual average growth rate of 0.9% which differs significantly between local municipalities. Prince Albert, for example, is set to grow at a rate that is three times that of Beaufort West's (1.73% per annum for Prince Albert vs. 0.6% for Beaufort West between 2016 and 2030). It must be emphasized that the growth rates between 2011 and 2016 were extrapolated beyond 2016, accounting for this differentiated growth rate per local municipality.

Land required to accommodate this growth, **assuming** an average density of **25 dwelling units per hectare** is a total of **117 hectares** needed—52 hectares for Beaufort West municipality, 45 hectares for Prince Albert municipality and 23 hectares for Laingsburg municipality. This is all indicated in the 3 adjacent tables showing population, household and land requirements growth projections up to 2030.

POPULATION PROJECTIONS - UP TO 2030 (MED GROWTH RATE OF 0.9% ON AVERAGE)							
Municipality	Population (2001)	Growth Rate per annum (2001 - 2011)	Population (2011)	Rate per annum (2011 - 2016)	Mid-Year Est 2016	Projected Population 2020	Projected Population 2030
Beaufort West	43291	1.45	49586	0.6	51080	52321	55564
Prince Albert	10512	2.5	13136	1.73	14272	15295	18183
Laingsburg	6681	2.41	8289	1.46	8895	9430	10912
Total	60484	1.74	71011	0.91	74247	76999	84335

HOUSEHOLD PROJECTIONS				
***assuming 3.44 people per household (2011 Census)				
Municipality	No. of households 2011	No. of households 2016	No. of households 2020	No. of households 2030
Beaufort West	14415	14849	15210	16150
Prince Albert	3819	4149	4446	5266
Laingsburg	2410	2586	2741	3172
Total	20643	21583	22384	24516

LAND REQUIREMENTS FOR NEW HOUSEHOLDS						
Future land requirements for new housing, assuming a future gross dwelling unit density of 25du/ha:						
	New Households between 2016 – 2020	Land Required by 2020 (ha)	New Households between 2016 - 2025	Land Required by 2025	New Households between 2016 - 2030	Land Required by 2030 (ha)
Municipality						
Beaufort West	361	14	824	33	1301	52
Prince Albert	297	12	699	28	1137	45
Laingsburg	156	6	363	15	586	23
Total	800	32	1842	74	2933	117

In terms of the spread of ages of persons in the Central Karoo in 2016, it should also be noted that the median age was 26 years old, with 35% of the population being younger than 18 years of age, 7% being older than 65 years of age and 58% of the population between the ages of 18 and 65, or potentially economically active (see Figure 3.17).

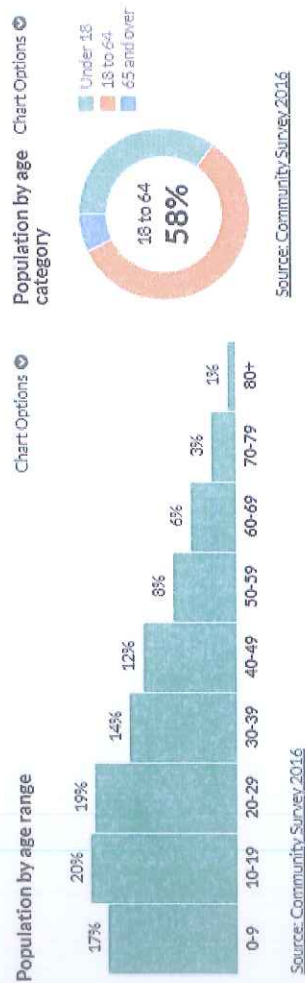


Figure 3.17: Histogram showing population by age category in the Central Karoo (StatsSA, 2016)

In terms of annual household income in the Central Karoo in 2011, the median annual household income stood at R29 400, with over 60% of households earning less than R40 000 per annum, as shown below in Figure 3.18. These are households that may either be living in or applying for state housing subsidies.

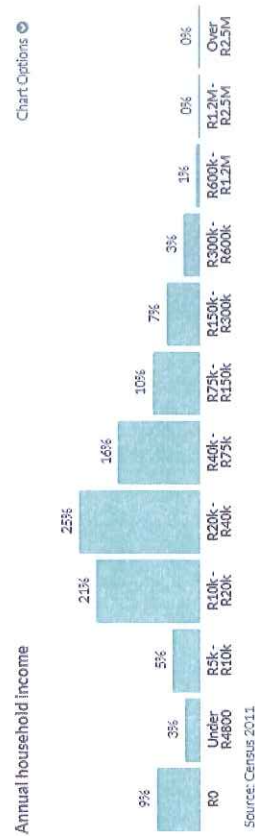


Figure 3.18: Bar chart showing spread of Annual household income in the Central Karoo (StatsSA, 2011)

3.2.2 EDUCATION

The availability of adequate education facilities such as schools, FET colleges and schools equipped with libraries and media centres directly impact academic outcomes. In 2016, there were 29 schools within the Central Karoo region which had to accommodate 14 333 learners. The number of schools with libraries in the region stands at 23, meaning that 6 schools do not

have library facilities. **Figure 3.19** illustrates the location and number of educational facilities in the District. The literacy rate in the Central Karoo was recorded at 60% in 2011. The learner to teacher ratio in the Central Karoo in 2016 is extremely high sitting at about 51 learners per teacher, which is an increase from the 2014 value of about 47 learners per teacher. The learner enrolment numbers only increased marginally from 14 151 in 2014 to 14 333 in 2016. Continuing this alarming trend,

dropout rates are high in the Central Karoo – specifically in Laingsburg where the dropout rate was 72.3% in 2016 (this is the percentage of learners that enrol in grade 10 but do not complete grade 12).

Matric pass rates in the Central Karoo are irregular and fluctuating and do not indicate any trend. See **Figure 3.20** below.

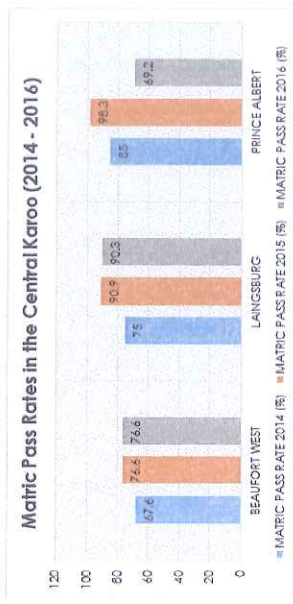


Figure 3.20 - The Matric Pass rates in the Central Karoo between 2014 and 2016

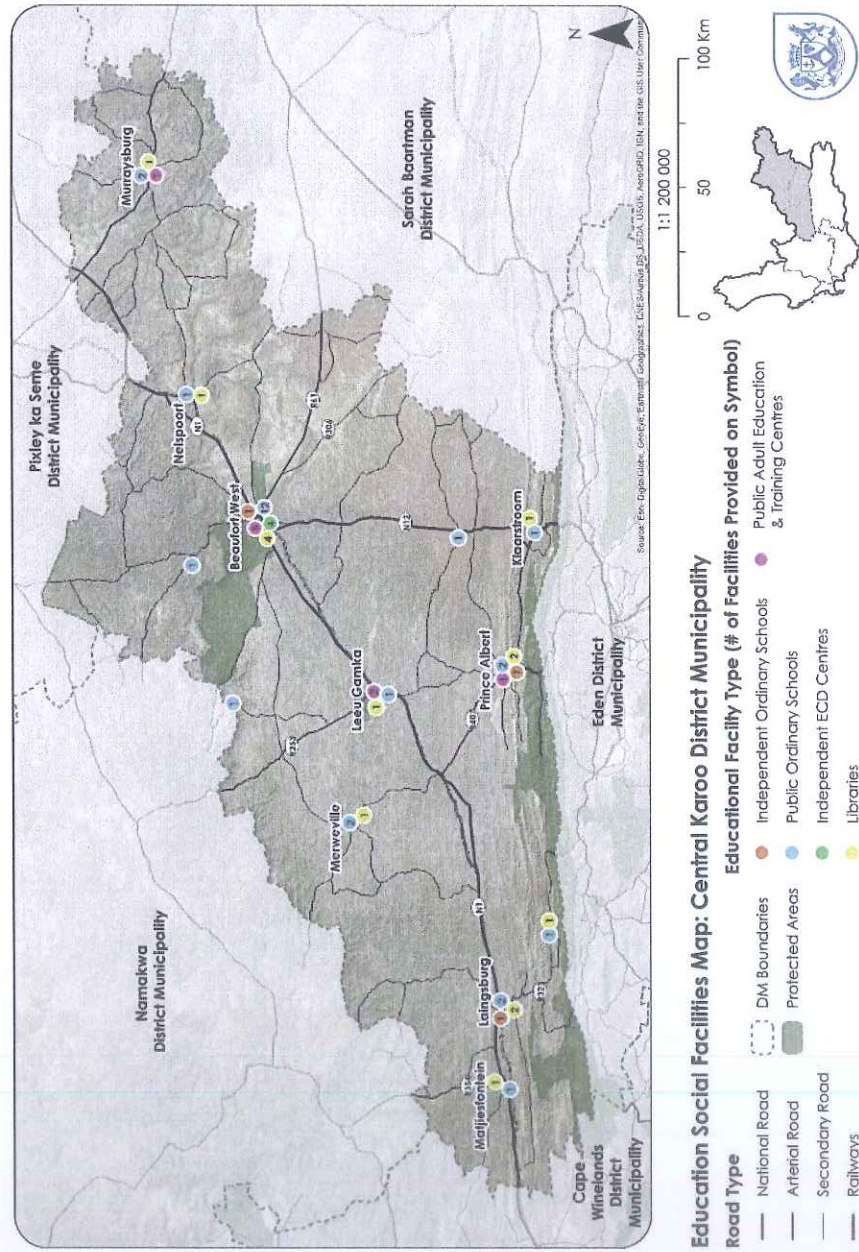


Figure 3.19: Education Facilities Map for the Central Karoo District Municipality

3.2.3 HEALTH

Healthcare facilities in the Central Karoo are listed in the Local Government Socio Economic Profile (LGSEP) and consist of **4 district hospitals**, as well as **Nelspoort Hospital (psychiatric and TB hospital)** supported by a complement of **9 fixed Primary Health Care facilities** made up of **8 fixed public health care facilities** and **one community day centre**. There are a further 4

mobile and 3 satellite clinics which service the Central Karoo region. **Figure 3.21** shows the location of these health facilities in the District. A facility rationalisation process is underway, resulting in the number of mobile clinics and TB clinics decreasing over the last 5 years, in order to reduce costs and provide more consolidated and effective services.

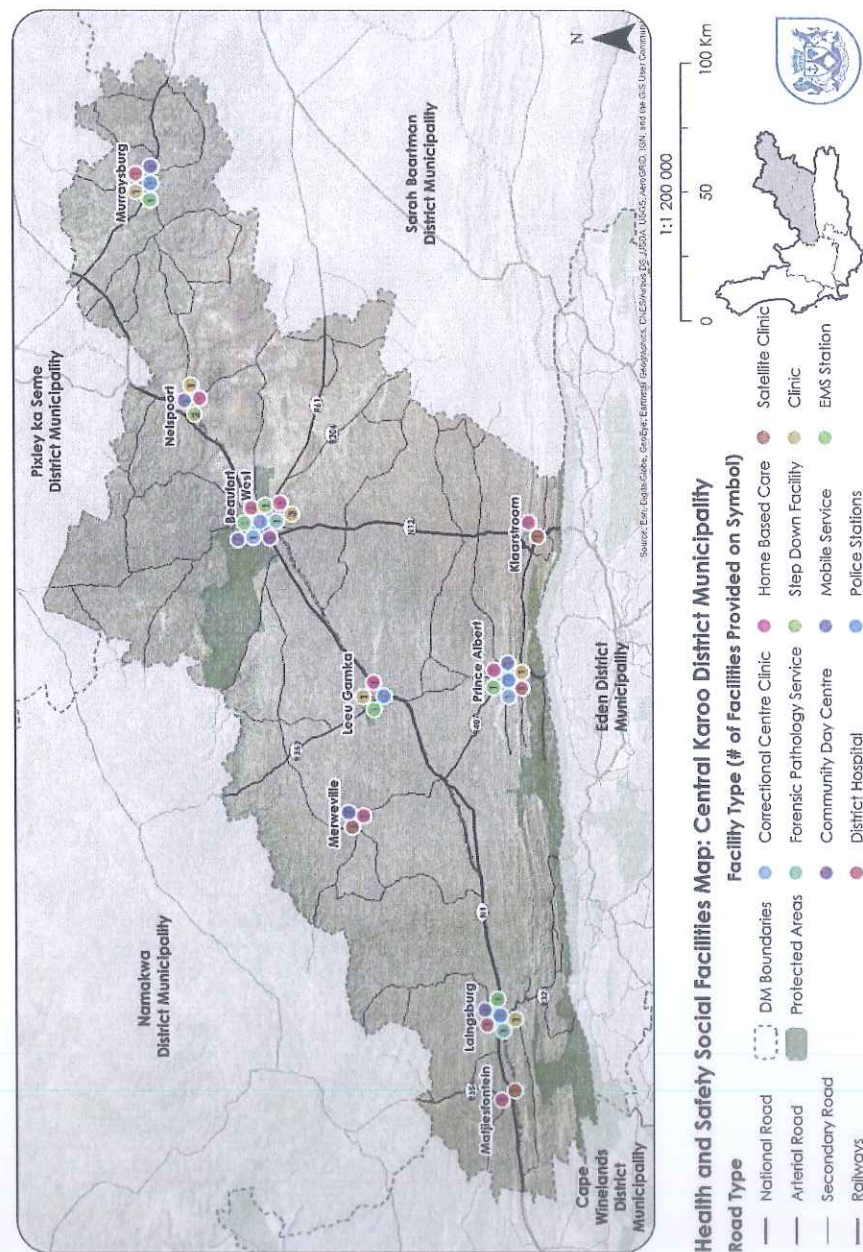


Figure 3.21: Health and Safety Social Facilities Map for the Central Karoo District Municipality

The provision of ambulance services in the Central Karoo is a significant issue, due to the extremely small population and sparsely populated and expansive region. There are currently 1.71 ambulances per 10 000 people.

Serious illness is a concern for all Municipalities. At the end of 2016, anti-retroviral treatment (ART) for HIV/Aids was provided for 1631 persons in the Central Karoo municipality. The municipality acquired a further 926 new ART patients between 2014 and 2016. Concerningly, the HIV transmission rate for 2014 was 3.4% and for 2015 was 4.3% before dropping down to 1.4% in 2016. These rates of transmission were significantly above provincial averages, as can be seen in **Figure 3.22** below.

Area	Registered patients receiving ART			Number of new ART patients			HIV Transmission Rate		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
City of Cape Town	131 177	145 252	162 704	27 663	30 275	32 268	1.3	1.3	0.7
West Coast	6 521	7 651	8 910	1 484	1 790	1 835	1.4	1.5	0.6
Cape Winelands	19 615	28 172	27 162	4 595	5 195	5 097	1.7	1.7	1.5
Overberg	7 233	8 703	10 397	1 451	1 983	1 767	1.3	0.6	0.0
Eden	14 605	17 391	20 127	3 226	3 620	3 603	1.6	1.4	1.8
Central Karoo	1 418	1 416	1 631	327	500	299	3.4	4.3	1.4

Figure 3.22: Number of ART patients in the Western Cape

In terms of child health in 2016, immunization rates sit at 74.9% - which is below the Western Cape average of 79.9%. Malnutrition is also higher in the Central Karoo (10.2 per 100 000 people) compared to the Western Cape average - reflective of the high levels of poverty in the region. The neo-natal mortality rate in 2016 was 14 neonatal deaths per 1000 live births, which is significantly above the target of 6 or less neonatal deaths per 1000 live births. Also concerning, is that 21.8% of all babies born in the Central Karoo in 2017 were deemed to be underweight, compared to the provincial rate of 14.3%.

The maternal mortality rate for 2016 was zero, attributed to the high quality of health care being provided by health professionals, but also attributable to the very low number of people in the region. The delivery rate to women under 18 stood at 8.0% in 2016 (the % of babies born to mothers under the age of 18), compared to 5.7% within the Western Cape.

3.2.4 CRIME, SAFETY & SECURITY

The extent of crime in South Africa does not only have a significant impact on the livelihood of citizens, but also a detrimental effect on the economy of an area. Crime hampers growth and discourages investment and capital accumulation. The Central Karoo District has five police stations located in Murraysburg, Beaufort West, Prince Albert, Leeu Gamka, and Laingsburg (see Figure 3.21).

Decreases

The murder rate in the Central Karoo decreased by 11.3% from 54 incidents per 100 000 people in 2016 to 48 per 100 000 in 2017. Similarly, reported sexual offences decreased by 22.1% during this period from 184 to 143 incidents per 100 000 people, however is still significantly above the provincial average of 108 incidents per 100 000 people. Driving under the influence appears to have decreased between 2016 and 2017 by 21.8% from 173 to 135 persons per 100 000. Residential burglaries decreased from 1039 to 945 per 100 000 between 2016 to 2017.

Increases

Drug related crime continues to rise in the Central Karoo from 1655 per 100 000 in 2016 to 1847 per 100 000 in 2017, indicative of a 11.8% increase.

Fatal crashes increased marginally from 38 in 2015 to 39 in 2016 whilst road user fatalities decreased slightly from 61 to 58 between 2016 and 2017.

3.2.5 ACCESS TO BASIC SERVICES

The Constitution of the Republic of South Africa guarantees that every citizen has the right to access adequate housing and potable water. Basic services are adequate sanitation, safe energy sources, and refuse removal. The Constitution compels local governments to progressively achieve the realisation of these rights and services within their available financial means. The data below is drawn from Central Karoo's latest SEP:LG report (refer to Figure 3.23).

In 2011, approximately 97% of households in the District had access to a **formal dwelling**. By 2016, 97.8% of households had access to a **formal dwelling**. This indicates that housing delivery across the District takes place at a faster rate than the growth in the total number of households.

With regards to potable water, in 2011 approximately 99.4% of households had access to **pipled water** inside the dwelling or yard, or within 200 metres from the yard. By 2016, this figured had decreased to 95.1%. This indicates that the growth in the number of households is outpacing the delivery of water services. It should also be noted that the region does not fully

understand the extent of its groundwater resource, including whether its use of it is sustainable or depletive.

Household **sanitation** is integral as it promotes health and dignity through the provision of safe disposal and treatment of human waste. Accordingly, in 2011 89.5% had access to a flush or chemical toilet connected to the municipal sewage system. By 2016, this figure had increased to 97.1%. In this sense, the District has made significant progress in providing its constituents with access to acceptable standards of sanitation services.

In terms of **electricity** as a primary source of lighting, in 2011 89.4% of the District's households had access to this form of energy. And by 2016, this figure had increased to 95.4%. This marks a significant improvement which can largely be attributed to the roll-out of the Integrated National Electrification Programme (INEP).

Finally, the SEP-LG report notes that in 2011 78.7% of households had their **refuse collected** by local authorities once a week, and by 2016 this number had increased to 90.8%. The report notes that the remaining backlog may be attributed to outlying farm areas, which may not be easy to reach for municipal waste removal. Recycling could also be greatly improved in the region in order to deal with waste.



Figure 3.23: Percentages of Households with Access to Basic Services

3.2.6 LAND REFORM & RURAL DEVELOPMENT

Land reform and rural development have an important contribution to make in promoting inclusive and integrated rural economies.

In 2001, the Department of Rural Development and Land Reform (DRDLR) initiated a programme to establish and promote black emergent farmers; the Land Redistribution for Agricultural Development (LRAD) grant was developed for this purpose. In

response to the Land Summit resolutions of 2005, which called for the acceleration of the pace of land reform, the DRDLR introduced the Proactive Land Acquisition Strategy (PLAS). In 2009, the Department conducted a series of consultations with land reform beneficiaries which resulted in the termination of the use of the LRAD and SLAG grants. The focus shifted towards the acquisition of strategically located agricultural land through PLAS and land is made

available to beneficiaries by way of lease agreements (DRDLR, 2012).

The majority of DRDLR land reform projects are located in the Beaufort West municipal area. The District Land Reform Registry indicates that there are thirteen (13) PLAS projects, twenty-two (22) LRAD projects, and four (4) SLAG projects which are currently ongoing. This translates through to roughly **100 700 hectares of land being transferred** to previously disadvantaged South Africans. All of these projects are spatialized in **Figure 3.24** below.

The revised Central Karoo District Rural Development Plan for 2018 (CKDRDP) will include the integration of the Agri-Park Initiative and accompanying Department of Rural Development and Land Reform (DRDLR) projects into Local Municipal IDPs and SDFs. It also aims to assist municipalities and other sector departments to invest in a coordinated manner in order to enable the development and functioning of the Central Karoo District Agri-Park in Beaufort West.

An Agri-Park is defined as being a networked innovation system (not only physical buildings located in single locations) of agri-production, processing, logistics, marketing, training and extension services, located in District Municipalities. As a network, it enables the growth of market-driven commodity value chains and contributes to the achievement of the DRDLR's rural economic transformation model.

An Agri-Park comprises of three basic units:

1. A district-scale **Agri-Hub** Unit: a production, equipment hire, processing, packaging, logistics and training (demonstration) unit, typically located in a larger agricultural service center.

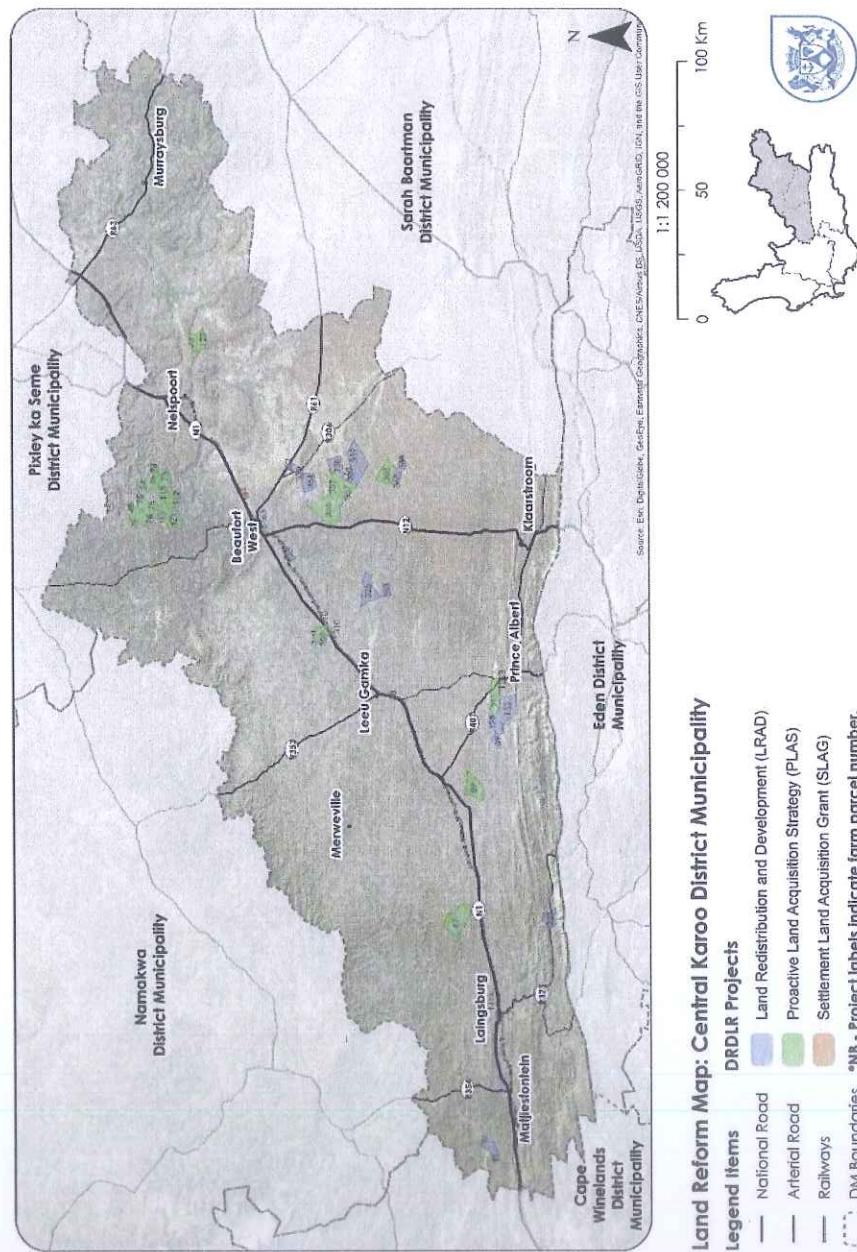


Figure 3.24: Land Reform Map for the Central Karoo District Municipality

2. A local-scale **Farmer Production Support Unit** (FPSU): a rural outreach unit connected with an Agri-Hub that does primary produce collection, some storage, some processing for the local market, and provides extension services including mechanization.
3. The **Rural Urban Market Centre Unit (RUMC)**: typically located in a higher order urban center with three main purposes; linking and binding together role-players in rural, urban and international markets through contracts; acts as a holding-facility, releasing produce to urban markets based on seasonal trends; and provides market intelligence and information feedback to the network of FPSUs and the Agri-Hub.

Figure 3.25 sets out the DRDLR Agri-Park components including the enlarged FPSU catchment areas (60km) applicable in the Central Karoo and reference to the Rural Nodes (CRDP Wards), the location of the proposed Agri Hub in Beaufort West, and Farmer Production Support Units in Laingsburg, Merweville, Prince Albert and Murraysburg.

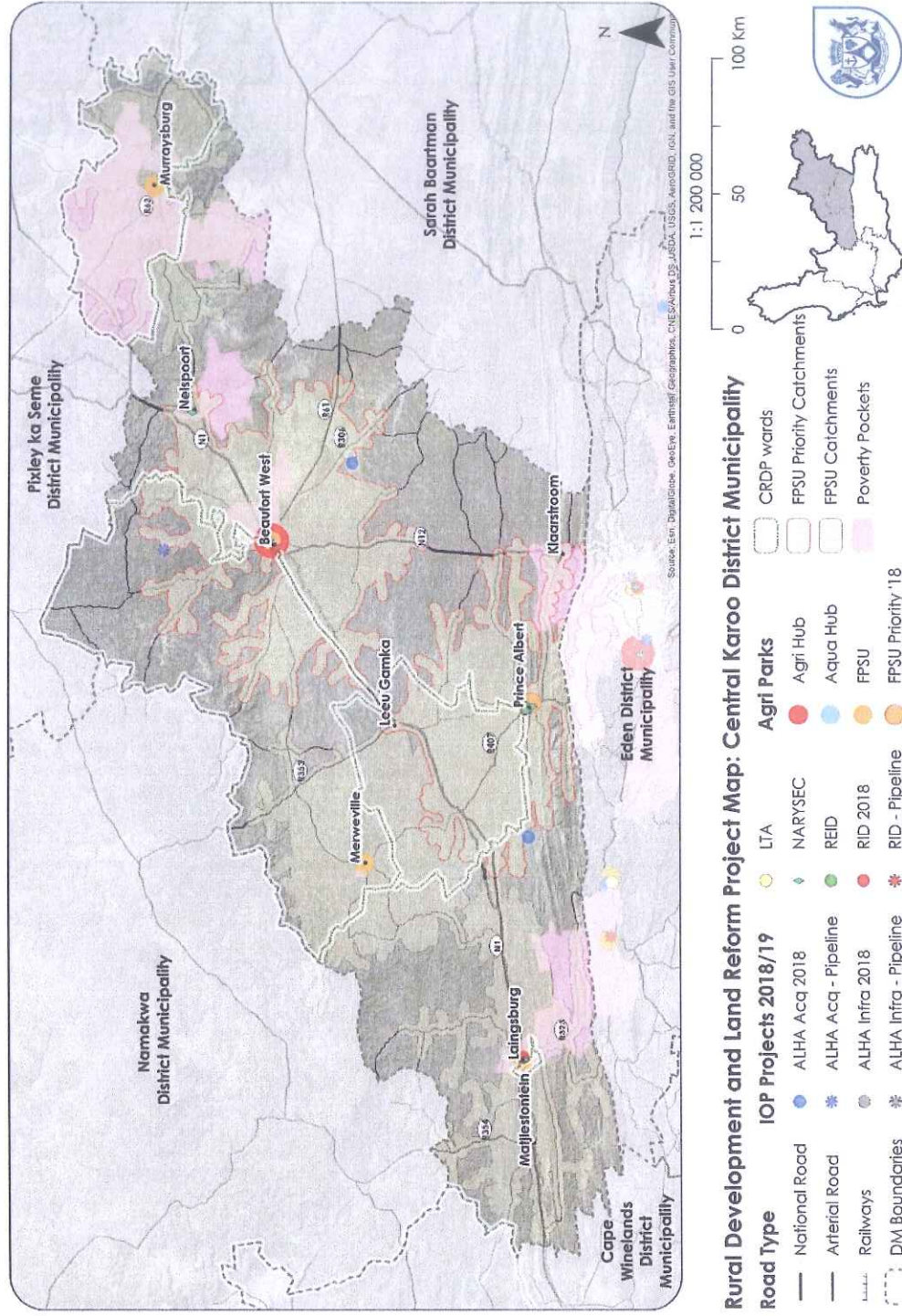


Figure 3.25: Agri-Parks, FPSU catchment areas (60km) and Rural Nodes in the Central Karoo

3.2.7 PROPERTY MARKET PATTERNS

This analysis of the Central Karoo District's property market patterns was conducted on the 13th of April 2018 using the information available on the online platforms property24.com and safaritraders.co.za. Broadly, the technique applied to identify property market patterns required the authors to first identify relevant categories of real estate to be analysed, and second to observe regional open market property prices and arrive at an average. For this exercise, the author's analysed three categories of real estate typology which are agricultural land, entry-level open market housing, and higher-income open market housing; and the data were averaged at the scale of the local municipality to allow for regional characteristics to emerge. The information is tabulated in **Figure 3.26**.

Municipality	Agricultural Land	Entry-Level Housing	Higher-Income Housing
Laiingsburg LM	R10,507,600	R671,000	-
Prince Albert LM	R9,585,000	R741,900	R5,069,500
Beaufort West LM	R7,772,833	R611,200	R1,590,900
District Average	R9,340,741	R675,440	R3,330,200

Figure 3.26: Table of Findings for Average Open Market Property Prices Analysis for Central Karoo District

3.2.8 INCOME AND EMPLOYMENT

Concerningly, the Central Karoo's GDP per Capita is significantly below that of any other District in the Western Cape, currently sitting at just below R30 000 per person per annum, as shown in **Figure 3.27**, below.

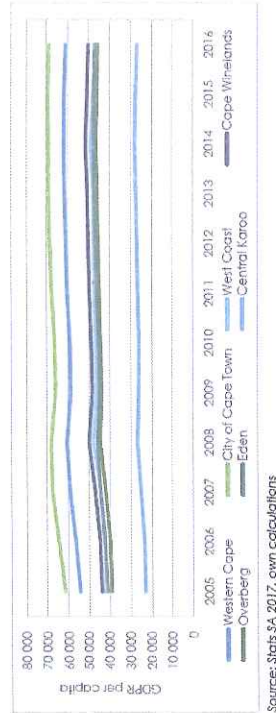


Figure 3.27: The GDP per capita of each District within the Western Cape

Similarly, income inequality has increased between 2010 and 2016 from a Gini co-efficient of 0.55 to 0.57. Positively, however, the Human Development Index has shown an increase from 0.6 in 2010 to 0.68 in 2016.

The number of indigent households in the Central Karoo rose by a staggering 35% from 6161 in 2014 to 8341 in 2016, largely due to job losses that were experienced within the agricultural sector. This has pushed many families into poverty in the region and is

a significant threat to the long term financial sustainability of the municipality. Job creating economic growth is therefore direly needed in the Central Karoo.

Figure 3.28 shows the contribution of each sector to the employment of people in the District in 2015. Notably the tertiary sector provided over two-thirds (68.7%) of employment opportunities in 2015, with the primary sector providing 22.9% of employment in 2015. The secondary (manufacturing, construction and electricity sectors) provided only 8.4% of employment opportunities.

Sector	Contribution to employment (%) 2015	Number of jobs 2015	Trend					Employment (net change)				
			2005-2015	2010-2015	2011	2012	2013	2014	2015	2016	2017	2018
Primary Sector	22.9	4,243	-758	814	-119	211	155	208	579	-18		
Agriculture, forestry and fishing		4,242	-759	814	-119	211	155	208	579	-18		
Mining and quarrying	0.0	1	0	0	0	0	0	0	0	0		
Secondary Sector	8.4	1,550	125	104	33	18	48	59	28	32		
Manufacturing	1.6	305	-27	-15	-5	-17	16	-11	5	-10		
Electricity, gas and water	6.8	93	37	21	2	5	3	2	4	5		
Construction	6.2	1,152	165	56	36	30	27	66	19	37		
Tertiary Sector	68.7	12,788	2,748	1,105	243	240	340	337	248	-10		
Wholesale and retail trade, restaurants and accommodation	22.9	4,231	773	219	92	94	65	81	95	44		
Transport, storage and communication	5.5	1,014	276	65	-6	36	29	-25	62	-46		
Finance, insurance, real estate and business services	7.9	1,661	234	52	24	-1	21	-2	47	-17		
General government	17.7	3,278	1,021	561	149	76	72	211	-52	82		
Community, social and personal services	14.7	2,724	445	208	-16	35	143	72	95	35		
Total Central Karoo District	100	18,581	2,076	2,023	157	469	581	187	1,255	6		

Figure 3.28: Central Karoo District Employment Growth Per Sector (2005 – 2016)

3.2.9 THE ECONOMY

The last 5 years have seen the Central Karoo experience an annual average GDP growth rate of 2.1%, which is lower than the 10-year average of 3% (Central Karoo SEP-LG, 2018), indicative of a slowing economy. 2016 was a particularly bad year for the economy, where the primary sector contracted by some 9.3%, the secondary sector contracted by 0.1%, whilst the tertiary sector only grew by 0.6%. This contraction can in part be attributed to the drought that the Western Cape has been experiencing. It can be seen that these are not conditions for job growth to occur.

Overview of the Economy

In 2015, the **primary sector** (predominantly agriculture) contributed **14.6%** to the economy of the Central Karoo, adding R382.3 million to the economy; the **secondary sector** (predominantly manufacturing, electricity, gas, water and construction) contributed **13.8%** (R361.3 million) and the **tertiary sector** (predominantly wholesale, retail, catering, accommodation, transport, finance, insurance, real estate, general government, community services) contributed **71.7%** (R1 882.9 million) to the economy. The Central Karoo economy's total value in 2015 stood at R2 626.5 million. **Figure 3.29**, illustrates key trends in each economic sector between 2005 and 2016. The key trends to take out from the performance of the economy over the 10 years are:

- The agricultural economy grew at an average of 4.5% per annum between 2005 and 2015, although it experienced a deep recession in 2015 and 2016, retracting by 2.9% and 9.3% respectively in each of those years.
- The secondary sector grew at a more moderate rate of on average 2.6% between 2005 and 2015

but also contracted by rates of -0.3% in 2015, and -0.1% in 2016.

- The tertiary sector also grew at a moderate rate of an average of 2.8% between 2005 and 2015. While growth has slowed, particularly in the period between 2014-2016, this sector has not seen negative growth.

Sector	Contribution to GDP (%) 2015	R million value 2015	Trend		Real GDP growth (%)						
			2005 - 2015	2010 - 2015	2011	2012	2013	2014	2015	2016e	
Primary Sector	14.6	382.3	4.5	1.1	0.8	1.9	3.0	8.7	-2.9	-9.3	
Agriculture, forestry and fishing	14.5	381.2	4.5	1.1	0.8	1.9	3.0	8.7	-2.9	-9.3	
Mining and quarrying	0.0	1.1	0.8	3.5	3.5	1.8	4.1	8.0	1.5	-5.0	
Secondary Sector	13.8	361.3	2.6	1.8	2.0	-0.2	1.6	3.4	-0.3	-0.1	
Manufacturing	2.5	66.9	1.1	2.3	2.6	1.9	-1.6	1.7	0.4	-0.4	
Electricity, gas and water	5.6	146.1	1.1	1.3	3.7	1.1	-0.1	0.0	0.1	-5.3	
Construction	5.6	148.3	5.4	1.9	0.2	-2.8	5.3	7.4	-1.1	4.4	
Tertiary Sector	71.7	1 882.9	2.8	2.4	4.1	2.9	2.9	1.8	1.0	0.6	
Wholesale and retail trade, catering and accommodation	15.0	392.9	2.1	2.3	3.6	3.0	1.1	0.5	0.3	0.8	
Transport, storage and communication	15.6	409.8	0.5	0.3	2.0	0.7	1.0	1.7	-1.9	-2.2	
Finance, insurance, real estate and business services	11.1	290.2	4.3	2.6	2.8	3.4	2.3	2.5	3.7	2.1	
General government	20.4	536.6	4.2	4.0	6.4	3.9	5.2	3.6	1.4	2.0	
Community, social and personal services	9.6	253.4	3.0	2.4	5.1	3.8	5.1	-0.7	2.0	-0.8	
Total Central Karoo District	100	2 626.5	3.0	2.1	3.2	2.4	2.8	3.2	0.2	-1.2	

Source: Quantec Research, 2017 (e denotes estimate)

Figure 3.29: Economic Performance per sector (2005 – 2016)

rise in poverty in the region. The tertiary sector likewise experienced a net decrease in employment opportunities in 2016.

Figure 3.30 provides a map which spatially indicates employment per sector (excluding construction) expressed as the number of potential job opportunities at the place where people will work in 2013. This map shows that a majority of job opportunities are clustered around the urban settlements, and along the N1 corridor, which is where the vast majority of people are located.

3.2.10 TOURISM

The Karoo is a massive region which stretches over several of South Africa's provinces. However, this distinctive landscape, its natural environment, and heritage resources are of a significant tourism value for the Central Karoo District. The Karoo offers a diverse range of tourism activities and attractions which are broken down by theme in Figure 3.31 below. Based on these themes, the following Central Karoo towns offer the following activities established in Figure 3.32.

Theme	Element Description
Heritage & History	Fossils, Rock-Art, Anglo-Boer War, Cemeteries, Historic Towns, Monuments and Museums.
Architecture	Cape Dutch, Karoo Gothic and Neo-Gothic, Victorian, Railway Architecture.
Natural & Environmental Tourism	Game Viewing, Bird Watching, Hiking, National Parks, Nature Reserves, and Resorts.
Adventure Tourism	Paragliding, Sky-Jumping, Abseiling, Mountain-Biking, Hunting.
Arts, Crafts & Literature	Guided Literary Tours, Craft-Making, Craft-Selling, Artistry, Art Galleries and Exhibitions.
Cuisine	Restaurants, Food, Wine-Making and Wine-Tasting, Cheese-Making.

Figure 3.31: Broad Karoo Tourism Themes.

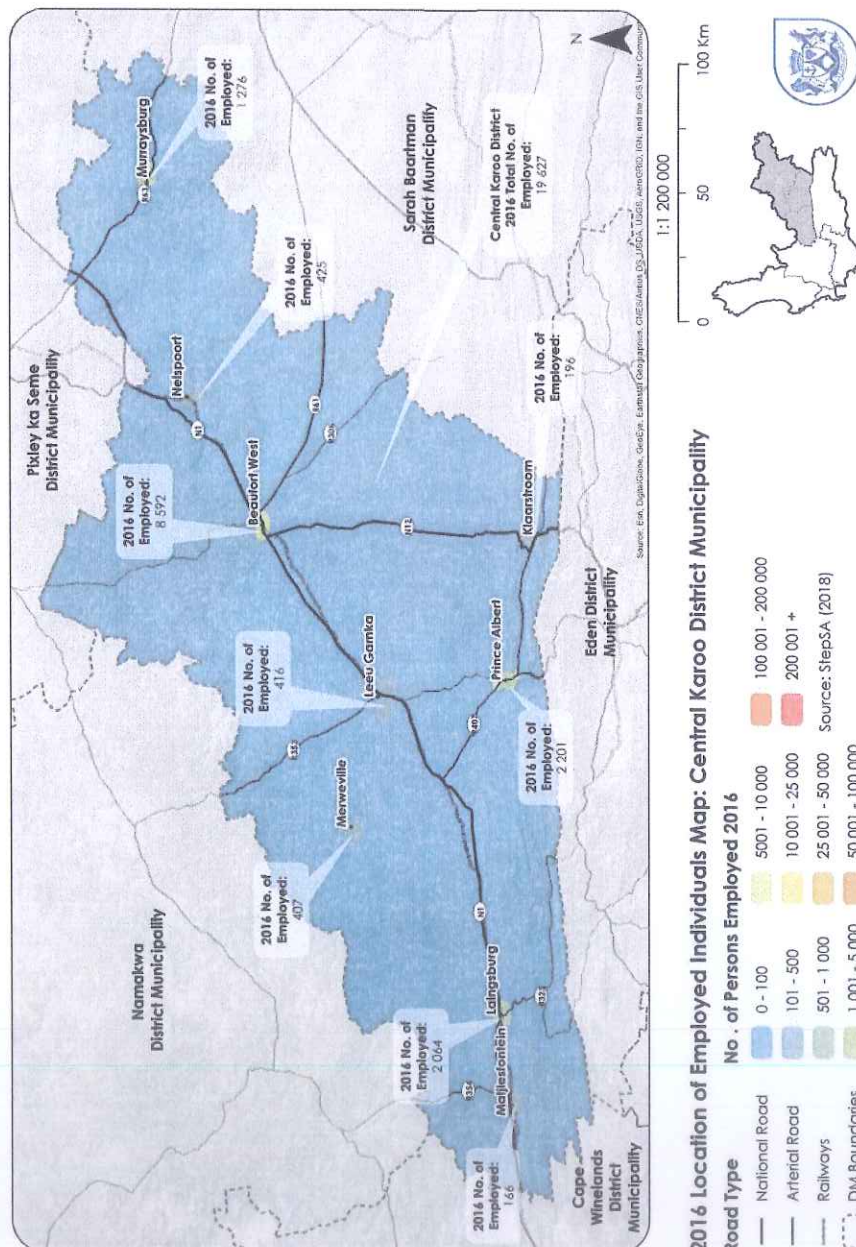


Figure 3.30: Total Employment Index Map for the Central Karoo District Municipality

EMPLOYMENT TRENDS

During the 5-year period between 2010-2015, the Central Karoo District added **2,649 employment opportunities**. As of 2015, the Beaufort West area contributed 65.6% to the employment in the District, followed by Prince Albert at 19.7%, and Laingsburg at 14.7%. In 2016, there was a contraction in the number of new job opportunities being created across the

District, and Beaufort West experienced a net loss of 77 jobs.

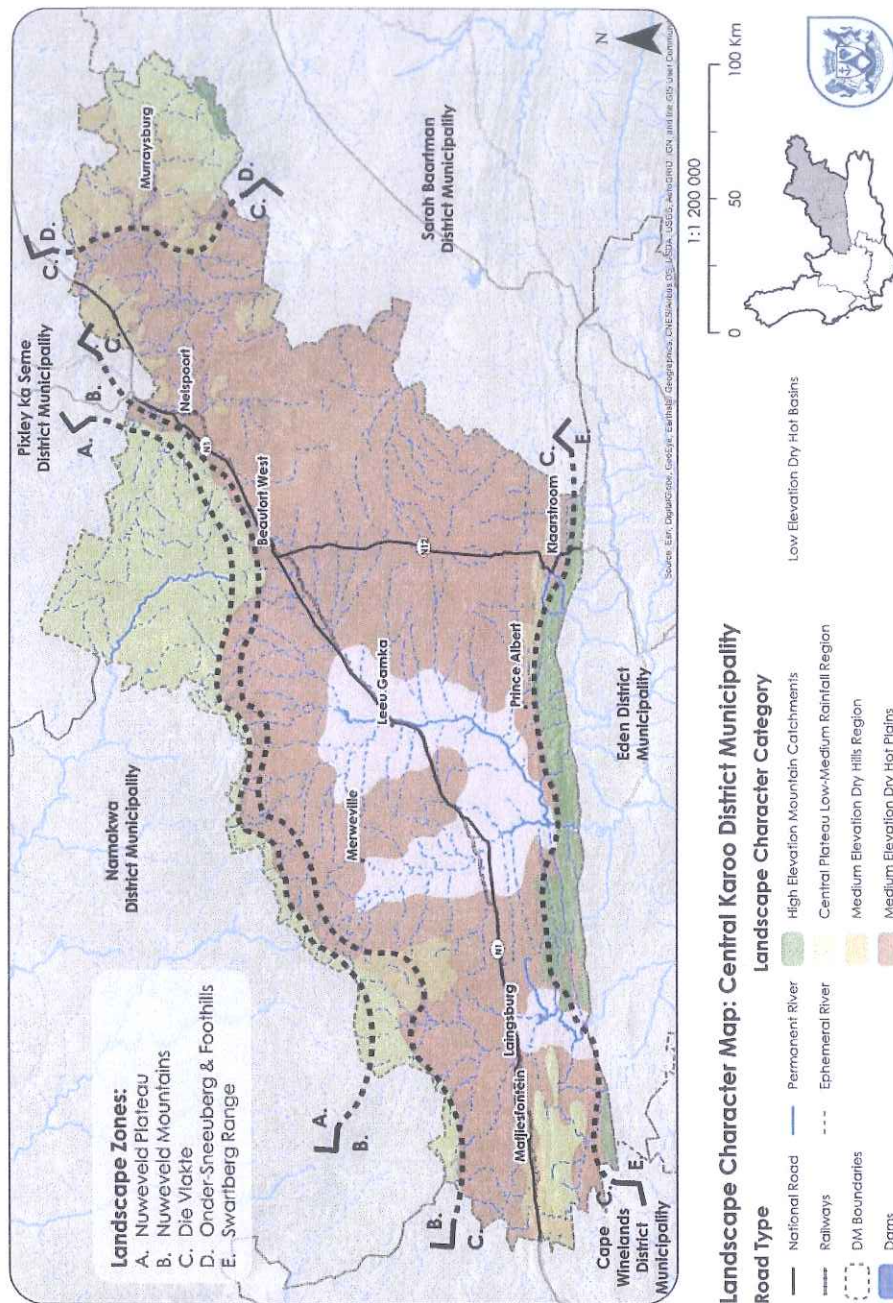
Proportionally, **22.9%** of jobs are found in the **primary sector**, **8.4%** are found in the **secondary sector**, and **68.7%** are found in the **tertiary sector**. This translates through to **18,501 job opportunities across the District in 2015** (see Figure 3.30). The primary sector experienced net decrease in employment opportunities in 2011, 2014, and 2016 contributing to a

There may be an opportunity to enhance tourism at the regional scale if greater attention is paid to detailing natural, heritage, and landscape assets at the local/town level, and then focusing on collaborative and district-wide marketing opportunities and synergies.

Town	Heritage & Architecture	Natural & Environmental	Crafts, Cuisine & Others
Laingsburg	Laingsburg Flood & Karoo Architecture. Cape Dutch, Karoo & Victorian Architecture.	Star-Gazing, Nature Reserves, Floriskraal Dam, Die Hel (Gamka's Kloof), Swartberg Pass, Mountains and Reserve, Seweweekspoort, Meltingspoort.	Craft Shopping and Overnight Accommodation, Craft-Making and Shopping, Chef School, Agricultural Activities (Olive, Wine and Fruit Farms), and Art Galleries.
Prince Albert	Chris Barnard Museum, Black Houses, Khai-San Rock Art (Nelspoort).	Karoo National Park, Game Hunting, and Game Farms.	Karoo Cuisine, Overnight Accommodation, Crafts Shopping, and Conferencing.

Figure 3.32: Comparison of the Tourism Character of Central Karoo District Towns.

Figure 3.33 seeks to illustrate the 5 broad types of landscape character in the Central Karoo.



3.2.11 GINI COEFFICIENT

Income inequality has increased in the Central Karoo between 2010 and 2016. Income inequality in the Central Karoo District is however lower than in any other District. This implies that either households and individuals within the Central Karoo benefit more equally from regional growth or there are fewer wealthy individuals within the District to drive up the Gini-coefficient. The Gini coefficient for the Central Karoo was estimated to be 0.57 in 2016, from 0.55 in 2010.

3.2.12 HUMAN DEVELOPMENT INDEX (HDI)

Despite increasing inequality, human development is gradually on the increase in the Central Karoo, representing a gradually increase in the levels of human development in the District. Despite it being lower than other districts, the rate of change between 2010 and 2016 was the fastest. HDI represents a select number of indicators (education, housing, access to basic services and health) and therefore attempts to reflect overall levels of human development. The Central Karoo District's HDI is calculated to be 0.68 in 2016, from 0.60 in 2010.

3.2.13 MUNICIPAL FINANCES

For the 2017/2018 financial year, the Central Karoo District received R11.5 million from National Government through the equitable share allocation, R52 million from the Western Cape Province for infrastructure spending, and an additional R1 million in grants to improve financial management and emergency services.

District Municipalities have narrow mandates (see 84(1) of the Municipal Structures Act, 2000), and do not have the authority to raise capital through rates and taxes. Practically, a District is heavily reliant on income from Provincial and National Government to provide services to the community.

Most of the expenditure for the 2017/2018 financial year was applied towards the maintenance of surface (R19.1 million) and gravel (R19.9 million) roads. In addition, an amount of R9.0 million will be directed towards repairing flood damage in the Laingsburg area. Maintaining and improving the road network is integral to supporting economic growth in the area. A major threat faced by the District is that budgets are

being cut at both the National and Provincial level. This may impact on the income received and money available to fund infrastructure projects.

From a financial performance perspective, the following are key indicators to take note of for the 2018/19 financial year (based on www.municipalmoney.co.za profile for the Central Karoo):

- The municipality has shown an improvement in its cash balance over time, sitting at R8 108 327 in 2018/19;
- Cash coverage sits at 1.2 months, which is less than the desired minimum target of 3 months;
- Underspending on operating budget has improved significantly between 2015 and 2018;
- Previously underspending of the capital budget was an issue, however the most recent metric for 2018 shows overspending on the capital budget;
- Current ratio and liquidity ratio are unsatisfactory.

3.2.14 SWOT OF THE SOCIO-ECONOMIC CONDITIONS

STRENGTHS

- The Central Karoo has some solid **tourism assets** relating to landscape, sense of place, wilderness and peace which are worth preserving, enhancing and exploiting opportunities relating thereto.
- From a **services perspective**, municipalities within the region were able to provide housing, sanitation and electricity at a rate faster than the population growth rate – translating into increasing coverage rates for all of these services over the last 5 years, and also implying a decreasing level of informality and better overall service provision.
- In terms of **economic development**, the tertiary sector and in particular government services, is by far the biggest employer and biggest sector of the economy, and this trend appears to be a continuing trend where the tertiary sector's growth outstrips the primary and secondary sector's.
- The **Human Development Index** of the region has improved over the last 5-year period, indicative that despite increasing inequality, access to services and facilities has improved.

WEAKNESSES

- From an education perspective, an alarmingly high student to teacher ratio is undermining the quality of education and outcomes in the region.

- High poverty rates, poor health outcomes (high degree of malnutrition and HIV transmission rates) undermine quality of life and economic development potential of the region.

- The GDP per capita in the region is extremely low and income inequality is increasing and the number of indigent households is growing. These pressures have a direct impact on municipal financial sustainability to deliver services and the ability of residents to both sustain themselves and pay for services.
- Following on from the above, drug crime appears to be worsening in the region, indicative of severe socio-economic stress and poverty pressures in the region.
- Slowing economic growth is weighing heavily on the overall socio-economic prognosis in the region, which doesn't see any immediate improvements in the short term.

OPPORTUNITIES

- The stabilising population growth rate means that government has an opportunity to attend to backlogs in delivery of services and facilities, as well as for economic growth to lift more people out of poverty in the medium to long term.
- The decreasing dependency ratio in the region means that there is the potential for more people to earn an income and fewer people to rely on those earning an income.
- The primary and secondary sectors of the economy are currently small and hence have significant scope for long term growth if these sectors become desirable for investors to expand operations in.

THREATS

- Vast distances between settlements and a sparsely distributed population makes the region difficult to efficiently serve equitably with infrastructure, services and facilities. Similarly, low thresholds make public transport and business opportunities difficult to financially sustain.
- The agricultural economy is highly variable and susceptible to hydrological droughts and water availability which is generally extremely scarce in the region.
- There is insufficient information of the extent of the ground water of the region and whether its current use by the municipality is sustainable or not.
- A threat to the area is an influx of people hoping to secure shale gas and mining jobs if public expectations of these industries are poorly managed. For example, when the first figures for shale gas were being reported, the number of associated jobs were arguably inflated.

3.3 BUILT ENVIRONMENT ASSESSMENT

The purpose of this section is to provide an overview of the built environment features in the Central Karoo, drawing on the latest information that is available.

3.3.1 URBAN SETTLEMENTS & SETTLEMENT HIERARCHY

According to the CSRI, "a settlement refers to a distinct human community in its physical, socio-economic and environmental whole which requires the provisioning of services such as engineering and social services. Settlements can be ordered by size and other factors to define a settlement hierarchy, ranging from city regions to hamlets or dispersed rural settlements". Often, population is a crucial factor in determining the hierarchy of settlements in a region and deciding where to target essential basic services.

The Central Karoo is a predominantly rural District and is home to many small towns and hamlets. Referring to **Figure 3.34**, Beaufort West is the District's regional service centre and is home to most of the medical, educational, commercial, and regional administration activities. Laingsburg, Prince Albert, and Murraysburg are major rural settlements which offer some services mentioned above to the surrounding farming communities. Minor rural settlements like Matjiesfontein, Klaarstroom, Leeu Gamka, and Merweville offer limited services and are usually structured around farming, railway, or transport activities within the District.

3.3.2 HOUSING

The information in this section is drawn from the MERO 2017 report, and the latest Human Settlements Housing Delivery Plan. In 2017, 98.2% of the District's 21,487 households had access to formal housing. Of the 1.8% who currently live in informal structures, 184

households are located in Prince Albert, 173 are located in Beaufort West, and 35 are located in Laingsburg. The following sets out the number of persons on the housing waiting list (as at Sept 2019):

- **Beaufort West Municipality:** 5801
- Beaufort West (town): 4563
- Murraysburg: 815
- Nelspoort: 237

- Merweville: 186
- **Laingsburg Municipality:** 678
- Laingsburg Town: 609
- Matjiesfontein: 69

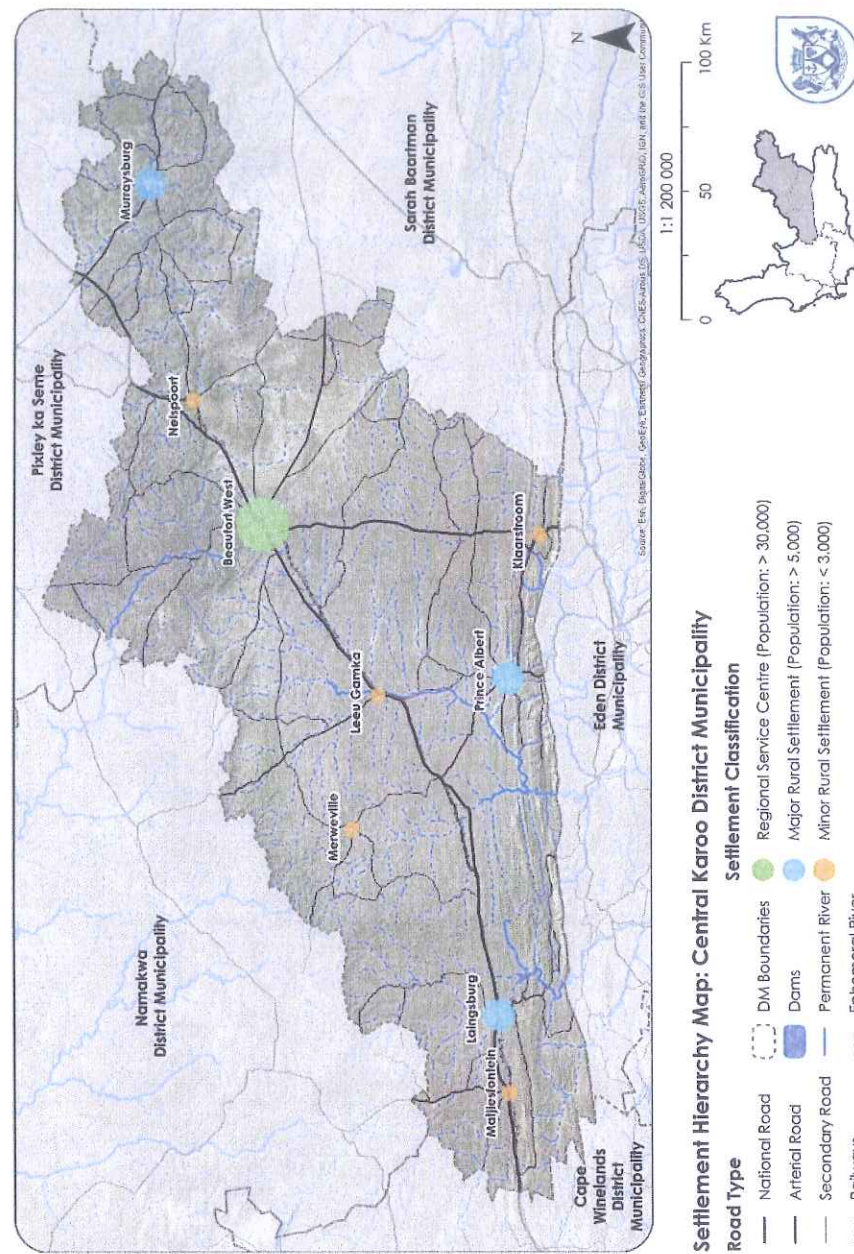


Figure 3.34: Settlement Hierarchy Map for the Central Karoo District Municipality

- | | | |
|---|------------------------------------|-------------|
| • | Prince Albert Municipality: | 1205 |
| • | Prince Albert Town: | 726 |
| • | Leeu Gamka Town: | 335 |
| • | Klaarstroom Town: | 144 |
| | Total for Central Karoo: | 7684 |

Figure 3.35 illustrates the location of planned housing interventions in the Central Karoo over the next three years. In the **2018/2019** financial year, the Department of Human Settlements planned to build 250 houses in Beaufort West and 143 in Prince Albert. In **2019/2020**, Human Settlements planned to build an additional 150 units in the Beaufort West area. And in **2020/2021**, Human Settlements plans to build 100 units in Beaufort West, 100 units in Murraysburg, and 208 units in Prince Albert. Human Settlements also plan to service 67 sites in Beaufort West in the 2020/2021 financial year. It should be noted that the proposed servicing project for Murraysburg did not materialise and an alternative project for the development of 360 housing opportunities is being investigated.

Housing is not one of the development mandates of District Municipality. With that being said, one of the key strengths related to housing in the Central Karoo is that the low population growth rates and low prevalence of existing informal dwellings making it easier for the competent local and provincial authorities to keep on top of housing demand. Budget cuts or sudden changes in population growth rates could threaten this fragile equilibrium.

The district municipality's mandate is to provide a supportive function to local municipalities, whose mandate it is to provide housing. The planning for the provision of housing needs to be accompanied by planning for the provision of infrastructure and services, including refuse removal services, and consider the long term maintenance of such infrastructure and services. The district municipality

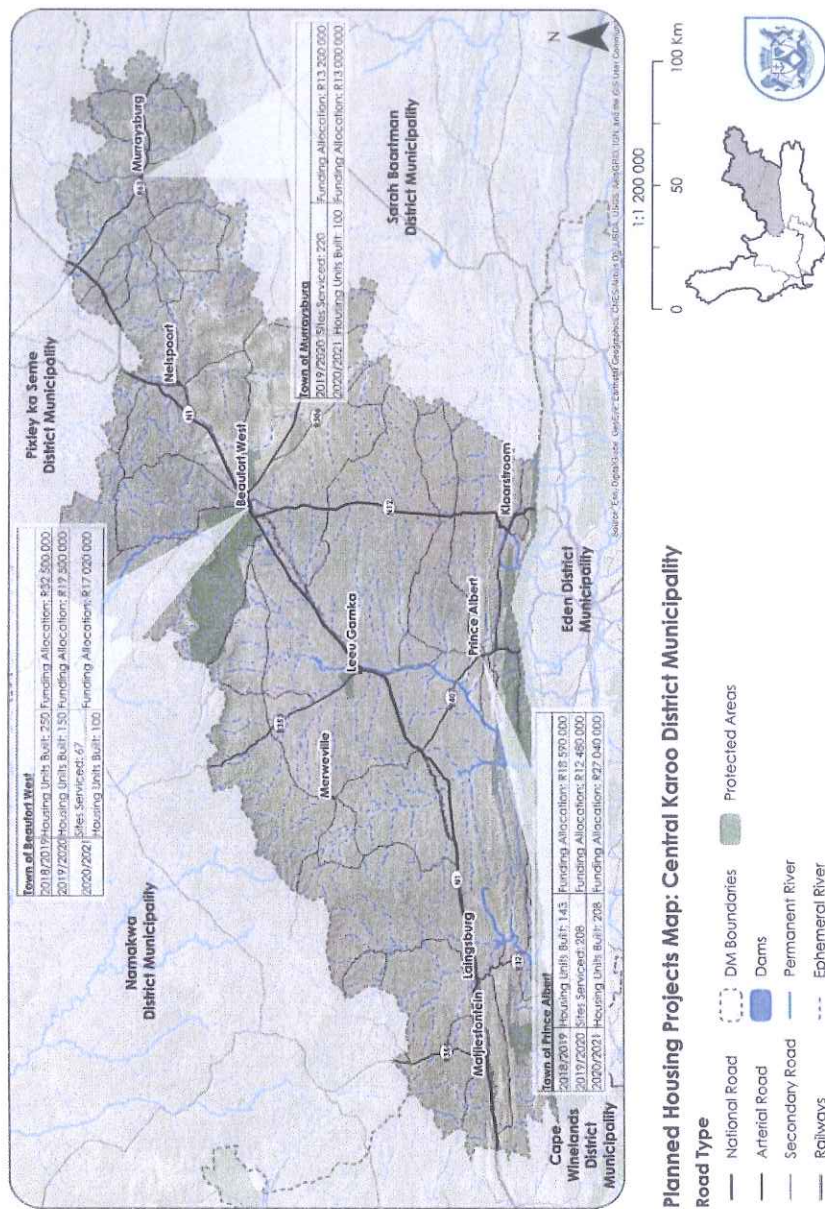


Figure 3.35: Planned Housing Projects for the Central Karoo District Municipality

needs to ensure that the local municipalities' waste management departments can accommodate the planned housing with respect to refuse removal and other services.

3.3.3.3 ROAD, RAIL & PUBLIC TRANSPORT

The following section will discuss transportation infrastructure in the Central Karoo, as drawn from the Integrated Transport Plan for the Central Karoo (2016).

ROAD NETWORK

The road system in the Central Karoo is made up of a combination of national, provincial, and municipal roads of which 14% of the total road length (or, 986 km of 7 252 km) is surfaced (see **Figure 3.36**).

A defining feature of the District is the N1, a national road which runs in a southwest-northeast direction 364 kilometres through the municipality. The N1 enters the District in the west from the Cape Winelands District, and passes through Laingsburg, Leeu Gamka, Beaufort West, and Nelspoort and then exits the District into the Northern Cape. The N1 is maintained by SANRAL, and the full length of this road is surfaced. According to the 2015-2020 District Integrated Transport Plan (ITP), the road "carries an average of 2,496 vehicles per day of which 52% are heavy vehicles". This road is a key national connector between Cape Town and Johannesburg – the two biggest cities in South Africa.

In the eastern part of the District, the N12 runs in a north-south direction from Beaufort West through Klaarstroom, and on to Oudtshoorn. This road has a total extent of 128 kilometres. While the N12 has a national road designation, this road is considered a "trunk road" and is therefore maintained by the Western Cape Provincial Government. The District ITP indicates that the N12 is in a relatively poor condition.

Other important roads in the Central Karoo include:

- R61 which runs in an easterly direction from Beaufort West to Aberdeen with a length of 74 kilometres to the District boundary (surface: asphalt; condition: fair to good).
- R63 which runs from the N1 towards Murraysburg and Graaff-Reinet with a total length of 87 kilometres (surface: asphalt; condition: mostly poor, but fair to good in places).
- R407 which connects Prince Albert to Klaarstroom and the N12 via the Kredouw Pass (distance: 47

kilometres, surface: asphalt; condition: fair to good).

- R328 which connects Prince Albert Road at the N1

Road Category	Surfaced (km)	Gravel (km)	Total Length (km)	Designation	Authority
National Roads	364	0	364	N1	SANRAL
Trunk Roads	554	68	622	N12, R61, R353, R63	PGWC
Main Roads	52	629	681	-	PGWC/CKDM
Divisional Roads	15	1,679	1,694	-	-
Minor Roads	1	3,890	3,891	-	-
TOTAL	986	6,266	7,252		

Figure 3.36: Total Road Network Lengths in Central Karoo District Municipality

to Prince Albert town which covers a distanced of 44 kilometres. The R328 then continues over the Swartberg Pass (surface: asphalt; condition: poor to fair).

- R381 from Beaufort West towards Loxton in the Northern Cape which is 95 kilometres in length to the District boundary (surface: asphalt for 28 km, and gravel for 68 km; condition: paved roads are in good condition, gravel roads are in poor condition).
- R323 from Laingsburg to the Seweweekspoort which is 77 kilometres in length of which only 30 kilometres is surfaced (surface: asphalt; condition: fair to good).
- R353 which runs northwards from Leeu Gamka at the N1 towards Fraserburg which is 74 kilometres in length (surface: asphalt; condition: good).
- R354 from Matjiesfontein towards Sutherland which is 43 kilometres to the District boundary

(surface: asphalt; condition: fair to poor in places).

- R306 from the R61 to Rietbron in the Eastern Cape which runs for 60 kilometres to the District boundary (surface: gravel; condition: fair to good).

The District ITP report notes that some surfaced roads may need attention in the medium term. Particularly, the R328 between Prince Albert Road and Prince Albert, and R63 between Murraysburg and the Eastern Cape. The condition of the District's gravel road network is mostly poor, and requires much attention to better support the region's agriculture sector.

In terms of road safety, the N1 accounts for almost 2/3rds of all fatalities, mostly attributed to poor driver behaviour and fatigue. Head/rear collisions, overturned vehicles and side-swipes account for almost 9 out of 10 incidents on the N1 (Central Karoo ITP, 2016).

RAIL NETWORK

The history and development of the Central Karoo is closely linked to the expansion of the South African Railways in the 19th century. South African railway history is particularly notable in the town of Matjiesfontein. Today, the railway operates freight and passenger services which travel across the District, running in parallel to the N1. The rail line specifically runs in a southwest-northeast direction and passes through Matjiesfontein, Laingsburg, Leeu Gamka, Beaufort West, and Nelspoort. The District has two major railway stations at Beaufort West and Laingsburg which can accommodate both passenger and freight services. While the Central Karoo has significant and relatively modern rail

infrastructure, it is not used to the full benefit of local communities.

PUBLIC TRANSPORTATION

Formal public transport services are very limited across the District. Given its size, the town of Beaufort West has mini-bus taxis, sedan taxis, a single bus service, and mini-bus taxi rank infrastructure in its CBD. However, there are irregular mini-bus taxi services operating between settlements across the District in medium to long-haul type services. This makes travelling for education, health, and leisure opportunities both costly and unpredictable for many of the Central Karoo's residents.

Long distance bus operators have scheduled daily stops at Laingsburg, Prince Albert Road, and Beaufort West with connections to Cape Town, Kimberley, Bloemfontein, Durban, Johannesburg and Pretoria. More than 28 buses (with a potential passenger capacity of 12,000 per week) from established national operators pass through the Central Karoo daily.

NON-MOTORIZED TRANSPORT

Walking is a primary transport mode for intra-town movement. All three Local Municipalities have constructed bicycle and pedestrian paths and sidewalks to a limited extent. However, these interventions have been criticized for not being holistic or coordinated, and seldom provide adequate links to important settlement areas and activities.

AIR TRANSPORT

There are three landing strips/airfields across the District; one in every Local Municipality. These facilities are primarily used by light aircraft for tourism and leisure purposes. There are no national or international

airports in the region, with the closest one being George Airport. It is unclear if there is sufficient demand to warrant a national airport within the region, situated near to Beaufort West, however this would be a function of demand and economic growth into the future.

3.3.4 WATER INFRASTRUCTURE

Water is extremely scarce in the Karoo, where supply is hardly able to meet the demand. The current hydrological drought, whose onset started in 2015 and is still ongoing as of 2020, in which significantly below average rainfall has fallen during this period, is the primary reason for the drought. The opportunity remains, however, that if aquifers could be adequately tapped, and water extraction managed sustainably, water security could be significantly improved in the region. Concerningly, however, the scale and extent of the ground water resource is not well known and therefore it is unclear as to whether ground water is being sustainably used or not.

Whilst Beaufort West has a water reclamation plant, these plants are not financially or operationally viable for the smaller towns as it is necessary to have a sewerage purification plant for this to happen.

Towns in the Karoo are mostly dependent on underground water such as boreholes and fountains. In the case of Beaufort West, there is also the Gamka Dam and the Water reclamation plant, although the Gamka Dam cannot supply water during droughts, it does serve to supplement the water use during non-drought periods, especially in assisting to meet higher daily demands in summer.

There are no plans to build any additional dams by the Dept. of Water and Sanitation in the foreseeable future. Exploration for further aquifers and the development of these is therefore the solution for all towns to make their water supply sustainable. Prince Albert has, however, considered building an off-stream dam to enhance its raw storage capacity. Another project is underway to replenish boreholes in good rainy seasons to recharge the aquifers.

The biggest challenge in relation to ground water in the Central Karoo is the quality of the water that in most cases does not meet the specification of SANS 245. Groundwater development is therefore an expensive exercise as it must be treated to these specifications.

In terms of existing water infrastructure, the following sets out the status of each town in the Central Karoo:

BEAUFORT WEST MUNICIPALITY: WATER INFRASTRUCTURE

Menweville water infrastructure:

- Six production boreholes;
- One borehole not equipped;
- Two reservoirs – 200 kl each; and
- Water purification – only chlorine.

Nelspoort water infrastructure:

- Two production boreholes;
- Surface water – weir in river with two pumps;
- Aerator for water from boreholes – H₂S removal;
- Two sand filters to remove silt from surface water;
- Water purification – only chlorine; and
- One reservoir – 1 Ml.

Murraysburg water infrastructure:

- Five Boreholes;
- Four reservoirs; and
- Water purification – only chlorine.

Beaufort West water infrastructure:

- Thirty-five production boreholes in operation;
- Five Boreholes have run dry;
- Water reclamation plant with extra capacity;
- Gamka Dam - at zero – no delivery currently; and
- Three reservoirs – 13.75 Ml.

Beaufort West Municipality: Water demand and supply

Menweville:

- Demand - 0.31 Ml/day
- Supply - 0.32 Ml/day

Nelspoort:

- Demand - 0.35 Ml/day
- Supply - 0.42 Ml/day

Murraysburg

- Supply meets demand – 0.47 Ml/day

Beaufort West

- Demand - 5.2 Ml/day
- Supply - 6.2 Ml/day

Key Water Projects in Beaufort West

- No drilling for boreholes anticipated in area for 2018/19;
- Five data loggers to be installed in various boreholes to monitor water levels as well as one each at Menweville, Nelspoort and Murraysburg;
- Borehole of Council of Geoscience to be equipped in 2018/19;
- Exploration for new aquifers in Beaufort West to be undertaken to reduce the reliance on surface water;
- No projects on any dam are planned or underway.

PRINCE ALBERT MUNICIPALITY: WATER INFRASTRUCTURE

Prince Albert water infrastructure:

- Nine Production boreholes;
- Fountain – 20 hours a week as well as 10 of irrigation water on a 24/7 basis;
- Four raw storage dams – 2.4 Ml;
- Reservoirs – 4.0 Ml; and
- Purification works.

Prince Albert Road water infrastructure:

- One production borehole – Transnet; and
- One reservoir - 50 kl;

Klaarstroom water infrastructure:

- Two production boreholes close to each other;
- Four newly drilled boreholes, one equipped in 2017/18; and
- Two reservoirs – 0.1kl and 0.2 kl.

Leeu Gamka water infrastructure:

- Two production boreholes – one belonging to Transnet;
- Four newly drilled boreholes, one to be equipped in 2018/19;
- Transnet can also supply water in a crisis; and
- One reservoir.

Prince Albert Water demand and supply

Prince Albert

- Demand – 1.5 Ml/day
- Supply - 1.9 Ml/day

Prince Albert Road

- Supply meets demand

Klaarstroom

- Supply meets demand

Leeu Gamka

- Supply meets demand

Key Water Projects in Prince Albert

- Upgrading of raw water storage reservoirs in Prince Albert – 2017/18/19;
- Two boreholes to be re-drilled and equipped in Prince Albert – 2018/19;
- Borehole to be drilled at Noordeinde in Prince Albert;
- Build diversion structure in river with gabions for irrigation furrow in Prince Albert 2018/19;
- Four data loggers to be installed at Prince Albert in various boreholes to monitor water levels as well as one at Leeu Gamka;
- Equipping boreholes in Klaarstroom , Prince Albert and Leeu Gamka-2017/18;
- Package plant to take Fluoride out of Transnet borehole water in Leeu Gamka – 2018/19;
- Future projects might be drilling of two boreholes and package plant near Noordeinde Prince Albert;
- Off stream dam for fountain water in Prince Albert;
- Bulk water meters to be installed also on boreholes in all towns.

LAINGSBURG MUNICIPALITY: WATER INFRASTRUCTURE

Laingsburg water infrastructure:

- Southkloof fountain;
- Well at Southkloof;
- Two wells in town;
- Borehole in town;
- Reservoir – n/a; and
- Purification works.

Matjiesfontein water infrastructure:

- Two production boreholes in operation;
- One with high iron content to be cleaned in 2018/19;
- Three production boreholes dried up;
- Two newly drilled boreholes to be equipped and connected to infrastructure – one in 2017/18; and
- Reservoir -n/a.

Laingsburg Water demand and supply

Laingsburg

- Demand – 1.56 Ml/day
- Supply – 1.9 Ml/day

Matjiesfontein

- Supply meets demand

Key Water Projects in Laingsburg

- Southkloof fountain to be upgraded and a new pipeline to Laingsburg – 2017/18/19;
- Borehole at Southkloof to be equipped – 2017/18/19;

- Borehole in Laingsburg (Van Riebeeck street) to be equipped and connected to infrastructure – 2017/18;
- One borehole in Matjiesfontein to be equipped and connected to infrastructure - 2017/18;
- Four data loggers to be installed at Laingsburg in various boreholes to monitor water levels as well as one at Matjiesfontein – 2018/19;
- Water meters on all boreholes; and
- Future intervention is the effective monitoring and management of current water sources and ground water exploration.

3.3.5 WASTE INFRASTRUCTURE

As of 2016, 90.8% of the households in Central Karoo have their solid waste removed at least once a week. Laingsburg has the lowest rate of refuse removal at 79.5%. Beaufort West is at 91.7%, and Prince Albert is at 95.4%. The low rates of collection may in part be attributable to the sparse population distribution and the presence of waste handled on farms.

Currently, there are nine landfill sites in operation across the District in Laingsburg, Prince Albert Road (operated by Transnet), Leeu Gamka, Prince Albert Town, Klaarstroom, Merweville, Beaufort West, Nelspoor, and Murraysburg, as shown in the **Figure 3.37**. All three municipalities note in their planning documents that they lack adequate capacity at the local level to fully monitor their waste management programmes. More urgently, the town of Beaufort West's landfill will be running out of airspace in the

Waste Management Facility	Municipality
Operating Landfills	
Vaalikoppies (Beaufort West)	Beaufort West
Merweville	
Nelspoor	Laingsburg
Klaarstroom	
Leeu Gamka	Prince Albert
Prince Albert	
Landfills to be Decommissioned	
Murraysburg	Beaufort West
Storage Facilities	
None	
Diversion Facilities	
None	

short term, with other landfill sites also approaching capacity in the next decade. Murraysburg needs decommissioning and no storage or waste diversion facilities exist in the District. It is noted that a new landfill site in Murraysburg has been applied for, which is yet to be approved.

Opportunities for waste separation and recycling exist across the District. Only Prince Albert Town has had limited success in implementing a recycling programme. In Prince Albert, recyclables are collected directly from households (separate to general waste) once a week, and there is an on-site recycling facility adjacent to the town's waste disposal area.

Technically, solid waste management is the legislative mandate of a District Municipality only where disposal sites serve the area of the district as a whole. Laingsburg, Prince Albert, and Beaufort West are currently managing waste at the local level, and the small scale and vast distances of the municipality may make it difficult to manage waste regionally. There are no current plans to regionalise solid waste management in the District.

All available waste plans make it clear that the goal for the Western Cape is to ensure that at least 20% of

