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Cederberg

DRAFT SPATIAL DEVELOPMENT FRAMEWORK



2027 - 2032

Prepared by CK RUMBOLL & PARTNERS

Disclaimer:

It should be noted that the Cederberg Draft Spatial Development Framework (SDF) remains a work in progress. The chapters and content of the document are being evaluated and edited through ongoing research and analysis of a range of relevant plans, policies, documents, spatial information, and available data.

The Draft SDF is a dynamic document and will continue to be reviewed and updated as new and more recent information becomes available. It should be noted that the Cederberg Draft Spatial Development Framework is still a work in progress, and chapters of the document are evaluated through research and analysis of a variety of documents, plans, and data. The document is continuously updated to include recent data to ensure that the SDF captures recent and changing circumstances.

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Glossary

Abbreviation	Full word
MSDF	Municipal Spatial Development Framework
I&AP	Interested and Affected Parties
IDP	Integrated Development Plan
PSDF	Provincial Spatial Development Plan
AQMP	Air Quality Management Plan
CBA	Critical Biodiversity Area
CBD	Central Business District
CSIR	Council for Scientific and Industrial Research
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEA&DP	Department of Environmental Affairs and Development Planning
ECD	Early Childhood Development
ESA	Ecological Support Area
FLISP	Finance-Linked Individual Subsidy Programme (housing finance support)
GAP	Gap Housing
GDP	Gross Domestic Product
Ha	Hectare (10,000 m^2)

CHAPTER 1: MSDF Background and Purpose

This chapter states the purpose of the Cederberg Spatial Development Framework, details the principles, scope, and legislative context needed to achieve the desired strategic spatial form, and outlines the project plan for compiling the SDF.

1.1 Purpose

1.1.1 Purpose of MSDF

The Cederberg Spatial Development Framework (SDF) provides a long-term spatial planning framework that guides sustainable growth, development, and land management within the Cederberg area. The SDF translates the municipality's development vision, goals, and strategic objectives into a coherent spatial strategy that directs where and how future development should occur over the next 10-20 years. It aims to protect Cederberg's nature, promote economic and social prosperity, and support the development of integrated, sustainable, liveable settlements. The MSDF under review was approved and adopted in 2022 and requires rewriting for the 2027-2032 period.[1]

1.1.1.1 Users of MSDF

The Cederberg SDF guides municipal departments, different spheres of government, state-owned entities, investors, developers, and communities by providing a common spatial framework for coordinating decision-making, land-use planning management, and policy implementation.

1.1.1.2 Structure of Cederberg SDF

The Spatial Development Framework provides the municipality with the tools needed to manage future development effectively, ensuring it is balanced and sustainable, and creates socio-economic opportunities. The document has the following chapters:

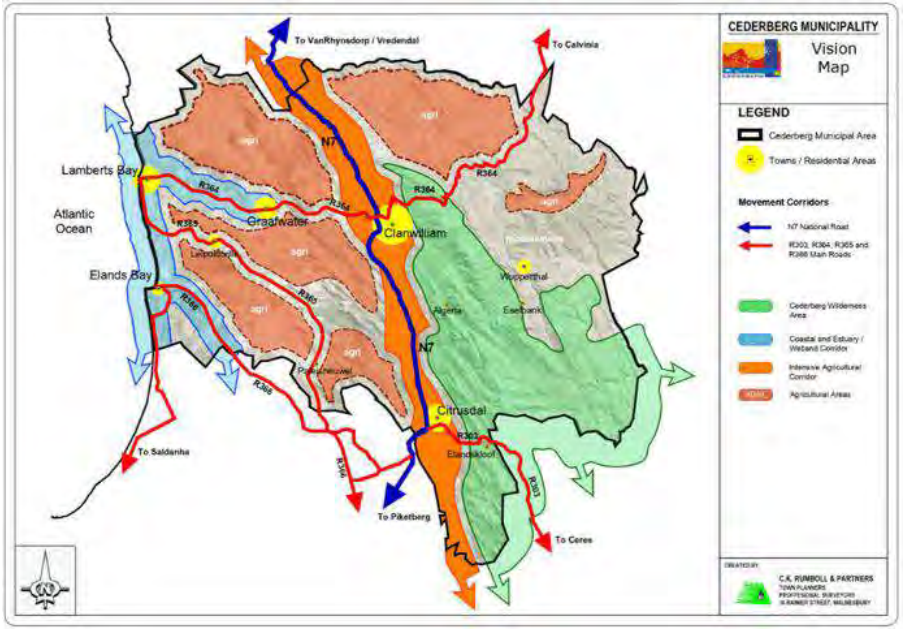
Figure 1: List of MSDF chapters



[1] Scope of Work: SPLUMA Section 12 and SMA Section 24 (1) and 26 (e)

1.1.2 Status of Cederberg SDF

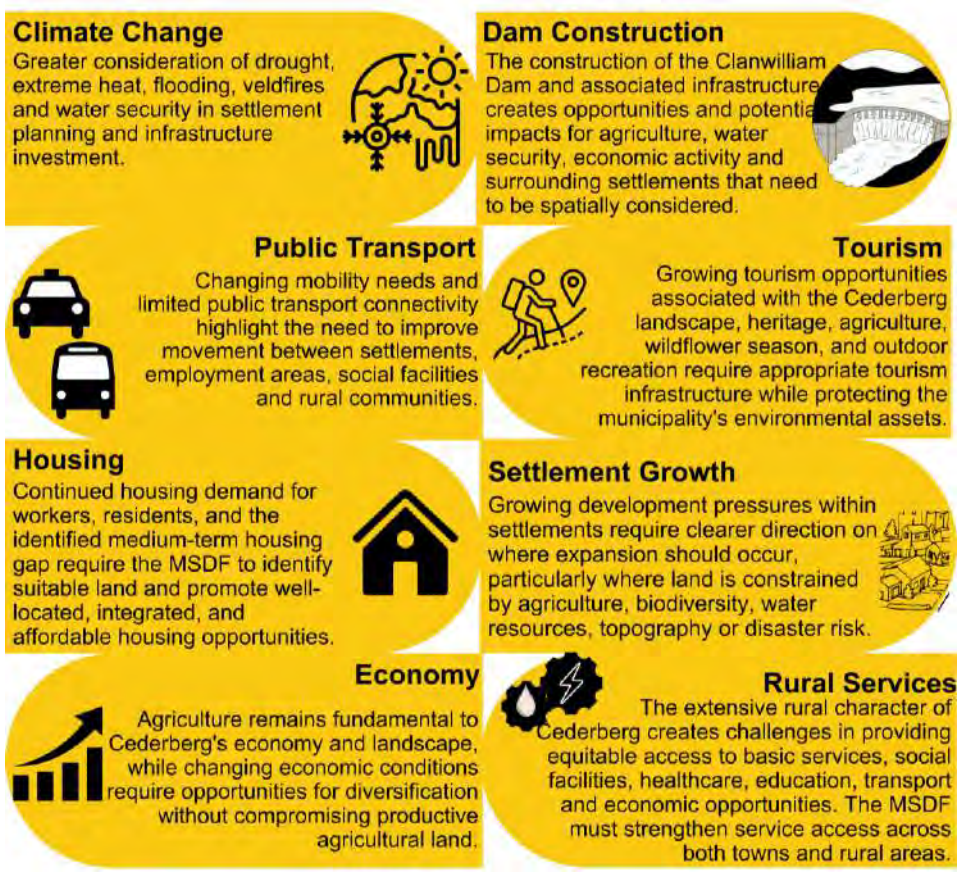
Map 1: Cederberg Spatial Development Framework 2023-2027



The Cederberg SDF 2023 - 2027 was adopted as a core component of the 5th generation Cederberg IDP of 2023-2027[2]. The Spatial Development Framework assessed land demand and supply over the five-year and 20-year planning horizons. Sufficient land was identified to accommodate projected development. However, various spatial and environmental constraints limit land availability and developability. These constraints indicated potential limitations in meeting long-term land requirements. The alignment of development priorities with infrastructure and the Capital Expenditure Framework has supported the implementation of key projects. It is to be noted that since the adoption of the 20232027 MSDF, circumstances affecting the municipality's spatial development have continued to change.

The MSDF should therefore also respond to emerging challenges and opportunities, including:

Figure 2: Changing circumstances in Cederberg region

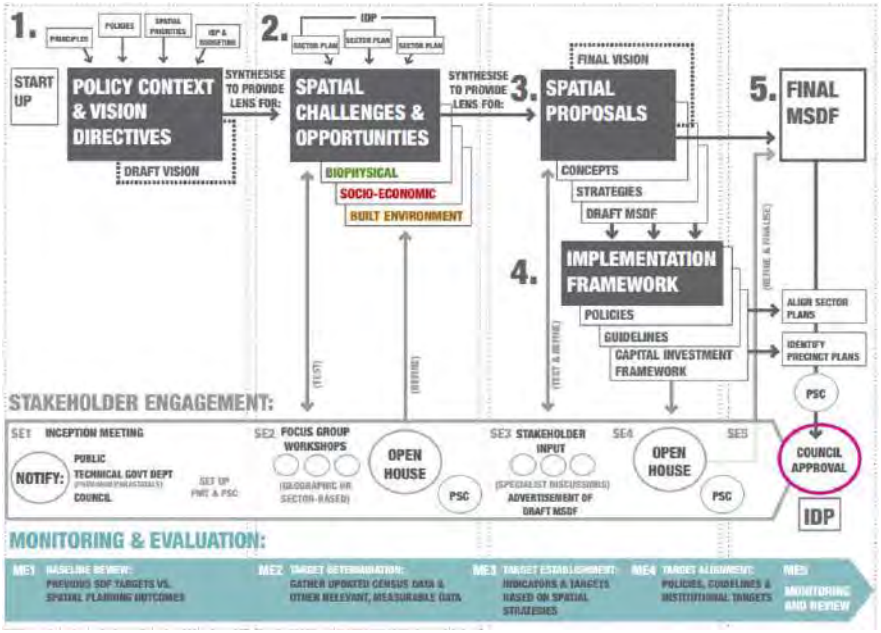


[2] (MSA Section 26(e)).

1.1.3 Process of MSDF

The Department of Rural Development and Land Reform (DRDLR) has prepared a process plan for preparing MSDFs in terms of SPLUMA guidelines.[3]This also highlights the monitoring and evaluation of the SDF. The figure below illustrates the distinct phases involved during MSDF preparation and the steps to be followed during monitoring and evaluation:

Figure 3: DRDLR process plan for MSDF preparation



Phase 1 requires alignment of the municipality's vision with other policies and legislation to formulate directives for the Cederberg SDF. Phase 2 examines the status quo of the region to identify spatial challenges and opportunities. These are then used to derive directives for the status quo and identify gaps. This provides a lens for Phase 3, which includes the vision, concept, and spatial proposals. The proposals synthesize the implementation plan for strategic investment by aligning plans with sector and precinct plans in Phase 4. Thereafter, the Project Steering Committee (PSC) and council review the document for approval.

For the Cederberg SDF, the process outlined in the Cederberg Municipal By-law (2023) guided the compilation and coordination of the draft review document. The 1st draft of the MSDF was submitted to council and approved on the 28th of May 2026. The MEC and the public were notified on the 28th of June 2026 of the intent to compile a review of the Cederberg SDF.

Instead of an Intergovernmental Steering Committee, a Project Steering Committee (PSC) was formed on the 1st of July 2026 to guide the compilation of the MSDF, as required by section 4 of the By-law. The project committee compiled the second draft status quo report and circulated the document to internal departments to provide comments.

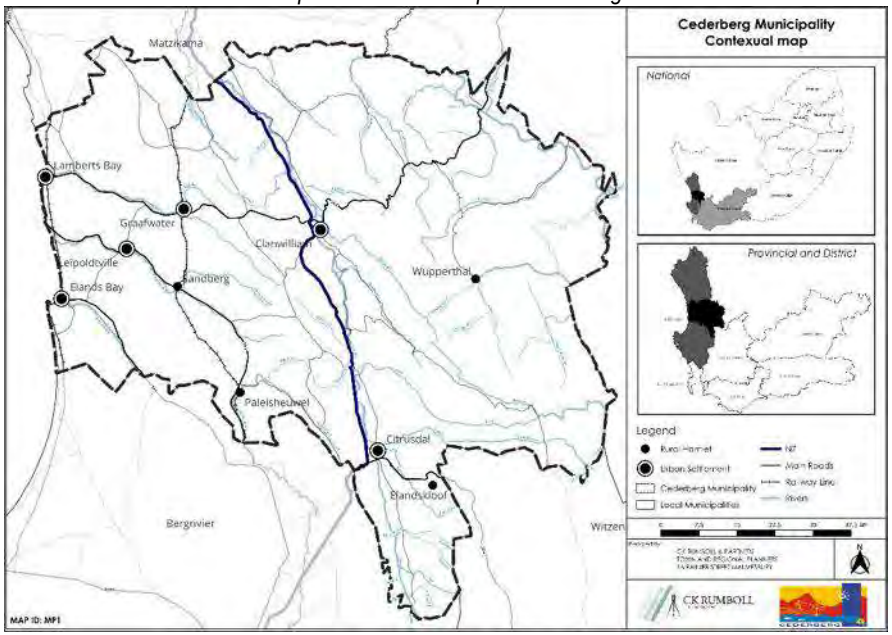
The second draft document will be made available to the public and registered Interested and Affected Parties (I&APs) will be informed of its publication on the municipal website. The project committee will continue working on the document, making amendments where necessary.

The final SDF draft will be submitted to the Minister for comment under section 13 of the Land Use Planning Act. The document will be made public for a public participation and commenting period, and a final draft will then be submitted to the Council for adoption. After adoption, a notice will be published in the media and in the Provincial Gazette.

[3] (DALRRD, 2017)

1.2 Introducing Cederberg

Map 2: Locational map of Cederberg



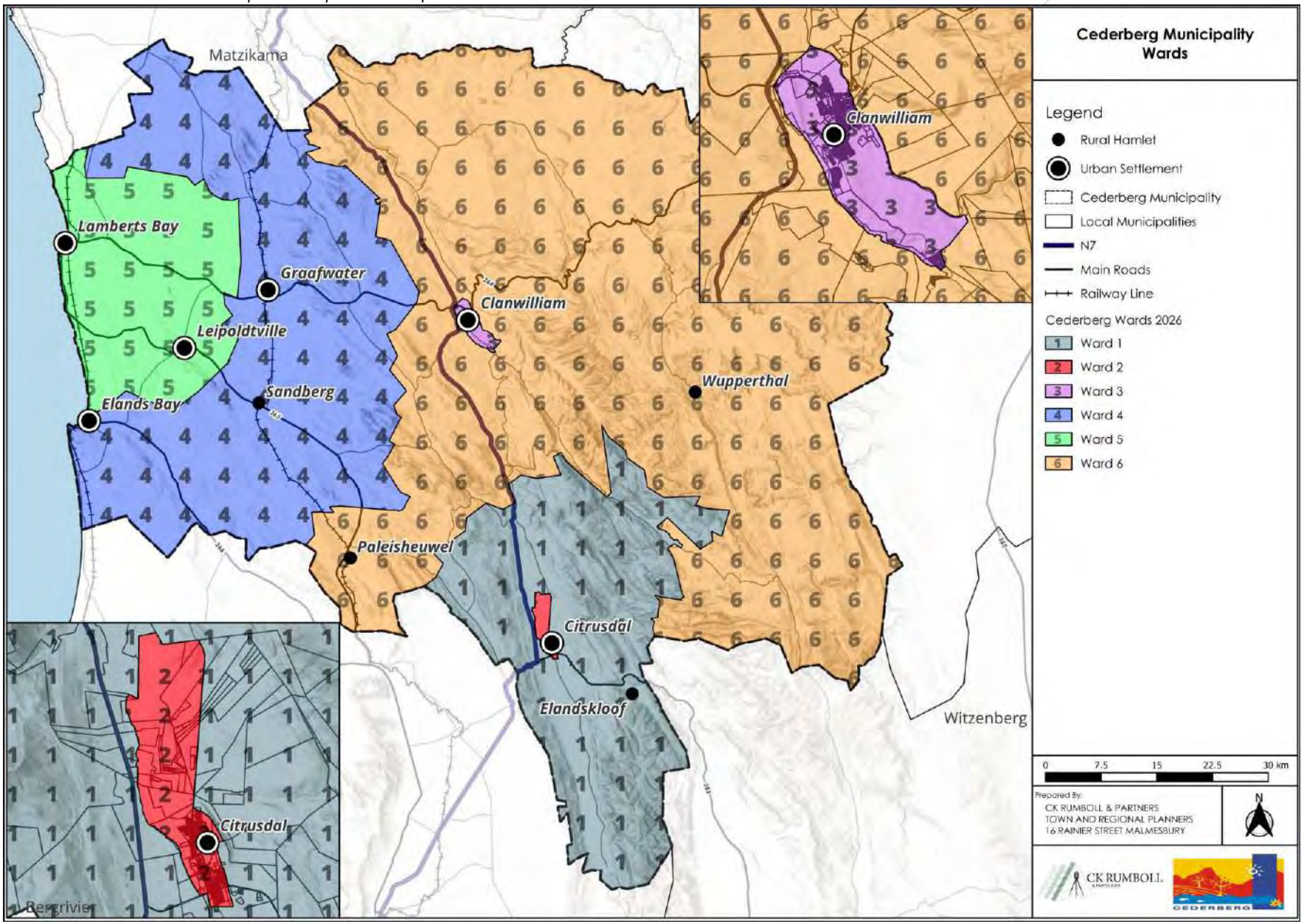
Cederberg Municipality is situated in the Western Cape Province and has an area of 8007 km². It forms part of the West Coast District, and it is bordered by Matzikama to the north, Bergrivier to the south, and Hantam Municipality in the Northern Cape Province. Clanwilliam is the main town, where the municipal offices are located. The N7 national road and the Cape-Namibia Corridor pass through Cederberg, approximately 250 kilometers from Cape Town en route to Namibia, connecting with the Northern Cape. The second large town is Citrusdal, followed by Lamberts Bay, Elands Bay, Graafwater and rural areas like Wuppertal, Algeria, and Leipoldtville. The municipality is home to the majestic Cederberg Mountains and is a key contributor to the region's tourism potential and economy. With its towering mountains, Atlantic Ocean, and scenic natural beauty, ecotourism is considered a major future economic growth sector. The Cederberg region has towns such as Wuppertal and Elandskloof with a history to be discovered. Lamberts Bay and Elands Bay offer activities such as bird watching, surfing, and plenty of restaurants. Cederberg is known for its homemade rooibos tea and exceptional botanical diversity.

The municipality has six electoral wards, and wards 1, 4, and 5 have the largest population. The table below lists the urban settlements and rural areas within the different wards found in Cederberg.

Table 1: Municipal wards in Cederberg

Ward No	Settlement	No of People
1	Citrusdal (Rural)	9849
2	Citrusdal (Town)	7178
3	Clanwilliam	7674
4	Graafwater and Sandberg	8515
5	Lamberts Bay, Elands Bay and Leipoldtville	9141
6	Wupperthal and Paleisheuwel	7411

Map 3: Municipal wards map



Policy and Legislative Context

1.3 Policy Mandate

Key legislation and policies establish the Municipal Spatial Development Framework (MSDF) as a statutory planning instrument. Legislation and policies guiding the preparation, review, and implementation of the MSDF include the Municipal Systems Act 32 of 2000 (MSA). Section 25 and Section 26(e) require IDPs to include a Spatial Development Framework (SDF) and basic guidelines for land-use management. Section 34(a)(i) and (ii) require municipalities to review the IDP, including the MSDF, annually and amend it where necessary to reflect changing circumstances and priorities. This ensures proactive monitoring of the SDF. Section 34(b) states that the review of the MSDF may result in an amendment. If an amendment is required, the process prescribed in SPLUMA must be followed.

In conjunction with the MSA, the Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA) was introduced in 2013 as the primary legislation governing MSDFs in South Africa. It was enacted in terms of section 155(7) of the Constitution and regulates municipal planning. The Act requires municipalities to prepare spatial development frameworks that promote five development principles that follow the norms and standards for MSDFs. Section 12 provides guidelines for SDF preparation. Section 20 requires every municipality to prepare and adopt an MSDF by notice as part of its Integrated Development Plan (IDP), and Section 21 prescribes its minimum content and purpose.

For a Municipal Spatial Development Framework (MSDF), the Land Use Planning Act (LUPA), Act 3 of 2014, is a key provincial legal requirement that gives effect to SPLUMA within the Western Cape. It consolidates key legislation to create a cohesive and standardized approach to spatial planning across different spheres of government. It complements SPLUMA by regulating how municipalities prepare, adopt, implement, and review their MSDFs. It also sets minimum norms and standards for effective municipal development management and regulates provincial development management. Additionally, the Act addresses the impact of land development on agriculture, outlines key land use planning principles, identifies outdated laws, and covers other related matters.

Overall, these policies require municipalities to produce SDFs that give effect to the development vision, which must align with the municipality's IDP and other applicable legislation, be consistent with their provincial Spatial Development Framework (PSDF) and District frameworks, and, overall, guide the future utilization of land, investment and development priorities, environmental protection, and settlement growth within the municipality. They require integrated planning and stakeholder engagement processes to formulate SDFs that guide resource allocation and development decisions through a collaborative process.

1.4 Policy Context (ALL Policies)

South Africa continues to experience complex spatial patterns[4]. As a result, municipal spatial plans should aim to respond to these challenges and provide a strategic foundation for preparing the MSDF.[5]. Key legislation and policies are reviewed to ensure the Cederberg Municipal Spatial Development Framework is legally compliant, aligned with broader planning systems, and responsive to international, national, provincial, and local spatial imperatives.

1.4.1 National Policies and Legislations

National Development Plan 2030 (NDP)

The National Development Plan vision 2030 aims to tackle the root causes of poverty and inequality in South Africa by recognizing that many social and economic challenges are spatial, resulting from historical settlement

[4] (Du Plessis, D. J., 2026).

[5] (NDP, 2030)

patterns.[6]fragmented infrastructure investment, inefficient land use planning, and unequal access to opportunities. It sees government as a catalyst for growth, creating the right conditions for people to thrive, whether through better infrastructure, skills development, or business-friendly policies. Consequently, the NDP identifies spatial transformation as a national priority and positions spatial planning as a critical instrument for creating more equitable, productive, resilient, and sustainable settlements. For municipalities, the Municipal Spatial Development Framework (MSDF) is a primary mechanism for implementing the spatial objectives of the NDP. The NDP addresses numerous sectors and has objectives that apply to Cederberg's landscape.

Chapter 3 guides the identification of economic nodes, employment areas, tourism development, agricultural value chains, industrial land, investment corridors, and local-level economic diversification within municipalities. The NDP promotes inclusive economic growth through investment in sectors that create employment while building local economic resilience. For Cederberg, these include agriculture, agri-processing, tourism, and small business development.

Chapter 4 directly informs infrastructure planning as the backbone of economic development, including water, sanitation, electricity, roads, digital connectivity, facilities, and logistics. This chapter supports coordination of future development with infrastructure capacity by identifying infrastructure investment priorities, protecting strategic infrastructure corridors, and supporting renewable energy infrastructure. Overall, the NDP states that planning should improve infrastructure and protect South Africa's critical strategic resources such as water to ensure long-term security for settlements, agriculture, and industries. This will maximize economic growth and improve quality of life. Given Cederberg's internationally significant biodiversity, mountain catchments, and protected areas, Chapter 5 on environmental sustainability remains significant. It supports the protection of ecological infrastructure, biodiversity corridors, rivers, and wetlands. Furthermore, it puts emphasis on climate adaptation, disaster risk reduction, and sustainable resource management.

Chapter 6, which advocates for a critical, integrated, and inclusive rural economy, is fundamental, given Cederberg's predominantly rural character. The NDP recognizes that rural municipalities require development approaches that strengthen local economies while protecting productive agricultural land and natural resources. It promotes diversified rural economies built on agriculture, tourism, environmental assets, renewable energy and small enterprises rather than relying solely on traditional farming activities. Rural towns should function as service centers supporting surrounding agricultural areas through improved infrastructure, public services and investment. Although Chapter 7's primary focus is the national sphere, the chapter supports strengthening export-oriented agriculture, tourism competitiveness, and the conservation of internationally recognized landscapes, which remains relevant to Cederberg. Due to its export of agricultural produce internationally, regional roads pass through Cederberg and connect with Namibia and the Northern Cape. This chapter supports the improvement of regional accessibility, which contributes to economic competitiveness. Chapter 8 is one of the core chapters, as it calls for coordinated spatial planning that produces compact urban form, settlement restructuring, land-use integration, mixed-use development, and housing located in proximity to services and opportunities. The NDP further promotes a balance between spatial justice, efficient infrastructure investment, economic competitiveness, environmental sustainability, and improved accessibility to services. Moreover, Chapter 13, building a capable state, supports integrated municipal planning, evidence-based decision-making, intergovernmental coordination, and effective implementation of the MSDF.

The NDP recognizes that successful spatial transformation depends upon integrated planning across all spheres of government.

National Environmental Management Act (NEMA) 107 of 1998

The NEMA Act provides South Africa's overarching framework for environmental management and establishes principles that must guide decision-making by organs of state where their functions may significantly affect the environment. The Act seeks to promote cooperative environmental governance and ensure that environmental considerations are integrated into development planning and decision-making. The NEMA Act establishes environmental principles that must inform the spatial vision, development proposals, land-use management approach, and infrastructure planning contained within the spatial development framework. The central theme is that development must be socially, environmentally, and economically sustainable. To achieve sustainable development, these should be considered in planning, implementation, and decision-making so that development meets the needs of present and future generations. This means that spatial growth cannot be achieved solely according to the availability of land or projected development demand. Spatial plans must also consider whether proposed development is compatible with the area's environmental capacity and sensitivity.

Section 2 of the NEMA Act establishes National Environmental principles that apply throughout South Africa to actions by organs of state that may significantly affect the environment. It requires recognizing interconnected ecosystems and acknowledging that development decisions in one location can have consequences beyond the immediate development site. NEMA strengthens the need for the spatial development framework to distinguish between areas suitable for development, areas where development should be carefully managed, and areas where development should generally be avoided because of environmental sensitivity or risk.

Chapter 5 establishes the framework for Integrated Environmental Management (IEM). Its purpose is to ensure that environmental considerations are integrated into decisions that may have significant environmental effects. It requires consideration of potential environmental impacts, alternatives, mitigation measures, and appropriate opportunities for public participation. Importantly, it should be noted that the municipal spatial development framework does not replace the need for environmental authorization where a future development triggers the requirements of NEMA and its regulations. The spatial development framework should instead help guide development towards appropriate locations and provide an informed spatial framework for subsequent development applications.

Integrated Urban Development Framework (IUDF)

The Integrated Urban Development Framework (IUDF), approved in 2016 by the National Cabinet, in support of the NDP, provides South Africa's national policy framework for creating an inclusive, resilient, productive and sustainable urban environment. It aims to steer urban growth towards a sustainable growth model of compact, connected and coordinated cities and towns. While it was developed to guide urban development, many of its principles are equally applicable to smaller towns and rural municipalities such as Cederberg, particularly in promoting integrated settlement planning, improving access to services and infrastructure, and strengthening local economic development.

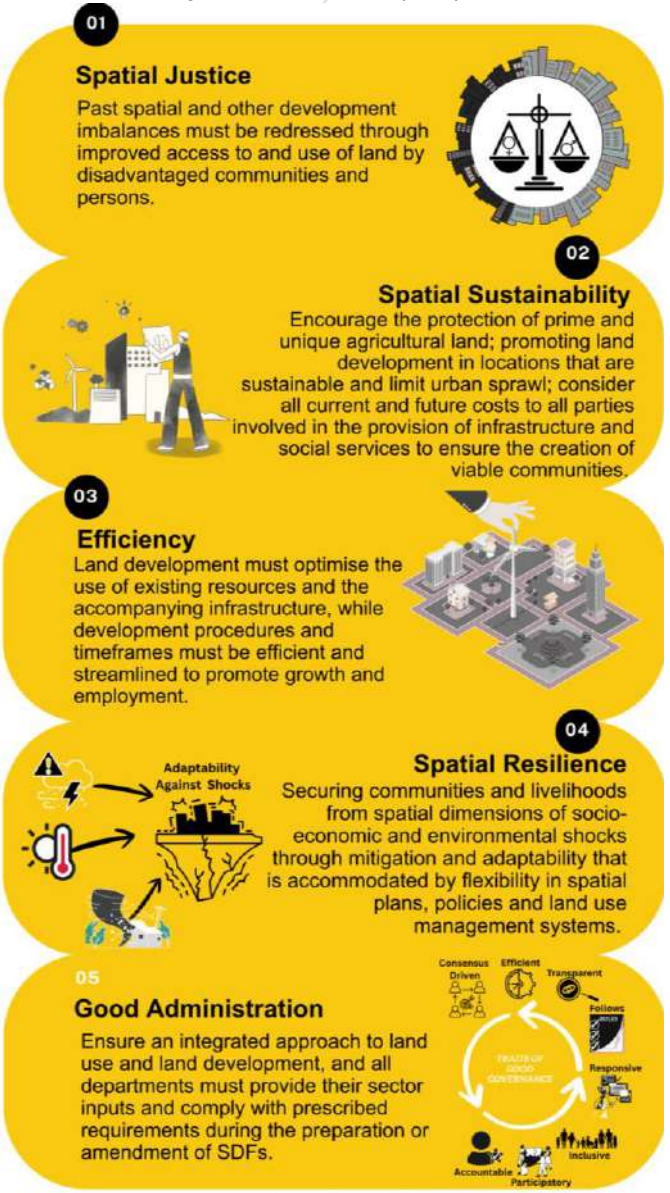
The IUDF advocates a coordinated approach to spatial planning by encouraging compact and connected settlements, efficient infrastructure investment, improved public spaces, sustainable transport systems, and stronger institutional coordination. The framework recognizes that well-planned settlements contribute to economic growth, social inclusion, and environmental sustainability through integrated land use and infrastructure planning. To achieve this vision, it introduces four strategic goals that inform spatial forms in the settlement, transport, social, and economic areas. (2) Inclusion and access, to ensure people have access to services and

economic opportunities. (3) Growth to harness urban dynamism for inclusive, sustainable economic growth and development. And (4) governance to enhance the capacity of the state and its citizens to work together to achieve spatial and social integration. Introducing a sequence of nine urban policy actions that, when used all together, can trigger economic diversification, inclusion and empowered communities when supported by effective governance and financial reform.

Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA)
Chapter 2 of SPLUMA sets out the development principles that must guide the preparation, adoption and implementation of any spatial development framework, policy or by-law concerning spatial planning and the development or use of land. These objectives include the redress of spatial injustices and the integration of socio-economic and environmental considerations in land use management to balance current development needs with future needs of generations in a transformative manner. SPLUMA reinforces and unifies the NDP's vision and other policies in respect of using spatial planning mechanisms to eliminate poverty and inequality while creating conditions for inclusive growth by fostering a high-employment economy that delivers on social and spatial cohesion. The Act requires MSDF to provide a long-term spatial vision, guide land use and infrastructure investment, identify development opportunities and constraints, and align with national and provincial spatial planning frameworks. Furthermore, the MSDF must give effect to the five SPLUMA development principles of spatial justice, spatial sustainability, spatial efficiency, spatial resilience, and good administration, ensuring that municipal spatial planning supports equitable, sustainable, and coordinated development.

The five founding principles as set out in Section 7 (a) to (e) of SPLUMA that apply throughout the country and to all SDFs covered in these guidelines are:

Figure 4: Five SPLUMA principles



1.4.2 Provincial Policies and Legislations

Western Cape Spatial Development Framework

The Provincial Spatial Development Framework (PSDF) builds on the complementary national and provincial development agendas of the National Development Plan (NDP) and OneCape 2040 to promote three spatial themes: resources, space economy, and settlement, all embedded in spatial governance. The PSDF guides the location and form of public investment in the natural and built environment, ensuring returns on these investments align with the province's development objectives.

The goal of the PSDF is to:

Address the spatial challenges identified. The PSDF takes the Western Cape on a path towards more inclusivity, productivity, competitiveness and opportunities in urban and rural space-economies;

- Better protect spatial assets (e.g. cultural and scenic landscapes) and strengthen the resilience of natural and built environments;
- Improve effectiveness in the governance of urban and rural areas.
- To achieve the Western Cape Government's strategic objectives, the PSDF emphasizes economic growth, enhanced environmental resilience, and improved inclusion. The provincial spatial agenda can be summarized as follows:
- Growing the Western Cape economy in partnership with the private sector, non-governmental and community-based organizations;
- Using infrastructure investment as a primary lever to bring about the required urban and rural spatial transitions;
- Improving oversight of the sustainable use of the Western Cape's spatial assets.

Western Cape Biodiversity Spatial Plan 2023

The WC Biodiversity Spatial Plan is guided by the overall vision to protect and conserve priority biodiversity and ecosystems, strengthen ecosystem resilience and the delivery of ecosystem services to communities, and mitigate the impacts of climate change. The purpose is to set biodiversity targets, identify priority conservation areas, provide guidelines for land and resource management, and ensure sustainable development to maintain ecological resilience and safeguard biodiversity.

Objectives:

- To identify a province-wide network of biodiversity priority areas;
- Optimize land use to meet national and provincial biodiversity targets;
- Minimize conflicts with other land uses;
- Prioritize freshwater ecosystems and water security;
- Promote climate change adaptation;
- Enhance connectivity across landscapes.

Western Cape Growth for Jobs Strategy

This is the Western Cape Provincial Government's long-term economic development strategy aimed at accelerating inclusive economic growth, increasing employment and improving the competitiveness of the Western Cape economy. The strategy seeks to grow the provincial economy by 4-6% annually by 2035 by creating an enabling environment for private-sector investment, improving infrastructure, strengthening innovation, enhancing workforce skills, and promoting sustainable economic development.

Although primarily an economic strategy, the Growth for Jobs Strategy has significant implications for spatial planning. It recognizes that well-planned urban and rural areas, including coordinated infrastructure investment and efficient land use, are fundamental to unlocking economic opportunities and reducing spatial inequalities. The strategy highlights the importance of integrating spatial planning with infrastructure investment, supporting strategic economic sectors, improving connectivity between settlements, and strengthening the resilience of communities and businesses to climate change. It also emphasizes the role of municipalities in creating investment-ready environments through effective land-use planning, streamlined development processes, and the provision of enabling infrastructure.

For the Cederberg Municipal Spatial Development Framework (MSDF), the Growth for Jobs Strategy supports the development of a diversified and resilient local economy by capitalizing on the municipality's comparative advantages, including agriculture, tourism, renewable energy and the conservation economy. It reinforces the need to prioritize infrastructure investment, improve accessibility between settlements, support business and investment opportunities, and strengthen the economic role of key settlements such as Clanwilliam, Citrusdal and Lamberts Bay. The strategy further encourages integrated planning that balances economic development with environmental sustainability, ensuring that natural assets such as the Cederberg Wilderness Area continue to contribute to long-term economic growth and job creation.

Western Cape Land Use Planning Guidelines: Rural Areas (2019)

The Western Cape Land Use Planning Guidelines for Rural Areas (March 2019) provide a framework for managing land use and development in rural areas throughout the Western Cape. These guidelines aim to balance development needs with the conservation of overall rural character and environmental sustainability.

The vision of the Western Cape Land Use Planning Guidelines for Rural Areas is to create a sustainable balance between development and conservation in rural areas of the Western Cape. This vision aims to protect natural resources and biodiversity as well as preserve the unique rural character and heritage, support agricultural viability and rural livelihoods, and promote environmentally responsible land use practices throughout the Western Cape Province.

The mission of the Western Cape Land Use Planning Guidelines for Rural Areas is to establish a clear and practical framework for land use planning and decision-making within rural areas. The guidelines aim to promote sustainable development that meets today's needs without harming future generations. The guidelines also support agricultural activities and protect natural habitats and ecosystems. The mission also includes actively involving local communities in the planning process to ensure their needs and values are reflected. Additionally, the guidelines encourage a balanced approach that considers environmental, social, and economic factors, and therefore provide clear criteria for evaluating land use applications to ensure consistent and fair evaluation and decision-making.

Objectives of the Rural Areas Guideline:

Forming part of the roll-out of the PSDF, the objectives of the Rural Areas Guidelines are to:

- Promote sustainable development in appropriate rural locations throughout the Western Cape, and ensure the inclusive growth of the rural economy;
- Safeguard priority biodiversity areas and the functionality of the province's life-supporting ecological infrastructure and ecosystem services (i.e. environmental goods and services);
- Maintain the integrity, authenticity and accessibility of the Western Cape's significant farming, ecological, coastal, cultural and scenic rural landscapes, and natural resources;
- Assist Western Cape municipalities to plan and manage their rural areas more effectively, and to inform the principles of their zoning schemes and spatial development frameworks in a proactive manner;
- Provide clarity to all role players and partners (public and private) on the type of development that is appropriate beyond the current built-up areas, suitable locations where it could take place, and the desirable form and scale of such development;
- Be viewed as a gender mainstreaming tool which will move the Western Cape further along the trajectory towards the achievement of equality, particularly the youth and gender equality imperatives in rural land use planning.

In addition to the NEMA, SPLUMA and LUPA principles, as well as the strategic objectives of the SmartAgri Plan in response to climate change and food security, the following principles underpin the Rural Areas Guidelines:

- Land development proposals should be based on the spatial principles of the PSDF:
- Spatial justice;
- Sustainability and Resilience;
- Spatial efficiency;
- Accessibility;
- Quality and Liveability.
- Good quality and carefully sited development should be encouraged and located as far as possible in existing settlements;
- Accessibility should be a key consideration in all land development decisions;
- New building development should be strictly controlled with respect to scale, dimension, height, colour, roof profile, etc.;
- Land development must avoid negative impact on river systems and should therefore not be permitted below the 1:100 flood line or within 100m of a riverbank, whichever distance is greater. Where the flood line has not been determined or is out of date, a flood line study is required;
- Land development proposals must avoid negative impacts on coastal resources and be responsive to coastal risk zones. Therefore, new settlement or resort development along the coastline should be avoided;
- Consider historical land use to guide future land use, especially about future contributions of land to national food security;
- All development in rural areas should be in scale with their location, and sensitive to the character of the rural landscape and local distinctiveness;
- Only activities that are appropriate in a rural context generate positive socio-economic returns, and do not compromise the environment or ability of the municipality to deliver on its mandate are supported;
- Consider in all decision-making the relevance of how many and which women and men will benefit from the development and in what respect. Also consider whether the development will have any harmful effects on women or men and particularly those less advantaged;
- The cumulative effect of all ancillary and non-agricultural land uses should not detract from the rural character of the landscape and primary agricultural activities;
- Rural activities must have a focus on sustainability and be in harmony with the surrounding agricultural landscape;
- Agricultural resources should be protected for increased agricultural production;
- Gender-transformative aspects must be considered as part of the planning, development, policymaking, decision-making, budgeting, and consultation processes, including, but not limited to, the plea of rural women and the safety of rural communities.

The LUPA Act was enacted to consolidate legislation in the Western Cape province to provide support and monitoring of municipal planning and to make provision for spatial development frameworks, to provide for minimum standards for and the efficient coordination of spatial development frameworks. Chapter 3, Part 3, Section 10, recommends that municipalities must comply with section 11 of the MSA; they must comply with other applicable legislation, predict future use of land, address development priorities, provide spatial focus for specific towns, nodes, sensitive areas, etc. It must consist of a report and maps covering the whole municipal area, reflecting transport routes, open spaces, corridors, proposed major projects of other spheres of government with substantial spatial implications,

expansion areas and densification areas. It states that the SDF must align with other plans and strategies, with maps showing major roads, traffic networks, existing and planned facilities, resources and ecological value areas.

Western Cape Provincial Strategic Plan 2025-2030

The Provincial Strategic Plan (PSP) sets out the Western Cape Government's (WCG) vision and strategic priorities. The PSP 2019-2024 builds on the foundations put in place during the last two terms of office.

The PSP's vision is to create a safe Western Cape where everyone prospers. The WCG devised five Vision-Inspired Priorities (VIPs) for the 5-year strategic planning period to give effect to its Vision and Plan of Action. The vision and VIPs are depicted on the table below:

Table 2: VIP of PSP

Vision-Inspired Priority	Focus areas
Safe and Cohesive Communities	• Enhanced capacity and effectiveness of policing and law enforcement. • Strengthened youth-at-risk referral pathways and child- and family-centered initiatives to reduce violence. • Increase social cohesion and safety of public spaces.
Growth and Jobs	• Increasing investment. • Building and maintaining infrastructure. • Growing the economy through export growth. • Creating opportunities for job creation through skills development. Creating an enabling environment for economic growth through resource resilience.
Empowering People	• Children and families. • Education and learning. • Youth and skills. • Health and wellness.
Mobility and Spatial Transformation	• Create better linkage between places through safe, efficient and affordable public transport. • Inclusive places of opportunity. • More opportunities for people to live in better locations. • Improving the places where people live.
Innovation and Culture	• Citizen-centric culture. • Innovation for impact. • Integrated service delivery. • Governance transformation. • Talent and staff development.

Western Cape One Plan

The Western Cape One Plan provides a long-term strategic framework for coordinated development across the province through collaboration between national, provincial and local government, state-owned entities, the private sector and civil society. Developed under the District Development Model (DDM), the One Plan promotes integrated planning, coordinated investment and collaborative governance to address regional development challenges and improve service delivery.

The One Plan seeks to align government planning and budgeting around shared priorities, including economic growth, resilient infrastructure, environmental sustainability, social inclusion and institutional capacity. It encourages municipalities to move beyond sector-based planning towards integrated spatial and economic development that responds to local opportunities and challenges. The principles of the One Plan complement SPLUMA by promoting integrated governance, coordinated investment and spatial transformation through partnerships between different spheres of government and stakeholders. The revised Cederberg MSDF should therefore align its spatial proposals with the strategic priorities identified in the Western Cape One Plan to support sustainable and inclusive regional development.

1.4.3 District Level Policies and Legislations

West Coast SDF

The West Coast District SDF states that the spatial vision identified in the SDF needs to be consistent with the overall vision of the IDP. The vision of the West Coast District IDP is as follows:

"A quality destination of choice through an open opportunity society".
The spatial concept is based on the key structuring elements in the district, be it natural or man-made, and includes the following elements (Lynch, 1960):

Nodes: In the context of the West Coast District SDF and the Growth Potential Study (2014), a node is defined as a concentration of a variety of urban land uses, activities, facilities and services.

Within the district context, corridors include the following:

- Transport corridors, which include adjacent road and rail transport facilities;
- Coastal corridor, which is the coastline and adjacent strip developments;
- River corridors, which entail a river with linear agricultural activities running along the alignment of the river;
- Ecological corridors and Landscape linkages (mountain to coast, etc.);
- Climate change corridors (corridors of biodiversity, natural vegetation and natural landscapes, most resilient to the impacts of climate change).

The edges within the district context relate to biophysical elements of enclosure, namely the Atlantic Ocean to the west and the Winterhoek, Cederberg and Koue Bokkeveld Mountains to the East.

- Natural edges (ocean, rivers, mountains);
- Statutory edges (district boundaries).

Within the District context, landmarks include the following:

- Mountains; Special features (heritage resources, tourism attractions, etc.).

Districts consist of homogeneous land use character areas, namely:

- Agricultural areas (seasonal crops – wheat, etc., wine district, citrus district, etc.);
- Mineral resource areas (sand mining, gypsum, granite, etc.).

Key Spatial Issues and Challenges:

- Settlement Pattern/Growth Potential is concentrated primarily in the southern half of the district, while the northern parts of the district in the Cederberg and Matzikama Municipalities experience less growth and economic investment;
- Social wellness, community safety and skills development are constrained in small rural towns in the north of the district, given limited employment opportunities, poor access to tertiary education facilities in immediate surroundings and a general lack of skills development and economic upliftment in rural communities;
- Low growth potential in rural areas;
- Growing population creates more pressure on availability and supply of bulk infrastructure, while also requiring provision of more social facilities, i.e., education, health care, etc.
- Growing human settlement backlogs and informality, and a lack of integration and spatial transformation;
- Lack of sufficient water supply to sustain economic growth;
- Strategic interventions for the district include ICT development, gas-to-power energy projects, ocean economy (aquaculture development and investment in upgrading of Small Harbours), as well as promoting sustainable water use;
- Clanwilliam Dam expansion project, a major development initiative in the district;
- The strategic significance of the N7 road upgrade, improving accessibility and transport/ travelling spinoffs for tourism and transport opportunities;
- The potential to improve and expand functions of the Saldanha Bay Port, and to expand back-of-port developments;
- Degradation of Critical Biodiversity Areas, due to urban growth, agricultural footprint expansion and mining activities;

- Diminishing agricultural sector, influenced by warmer and drier climate conditions.

1.4.4 Local Level Policies and Legislations

Cederberg Integrated Development Plan

The Cederberg Integrated Development Plan 25/2026 provides a vision to ensure alignment in the municipal vision, objectives and strategies. It sets out the vision:

"The home of good governance, service excellence and opportunities for all". To achieve this, the municipality's mission is to develop and execute responsive policies and projects that provide meaningful redress.

- Unlocking opportunities for economic growth and development for community prosperity.
- Ensure good governance, financial viability and sustainability.
- Ensure sustainable, efficient and effective service delivery in an environmentally sustainable manner.
- Cost-effectively promote quality services through partnerships, information, knowledge management and connectivity.
- Making communities safer.
- Advancing capacity-building programs for both communities.

The following objectives should be prioritised:

Table 3: IDP 2025 objectives

SO1	Improve and sustain basic service delivery and infrastructure development.
SO2	Strive for financial viability and economic sustainability.
SO3	Promote good governance, community development, and public participation.
SO4	Facilitate, expand, and nurture sustainable economic growth and eradicate poverty.
SO5	Enable a resilient, sustainable, quality, and inclusive living environment and human settlements, i.e., Housing development and informal settlement upgrade.
SO6	Facilitate social cohesion and safe and healthy communities.
SO7	Develop and transform the institution to provide a people-centred human resources and administrative service to citizens, staff and Council.

1.4.5 Policy as a Structural Tool

Sustainable development is development that satisfies the needs of the current generation without jeopardising the ability to provide needs for future generations. According to the NEMA Act 107 of 1998, sustainable development is the integration of social, economic and environmental factors through planning, implementation and decision-making to ensure that development can support future generations. The following frameworks and policies promote sustainable development in the Cederberg region:

Critical Biodiversity Framework and Biodiversity Spatial Plan

The Western Cape Critical Biodiversity Framework (WCBF) (2010) integrates key biodiversity information relevant to land use, such as Protected Areas, Critical Biodiversity Areas (CBAs), and Ecological Support Areas (ESAs), into a single-layer map. Data from the provincial Biodiversity Spatial Plan (2017) were added to the map, and municipal maps were generated and used to inform the development of the Bioregional Spatial Planning Categories maps for the Cederberg (WCBA, 2021).

Bio-regional Spatial Planning Categories

The Bioregional Spatial Planning Categories (SPCs), consistent with the principles of bioregional planning and UNESCO's MaB (Man and the Biosphere) Programme, have their origins in the Bioregional Planning Framework for the Western Cape. Bioregions can occur across municipal boundaries to provide meaningful geographical areas with common interest. The implementation of the categories is to support conservation and integration of natural areas, e.g., nature reserves and biospheres. (WCBA, 2021).

The Bioregional SPCs were translated by the Department of Environmental Affairs and Development Planning to SPCs as per the matrix below. An SPC map constitutes the basis of Cederberg SDF.

The table below describes the Spatial Planning Categories and recommends land use activities.

Spatial Planning Categories	Formal Conservation Status
Core 1, Wilderness areas and Critical Biodiversity Areas 1, regardless of whether the area is located in a rural or urban area or in a formal conservation area or not.	No-go area; only non-consumptive activities are permitted, e.g., passive recreation and tourism (hiking trails, bird watching), religious ceremonies, research and environmental education, and associated buildings; no agriculture. **Wilderness areas:** Statutory and de facto wilderness areas serving as a 'benchmark' for environmental health and providing primitive, non-consumptive, non-mechanised outdoor recreation.
Core 2, Statutory Conservation areas, degraded critically endangered habitat areas and ecologically support areas 1, private conservation areas.	Biodiversity compatible and low impact conservation land uses as per Core 1 areas but allowing for a limited increase in the scale of development in less sensitive areas. Acceptable land uses are those that are least harmful to biodiversity and include compatible and low impact conservation land uses as per Core 1 Areas, whilst allowing for a limited increase in scale of development in less sensitive areas (provided ecological processes are not disrupted). To be informed by detailed site-level mapping of habitat conditions, transformation thresholds and cumulative impacts.
Buffer 1, Other Natural areas, public conservation, private conservation.	Biodiversity compatible uses as informed by transformation thresholds, including low density rural residential development, resort and holiday accommodation, tourist and recreation facilities, additional dwelling units, renewable energy projects. **Extensive agriculture:** Game and livestock farming. Public conservation areas with statutory conservation status - not qualifying for A status, surrounding, or within Core Areas, e.g. contractual national parks, national monuments, local authority nature reserves. **Private conservation areas**: De facto conservation areas in private ownership, no statutory conservation status, but ideally within registered conservancies – protecting integrity of core areas.
Buffer 2: Other Natural areas, ecological corridors, rehabilitation areas.	Activities and uses directly related to primary agricultural enterprises, including a homestead, agricultural buildings and worker accommodation, additional dwelling units limited to 5 units. Additional land uses include small-scale holiday accommodation (farm stay, B&B, guesthouse, boutique hotel); restaurant, lifestyle retail, venue facility; farm stall and farm store; home occupation; local product processing (e.g. cheese making), and Tourist and recreational facilities (e.g. hiking trail, mountain biking, 4x4 routes). Ecological Core Areas or corridors: Natural linkages between ecosystems that contribute to

	the maintenance of natural processes, e.g. rivers, continuous tracts of natural vegetation. Rehabilitation Areas designated for rehabilitation (i.e. conservation-worthy areas previously degraded by agriculture, mining, forestry).
Intensive Agriculture Agriculture	Activities and uses directly related to the primary agricultural enterprise, Farm buildings and associated infrastructure (e.g. homestead barns, farm worker accommodation, etc.). 5 Additional dwelling units. Ancillary rural activities of appropriate scale, not detract from farming production but diversify farm income, and add value to locally produced products.
Settlement	Agricultural activities of an excessive scale (regional product processing) and non-agricultural activities not suited for location in the Intensive Agricultural and Buffer 1 and Buffer 2 areas to be located within settlements or their "fringe areas".

Table 4: Description of Spatial Planning Categories and recommended land use activities

Coastal Management Lines

Coastal management lines, commissioned by the Western Cape Department of Environmental Affairs and Development Planning in 2014, comprise the area below the coastal management line, inclusive of all sensitive areas along the coast, both in terms of biophysical sensitivity and socio-economic value. The coastal management/setback line differentiates between areas along the coastline with existing development rights and future development options (within settlements) and those areas that should be left undeveloped due to a high risk from dynamic coastal processes or as coastal public property.

The following considerations determined the coastal management/setback line:

- Environmental buffers required inland to form the highwater mark to maintain a functional coastal ecosystem under future sea level rise scenarios;
- Economic development requirements for the coast, for example, allowance for new beach facilities that will need to be placed closer than standard development to serve the public.
- Social buffers required along the coast which include public beach access through and along the coastal frontage areas which have cultural significance or heritage resources at historically sensitive locations that require specific management, for example Mussel and Baboon Point and Doorspring/Soopjeshoog.

Table 5: Coastal Management Line Buffers

Social Buffers			
Heritage resource	**Description**	**Location**	**Action/comment**
Mussel Point Midden and Baboon Point	Archaeological and rock art sites.	Baboon Point, Elands Bay.	CML to run landwards of proclaimed heritage area. Further heritage assessments required before CML are amended to include Mussel Point sites.
Doorspring / Soopjeshoogte	Shell Middens x3 Soopjeshoogte.	Private Nature Reserve, north of Lamberts Bay.	Not a concern. A heritage impact assessment dated 1994 recommended that the northern part of the development proceed.

In rural areas, the coastal management/setback line follows the landward boundary of the long-term risk projections. Where necessary, a separate line can be drawn around existing development and development rights within the risk zone to protect the development rights. As it is not the intention to use the coastal management/setback line to impact on existing development

rights, the line is drawn seaward of properties abutting the shoreline with existing development or development rights in urban or developed areas as illustrated by the Coastal Management Setback Line and Zone in Elands and Lamberts Bay below:

Figure 5: Coastal Management Setback line and zone in Elands Bay and Lamberts Bay



Coastal Management Overlay Zones

Coastal management overlay zones refer to areas designated by risk modelling as subject to short-term (1:20-year), medium-term (1:50-year) or long-term (1:100-year) risk emanating from coastal processes such as coastal erosion, storm surges, sea level rise and storm wave run-up. Restrictions in this area can be applied strictly and consistently, since they are informed by scientifically modelled coastal processes or hazard zones.

Three Coastal Management Overlay Zones are proposed for WCD urban areas:

- High risk zone: 20-year horizon, 0 metres above mean sea level;
- Medium risk zone: 50-year horizon, high risk line to medium risk line;
- Low risk zone: 100-year horizon, medium risk line to low-risk line.

Figure 6: Application of LUMs Risk Zones Overlay Example



In rural areas, the entire area between 0 m above mean sea level and the landward boundary of the low-risk (long-term risk) zone represents the coastal management overlay zone. This risk zone is expanded into places where littoral active zones are present, as these contribute to the risk of exposure to possible future coastal erosion.

Coastal Protection Zone

Integrated Coastal Management Act (ICM, 2008) makes provision for demarcation of a zone adjacent to coastal public property that "plays a significant role in a coastal ecosystem". The ICM Act defines a default CPZ which consists of a continuous strip of land, starting from the highwater mark and extending 100 meters inland in developed urban areas zoned as residential, commercial, or public open space, or 1 000 meters inland in areas that remain undeveloped or that are commonly referred to as rural areas. These default boundaries may only be changed through a formal process of adjustment by the relevant Provincial MEC or National Minister.

1.5 Policy Alignment

	National			Provincial		Local	
Political Mandate	**NDP 2030**	**NSDF**	**IUDF 2016**	**WCPSDP 2014**	**Karoo RSDF**	**West Coast/Cederberg**	
						District SDF	**IDP**
Political Theme and SPLUMA and LUPA Principle**: Jobs and Opportunities, Spatial Justice**							
EPWP expansion. LED one-stop shops, prioritise job creation, partner with local businesses. Provide a range of housing. Ownership transferred. Connect communities to the internet.	Economy and Employment (No. 1). Infrastructure (No. 2). Inclusive rural economy (No 4) Local vs. SA (No. 5).	Regional adaptation, economic diversification and agro-innovation at scale. Encourage and support "going off the grid". Enhance ICT linkages to support long-distance learning. Spatial transformation and land reform. Focus state investment on areas with economic growth potential.	Integrated urban planning and management (No 1). Integrated transport and mobility (No 2). Inclusive economic development (No 6).	Safeguard inland and coastal water resources and manage the sustainable use of water (R2). Safeguard the Western Cape's agricultural and mineral resources and manage their sustainable use (R3). Diversify and strengthen the rural economy (E2). Revitalise and strengthen urban space economies as the engine of growth (E3). Improve inter- and intra-regional accessibility (S2).	Marketing, job creation, skills development and entrepreneurship development. (2) Sustainable and inclusive economic growth including job creation.	Promoting spatial transformation and equal access to opportunities.	Implement strategies to ensure financial viability and economic sustainability (SO 2).
Political Theme and SPLUMA and LUPA Principle: Responsive Local Government **– Efficiency and Good Administration**							
Graduate recruitment appointments. Access to drug addiction treatment.	Building a capable state (No 11).	Strong regional growth and development compacts.	Efficient land governance and management (No 5). Empowered active communities (No 7). Effective urban governance (No 8) Sustainable finance (No 9).	Protect biodiversity and ecosystem services (R1). Recycle and recover waste, deliver clean sources of energy, shift from private to public transport and adapt to and mitigate against climate change (R4). Safeguard cultural and scenic assets (R5).	Regional identity.	Enhance the capacity and quality of infrastructure in the areas with the highest economic growth potential.	Good Governance, community development and public participation (SO 3).
Political Theme and SPLUMA and LUPA Principle: Better Service Delivery **– Efficiency and Spatial Sustainability**							
Maintain roads (potholes). Access to electricity, water and sanitation. Regular maintenance of infrastructure.	Improve education, training and innovation (No 7). Health care for all (No 8).	Resources management and protection. Address environmental, social & economic inequalities	Integrated transport and mobility (No 2). Integrated Urban Infrastructure (No 4). Inclusive economic development (No 6).	Use regional infrastructure investment to leverage economic growth (E1).	Conservation & heritage focus.	Ensure continued provision of sustainable basic services to all residents.	Improve and sustain basic service delivery and infrastructure development (SO 1).

Political Theme and SPLUMA and LUPA Principle**: Stop Corruption – Good Administration**							
Effective systems for complaints processing. Staff appointed: add value. Exclude councillors from recruitment. Open tender adjudication. Open council meetings. True B-BBEE.	Fighting Corruption (No 12).	Focus economic and settlement growth along nodes & activity corridors. Action agenda and urgent interventions. Enhance cross–jurisdictional boundary collaboration. A systemic view of rural areas.	Efficient land governance and management (No 5). Empowered active communities (No 7). Effective urban governance (No 8). Sustainable finance (No 9).	Protect, manage and enhance sense of place, cultural and scenic landscapes (S1).	Action agenda, project and initiative focused. Cooperation, collaboration and joint action. Rural-urban continuum and interlinked regionalism. 3) Decisive spatial transformation, in accordance with *a shared spatial, social and economic development vision* for the region.	To facilitate and create an enabling environment for employment, economic growth and tourism development.	Good Governance, community development and public participation (SO 3). Enable a resilient, sustainable, quality and inclusive living environment and human settlement i.e., housing development and informal settlement upgrade (SO 5).
Political Theme and SPLUMA and LUPA Principle: **Meaningful redress – Spatial Justice**							
Infrastructure-led growth. Inclusive amenities and spaces. Urban planning integrates communities and levels of income. Reliable public transport; Implement taxi and bus services.	Environmental resilience (No 3). Transform settlements (No 6). Nation Building (No 13).	Regional adaptation, economic diversification and agro-innovation at scale. Encourage and support "going off the grid". Enhance ICT linkages to support long-distance learning. Spatial transformation and land reform. Focus state investment on areas with economic growth potential.	Integrated urban planning and management (No 1). Integrated transport and mobility (No 2). Integrated sustainable human settlements (No 3).	Promote compact, mixed-use and integrated settlements (S3). Balance and coordinate the delivery of facilities and social services (S4). Promote sustainable, integrated and inclusive housing in formal and informal markets (S5).	Marketing, job creation, skills development, and entrepreneurship development. (2) Sustainable and inclusive economic growth including job creation.	Promoting access to public amenities, such as education and health facilities, generally improving community wellness and safety of all people.	Enable a resilient, sustainable, quality and inclusive living environment and human settlement, i.e. housing development and informal settlement upgrade (SO 5). To facilitate social cohesion, safe and healthy communities (SO 6).
Political Theme and SPLUMA and LUPA Principle: Making Communities safer – **Spatial Resilience**							
Prevention units: gangs and drugs. Law enforcement service: traffic and crime.	Social protection (No 9). Safer Communities (No 10).	Compact settlement development around social service provision nodes. Limit expansion and development of new settlements in arid areas. Discourage temporary settlement formation for mining and infrastructure construction, upgrading and maintenance projects. Focus economic and settlement growth along nodes & activity corridors.	Empower active communities (No 7). Effective urban governance (No 8).	Promote compact, mixed-use and integrated settlements (S3). Balance and coordinate the delivery of facilities and social services (S4).	(1) Equitable basic service provision and social development.	Promote conservation of Critical Biodiversity Areas. Mitigate the potential impact of nature (Climate change) on the residents.	Good Governance, community development and public participation (SO 3). To facilitate social cohesion, safe and healthy communities (SO 6).

Table 6: Policy alignment

1.5.1 Policy Implications

Table 7: Summary of key policy directives in relation to SPLUMA

Themes	Policy Direction	Implications for MSDF
Bio-physical	• Protect CBAs, ESAs, protected areas and ecological corridors. • Protect rivers, wetlands, drainage systems and water source areas. • Protect strategic water source areas and mountain catchments. • Development must respond to increasing climate risks. • Settlements and infrastructure must be resilient to wildfire. • Green infrastructure can support biodiversity, cooling, stormwater, and public space. • Development should reduce pressure on water resources.	• Direct urban expansion away from Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), • Protected areas and sensitive river systems. • Protect mountain catchments and strategic water source areas. • Establish river and ecological buffers. • Strengthening ecological corridors linking protected landscapes. • Strengthen ecological corridors linking protected areas. • Integrate environmental constraints into future settlement planning and land use decisions. • Avoid development within flood-prone areas. • Protect natural drainage systems. • Increase urban tree planting and green infrastructure. • Incorporate fire-risk planning around settlements. • Promote water-sensitive urban design • Build climate resilience into infrastructure planning. • Restrict inappropriate development in sensitive mountain and catchment areas and incorporate catchment protection into the spatial framework. • Increase urban greening, tree planting, green corridors and nature-based infrastructure within settlements. • Promote water-sensitive urban design, stormwater management, water reuse and water-efficient development.
Socio-economic	• Residents require equitable access to education, healthcare, recreation and community facilities. • Spatial planning should contribute to safer communities. • Development should improve access to opportunities for all communities.	• Improve access to education, healthcare and recreation. • Promote safer communities. • Improve access to social facilities. • Strengthen local service centres. • Support mixed-use development in town centres. • Direct new development toward areas with access to existing/proposed social facilities and identify underserved communities. • Improve public spaces and community facilities. • Promote integrated settlements and ensure disadvantaged/rural communities have access to services, employment and transport.

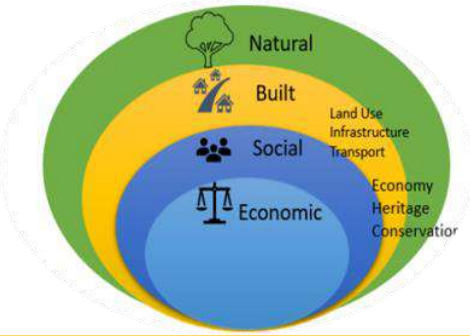
		• Improve lighting, passive surveillance, active public spaces, pedestrian connectivity and appropriate land-use mixing.
Infrastructure	• Infrastructure investment should support strategic growth areas. • Growth should be aligned with available infrastructure and municipal capacity. • Housing delivery needs to be coordinated with bulk services. • Infrastructure investment should support settlement consolidation. • Strong connections between settlements are essential for economic and social integration.	• Improve transport and internet connectivity to support businesses, residents and visitors. • Align infrastructure investment with areas that offer the greatest potential for economic growth and employment. • (Clanwilliam, Citrusdal, Elands Bay, etc.). Align the MSDF's growth areas with the municipal capital investment framework and areas with economic potential. • Encourage higher residential densities where infrastructure capacity exists. • Prioritise development where engineering services already exist or can be extended. Avoid growth that exceeds infrastructure capacity. • Align future growth with infrastructure capacity. • Coordinate housing delivery programmes with bulk infrastructure planning. • Promote infrastructure upgrades within existing settlements before greenfield expansion. • Strengthen movement corridors between settlements. • Improve connectivity to regional service centres. • Improve access to public transport. • Coordinate land use with transport investment.
Economy and Tourism	• Cederberg should diversify its economy around its natural, agricultural and tourism assets. • Productive agricultural land is an economic and food-security asset. • Greater value can be generated by processing agricultural products locally. • Natural, cultural and agricultural assets provide opportunities for tourism. • Towns require sufficient land for local businesses and services. • Major transport routes can support investment and economic activity.	• Promote investment in strategic economic sectors such as agriculture, tourism, renewable energy and the green economy. • Support agricultural production while preventing fragmentation of high-potential agricultural land. • Promote tourism nodes and visitor infrastructure. • Strengthen local business precincts within towns and strategic economic nodes. • Identify opportunities for investment along strategic transport routes. • Support diversification of the local economy. • Limit non-agricultural development on productive farmland. • Ensure settlement expansion does not unnecessarily consume productive agricultural land. • Promote agri-processing opportunities, support agricultural value chains, protect high-potential agricultural land.
Sense of Place	• Development should respond to the unique character and identity of each settlement.	• Strengthen the role of key settlements as service, commercial and employment centres. • Prioritise infill development before outward expansion and define clear urban edges for each settlement. • Clearly define urban edges for each settlement.

	• Compact, integrated development can strengthen existing settlements. • Settlements perform different economic and service functions. • Entrances to settlements create the first impression and reinforce identity. • High-quality public spaces strengthen community identity and social interaction. • Cultural and natural heritage contributes to Cederberg's distinctive identity. • Rural areas have distinct landscapes, settlement patterns and economic functions.	• Reinforce the hierarchy of settlements. • Identify key settlement gateways and develop design principles for arrival areas, landscaping, signage and appropriate development. • Improve public spaces, streetscapes, squares, parks and community facilities. • Encourage appropriate housing opportunities in rural settlements. • Integrate heritage resources, scenic landscapes, important views and cultural landscapes into spatial planning. • Establish rural development principles that protect landscape character while supporting appropriate economic opportunities.
Governance	• Spatial, infrastructure, environmental and economic planning must work together. • Development must be managed according to spatial principles and environmental constraints. • Housing and economic opportunities should be accessible to communities. • Appropriate mixing of uses can improve accessibility and reduce travel. • Communities should influence spatial development decisions.	• Ensure MSDF proposals are aligned with the IDP (2025), sector plans, capital investment framework and land-use management system. • Translate the MSDF spatial framework into clear land-use management guidelines and development parameters. • Locate housing close to services and employment. • Encourage mixed land uses where appropriate. • Promote inclusive public spaces. • Integrate meaningful public participation throughout the MSDF preparation and review process.

1.5.2 Settlement Values and Performance Qualities

Settlements are more than concentrations of buildings, infrastructure and land uses. They are living environments in which people interact with one another and with the natural systems that sustain them. Contemporary settlement planning has therefore moved beyond the separation of land uses characteristic of modernist and functionalist planning towards a more human- and nature-centred approach to settlement making. The quality of a settlement is determined by how effectively its different parts work together: how people move between places, how public spaces bring people together, how housing and economic opportunities are connected, how infrastructure supports development, and how natural systems are protected and integrated into the settlement structure.

Table 8: Settlement values for Cederberg

Settlement Values	Features and Qualities
Liveable Environments A liveable settlement fulfils more than merely a community's basic needs because it provides social and health services for both individuals and the community, where quality of life is crucial.[7]	A liveable community goes beyond providing essential services. It considers the quality of people's relationships with their communities, such as accessibility, social engagement, economic opportunity, and a sense of belonging.
Sustainable Settlements: Are well-managed entities in which economic growth and social development are in balance with the carrying capacity of the natural systems on which they depend for their existence and result in sustainable development, wealth creation, poverty alleviation, and equity[8]. Improve the liveability of settlements by reducing the impact on the environment through reduced use of resources and the generation of less waste.	Sustainable settlements seek to balance ecological integrity, social justice and economic effectiveness, while improving liveability and reducing pressure on natural resources[9]. 

[7] (Van Kamp and others, 2003)

[8] (Department of Local Government and Housing, 2005)

[9] (Lohnert, B. and Steinbrink, M., 2005)

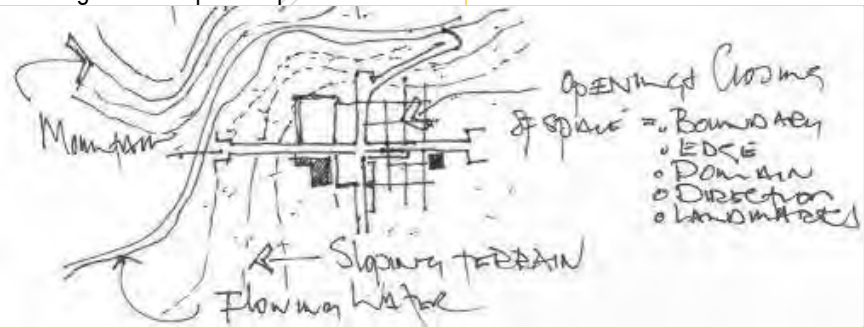
DRAFT

1.5.2.1 Spatial Elements of Settlements and Regions

Settlements are structured spaces that facilitate the interplay between a) formally planned development (assigned land uses and corresponding engineering services) and spontaneous development (settlement plans which accommodate uncertainty and change), as well as b) public environments, shared by all inhabitants, vs. private realms of individual households.

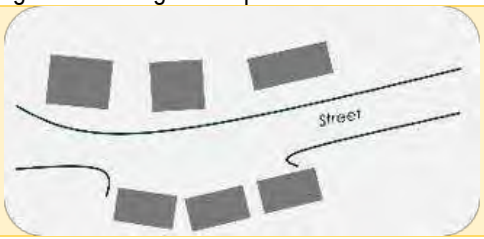
The spatial elements of regions are topography (form), cultivation and landscape, and man-made elements that include road networks and settlements, as described below.[10]

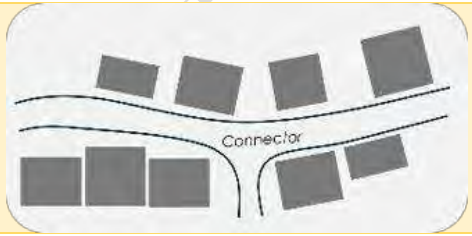
Table 9: Performance qualities

<table>
<tr><th colspan="2">BUILT ENVIRONMENT, SPACE AND THE BIOPHYSICAL</th></tr>
<tr><td>At settlement level</td><td>At regional level</td></tr>
<tr><td>• Characterised by diversity, with different spaces on a continuum from public to private, and there is a structural order.
• Public spaces in a settlement are meeting places for people, comprising urban “rooms” and “seams” of connectivity.
• A continuum or hierarchy of public and private spaces and movement systems, which attract and give order to activities, events, and elements in accordance with their need for publicness or privacy. Considering roads as public spaces.</td><td>• Delineated and merged landscapes which are characterised by conservation, cultivation and nature.
• Contains mountain and fynbos ecosystems, river and freshwater ecosystems, wetlands, formal and informal conservation areas, arable land, beaches and dunes.</td></tr>
<tr><td colspan="2"> 
</td></tr>
<tr><th colspan="2">COMMUNITY FACILITIES</th></tr>
<tr><td>At settlement level</td><td>At regional level</td></tr>
<tr><td colspan="2">• Referring to institutions most valued by society, i.e., institutions of learning, worship, exchange, and markets, served as structuring elements.
• Their location determines the location of other more private uses. The most important public institution today is the open or social space.</td></tr>
</table>

[10] (CSIR, 2000)

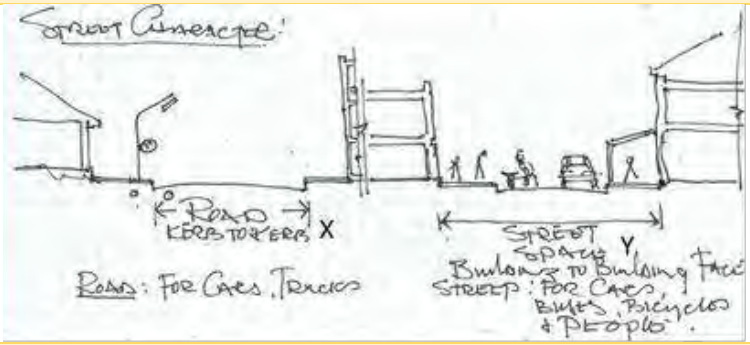
- Considering the location of institutions in relation to other elements of structure is of critical importance (central places, easily accessible in movement patterns, announced by public space).
- Abutting institutions give unique character and often attract informal activities.





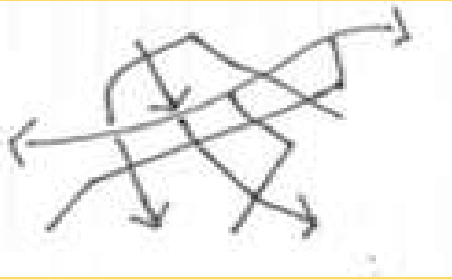
CONNECTIVITY

At settlement level



Refers to movement of all kinds, including fixed line systems such as roads, light and heavy rail, underground rail, pedestrian and bicycle routes, public and private transport systems.
A movement system is a network of spaces through which people move whilst allowing for the public life of a community.

At regional level



- A movement system or network of movement and circulation that consists of linear spaces connecting settlements.
- Movement infrastructure includes main routes, railway lines, and Stations between and within Settlements.
- Movement of people, goods and services is channelled along specific routes.

UTILITY SERVICES

Settlement	Regional

• Refer to engineering services that are essential for settlements to function and to maintain public health and include water provision, sewage removal, stormwater disposal, solid waste removal and electricity supply. • Should be provided as efficiently and cost-effectively as possible, taking due cognisance of a human- and nature-centred approach to settlement making. • Utility services should follow structure, not lead.	Refer to bulk services that are essential to the functioning of regions (areas) e.g., solar farms.

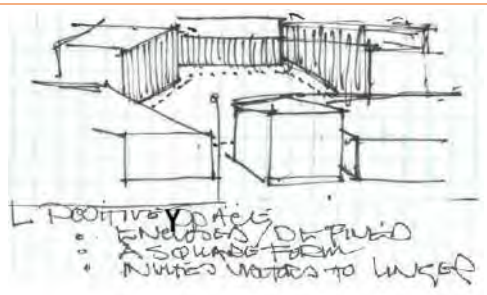


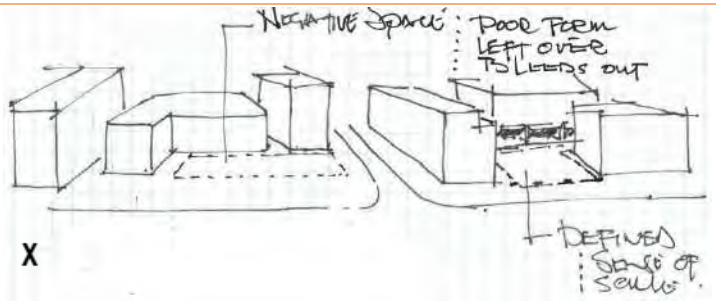
1.5.2.2 What makes a settlement perform well?

Settlements demonstrating desirable spatial element qualities which are scaled for pedestrians (neither pedestrians nor vehicles dominate); are compact (with high building densities); are integrated and composite parts reinforcing each other; have a strong spatial feel with well-defined public spaces; and have complex spatial structures offering choices to intensity of interaction, privacy of living conditions, lifestyles, housing options and movement systems.

The application of four spatial measures is central to the use of space creating positive settlements: definition, scale, flexibility and intensity. Each spatial measure consists of two opposite measures or structural tools as per the table below:

SPATIAL MEASURES
Definition: In positive environments, public open spaces are defined by buildings and other space-defining elements such as walls and landscaping. The elements create a feeling of enclosure in contrast with free-standing elements in a shapeless sea of space.



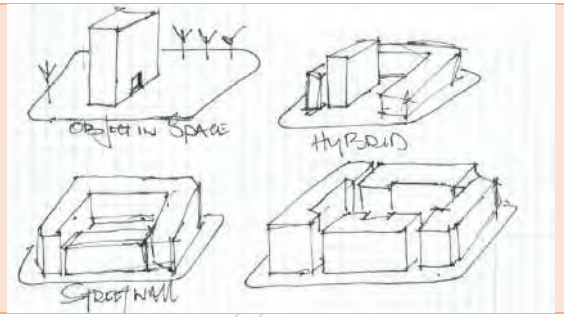


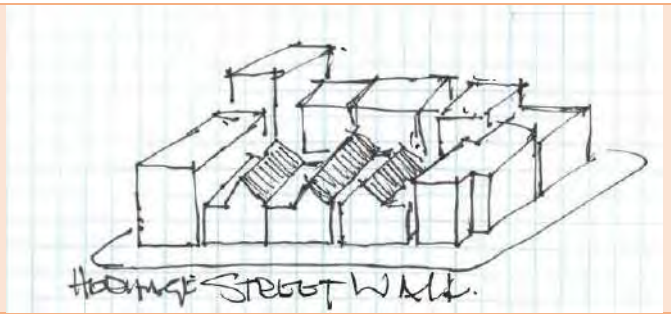
Structural Tools: Continuity and Discontinuity (Containment).

Scale: Refers to the relationship between size, distance, and height. "Human Scale" is a norm for all development planning.

Structural Tools: Externalization and Localization.

Flexibility: Refers to the creation of spatial structures that accommodate unexpected change over a period of time.





Structural Tools: Same and Different (Homogeneity and Heterogeneity).

Intensity: Refers to the creation of

- high-level support for economic and social goods and services to support economic activities.
- the conditions for sustainable public transport systems.
- effective infrastructure use, improved land use, contributing to compact urban areas, reduced transportation and energy use as well as the reduction of pollution.

Structural Tools: Denseness and Sparsity (Openness).

Table 10: Spatial elements

1.5.2.3 From Values to Spatial Performance

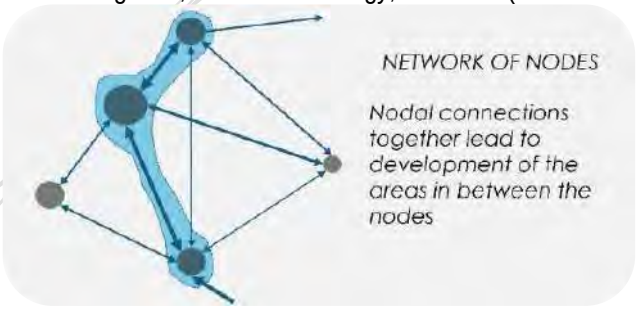
The application of structural tools creates man-made spatial elements such as:

- Centres/ Parks/ Precincts (Administrative, Educational, Legal and Services).

- Nodes (Collective and Specialised Economies, Services, manufacturing, tourist attractions, highly accessible: high-intensity land use activity located along or at the start and end points of existing, emerging or national corridors: include areas of residence, industrial activity or trade that are either generators of transport demand and/or supporters of transport functions).



- Hubs (Economic specialization: Jewellery, Petrochemical, Logistics, highly accessible).
- Axis or Streets (Transport and mobility Spines).
- Corridors (including, but are not limited to, scenic, tourism, freight, transport, industrial development zones (IDZ), intensive agriculture or rural, including agri-industry and related supportive services and conservation, etc.).
- Zones/ Precincts (Tourism, Commercial SEZ, Agricultural and Irrigation, Alternative Energy, Industrial (IDZs and SIDZs).



The table below provides a description of the structural tools applied to the spatial elements and their resultant man-made elements and/or qualities:

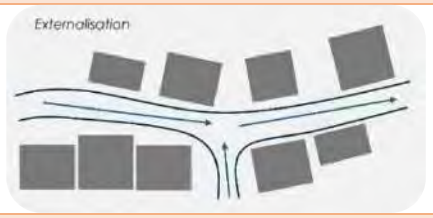
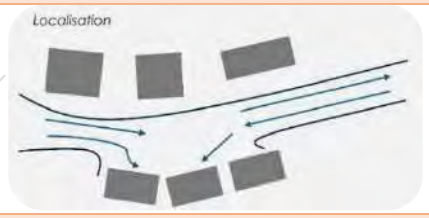
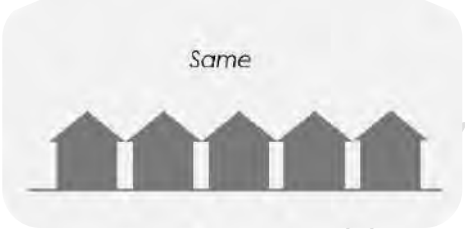


	DENSENESS (REINFORCEMENT)	SPARSITY (OPENNESS)

Connection	• Single corridor movement network: Different forms of transport are brought together (pedestrian, bicycle, train, taxi, bus, and vehicles). • Activity Axis is the core of the activity corridor/ tertiary network or Street (local network). • Activity nodes: Different forms of transport connect.	Single-mode transport networks (thresholds are too low to justify other modes) or Roads.
Space	• Economic agglomeration (integration of different developments (new and old)). • Densification and Strategic densification: Reduction of erf size, alternative housing types (housing topologies), infilling, redesign, mixed development. • Natural open space networks are a key component of a sustainable urban landscape.	• Movement networks (part of a system of public places). • Protection and enhancement of Heritage Resources through either Heritage overlay zones or Conservation (biophysical) overlay zones and categories or Coastal Management lines and zones.
Public Institutions	• Multipurpose facilities and nodes where different social services are offered. • A system of public spaces and hierarchy of facilities which order activities and resources.	A single facility, i.e., a school.
Public Utilities	Infrastructure cluster where different utilities are managed, e.g. water & sewerage	Single Infrastructure yard, e.g. sewerage works or solar farm.



	CONTINUITY	**DISCONTINUITY (CONTAINMENT)**
Connection	• Ordering structure of movement networks: • Settlement level: network energy released through stopping, exit (not through movement); serve rather than integrate space. • Inter-settlement level: Routes which do not allow stopping (i.e. freeways) serve as integrators of space.	• Along with higher-order routes, create special places, such as public open space (squares) and parks. • On lower-order routes, create qualities of secrecy or privacy; discourage through-traffic.
Space	• Enclosure: Achieving a sense of enclosure and definition. • Buildings, either through the building itself, its walls, or planting, should contribute to defining the public space it abuts.	• Natural habitats: Ecological systems, complex, continuous, productive/ conservation/ preservation space. • Integrate natural and rural areas into urban landscape.
Public Institutions	• Integration: Integrate new parcels of development with existing development to obtain agglomeration economies.	• Public space is used to interrupt built form, to ensure convenient access or create dimensions of scale. • Multifunctional centres.

	• Absorb settlement output: in green spaces, i.e., evaporation ponds and stormwater retention systems.	• Mobile services.
Public Utilities	Above Ground Infrastructure.	Underground Infrastructure.
		
	EXTERNALIZATION	**LOCALIZATION**
Connection	Social facilities and higher-order urban activities should be located along continuous movement routes rather than within residential precincts.	Intensive activities concentrated at the most accessible points along continuous movement routes.
Space	Higher-order facilities should reinforce the private quality of residential areas and contribute to a symbiotic relationship between different activities and facilities.	• Multi-purpose facilities as public spaces. • Corridors as agglomeration of economic and industrial activities.
Public Institutional	Higher-order facilities are not entirely dependent on the resources of a particular local community. Facilities to be widely accessible.	Functional integration ensures availability and accessibility of a wide range of services and facilities.
Public Utilities	District or regional utilities.	Local Utilities.
		
	SAME	**DIFFERENT**
Connection	Non-motorized vs motorized.	Non-motorized vs motorized corridors: intensification of development; mixed uses; pedestrian- and cycling-friendly; high-quality streetscaping.
Space	Public and private space are either separated or clustered and could be part of a mixed-use development.	Connection between space and structure recognises that different activities, cultures, and lifestyles have their own requirements, which must be met in the settlement making process.
Public Institutional	Minimalism: Centralize decisions at the institutional level, not at the site level.	Mixed use: commercial, social, service, trade and residential areas of different densities and types.
Public Utilities	Centralize decision-making involving local directives and needs.	Various Utility types, e.g., solar farms, electrical transformers, etc.

CHAPTER 2: Status Quo

The spatial analysis of three environments, that is, biophysical, socio-economic, and built environment, will link to the directives derived from the applicable legislation governing these resources. The spatial analysis and directives derived will then be aligned with the sector plans and cross-cutting resources and challenges of the neighbouring municipalities.

BIOPHYSICAL SPATIAL ANALYSIS

2.1 Biophysical Spatial Analysis

2.1.1 Geology and Soils

Soil types:

Soil types in the Cederberg Municipal (CM) area vary from limited pedological development soils to plinthic catena soils and rocky areas with minimal soil cover. Geologically, the municipal area is shaped by shale, sandstone, and arenite formations, causing some areas to be more prone to erosion than others.

Soils suitability:

Soil clay percentage in the Cederberg Municipal area is generally less than 15%.

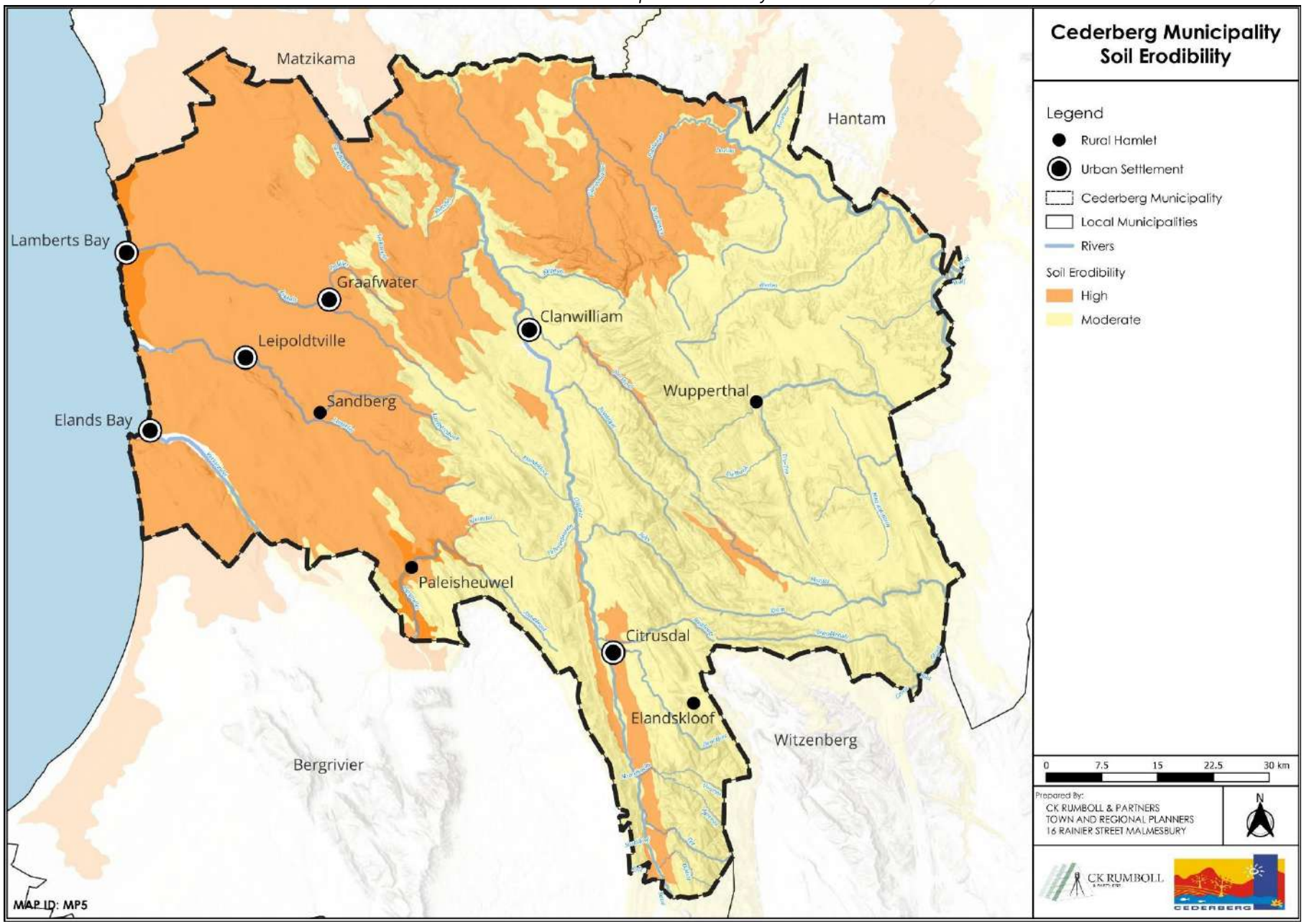
Soil depth:

- Soils around Elands Bay, Lamberts Bay and Graafwater are deeper soils (750mm or more), making them more suitable for intensive agriculture.
- Wuppertal and most of the eastern half of the municipal area have the most challenging conditions, with soil depths of less than 450mm and high rock content, making it suitable mainly for conservation or low-impact activities.
- Erodibility is high in Citrusdal, Graafwater, Elands Bay and Lamberts Bay, meaning these areas are prone to soil loss if not managed properly. It is more moderate in Clanwilliam and Wuppertal, where erosion risks are relatively lower.

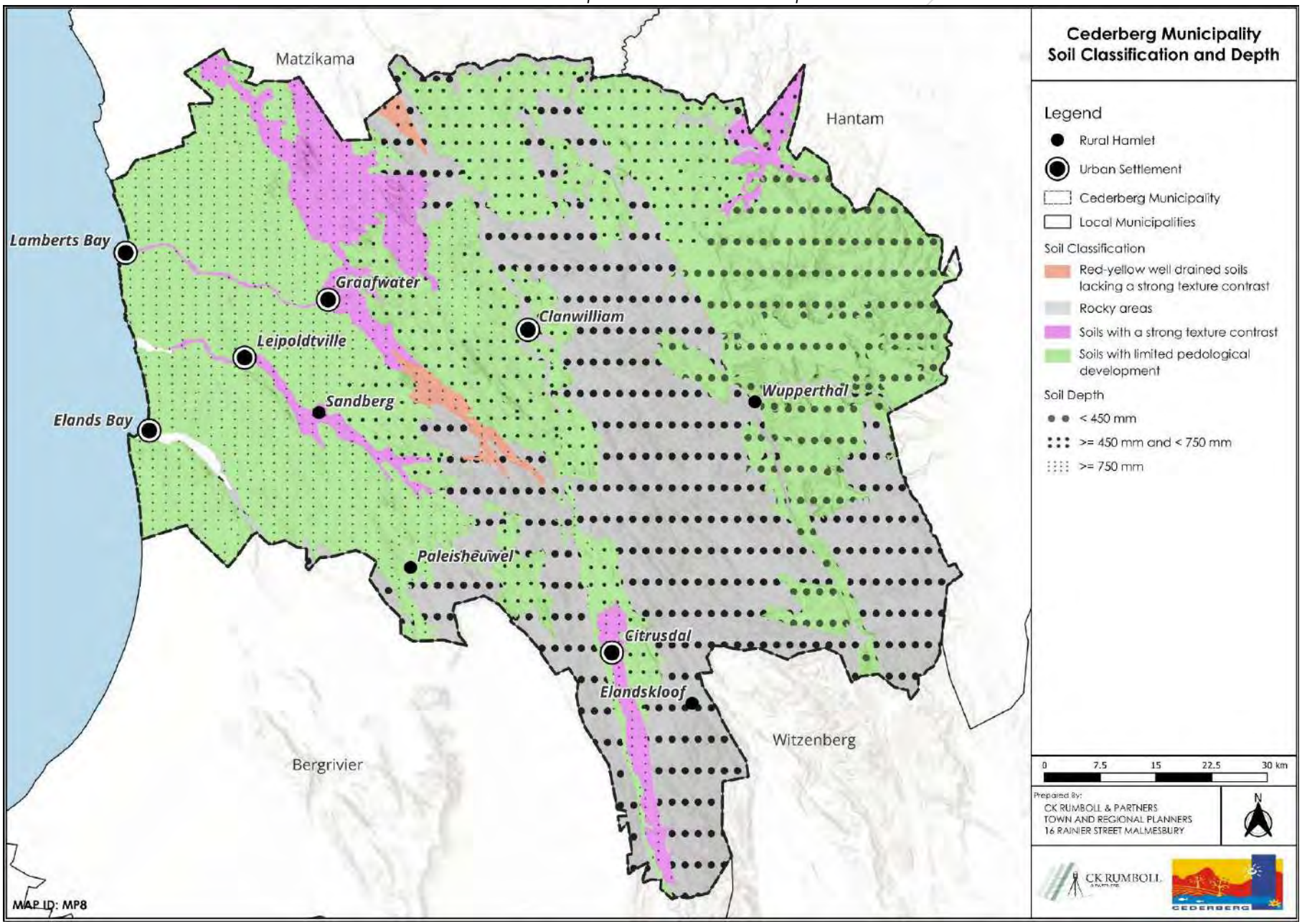
Directives

- Implement erosion control measures such as tree planting and sustainable farming to prevent soil degradation in areas such as Clanwilliam and Wuppertal, which have shallow rocky soils.
- Prevent wetlands from long-term erosion at Elands Bay by managing stormwater runoff.
- Prioritise the protection of soils with greater depths.

Map 4: Soil Erodibility



Map 5: Soil Classification and Depth



2.1.2 Climate

A typically Mediterranean climate with warm, dry summers and mild, moist winters, prevails. Spring starts in August, summer in early November, autumn in April and winter from mid-May.

Rainfall: Although Cederberg is in a winter rainfall region, the Oliphants's River valley, including the settlements of Clanwilliam and Citrusdal, gets annual rainfall of 180mm and is classified as a semi-desert. The high Cederberg mountains get much more rain, i.e., over 1000mm in parts, and snow caps can be observed on the mountain peaks.

Wind: The wind direction is north-west in autumn and throughout winter, whilst in spring and summer winds blow in the south-eastern direction. The wind speed is mostly between 5-6m/second whilst along the coast, with the area along the northern municipal boundary coast wards and the Nardouw mountains demonstrating increasing wind speed of 7-8m/second.

Sun and Temperature:

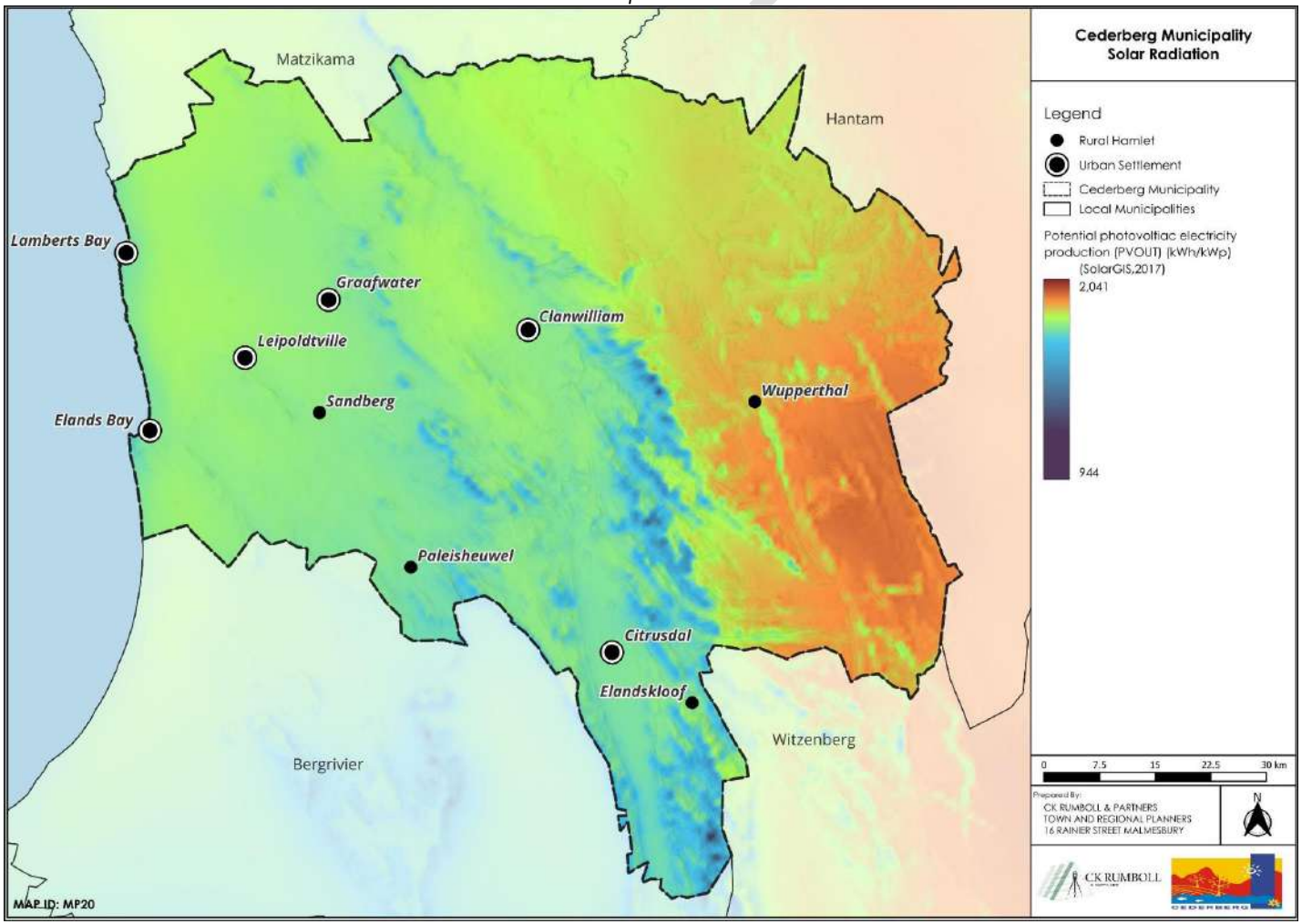
The annual mean temperature in Cederberg ranges between 16°C and 20°C. Horizontal Global Irradiance (GHI) is lower from the Olifants Valley to the coast and ranges from 1 901 to 2 100kWh/m2/annum. From the Olifants Valley inland, the irradiance is 2 101 to 2 200kWh/m2/annum. Solar irradiation measures 5 251W/m2 to 5 500W/m2 overall with 5 751Wm2 to 6 000W/m2 in the southeast.

Directives

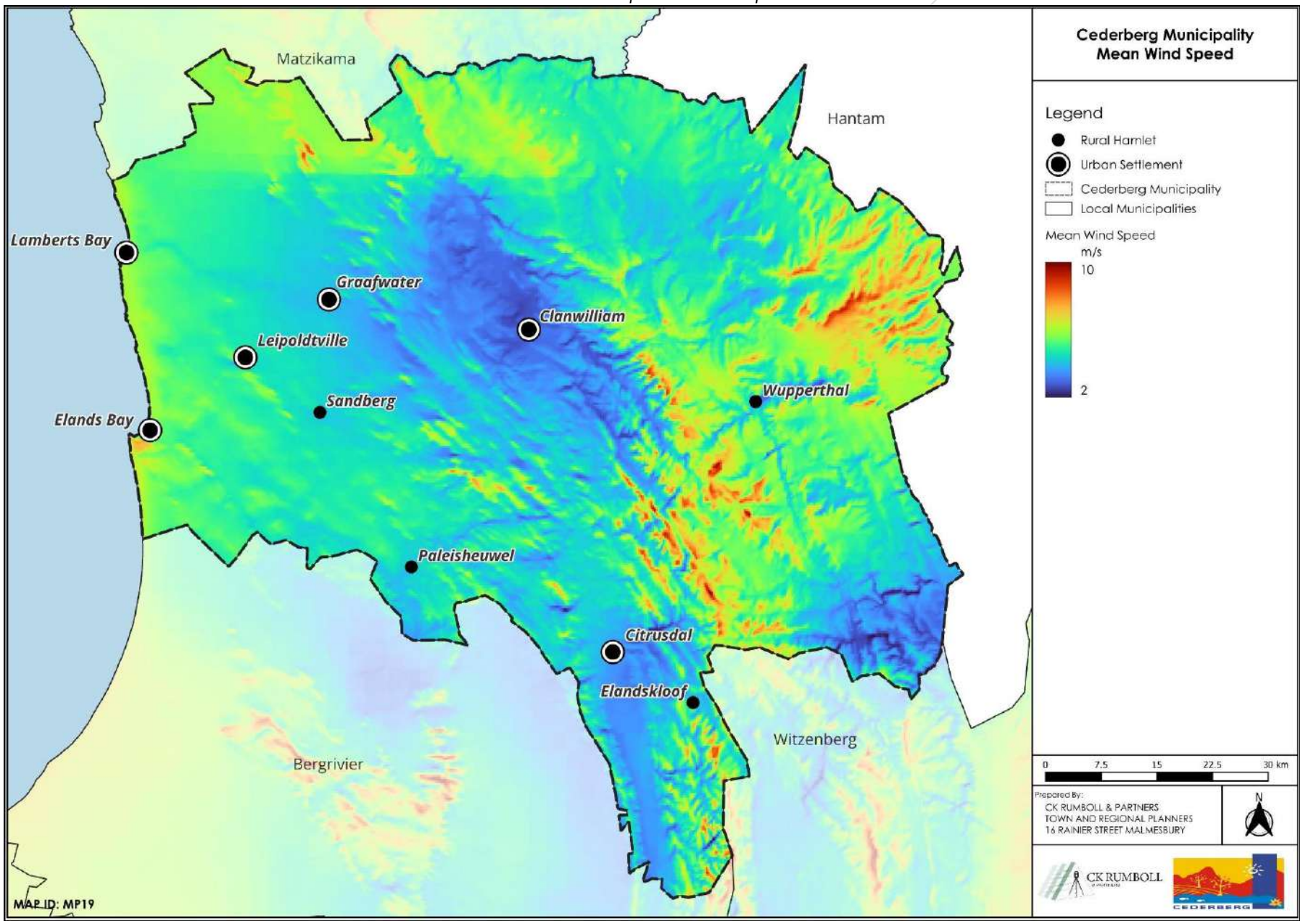
- Actively promote and manage the development of renewable energy sources particularly solar and wind within the municipality, in response to the increasing impacts of climate change and the need for energy security.
- Balance food security and energy generation:
    - Develop guidelines for alternative energy facilities to ensure they are sited in areas that minimize impacts on critical biodiversity areas (CBAs) and protected natural zones, on high-value agricultural soils and on ecological integrity.
    - Promote energy-efficient technologies.
    - Ensure that the design and placement of energy facilities do not compromise the natural and agricultural landscape.
- Enhance Building Resilience to Climate Change:
    - Buildings in Cederberg must be designed to withstand extreme temperature fluctuations, incorporating insulation, energy-efficient materials, and climate-sensitive orientation to reduce energy consumption and enhance comfort.
    - Encourage rainwater harvesting and integrate water-saving measures such as greywater recycling in all new developments to conserve local water resources, particularly in light of projected reductions in rainfall and increased evaporation.
- Provide education and awareness programmes for residents to promote sustainable building practices and waste reduction.
- Protect and Conserve Biodiversity and Landscapes:
    - Prioritize the conservation of critical biodiversity areas (CBAs) and nature reserves within the municipality to protect indigenous vegetation and wildlife habitats that are vital for climate resilience.
    - Protect riverine corridors, south-facing slopes, and topographically diverse areas that provide vital refuges for species, contribute to maintaining microclimates, and offer climate resilience by regulating temperature and moisture levels.
- Develop strategies to restore and maintain landscapes that play key roles in buffering the impacts of climate change, such as kloofs and hills that offer connectivity for species migration and temperature/moisture refuges.

- Water Resource Management and Protection:
    - Promote artificial groundwater recharge, greywater recycling, and local water resource monitoring to reduce reliance on surface water and safeguard against the impacts of reduced rainfall and increasing temperatures.
    - Introduce water conservation tariffs to encourage responsible water use among residents and industries and ensure the municipality's Wastewater Treatment Works (WWTW) capacity is adequate for any future industrial development.
    - Secure a buffer zone around landfill sites to prevent contamination of water resources and protect the overall water quality in the region's catchment areas.

Map 6: Solar Radiation



Map 7: Mean Wind Speed



2.1.3 Climate Change

Climate change projections for the Western Cape suggest a warming of 1.5°C to 3°C by around 2050. Rising average temperatures disrupt weather patterns, leading to more extreme weather events (droughts, floods, heatwaves, wildfires, and storms) and changing rainfall patterns, i.e. some areas experience more frequent and intense rainfall, while others face prolonged droughts.

A study by the Climate Systems Analysis Group (CSAG) at the University of Cape Town (UCT) (2008) projected various climate changes for the Western Cape for 2030-2045, such as:

- Higher mean annual temperature.
- Higher maximum temperatures, more hot days, and more heat wave.
- Higher minimum temperatures, fewer cold days, and frost days.
- General drying trend in western parts.
- Intensification of rainfall events.
- Increased mean sea level and storm surges.

Climate change is recognised as a major cross-cutting planning issue in the Cederberg municipality. The municipality is expected to experience more frequent and severe droughts, increased flood events, coastal erosion and sea-level rise, heat waves, higher evaporation rates and an increased risk of wildfires. Climate change may alter the suitability of existing farming systems and require agricultural adaption and diversification.

The Greater Cederberg Conservation Corridor and the West Coast Conservation Corridor are only two of a range of adaption measures the Municipality can utilise to invest in ecological infrastructure, protection of rivers, wetlands and estuaries. The integration of disaster-risk management into planning and implementation is also a key measure to combat climate change in the Cederberg municipal area.

Renewable energy, particularly solar energy, needs to be supported given the municipality's medium to high solar-radiation potential. Climate resilience can be achieved by protecting water resources, ecological integrity, agricultural productivity and long-term sustainability of settlements and infrastructure.

Some municipal level climate change related vulnerabilities in Cederberg:

- Climate hazards: Witzenberg is increasingly experiencing extreme weather events such as droughts, floods, and wildfires; and changes in weather patterns, including increased frequency and intensity of wind and thunderstorms, have been noted.
- Water Resources: Severe droughts and flooding events have significantly affected water availability and quality.
- Agriculture: Droughts and floods have disrupted agricultural activities, impacting food security and livelihoods.
- Biodiversity: Increased frequency of wildfires has hindered the regeneration of indigenous vegetation.
- Public Health: Flooding and extreme weather events have posed health risks, including the spread of waterborne diseases.
- Vulnerable Communities: Informal settlements and communities located in flood-prone areas are disproportionately affected by climate hazards. Seasonal agricultural workers and low-income households are particularly vulnerable due to economic instability and inadequate housing.

The plan also maps out recommended local government responses to address these vulnerabilities, with a focus on enhancing water storage, improving drainage systems, and promoting climate-smart agriculture.

Directives

- Support and promote existing policy and legislative guidance to enable sustainable agriculture, alien vegetation clearing and flood management.

- Improve and strengthen existing flood management plans by promoting the development of artificial wetlands and identifying areas that require additional stormwater catchment areas.
- Encourage rainwater harvesting and integrate water-saving measures such as greywater recycling.
- Continue efforts to reduce air pollutants and GHG emissions.
- Design buildings to withstand extreme temperature fluctuations, incorporating insulation, energy-efficient materials, and climate-sensitive orientation to reduce energy consumption and enhance comfort.
- Provide education and awareness programmes for residents to promote sustainable building practices and waste reduction.
- Stakeholder engagement, multi-level government coordination, adaptive capacity building.

2.1.4 Environmental Risk

The concept of 'risk' is understood as the result of the interplay between 'hazard' and 'vulnerability'. In this context, vulnerability is generally depicted as an averaged index derived from two main categories: socio-economic factors and governance, with optional additional factors used as sensitivity moderators. Environmental hazards or threats include ecosystem deterioration, terrestrial flooding, water security issues, air quality and health concerns, solid waste management, and wildfires – all of which are affected and sometimes amplified by climate change.

Environmental risks could affect settlements, infrastructure, agriculture and natural ecosystems. In Citrusdal flooding is a significant concern. Elands Bay is vulnerable to both coastal flooding and coastal erosion. Drought conditions can place pressure on water resources and infrastructure. Additional risks include water pollution from waste sites, cemeteries and inadequate wastewater infrastructure, as well as the degradation of wetlands and estuaries.

The IDP identifies numerous environmental risks that threaten sustainable development.

Key risks include:

- Recurring droughts and water shortages.
- Wildfires, exacerbated by invasive alien vegetation and increasingly dry climatic conditions.
- Groundwater depletion.
- Climate-related impacts on agriculture and biodiversity.
- Coastal erosion and storm impacts.
- Land degradation and habitat loss.
- Unsustainable development in environmentally sensitive areas.

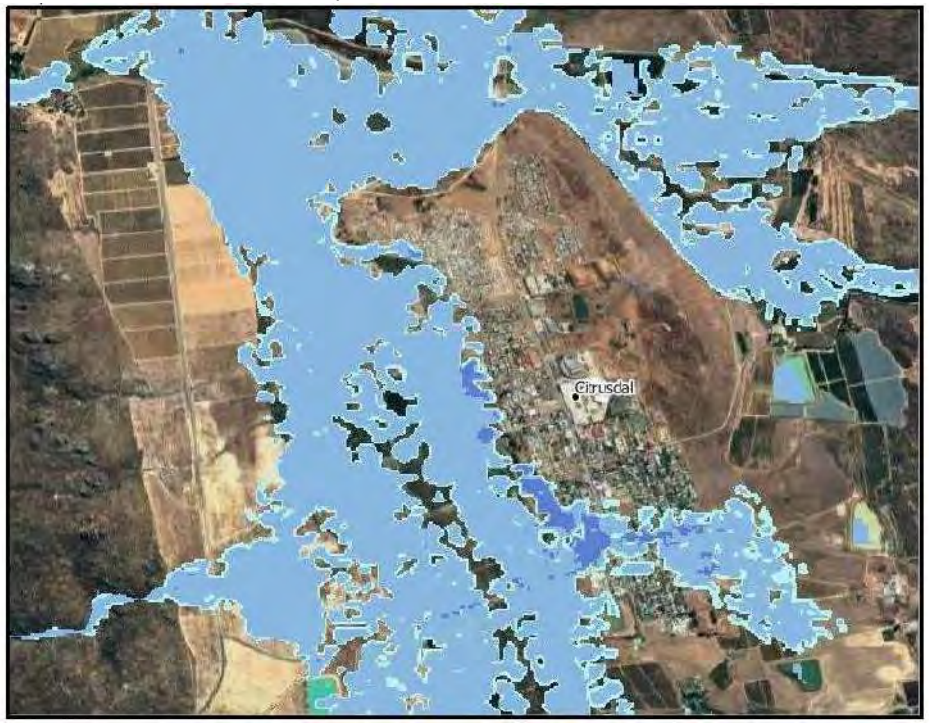
Specific concerns include:

- Dry, warm conditions make vegetation more flammable.
- Alien invasive vegetation increasing wildfire risk while reducing runoff and impacting indigenous ecosystems.
- Heavy dependence on river and groundwater systems that become unreliable during drought.
- Infrastructure development on coastal dunes and sensitive ecosystems increase environmental vulnerability.

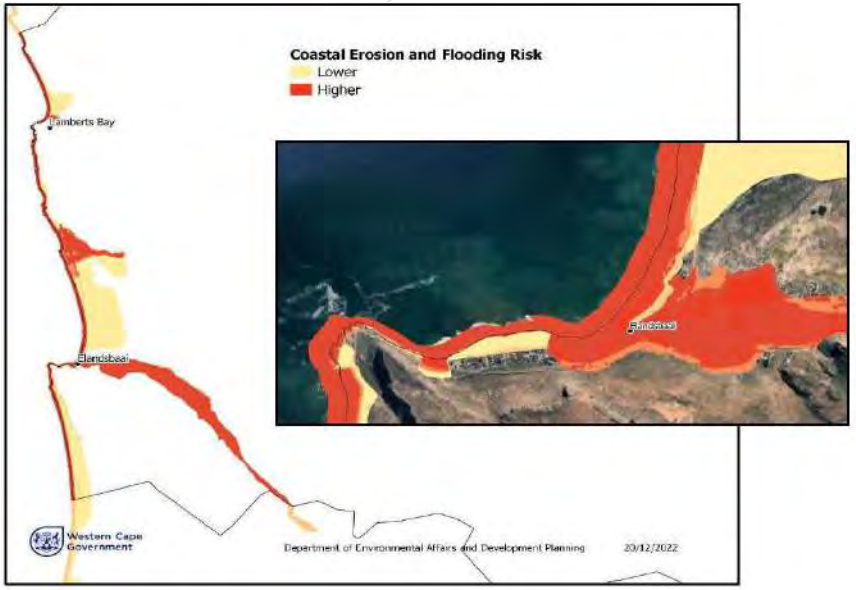
To address these risks, the municipality promotes:

- Alien vegetation clearing programmes.
- Biodiversity conservation.
- Catchment management.
- Disaster preparedness and risk reduction planning.
- Coastal management and setback lines.
- Protection of wetlands, estuaries and ecological corridors through the Environmental Management Framework (EMF) and Spatial Development Framework (SDF)

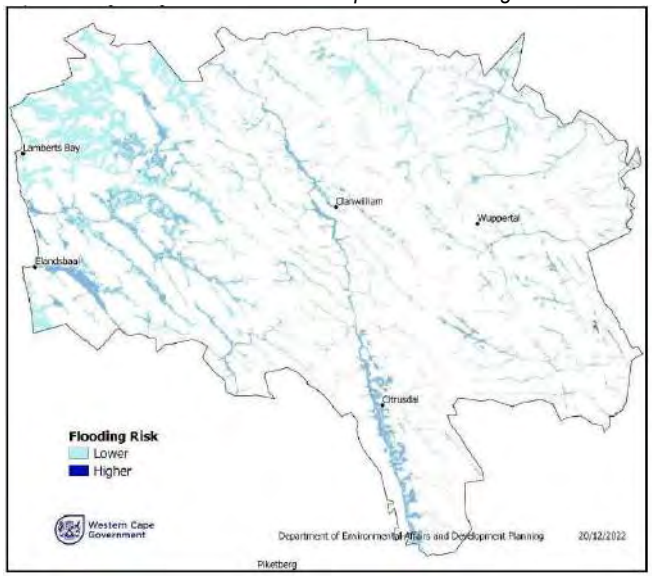
Map 8: Flood areas in Citrusdal



Map 9: Elands Bay coastal erosion and flood risk

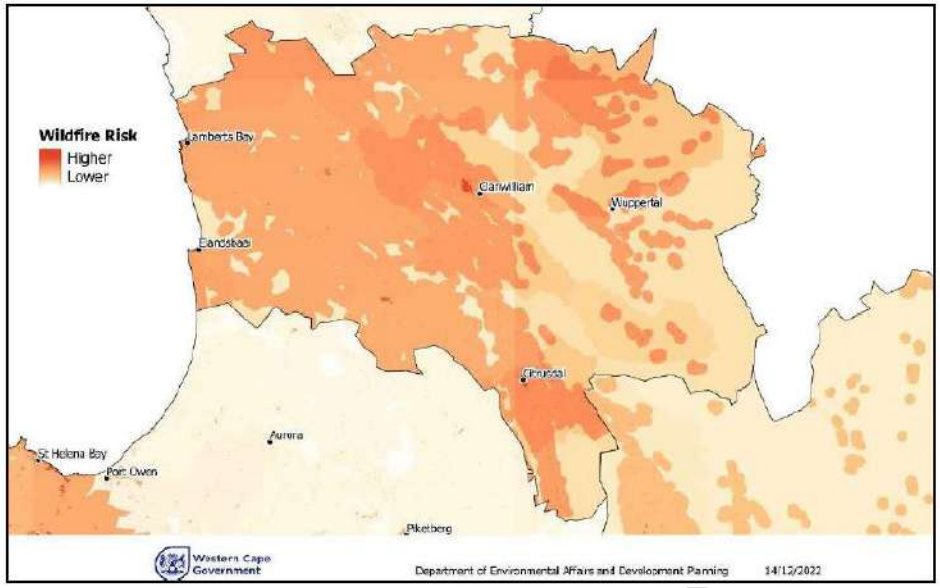


Map 10: Cederberg flood risk



Wildfires are likely in the mountain areas along the N7 and in the Cederberg. Increasing temperatures due to climate change could lead to an increase in heatwave experienced. This could in turn lead to an increase in wildfires.

Map 11: Risk of increased wildfire in Cederberg



2.1.5 Topography

The Cederberg mountains extend about 50 km north-south by 20 km east-west and include in the north: Nardouw, Pakhuis, Krakadouw and Tra-tra Mountains, in the west: Olifantsberg and Swartberge and in the south: Witzenberg and Skurweberg. They are surrounded by the Sandveld on the west, the Pakhuis Mountains in the north, the Springbok Flats in the east and the Kouebokkeveld Mountains and the Skurwe Mountains in the south.

The Cederberg municipal area is characterised by a diverse and dramatic topography that extends from the Atlantic coastal plain in the west to the rugged Cederberg mountain range in the east. Elevations range from sea level to more than 1500 metres in the inland mountain regions. Seven distinct bio-regions, each withtheirs own elevation range, landscape character and economic profile have been identified.

These bio-regions are:

- Coastal Corridor;
- Lang and Verlorenvlei Corridor;
- North-West Agricultural Area;
- Olifants River corridor;
- Nardouw Agricultural Area;
- Coring River Corridor; and
- Cederberg Wilderness Area.

Three broad landscape character types are recognised:

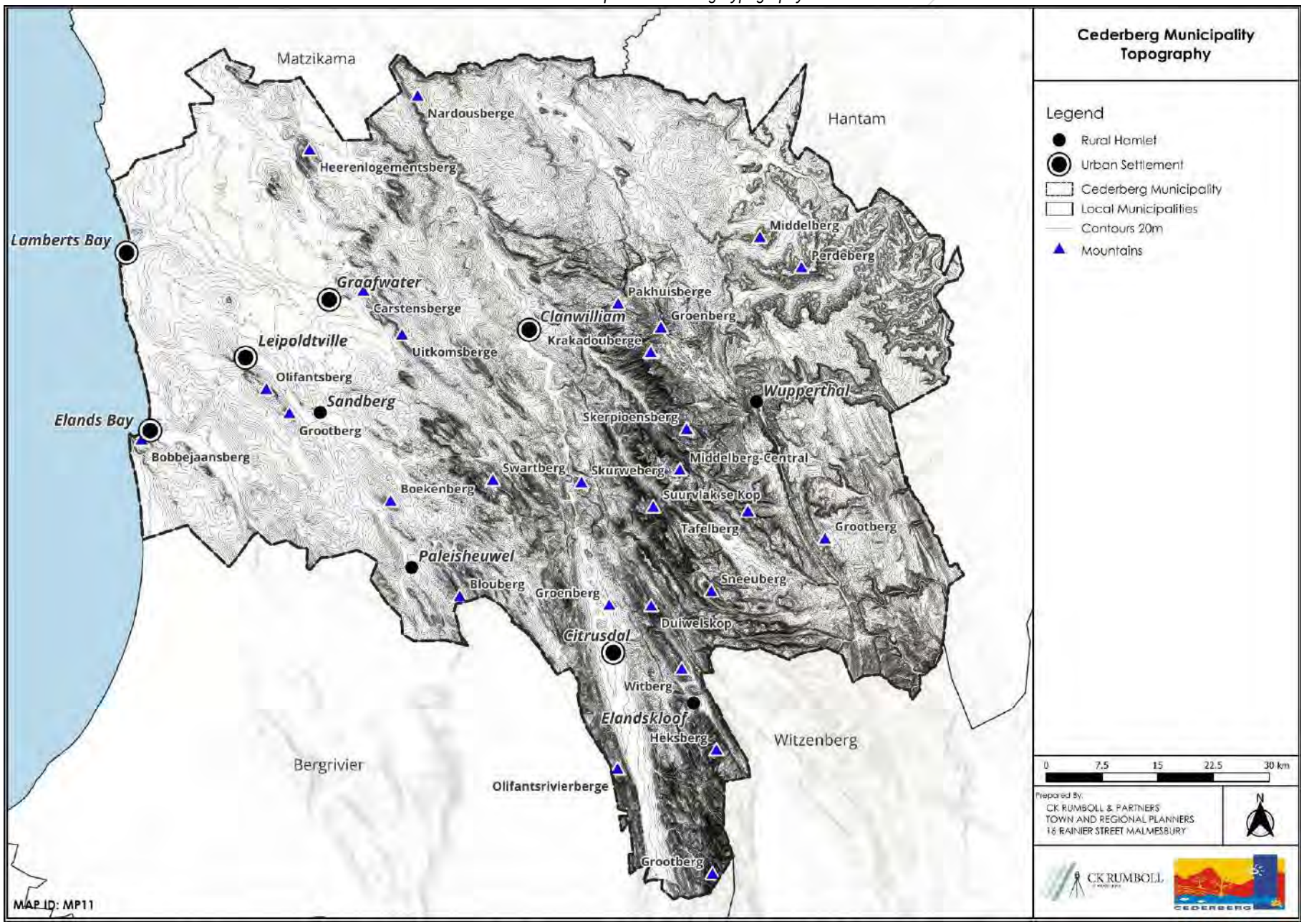
- “cosmic” landscapes of extensive open plain and coastal areas;
- “classical” landscapes of clearly defined mountains, valleys and basins;
- ” romantic” landscapes of rugged wilderness terrain with numerous varied landscapes.

Topographic features such as mountains, rivers, wetlands, beaches and dunes, are regarded as key structuring elements of the region and have important implications for settlement planning, conservation, agriculture and tourism.

Directives

- Protect landscape character (landscape heritage).
- Protect and maintain ecological infrastructure.
- Divert settlement development to more level areas (slopes of less than 1:4).
- Reduce potential negative impact of urban development along scenic corridors.
- Ensure land use changes maintain integrity, authenticity and accessibility of significant cultural landscapes. (WCPSDF, 2009).

Map 12: Cederberg Typography



2.1.6 Water Resources and Supply

Water catchment areas are geographic regions where surface water, including rivers, streams, and rainfall runoff, drains toward a common outlet such as a river, dam, or wetland. They are essential for understanding water flow, managing resources, and planning sustainable land use, allowing authorities to monitor water quality and quantity, coordinate supply, and protect aquatic ecosystems. Catchments are grouped hierarchically into primary, secondary, and tertiary levels: primary catchments cover large river basins and support regional planning; secondary catchments subdivide these basins along major tributaries; and tertiary catchments focus on local rivers or sub-basins, supporting municipal water planning and monitoring.

The Cederberg falls within the Olifants-Doorn water catchment areas of 46,220 km2 in extent and around Ceres and the Cederberg mountains. The Olifants River rises in Winterhoek Mountains north of Ceres. The mainstream is about 265 km long and flows into the Atlantic Ocean at Papendorp, 250 km north of Cape Town. NFEPA (2007), class the Oliphants River and its tributaries within the Oliphants River Corridor bio-region, as largely modified. All the rivers in the southern half of the Doring River corridor area and in the Cederberg Wilderness area bio-regions are natural. All the rivers in the remaining bio-regions, are moderately modified.

The Cederberg Municipality relies on a combination of surface water and groundwater resources for domestic, agricultural and economic use. The principal river systems are the Olifants River, Doring River, Verlorenvlei and Langrivier, with the Olifants River being the most heavily modified and intensively utilised system. Strategic water-storage infrastructure includes the Clanwilliam and Bulshoek Dams, which support irrigation, water supply and recreation.

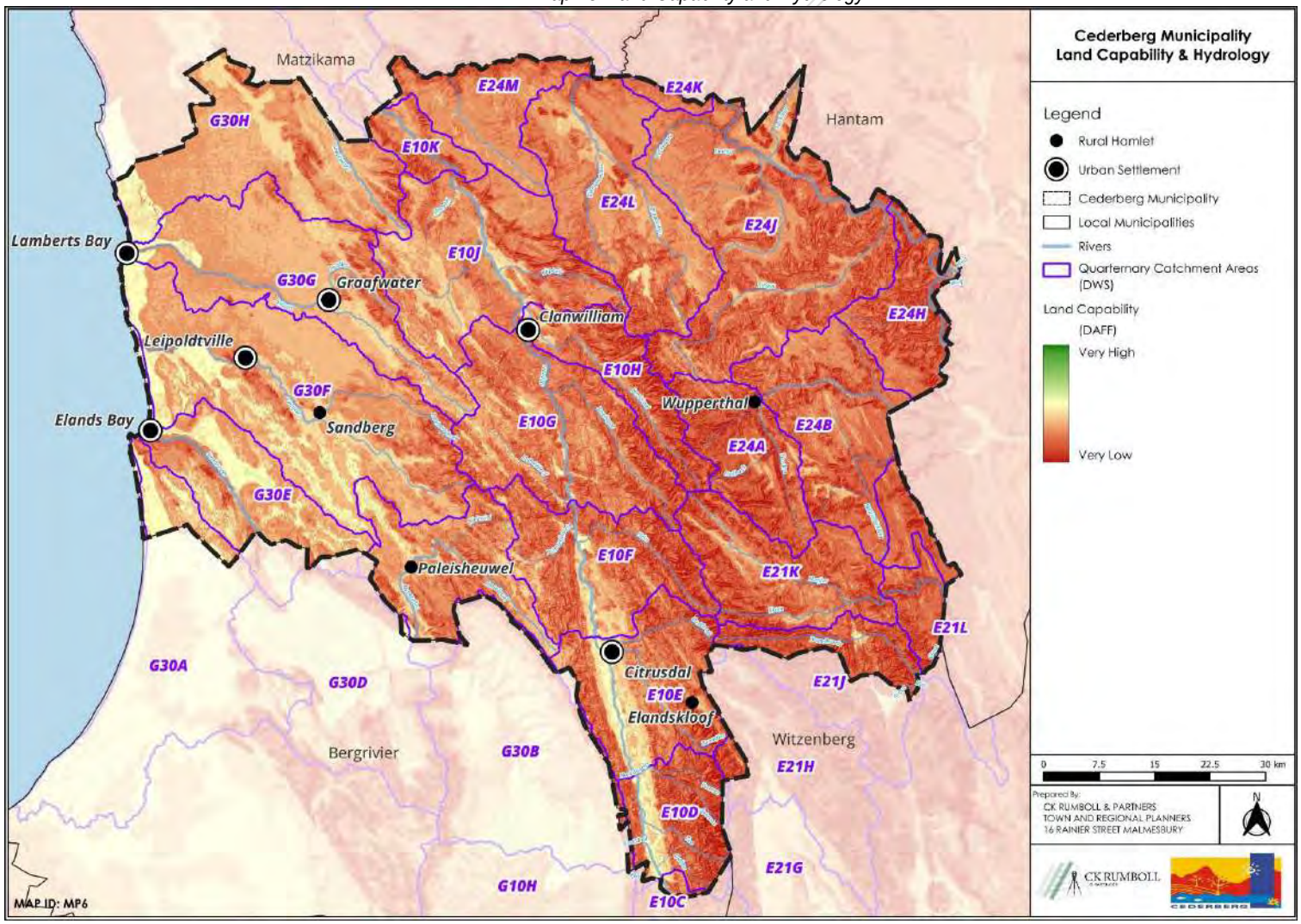
Water sources in terms of settlements

- The town of Citrusdal obtains its bulk water directly from the Olifants River and three Boschkloof Boreholes. The raw water is treated at the Citrusdal WTW before it is distributed to various consumers.
- The town is supplied with water from the Clanwilliam Dam, which is located on the Olifants River adjacent to the town and direct abstraction from the Jan Dissels River, which runs along the north-eastern edge of Clanwilliam. The raw water is disinfected and stabilised before it is distributed to various consumers.
- The town of Elands Bay is currently supplied with bulk water from three production boreholes. The raw water is disinfected before it is distributed to various consumers.
- The town of Graafwater is supplied with bulk water directly from groundwater by three production boreholes. The raw water is treated at the Graafwater WTW before it is distributed to various consumers.
- The town of Lamberts Bay is supplied with bulk water directly from groundwater by three production boreholes. The raw water is disinfected before it is distributed to various consumers. A new 1.7 Ml/d desalination plant was constructed but still needs to be put into operation to augment Lamberts Bay existing groundwater resources.
- The settlement of Leipoldtville is supplied entirely by one borehole which is located 640 m from the town centre. Information with regard to the current abstraction from the borehole was not made available, but the yield test indicated that the town may sustainably abstract 0.158 million m^3/a from the aquifer system (11 March 2019 GEOSS Report No: 2019/03-09).
- The settlement of Wupperthal obtains bulk water directly from a mountain stream. The abstraction and yield of the source is unknown. It is assumed that the current yield is equal to the assumed water requirement. It is important that the yield and actual abstraction from the source be determined in order to make a more realistic prediction of the current and future water resource situation for Wupperthal.
- The settlement obtains bulk water directly from the Elandskloof stream. Water is diverted from a small weir in the stream to a concrete storage dam, which is owned and operated by the Cederberg Municipality. The

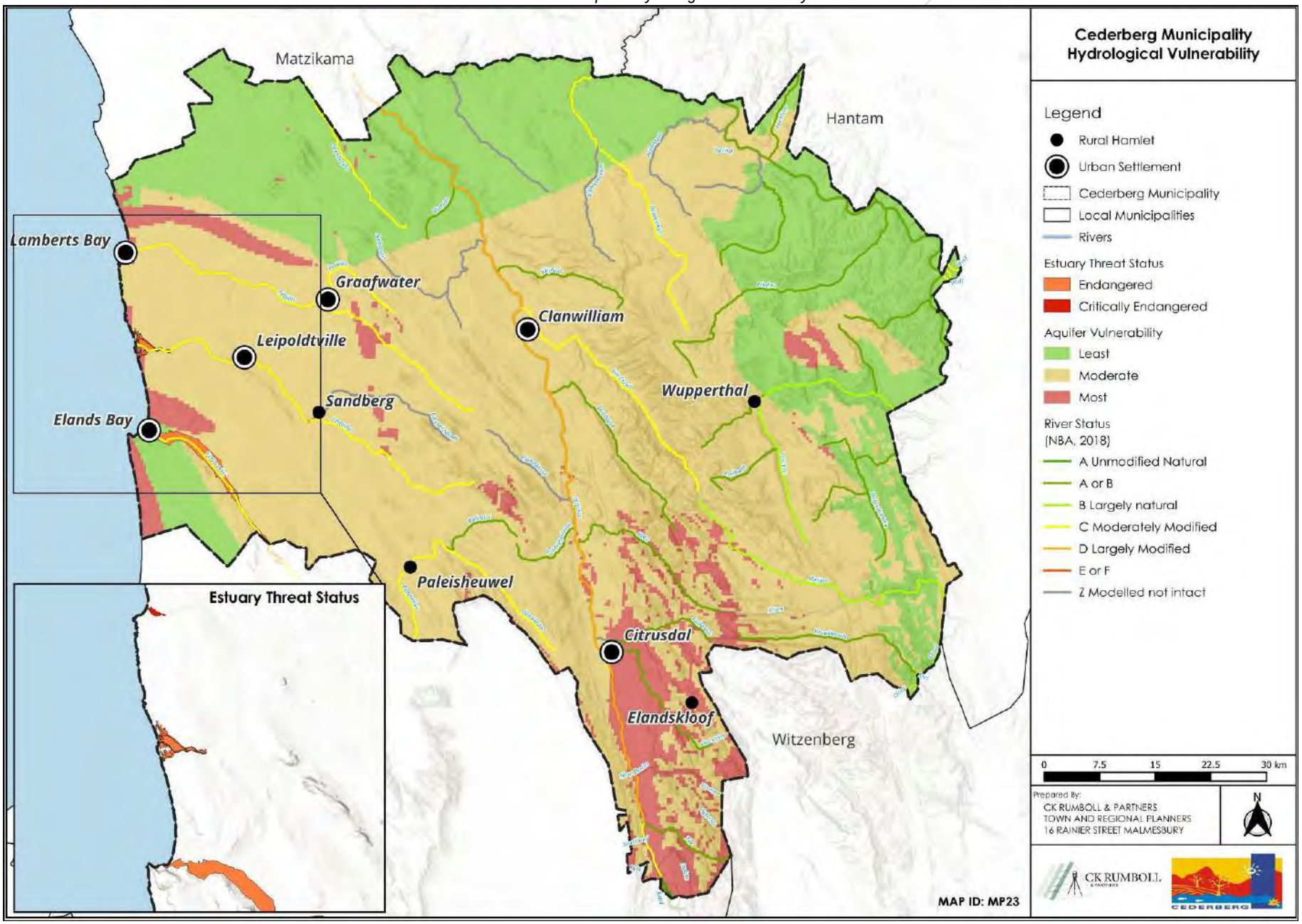
- yield from the stream, the existing reservoir storage capacity and the current requirement is unknown.
- The settlement of Paleisheuwel is supplied with bulk water directly from groundwater by one production borehole.
- The settlement of Algeria is supplied with surface water from a mountain stream and with groundwater from a single borehole.

Maps 9 and 10 provide a detailed overview of hydrological features located within the Cederberg Municipal area.

Map 13: Land Capability and Hydrology



Map 14: Hydrological Vulnerability



According to the IDP (2025), municipal assessments highlight infrastructure deficiencies across nearly every town:

- Citrusdal requires additional boreholes, reservoir expansion and water tankers because the Olifants River has dried up.
- Clanwilliam requires pump station upgrades, a new rising main and an additional borehole due to stressed river and dam supplies.
- Graafwater, Algeria, Elandskloof and Wupperthal require additional boreholes, reservoirs or emergency water supply.
- Lamberts Bay requires completion of a desalination plant because groundwater resources are under severe pressure.
- Municipality-wide priorities include JoJo tanks for emergency water supply and groundwater monitoring studies.

Directives

- Maintain and update groundwater maps for integration into municipal planning.
- Support water management strategies such as blending high-salinity water with fresher sources, promoting desalination or treatment technologies where feasible, and encouraging water-efficient irrigation practices in agriculture. Protect high-quality catchments from pollution caused by urban runoff, agricultural chemicals, and industrial activities.
- Implement effective water management systems in line with the Western Cape Ecological Infrastructure Investment Framework, 2021 to ensure long-term sustainability of local water resources.
- Ensure Wastewater Treatment Works (WWTW) capacity can accommodate future industrial development and maintain buffer zones around landfill sites to prevent contamination of water resources.
- Promote artificial groundwater recharge, greywater recycling, water conservation tariffs, and local water resource monitoring.
- Implement major protected area management plans to safeguard high-quality natural and cultural environments, particularly around World Heritage Sites, through integrated spatial planning and heritage-sensitive development.

2.1.7 Invasive Alien Species (IAS)

The Cederberg Municipality Invasive Alien Plant Monitoring, Control and Eradication Plan of 2021 is the main document guiding the Cederberg Municipality's efforts to control and eradicate invasive species. This document is in compliance with the National Environmental Management: Biodiversity Act (NEM: BA).

This plan surveyed 151 properties or management units across the municipal area and recorded 8 invasive alien plant (IAP) species. Species were mapped using Working for Water mapping standards, with infestation extent captured as percentage cover and classified according to NEM: BA categories. The table below provides an overview of identified IAPs.

Table 11: Identified IAPs

Species	Common name	NEM:BA category
Acacia cyclops	Red eye	1b
Acacia saligna	Port Jackson	1b
Prosopis glandulosa	Mesquite	1b
Myoporum insulare	Manatoka	3
Opuntia ficus-indica	Sweet prickly pear	1b
Casuarina cunninghamiana	Beefwood	1b / 2 (area-dependent)
Arundo donax	Giant Spanish reed	1b
Eucalyptus grandis	Saligna gum	1b / 2 (area-dependent)

Key spatial findings include:

- 49 properties contain Critical Biodiversity Areas (CBA 1 and 2) where IAP control is a priority.
- 29 properties contain Ecological Support Areas (ESA 1).
- 175 properties were identified as having a high fire risk associated with invasive vegetation.

- 198 properties contain riparian or wetland areas where clearing would improve water yield and ecosystem functioning.

The Cederberg Municipality Invasive Alien Plant Monitoring, Control and Eradication Plan of 2021 identifies significant environmental, hydrological, fire, and socio-economic impacts. Biodiversity and ecosystem impacts include the alteration of ecosystems structures and functioning, leading to loss of habitat and native biodiversity, and replacement of indigenous vegetation through dense invasions. Water resources impacts include the reduction of surface runoff and groundwater recharge due the consumption of more water by invasive plants than indigenous species, and riparian invasions increase evapotranspiration and reduce catchment water yields. Fire impact includes the fact that IAPs provide increased fuel loads and create more intense veld fires. Urban and economic impact include the reduction of ecosystem services, such as air filtration, stormwater attenuation, flood protection, and micro-climate regulation, due to invasions by IAPs.

The Cederberg Municipality Invasive Alien Plant Monitoring, Control and Eradication Plan of 2021 stipulate that the Cederberg Municipality should adopt strategic objectives, such as, Prevention, Early Detection and Rapid Response (EDRR), Duty of Care compliance, Appropriate control methods, Fire prevention and preparedness, and implementation of control plan, as part of the overall municipal approach towards IAPs.

Overall, the Cederberg Municipality's plan identified 8 priority invasive plant species across 151 municipal properties and recognises invasive plants as a major threat to biodiversity, water security, fire management, and ecosystem services. The Municipality proposes a risk-based, spatially prioritised control programme, supported by integrated clearing methods, mandatory follow-up operations, GIS-based monitoring, and regular reporting to ensure compliance with NEM:BA and to improve the long-term ecological condition of municipal land.

2.1.8 Conservation

The Western Cape Biodiversity Spatial Plan (WCBSP) identifies a network of biodiversity priority areas defined as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) designed to meet the objectives as defined in Chapter 5 Section 34-35 of the WCBA.

Cederberg Municipality was one of the municipalities included in the Cape Action for People and the Environment (C.A.P.E.) Fine-Scale Planning Project, which commenced through a partnership between CapeNature and the South African National Biodiversity Institute (SANBI). The project was intended to develop systematic biodiversity plans at a scale appropriate for municipal planning and for informing farm-level environmental authorisations. Cederberg was therefore among the early municipalities in the Western Cape to benefit from detailed biodiversity mapping and land-use guidelines.

The fine-scale biodiversity planning process produced biodiversity priority maps and associated land-use guidelines for Cederberg and other municipalities in the West Coast region. A specific Biodiversity Sector Plan Handbook was subsequently developed for the municipalities of Saldanha Bay, Bergrivier, Cederberg and Matzikama. This earlier work provided an important foundation for the development of the provincial WCBSP.

The WCBSP provides the Cederberg Municipality with scientifically informed spatial data identifying areas that are important for the conservation of biodiversity and the maintenance of ecological processes. The plan includes:

- Biodiversity Spatial Plan Map;
- mapped Critical Biodiversity Areas (CBAs);
- mapped Ecological Support Areas (ESAs);
- contextual information concerning biodiversity, ecosystems and land-use pressures;
- land-use guidelines; and

- supporting Geographic Information System (GIS) information and technical documentation.

Bioregional Spatial Planning Categories

The Bioregional Spatial Planning Categories (SPCs), consistent with the principles of bioregional planning and UNESCO's MaB (Man and the Biosphere) Programme have their origins in the Bioregional.

Planning Framework for the Western Cape. Bioregions can occur across municipal boundaries to provide meaningful geographical areas with common interest. The implementation of the categories is to support conservation and integration of natural areas, e.g., nature reserves and biospheres (WCBA, 2021).

The Bioregional SPCs were translated by the Department of Environmental Affairs and Development planning to SPCs as per the matrix below. A SPC map constitutes the basis of the Cederberg SDF.

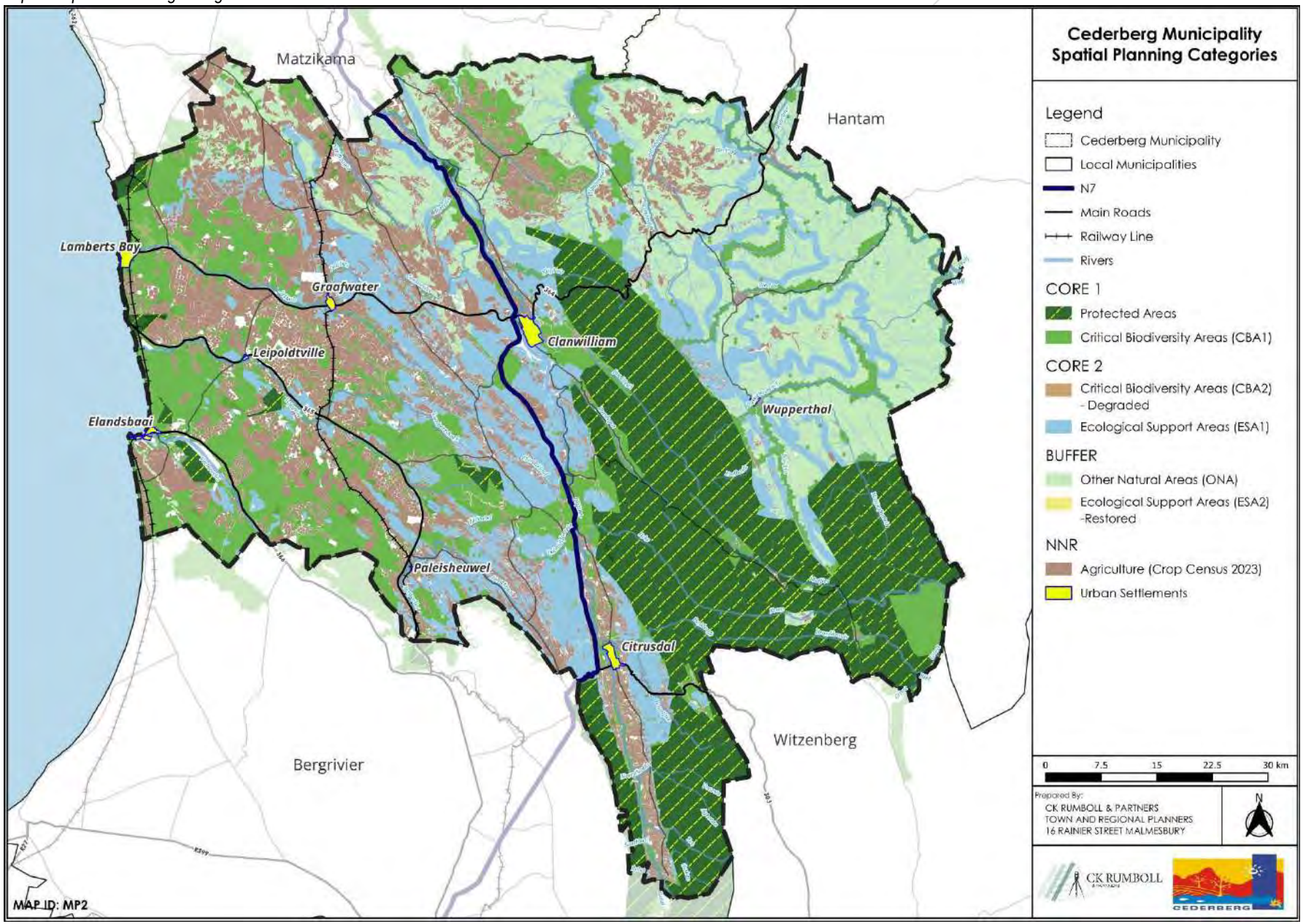
Figure 7: Bioregional SPCs

Biodiversity information critical to land use **vs. *Spatial Planning Categories***	Protected Areas	CBA* 1	CBA 2	ESA* 1	ESA 2	ONA*	NNR*
Core 1	■	■					
Core 2			■	■			
Buffer 1						■	
Buffer 2					■	■	
Intensive Agriculture							■
Settlement							■
Industry and Existing Mining							■

Table 1: CBA and ESA Maps Categories, recommended corresponding Spatial Planning Category

*(CBA – Critical Biodiversity Areas, ESA – Ecological Support Areas, ONA – Other Natural Areas, NNR – No Natural Remaining)

Map 15: Spatial Planning Categories



CapeNature Biodiversity Stewardship Sites

While the Western Cape Biodiversity Spatial Plan (WCBSP) provides a regional framework for identifying Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), CapeNature Stewardship sites translate these spatial priorities into tangible on-the-ground conservation actions. The CapeNature Biodiversity Stewardship Programme is a strategic initiative aimed at fostering cooperative partnerships with private landowners to promote the sustainable management and protection of biodiversity and natural resources located on privately owned land. The programme offers three levels of conservation agreements that vary in terms of legal status, eligibility criteria, permissible land uses, and associated benefits. These conservation options are tailored to accommodate varying levels of commitment and land suitability, thereby encouraging broader participation by aligning conservation objectives with landowners' interests and capabilities.

The following table illustrates the 7 CapeNature Stewardship sites located in the Cederberg Municipal Area.

Table 12: CapeNature Stewardship sites

Nr	Name	Location (Approx.)	Type	Status
1	Bakkrans	32.33°S 19.02°E	Contract Nature Reserve	Formal stewardship site
2	Cederberg Oasis	32.39°S 19.11°E	Contract Nature Reserve	Formal stewardship site
3	Dwarsrivier	32.50°S 19.28°E	Contract Nature Reserve	Formal stewardship site
4	Kromrivier	32.53°S 19.25°E	Contract Nature Reserve	Formal stewardship site
5	Pakhuis / Rocklands stewardship area	32.35°S 19.00°E	Contract Nature Reserve / stewardship conservation area	Stewardship site
6	Swartruggens / Cederberg stewardship area	32.30°S 19.10°E	Contract Nature Reserve	Formal stewardship site
7	Tandfontein	32.18°S 19.05°E	Contract Nature Reserve	Report as being incorporated into stewardship system

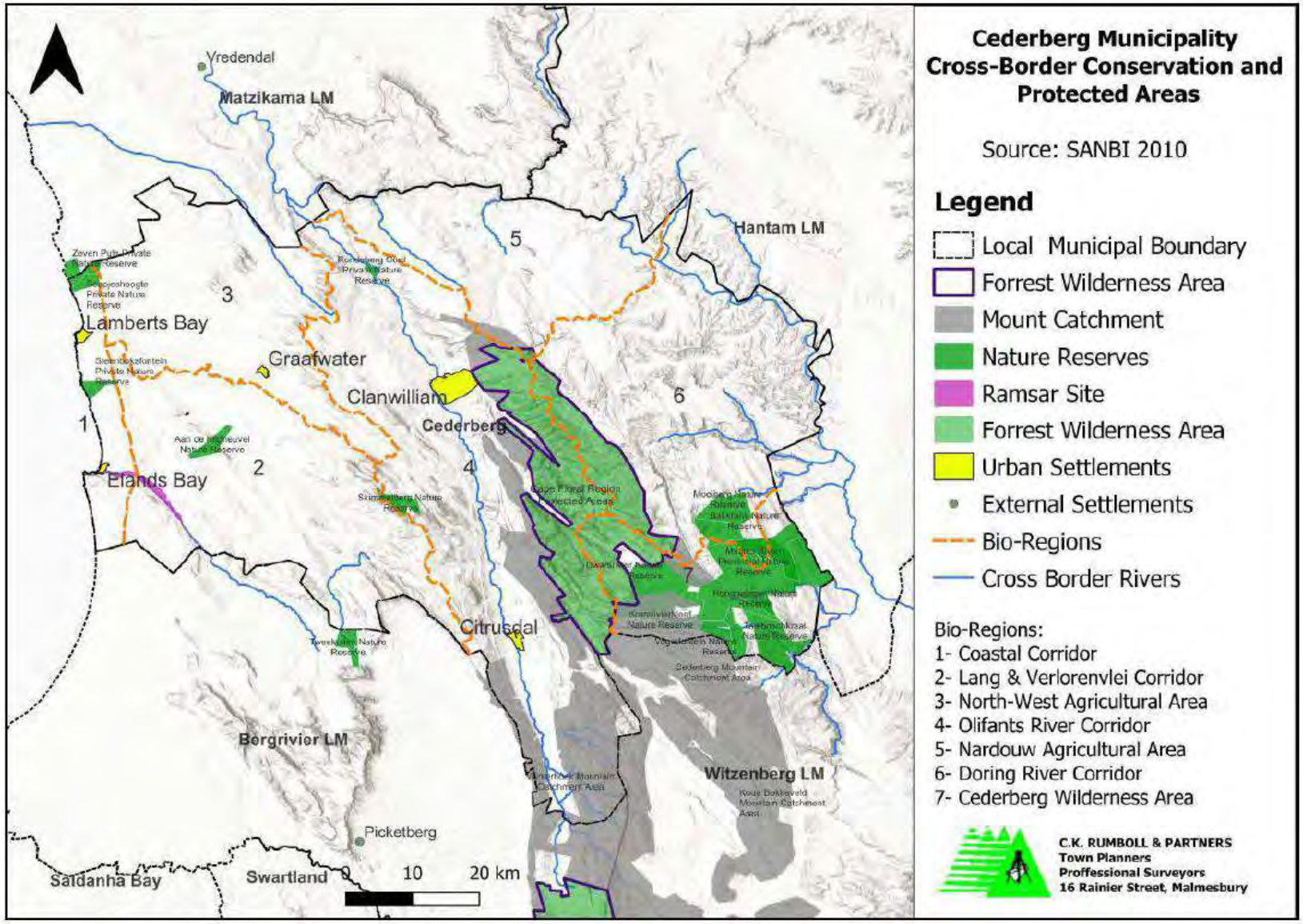
Directives

- Prioritise rehabilitation of degraded CBAs, especially in areas linking eastern and western ecological networks, to restore ecological connectivity.
- Manage pressure between urban expansion (Ceres, Tulbagh, Wolseley, Prince Alfred's Hamlet, Op-Die-Berg) and adjacent CBA/ESA areas by directing settlement growth to already transformed or low-biodiversity land.
- Align human settlement planning with WCBSP land-use guidelines, ensuring that future housing delivery is directed away from high-value aquatic ESAs and riparian CBAs.
- Prevent any further encroachment on and prioritise the rehabilitation of CBAs and ESAs that have been impacted by informal and unregulated land uses, including informal structures, farming, and illegal cemeteries, particularly in Tulbagh and Prince Alfred's Hamlet. Rehabilitation efforts should include removal of unauthorized developments, restoration of natural habitats, and community engagement to prevent recurrence.

Support the CapeNature Stewardship programme by encouraging the adoption of appropriate conservation agreements that align with land suitability and landowner commitment, ensuring the protection of biodiversity and natural resources on privately owned land.

Map 16: CapeNature Stewardship Sites

Map 9: Swartland Cross-border Ecological Infrastructure



2.1.9 Biodiversity

Biodiversity of the Cederberg Conservancy, enjoying World Heritage Site status, is under increasing threat from agriculture, urban development and invasive alien species, with only 9% of the unique Renosterveld and Lowland Fynbos ecosystems remaining, and much of the Succulent Karoo also under threat. The transitional areas between these two biomes (generally occurring over linear distances that may span hundreds of kilometres) are home to a mix of species of both biomes.

The IDP (2025) states that the conservation area that extends from the coastline of the Cederberg Municipality to the Cederberg Mountain range is known as the Greater Cederberg Biodiversity Corridor.

The Western Cape Biodiversity spatial plan handbook (WCBSP) is a spatial tool that comprises the biodiversity spatial plan map of biodiversity priority areas, accompanied by contextual information and land use guidelines that make the most recent and best quality biodiversity information available for land use and development planning, environmental assessment and regulation and natural resource management. The Western Cape Biodiversity spatial plan handbook was developed by the Cape Nature scientific services land use team in 2017, and it is supported by the Western Cape Department of Environmental Affairs and Development Planning.

The Biodiversity Sector plan for the Saldanha bay, Bergrivier, Cederberg and Matzikama Municipalities compiled by Cape Nature and South African National Parks in 2010. This Biodiversity Sector Plan is intended to be the biodiversity informant for these various multi-sectoral planning and decision-making procedures as it represents current and detailed spatial information, which is adequate to execute informed decision-making as required by the National Environment Management Act (NEMA) (Act No. 107 of 1998). Furthermore, the Biodiversity Sector Plan serves as the framework for the compilation of a bioregional plan1 and g in terms of Chapter 3 of the National Environmental Management: Biodiversity Act (NEMBA) (Act No. 10 of 2004).

Biodiversity and Ecosystem Health:

Protecting biodiversity as healthy ecosystem is central to human well-being and are the foundation for clean air and water, fertile soil and food production. Well-functioning ecosystems buffer communities from climate change impacts such as extreme weather, floods and droughts, erosion and trapping sediment and alien species invasion.

Promote the establishment and maintenance of the Greater Cederberg Biodiversity Corridor, a cross-border corridor “from Karoo to Coast” and include Sandveld, Groot Wintershoek and Cederberg Core Corridor:

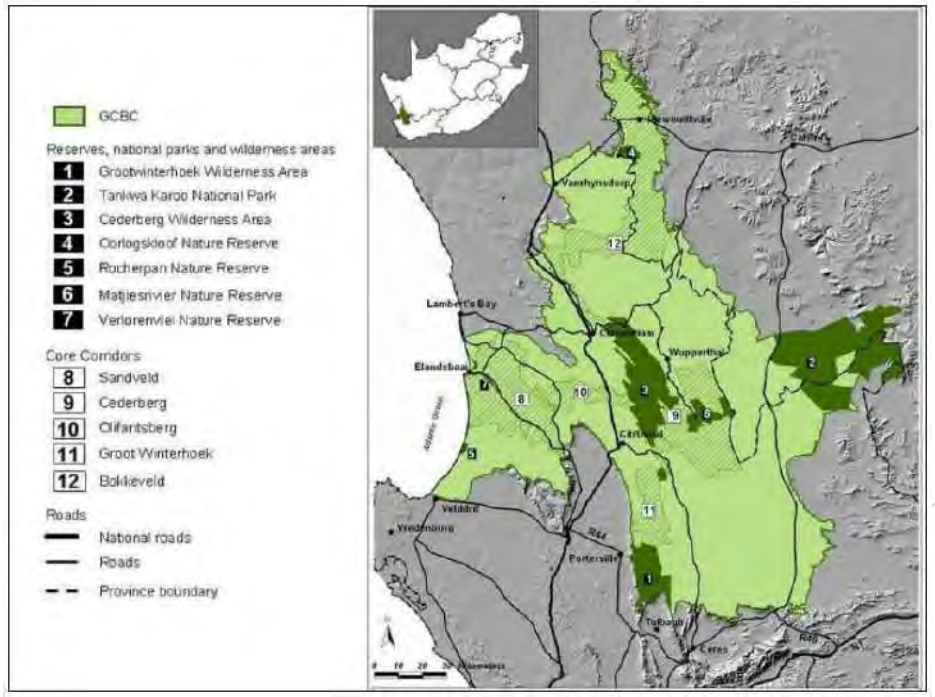
Promote the Cederberg Nature Reserve Complex comprises of the Cederberg Wilderness, Matjies River Nature Reserve, Hexberg State Forest, Cederberg Wilderness Area (with links to the Tankwa Karoo National Park), the Cederberg Conservancy and the Rooi Cederberg Karoo Park.

Counteract the fragmentation of ecosystems and provide migratory routes for all life forms, from the West Coast to the Cederberg Mountains and beyond to the Succulent Karoo:

- as a historically important mammal corridor and home to the endangered Cape Leopard and Cape Mountain Zebra, as well as various fish, bird, reptile and insect species.

As one of the ten most important wetlands, Verlorenvlei is home to over 200 bird species, including mating and breeding birds, wading birds, threatened and migratory bird species, as well as threatened and endemic fish. And protects the Moutonshoek catchment.

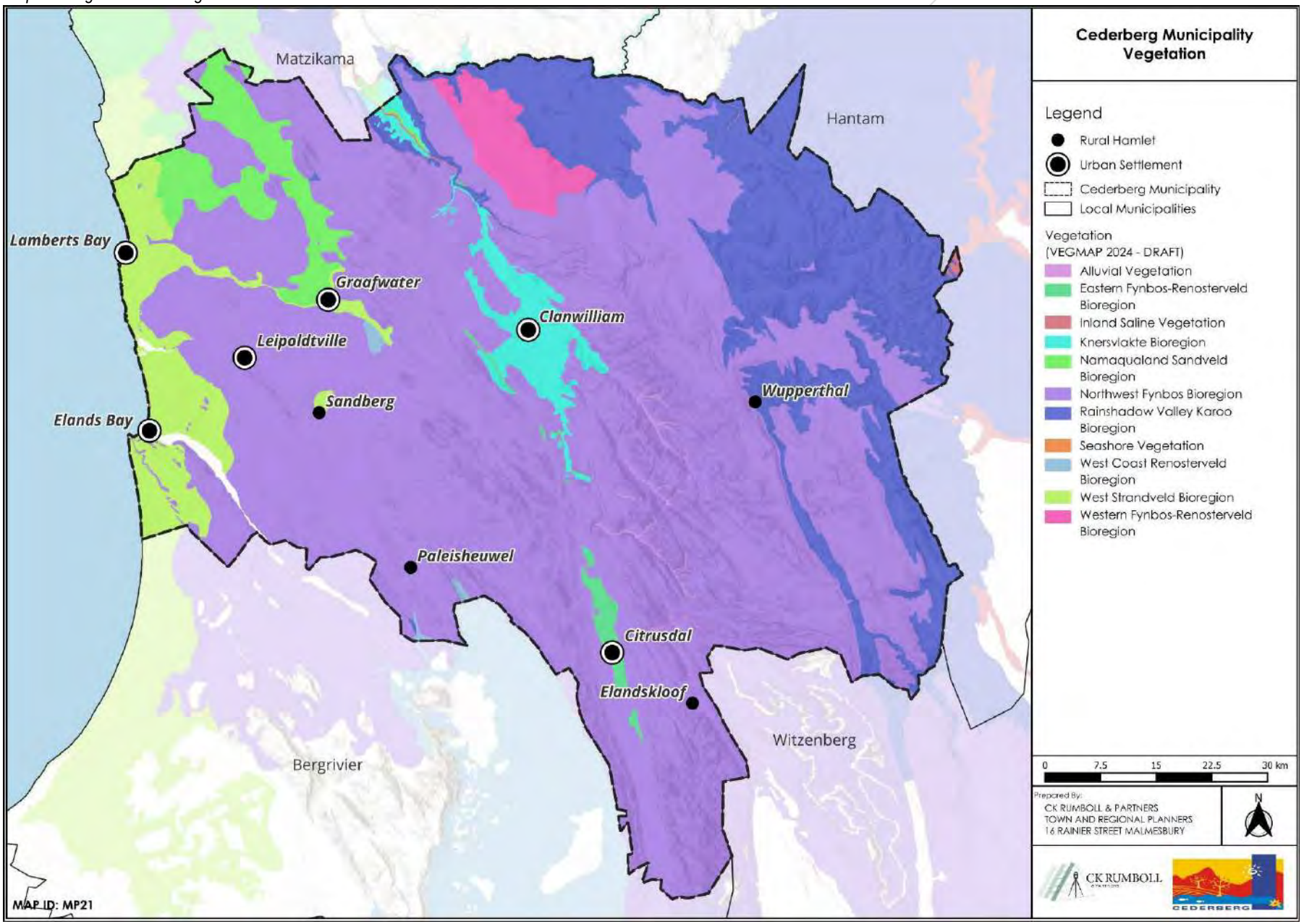
Map 17: Catchment areas in Cederberg



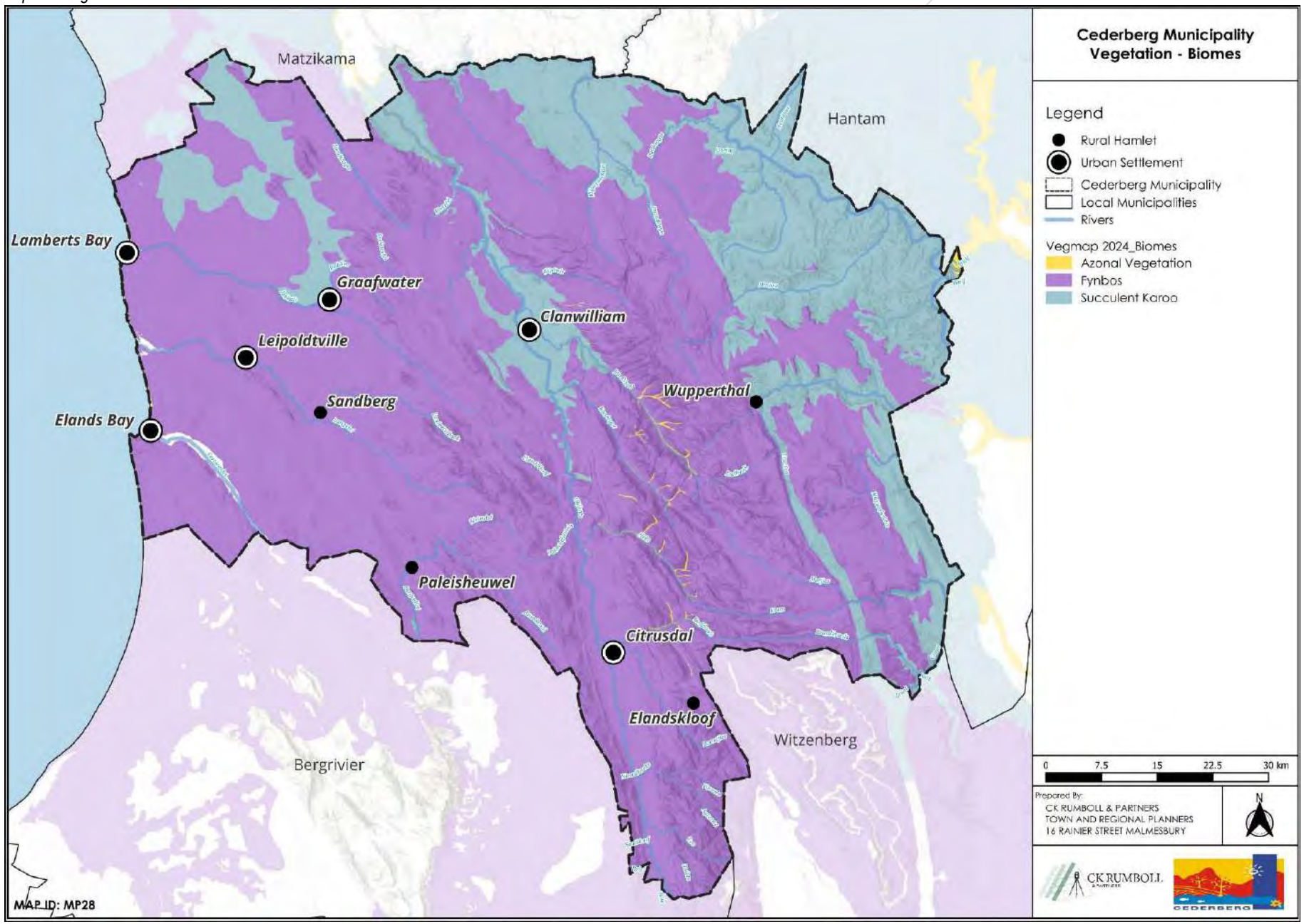
Directives

- Ensure all land-use and development decisions, including urban expansion, agriculture, and industrial projects, account for the ecological sensitivity of bioregions. Implement biodiversity offsets and conservation corridors where development is unavoidable.
- Implement a 'no mowing' period for indigenous vegetation from August to the end of November to support wild plant blooming and pollination as part of biodiversity management efforts.
- Establish biodiversity and ecological corridors between identified priority biodiversity areas to sustain and consolidate the rich biodiversity of Cederberg Municipality. Support conservation actions for species and habitats that maintain, protect, and enhance biodiversity and landscapes.
- Prioritize the conservation of critical biodiversity areas (CBAs) and both public and private nature reserves within the municipality to protect indigenous vegetation and wildlife habitats essential for climate resilience.
- Spatially delineate landscapes to be maintained and restored that play key roles in buffering the impacts of climate change, such as erosion-prone slopes, riparian zones, and degraded habitats.
- Support renewable energy development, including PV and wind, in suitable areas such as the Komsberg REDZ, while avoiding ecologically sensitive biomes and bio-regions (Fynbos and Renosterveld).

Map 18: Vegetation Bio-Regions



Map 19: Vegetation Biomes



2.1.10 Air Quality

According to the West Coast District's Integrated Air Quality Management Plan (2019-2024) the types of complaints received by the Cederberg Municipality are Dust (from road networks and construction), Odour (from waste dumping and sewage spillages), smoke (from burning of waste and tyres) and agricultural activities such as spraying of pesticides near residential areas.

According to Table 13 of the West Coast District's Integrated Air Quality Management Plan (2019-2024) none of the listed activities, according to Section 21 of NEM: AQA, identified were located within the Cederberg Municipal area.

Poor air quality compromises people's health (Climate Change Theme 5) and livelihoods - specifically when exposure to atmospheric pollutants leads to respiratory diseases, which indirectly weakens immune systems and reduces optimal functioning. Poor health, in turn, increases vulnerability to the impacts and effects of other, unrelated threats brought about by disasters or economic hardship, such as extreme weather conditions or food shortages.

A map of potential risk, i.e., combining air pollution hazard with vulnerability, is generated by multiplying a vulnerability index with the values from potential emissions factors calculations (Figure below). The map shows how the potential hazard (count of potential emissions source types) and vulnerability interact to generate a picture of the relative risk of experiencing impacts from poor air quality.

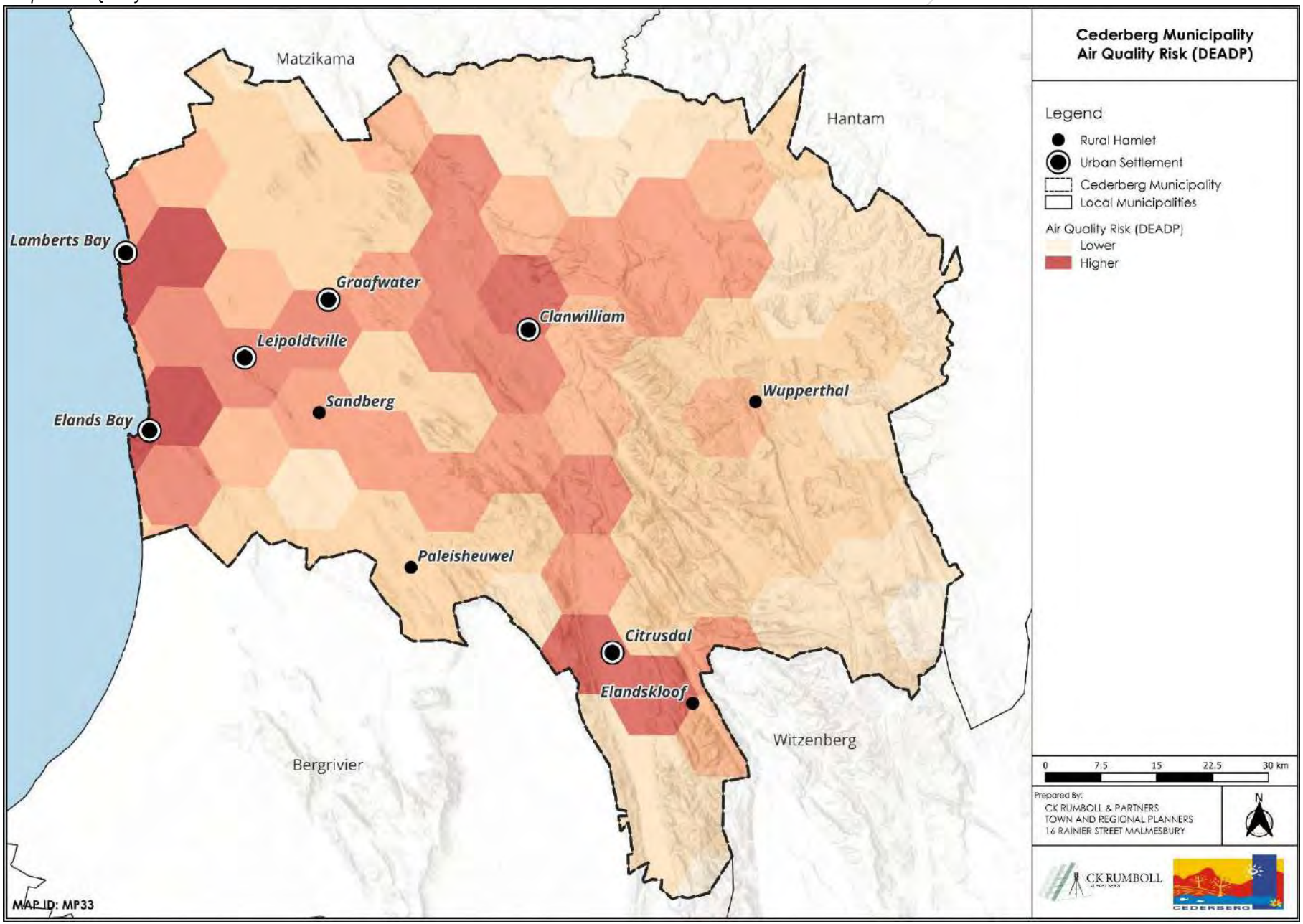
Susceptibility to respiratory infection, on the other hand, is not mapped directly by authorities, but the CSIR has compiled a health index at census enumerator area scale for the purposes of mapping COVID-19 related risk 7 based on a combination of values for:

- Poverty
- Age
- Child mortality
- HIV
- Life expectancy

This index is used to highlight where communities are most likely to have high sensitivity to poor air quality from a health risk perspective.

Air quality can decrease because of increased temperatures, greenhouse gas emissions and demand for local fuels. Impacts associated with climate change and the failure to implement mitigation measures may result in increased air pollution episodes. Measures to address climate change include increasing the number of monitoring stations in the Western Cape, effective dissemination of air quality information and introducing cleaner fuel programmes for households and transport.

Map 20: Air Quality Risk



2.1.11 Agriculture

Agricultural cultivation is mostly intensive, comprises irrigated citrus and mango orchards, potato and rooibos tea fields, small grain, limited vineyards and some commercial pine plantations around Algeria forest station. Livestock farming is low key. Small scale farming or subsistence farming is limited. Agri-processing is largely represented by, but not limited to, Rooibos tea and wineries.

Agriculture as an economic sector is very important. According to the IDP (2025), the production of fruits, including citrus, grapes and olives, as well as rooibos tea, is what the Cederberg Municipal area is largely known for. Agricultural practices also include livestock industry, such dairy farming and sheep farming. Agriculture contributes significantly to the local economy, not just commercially but also through the amount of employment opportunities that are provided in this sector.

According to the IDP (2025):

- Agriculture is intensive labour.
- Agriculture contributes 26.2% to GDPR but employ 42,6% of workers.

Agricultural production is supported by varied soil types and landscapes. Fertile valley floors underlain by Bokkeveld mudstones are well suited to vineyards and fruit orchards, while the surrounding sandstone-derived soils are generally acidic, nutrient-poor and have low moisture-retention capacity. Land capability varies considerably across the municipality, with only selected areas suitable for intensive cultivation and much of the landscape being better suited to grazing, conservation or extensive agricultural use (IDP, 2025).

The municipality identifies several priority agricultural sectors for future growth and value addition. These include citrus, rooibos and potatoes, with opportunities for agricultural beneficiation, agri-processing and agri-tourism. The Local Economic Development (LED) Strategy further promotes support for agricultural cooperatives, replication of successful farming initiatives, investment promotion and improved bulk infrastructure to strengthen agricultural competitiveness and rural economic development (IDP, 2025).

Agriculture also plays a central role in rural development through the management of municipal commonage. Commonage land is intended to support emerging and small-scale farmers through livestock production, crop cultivation, eco-tourism and small business development (IDP, 2025).

Despite its strengths, the agricultural sector faces significant challenges. Climate change, increasing drought frequency, unreliable water supplies, groundwater depletion, infrastructure constraints and the need for skilled labour threaten long-term sustainability. The municipality therefore prioritises improved water security, climate resilience, investment in agricultural infrastructure, support for emerging farmers, partnerships with commercial farmers and the protection of high-value agricultural land through spatial planning policies (IDP, 2025).

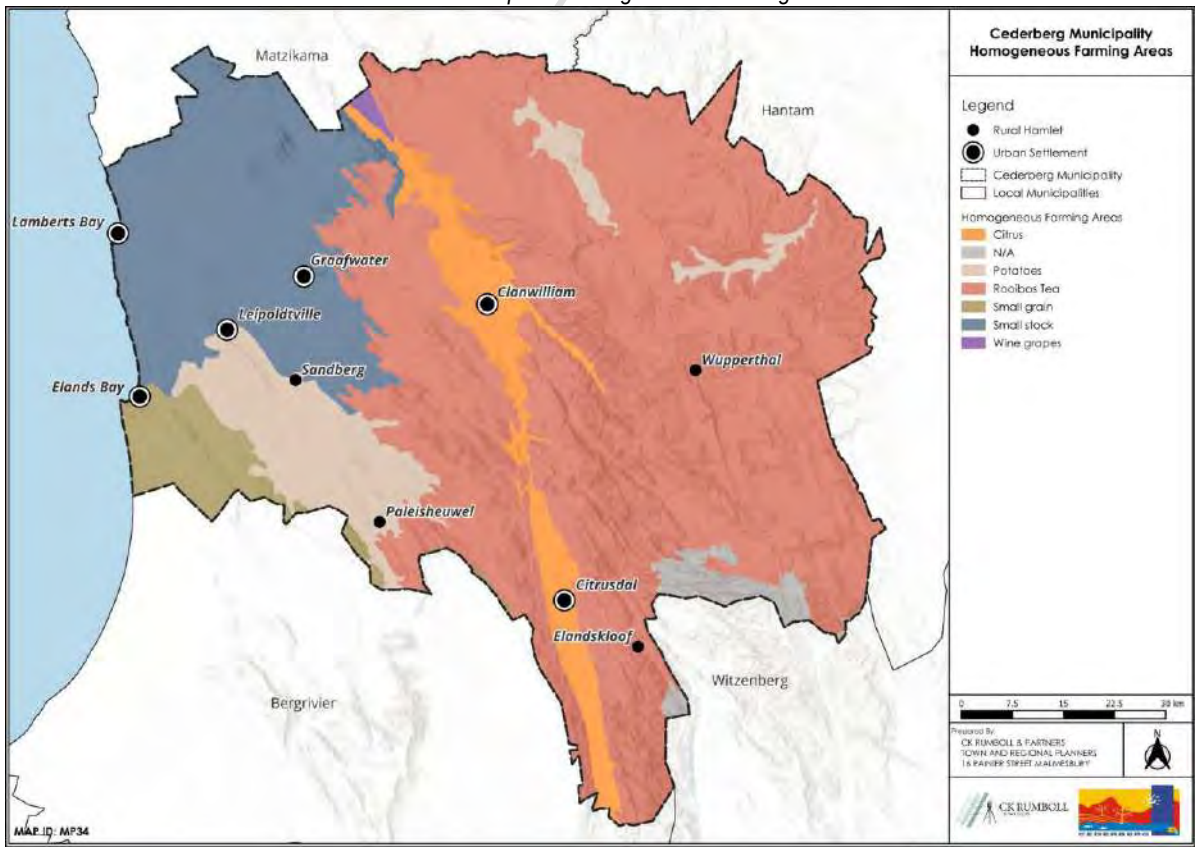
The Western Cape Government's SmartAgri Plan can guide Cederberg's agricultural sector in responding to climate change. The plan outlines priority actions, available resources, and avenues for collaboration and coordination. Precision water and crop management using Fruit Look also holds significant potential for farmers in the municipality to enhance agricultural sustainability and climate resilience. This advanced information system aims to reduce water consumption and input costs (including electricity, water, and fertilizers), improve crop yields, and, through ongoing data collection, identify cultivars that thrive under changing climatic conditions per region and sector. Over time, Fruit Look could contribute to long-term sustainability and climate adaptation strategies.

Directives

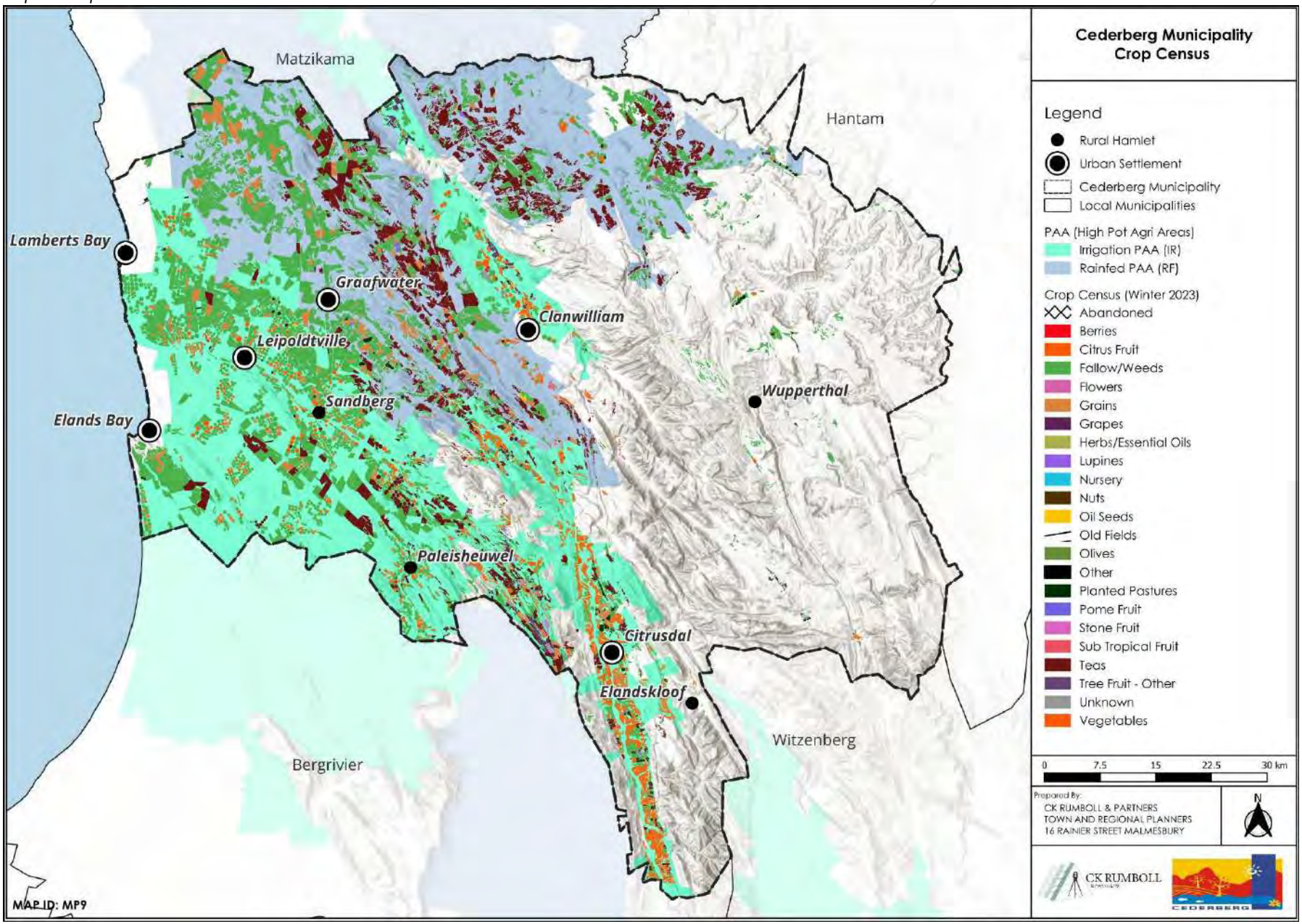
- Enhance the increasing uptake and potential for change to sustainable/climate-smart practices to absorb the impacts of climate change being experienced in the sector.
- Support uptake of renewable energy solutions and greater energy efficiency to compensate for energy insecurity.

- Encourage and support farmers by experimenting and finding innovating responses to climate pressures, particularly early adopters of climate-smart practices.
- Support response to climate change by implementing the SmartAgri Plan.
- Support job creation, emerging farmers and land reform.
- Avoiding the subdivision of agricultural land or changes in land use to minimize the loss of agricultural activities and prevent the creation of uneconomical agricultural units.
- Enabling the diversification of farmer income through complementary land uses on farms that do not detract from the functionality and integrity of farming areas and landscapes.
- Developing incentives for smarter/green agricultural practices and technologies.
- Making municipal commonages and land on the edges of settlements available for small/emerging farmers and/or community gardens.
- Supporting alternative farming models, such as transforming unused and uncontaminated industrial land into community gardens.
- Supporting private initiatives to address the housing needs of agri-workers and the provision and management of associated social services.

Map 21: Homogeneous Farming Areas



Map 22: Crop Census

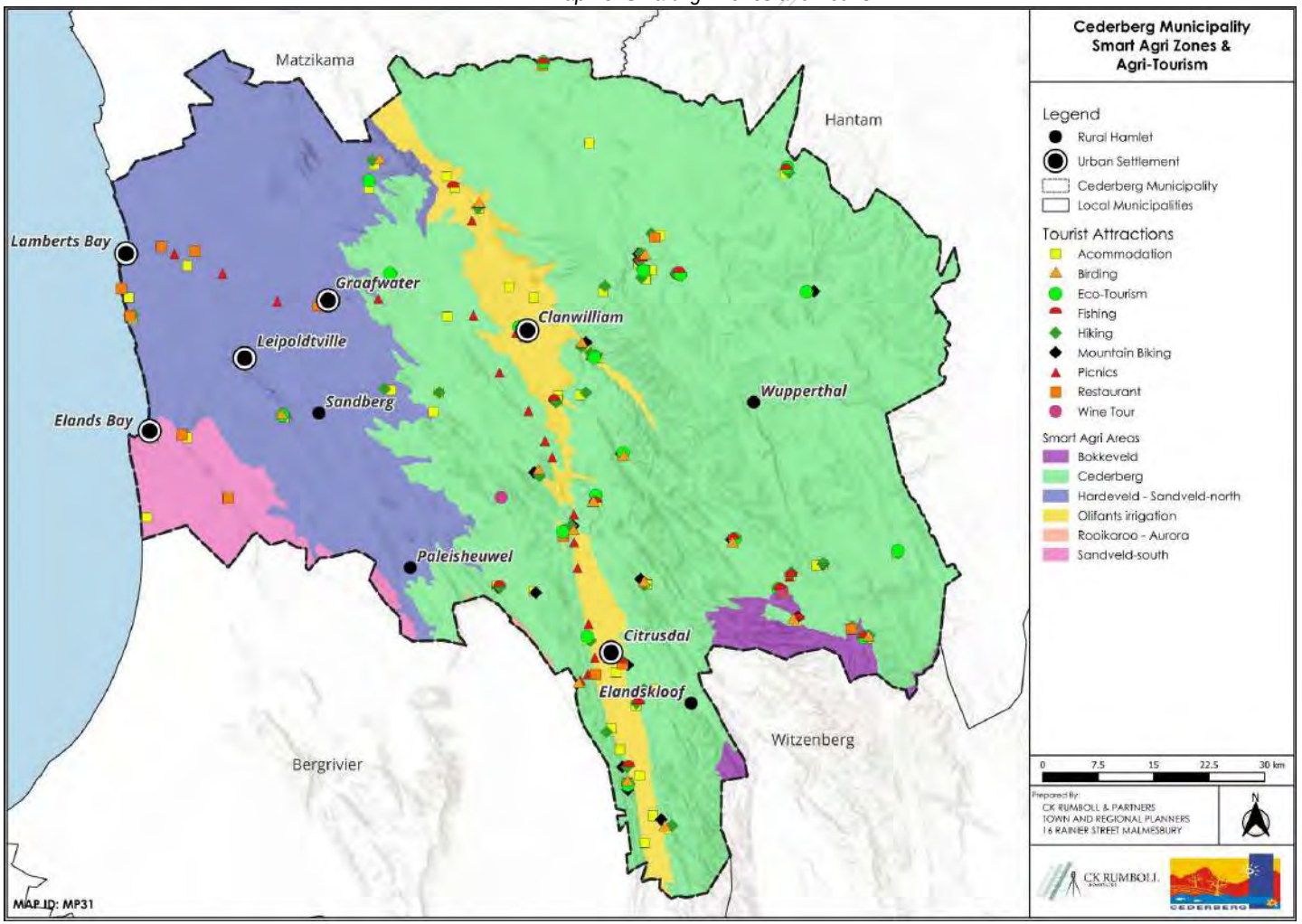


2.1.12 SmartAgri Plan

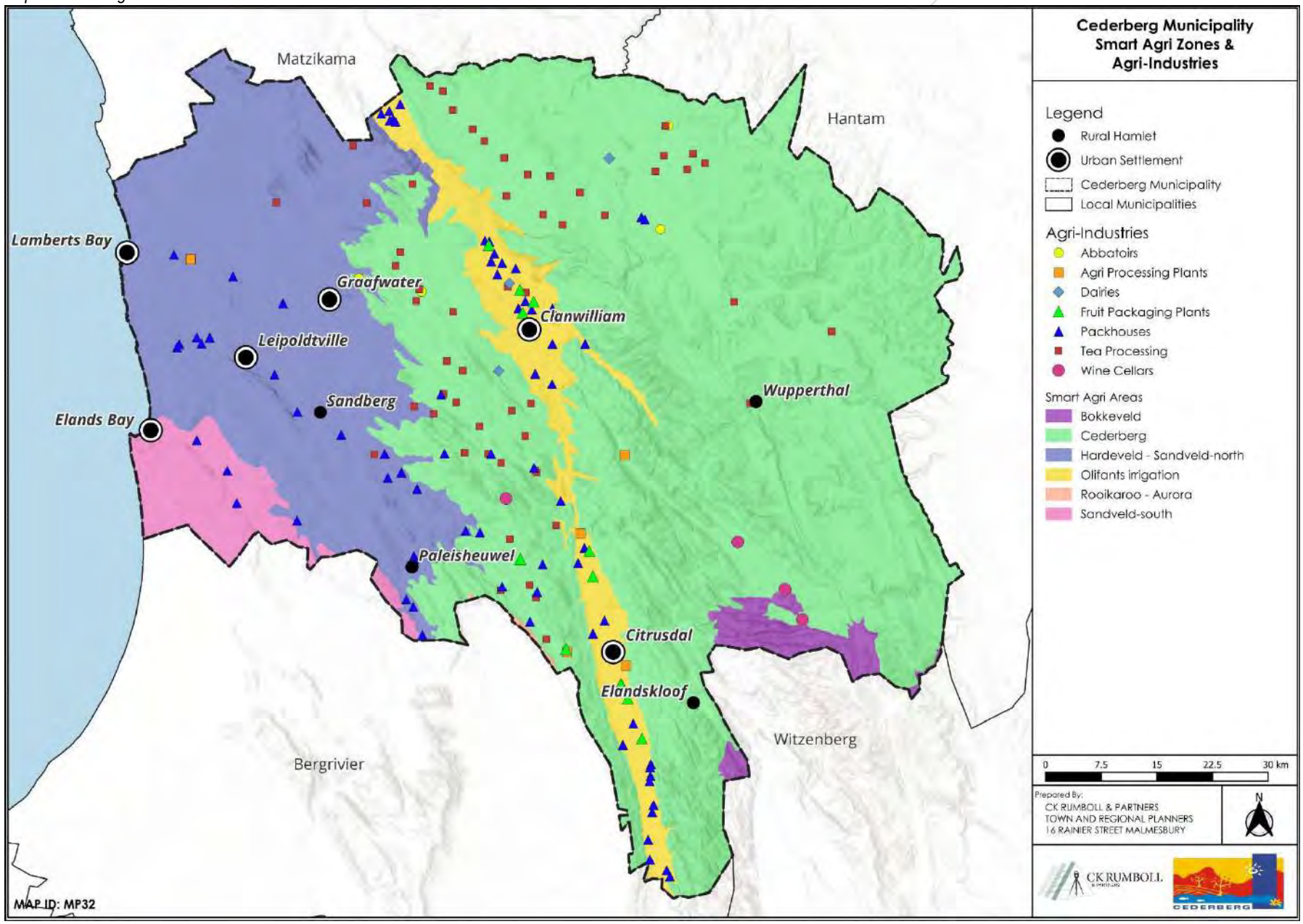
Precision Water and Crop Management using Fruit Look: The continuous data collection over time will provide valuable insights into the effects of changing weather patterns on different cultivars, regions, and agricultural sectors.

- To enhance agricultural sustainability and climate resilience, Fruit Look technology shall be utilized to optimize water and nutrient management.
- A broader adoption and further refinement of Fruit Look will significantly strengthen farmers' ability to monitor and adjust crop and water management practices in response to climate risks.

Map 23: SmartAgri Zones and Tourism



Map 24: SmartAgri Zones and Infrastructure



Socio-Economic Spatial Analysis

2.2 Socio-Economic

2.2.1 EnvironmentHistory and Heritage

Cederberg Municipality, established on 22 September 2000 through the amalgamation of several former municipalities and transitional councils, includes the settlements of Citrusdal, Clanwilliam, Graafwater and Elands Bay, Leipoldtville and Lamberts Bay, as well as the Wupperthal. A significant feature of this municipality is the Cederberg Wilderness Area, a conservancy of 66,811 ha, which forms part of the Cape Floristic Region, and is therefore a World Heritage Site. The conservancy was established in 1973 (CapeNature, 2026)[11]. The municipality's name is derived from the cedar trees (*Widdringtonia cedarbergensi)* endemic to the area. Historically, these trees were extensively harvested for their wood and, this historical trend, together with too-frequent veld fires, means that they are now critically endangered.[12]

The Cederberg area was long inhabited by the San and Khoi people. The area has a long record of human presence, especially in the form of rock art, with sites dated to between 500 – 7000 years old, although the presence of these peoples in this region is longer.[13] A recurring theme in these paintings throughout this region, is elephants, which number as many as 200 sites, with some 600 elephants. These paintings reflect the importance of this multi-species relationship in this landscape, a deep understanding of elephant anatomy, behaviour and lifeways, as well as the spiritual importance of elephants to the San people.[14]

The earliest colonial expedition to the Cederberg area, to approximately where Clanwilliam is now, was led by Jan Dackaert in 1660. During this expedition, the Olifants river, which was called the *Tarakamma,* was encountered, along with many elephants, for which the river was named.[15]

The European arrival pushed the San population out of the region, with the establishment of the farm that would become Clanwilliam in time. Historic buildings in rural areas are modest and simple using neoclassical detail Clanwilliam, which was established in 1814, on the grounds the Jan Disselsvalleij, which was established in 1725, is considered the 8th oldest town in South Africa.[16]

In the north, the old Moravian mission station of Wuppertal remains, the heart of a small subsistence farming community, and home to a local industry producing veldskoene, traditional soft leather shoes.

The settlements in Cederberg Municipality were founded between 1814 and 1916. They were established on a grid layout.

Table 13: Settlement Establishment Dates

Founded	Declared	Settlement
1725 (Jan Disselsvalleij)/1814 (Clanwilliam)	1901	Clanwilliam
1887	1969	Lamberts Bay
1905		Leipoldtville
1910		Graafwater
1916	1957	Citrusdal
nd		Lamberts Bay

The region is also characterised by mountainous areas, and a pristine coast, with many scenic routes and passes, including:

Table 14: Scenic routes in Cederberg

Scenic Routes	Passes/Coastal	Distance (km)

[11] https://www.capenature.co.za/reserves/cederberg-wilderness-area (Accessed 14/07/2026)
[12] SANBI https://pza.sanbi.org/widdringtonia-cedarbergensis (accessed 14/07/2026)
[13] Paterson, 2025
[14] Paterson, 2018; Paterson, 2025
[15] Paterson, 2025
[16] Clanwilliam Tourism Bureau https://clanwilliam.info/ou-tronk-museum/ (Accessed 14/07/2026)

R364 between Clanwilliam to Graafwater and Lamberts Bay	Carstenberg Pass	10.5km
R303 between Citrusdal and the Koue bokkeveld	Elandskloof Pass	7.1km
R303 between Citrusdal and Ceres	Gydo Pass	na
P1482 Southern Cederberg between Kromrivier, Matjiesrivier, Nuwerus and Mount Ceder Farms	Grootrivierhoogte	na
R364 between Clanwilliam to the Cederberg Wilderness, connecting to Calvinia	Pakhuis Pass	26,4km
P1487 connection between northern and southern Cederberg Wilderness areas	Uitkyk Pass	4,7km
The West Coast Way "Berg Route"	Coastal Tourism Route	Na
The West Coast Way "Wild Route".	Coastal Tourism Route	Na

Settlement patterns, and subsequently, inequality of access to facilities, have been shaped by apartheid spatial planning, with the development of racially segregated areas on the outskirts of historical town centres in terms of the apartheid era Group Areas Act, 1950. In alignment with the SPLUMA principles of spatial justice, and sustainability, this spatial framework seeks to foster access to quality amenities, housing and mobility opportunities to promote equality of opportunities to all residents of Cederberg, especially people who have been historically marginalised.

Directives

- Protect passes and scenic routes, retain view lines and vistas.
- Protect all identified provincial heritage areas and cultural landscapes.
- Protect all identified rural heritage landscapes and settlements through the provisions of NHRA.
- Protect and enhance all landmarks, views and character areas (river corridors, koppies, unique vegetation, agricultural areas).
- Prioritise infill, intensification and redevelopment within settlements to avoid encroachment into surrounding scenic landscapes or sites of visual significance.
- Recognise historical settlement typologies and avoid indiscriminate or inappropriate forms of development, protecting historic precincts and creating new precincts.
- Identify key place-making and resource assets and define non-negotiable interfaces for these assets.
- Relax parking ratios and building lines prescribed in zoning schemes for heritage areas to retain the relationship between building and street and to allow for continuity of historic streetscapes.
- Redress socio-spatial inequality by providing access to social facilities, housing and mobility, prioritising infill development to connect outlying areas to historical centres.

2.2.2 Demographic Profile

Population and Population Growth

Cederberg has the smallest population in the West Coast District Municipality. As set out in the SEP 2024, the estimated population is 62 693 (2024), which makes up 17 096 households (2024). This represents 12.8% of the total population of the West Coast. This represents an increase of 2 956 people and 375 households, from 2021 population estimates of 59 737 people and 16 721 households. Between 2016 and 2021, the population of Cederberg increased by 7 000 people and 1 939 households over a five-year period.

According to the SEP 2024, the population growth until 2029 is projected to proceed at a similar rate to the previous period, at 1.1% per annum between 2023 and 2029, which would mean a population of 67 006 people by 2029. This population growth rate is lower than the overall growth rate for the Western Cape.

Table 15: Population Growth 2011 - 2035

	Census 2011	Census 2016	SEP 2021	SEP 2025	2030	2035
Population	49 768	52 949	59 737	61 702	67 341	70 607
Households	13 513 (3.5)	15 279 (3.5)	16 721 (3.8)	16 676 (3.7)		
Annual Growth Rate	2.3%	1.2% (2011 - 2021)	1.1% (2021-2025)			

The average household size is 3.5 – 3.7 persons and there are 32% female headed households.

The majority of the Cederberg population is between 15 and 64 years of age, a cohort that represents the labour force.

Table 16: Age Cohorts

Age	2021	% of Total (2011)
0 – 14	15 233	25.5%
15-34	20 370	34.1%
35-64	20 191	33.8%
65-116	3 823	6.4%
Total	59 737	100%

Cederberg's settlements classified according to their populations ('000) have: Citrusdal, Clanwilliam, Elands Bay, and Lamberts Bay as villages (population between 5 000 – 25 000) and Graafwater and Leipoldtville as remote villages (population ≤5 000). (There is no regional service Centre in the Cederberg as there is no settlement population between 25 000 – 60 000.)

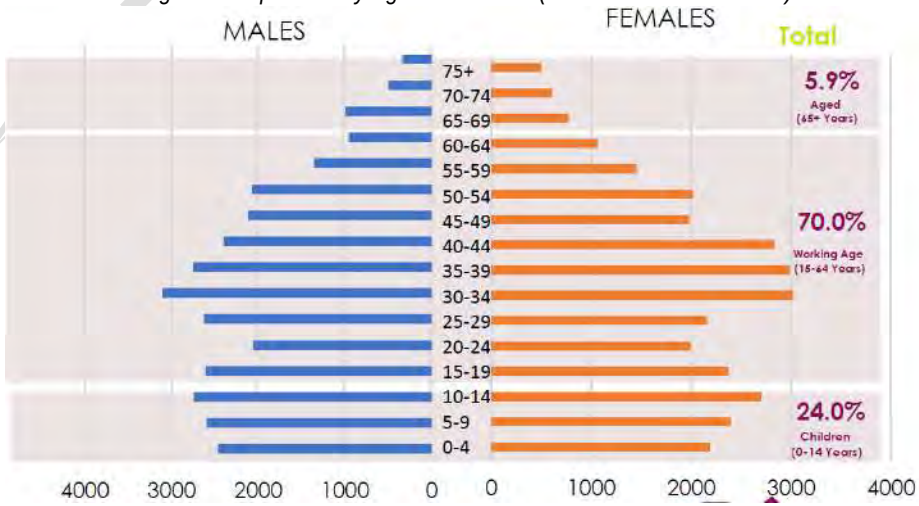
Table 17: Population 2011, 2021 for Settlements of the Cederberg

Town	Population, 2011	Population, 2021
Citrusdal	7 177	8 615
Clanwilliam	7 674	9 211
Elands Bay	1 525	1 830
Lamberts Bay	6 120	7 348
Graafwater	2 261	2 714
Leipoldtville	298	358

Age Cohorts

The population of Cederberg is relatively young, with a significant proportion of children and youth. The highest proportion of people living in Witzenberg are between 30 – 39 years old, followed by people between 40 – 44. The proportion of people over 55 is lower relative to other age bands. There are slightly more males living in Cederberg than females, with a gender split of 50.4% male, and 49,6% female, a trend that is consistent with the West Coast District.

Figure 8: Population by Age and Gender (Source: WCG SEP 2024)



Households

Average household sizes, as determined by the Socio-Economic Profile of Cederberg for 2024, were applied to the current estimated population figures (from MYPE 2024) for each settlement. The current average household size is 3.6 people per household (SEP 2024).

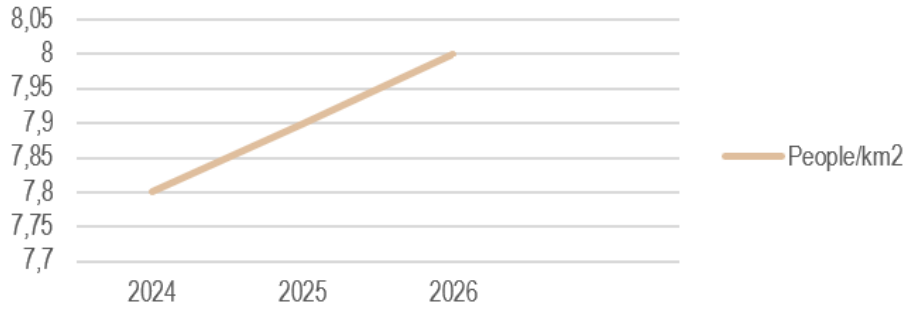
Dependency Ratio

According to the SEP 2024, the current dependency ratio is 42.7, with an ageing index of 24.5. According to the MYPE 2024, the dependency ratio per 100 people is expected to steadily decline in Witzenberg over the next five years.

Population density

The population in Cederberg is dispersed, in line with the rural character of the area. Half (49.7%) of the population resides in rural areas. Nevertheless, density has increased slightly on-yeby yeareen 2024 and 2026, with an increase from 7.8 people/km^2 in 2024 to 8.0 people/km^2 in 2026.

Figure 9: Population Density (people/km2) (Source: SEP 2024)



2.2.3 Education

The 2024 SEP indicates that there are 22 schools in the Cederberg, of which 11 (50%) have libraries. 18 (81.1%) of these schools are registered with the Western Cape Department of Education as no-fee schools. Cross-checked against the WCED Find-a-School Search Portal, there are 30 schools in the Cederberg Municipality, excluding one district satellite office facility, which is located in Clanwilliam.

Most education institutions in Cederberg are primary schools, which make up 17 of the schools in the municipality. There are four independent ECD centres registered with the Western Cape Education Department, although most primary, combined and intermediate schools in the municipality have at least one Grade R class, with a total of 34 Grade R classes in the municipality. In terms of secondary education, the municipality is served by three secondary schools. There are also three Combined Schools, which serve the needs of pupils from Grade R to Grade 12. There is also one school in Wupperthal that is classed as 'intermediate' – meaning that it runs classes up to Grade 9. There is one special school, located in Graafwater, and there is one Technical College in Citrusdal.

Type of School	Number of Facilities
Pre-primary School	4
Primary School	17
Combined School	3
Intermediate School	1
Secondary School	3
Special School	1
Technical College	1
District Satellite	1
Grand Total	31

84.2% (9 719) of school-aged children (5-17 years old) are in school.

In 2016, 0 – 6 years in the Cederberg attended an educational institution.

ECD attendance	None	Some	Completed
Number of children	1 959	4 071	2 515
% All children 5 -17	5.7	12	7%
% All children 0-6	23	48	29
Registered ECD preschools accommodate 6 children and more. Facilities with 6 children or less register as a playschool and are excluded.			

Of the population aged 20 years and older (as per Stats SA 2016), a total of

Education Level	Population (%)
No, or Incomplete Primary School	18%
Completed Primary or Incomplete Secondary Schooling and Are Semi-Skilled	48%
Complete Secondary Schooling or a Tertiary Qualification	29%

The 2024 SEP indicates that in 2023, Cederberg had a learner teacher ratio of 29.3 learners per teacher, which is similar to the rest of the district, and falls within the recommended bound of 30:1 for South African schools. Cederberg saw 8449 learners enrolled at school in 2023, up from 8432 in 2022. There was a retention rate of 74,9% for learners between Grade 10 and 12 in 2023, an improvement on the 2020 retention rate of 64,0%, likely indicating a recovery

after the COVID-19 pandemic. However, the current retention rate is one of the lowest in the West Coast District, comparable with Matzikama (74,6%) and Saldanha Bay (75,8%), which indicates complex challenges faced by learners to remain in school. Despite higher retention, the pass rate has dropped from 82.8% in 2020, a rate that remained constant in 2021 and 2022, down to 75.6% in 2023.

Directives

- Prioritize densification strategies in urban areas to maintain amenity efficiency.
- Monitor and facilitate secondary school capacity, especially in Clanwilliam. Consolidate planning for an additional school and related infrastructure.
- Encourage the development of tertiary and skills training facilities to leverage large working-age population by improving access to post-school education and skills training.

2.2.4 Health

Public Healthcare System

As set out in the 2024 SEP, the Cederberg municipal area has the following health facilities:

- 13 public primary healthcare clinics (PHC) of which 6 PHCs were fixed and 7 PHCs were mobile and satellite.
- 2 district hospitals.
- 6 ART clinics/treatment sites and 8 TB treatment clinics.

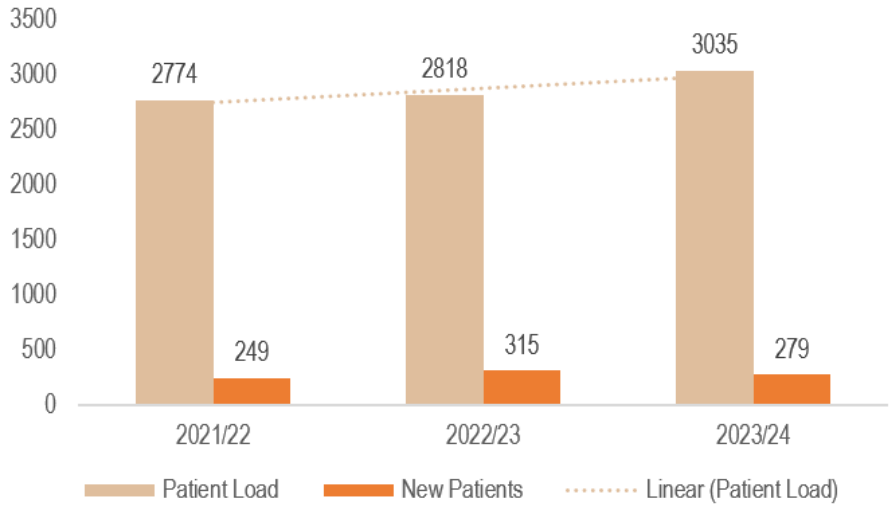
In relation to child health, the immunisation rate for children under one year is 112.1% for 2023/24, down from 115.5% in 2022/23. This report is consistent with rates of over 100% in prior years, which may represent overreporting, or catch-up immunisation. The acute malnutrition rate (under 5 per 1 000 000) was 2.4% in 2023/23, an increase from 1.7% in 2022/23. This is consistent with a trend across the West Coast District, indicating a broader concern about food security for children. The neonatal mortality rate (per 1 000 live births) dropped from 18.5% in 2022/23, to 3.8% in 2023/24, while babies born with a low birth weight (below 2500g) increased from 14.5% in 2023 to 15.2% in 2024 – a rate that is higher than average in the district, and points to concerns such as premature births, or maternal health concerns such as low weight during pregnancy, infection during pregnancy, or smoking, alcohol or substance use during pregnancy, which require holistic interventions to manage maternal health and educate expectant mothers about healthy behaviours during pregnancy.[17]

Other maternal health indicators include the maternal mortality rate (per 100 000 live births), which is 0%, consistent with prior years. The rate of delivery to women under 20 in 2024 was 13.7%, down from 14.9% in 2023. The rate of termination of pregnancies has remained consistent, at 0.8% in 2023 and 2024.

The HIV/AIDS patient load has increased from 2 774 HIV/AIDs patients receiving ART treatment, of whom 249 registered in 2020/21, to 2818, of whom 315 registered, in 2022/23, to 3035, of whom 279 registered for the first time in 2023/24. In contrast, TB patient registration dropped from 669 in 2022/23 to 532 in 2023/24.

[17] https://www.stanfordchildrens.org/en/topic/default?id=low-birth-weight-90-P02382

Figure 10: HIV/AIDS Patient Management (2021/22 - 2023/24)



Provision of Health and Emergency services, e.g. clinics and mobile services, comply with current CSIR norms, and will continue to be in terms of population growth projections for 2029. The Redbook defines healthcare centres, and sets out thresholds for provision, as seen in the table below. The government-run healthcare system in Cederberg is made up of 2 district hospitals and 6 permanent healthcare clinics, which are supplemented by 21 mobile and specialised clinics.

Table 18: Healthcare Facility Provision Guidelines

Social Facility Type	Population Threshold	Distance (km)	No. in Cederberg
Primary Health Care Clinics Primary Health Care clinics are permanent facilities (public or private) at which a range of primary health care services are provided, for at least eight hours per day and four days per week.	5 000 - 60 000	5 to 10	13 Primary Healthcare Clinics 6 Fixed Clinics 7 Mobile clinics 6 ART Clinics 8 TB Clinics Total: 27
Community Health Centres (CHCs) CHCs are appropriately equipped with permanent facilities that offer a broad range of primary health care services including observation beds, accident and emergency services, midwifery services, but not surgery under general anaesthesia. These facilities are operational 24 hours a day and seven days a week.	60 000 - 150 000	10	2 District Hospital

Environmental Risk and Vulnerability

The Cederberg Municipal area has been assessed for environmental risks and vulnerabilities as part of the Western Cape Environmental Risk and Vulnerability Mapping project, which completed Phase 2 in 2023. Relative to the West Coast District, Cederberg is at higher risk to environmental threats, based on a range of socio-economic and governance vulnerability indicators.[18] The Cederberg municipal area is generally at higher risk than most other parts of the Western Cape, especially in terms of future drying from climate change, which will impact on water security, as well as high flooding and wildfire risk. The report correlates

[18] WCG Department of Environmental Affairs and Development Planning, 2023 https://gis.westerncape.gov.za/portal/apps/storymaps/stories/5a5aae0d944146e6b4f29e77486ead1b; Gis Western Cape Portal (accessed 15/072026)

natural hazards with governance capacity, pointing to the relative vulnerability that Cederberg faces, considering lower institutional capability.[19]

The Cederberg Climate Change Plan, 2025, points to the ways in which climate change will result in human health impacts[20].

Table 19: Major health effects of climate change

Phenomenon	Human Health Impact	Additional Child-specific risks
Fewer cold days and nights.	Fewer cold-related deaths.	Children will benefit.
Increased frequency of warm spells and heat waves.	Increased heat-related deaths and illness.	Very young at higher risk of death, older children will have more heat stress due to time spent outside during exercise.
Increased heavy precipitation events.	Increased risk of injury, death, as well as infectious respiratory and skin diseases.	Very young people are vulnerable to hospitalisation and complications from infection.
Increased drought, and wildfires.	Increased risk of food and water shortage, malnutrition and infection, concentration of toxic water pollutants, injury and death.	Growth retardation, developmental delays.
Increased air pollution: burned fossil fuels and stagnant air episodes.	Exacerbation of respiratory illness, premature mortality.	Children's small airways are more susceptible to asthma and infection.
Changes in distribution and potency of allergens and mycotoxins.	More severe and more prevalent allergies.	Allergies, cancer, birth defects.
Increased sea level, saltwater intrusion into freshwater.	Abrupt coastline change, forced migration, injury, drowning.	Disruption of family and school infrastructure, other social disruption.
Lack of food security.	Decline in nutritional status and lower resistance to HIV/ AIDs and tuberculosis.	More orphans. Malnourished children (Kwashiorkor and Marasmus).
Sick and elderly household members increase.	Women, primary caregivers take more strain: less time to earn a livelihood. Neglect own health by prioritising the health of others.	
More tropical weather.	Increased vector-borne diseases like malaria, rift valley fever and schistosomiasis may spread, requiring a concomitant expansion of public health initiatives to combat these diseases.	
One or more of these phenomena	Profound negative psychological and mental health consequences, including ecological grief.	

At a more local scale, this project evaluates how different people, systems, and resources are exposed to hazards and their capacity to withstand or adapt to pressures. A composite environmental risk map has been generated, combining hazard data with vulnerability indices to highlight areas where compound risks could threaten communities, livelihoods, and infrastructure. Potential hazards considered include poor air quality from facilities with atmospheric emissions licences, residential areas with limited socio-economic resources (as a proxy for likely indoor air quality challenges), proximity to major transport routes and airports, exposed bare ground, and coastal areas susceptible to marine aerosols.

[19] WCG Department of Environmental Affairs and Development Planning, 2023, p. 45.

[20] Cederberg Municipality, 2025, p.

The interaction of these hazards with socio-economic vulnerability creates a spatial representation of relative risk across the municipality, identifying settlements that may experience heightened environmental stress. The map gives insights on potential communities that are socio-economically vulnerable and may be at higher risk of health and livelihood impacts, including those related to food insecurity and nutritional challenges.

Directives

- Direct infrastructure and staff investment to primary healthcare centres where access is limited, and in outlying areas such as Wupperthal.
- Map and target communities with high malnutrition prevalence for the rollout of community-based nutrition centres and/or food garden projects.
- Spatially map agro-ecological zones and promote agro-ecology and collaboration with stakeholders in local agriculture to address nutrition support.
- Use risk maps to guide the siting of healthcare, early childhood development, and social service facilities to ensure they serve the most at-risk communities effectively.
- Monitor the need for additional permanent Primary Health Care Clinics, in terms of access distances.
- Develop risk profiles and disaster management plans for various crisis scenarios in co-operation with local communities.
- Equip medical facilities and health personnel, in order to improve preparedness for disasters.
- Conduct extensive research to improve early risk detection and actions, as well determining long-term trends.
- Co-ordinate across sectors/disciplines, to mitigate bio-physical factors that impact human health.

2.2.5 Safety

Provision of Emergency Services related to safety i.e. fire stations and police stations in all settlements in Witzenberg Municipality comply with the CSIR norms. The SEP 2024 indicates that Cederberg municipality is served by 6 ambulances, which means that emergency medical services are distributed at 1.0 ambulances per 10 000 people.

Overall, the SEP 2024 reports that crime in the municipal area has gone down between 2021/22 and 2023/24. However, drug-related offences and driving under the influence increased in the period 2023/24. In comparison with other parts of the West Coast District for 2024/24, the rise in drug-related offences is consistent. The crime rate in Cederberg is higher than the district average for murder, sexual offences and driving under the influence. By contrast, people in Cederberg municipality experienced fewer residential burglaries, damage to property, and common assault incidents.

The graph below shows the crime trends per 100 000 people in Cederberg between 2021/22 and 2023/24, as set out in the SEP 2024.

Figure 11: Municipal Crime Statistics



The municipality is compliant with CSIR norms in terms of police stations and satellite services. The socio-economic implications of a rise in drug-related crime may include increased pressure on law enforcement resources and a growing need for targeted community interventions and strategic law enforcement initiatives.

Directives

- Provide spatially for safety and disaster infrastructure gaps informed by demarcated target reach according to fire and police station norms and for any other emergency and safety services.
- Promote urban upgrade programmes and earmark areas for future upgrades.
- Identify and repurpose abandoned buildings and vacant lots into community centres, sports facilities, youth hubs, and rehabilitation outreach points to provide constructive alternatives for at-risk populations.
- Promote the inclusion of Crime Prevention Through Environmental Design (CPTED) Principles (limiting access to potential crime hotspots and encouraging territorial reinforcement through community ownership of space).
- Promote the development of decentralized Health and Rehabilitation Facilities including mental health.

2.2.6 Economy

Clanwilliam is the largest town in Cederberg and is known as the administrative centre and Rooibos tea capital of Olifants River Valley and gateway to Cederberg region.

Citrusdal is an agricultural service centre and the capital of Citrus is also known for its warm baths. Lamberts Bay and Elands Bay are coastal towns.

The GPS (2014) confirmed the growth potential of the Cederberg municipal area as Low (17) in relation to the WC. Composite Growth potential of Clanwilliam, Citrusdal, Graafwater, Lambert Bay is Low whilst Elands Bay is Medium.

The hierarchy of towns in the Cederberg Municipal area is determined by human capital, infrastructure availability, economy, physical attributes, and institutional capacity.

Large-scale regional economic activities and infrastructure form the macro-economic base and (1) they deliver economic growth and job opportunities at a regional scale while (2) contributing to the national and the global economy in a number of areas:

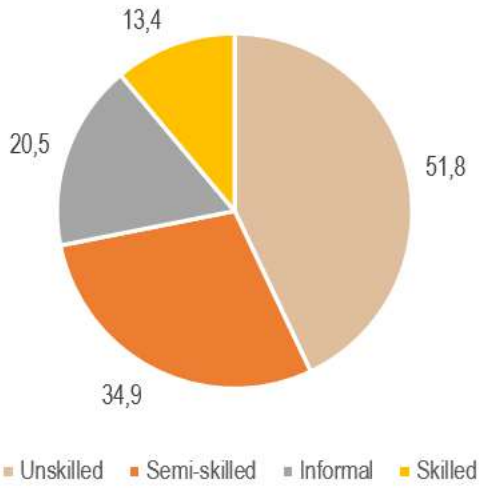
- Extensive, low-intensity livestock and intensive, predominantly irrigation-based crop-based agriculture;
- Mining;
- Solar and wind-energy generation; (Cederberg has no renewable energy concentration zone or REDZ zone, Gas on West Coast)
- Corridor-focused mineral beneficiation and industrialisation, including the Boegoebaai Harbour and rail link to Upington as export node;

- Technological installations, i.e. the Square Kilometre Array; connectedness (ICT) through broadband infrastructure;
- Rural tourism; and
- The oceans economy (e.g. fisheries).

The 2024 SEP indicates that Cederberg municipal area produced a GDPR contribution of R3.764bn, which makes up the lowest GDPR of the West Coast District Municipality, at 12.8% of the overall GDPR. At the same time, the 2023 per capita GDPR was R102 375, the highest in the district. Nevertheless, wealth is not evenly distributed throughout the population, as, consistent with trends in South Africa more generally, the municipality has a high rate of inequality, at 0.59 in 2023. This indicator is down from a period between 2015 and 2021, when the GINI co-efficient increased from 0.59 to 0.61, likely driven by shocks linked to COVID-19. The 2023 GINI co-efficient is aligned to the NDP goal of reducing inequality to 0.6 by 2030. This is an indication that the region faces significant socio-economic constraints – in 2023, 67.2% of the population live below the Upper Bound Poverty Line (UBPL) of less than R1335 per month (as of April 2021 prices) per person.

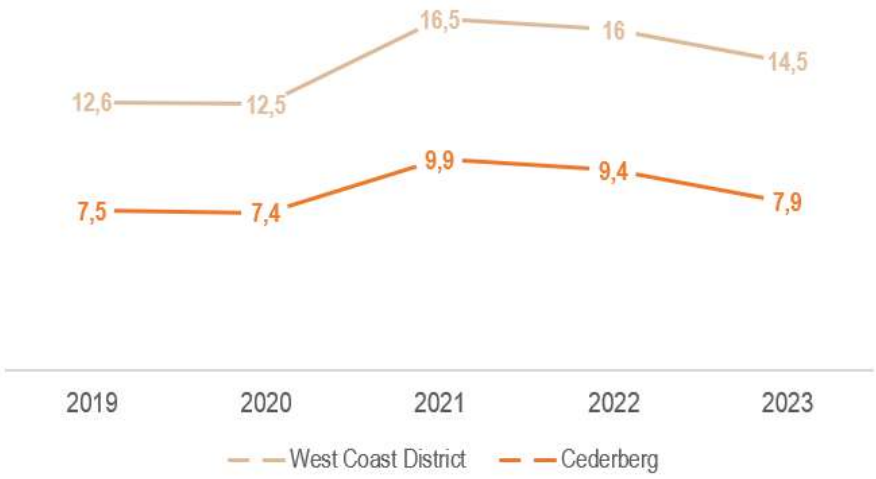
According to the SEP 2024, the labour market in Cederberg provides 26 443 jobs, which represents 14.5% of jobs in the West Coast District. 51.8% of the workforce is low-skilled, semi-skilled labour makes up 34.9% of the workforce, informal sector labour makes up 20.5% of labour, and skilled labour makes up 13.4% of the labour force.

Figure 12: Labour Force Skill Levels (%)



Unemployment is lower in Cederberg than the West Coast District overall, with unemployment at 7.9% in 2023, down 1.5% from 2022. This is consistent with the fact that the labour market saw improvements between 2022 and 2023, with labour force participation increasing from 69.3% to 71.8% in the period, representing 1633 new jobs – 889 of which were formal, and 780 of which were informal. Labour absorption also increased from 62.8% in 2022 to 66.1% in 2023. The main jobs where new employment was gained were related to agriculture, public administration and the service/restaurant industry.

Figure 13: Unemployment Levels (%) for West Coast District and Cederberg



The SEP 2024 shows that major contributors to Cederberg region's economy (GDPR) in 2023 were: agriculture, forestry and fishing, which contributed 26.2% (R 9,861,680,000/R9.862bn), manufacturing contributed 17.5% (R6,587,000,000/R6.587bn); finance, insurance, real estate and business services contributed 15.3% (R 5,758,920,000/R5.759bn); while wholesale, retail, trade, catering and accommodation, and transport, storage and Communication contributed 11.5% (R4,328,600,000/R 4.329bn) each respectively.

The agricultural sector in Cederberg is an important producer of citrus and plays an important role in the agricultural export market – according to the SEP 2024, the top exported products from Cederberg in 2023 were fresh and dried citrus fruit (R2.9bn), an important contributor to South Africa's citrus export industry. Other important, exported goods include locust beans, seaweed and other algae (R404.3 million), food preparations (R106.9 million). Key export markets include the USA (R1.2 billion), the United Kingdom (R403.6 million) and the Netherlands (R1.1 million).

The Cederberg Climate Change Plan, 2025, highlights the role that climate change will play in the agriculture sector in the future, as drying and heating conditions reduce water availability, and increase the threat of pests, are anticipated to negatively impact the production and profitability of field crops such as wheat and tea; horticultural outputs, including deciduous fruit and citrus; and livestock. On the other hand, viticultural stands out as a sector that may be more resilient to heating and drying. These anticipated changes may impact decisions about where to locate crop production and require risk management and adaptation to improve the resilience of this sector.

Whilst agriculture is the largest sector in the municipality, the economy is diversifying – tertiary sector economic activity makes up 45.3% of the economic activity in the region. With this, Cederberg has experienced 1.3% economic growth, mostly driven forward by transport, finance and manufacturing. In contrast, the agriculture and wholesale/retail trade sector contracted in 2023, mostly because of weather conditions that lowered yields, and consumer limitations; a trend that was set to change in 2024. The main import products to Cederberg were other fresh fruit, fruits, nuts and other edible parts of plants, and cereal flours other than wheat or meslin.

Tourism is also a significant source of spending in this region, and the percentage of GDPR represented by tourism, was 15.1% in 2023. Tourism in the region is driven by eco- and agri-tourism, especially activities such as hiking, camping and rock climbing; with several farms providing tourist accommodation and activities[21].

[21] Cederberg Climate Change Plan, 2025, p. 49

Directives

- Promote agri-processing facilities and hubs as regions that share medium to high potential agricultural soil (Cederberg, Witzenberg, Bergrivier and Matzikama) (KRSDF).
- Establish mixed-use economic nodes, particularly in underutilised urban centres with access to infrastructure to encourage clustering of SMMEs, markets and training facilities.
- Promote brownfield development in existing towns to maximise existing bulk services while revitalising declining commercial areas.
- Improve rural access roads to enable year-round connectivity for farm workers and produce transport.
- Identify suitable areas for waste-to-resource and green economy initiatives, such as composting from agricultural waste or water reuse plants.
- Formalise and spatially support informal trade areas in town centres to provide economic space for micro-enterprises.
- Promote and enhance (strengthen and sustain) Agricultural Value Chains or 'Regional-Rural Development Model' (NSDF and Karoo SDF).
- Promote establishing downstream economic activities related to the large-scale activities in the anchors to localize economic benefits.
- Locate Rural Urban Market Centres (RUMCs) in a larger urban centre to link and contract with rural, urban and international markets (KRSDF).
- Act as a holding-facility and releasing produce to urban markets based on seasonal trends.
- Use information and communication technologies to provide availing market intelligence and information feedback to the Anchors and Farming Support units (KRSDF).
- Systematically connect anchors to smaller settlements in functional economic sub-regions, serving as (1) markets for input materials and products and (2) conduits to larger urban and global markets.
- Record, survey and declare cross-border roads as scenic routes.
- Develop thematic spatial tourism routes (linking heritage, nature, and agri-tourism destinations across Cederberg and neighbouring municipalities, especially enhancing awareness of the Tankwa / Roggeveld / Cederberg link.
- Share the R303 with Witzenberg, between Citrusdal and Ceres.
- Conduct research and establish partnerships to enhance and integrate climate monitoring, along with agricultural monitoring, to develop risk and disaster management.
- Promote sustainable water management by adopting more efficient irrigation technologies.
- Co-ordinate with governmental departments to repurpose non-productive agricultural land for renewable energy production.
- Promote organic farming approaches to reduce pesticide and fertilizer usage and minimise their impact on soil and water.
- Diversify the agricultural sector and promote crop yields.
- Manufacturing contributed 22% (885.0), Agriculture, forestry and fishing 19% (738.6), Wholesale, retail, trade, catering and accommodation, 15% (573.3) and Transport, storage & communication, 13% (496.6). According to the Sectoral Overview for the period 2015 – 2019 (SEP 2021), the primary sector decreased by 3%, the secondary sector increased by 3.2% and the tertiary sector increased by 2.3% arising at GDP growth of 1.2% for the period of review.

Economic vs Employment Sector Contributors

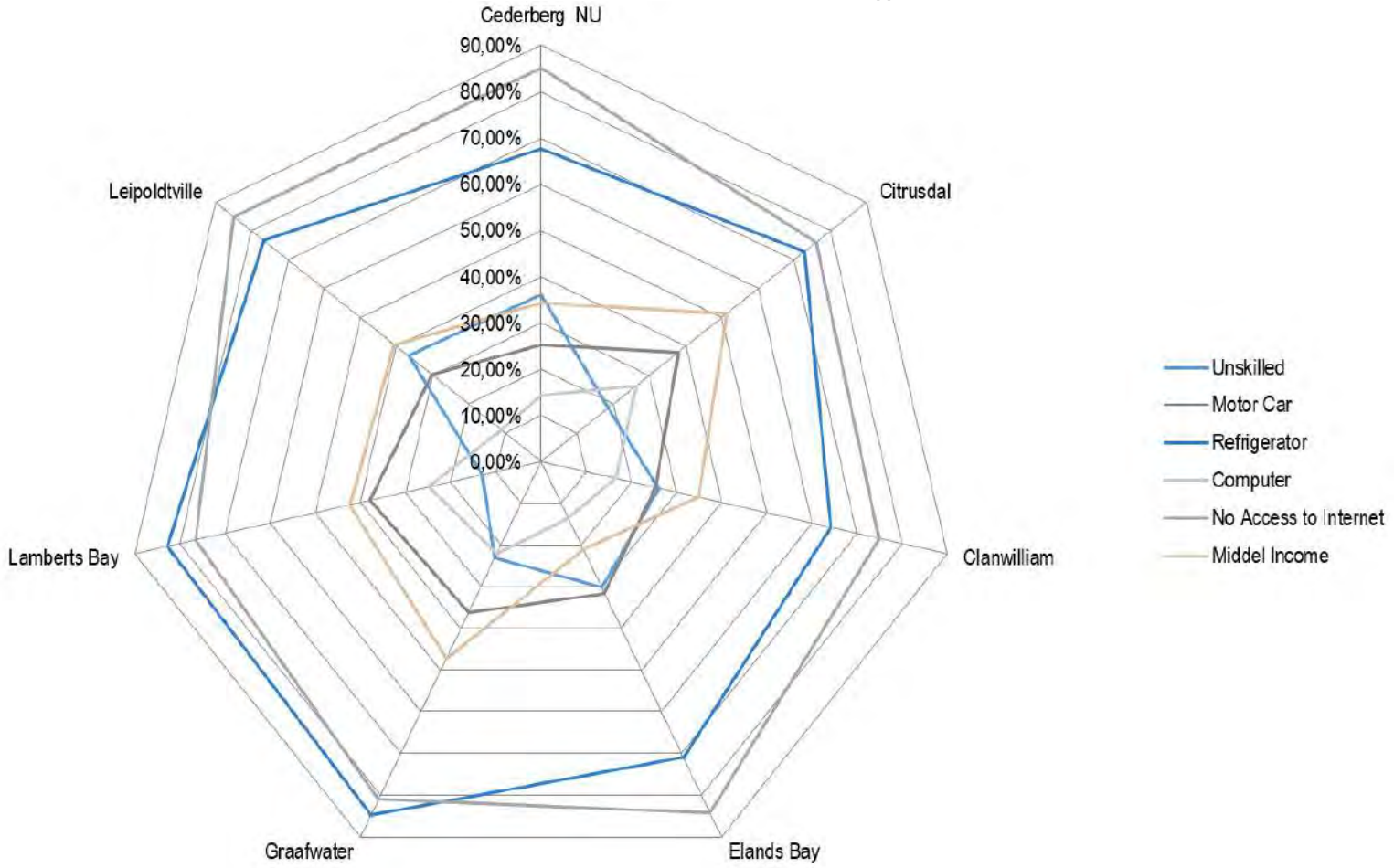
Table 20: Economic vs employment sector contributors

Rank	1	2	3	4	5
Employment	Agriculture	Retail and Accom	Manufacturing	Community and Social	Government
Economy	Manufacturing	Agriculture	Retail and Accom	Transport	Finance and Real Estate

Manufacturing and Agriculture are the major contributors to employment over the period 2015 - 2019. Similarly, most of the annual growth took place in the primary and tertiary sectors with minimal growth in the secondary sector.

Out of 32 299 people and 18 to 64 of age, a total of 20 725 people are economically active (employed or unemployed but looking for work), and of these, 10,5% are unemployed. The economically active youth (15–35 years) total 10 065 people.

Figure 14: Cederberg Living Standard Measures



Built Environment Analysis

2.3 Built Environment

2.3.1 Hierarchy and Role of Settlements

Urban Settlements

Clanwilliam: The seat of the Cederberg Municipality and its largest town (population approximately 7,674 in 2011), Clanwilliam sits on the N7 about 230 km north of Cape Town in the Olifants River valley, at the foot of the Cederberg mountain range. It is the administrative, commercial and institutional hub of the municipal area and is known internationally as the centre of South Africa's rooibos tea industry, an industry that employs an estimated 5,000 to 8,000 people in the district. The town developed around the Clanwilliam Dam (built 1935, raised in 1964), which remains the anchor of both the local economy and the town's water supply. Clanwilliam's most pressing built-environment challenge is the rapid, largely unplanned growth of the Khayelitsha/Sandkamp informal settlement on its northern edge, alongside chronic water-supply pressure that the current Clanwilliam Dam raising project is intended to relieve.

Citrusdal: Population approximately 7,177 in 2011. The second largest town in the municipality and the primary service centre for the citrus- and wine-producing farms of the southern Olifants River valley. Located on the N7, it functions as a logistics and agri-processing node. Citrusdal's Riverview informal settlement has expanded rapidly since around 2010 and is now home to an estimated 4,725 residents (2025/26), placing sustained pressure on water, sanitation and stormwater infrastructure.

Lamberts Bay: A coastal fishing and tourism town of roughly 6,120 people (2011), anchoring the municipality's West Coast tourism corridor together with Elands Bay. Its economy rests on the fishing and crayfish industry, and increasingly on tourism (birding at Bird Island, whale watching, coastal recreation). A municipal desalination plant and associated housing development commenced construction in 2021 to diversify the town's constrained water supply.

Graafwater: A small agricultural service settlement (population approximately 2,261 in 2011) on the R364 between Clanwilliam and Lamberts Bay, serving surrounding grain and livestock farms. It functions mainly as a rural service point with limited own economic base.

Elands Bay: A coastal village of about 1,525 people (2011), known for surfing, birdlife and fishing, forming the northern anchor of the West Coast tourism corridor together with Lamberts Bay. Its built environment is constrained by coastal hazard lines and limited bulk services.

Wupperthal: A remote Moravian mission village established in 1830 in the Cederberg mountains, of major heritage and cultural-tourism value and hub for a cluster of very small outlying stations (Heuningvlei, Nuweplaas, Kleinvlei, Suurrug, Langbome, Esselbank and others). Access is via unsurfaced mountain roads, and the settlement and its stations face significant service backlogs (water reticulation, sewerage pump stations, road/bridge maintenance).

Leipoldtville: A very small agricultural settlement (population approximately 298 in 2011) with a limited-service offering, functioning as a lower-order rural node.

Paleisheuwel: A small rural settlement in the eastern part of the municipal area, functioning primarily as an agricultural service point with minimal municipal infrastructure.

Rural Areas

The rural areas of Cederberg Municipality are shaped by farming patterns, forestry history and mission-station settlement. Algeria and Elandskloof are small mission/forestry-linked settlements with limited formal services. Skilpad Dorp is a small cluster where the transfer of individual property ownership is still being finalised for a number of households. The outer Wupperthal stations (Martiniensrust, Heuningvlei, Nuweplaas, Kleinvlei, Grassvlei, Suurrug, Langbome, Esselbank, Langkloof, Melkboomfontein and Agterste Fonteins, among others) are dispersed farming and mission communities that depend on Wupperthal for higher-order services and remain difficult to service because of

distance and poor road access. The wider rural area is dominated by rooibos, citrus and wine farming in the valley, extensive grazing and game farming on the mountain slopes, and the Cederberg Wilderness Area, which covers a substantial portion of the eastern municipal area under conservation.

Settlement Growth Potential

Provincial spatial and growth-potential guidance directs infrastructure investment primarily toward the Olifants River development corridor (Citrusdal - Clanwilliam) and the West Coast tourism corridor (Elands Bay- Lamberts Bay). Infrastructure development beyond minimum service levels in the smaller towns and settlements, Graafwater, Leipoldtville, Paleisheuwel, Elandskloof and Wupperthal, is not prioritised under this logic. The focus in these places is on maintaining basic service levels and improving resident mobility and access to opportunities in the larger centres.

Table 21: Cederberg settlement growth-potential classification. Source: Cederberg IDP/SDF; DEA&DP GPS 2018 Update.

Level	Growth Potential / Size	Settlement
1	Areas of major growth	Clanwilliam
2	Areas of intermediate growth	Citrusdal, Lamberts Bay
3	Areas of limited / tourism-linked growth	Elands Bay, Graafwater
4	Areas of constrained growth	Leipoldtville, Paleisheuwel, Wupperthal
Lower-order rural nodes	—	Algeria, Elandskloof, Skilpad Dorp, outer Wupperthal stations

CSIR Settlement Classification

The CSIR Guidelines for the Provision of Social Facilities in South African Settlements provide the framework for classifying settlements by population size and functional role. On this basis, Clanwilliam functions as a Category E settlement (small town/isolated regional service centre); Citrusdal, Lamberts Bay and Graafwater as Category G villages; and Elands Bay, Leipoldtville and Wupperthal as Category H remote villages given their distance from larger centres.

Table 22: CSIR Guidelines for the Provision of Social Facilities in South African Settlements.

Category	Hierarchy of Settlements	Catchment Size	Cederberg Examples
E	Small towns / isolated regional service centres	25,000 – 60,000	Clanwilliam
G	Villages	5,000 – 25,000	Citrusdal, Lamberts Bay, Graafwater
H	Remote villages (>20 km from larger settlements)	500 – 5,000	Elands Bay, Leipoldtville, Wupperthal

Directives

- Concentrate bulk infrastructure investment (water, sanitation, roads) along the Olifants River corridor linking Citrusdal and Clanwilliam, where the rooibos and citrus economy and the bulk of the housing backlog are concentrated.
- Support the West Coast tourism corridor (Lamberts Bay–Elands Bay) with targeted investment in coastal access, stormwater and desalination capacity rather than general urban expansion.
- Limit new bulk infrastructure commitments in Graafwater, Leipoldtville, Paleisheuwel and Elandskloof to maintenance of existing minimum service levels; prioritise transport links to larger service centres instead.
- Treat Wupperthal and its outer stations as a distinct heritage and rural-service cluster requiring a tailored, lower-cost servicing model (boreholes, small package plants, gravel road maintenance) rather than urban-standard bulk services.
- Formalise land tenure in Skilpad Dorp and similar outlying settlements to unlock incremental household investment.

- Integrate the settlement hierarchy into a phased capital investment programme that is explicit about which settlements receive growth-oriented investment, and which receive maintenance-only investment.

2.3.2 Road and Transportation Modes

The N7 is the spatial spine of Cederberg. It links Cape Town with Namibia and gives Citrusdal, Clanwilliam, Graafwater and, indirectly through the R364, Lamberts Bay their strategic economic role. Provincial routes carry the east-west movement: the R364 connects Clanwilliam to Lamberts Bay through Graafwater; the R366 links the N7 to Elands Bay via Piketberg; the R365 threads the Sandveld north-south through Paleisheuwel and Leipoldtville; and the R303 climbs the Middelberg Pass into the Cederberg from Citrusdal. The Sishen-Saldanha iron-ore railway crosses the coastal plain and forms a buffer to the west of Lamberts Bay and Elands Bay.

Table 23: Important roads in Cederberg

Provincial Route	Function	Notes
N7	National corridor, Cape Town to Namibia	Freight and tourism spine; SANRAL managed
R364	Clanwilliam – Graafwater – Lamberts Bay	Requires upgrade to Van Rhynsdorp, managed by Western Cape Provincial Government
R365	Sandveld north-south (Paleisheuwel – Leipoldtville)	Scenic and freight route
R366	N7 – Elands Bay via Piketberg	Coastal access, tourism
R303	Citrusdal – Middelberg Pass	Mountain access to Ceres
R27 (adjacent)	West Coast Road	Regional connector, IDZ link

Municipal Road Network Extent and Condition

The 2024/25 Annual Report records 115 km of paved municipal roads and 15 km of unpaved (gravel) municipal roads, with the paved network rated on average as poor to very poor and more than half of surfacing sitting in the poor to very poor category (Cederberg Municipality, 2025a). During the reporting period, 3.5 km of gravel roads were graded and 15 km of tar roads received maintenance.

An analysis of road infrastructure over the past four fiscal years (Table 1.2) indicates that the total tarred network has remained stable at 115 km, while gravel roads have consistently measured 15 km since 2022/23. Despite this stability, maintenance efforts have shown a declining trend - tar road maintenance decreased from 25 km in 2022/23 to 15 km in 2024/25 and 2025/26, while gravel road grading has averaged 3.5 km annually since 2023/24. Notably, no new tar roads were constructed, nor were any gravel roads upgraded to tar during this period.

Table 24: Road Infrastructure Summary (2022/23 - 2025/26)

Year	Total Tarred Roads (km)	New Tar Roads (km)	Tar Roads Maintained (km)	Tar Roads Re-tarred (km)	Total Gravel Roads (km)	Gravel Roads Graded/ Maintained (km)	Gravel Upgraded to Tar (km)
2022/23	115	0	25	0	15	3	0
2023/24	115	0	20	0	15	3.5	0
2024/25	115	0	15	0	15	3.5	0
2025/26	115	0	15	0	15	3.5	0

To address these infrastructural challenges, various capital projects are at different stages of implementation across the municipality (Table 1.3). In Clanwilliam (Ward 3), the bypass from the town entrance to the industrial area is in the conceptual design phase with EIA and town planning initiated, though the upgrade of the main road remains on hold pending the bypass's completion. Paving projects have been prioritised in Clanwilliam and Graafwater- with Phase

1 completed and Phase 2 designs finalised in Graafwater- while a MIG-funded paving project in Citrusdal was completed in 2024/25. Stormwater system upgrades are prioritised for Elands Bay and Lamberts Bay in line with the Storm Water Master Plan. In Ward 6 (Wupperthal and Algeria), several projects are under investigation, including foot bridges at various locations, a cement road to the school in Algeria, tarring of Nieuwoudt Pass, and speedbumps in Bosdorp. Additionally, new taxi ranks are planned for Clanwilliam (with a site already identified) and Citrusdal, while municipal-wide walkways and cycleways are also on the agenda for future development.

Table 25: Road Priority Projects by Location

Location	Ward	Project Description	Status
Clanwilliam	3	Bypass from entrance of town to industrial area	Conceptual Design completed; EIA and Town Planning initiated; funding negotiations ongoing
Clanwilliam	3	Upgrade of main road	Cannot continue until bypass completed
Clanwilliam	3	Paving of roads	To be prioritised
Clanwilliam	3	Main road one-way pair study	Study needed to determine viability
Citrusdal	2	Paving of roads	MIG project completed 2024/25
Graafwater	4	Paving of roads	Phase 1 completed; Phase 2 designs completed
Elands Bay	4	Upgrade stormwater system	Prioritised according to Storm Water Master Plan
Lamberts Bay	5	Upgrade stormwater system	To be prioritised
Wupperthal	6	Foot bridges at: Agterste Vlei, Martiensrus, Nuweplaas, Langbome, Heuningvlei, Witwater (Goboom), Kleinvlei	To be investigated
Algeria	6	Cement road to school	Option for cement because of surface of road
Algeria	6	Tar/pave Nieuwoudt Pass	To be investigated
Algeria	6	Speedbumps in Bosdorp	To be investigated
Clanwilliam	3	Relocation of taxi rank	New site already identified
Citrusdal	2	New taxi rank for northern areas	-
Municipal-wide	-	Walkways and cycleways	-

Hazardous Intersections

Table 26: Hazard intersections in Cederberg

Settlement	Location	Detail
Clanwilliam	Main Road (R364) / Park Street Intersection	4-way stop controlled; LOS C (off-peak); LOS D/E during agricultural harvest surge (22.0–38.5 sec); bottlenecks caused by tight physical geometry rather than high vehicle volumes.
Citrusdal	Voortrekker Street / Fynbos Avenue	Major T-junction; high-speed N7 traffic conflicts with turning vehicles from R303; LOS A–B typical; LOS C during seasonal harvest peak (10.0–14.5 sec).
Citrusdal	Kerk Street / Voortrekker Street	4-way stop controlled; LOS B (AM peak); LOS C (PM peak surge) 12.1–18.4 sec.
Citrusdal	R303 / Citrusdal Access Corridor Link	Priority Control / Temporary Stop-and-Go; LOS variable (fluctuates during flood events);

		delays up to 15–30 min during active construction.

Freight

According to the West Coast DITP Draft Report (Section 3.1 and 3.8), freight transport is of importance due to the strategic location of the district in relation to the Saldanha Port and the associated industrial activity as well as the Saldanha IDZ. The report further notes that the transport corridor between Cape Town and Windhoek is also a key freight route through the district.

The document identifies major freight generators on the West Coast as harbours, mining, agriculture and manufacturing. A major harbour is located in Saldanha, and a major function of this harbour is the export of iron ore from Sishen. Other harbours are located in Lambert's Bay, Eland's Bay, Velddrif, St Helena Bay and Doornfontein. The key sectors within the district are agriculture, manufacturing and finance.

The WCPFTLP also showed that the main freight commodity for the rural Western Cape is break bulk, i.e. freight broken up into smaller units and not in a container. The report states that this is forecast to grow from its current 5 million-tonne-km to 14 million-tonne-km by 2037.

Freight network

The primary strategic freight road network is supported by a secondary network as per the table below.

Table 27: Primary freight network

Primary	
N7	Cape Town – Malmesbury – Piketberg – Citrusdal – Clanwilliam – Springbok – Namibia.
R364	Clanwilliam – Graafwater – Lambert's Bay.
R303	Citrusdal – Ceres – Worcester.
Secondary	
R365	Clanwilliam – Graafwater – Leipoldtville.
R399	Piketberg – Elands Bay.

Freight Challenges

Based on the identified challenges, the West Coast DITP Draft Report proposes the following directives for freight transport on the West Coast (Sections 6.3 and 8.2):

Table 28: Freight challenges

Challenge	Description
Shift from Road to Rail	Rail freight has declined significantly, and road freight has increased exponentially. The N7 is a major freight route through the West Coast District.
Truck Staging and Parking	A formalised truck stop is required in Vredenburg for the road freight sector. Heavy vehicles traveling through and parking in towns is a huge problem.
Heavy Vehicle Traffic in CBDs	Heavy vehicle traffic in Clanwilliam's CBD causes congestion and safety concerns. A study into introducing a one-way system is proposed to resolve traffic, goods delivery and public transport operations.
Infrastructure and Access	Road maintenance and upgrades are continuously required to ensure that the road network is in good condition, safe and accessible.
Policy Imbalance	Policy measures are required to balance the "generalised cost" for road transport and lower "generalised cost" for rail transport.

Directives

- Ensure a well-maintained road network. The district should continue to lobby for more road maintenance funds from the provincial government. Budgets for road maintenance have always been notoriously low.
- The district should engage in discussions with both Transnet and the Provincial Roads Department to attract as much of the expected growth in freight volumes to rail. Support initiatives to encourage the greater use of rail for the movement of contestable goods to reduce heavy vehicle volumes from provincial and local roads.
- Plan adequate facilities for the road freight industry in the Saldanha Bay as well as Matzikama areas. A formalised truck stop is required in Vredenburg for the road freight sector.

- Facilitate the establishment of international standard ports and logistics and promote the expansion of back-of-port activities in Saldanha Bay through marketing and incentives for the establishment of new industries.
- Support policy measures to balance the "generalised cost" for road transport and lower it for rail transport, such as incorporating the true cost of roads, not proactively upgrading the road network in anticipation of growth in road freight volumes and supporting a "carbon tax" on fuel usage.

Public transport

According to the West Coast DITP Draft Report (Section 3.4.1), public transport in the West Coast District Municipal area is predominantly road based. The report states that minibus taxis account for approximately 71% of the total public transport trips in the West Coast. This is primarily because population densities and passenger volumes along most routes do not warrant bus or rail services. As a result, minibus taxis provide public transport services based on passenger demand.

For the Cederberg Municipality specifically, the *DITP* report notes that there are no bus services for local commuters in the towns of Cederberg Municipality and no passenger rail services operate on the Bitterfontein rail line.

Taxi Rank Utilisation

According to the West Coast DITP Draft Report (Section 3.4.2.2), data was collected as part of the 2015 CPTR for the West Coast DM to determine both formal and informal taxi rank locations and also the utilisation of minibus taxi routes. The main ranks identified in the Cederberg Municipality are located in Citrusdal and Clanwilliam.

Table 29: Taxi Ranks

Rank	Day	Unique Vehicles	Vehicle Trips	Service Capacity	Passenger Trips	% Utilisation
Citrusdal	Sat	17	19	290	281	96.90%
Citrusdal	Fri	16	17	178	178	63.93%
Clanwilliam	Sat	56	90	90	90	88.89%
Clanwilliam	Fri	0	0	0	0	0.00%

Public Transport Challenges

According to the West Coast DITP Draft Report, the following key challenges were identified for public transport in the Cederberg Municipality:

Challenge	Description
Rank Relocation	The Clanwilliam formal rank is no longer utilised as operations have shifted to the front of the Spar in Hoof Street.
Low Utilisation	Passenger volumes along taxi routes in Clanwilliam are low, with only 80 passengers recorded on a Saturday and no routes observed on a Friday.
Poor Road Conditions	The report highlights that Cederberg's poor road condition was highlighted as the main reason why minibus taxi operators do not provide public transport services to most of the rural farm areas.
Illegal Operators	This has resulted in a high number of illegal operators in the area who bridge the gap to improve access to rural farms.
Inadequate Facilities	The Clanwilliam rank has no undercover loading area, though there is a roof structure for waiting commuters.

Directives

Based on the identified challenges, the West Coast DITP Draft Report proposes the following directives for public transport in the Cederberg Municipality:

- Conduct One-Way System Study: According to the report (Section 7.4), only one project is proposed for the Cederberg Municipality: conduct a study into introducing a one-way system in Clanwilliam to resolve traffic, goods delivery and public transport operations.
- Assess Minibus Taxi Operations: The report recommends a detailed assessment of the minibus taxi operations in Clanwilliam to determine the need for a new facility for passengers (Section 3.4.2.4).

- Assess N7 Demand: The document calls for an assessment of the demand along the N7 to determine whether a higher frequency scheduled service should be supported by the municipality (Section 3.4.3).
- Cancel Dormant Licences: The report recommends identifying, confirming and cancelling all dormant operating licences (Section 4.6).
- Law Enforcement: The report recommends investigating the creation of a specialised public transport law enforcement unit within the district.

Non-Motorised Transport (NMT)

According to the West Coast DITP Draft Report (Section 3.7.1), walking is the main mode of travel in West Coast district (54%) as reported by the National Household Travel Survey (NHTS). Walking is a major form of transport for rural communities as a primary mode of transport to schools, to and from taxi ranks, and within towns.

The report explains that much like infrastructure required for vehicles, the infrastructure required for NMT consists of a network of routes or "ways" (roads, streets, or any structure which permits movement or flow of non-motorised transport), safe crossings and amenities for the applicable mode.

NMT Infrastructure by Location

According to the West Coast DITP Draft Report (Section 3.7.3), the NMT infrastructure in the Cederberg Municipality is as follows:

Table 30: NMT Infrastructure in Cederberg Municipality

Location	Facility Type	Condition
Clanwilliam - Hoof Street and Ou Kaapse Road	Sidewalks	Mix of gravel, cement, paving, asphalt, paving blocks and grass
Citrusdal - R303/Paul de Villiers Street/Voortrekker Street intersections	Sidewalks	Asphalt and paving
Clanwilliam and Citrusdal	Formal cycle facilities	None
Citrusdal - footpath along R303	Pedestrian path	Edge break and overgrown vegetation cause irregular path width; surfacing requires maintenance
Citrusdal - Voortrekker Street sidewalk	Sidewalk	Needs maintenance at bridge crossing; lack of safe transition for pedestrians
Clanwilliam - sidewalk along R364 (Clanwilliam – Jan Dissels River)	Sidewalk	Overgrown vegetation reduces width; exposed base course due to deteriorated surfacing
Clanwilliam - sidewalk Main Road (CBD)	Sidewalk	Paving cracked and lifted by tree roots; needs replacement and maintenance
Wupperthal	NMT facilities	No formal sidewalks; pedestrians share the roadway with vehicles

The report notes that formalised pedestrian facilities in the form sidewalks are only found along Hoof Street and Ou Kaapse Road in Clanwilliam. Pedestrian sidewalks consist of a mix of gravel, cement, paving, asphalt, paving blocks and in most instances grass with no access provision for disabled users. In Citrusdal there is only asphalt and paving at the R303/Paul de Villiers Street/Voortrekker Street intersections and along some sections of these streets with the remainder of the pedestrian sidewalks consisting of gravel with no access provision for disabled users.

The report further states that there are no formal cycle facilities or cycle road markings in either Clanwilliam or Citrusdal and the assumption is made that within the CBD of Clanwilliam and Citrusdal, cycling occurs on street as and when required.

NMT Challenges

According to the West Coast DITP Draft Report, the following key challenges were identified for NMT in the Cederberg Municipality:

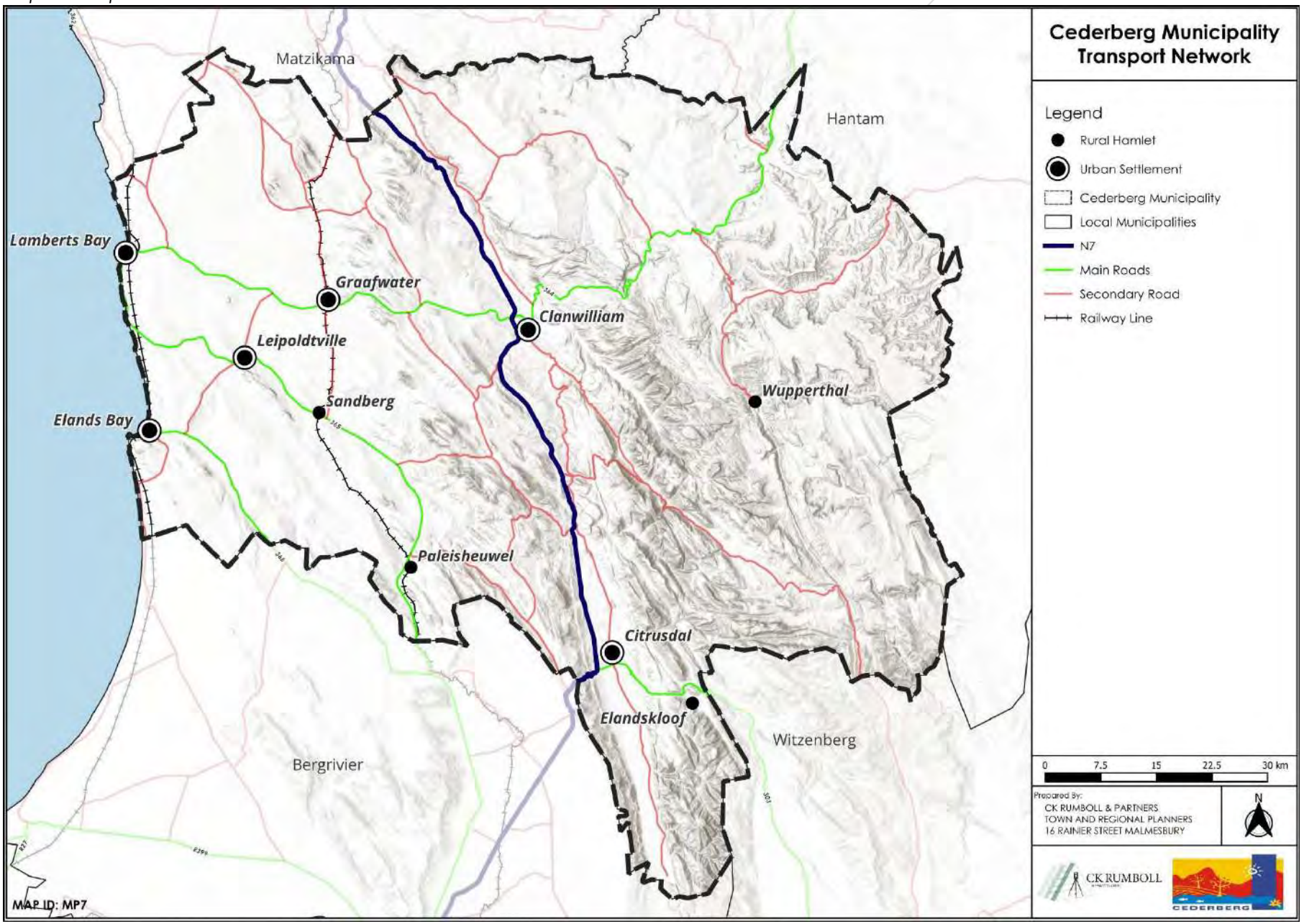
Challenge	Description
Poor Infrastructure Condition	Many sidewalks are in a state of disrepair, with cracked paving, overgrown vegetation, and exposed basecourse.
No Cycle Facilities	There are no formal cycle facilities or cycle road markings in either Clanwilliam or Citrusdal.
Disabled Access	Most facilities have no access provision for disabled users.
Rural Access	No formal sidewalks in rural areas like Wupperthal; pedestrians share the roadway with vehicles.
Safety Concerns	Pedestrian safety along the N7 through Citrusdal and Clanwilliam is a recurring community concern.
Maintenance Backlog	Existing infrastructure requires maintenance and replacement at bridge crossings and other key locations.

Directives

Based on the identified challenges, the West Coast DITP Draft Report proposes the following directives for NMT in the Cederberg Municipality:

- The report recommends securing the compilation of a municipal transport and mobility plan, including a phased priorities list.
- The document calls for formalising pedestrian and cycling links in Clanwilliam, Citrusdal, Graafwater and Elands Bay, including the Verlorenvlei crossing.
- The report recommends prioritising resealing and structural rehabilitation of the Citrusdal tarred road network, where condition data show the highest share of poor and very poor surfacing.
- The document calls for developing a phased gravel-road and bridge maintenance programme for the Wupperthal outer-station network, prioritised by safety risk (river-crossing bridges first).
- The report recommends paving priority internal streets in Riverview (Citrusdal) to address recurrent winter flooding, in coordination with the stormwater upgrade programme.
- The document calls for correcting hazardous intersections in Clanwilliam and Citrusdal with appropriate engineering interventions (traffic calming, signage, mini-circles, signals).
- The report recommends supporting the development of tourism routes such as the Cederberg Meander and Rooibos Heritage Route.
- The document calls for investigating a scheduled or subsidised public transport link between Wupperthal and Clanwilliam.
- The report recommends upgrading or building formal taxi ranks in Clanwilliam, Citrusdal and Lambert's Bay.
- The report recommends updating or replacing the 2013 Pavement Management System with a current municipal-wide PMS to underpin future road-investment prioritisation.

Map 25: Transport Network



2.3.3 Stormwater

Stormwater management is a critical challenge for Cederberg Municipality. The current system is aging and inadequate, particularly in Citrusdal where flooding occurs regularly during winter rains. This damages roads, threatens properties, and creates health hazards.

The municipality has developed Stormwater Master Plans for Clanwilliam and Citrusdal, but these remain unfunded and unimplemented. Applications to the

What has been done:

- Stormwater Master Plans completed for Clanwilliam and Citrusdal.
- DBSA funding applications submitted for other towns.
- Centralized stormwater database established.
- EPWP workers clean minor infrastructure throughout the year.
- Major infrastructure cleaned through annual programme.
- Bridge and culvert assessments completed for five bridges and three major culverts.

What still needs to be done:

- Stormwater Master Plans for Lamberts Bay, Elands Bay, Graafwater, Leipoldtville, and Wupperthal.
- Funding for implementation of all master plans.
- Upgrades to the Citrusdal drainage system.
- Mandatory detention facilities for all new developments.
- Regular inspection and maintenance of all stormwater infrastructure.

From an LED perspective, the Cederberg LED Implementation Plan (2017) emphasizes that getting the "basics right" in infrastructure provision is fundamental to attracting investment and retaining business. The plan notes that flooding of stormwater pipes is common in winter and that EPWP workers are used to address this, linking stormwater maintenance with job creation.

Table 31: Stormwater Infrastructure

Year	Total Stormwater (km)	New (km)	Upgraded (km)	Maintained (km)
2022/23	31	0	0	20
2023/24	31	0	0	25
2024/25	31	0	0	31
2025/26	31	0	0	31

Table 32: Stormwater Expenditure

Year	New (R'000)	Upgraded (R'000)	Maintenance (R'000)
2022/23	0	0	234,726
2023/24	0	0	322,948
2024/25	0	0	298,000

Table 33: Stormwater Master Plan Status

Town	Master Plan Status	Funding Status
Clanwilliam	Completed	Unfunded
Citrusdal	Completed	Unfunded
Lamberts Bay	Not Developed	DBSA Application
Elands Bay	Not Developed	DBSA Application
Graafwater	Not Developed	DBSA Application

Directives

- Prioritize completion of Stormwater Master Plans for Lamberts Bay, Elands Bay, Graafwater, Leipoldtville, and Wupperthal within the next two years using DBSA funding.
- Require all new developments to include on-site stormwater detention facilities that attenuate the 1:50 year flood to pre-development levels.
- Coordinate stormwater upgrades with road rehabilitation projects. Prioritize the Citrusdal Riverview area for an integrated roads and stormwater upgrade program.
- Enforce the 1:100-year floodline and river corridor buffer requirements. No new development should be permitted within identified flood risk zones.

- Implement a scheduled maintenance programme for all stormwater infrastructure, including annual cleaning of pipes, channels, and inlet structures using EPWP workers.
- Incorporate climate change projections into all stormwater design standards, considering increased rainfall intensity and more frequent extreme events.
- Establish partnerships with the Department of Local Government and DBSA to secure funding for stormwater master planning and infrastructure upgrades.
- Include stormwater maintenance activities in the EPWP project list, providing employment opportunities for unemployed residents while addressing critical infrastructure needs.

2.3.4 Water / Infrastructure

Cederberg's bulk water system is diverse and unevenly served. Clanwilliam and Citrusdal draw from the Olifants River system, including the Clanwilliam Dam. Elands Bay, Graaff-Reinet, Lamberts Bay and Leipoldtville rely on boreholes and, in the case of Lamberts Bay, on a partly completed desalination plant. Wupperthal draws from the Tra-tra River and Algeria from a mountain stream. The Water Master Plan sets a total pipeline network of 236.1 km (86.6 km raw, 10.4 km bulk, 139.1 km reticulation) and flags a headline non-revenue water loss of 35.4 percent for the municipality, with Citrusdal at 50.6 percent according to the Cederberg Waster master Plan 2023.

Existing Reservoirs and Water Towers

Table 34: Existing reservoirs and towers.

Town	Structure	Type	Capacity (kL)	TWL (m a.s.l.)
Citrusdal	Low Level reservoir no. 1	Reservoir	320	199.8
Citrusdal	Low Level reservoir no. 2	Reservoir	900	199.8
Citrusdal	High Level reservoir	Reservoir	3,000	250.0
Clanwilliam	1.5 ML Grootmaat reservoir	Reservoir	1,500	179.4
Clanwilliam	3.0 ML Grootmaat reservoir	Reservoir	3,000	179.4
Clanwilliam	Carletta Cove tower 2	Tower	158	n/a
Clanwilliam	Cederville reservoir	Reservoir	1,000	162.2
Clanwilliam	Jan Dissel reservoir	Reservoir	1,200	103.2
Clanwilliam	Platdammetjie reservoir no. 1	Reservoir	640	164.2
Clanwilliam	Platdammetjie reservoir no. 2	Reservoir	640	164.2
Elands Bay	Elandsbaai reservoir no. 1	Reservoir	500	66.5
Elands Bay	Elandsbaai reservoir no. 2	Reservoir	500	66.5
Graafwater	Graafwater reservoir no. 1	Reservoir	1,000	214.5
Graafwater	Graafwater reservoir no. 2	Reservoir	1,500	214.5
Lamberts Bay	Main clean water reservoir	Reservoir	1,500	30.3
Lamberts Bay	Plat reservoir no. 1	Reservoir	630	30.3
Lamberts Bay	Plat reservoir no. 2	Reservoir	680	29.9
Lamberts Bay	3.0 ML reservoir	Reservoir	3,000	29.9
Lamberts Bay	Pressure tower	Tower	150	51.0
Leipoldtville	Leipoldtville reservoir	Reservoir	150	104.2
Wupperthal	Wupperthal reservoir no. 1	Reservoir	574	n/a
Wupperthal	Beukeskraal reservoir (no. 4)	Reservoir	142	n/a

Demand and Losses

Table 35: Water demand and non-revenue water.

Town	Current AADD (kL/d)	Projected Future AADD (kL/d)	Non-Revenue Water
Citrusdal	2,871	4,094	50.6%
Clanwilliam	2,197	6,434	23.9%
Elands Bay	476	1,201	36.1%
Graafwater	669	1,431	29.7%
Lamberts Bay	1,730	3,116	25.7%
Leipoldtville	36	275	n/a
Municipal total	7,979	16,550	35.4%

Key Water Capital Projects

- to commission per IDP 2026/27).
- Lamberts Bay Wellfield / Boreholes project of R96.6 million in the 2026/27 capital programme.
- Total capital requirement over the Water Master Plan planning horizon is approximately R175.74 million (Cederberg Municipality, 2023a).

Directives

- Fast-track the new Clanwilliam Water Treatment Plant to convert disinfection-only supply to fully treated potable water.
- Reduce Citrusdal non-revenue water below 25 percent within five years through pressure management, meter renewal and mains replacement.
- Commission the Lamberts Bay desalination plant and secure an operational subsidy for its energy costs.
- Align water infrastructure investment with the Clanwilliam Dam raising project so that additional yield is captured for domestic supply and not lost to irrigation only.
- Adopt the Sustainable Water Management Plan (WCG, 2018) four goals, in particular the goal of building additional adaptive capacity.
- Install groundwater monitoring boreholes to protect the Sandveld and TMG Aquifers, which serve Graafwater and Lamberts Bay.
- New Clanwilliam Water Treatment Plant: current raw water is only disinfected before distribution.
- Clanwilliam Dam bulk water supply upgrades (~R10.27 million) to capitalise on the raised dam wall.
- Additional storage capacity at Citrusdal High Level reservoir site (~R13.44 million).
- Cederville reservoir zone reinforcement in Clanwilliam (~R15.28 million).
- Lamberts Bay booster pump station (~R4.8 million) and completion of the desalination plant (approximately 85 percent complete; ~R20 million

Table 36: Infrastructure projects in Cederberg

Town	Water Source	Storage Capacity	Challenges	Upgrading Required	Estimated Cost (R)
Citrusdal	Olifants River (dry) + 2 boreholes (under stress)	3ML (insufficient)	Highly stressed for residents, industry, hospitals, 4 education centres	Additional borehole, water tanker, 3ML reservoir	12,000,000
Graafwater	2 boreholes	1ML (insufficient, stressed)	-	1.5ML reservoir (critical)	2,600,000
Clanwilliam	Olifants Dam + Jan Dissels River (both under stress)	5.3ML (stressed)	Pumping capacity is too low when Jan Dissels dries up	Pump Station upgrade, Rising Pipeline, additional borehole	18,800,000
Wuppertal	Tra River (severe stress)	200kl	Communities are often without water	Water tanker, Jo Jo tanks, borehole	3,100,000
Algeria	Spring (insufficient)	200kl	Dry season & low rainfall cause poor stream	Borehole, pipeline, water tanker	2,800,000
Elandskloof	Spring (insufficient)	Insufficient	Community heavily under stress	Borehole, water tanker	2,800,000
Lamberts Bay	2 boreholes (severe pressure)	Adequate	Underground water resources are under severe pressure	Complete Desalination Plant	20,000,000
All towns	-	-	Emergency response for rural areas	50 Jo Jo tanks	200,000
All towns	-	-	-	Underground water level studies	200,000
TOTAL					62,500,000

Table 37: Basic Water Service Delivery Targets

Indicator	Target	Source
Residential properties with piped water (billed)	6,011	IDP Scorecard
Free basic water to indigent households	2,196	IDP Scorecard
Unaccounted for water	<25%	IDP Scorecard
Water samples complying with SANS 241	95%	IDP Scorecard

2.3.5 Waste

The municipality operates nine licensed waste facilities. Only Citrusdal, Clanwilliam, Lamberts Bay and Elands Bay are currently operational; the remainder are under closure or have lapsed licences according to the Cederberg 4th Generation Integrated Waste Management Plan. Waste generation in 2022 was 13,814 tonnes per year, with recycling at approximately one percent and organic diversion at zero, against a provincial target of 100 percent organic diversion by 2027. A new regional landfill on Farm Vaderlandsche Rietkuil no. 308 near Vanrhynsdorp is being funded by the West Coast District Municipality (~R82 million) and is intended to serve both Matzikama and Cederberg. Construction began in January 2024 and was reported as complete in April 2025 (Cederberg Municipality, 2025a).

Table 38: Municipal waste sites

Site	Location	Status	Licence	Airspace / Note
Citrusdal	East of town	Operational	WL0038/18 (Class B)	Airspace to 2037
Clanwilliam	6.5 km SE of town	Operational (under closure)	WL0054/19	Decommissioned by 29 Aug 2028
Lamberts Bay	2.2 km east of town	Operational (under closure)	WL0055/19	Airspace zero - needs immediate closure
Elands Bay	1.2 km east of town	Operational (under closure)	WL0111/17	Airspace zero - unmanned
Graafwater	Adjacent to town	Closed / rehabilitation	Closure Nov 2014	Rehabilitation required
Algeria	Cederberg valley	Closed	Lapsed Nov 2019	New closure licence required
Wupperthal	Church-owned area	Closed (church use)	Valid	Decommission Nov 2024
Leipoldtville	Adjacent to town	Closed	Lapsed Nov 2019	New closure licence required
Eselbank	Rural (Wupperthal area)	Closed (church use)	Lapsed Nov 2019	New closure licence required

Table 39: Landfill Closure Costs by Site

Site	Closure Cost (R)
Clanwilliam	14,952,805.34
Lamberts Bay	13,634,210.20
Citrusdal	16,411,551.52
Graafwater	3,584,023.70
Elands Bay	4,095,949.85
Eselsbank	2,383,117.46
Algeria	2,795,145.07
Wupperthal	3,720,359.44
Leipoldtville	2,707,064.79
TOTAL	64,279,228.43

Directives

- Complete closure and rehabilitation of Lamberts Bay, Elands Bay, Clanwilliam and Citrusdal landfills according to their licence conditions.
- Apply for new closure licences for Algeria, Eselbank and Leipoldtville, where existing licences have lapsed.
- Commission the West Coast District regional landfill at Vanrhynsdorp and integrate haul route from Cederberg via a transfer station in Clanwilliam (~R24 million).
- Develop drop-off facilities in Lamberts Bay (~R3.5m), Citrusdal (~R3.3m), Graafwater (~R2.2m) and Elands Bay (~R2.2m).
- Meet the WC IWMP 2017-2022 organic diversion targets by outsourcing chipping and composting of garden waste.

- Address illegal dumping hotspots at Clanwilliam Khayelitsha, Denne Street and Ou Kaapse Weg through targeted enforcement and community clean-ups.

2.3.6 Sewage / Wastewater

Waterborne sanitation is concentrated in the five larger towns. Total combined WWTW capacity is 8.01 Ml/d, which is roughly 1.8 times the current peak daily dry weather flow of 4,489 kL/d according to the updated Sewer Master plan. Erven along the western coastline of Elands Bay, north of the R364 in Graafwater and in Wupperthal and Algeria, people rely on septic tanks or oxidation ponds. Approximately 4,600 people live in 1,542 informal structures without formal waterborne sanitation.

Table 40: Wastewater Treatment Works.

WWTW	Town	Design Capacity (Ml/d)	Treatment Process
Citrusdal WWTP	Citrusdal	2.30	Activated sludge (relocated)
Clanwilliam WWTP	Clanwilliam	2.10	Trickling filter / biofilter
Elands Bay WWTP	Elands Bay	0.25	Ponds (near capacity)
Graafwater WWTP	Graafwater	0.36	Oxidation ponds (to be replaced)
Lamberts Bay WWTP	Lamberts Bay	3.00	Activated sludge
Algeria package	Algeria	n/a	Aeration and maturation ponds
Wupperthal ponds	Wupperthal	n/a	Oxidation ponds
Municipal total	-	8.01	-

The system comprises approximately 82.5 km of gravity sewers and 17 km of rising mains, served by 25 pump stations (7 Citrusdal, 8 Clanwilliam, 2 Elands Bay, 1 Graafwater, 7 Lamberts Bay). Key upgrade projects include the Clanwilliam bulk sewer upgrade from Denne Street to WWTP (~R5.52 million), the Nuweland Pump Station and rising main upgrade (~R5.46 million), and the Clanwilliam WWTW upgrade of R75.77 million in the 2026/27 capital plan. Total sewer master plan capital requirement is R129.18 million in the 2026/27 capital plan. Total sewer master plan capital requirement is R129.18 million.

Challenges include:

Challenge Description	Action to Address
WWTW poor final sewer effluent does not comply with required standards in Clanwilliam.	Upgrade WWTW capacity to enhance sewer sludge digestion. Upgrading / Refurbishment of the Clanwilliam WWTW are underway.
Removal of sewer sludge at Clanwilliam works are a challenge.	Construction of sludge ponds and drying beds for sludge management at all plants. Compile sludge management plans for each plant and implement.
Lack of competent skilled staff at WWTW.	Provide training to existing process controllers and attract qualified, experienced process controllers.
Paleisheuwel household's septic tanks/maturation tank is overloaded with sludge.	This problem was addressed by the Cederberg Municipality. Development and implementation of a booking system for regular and prompt emptying of septic tank removals for residents.
Clanwilliam WWTW is operating over its design capacity.	A capacity study is required for Clanwilliam WWTW. Upgrading / Refurbishment of the Clanwilliam WWTW is underway.
Wupperthal oxidation ponds are overloaded with sludge and overgrown reeds.	Funding must be sourced to address the situation.
Funding to provide sanitation services to the informal settlements of Cederberg municipal area.	Initiate the introduction of interim sanitation services until such time housing development is possible.
Rural areas are without proper sanitation and require urgent interventions with regards to sanitation services.	Negotiation with landowners to enable the Municipality to conduct feasibility studies on properties.

Table 41: Challenges

Directives

- Deliver the Clanwilliam WWTW upgrade in full during the 2026/27 to 2028/29 MTREF cycle.
- Replace Graafwater oxidation ponds with a modular package plant (~R23.4 million per SDF proposal).
- Extend waterborne sanitation to Elands Bay western coastal erven and Graafwater north-of-R364 through UISP or WSIG funding.
- Provide standby power at all 25 pump stations to protect against sewage spillage during load-shedding.
- Report Green Drop compliance annually and publish the results with the IDP performance review.
- Include waterborne sanitation upgrades in the Riverview and Khayelitsha UISP-funded programmes.

2.3.7 Energy

Cederberg reticulates electricity to Clanwilliam, Citrusdal, Graafwater, Elands Bay and Lamberts Bay; Eskom supplies Wupperthal, Algeria, Leipoldtville, Elandskloof and rural farms directly. Bulk supply is the binding constraint. The SDF states that Clanwilliam requires an additional 10 MVA (approximately R22 million in 2017 terms) and Lamberts Bay an upgrade from 2.7 MVA to 3.5 MVA. The 2024/25 Annual Report confirms that a new 66/11 kV substation and a 66 kV overhead line from Graaff-Reinet to Clanwilliam are under construction with 100 percent funding allocated; electricity distribution losses were held to 5.77 percent.

Table 42: Electrical capacity per major town

Town	Notified Maximum Demand	Reported Constraint	Planned Intervention
Clanwilliam	10 MVA required (deficit)	Bulk intake shortage stalling development	New 66/11 kV substation and 66 kV OHL

Lamberts Bay	2.7 MVA (upgrade to 3.5 MVA)	Constrained bulk supply	Bulk capacity upgrade
Graafwater	0.5 MVA (upgrade to 1 MVA)	Ageing network	Reticulation and street lighting upgrade
Citrusdal	n/a - Eskom bulk	Ageing network	Standard maintenance
Elands Bay	n/a - Eskom bulk	Coastal corrosion	Selective replacement

The municipality entered the national Eskom debt relief programme; R12.19 million was written off during 2024/25 against an accumulated Eskom debt of approximately R47 million (Cederberg Municipality, 2025a). The Climate Change Plan sets a target of 40 percent renewable energy by 2030 and a 30 percent conversion of streetlights to LED. Renewable Energy Development Zones (REDZ) 3 and 8 overlap the north-western portion of the municipality, creating an opportunity for utility-scale solar PV and wind.

Table 43: Electricity Infrastructure Projects

Project	Location	Status	Funding
66kV overhead line from Graafwater to Clanwilliam	Clanwilliam	97% completed	DMRE
10MVA substation	Clanwilliam	Under construction; finalization 2025/26	DMRE
Bulk electricity upgrade - Substation	Clanwilliam	INEP funded; construction	INEP
Electricity upgrade network	Clanwilliam	Budgeted	Municipal
11KV cable upgrade - Mark Street	Clanwilliam	Budgeted	Municipal
Overhead line refurbishment east of town	Graafwater	Budgeted	Municipal

Directives

- Complete the Clanwilliam substation and overhead line project to unlock stalled residential and industrial developments.
- Adopt a Municipal Electricity Master Plan aligned to the Integrated Energy Plan (2016) and Eskom Transmission Development Plans.
- Set clear procurement rules for embedded generation and small-scale solar PV feed-in from households and businesses.
- Convert the streetlight fleet to LED with associated smart metering.
- Explore small-scale hydroelectricity at the raised Clanwilliam Dam wall.
- Sustain the Eskom debt relief conditions to protect long-term revenue.

2.3.8 Cemetery

The municipality currently operates eight cemeteries across its main settlements. The SDF states that Citrusdal moved to a new cemetery site during the previous SDF cycle, that Clanwilliam requires a new site, and that Lamberts Bay, Elands Bay, Graaff-Reinet and Leipoldtville have expansion potential. There is no regional cemetery, and the SDF discourages the creation of one, favouring local provision.

Table 44: Cemeteries by settlement

Cemetery	Settlement	Service Area	Reported Issue
Citrusdal cemetery (new site)	Citrusdal	Citrusdal town and surrounds	Ongoing capacity acceptable
Vrede-Oord	Clanwilliam	Clanwilliam	Approaching capacity
Augsburg	Clanwilliam	Clanwilliam	New site required
Graafwater North	Graafwater	Northern zone	Expansion possible
Graafwater South	Graafwater	Southern zone	Expansion possible
Lamberts Bay (2 sites)	Lamberts Bay	Lamberts Bay	Expansion possible; vandalism reported
Elands Bay	Elands Bay	Elands Bay	Expansion possible east of Zone C

Table 45: Indicative land required for cemetery expansion

Settlement	Land Required 2025 (ha)	Land Required 2030 (ha)	Land Required 2035 (ha)	10-Year Total (ha)
Clanwilliam	0.6	0.7	0.8	2.1
Citrusdal	0.5	0.6	0.7	1.8
Lamberts Bay	0.4	0.5	0.5	1.4
Graafwater	0.2	0.2	0.2	0.6
Elands Bay	0.1	0.1	0.2	0.4
Leipoldtville	0.05	0.05	0.05	0.15
Total	1.85	2.15	2.45	6.45

Directives

- Acquire a new cemetery site for Clanwilliam within the next SDF cycle.
- Programme expansion of Lamberts Bay, Elands Bay, Graafwater and Leipoldtville cemeteries according to the 2019 Cemetery Identification Report.
- Introduce boundary fencing, security lighting and access control to reduce vandalism, in line with SALGA (2016) Good Practices in Cemetery Management.
- Promote local rather than regional cemeteries as directed by the SDF.
- Include cemeteries in the municipal Immovable Asset Register with condition assessments.

2.3.9 Amenities

The following table provides an overview of the current provision of amenities per settlement. Each settlement has been classified according to the CSIR Guidelines (see section on Settlement Function), which uses total population figures to determine the appropriate settlement type. This classification forms the basis for assessing the adequate provision of existing amenities in relation to current population needs. The number and type of existing amenities within each settlement were recorded and compared against the normative standards set out in the CSIR Guidelines to identify any existing gaps or surpluses. The 2025 population figures used in this analysis are based on the latest available estimates and provide a baseline for future spatial planning.

Table 46: Amenity matrix by settlement against CSIR Red Book norms.

Category / Amenity	Norm	Clanwilliam (E)	Citrusdal (G)	Lamberts Bay (G)	Graafwater (G)	Elands Bay (H)	Wupperthal (H)
Population (2021)	-	9,211	8,615	7,346	2,714	1,830	n/a
Health and Emergency							
Primary Healthcare Clinic	1 per 5,000	✓	✓	✓	✓	✓	✓ (mobile)
District Hospital	1 per 50,000	✓	✗	✗	✗	✗	✗
Ambulance Station	1 per 20,000	✓	✓	✓	✗	✗	✗
Fire Station	1 per 60,000	✓	✗	✗	✗	✗	✗
Civic							
Municipal Office	1 per town	✓	✓	✓	✓	✗ (satellite)	✗
Post Office	1 per town	✓	✓	✓	✓	✓	✗
SASSA / Home Affairs	Access point	✓	✓ (visiting)	✓ (visiting)	✗	✗	✗
Cultural							
Library	1 per 5,000	✓	✓	✓	✓	✓	✓
Community Hall	1 per 6,000	✓	✓	✓	✓	✓	✓
Museum / Heritage	As applicable	✓	✗	✓ (Sandveld)	✗	✓ (new museum)	✓ (Mission)
Social Services							
Police Station (SAPS)	1 per 15,000	✓	✓	✓	✓	✓	✗
Magistrate Court	Regional	✓	✗	✗	✗	✗	✗
Thusong / multi-Purpose	1 per town	✓	✗	✗	Planned	✗	✗
Education							
Pre-Primary / ECD	1 per 1,500	✓	✓	✓	✓	✓	✓

Primary School	1 per 3,000	✓	✓	✓	✓	✓	✓
Secondary School	1 per 6,000	✓	✓	✓	✓	✗ (bussed)	✗
ABET Centre	Access	✓	✓	✗	✗	✗	✗
Recreation							
Sports Field	1 per 5,000	✓	✓	✓	✓	✓	✓
Swimming Pool	1 per 20,000	✗	✗	✗	✗	✗	✗
Public Park	0.5 ha per 1,000	Partial	Partial	✓ (caravan park)	Partial	✓ (beachfront)	Partial
Playground	1 per neighbourhood	Partial	Partial	Partial	Partial	Partial	Partial

Directives

- Prioritise construction of the Graafwater Multi-Purpose Centre (R8.6 million MIG-funded) already in the capital budget.
- Extend swimming pool and formal park provision to Citrusdal and Graafwater in line with Red Book norms.
- Investigate a Thusong Service Centre at Elands Bay to consolidate SASSA, Home Affairs and Post Office visits.
- Ensure disabled access at clinics and public buildings as required in the SDF Elandskloof directive and extended to all settlements.
- Publish an accessibility audit of civic buildings by 2027.

2.3.10 Tourism

Tourism is the most spatially distributed economic sector in Cederberg. Assets are natural, cultural, and heritage-based and are strongly clustered around three destinations: the Cederberg Wilderness Area, the coastal towns, and the Olifants River valley.

Natural and Adventure Assets

- Cederberg Wilderness Area (CapeNature) with Wolfberg Arch, Wolfberg Cracks, Maltese Cross and Algeria camping.
- Rocklands, an internationally recognised bouldering destination near Clanwilliam.
- Clanwilliam Dam for water sports and recreation, with expanded capacity after the dam raising.
- Bird Island at Lamberts Bay (Cape gannet colony).
- Verlorenvlei RAMSAR site at Elands Bay.
- Sevilla Rock Art Trail and Stadsaal Caves.
- Piekenierskloof Pass and Middelberg Pass scenic drives.

Cultural and Heritage Assets

- Wupperthal Moravian Mission Station, velskoene workshop and rooibos processing.
- Diepkloof Rock Shelter declared a UNESCO World Heritage Site (Cederberg Annual Report 2024/25).
- Baboon Point provincial heritage site and Elands Bay Cave rock art.
- Elands Bay Museum (new development).
- Ramskop Nature Garden, Clanwilliam.
- Heerenlogement Cave, near Graafwater.
- Riel dancing and rooibos route across the Olifants Valley.

Agri-Tourism and Product Tourism

- Rooibos tea routes centred on Clanwilliam.
- Citrus farms and hot springs (The Baths) at Citrusdal.
- Sandveld potato and small-grain farms around Graafwater.
- West Coast fishing culture at Lamberts Bay and Elands Bay.

The LED Strategy (2016) and LED Implementation Plan (2017) identify tourism as one of the three primary sectors for job creation, alongside agri-processing and fishing. A Cederberg Local Tourism Organisation (LTO) was established in 2024/25. Ongoing initiatives include the Clanwilliam Triathlon, the Lamberts Bay Farmers Market, and an annual Tourism Indaba. The IDP references the Clanwilliam Smart Town Initiative as a technology-driven road safety and command centre programme; its full capital envelope is being scoped during 2026 following approval of the LED Strategy and Investment Profile in May 2025.

Directives

- Develop a Cederberg Scenic Drive and Tourism Route policy in collaboration with the Regional Tourism Liaison Committee.
- Support Project Phakisa small harbour development at Lamberts Bay and Elands Bay to expand fishing and marine tourism.
- Complete the Elands Bay Museum and interpret Baboon Point and Diepkloof for visitors.
- Promote farm stays, tastings and micro-processing along the Olifants, Verlorenvlei, Langvlei and Doring River corridors.
- Formalise the Cederberg LTO governance structure and its funding stream inside the LED budget.
- Integrate the Clanwilliam Smart Town Initiative into the SDF capital projects register.

2.3.11 Three-Year Municipal Capital Expenditure

The Cederberg Municipality's three-year capital programme is directed by the Service Delivery and Budget Implementation Plan (SDBIP) and aligned to the Key Performance Indicators (KPIs) of the Integrated Development Plan (IDP). The 2025/26 capital budget totals R78,459,243, forming part of a Medium-Term Revenue and Expenditure Framework (MTREF) that projects capital expenditure

of R60,126,565 in 2026/27 and R81,670,827 in 2027/28. A concerted effort will be made to improve the capital budget spend from the 74.73% recorded in 2024/25 to at least 90%, in line with the SDBIP target.

Table 47: Budget Summary (2025/26 MTREF)

Description	2025/26	2026/27	2027/28
Total Revenue	R514,609,788	R557,013,645	R634,357,374
Total Expenditure	R514,019,873	R549,806,686	R638,962,834
Surplus / (Deficit)	R589,915	R7,206,959	(R4,605,460)
Capital Expenditure	R78,459,243	R60,126,565	R81,670,827

The capital budget is distributed across the four primary IDP KPIs as follows:

Table 48: Capital Expenditure Allocation (2025/26)

IDP KPI	Amount (R)	Percentage
1. Essential Services	32,511,186	41%
2. Governance	3,280,000	4%
3. Communal Services	23,966,639	30%
4. Socio-Economic Support Services	20,289,000	25%
TOTAL	80,046,825	100%

The capital programme is anchored by a pipeline of large, multi-year infrastructure projects and a series of settlement-based interventions. The status of the major catalytic and grant-funded projects is tracked in Table 33 and Table 34 below. These projects are the building blocks that translate the KPI allocations into on-the-ground delivery.

Table 49: Major Capital Projects Status

Project	Location	Budget (R)	Status	Completion Target
Clanwilliam Dam Raising	Clanwilliam	5.7–6 billion	Under construction; 26% complete	2028/29
Clanwilliam Smart Town Initiative	Clanwilliam/N7	450 million	Fully vetted; open for investment	-
Lamberts Bay Desalination Plant	Lamberts Bay	-	Construction commenced 2021	-
Clanwilliam WWTW Refurbishment	Clanwilliam	80 million	Completed	2025
Citrusdal WWTW Upgrade	Citrusdal	-	Completed	June 2022

Table 50: Selected capital projects, 2025/26 - 2028/29 MTREF

Project	Location	Budget (R)	Funding Source	Status
Clanwilliam WWTW Upgrade	Clanwilliam	75,768,900	MIG / WSIG	Funded, design
Lamberts Bay Wellfield / Boreholes	Lamberts Bay	96,643,812	WSIG / Own	Funded, procurement
New 66/11 kV substation and 66 kV OHL	Graafwater – Clanwilliam	Fully funded	INEP	Under construction
Regional Bulk Waste Disposal Facility	Vanrhynsdorp (WCDM)	~82,000,000	WCDM	Completed April 2025
Graafwater multi-Purpose Centre	Graafwater	8,600,000	MIG	Design
Graafwater Roads and Stormwater Phase 2	Graafwater	6,242,240	MIG	Design
Lamberts Bay Drop-Off Facility	Lamberts Bay	2,507,910	MIG	Procurement
Riverview Water Services	Citrusdal	ISUPG allocation	ISUPG	Ongoing

(informal upgrade)				
Lamberts Bay Desalination completion	Lamberts Bay	~20,000,000	To be sourced	85% complete

Together, Table 33 and Table 34 illustrate the sequencing and funding mix for essential and socio-economic infrastructure. The completed Clanwilliam WWTW refurbishment (R80m) provides the foundation for the larger R75.8m upgrade now in design, while the fully funded 66 kV substation and overhead line are under construction to unlock housing and industrial growth. The Lamberts Bay Wellfield (R96.6m) and the near-complete desalination plant (~R20m required for completion) form a two-pronged water security strategy for the coastal town.

KPI 1: Essential Services: R 32,511,186
Essential Services encompass water, sanitation, electricity, roads, stormwater, and solid waste. The allocation is dominated by bulk infrastructure that unlocks economic and residential development. The Clanwilliam WWTW Upgrade (R75.8m, Table 34) is the largest single commitment, while the Graafwater–Clanwilliam 66 kV substation and OHL (Table 34) address an urgent electrical constraint. Road and stormwater investments are delivered on a settlement basis, as shown in the MIG allocations for Graafwater Roads and Stormwater Phase 2 (R6.24m, Table 34 and Table 35) and the paving and resealing projects listed in the priority cost (Table 36). Solid waste infrastructure is strengthened through the Lamberts Bay Drop-Off Facility (R2.5m, Table 34 and Table 35). The directive to front-load these projects ensures that water, sanitation, and electricity capacity is in place ahead of the UISP housing pipeline.

KPI 2: Governance: R 3,280,000
Governance investment focuses on institutional capacity to manage the capital programme effectively. A dedicated Clanwilliam Project Management Unit (PMU), allocated R912,850 through MIG (Table 35), is central to improving the capital spend rate from 74.73% to above 90%. The remaining governance funds are directed toward IT systems, fleet replacement, and equipment essential for project oversight, financial administration, and compliance.

KPI 3: Communal Services: R 23,966,639
This KPI delivers community facilities, recreation, and environmental amenities. The flagship is the Graafwater Multi-Purpose Centre, funded through MIG at R8.6 million (Table 35, Table 34), which will serve as a hub for social and municipal services. Coastal infrastructure is supported by the Elands Bay Slipway (R3.4m, Table 36), while streetlight upgrades in Graafwater, Lamberts Bay, and Elands Bay enhance public safety. The Lamberts Bay Drop-Off Facility (MIG, R2.5m) and the regional waste facility completed by the West Coast District Municipality (WCDM, ~R82m, Table 34) jointly improve solid waste management across the municipal area.

KPI 4: Socio-Economic Support Services: R 20,289,000
This cross-cutting KPI stimulates local economic development, spatial integration, and housing delivery. Key interventions include bulk infrastructure linkages that enable the Clanwilliam Smart Town Initiative (R450m vetted, Table 33) and UISP housing projects in Clanwilliam (436+864 units) and Citrusdal (~1,000 units). The Riverview Water Services project (ISUPG-funded, Table 34) provides immediate basic service upgrades in an informal settlement. Road resealing and paving across all towns—such as the R3m package in Citrusdal and R600,000 in Graafwater—are bundled to reduce disruption and support small-scale enterprise. Unbundling these works into smaller contracts will create opportunities for local SMMEs, directly aligning with the LED Implementation Plan.

The granular detail of how the 2025/26 MIG allocation is deployed is set out in Table 35, while Table 36 aggregates the full set of identified infrastructure priorities across all towns, providing a realistic cost framework that goes well beyond the current budget envelope.

Table 51: MIG Funded Projects 2025/26

MIG ID	Project	Service	Budget (R)
443708	Graafwater multi-Purpose Centre	Community Facility	8,600,000
491112	Graafwater Roads and Stormwater Phase 2	Roads	6,242,240
55012	Lamberts Bay Drop Off Facility	Solid Waste	2,507,910
-	Clanwilliam PMU 2025/26	PMU	912,850
TOTAL			18,263,000

Table 52: Funded Projects - Infrastructure Priority Costing

Area	Activity	Estimated Cost (R)
Graafwater	Paving Minnaar Street	600,000
	Reseal Roads	600,000
	Speedbumps - Olienhout Street	50,000
	Streetlights - Renier Street	85,000
	26 Toilets Construction	300,000
	Multi-Purpose Centre	13,500,000
Subtotal Graafwater		15,135,000
Clanwilliam	Paving - Viooltjie Street	1,800,000
	Reseal Roads	800,000
	WWTW Refurbishment	18,000,000
	WWTW Upgrade	75,768,900
	WTW Filter Refurbishment	3,500,000
Subtotal Clanwilliam		*99,868,900*
Lamberts Bay	Streetlights (Fransman/Ruiter)	35,000
	Streetlights (Kiewiet Street)	21,000
	Reseal Roads	1,000,000
	Wellfield Development	96,643,812
Subtotal Lamberts Bay		97,699,812
Citrusdal	Roads - Davofill Street	800,000
	Roads - Impolueni Street	700,000
	Reseal Roads	1,500,000
Subtotal Citrusdal		3,000,000
Elands Bay	Streetlights at R65/R27	230,000
	Slipway Infrastructure	3,400,000
Subtotal Elands Bay		3,630,000
GRAND TOTAL		219,333,712

Table 35 demonstrates that the 2025/26 MIG allocation of R18.26 million is targeted at a small number of high-impact projects: a multi-purpose centre, roads and stormwater, a waste drop-off, and project management capacity. Table 36 reveals the full scale of the municipality's capital need at R219.3 million. The MIG projects are a funded subset of these priorities, while the larger water, sanitation, and electrical schemes (e.g., Clanwilliam WWTW Upgrade, Wellfield Development) are reflected in both Table 36 and Table 34, with funding drawn from WSIG, INEP, and own revenue. The gap between the grand total in Table 36 and the current capital budget underscores the importance of sequencing projects, securing additional grants, and packaging works efficiently.

Directives

- Sequence the Clanwilliam WWTW upgrade and the Graafwater–Clanwilliam 66 kV OHL to unblock stalled housing and industrial development ahead of other programmes.
- Lock the Lamberts Bay Desalination Plant completion (~R20m) into the 2026/27 budget, pursuing Provincial or DBSA co-funding.
- Increase the capital budget spend from 74.73% to at least 90%, supported by the dedicated Clanwilliam PMU and realistic project timelines.
- Allocate a defined proportion of MIG to ensure basic service provision in remote settlements such as Wupperthal and Leipoldtville, ensuring these are reflected in future priority costings.
- Bundle roads, stormwater, and sanitation projects on a settlement basis to minimise disruption and lower unit costs.
- Unbundle infrastructure contracts into work packages accessible to local SMMEs, aligned with the LED Implementation Plan.

- Apply real-world timelines and contingencies to all capital projects, acknowledging the multi-year slippage experienced on nationally funded catalytic projects such as the Clanwilliam Dam raising.

2.3.12 Human Settlements and Tenure

Spatial Transformation Challenges

Cederberg's human-settlement pattern still reflects apartheid-era spatial planning, with historically Coloured and Black African residential areas generally located on the periphery of each town, furthest from economic opportunity. Several factors constrain the effective implementation of spatial transformation within the Cederberg Municipal area.

Topographical Constraints

The municipality's jurisdiction covers approximately 8,007 km², with the Cederberg mountain range forming a significant physical barrier to the east. These mountainous areas, including the Cederberg Wilderness Area, which covers a substantial portion of the eastern municipal area, create natural boundaries that restrict urban expansion. The terrain in areas such as Wupperthal and Algeria significantly increases the cost and technical complexity of infrastructure provision, bulk service installation, and network connectivity.

Agricultural Land Constraints

Cederberg is defined by the presence of high-potential agricultural land in close proximity to existing urban settlements, particularly in the Olifants River valley. This land is a critical economic asset, forming the backbone of the local economy through citrus, rooibos tea, and wine production. These industries employ an estimated 5,000 to 8,000 people in the district alone. The conversion of such land for residential or urban development would therefore undermine local livelihoods and contradict broader objectives of economic sustainability and food security.

The extensive commercial agricultural land in the Olifants River valley severely limits the amount of well-located, developable land available for housing expansion around Clanwilliam and Citrusdal, pushing new informal growth onto marginal, often flood-prone or poorly serviced land.

Spatial Pattern Constraints

The municipality also exhibits a spatial pattern where agricultural activities are closely integrated with urban areas. While this proximity supports employment accessibility, it simultaneously constrains opportunities for residential expansion and spatial restructuring. Given the limited availability of public transport, there is a strong reliance on the spatial proximity between places of residence and employment.

Settlement-Specific Constraints

- Clanwilliam: The town is bounded by the Olifants River, Clanwilliam Dam, and surrounding agricultural land, limiting expansion opportunities. Informal settlements (Khayelitsha/Sandkamp) have expanded on the northern edge on marginal land.
- Citrusdal: Similar constraints exist with the Olifants River and agricultural land limiting expansion. The Riverview informal settlement has developed on flood-prone land.
- Wupperthal: A remote Moravian mission village in the Cederberg mountains, access is via unsurfaced mountain roads, and the settlement is virtually landlocked by mountainous terrain.
- Coastal towns: Lamberts Bay and Elands Bay face constraints from coastal hazard lines and limited bulk services.

Given these constraints, the identification of greenfield sites for spatial transformation is both difficult and, in many cases, undesirable. Instead, the MSDF appropriately prioritises:

- In-situ upgrading of underdeveloped and informal areas.
- Completion of existing housing initiatives such as the Clanwilliam Golf Course and Citrusdal Riverview UISP projects.
- Higher-density residential typologies within the existing urban edge.

- Integration of social, rental, and gap housing within mixed-income developments.

Housing Backlog

The municipality's housing backlog stood at 6,355 households in 2025, more than half of the municipality's total of 11,953 households recorded in the province's 2023 socio-economic profile. A 2023 Western Cape survey found that approximately 18% of the municipal population, almost one in five residents, live in informal dwellings.

Table 53: Housing Backlog by Settlement

Settlement	Households (Backlog Contribution)	Notes
Clanwilliam (incl. Khayelitsha/Sandkamp)	Largest single contributor	UISP-funded pipeline of 1,300 units (436 Golf Course + 864 bordering land) approved
Citrusdal (Riverview)	Second-largest contributor	≈4,725 residents in Riverview alone; ≈1,000-unit UISP pipeline approved, in planning
Lamberts Bay	Significant backlog	Phase 1-184 completed; Phase 2: 404 services and 84 top structures completed; remainder dependent on bulk water capacity
Graafwater	Moderate backlog	513 applicants on housing waiting list
Elands Bay	Growing backlog	443 applicants on housing waiting list; 310-unit IRDP project in planning phase
Leipoldtville	Small backlog	65 applicants on housing waiting list; private hamlet with limited municipal intervention
Wupperthal	Minimal backlog	2 applicants on housing waiting list
Municipality-wide Total	6,355 households (2025)	Against a total of 11,953 households (2023 socio-economic profile) the backlog affects more than half of all households

Table 54: Housing Demand Database (February 2026)

Category	Sub-category	Number
Total Registered Applicants		6,811
By Gender	Male	2,825
	Female	3,986
By Age Group	<30	699
	30-39	1,969
	40-44	1,111
	45-49	910
	50-54	748
	55-59	585
	60+	789
By Income Bracket	R0-R3,500	4,739
	R3,501-R7,000	1,183
	R7,001-R15,000	666
	R15,001-R22,000	141
	R22,001+	67
By Accommodation Type	Formal Housing	3,026
	Back Yard Dweller	1,932
	Informal Settlement	1,853

Table 55: Housing Preference by Settlement

Preference Area	Number of Applicants	Percentage
Clanwilliam	2,953	43.4%
Citrusdal	1,795	26.4%
Lamberts Bay	1,040	15.3%
Graafwater	513	7.5%
Elands Bay	443	6.5%
Leipoldtville	65	1.0%
Wupperthal	2	<0.1%
TOTAL	6,811	100%

Informal Settlements

Informal settlement data was provided by Cederberg Municipality and the Western Cape Department of Human Settlements. A significant discrepancy between historical and current data reveals the rapid expansion of informal settlements, driven by urbanization and the relative economic stability of the agricultural sector in the region.

Key Observations

- Riverview (Citrusdal) has expanded from an open field in 2010 to a densely populated informal settlement housing an estimated 4,725 people by 2025/26.
- Khayelitsha/Sandkamp (Clanwilliam) has expanded steadily next to the Clanwilliam Dam for over a decade.
- The municipality installed 240 toilets in Khayelitsha in 2023 and has since added a further serviced block in Sandkamp, though these remain unlit.
- Approximately 18% of the municipal population — almost one in five residents — live in informal dwellings (2023 Western Cape survey).

Table 56: Informal Settlement Data

Settlement	Neighbourhood	Informal Settlement Name	Total Size (ha)	Established	Structures (2020)	Structures (2025)	Population (2020)	Population (2025)
Clanwilliam	North Clanwilliam/ Khayelitsha	Khayelitsha/ Sandkamp	---	Pre-2010s, expanding steadily	---	---	≈1,700 (2021, Old Kaapse Weg reserve area alone)	---
Citrusdal	---	Riverview	---	Expanded rapidly since ≈2010	---	---	---	≈4,725 (2025/26)
Lamberts Bay	---	Kompong	---	---	---	---	---	---
Elands Bay	---	New Rest	---	---	---	---	---	---

Table 57: Housing Delivery Pipeline (2024/25 - 2027/28)

Project Name	Type	Status	2024/25 Funding (R)	2025/26 Funding (R)	2026/27 Sites	2026/27 Funding (R)	2027/28 Sites	2027/28 Funding (R)
Lamberts Bay (412 of 596)	IRDP	On hold - infrastructure challenges	73,612	-	-	-	-	-
Citrusdal Riverview (1,043 Sites)	UISP	Approved - Planning Phase	-	2,154,845	-	4,517	-	5,000
Clanwilliam Golf Course (494 Sites)	UISP	Approved - Planning Phase	-	1,200,971	-	-	-	1,000
Clanwilliam Housing Project (864)	IRDP	Approved - Planning Phase	-	2,799,407	-	-	864	56,904
Wupperthal Emergency Units (53)	EHP	Completed	-	-	-	-	-	-
Elands Bay Housing Project (310)	IRDP	Approved - Planning Phase	-	558,915	-	1,377	310	17,124
TOTAL			73,612	6,714,138	-	5,894	1,174	80,028

Housing Pipeline and Delivery

Under the Western Cape Government's Upgrading of Informal Settlements Programme (UISP), funding has been approved for:

- 1,300 units in Clanwilliam (436 mixed-income units on the Clanwilliam Golf Course and 864 units on undeveloped land bordering the town)

- Approximately 1,000 units in Riverview, Citrusdal

Table 58: Housing Project Details

Project	Number of Erven	Project Components	Status
Citrusdal Riverview (UISP)	833 UISP + 162 IRDP	540 erven for 2x non-qualifier households (flood line relocation); 293 UISP top structures; 162 IRDP top structures; 2 generals residential (high density flats); 3 business erven; 3 community erven (crèche, church, community centre)	Town Planning approved; Environmental authorization expected June-July 2026; Bulk application R63 million submitted
Clanwilliam Golf Course (IRDP and UISP)	126 GAP + 692 Low-cost + 5 Churches + 3 Community (crèche, school, community centre) + 1 Clinic + 3 Business + 459 UISP service sites	Mixed-income development	Environmental authorization anticipated September 2026; Bulk application R61.1 million submitted
Elands Bay (IRDP)	266 Low-cost + 3 Community (1 church, 2 crèche)	Early planning phase	PID approved; Draft layout completed; Heritage investigations ongoing
Lamberts Bay (IRDP)	Phase 1: 184 completed; Phase 2: 404 services + 84 top structures completed	Remainder dependent on bulk water capacity and new sewer pumpstation	On hold pending infrastructure

Title Deeds Restoration

Human Settlements Unit is part of the national commitment to issuing title deeds to beneficiaries to ensure security of tenure. Title deeds mean the restoration of rights, dignity and self-esteem; sense of belonging and stability. These are documents that affirm the status of ownership of a particular piece of land, entitling the owner to the land and property.

Key Challenges according to the IDP:

- Finalising outstanding property-tenure transfers in Skilpad Dorp.
- and similar outlying settlements.
- DRDLR appointed consultants to facilitate the CPA conflict; when new CPA body is elected, property transfer processes will commence.

Housing Consumer Education

The main objective of the Housing Consumer Education Programme is to:

- Ensure that all housing consumers understand the government's role in housing provision.
- Ensure that consumers understand their rights, duties, responsibilities and obligations.
- Working in partnership with government to meet their own housing needs.

Focus Areas:

- Housing application and criteria.
- Roles and responsibilities of the beneficiary.
- Application process with reference to subsidies and time frames.
- Importance of wills and testament.

- Understanding different Housing Subsidy Programmes.
- Rental housing tribunal awareness.
- Vandalism of municipal infrastructure awareness programmes.

(Source: IDP 2026/27, Chapter 4.5.2)

Directives

Based on the analysis of human settlements and tenure challenges in Cederberg Municipality, the following directives are proposed:

Spatial Transformation

- Prioritise in-situ upgrading of informal settlements (Khayelitsha/Sandkamp, Riverview) over greenfield development, given topographical and agricultural land constraints.
- Encourage higher-density residential typologies within the existing urban edge to optimise land use and reduce infrastructure costs.
- Integrate social, rental, and gap housing within mixed-income developments to cater to diverse household needs and reduce spatial inequality.
- Identify additional well-located, flood-safe land for future housing in Clanwilliam and Citrusdal given the topographical and agricultural-land constraints limiting in-town expansion.

Informal Settlements

- Treat the Clanwilliam WWTW upgrade and Clanwilliam UISP housing pipeline as a linked programme, and report progress on both jointly to avoid a repeat of historical sequencing delays.
- Publish firm construction timelines for the Riverview UISP project once the pre-feasibility phase (due March 2028) concludes, given the scale of unmet need in that settlement.
- Provide interim basic services (lit ablutions, reliable water points, scheduled waste collection) in Khayelitsha/Sandkamp and Riverview at a level that meaningfully improves safety and health outcomes ahead of formal housing delivery.
- Finalise outstanding property-tenure transfers in Skilpad Dorp and similar outlying settlements to strengthen tenure security outside the main towns.

Housing Delivery

- Undertake a comprehensive informal settlement study to assess the scale, growth dynamics, and service delivery needs of informal settlements, with the aim of developing appropriate management, upgrading, and integration strategies.
- Establish a live spatial database to track informal settlement growth in real-time, allowing for rapid response and better planning coordination between municipal departments and provincial actors.
- Develop a comprehensive Human Settlement Plan and Housing Market Study to inform decision-making, coordinate funding applications, and guide spatial investment priorities.
- Explore public-private partnerships to unlock underutilised state-owned or strategically located private land for housing.

Funding and Capacity

- Align WWTW capacity planning explicitly with the UISP housing pipeline so that treatment capacity is not the constraint on housing delivery.
- Actively pursue co-funding and private-sector partnership for housing projects to de-risk delivery and accelerate implementation.
- Use the MSDF and its findings to advocate for increased provincial support, including land release, infrastructure grants, and technical assistance.

2.4 Sectoral Plan and Provincial and Regional SDF Analysis and Directives

There are two sector plans, a strategy and a programme providing spatial and development directives as per the table below:

Table 59: Sectoral Plans

	Local Economic Development	Air Quality Management	Disaster Management Strategy	Coastal Management Programme
Economic Sector and Rural Development.	1. Supporting development of resilient, food secure and increasingly commercially orientated production of fresh fruit and vegetables.	Improve compliance enforcement and management of air quality within West Coast.	Integration of scope of responsibility of all assurance providers available to the municipality.	9. Ensure Socio-Economic Development of Coastal Communities 2. Facilitate Coastal Access
Stable Environment.	2. Influencing further education and training sector and education institutions to equipped students for the job market, regional growth and demand created by catalytic projects such as Raising the Clanwilliam Dam wall and Saldanha IDZ 5 for entry into the agricultural, agro-processing and tourism sectors.	Improve awareness with respect to air quality management.	On-going monitoring risk management activities and separate evaluations (an assessment of risks and the effectiveness of on-going monitoring procedures) or a combination of the two.	3. Ensure Coastal Planning and Development is conducted in a manner that ensures the protection and rehabilitation of the Coastal Zone 5. Ensure Effective Management of Estuarine Resources in the WCDM 6. Protect, Manage and Sustain Use of Natural Resources
Policy and Enabling Environment.	3. Re-position municipal resources to be more responsive and attuned to the needs of its “clients”.	Improve the current air quality management tools.	Configuration and establish institution structure such as committees and reporting lines to give effect to the risk management policy.	4. Enhance District Compliance Monitoring and Enforcement Efforts. 1. Improve Cooperative Governance and Clarify Institutional Arrangements
Human Capital and Labour.	4. Establish a working farm as a “social enterprise” where committed young people can learn to farm. Graduates can then be supported to get access to land and finance to become successful commercial farmers.	Invest in human recourses and equipment to ensure effective implementation and management of air quality.	Delegation of authority and individual responsibilities for specific roles give effect to the risk management policy.	10. Developing and Facilitating Awareness, Education, Training, Capacity Building and Information Gathering in the District
Investment, Capital Expenditure.	5. Continuously improve, eliminate barriers to and effective execution of bureaucratic process to start and/or grow a business in municipal area to attract investment and commercial success.	Integrate Climate Change and Air Quality Management.	Risk management activities and risk assessment processes and methodologies, monitoring activities and risk reporting standards to give effect to the risk management policy.	7. To appreciate and conserve the rich heritage and cultural resources that are found within the WCDM.

2.5 Spatial Analysis of Neighbouring Municipal Resources and Regional Directives

Four local municipalities abut Cederberg Municipality, namely the Bergrivier, Witzenberg, Hantam and Matzikama Municipality. Cross boundary resources follow:

Table 60: Analysis of neighbourin municipal resources

Municipality	Bergrivier	Witzenberg	Hantam	Matzikama
Shared Boundary	Southern boundary	Small section on southeastern boundary	Eastern boundary	Northern boundary
Agriculture • Homogeneous agricultural practices • Agricultural Infrastructure	Intensive agricultural on Bo-Piketberg (Pome Fruit and vineyards), along Verlorenvlei & Moutonshoek (vineyards, potatoes, fruit) and along Bergrivier (fruit and vineyards).	Small grain and intensive agriculture (pome fruit and some vineyards).	Small stock rearing.	Rooibos, vegetables, small stock rearing.
Ecological Infrastructure: Conservation and Proclaimed conservation areas • Cross Boarder Nature Reserves. • Cross-border biospheres including nature reserves, biodiversity corridors, stewardship conservancies on private farms. • Cross boarder indigenous and listed alien woodlots and mature trees.				Zeven Puts Nature Reserve (Matzikama) Doorspring and Soopjes Hoogte Nature reserve (Cederberg).
Ecological Infrastructure - Mountain Ranges: • Cross boarder conservation corridors. • Cross boarder protection of lower slopes from visual and ecological intrusion (alien management)	Diepkloof, Grasruggens Palmietvlei, Zandfontein Redelinghuys, Kalmberg (Bergrivier). Latjieskloof, Warmbadberg Piekenierskloof, Gevaar OOs, Scherpheuvelsberg, Heidedal, Janskraal (Cederberg).	Rietriviersberg (Witzenberg) Grootrivier, Alsfontein, Grootberg, Middelberg, Hexberg, Schoongezicht (Cederberg).	Buchuberg, Langberg, Broekkraal, Rheenen, Zandfontein, Gemsbokkloof, Voetpad, Brakfontein, Elandsdrif, Zoutkloof, (Matzikama). Doornbosch, Langkuils, Moerberg, Rheenen Wes, Verzien, Swartskeur, Oudekraal, Wildehondskloof (Cederberg).	Kolvleiberg, Heerlogementsberg, Vondelingsberg (Cederberg) and Gifberg, Ordinanskop, Melkboomkraal] (Hantam).

Map 26: Cederberg Cross-border Ecological Infrastructure

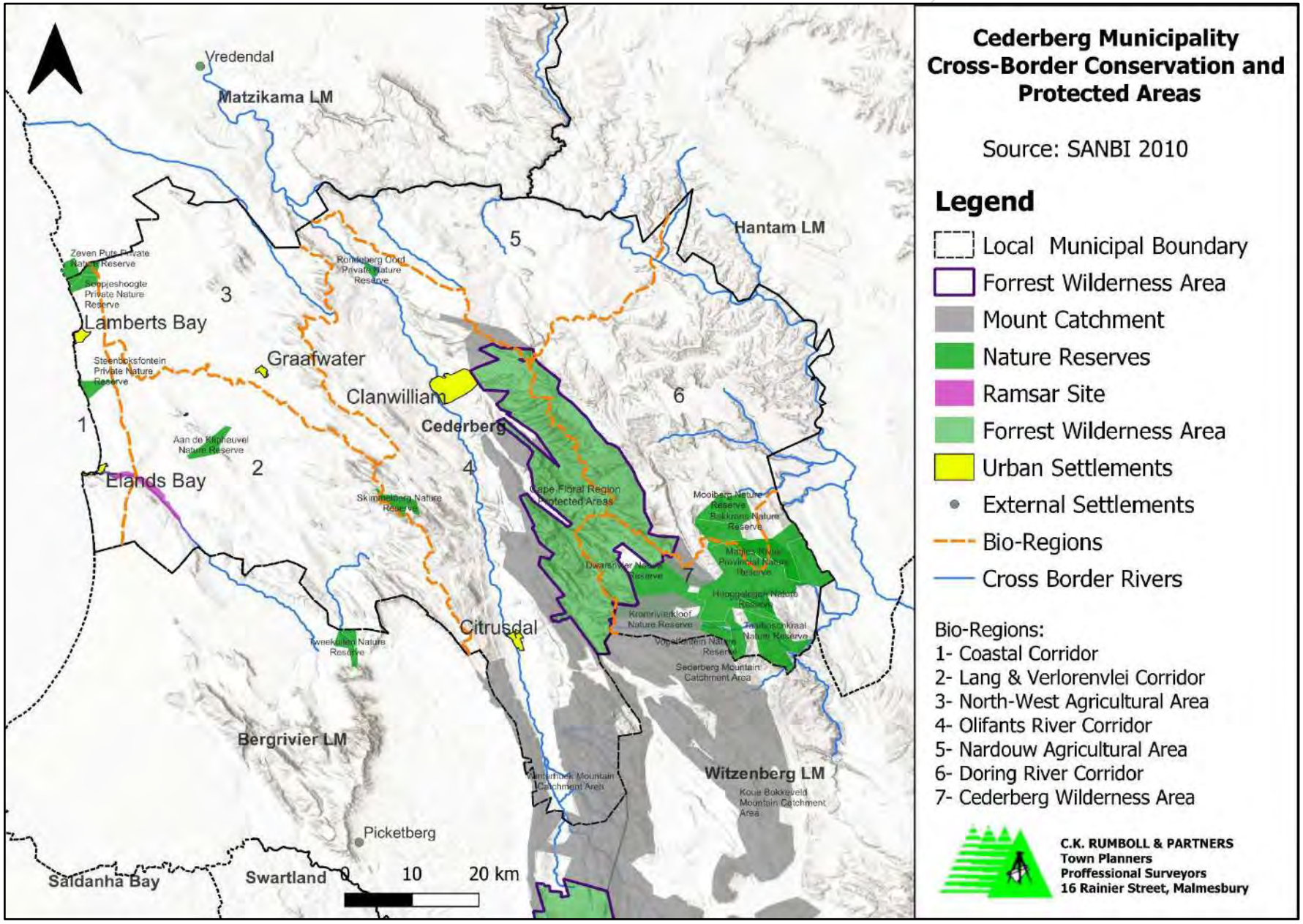
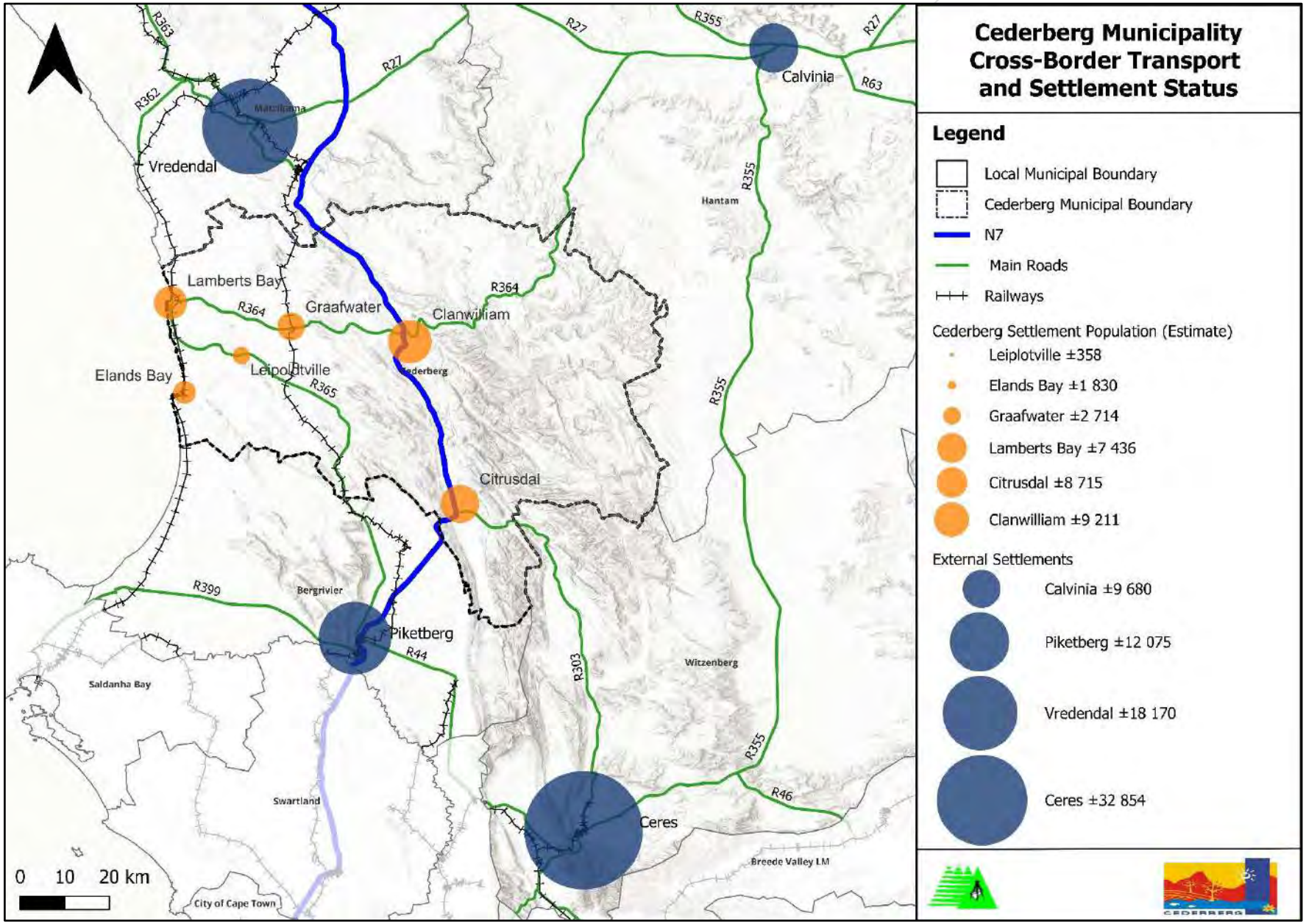


Table 61: Ecological Infrastructure

Ecological Infrastructure – Rivers: • Cross boarder biodiversity conservation and wilderness tourism opportunities. • Cross boarder safety and recreation (local population). • Water Quality • Water Catchments	Verlorenvlei (originates in Moutonshoek), Ratel Rivers.	Groot River.	Matjies & Doring Rivers.	Sandlaagte (West of Oliphants), Doringrivier (East of Oliphants).
Transport Network: Main Roads	N7 (Cape Town to Namibia).	R303, Middelberg Pass.	R364 (to R27).	R363 (to N7).
Settlement status: Main settlement, hierarchical status and	Piketberg is a village and regional service centre (between 10 000 and 25 000) with a population of ±12 075.	Ceres is a village (between 10 000 and 25 000) with a population of 32 854+.	Calvinia is a settlement (between 5 000 and 25 000) with a population of ±9 680.	Vredendal is a village (between 5 000 and 25 000) with a population of ±18 170.
Health facilities serving across boarder: • Hospitals • Clinics	Redelinghuis and Eendekuil Clinics (visited by rural population of Cederberg)	None	None	Clanwillaim and Citrusdal district hospitals in Vredendal health district.
Educational Facilities serving across boarders: • Schools • Tertiary education facilities • Crèches and catchment areas	West Coast Collage Redelinghuis and Eendekuil Primary Schools	None	None	West Coast Collage
Economy: Cross boarder market areas	None	None	Nardouw area, Rooibos Tea	Northwest agricultural area, small stock and Rooibos.
Safety and Security: • Programmes to secure stable environment • RSIF (Cederberg, secondary study area)	Piketberg RSEP Town	Ceres, RSEP Town	None	None
Governance: District Municipal infrastructure Other	None	None	None	Water source and scheme Eskom Powerline Waste Site
Investment: (Private and State) Opportunities	N7, access to Cape Town harbour		Connector (R27), access to Saldanha IDZ	Connector (N7), access to Cape Town harbour

Map 27: Cederberg Cross-border Settlement Hierarchy and Transport Connectors



CHAPTER 3: Land Supply and Demand

The Western Cape Growth Potential Study (GPS, 2014) determined the settlement and socio-economic status of settlements in the Western Cape outside of the Cape Town metropolitan area along with their growth potential and investment directives. The study identifies the growth potential of the Cederberg municipal area as Low (17) in relation to the Western Cape, as it is not located adjacent to the Cape metropole (There is a direct correlation between the growth potential of municipalities and their proximity to Cape Town). Composite Growth potential of Citrusdal, Clanwilliam, Graafwater and Lamberts Bay is low and Elands Bay is medium.

Table 62: Growth potential of settlements

Index	Citrusdal	Clanwilliam	Elands Bay	Graafwater	Lamberts Bay	Cederberg
Human Capital	Medium	Medium	Medium	High	Medium	Low
Economic	Low	Low	Low	Very low	Very low	Low
Physical	High	Medium	Medium	Low	Very low	Medium
Infrastructure	Low	Low	Medium	Medium	High	Low
Institutional	High	High	High	Medium	High	High
Composite Growth Potential	Low	Low	Medium	Low	Low	Low

Though the composite growth potential is low, the socio-economic needs (including household services, education level, housing need and economic characteristics) are very low in Graafwater and Elands Bay, low in Lamberts Bay and medium in Citrusdal and Clanwilliam.

Table 63: Socio-economic needs

Growth Potential	Socio-economic needs				
	Very Low	Low	Medium	High	Very high
Very low					
Low	Graafwater	Lamberts Bay	Citrusdal, Clanwilliam		
Medium	Elands Bay				
High					
Very High					

3.1 Land Demand and Supply Projections

3.1.1 Population Growth Projections

SPLUMA requires that the future demand or need for housing and related social and infrastructure services be considered and addressed as part of the SDF to allow for effective and sustainable planning of areas. For each urban area the demand for land within the short term (5 years) and long term (15-20 year) timeframes has been considered in the spatial proposals.

Cederberg's settlements classified according to their populations ('000) range from Clanwilliam being a regional service centre, Citrusdal, Lamberts Bay, Elands Bay and Graafwater being villages and Leipoldtville, Elandskloof, Sandberg, Skilpaddorp and Wupperthal being a remote village.

Table 64: Cederberg Settlement Population (StatsSA, 2016)

Town	Clanwilliam	Citrusdal	Lamberts Bay	Elands Bay	Graafwater	Leipoldtville
Population '000	25 – 60	5 – 25	5 – 25	≤5	≤5	≤5
Classification	Regional Service Center	Village	Village	Remote Village	Remote Village	Remote Village
Population, 2011	7 674	7 177	6 120	1 525	2 261	298
Population, 2021	9 211	8 615	7 346	1 830	2 714	358

The projected need was established using the MidYear Population Estimates, 2024, as published by the Western Cape Government's Department of Social Development, which sourced its data from StatsSA Mid-year Population Estimates, and projecting the household (hh) growth of Cederberg Municipality as per the table below up to 2045.

The projections reveal households in the Cederberg Municipal area have likely increased from 18 187 households in 2025 to 18 440 households in 2026 (253 additional households). Further projections reveal that households will likely increase from 18 440 in 2025 to a total of 23 594 by 2045, which is an increase of 5 154 or 28% households.

Table 65: Cederberg Population and Households (StatsSA, 2011) (MYPE, 2024)

Settlement	2011 HH Sizes	2025 Pop	2025 HH	2026 Pop	Add Pop	Add HH 2026	2030 Pop	Add Pop	Add HH 2030	2035 Pop	Add Pop	Add HH 2035	2045 Pop	Add Pop	Add HH 2045	20 years Add Pop	20 Year Add HH
Citrusdal	3,4	9 157	2 693	9 285	127	37	9 787	503	148	10 440	653	192	11 880	1 439	423	2 722	801
Clanwilliam	3,1	9 791	3 159	9 928	136	44	10 465	537	173	11 163	698	225	12 702	1 539	496	2 911	939
Elands Bay	3,4	1 946	572	1 973	27	8	2 080	107	31	2 218	139	41	2 524	306	90	578	170
Graafwater	3,7	2 885	780	2 925	40	11	3 083	158	43	3 289	206	56	3 743	453	123	858	232
Lamberts Bay	3,3	7 809	2 366	7 917	109	33	8 346	429	130	8 903	557	169	10 130	1 227	372	2 321	703
Leipoldtville	4,0	380	95	386	5	1	406	21	5	433	27	7	493	60	15	113	28
Non-Urban	3,7	31 532	8 522	31 971	439	119	33 701	1 730	468	35 950	2 248	608	40 906	4 957	1 340	9 374	2 534

Total	3,4	63 501	18 187	64 384	884	253	67 869	3 485	998	72 397	4 528	1 297	82 379	9 982	2 859	18 878	5 407

Cederberg is the least populated areas in the West Coast District. Most of the Cederberg population is between 15 and 64 years of age, a cohort that represents the labour force. The children, younger than 18 years of age, represents 33% of the Cederberg population (2016) and 10% of the children in the West Coast.

Age	0-<18	18-64	64+	Total
2016	17 473	32 299	3 177	52 949
% of Total	33%	61%	6%	100%

Age	0-14	15-34	35-64	65-116	Total
2021	15 233	20 370	20 191	3 823	59 737
% of Total 2011	25.5%%	34.1%	33.8%	6.4%	100%

3.1.2 Land Demand

Residential land required:

The table below provides an overview of the total extent of residential land required over a 20-year period. It further outlines the total demand across income categories and for each municipal settlement. The projected household growth, split into Low (subsidised), Medium (taxable) and High-income (taxable) categories, was used to calculate the additional land that needs to be provided for in this SDF cycle. The current waiting list was included in the total land required for the year 2026, in addition to the additional households in 2026.

Households that are fully subsidised earn R3 800 and less per month, and households that are partially subsidised can pay municipal tax. Average erf sizes relative to a particular settlement were applied to calculate the nett land requirements

Table 66:Land Requirements based on growth rates applied

Key: Sub – households that are fully subsidised earning R3 800 and less per month; Tax – households that are partially subsidised and can pay municipal tax; Low – low income; Mid – middle income; High – high income

Additional Households and Land (ha)	2026				2030				2035				2045			
Settlement	Households		Nett Land (ha)		Households		Nett Land (ha)		Households		Nett Land (ha)		Households		Nett Land (ha)	
	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax	Sub	Tax

Citrusdal	16	22	0,23	0,69	62	86	0,92	2,74	80	112	1,20	3,55	177	247	2,65	7,84
Clanwilliam	27	17	0,40	0,55	105	68	1,58	2,15	137	88	2,05	2,80	301	195	4,52	6,17
Elands Bay	6	2	0,09	0,06	24	7	0,36	0,24	31	10	0,47	0,31	68	21	1,03	0,67
Graafwater	5	5	0,08	0,17	21	21	0,32	0,66	28	28	0,42	0,86	61	61	0,92	1,89
Lamberts Bay	17	15	0,26	0,48	69	61	1,03	1,91	90	79	1,34	2,48	198	174	2,96	5,47
Leipoldtville	1	1	0,01	0,02	3	2	0,04	0,07	4	3	0,06	0,10	8	7	0,12	0,21
Non-Urban	74	45	1,11	1,40	292	176	4,38	5,53	379	229	5,69	7,19	836	505	12,54	15,85
Total	146	107	2,19	3,37	576	422	8,64	13,30	748	549	11,22	17,28	1 649	1 210	24,74	38,10

Table 67: Land required according to household data

Additional Households and Land (ha)			Additional 20 Year Total				
Settlement	Waiting list	Nett Land Required (ha)	Households		Nett Land (ha)		Total adds. nett land per settlement incl Wlist
			Sub	Tax	Sub	Tax	
Citrusdal	1 880	38	334	467	5,01	14,82	57,43
Clanwilliam	2 953	59,06	570	368	8,55	11,66	79,27
Elands Bay	452	9	129	40	1,94	1,28	12,26
Graafwater	527	11	116	116	1,74	3,57	15,85
Lamberts Bay	1 018	20	374	329	5,60	10,34	36,30
Leipoldtville	82	1,64	16	13	0,23	0,40	2,27
Non-Urban	0	0	1 581	955	23,71	29,98	53,70
Total	6 912	138,24	3 119	2 288	46,79	72,05	257,08

Industrial and business land required:

Zoned industrial and business land as well as land for amenities, is required to be prepared for economic growth and to achieve developed economies. The industrial and business zoned land was calculated by making use of a residential to business and industrial ratio. The table below indicates the 5- year projections per category: Business or Industrial and nett land requirements, including the total land required for amenities.

Table 68: Land requirement of each town according household trends

Land (ha) requirement according to household growth																
	Land Required	2026			2030			2035			2045			20 Year Total		
Main Town	Res	Total	Bus	Ind	Total	Bus	Ind	Total	Bus	Ind	Total	Bus	Ind	Total	Bus	Ind
Citrusdal	37,60	0,93	0,05	0,26	3,66	0,21	1,03	4,76	0,27	1,34	10,48	0,59	2,96	19,83	1,12	5,60
Clanwilliam	59,06	0,95	0,06	0,31	3,73	0,24	1,21	4,85	0,31	1,57	10,69	0,69	3,47	20,21	1,31	6,57
Elands Bay	9,04	0,15	0,01	0,06	0,59	0,04	0,22	0,77	0,06	0,29	1,70	0,13	0,63	3,22	0,24	1,19
Graafwater	10,54	0,25	0,02	0,08	0,98	0,06	0,30	1,27	0,08	0,39	2,81	0,17	0,86	5,31	0,32	1,62
Lamberts Bay	20,36	0,75	0,05	0,23	2,94	0,18	0,91	3,82	0,24	1,18	8,43	0,52	2,60	15,94	0,98	4,92
Leipoldtville	1,64	0,03	0,00	0,01	0,12	0,01	0,04	0,15	0,01	0,05	0,33	0,02	0,10	0,63	0,04	0,20
Total Urban	138,24	3,05	0,19	0,94	12,02	0,74	3,71	15,62	0,96	4,82	34,44	2,13	10,63	65,14	4,02	20,10
Rural	0,00	2,51	0,17	0,83	9,91	0,66	3,28	12,88	0,85	4,26	28,39	1,88	9,39	53,70	3,55	17,75
Total, whole municipal area		5,56	0,35	1,77	21,94	1,40	6,99	28,50	1,82	9,08	62,84	4,00	20,01	118,84	7,57	37,85

3.1.3 Bulk Infrastructure Capacity

The availability of bulk infrastructure and services in the Cederberg settlements contribute to the economy and future development (investors' confidence).

Table 69: Infrastructure Capital Investment Framework, Cederberg towns

Towns		Water: Enhance or new Source, Storage or Reticulation	Waste Water Treatment (WWT) (Bulk and Pipe Capacity)	Electricity Supply, capacity and reticulation	Solid Waste Removal and Management
Elandskloof	1	R11 million.	R14 million WWTW required.	Adequate.	Regular.
Citrusdal	1 and 2	R15 million: 3Ml reservoir and upgrade of reticulation capacity (no reserves).	Adequate, WWTW was relocated and increased.	Adequate 1MVA, using 0.5MVA.	Weekly waste removals.
Clanwilliam	3	2.5Ml reservoir, pressure management and replacement of pipe to purification works.	R59 million: Increase capacity and upgrade WWTW.	Inadequate, upgrade in process, to be completed by 2024/25. (Line built from Graafwater).	Weekly waste removals.

Graafwater	4	R5.4 million required. (1.5Ml reservoir upgrade).	R23.4 million required (replace oxidation ponds).	Upgrade will take place during phase II subsidized housing development. Requires upgrade from 0.75MVA to 1MVA.	Weekly waste removals.
Paleisheuwel	4	R0.25 million required (Reticulation upgrade).	R0.15 million required (maintenance of conservancy tanks).	Adequate.	
Sandberg	4	Adequate.	WWTW required.	Adequate.	
Elands Bay	4	R5 million: 1Ml reservoir.	R23.4 million: Increase WWTW capacity and upgrade.	Adequate 1MVA, using 400KvA.	Weekly waste removals.
Lamberts Bay	5	R3.5 million: 3Ml reservoir and upgrade reticulation. Desalination plant non-operational, investigate new groundwater sources.	R22.3 million Increase capacity and upgrade WWTW.	Upgrade from 2.7MVA to 3.5MVA. Upgrade alongside subsidized housing development.	Weekly waste removals.
Leipoldtville	5	R5 million: 0.5Ml reservoir.	R10 million: Built WWTW (new).	Adequate.	
Wuppertal	6	R8 million: Upgrade reticulation.	Moravian Church is responsible.	Adequate.	
Algeria	6	None.	R1 million: Upgrade WWTW.	Adequate.	

Key	In preparation	Adequate	Additional Capacity	Low	Medium	High

Directives for bulk services

Effective management and use of water as a scarce natural resource requires an overarching approach to water demand and the provision of adequate bulk water infrastructure in the Cederberg to adequately plan for the impact of future droughts and climate change conditions.

The following directives apply:

- Ensure that a base level of services is available for all residents in the municipality including those households qualifying for indigent grants.
- Where possible implement GAP housing schemes as part of subsidy projects to help cross-subsidise the required infrastructure projects.
- For low-density settlements, promote sustainable use of natural resources and reduce dependency on conventional grid services. The following solutions are proposed:
    - Promote the use of solar hot water projects.
    - Promote use of solar water heaters; PV panels; grey water recycling; waste separation at source; and passive building design to minimize energy, solid waste and water demand.
    - Encourage rainwater harvesting and grey water recycling.
- Determine the bulk infrastructure required in the Cederberg over the next 20 years considering the growth rate, densification strategy and needs of the community.
- Determine the most suitable locations for bulk infrastructure facilities to allow the delivery of services at an acceptable cost.
- Use non-renewable resources in a responsible manner not exceeding predetermined limits.
- Provide environmentally friendly infrastructure and services in rural areas (improved quality of life of people living in the rural areas and effective environmental sustainability).
- Investigate alternative water resources in Cederberg to plan for future drought conditions. Promote the sustainable use of water in the Coastal settlements of Cederberg, to be able to absorb long periods of droughts. Project planning of alternative water projects should include an accurate costing of the running cost and maintenance thereof e.g. desalination plant at Lamberts Bay which is currently not in use due to high operational costs.
- Capitalize on the raised Clanwilliam Dam wall once completed: Providing water to residents of Clanwilliam and lower Oliphants River region.

3.2 Land Supply

The land supplied as per the Cederberg SDF is included within the proposed delineated urban edges and informed by settlement form and function. Land earmarked for residential settlement development is indicated as Mixed-Use areas as these precincts should provide for different typologies, inclusionary housing and social and commercial amenities according to the CSIR standards.

3.2.1 Urban Edges

Acknowledging the spatial importance afforded to urban edges, to guide and control orderly development of the built environment, the existing edges as approved in the Cederberg Spatial Development Framework, were revised according to the growth potential and requirements of each town and provide the demarcated urban areas for the next five (5) years to twenty (20) years. Urban development for the next five (5) years should therefore be contained within these demarcated areas. However, the proposed edge also includes informal settlements (as per the composite map below).

To support spatial sustainability in accordance with the planning principles as advocated in SPLUMA and LUPA, a compact urban form is supported. For the proposed urban edges of the towns in the Cederberg, consideration was given to the protection of high value agricultural land, environmental barriers such as steep slopes which can add significant costs, suitable land that is not prone to floods etc. and compact urban form, as well as provision of opportunities for spatial integration (Citrusdal and Elands Bay) while providing for additional land to address future urban growth simultaneously.

The revision of the urban edges must be conducted within the framework of national, provincial, and relevant Cederberg municipal guidelines. The revision should consider the economic and social development as well as the environmental sustainability of the Cederberg region (SPLUMA, 2013).

Directives

- Give sufficient protection to land requiring protection, inter alia, high value agricultural land currently under cultivation.
- Take into consideration environmental constraints etc.
- Encourage contraction (a compact urban form) rather than expansion of urban settlements to promote non-motorised transport modes and spatial integration where appropriate.
- Provide sufficient land for development to satisfy the needs of the area for about the next 20 years, given the current growth rate and the availability of under or unutilized vacant land.

3.2.2 Settlement Form and Function

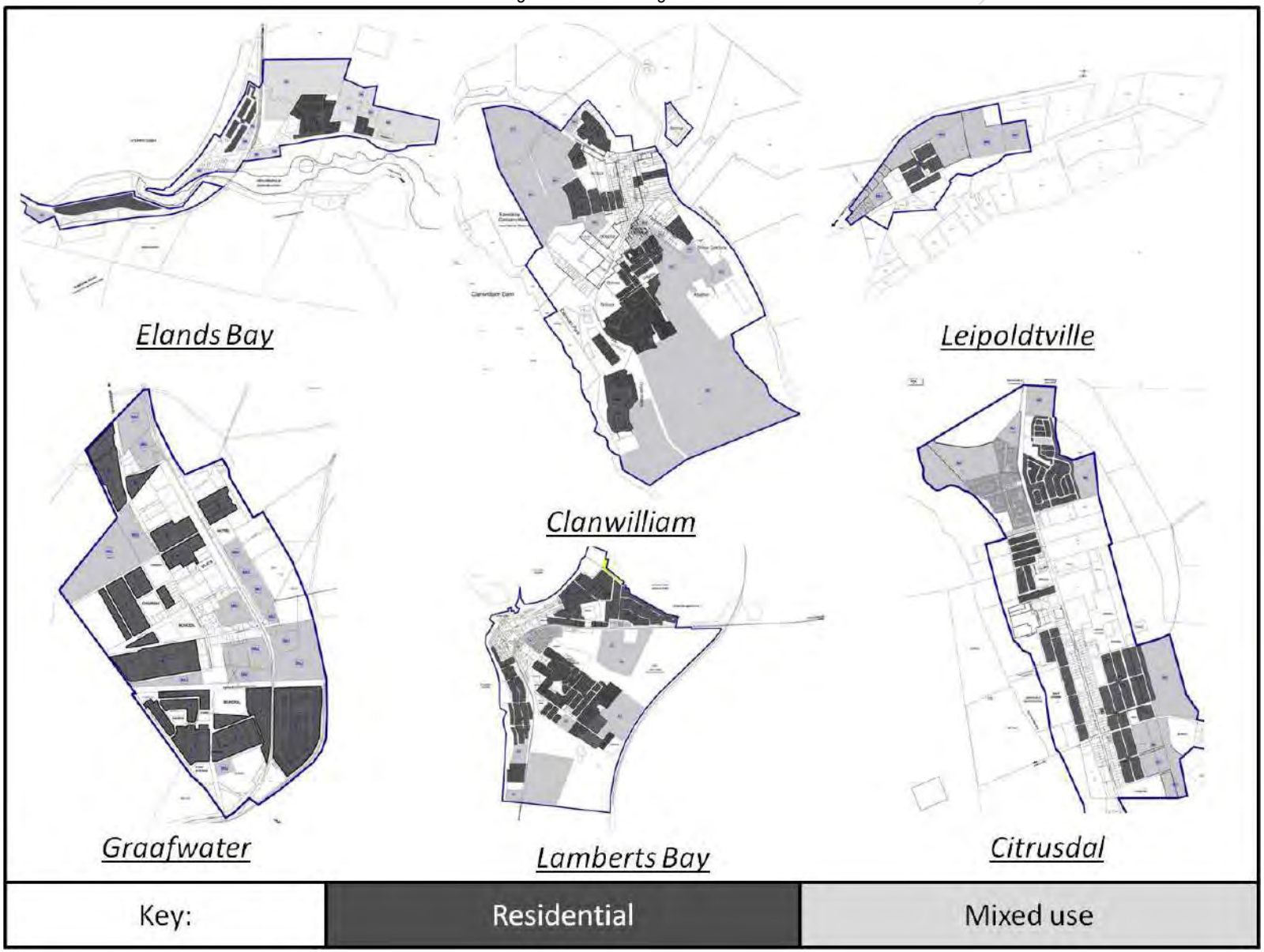
The table below provides a description of how land supply within Cederberg settlements was guided by the relevant policies:

Table 70: Settlement guidance by policies

Consideration	Land Supply Directives	WCPSDF, 2014	SDF Objective	SDF and SPLUMA principles
Settlement Status and Economic Basis: Function	Prioritize rural development investment where economic growth and spatial resilience is present: Clanwilliam and Citrusdal as main agri service centre; Elands and Lamberts Bay, coastal settlements and agri-processing hubs, need industrial and residentially zoned land. Wupperthal, Algeria and Elandskloof as tourism destination, limited residential development.	Policy S3: Ensure compact, balanced and strategically aligned activities and land use.	Obj 1: Economic prosperity is supported.	Same – Different and Spatial resilience.
Settlement Form: Densification and Intensification	Densification is strongly promoted in settlement expansion precincts in Clanwilliam and Citrusdal. Intensification and densification are strongly promoted in infill developments within Eland and Lamberts Bay and to a lesser extent Graafwater and Leipoldtville. Ensure access to social services to all and structuring the land reform/ security of tenure process from a sustainable settlement creation perspective. Ensure sustainable resource (land, water, air) use.	Policy S1: Protect, manage and enhance province's sense of place, heritage & cultural landscapes Policy S5: Ensure Sustainable, Integrated and Inclusive human settlement planning and implement - range of housing & tenure options.	Obj 3: material, physical and social well-being sustained (Obj 4): place identity and cultural integrity are protected and grown.	Denseness – Sparsity Continuity-Discontinuity.And Spatial sustainability and efficiency (SPLUMA).
Settlement From: Restructuring and Integration	Restructuring through *socio economic integration:* Position social services and infrastructure centrally for sharing by various communities, for example - sports fields, market squares, open space networks, such as rivers and natural areas, including social spaces like picnic areas.	Policies S1: sense of place, heritage and cultural landscapes.	Social and functional integration is achieved mainly through development along main activity routes which include mixed use (a	Spatial sustainability, resilience and efficiency (SPLUMA).

	Provide a variety of housing types, especially around the centre of town and, if required, upgrade or replace infrastructure. Encourage different income (social gradient) and property values between adjacent areas. Integration Zones and Social Housing Restructuring Zones should be identified in urban settlements, as these zones will support convenient and equal access as promoted by several WCPSDF policies: Clanwilliam and Citrusdal. Restructuring can be achieved through *functional integration:* - Implement the "within walking distance" principle (walking distance norm: 20 minutes/1 kilometre) for at least 50% of all social amenities. - In older, established areas, integrate through rezoning of residential erven. In subsidized housing/ high density precincts establish secondary business nodes. Promote mixed use according to service infrastructure capacity and along activity streets and corridors.	Policy S3: Ensure compact, balanced and strategically aligned SPLUMA activities & land use. Policy S5: Sustainable, Integrated and Inclusive housing planning and implementation.	combination of commercial, residential and low impact service industries).	

Figure 15: Cederberg settlements



CHAPTER 4: Vision, Mission and Overall Issues

This chapter provides an overview of Strengths, Weaknesses, Opportunities and Threats. It spells out the Spatial Vision for Cederberg and sets Goals to achieve its desirable spatial form.

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Overall Issues, Vision and Goals

4.1 SWOT Analysis, Vision Mission

The following table provides a SWOT analysis of the biophysical, social, economic, and built environments (as per the Status Quo report) and highlights the key strategic issues. It identifies the internal characteristics and external forces that influence Cederberg's spatial development and highlights where the existing spatial framework remains appropriate, where it requires refinement, and where new interventions are required in response to changing circumstances.

Table 71: SWOT analysis

Strengths	Weaknesses
Built Form: • Cederberg is strategically positioned along the N7 national route, providing an important north–south regional connection between Cape Town, the West Coast, Namibia and the broader Southern African region. • The R27 provides an important east–west connection towards the West Coast and Saldanha Bay, creating opportunities for access to regional markets, logistics infrastructure and economic activity. • The municipality's location between the Cape metropolitan area, West Coast and Northern Cape provides opportunities for regional economic linkages and movement of agricultural products. • Clanwilliam functions as an important regional service and administrative centre. • Citrusdal performs an important agricultural and local service function. • Lamberts Bay and Elands Bay have important coastal, agricultural, tourism and agri-tourism functions. • The existing settlement network provides a foundation from which to consolidate services, economic activity and infrastructure rather than establishing entirely new settlements. • Clanwilliam Dam. • Cederberg has significant potential for renewable-energy development, particularly solar energy, supported by its climatic conditions and available land. • Existing renewable-energy developments provide a foundation for expanding the green economy, subject to appropriate environmental and spatial planning controls.	Built Form: • Cederberg has a relatively small and dispersed population, with a significant proportion of residents living in rural areas. • No settlement currently falls within the population range generally associated with a regional service centre of approximately 25 000–60 000 people, limiting the municipality's ability to provide higher-order services locally. • Dispersed settlement patterns increase the cost of infrastructure provision and reduce equitable access to services and economic opportunities. • Remote settlements such as Wupperthal experience challenges relating to access to healthcare and other higher-order services. • A significant housing backlog remains, estimated at approximately 5 760 households in 2023. • There is limited land available for settlement expansion within certain towns. • In rural areas, much of the potentially developable land is privately owned, limiting the municipality's ability to directly influence the location and timing of development. • There is a continuing need for well-located residential land that supports spatial integration and access to employment, services and public facilities. • There is a need for additional industrial and agri-industrial land within and around existing settlements. • Existing infrastructure requires ongoing maintenance, upgrading, and expansion to accommodate population growth and economic development. • Infrastructure capacity constraints may limit the ability of certain settlements to accommodate additional development.

• Transmission line from Vredendal to Grootfontein in Saldanha Bay Municipality. • Community health facilities have been developed in accordance with applicable planning standards, providing an existing basis for the provision of social services. • The presence of a West Coast College campus in Citrusdal provides an institutional foundation for skills development and improved access to education and training. • Boegoebaai harbour and rail link to Upington as an export route. <u>Socio-economic:</u> • Agriculture is a major contributor to Cederberg's employment and economy. • The municipality has a diverse agricultural base, including citrus, potatoes, grapes, olives, rooibos and livestock farming. • The Olifants River and Sandveld plains support intensive agricultural production. • Rooibos provides Cederberg with a distinctive agricultural product with strong national and international recognition. • Existing agricultural production and export markets provide a foundation for agro-processing, value addition and rural economic development. • Cederberg has a strong tourism base founded on its natural landscapes, biodiversity, heritage and recreational opportunities. • Rocklands/Pakhuis Pass provides an internationally recognised rock-climbing destination. • Elands Bay provides opportunities for surfing and coastal recreation. • The municipality has significant cultural and historical resources, including Wupperthal and Clanwilliam, one of the oldest towns in the region. • Scenic routes, mountain landscapes, coastal areas and heritage resources provide opportunities for nature-based, adventure, cultural and agri-tourism. • Agriculture is the largest contributor to employment and GDP in the municipality. • Wholesale and retail, accommodation, catering and business services provide an important secondary economic base.	• Limited municipal resources place pressure on the ability to maintain infrastructure and provide services efficiently across a geographically dispersed municipality. <u>Socio-economic:</u> • The local economy remains strongly dependent on agriculture and associated activities, creating vulnerability to climatic conditions, commodity prices, international markets and technological change. • High levels of inequality and poverty constrain household resilience and economic participation. • The municipality has a relatively high proportion of unskilled labour, limiting opportunities to transition towards higher-value economic activities. • Lower income levels and dependence on social support place additional pressure on households and municipal resources. • The Grade 10–12 retention rate of approximately 68.4% indicates challenges in retaining learners through secondary education. • The literacy rate of approximately 72.6% indicates a need to strengthen education and skills development. • Lower enrolment levels compared with the broader West Coast District indicate challenges in access to and participation in education. • Skills shortages may constrain Cederberg's ability to benefit from emerging sectors such as renewable energy, ICT, tourism and value-added agriculture. • The strong dependence on agriculture provides economic stability but also exposes the municipality to climate, water and market-related risks. • There is limited diversification into higher-value industries and knowledge-based economic activities. • Limited availability of appropriately located industrial and commercial land can constrain business expansion and agro-processing. • Biophysical: • Water availability is a significant constraint on future settlement and economic development. • Coastal settlements face challenges relating to the availability and cost of potable water.

- Cederberg-based businesses and agricultural producers participate in national and international export markets, including markets in the USA, United Kingdom and Netherlands.
- The municipality recorded the highest GDP in the West Coast District in 2023, providing an important economic base from which further diversification can occur.

Biophysical:

- Cederberg contains significant natural landscapes and ecological systems, including the Cederberg Mountains, Olifants River Mountains and Skurweberg mountain ranges.
- The Olifants and Doring river systems are important natural, agricultural, and ecological resources.
- The municipality contains a significant natural coastal environment along the West Coast.
- The Cederberg Conservation Area forms part of a broader regional ecological network extending beyond the municipal boundary.
- Important wetlands, including Verlorenvlei, contribute to the municipality's biodiversity and ecological resilience.

- High groundwater abstraction associated with intensive agricultural activities creates potential long-term sustainability concerns.
- Electricity capacity constraints, including limitations in Clanwilliam, may constrain economic growth and development.
- Historical load-shedding and broader electricity supply uncertainty affect business confidence and municipal service delivery.

Opportunities

Built Form:

- The raising of the Clanwilliam Dam wall provides potential opportunities for improved water security and agricultural productivity in the lower Olifants River region.
- Regional electricity transmission infrastructure could improve long-term energy connectivity, subject to appropriate spatial and environmental management.
- Infrastructure investment can be used to support existing settlements rather than promoting inefficient spatial expansion.
- Improved ICT connectivity can support remote work; online education; digital entrepreneurship; agricultural technology; tourism marketing; access to government services; and participation in the wider knowledge economy.

Socio-economic:

Threats

Built Form:

- Population growth and continued demand for housing can place pressure on existing settlements.
- If settlement expansion is not appropriately managed, development may occur beyond efficient urban edges, increasing infrastructure costs and contributing to the loss of agricultural and environmental resources.
- High dependence on subsidised housing can place pressure on municipal finances and the capacity to provide sustainable, well-located settlements.

Socio-economic:

- Increasing mechanisation and automation may reduce demand for lower-skilled agricultural labour.
- Global competition may place pressure on local producers, particularly where production costs are high.

• Improved access to the Saldanha Bay Industrial Development Zone and associated economic infrastructure through the R27 provides opportunities for Cederberg producers and businesses to access regional value chains. • The N7 provides access to Cape Town, regional ports, airports and national and international markets. • Cederberg can strengthen its position as an agricultural production and agro-processing/value-addition area within the wider West Coast economy. • Emerging infrastructure and logistics opportunities associated with Boegoebaai, and the Upington rail connection could provide longer-term opportunities for export-oriented economic activity. • The municipality can move beyond primary agricultural production by promoting agro-processing, packaging, cold storage, logistics and agricultural services. • Rooibos, citrus, potatoes, grapes, olives and livestock provide opportunities for developing local value chains. • Additional industrial and agri-industrial land can support economic diversification and local employment. • Cederberg's mountains, coastline, conservation areas, heritage towns, scenic routes and recreational activities provide opportunities to expand the tourism economy. • Greater integration of Cederberg, Wupperthal, Clanwilliam, Elands Bay and Lamberts Bay into tourism routes could increase visitor length of stay and local economic expenditure. • Nature-based tourism, adventure tourism, cultural tourism, agri-tourism and coastal tourism can provide alternative employment opportunities. • A growing youth population presents an opportunity to develop a stronger local workforce. • The West Coast College campus in Citrusdal can be leveraged to develop skills aligned with agriculture, tourism, renewable energy, construction, ICT and agro-processing. • Youth entrepreneurship can support diversification of the local economy. <u>Biophysical:</u>	• Without investment in education and skills, residents may be excluded from emerging economic opportunities. • Insufficient electricity capacity in certain settlements may constrain investment and economic growth. • Electricity interruptions and broader energy insecurity can negatively affect businesses, households and municipal services. • Large-scale transmission infrastructure and associated servitudes can constrain land-use options and create potential conflicts with agriculture, conservation and settlement development. • Persistent poverty, unemployment and inequality may limit the extent to which economic growth translates into improved living conditions. • Spatial inequality between settlements and rural communities may continue if higher-order services, employment and infrastructure remain concentrated in selected areas. <u>Biophysical:</u> • Increasing temperatures, changing rainfall patterns and changing seasonal conditions may negatively affect agriculture, water resources, biodiversity and human settlements. • More frequent or intense extreme weather events may increase the vulnerability of infrastructure and communities. • Climate change may alter habitats and place pressure on already vulnerable ecosystems. • Increasing water scarcity presents a major threat to agriculture, settlement development and economic growth. • Unsustainable groundwater abstraction, particularly in intensive agricultural areas, may undermine long-term water security. • Coastal settlements face challenges where alternative potable-water sources are expensive or unreliable. • Water constraints may increasingly determine where and how development can occur. • Citrusdal is vulnerable to flooding and requires careful consideration of flood risk when planning future development. • Elands Bay is vulnerable to coastal flooding and coastal erosion.

• The Greater Cederberg Biodiversity Corridor provides an opportunity to strengthen ecological connectivity across municipal boundaries. • The corridor can strengthen linkages between the Karoo and the coast, including the Sandveld, Groot Winterhoek and Cederberg core areas. • The Cederberg Nature Reserve and surrounding conservation areas provide opportunities for integrated biodiversity management and conservation-based tourism. • Linkages with the Tankwa Karoo National Park can strengthen regional conservation and tourism networks. • Protection and rehabilitation of important wetlands such as Verlorenvlei can contribute to ecological resilience and water security. • Climate change creates opportunities for investment in renewable energy, water efficiency, climate-smart agriculture and ecosystem restoration. • Solar and wind-energy development can contribute to energy security and economic diversification. • Climate adaptation can support new industries and employment opportunities linked to environmental management, restoration and sustainable resource use.	• Wildfires are a significant risk in mountainous areas, particularly under hot, dry and windy conditions. • Development in areas exposed to flooding, fire, coastal erosion or other hazards may increase future municipal costs and community vulnerability. • Development pressure within or adjacent to Critical Biodiversity Areas (CBA 1 and CBA 2), Ecological Support Areas (ESA 1) and wetlands may result in habitat fragmentation and ecological degradation. • Invasive vegetation and inappropriate land management can increase environmental and fire risks. • Loss of ecological corridors may weaken regional biodiversity resilience. • Dust, agricultural activities, smoke and odours can affect air quality and community health. • Increasing temperatures and heat-wave conditions may further exacerbate health risks, particularly for vulnerable communities.

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4.1.1 Transform Cederberg

Cederberg has strong agricultural corridors running along the Oliphants River (mainly citrus) and West of the Oliphants and Swartberg Mountains (citrus, potatoes), whilst the southern part is home to a conservation area extending from the Cederberg Mountains to the coast, where significant stretches of natural, conservation-worthy veld are home to threatened biomes. From the SWOT analysis and the Cederberg SDF (2023- 2027), the Cederberg has an even stronger (than in the 2017–2022 SDF) agricultural economic corridor running north- south (N7) along the Olifants River and southwest (Sandveld), with a conservation (and tourism) corridor connecting the Cederberg Conservation area and the coast, which all centres around Citrusdal and Clanwilliam. Within settlements, the following transitions are important:

Table 72: Cederberg proposals

From	To
Built Environment	
Historic development has contributed to fragmented settlements and destroyed the unique character and quality of life in settlements. Key challenges in Cederberg include: Unsympathetic architecture and structures that do not respond to local settlement character. Wide roads and excessive tar surfaces. Conflict between pedestrians and vehicles. Commercial ribbon development along major routes. Fragmented open-space systems. Minimal landscaping and urban greening. Absence of Non-Motorised Transport (NMT) and inadequate pavement provision. Development that does not sufficiently respond to local topography and environmental conditions.	Rejuvenate and grow settlements to be liveable, diverse, and enable the population to be economically mobile. Promote complementary architecture and plant trees. Soften main roads in settlements and calm traffic. Promote pedestrian and cycling pathways (NMT). Develop a code for where and how to display billboards. Reticulate services underground (communication) instead of above ground. Protect the agricultural landscape. Promote open spaces as part of an OS network. Encourage landscaping and require each land unit being created to plant two trees. Prepare for climate change and allow topography to inform development.
Previous spatial planning identified settlement edges and encouraged development within these boundaries. However, continued housing demand, land constraints and infrastructure limitations require a stronger emphasis on the efficient use of land already within or adjacent to existing settlements.	Intensify land uses within settlement edges in accordance with IDZS. Align settlement expansion with infrastructure capacity.
Density norms were determined for each town. A densification rate was determined, and infill development is encouraged for settlements to achieve its 50- year's density parameters.	Promote rejuvenation of settlement whilst keeping precinct character, including infill development, increased floor factor, and where subdivisions or renewal development can occur.

Cederberg Municipality owns 1337.2 ha of common land and 3 208.7ha in total. A vacant land audit[22] identified developable land within the urban areas.	Enhance economic mobility and sustainable settlements.
Socio-Economic	
Although there are excellent primary and secondary schools, only half of the population is semi-skilled or skilled.	Ensure there are accessible opportunities for educational progression such as FET college and university. Promote crèches and preschools and provide for safe multi-disciplinary schools.
Citrusdal and Clanwilliam district hospitals are accessible to the community.	Supportive community health care is delivered across the municipal area, particularly to rural areas.
A migrating workforce causes diversity.	Provide safe living spaces Provide for skills training. Promote entrepreneurial spaces and skills.
Biophysical Environment	
Extensive agriculture removes most natural vegetation and impacts water resources (Sandveld).	Protect agricultural land and water resources. Promote conservation measures.
Landscape assets such as agricultural landscape, wilderness landscape, waterways and connectors, cultural-historical landscape, connector routes and corridors, and community facilities and activities lack definition and structure.	Enhance landscapes and utilize assets as tourist destinations.
	Cederberg becomes an international and regional destination as conservation of the Verlorenvlei Ramsar Site, Baboon Point World Heritage Site, and Rocklands international rock face climbing area are consolidated.

4.1.2 Spatial Vision and Strategy

The spatial vision emerging from the assessment of the municipality's spatial analysis of the biophysical, socio-economic, and built environment status characteristics, and the desired spatial structure for the municipality is:

> *"A resilient, and economically prosperous region with liveable and* ***integrated settlement environments for all Cederberg residents."***

To achieve this vision, the overall goals or mission of the MSDF are:

- Establish Cederberg as an integrated tourism and conservation destination, while capitalising on its assets.
- Attract investment in the region through a diversified economy.
- Strengthen agriculture as a foundation of the local economy.
- Protect and enhance the natural and agricultural resource base.
- Adapt to changing trends like climate change, etc.
- Strengthen the sense of place of Cederberg settlements and rural areas whilst enhancing economic opportunities, and particularly at intersections announcing settlements.

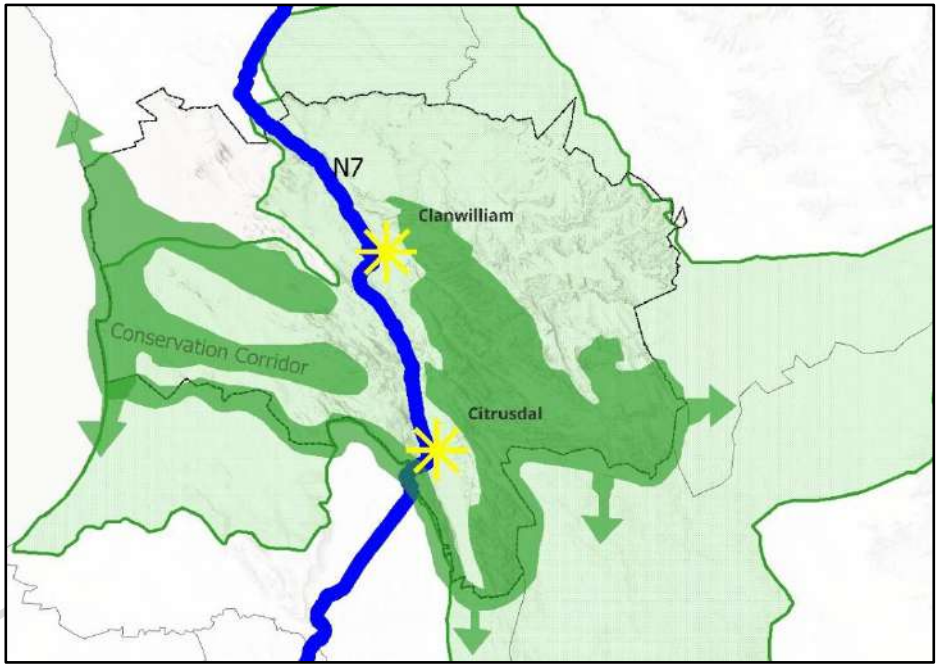
The SDF Vision is in support of and spatially interprets the Cederberg IDP vision:

"The home of good governance, service excellence and opportunities for all" (IDP, 2025).

4.2 Conceptual Proposal

Cederberg has strong agricultural corridors running along the Oliphants River (mainly citrus) and West of the Oliphants and Swartberg Mountains (citrus, potatoes), whilst the southern part is home to a conservation area extending from the Cederberg Mountains to the coast, where significant stretches of natural conservation-worthy veld are home to threatened biomes.

Map 28: Conceptual Map of Cederberg



4.2.1 Spatial Objectives

To prudently manage this vision in the spatial realm, the objectives below will assist in achieving it. The Cederberg Municipality spatial objectives and strategies are aligned with the strategic objectives of the IDP (IDP, 2025).

Table 73: MSDF objectives aligned with IDP 2025 objectives

SPATIAL OBJECTIVES, IDP OBJECTIVES		SPATIAL STRATEGIES
Objective 1: Grow (and unlock) economic prosperity Related IDP Strategic Objectives: • Facilitate, expand and nurture sustainable economic growth and eradicate poverty. (SO4). • Financial viability and economic sustainability (SO2).	SS1 SS2 SS3	Grow the economy and stimulate sector diversification and product development. Strengthen mobility and economic links (investor confidence). Develop product and trade advantages (export value chain and agri-industry corridors) and competitive advantage.
Objective 2: Proximate, convenient, and equal access Related IDP Strategic Objectives: • Improve and sustain basic service delivery and infrastructure development. (SO1). • Enable a resilient, sustainable, quality, and inclusive living environment and human settlements, i.e., housing development and informal settlement upgrade (SO5).	SS4 SS5 SS6	Protect economic vibrancy. Provide sustainable infrastructure and services (smart growth). Provide zoned land for residential and industrial development.
Objective 3: Sustain material, physical and social well-being Related IDP Strategic Objectives: • Good Governance, community development and community participation. (SO3). • Enable a resilient, sustainable, quality, and inclusive living environment and human settlements, i.e., housing development and informal settlement upgrade. (SO5). • To facilitate social cohesion and safe and healthy communities. (SO6).	SS7 SS8 SS9 SS10	Protect safety and security. Protect fundamental community resources (air, water, and energy). Provide social infrastructure and services (as per norm) to facilitate smart growth. Manage risk and disaster (man-made and natural).

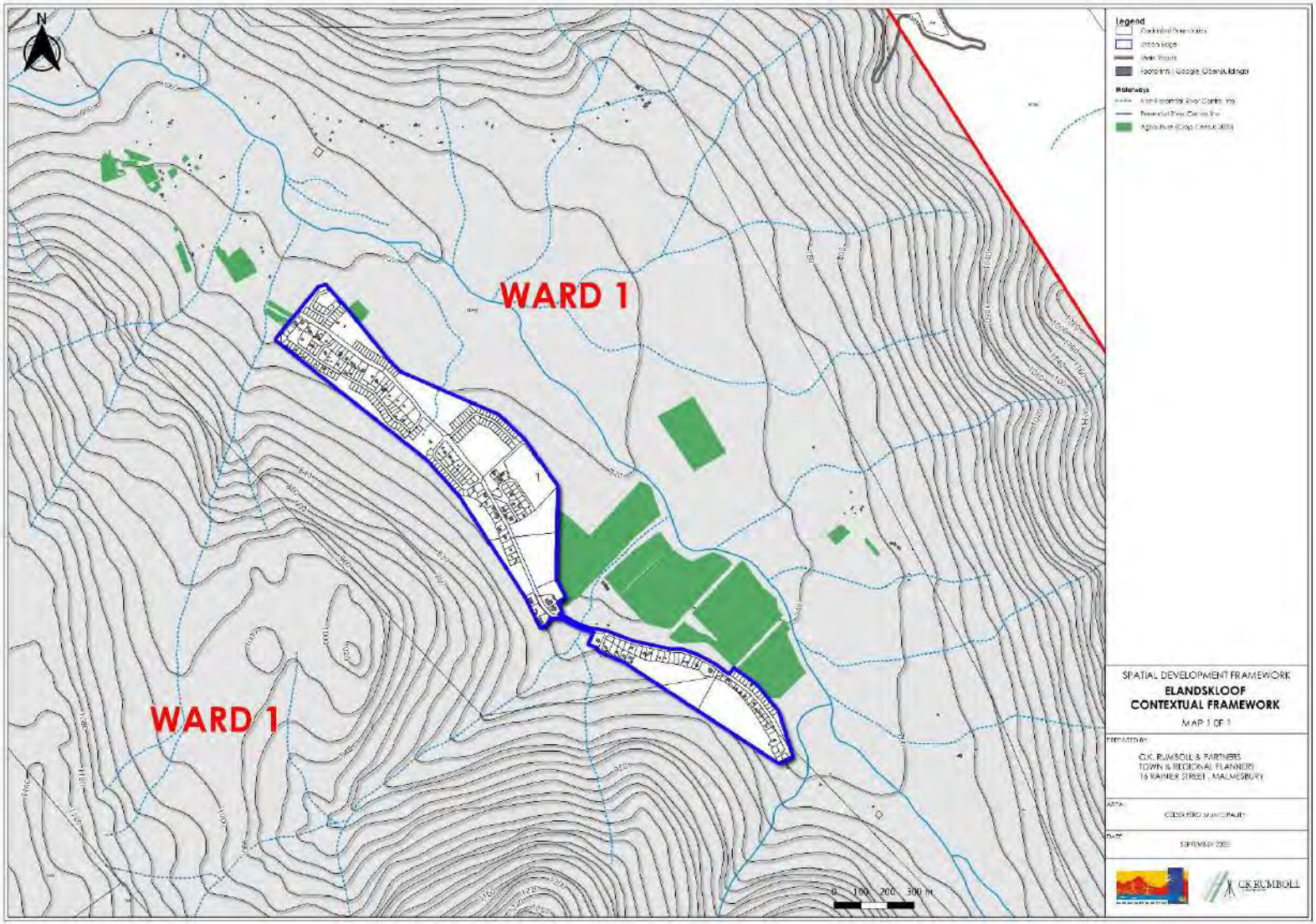
Objective 4: Protect and grow place identity (sense of place) and cultural integrity Related IDP Strategic Objectives: • Financial viability and economic sustainability. (SO2). • To facilitate social cohesion, safe and healthy communities. (SO6). • Development and transformation of the institution to provide a people-centred human resources and administrative service to citizens, staff and Council (SO7).	SS11 SS12 SS1	Protect heritage resources and place identity. Grow cultural potential. Grow the economy through landscape and conservation, tourism and new markets and economic sectors) and stimulate sector diversification.
Objective 5: Protect ecological and agricultural integrity Related IDP Strategic Objectives: • Good Governance, Community Development & Public Participation (SO3). • Facilitate, expand and nurture sustainable economic growth and eradicate poverty (SO4).	SS13 SS14 SS4 SS15	Protect food and water security and apply bioregional classification. Grow conservation potential to formalise conservation of CBAs and apply coastal management. Develop competitive advantage (landscape and cultivation), new markets and economic sectors (e.g. tourism and utilities). Protect and preserve sensitive habitats and enhance ecosystem services.

CHAPTER 5: Settlement Proposals

A compact urban form supports spatial sustainability, one of the cross-cutting planning principles as advocated in SPLUMA and LUPA. Both the non-coded and coded proposals that follow in this chapter, enhance the five SPLUMA and LUPA principles to achieve a compact urban form.

5.1 Elandskloof – Ward 1

Map 29L Elandskloof



5.1.1 Situational Analysis

5.1.1.1 Settlement History

Elandskloof originated as a mission station established in the mid-1800s. In 1960, the Elandskloof community was forcibly removed following the sale of the land. The community returned to Elandskloof in 1996, following the restitution process. The settlement retains a strong rural and cultural identity, with the historic church and community hall forming important elements of the original settlement.

5.1.1.2 Sub-Regional Location

Elandskloof is a rural settlement located approximately 20 km from Citrusdal, the nearest settlement. It is situated along the R303 road network, which provides a regional connection between Citrusdal and Ceres. The settlement is located within the Cederberg Wilderness Area and Winterhoek Catchment Area, within a mountainous landscape characterised by natural veld and mountain fynbos.

5.1.1.3 Settlement Role and Function

Elandskloof functions primarily as an informal rural settlement with a residential, agricultural and tourism-related role. Subsistence agriculture forms an important component of the local economic base, while the settlement has potential for commercial and conservation agriculture, agro-processing and tourism-related activities. The settlement's cultural heritage, agricultural landscape, mountain environment and opportunities for hiking and mountain biking provide a basis for future tourism development.

5.1.1.4 Settlement character and layout pattern

Elandskloof has a distinctive rural settlement character, with a ribbon development pattern extending along the Elandskloof River on both sides of the gravel road. The settlement is arranged into four precincts: the entrance cluster, the cemetery/church/community hall cluster, the kloof-end cluster, and outposts and gardens across the river. These precincts are generally within walking distance of one another. The settlement comprises a combination of formal and informal dwellings, with a predominantly rural character and strong links to cultivated areas, community gardens and the surrounding conservation landscape.

5.1.2 Settlement Services and Infrastructure Analysis

Table 74: Infrastructure analysis

Utility	Capacity
Water	Water reservoir of 1M.
Waste Water	No sewerage works.
Bulk Electricity and Reticulation	Eskom provided capacity.

5.1.3 Settlement Proposals

5.1.3.1 Non-Coded Proposals

Table 75: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Elements	No	Proposal
	Roads	1	Promote maintenance of all connecting roads to Citrusdal and sealing of R303.
		2	Provide for shelter along bus route.
		3	Enhance connectivity to West Coast and Witzenberg through sensitive agricultural and conservation related development or conservation.
	Activity Corridors and Streets	4	Provide for formalizing an "activity street" as part of minor road.
	Pedestrian/ Cycle routes	5	Provide for development of safe pedestrian walkways and bicycle routes along minor road.

Table 76: Utilities proposals

Objective 2: Proximate convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand	6	Protect settlement extent and limit households to 320 as per court order (1996).
	Water	7	Develop ecological infrastructure of Elandskloof River to address the lack of sufficient water in summer: Promote river-maintenance programme.
		8	Provide for 3Ml reservoir and upgrading of connections to erven (2017).
	Waste Water	9	Promote building of sewerage works and install reticulation capacity: EA was issued, consider alternative sewerage management technology.
	Bulk Electricity and Reticulation	10	Protect and promote maintenance of electrical reticulation system.
	Roads and Storm water	11	Promote maintenance of gravel road and improve storm water system.
	Waste	12	Promote weekly removal of domestic waste.
	Communication	13	Promote the erection of a network tower.
	Safety and Risk Management	14	Promote and support sustainable use of resources e.g. water harvesting, alternative energy.
	Services	15	Secure a fire fighting vehicle (tractor with water tank).

Table 77: Built-environment proposals

SPACE, BUILT	Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity		
	Element	No.	Proposals
	Heritage and Tourism	16	Protect Place Identity:
		a)	Protect the institutional node around the church and rectory.
		b)	Promote a singular theme and sensitive roadside and other signage to express the historic character of Elandskloof.
		c)	Develop an architectural guideline for planned restitution development.
		d)	Control alterations and demolitions of buildings older than 60 years:
		e)	Promote and protect graded buildings, landscapes and features.
		17	Establish and promote Elandskloof as a tourist destination.
		a)	Promote a diversity of agricultural activities as tourism activities.
		b)	Promote Elandskloof as a hotspot for hiking and mountain biking.
	Built form	18	Promote dimensions and mass of historic houses, the church and community hall: single-storey rectangular dwellings with pitched roofs; (clusters of rectangular blocks can be one dwelling, lofts – 1.5 storeys could be considered depending on erf location and placement of buildings).
	Functionality and urban design	19	Implement community approved settlement layout: ribbon development pattern along the river, on both sides of gravel road: a) entrance cluster, b) cemetery, church, community hall cluster, c) kloof end cluster and d) outposts and gardens; all within walking distance (developed according to current dwelling and out-posts locations).
		20	Support infill development between permanent and informal structures.
		21	Promote the connectivity between the agricultural cultivated and conservation landscape and the settlement form and formalise outpost and community gardens.
		22	Formalize establishment of settlement:
		a)	Phase 1: Build 120 houses (Subsidy from Rural Development and/or other organs of state).
		b)	Phase 2: Build 200 houses.
	Commercial and Industrial	23	Provide for limited but excellent tourism and conservation opportunities (area separated from surroundings by Kouebokkeveld Mountains).
		24	Promote commercial and conservation agriculture and agri processing and re-establish citrus and other orchards across river plain.
		25	Diversification of economic base, to create jobs and to raise income levels.
		26	Future Economic base: agriculture and tourism. Additions: Agro-processing industries or hubs, cooperative Enterprises Zone for community owned businesses such as crafts, agriculture, youth and woman enterprises etc.

Table 78: Institutions proposals

	Objective 3: Sustain material, physical and social wellbeing.		
PUBLIC INSTITUTION	Element	No.	Proposals
	Social Infrastructure and Services:	27	Protect social amenities: community hall and church and promote multi-functional use thereof.
		28	Provide for functional recreational areas (e.g. children's play parks).
		29	Promote disabled access at clinic and other social amenities.
		30	Provide for sports facilities.
		31	Provide for a resort, day camping and picnic facilities.

Table 79: Biophysical proposals

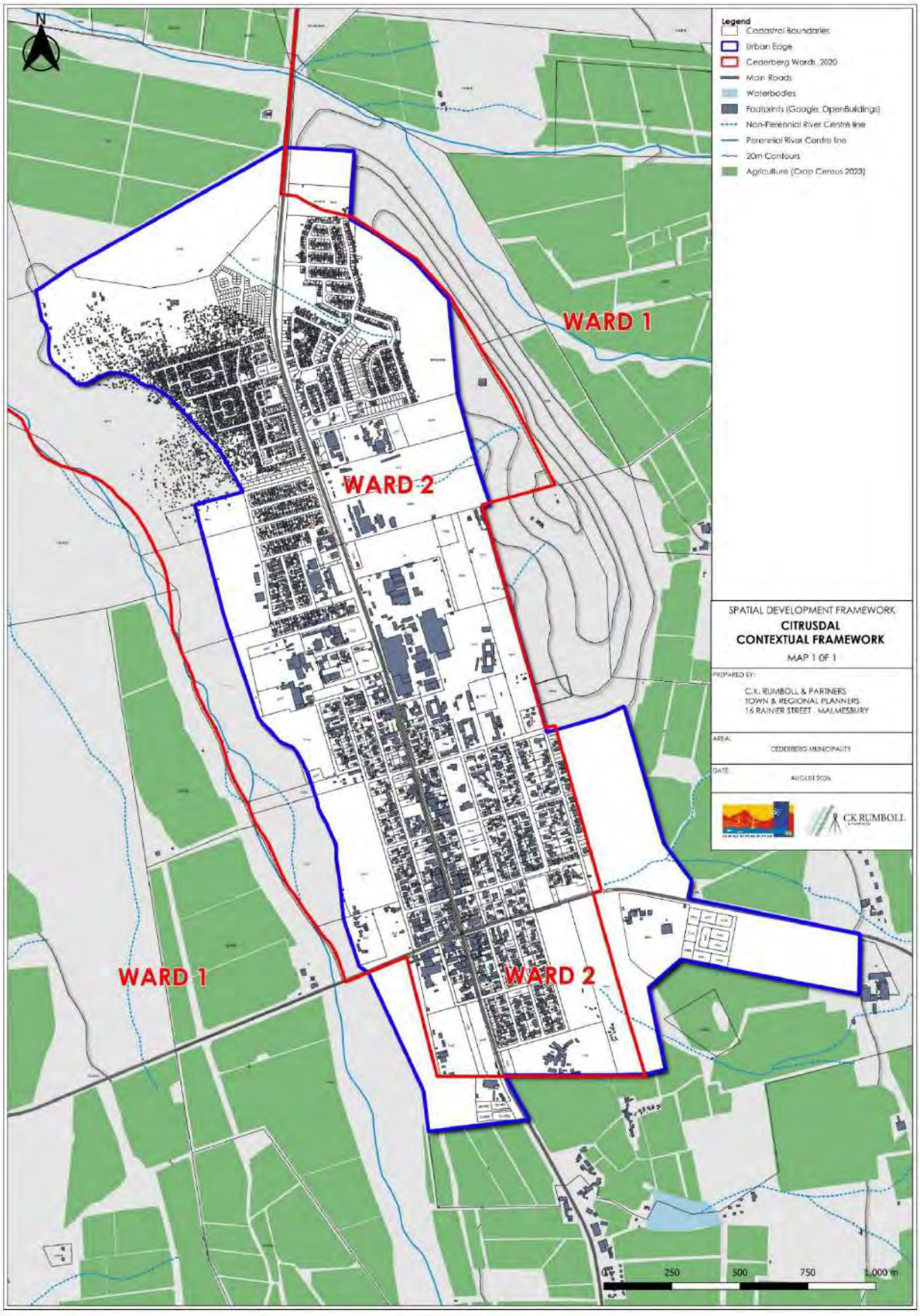
	Objective 5: Protect ecological and agricultural integrity		
SPACE, NATURAL	Element	No.	Proposals
	Natural and Conservation	32	Promote protection of mountain slopes and prohibit development on slopes.
		33	Promote protection of all CBA areas as per Elandskloof CBA and ESA map.
		34	Minimize development impact on aquatic ecosystem and keep 32m from stream; maintain setback lines and improve safety.
		35	Create and protect open space areas along the river, connect to outposts and to settlement.
		36	Provide for development of hiking and mountain bike trails and alternative uses i.e. events facility and venues.
	Public and Private Open	37	Maintain cemetery and provide for adequate expansion of cemetery.
		38	Landscape gate way and access road sensitively and naturally. Provide appropriate pedestrian and traveller infrastructure.

Map 30: Elandskloof mapped proposals



5.2 Citrusdal – Ward 2

Map 31: Citrusdal map



5.2.1 Situational Analysis

5.2.1.1 Settlement History

Established at the foot of Piekenierskloof Pass on the farm Modderfontein—a meat supplier to the Dutch East India Company in 1725—Citrusdal was later relocated across the Olifants River to its current site following the 1918 Spanish Flu pandemic. Infrastructure development began in 1855 when Thomas Bain led the construction of the 12 km Grey's Pass (now Piekenierskloof Pass).

5.2.1.2 Sub-Regional Location

Citrusdal is strategically located along the N7 (linking Cape Town to Namibia) at its junction with the R303 (connecting Ceres). Situated on the eastern banks of the Olifants River within a fertile agricultural valley bounded by the Cederberg and Olifants River mountain ranges, the town serves as a crucial regional service and tourism hub.

5.2.1.3 Settlement Role and Function

Citrusdal functions primarily as an agricultural service and regional tourism hub. Its visual identity and spatial boundary are defined by its dramatic valley topography—framed by the Olifants River and Piketberg Mountains to the west, and the Cederberg and Olifants River ranges to the east. This surrounding landscape provides a scenic backdrop while strictly constraining the town's spatial form and future expansion footprint.

5.2.1.4 Settlement character and layout pattern

Settlement layout consists of a linear grid pattern along the river, long rectangular blocks in the south, large irregular blocks accommodating agri-industrial structures and the school, in the centre and, in the north, curvilinear grids and inwardly orientated grid blocks. The northern residential node is a medium and high-density node, while the southern node is a low-density node. Business nodes are mixed density.

5.2.2 Settlement Services and Infrastructure Analysis

Table 80: Citrusdal infrastructure

Utility	Capacity
Water	- Department of Water Affairs requires R62 million (2017) to upgrade Clanwilliam Dam (2017). - 3.3ML reservoir
Waste Water	New sewerage works required, inadequate pipe capacity.
Bulk Electricity and Reticulation	Electricity supply is insufficient. CM requires R22 million (2017) to supply 10 MVA.

5.2.3 Settlement Proposals

5.2.3.1 Non-Coded Proposals

Table 81: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Elements	Nr	Proposal
	Main Roads: N7, main movement network	1	Protect unhindered access to Cape Town, Northern Cape and Namibia.
		2	Protect location along regional and national transport corridors.
	Roads: R393 (310) east-west; Voortrekker Street (2176 and 539) north-south.	3	Announce gateways: western (from N7) and eastern (toward Ceres) using landscaping.
		4	Connectivity to West Coast and Witzenberg.
		5	Build bus shelters.
	Activity Corridors	6	Strengthen commercial activities along Voortrekker and Paul de Villiers streets and those parallel to or leading off these roads.
		7	Resurface main roads to handle heavy vehicle traffic and limit speeding.
			Promote Voortrekker (R539 link) and Paul de Villiers (R393 link). Kerk, Loop Street and interlinked streets and Dias, Eike, Clarkia, and Schalk Patience and Olien, Fynbos, Lang and in Riverview as activity corridors and Streets.
	Pedestrian / Cycle Routes	8	Enhance and extend safe pedestrian walkways and bicycle routes along Voortrekker Street.
		9	Improve disabled access to pavements.
			Promote NMT Walkways along Paul de Villiers and Voortrekker Street.

Table 82: Utilities proposals

Objective 2: Proximate, convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand	10	Identify sites and provide adequate land for future bulk infrastructure expansion.
	Water	11	Protect water sources (Olifants River & two boreholes – insufficient) and find alternative sources.
		12	Provide for upgrading water storage and reticulation capacity: Build another 3ML reservoir, replace asbestos pipes and pressure sustaining valves. Municipal contribution R15 million (2017).
	Waste Water	13	Provide for upgrading pipe capacity and establish connections to new and existing precincts.
	Bulk Electricity and Reticulation	14	Upgrade will take place alongside subsidized housing development.
	Roads and stormwater network	15	Maintain the road network.
	Waste	16	Maintain weekly removal of domestic waste and manage transfer stations.
	Safety and Risk Management Services	17	Maintain and functionally integrate the Police Station.
		18 a)	Implement river upgrade and maintenance programme to promote open space system.
		18 b)	Ensure all development proposals on the western side of the main road are above the floodline of the Oliphant's River.
		19	Promote sustainable resource use, e.g., water harvesting and alternative energy.

Table 83: Space proposals

	Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity		
SPACE, BUILT	Element	No.	Proposals
	Heritage and Tourism	20	Protect place identity and town character: Citrus industry capital (Agricultural Service Centre and local node (Spatial Planning Categories)).
		21	Protect buildings and structures with heritage value, i.e., old village (historic town entrance), Bain's cottage, remains of the old pass, museum complex (in town) serving as tourism hub, and protect the context of the cluster of these buildings.
		22	Functionally integrate the two residential precincts that form the settlement pattern: Citrusdal primarily consists of 2 residential precincts (one south and one north).
		23	Maintain overall mass and scale; new similar-use buildings should blend into existing mass and scale: introduce Single and double-storey dwellings, commercial and institutional buildings. Cautiously introduce industrial buildings of similar scale and avoid bulky robust buildings, e.g. citrus packing sheds.
		24	Maintain and promote tourism assets and uses to diversify the economy.
		25	Promote the settlement setting within the natural landscape of the Cederberg (Olifantsrivierberg, Cederberg and Olifants River) contrasted by cultivated landscapes (i.e. citrus orchards, rooibos tea and wheat fields).
		26	Landscape gateways and main roads: Voortrekker and Paul de Villiers Streets. (Robertson in Langeberg is a showcase of such less formal landscaping, as the harshness of the agri-industrial and industrial façade is softened by tree lanes and tree clusters).
		27	Enhance economic growth potential.
		28	Unlock agri-tourism potential in and around settlement, along the Olifants River, on the western boundary of settlement (support resort development along Olifants River, south of Citrusdal) and in the rural area.
	Residential	29	Protect settlement layout.
		30	Support resort development in and near the settlement, Citrusdal.
		31	Sensitively and naturally landscape street interface to encourage connection whilst not compromising privacy: In precinct with rectangular south facing street blocks, houses face on Voortrekker Street, whilst in northern precinct, back of houses face on main road.
		32	Enhance densification on large and vacant residential erven, located close to central business district and within walking distance from work, including different typologies such as flats, group housing, etc. (Promote mixed use, including residential in CBD).
		33	Promote infill opportunities for GAP housing in the area west of Voortrekker Street (MR539/27) and north of Fuchsia Street in Zone A and Zone E.
		34	Promote infill opportunities for low density residential development on eastern boundary of town, towards urban edge, in Zone E.
		35	Provide different housing typologies, accommodating a wider market as well as supporting potential higher residential densities promoting cost-effective designs.
		36	Register farm workers and any other specific category on housing waiting list.
		37	Provide 32.7ha land to accommodate residential growth until 2031 in Citrusdal, including urban expansion to north inclusive of an Agri-village.
		38	Conclude subsidised housing development on northern boundary of settlement, located west of Voortrekker Street (MR539/26) in Zone A including an Agri-village.

		39	Enhance expansion north-east of proposed subsidised housing area in Zone A, B and E.
		40	Provide for low density residential development in the proposed mixed-use precinct in Zone E, south of Paul de Villiers Street (R303).
	Commercial: Economic Base	41	Develop secondary business and amenity nodes (intensify use) in the northern residential precincts and allow for increased densities.
		42	Development of neighbourhood business nodes in Zone A, B and E.
		43	Strengthen commercial development in central business district, along Voortrekker and Paul De Villiers Streets (Zone E).
		44	Develop mixed use precinct (Light/ Service Industries, Commercial and Wholesale uses) along southern side of Paul De Villiers Street (R303).
		45	Renew central business district: Node 1: located at Paul de Villiers/ Voortrekker Street crossing (maturity); Node 2: at Schalk Patience and Voortrekker Street crossing.
		46	Support establishment of house shops and informal trading in earmarked zones, along activity streets, and home occupation in residential areas in accordance with applicable policies, guidelines and/or by-laws.
		47	Support mixed uses in central business district, including residential opportunities.
		48	Enhance commercial use of community resources: including churches, schools, caravan park, sports ground and golf course (all located close to settlement centre).
	Industrial	49	Strengthen growth potential by making optimal use of N7 upgrade (locational advantage):
		a)	Expand industrial area in Zone C and E east wards and in Zone F on southern boundary.
		b)	Provide for growing agri-industries and processing facilities, particularly export produce along with other industries, to enhance Citrusdal's role as an agricultural service centre in Zone C and E.
		c)	Support an intermittent urban edge: Allow for agri-industry and processing facilities south of the Citrusdal, along Voortrekker Street (DR2176/1).
		50	Plant trees and creepers e.g. bougainvillea to soften dominating mass and scale of industrial buildings.
	Land Reform	51	Provide for and formalize small farming and community gardens on northwestern periphery (of Zone A) along river and on municipal commonage.

Table 84: Institutions proposals

Objective 3: Sustain material, physical and social wellbeing.			
PUBLIC INSTITUTIONS	Element	No.	Proposals
	Social Infrastructure and Services	52	Protect, maintain and promote adequate social infrastructure to create safe living environments and access to education (crèches, secondary & tertiary education, sport & primary health care).
		53	Locate future facilities in a central accessible location. Align social infrastructure provision to norms.
		54	Promote multi-functional recreational areas.
		55	Maintain sport fields and provide for sport facilities (soccer fields) within Zone F.
		56	Integrate and make clinic more accessible.

Table 85: Biophysical proposals

	Objective 5: Protect ecological and agricultural integrity		
	Element	No.	Proposals
SPACE, NATURAL	Natural and Conservation	57	Protect scenic routes, vistas, Cederberg Mountains landscape, citrus orchards and water bodies.
		58	Protect endangered Citrusdal Shale Renosterveld in urban edge extension east of primary school.
		59	Protect all CBA areas as per Citrusdal CBA and ESA map.
		60	Protect Olifants River, flowing from the south to the north where it connects to the Atlantic Ocean.
		61	Protect geophytes around Citrusdal and promote a Spring botanical screening around Citrusdal.
		62	Promote greening of main activity routes and plant trees along streets and at functional open spaces within high density and subsidised housing developments.
		63	Support interactive development along open spaces, ensuring development face the open space.
		64	Allow for enough buffering and appropriate uses between northwest extension and Oliphant's River: small farming land parcels, settlement gardens, sports fields etc.
		65	Allow for additional buffering along the stretch of the Oliphant's River that flow pass Citrusdal.
		66	Create and protect open spaces inside and adjacent urban area to allow movement between habitats.
		67	Maintain setback lines along river systems (limit potential impacts and improve safety).
		68	Provide for the development of hiking, mountain bike trails and alternative uses e.g. events facilities.
		69	Formalise natural swimming pool in Olifants River (currently used by community).
	Public and Private Open Space	70	Rejuvenate and landscape central town.

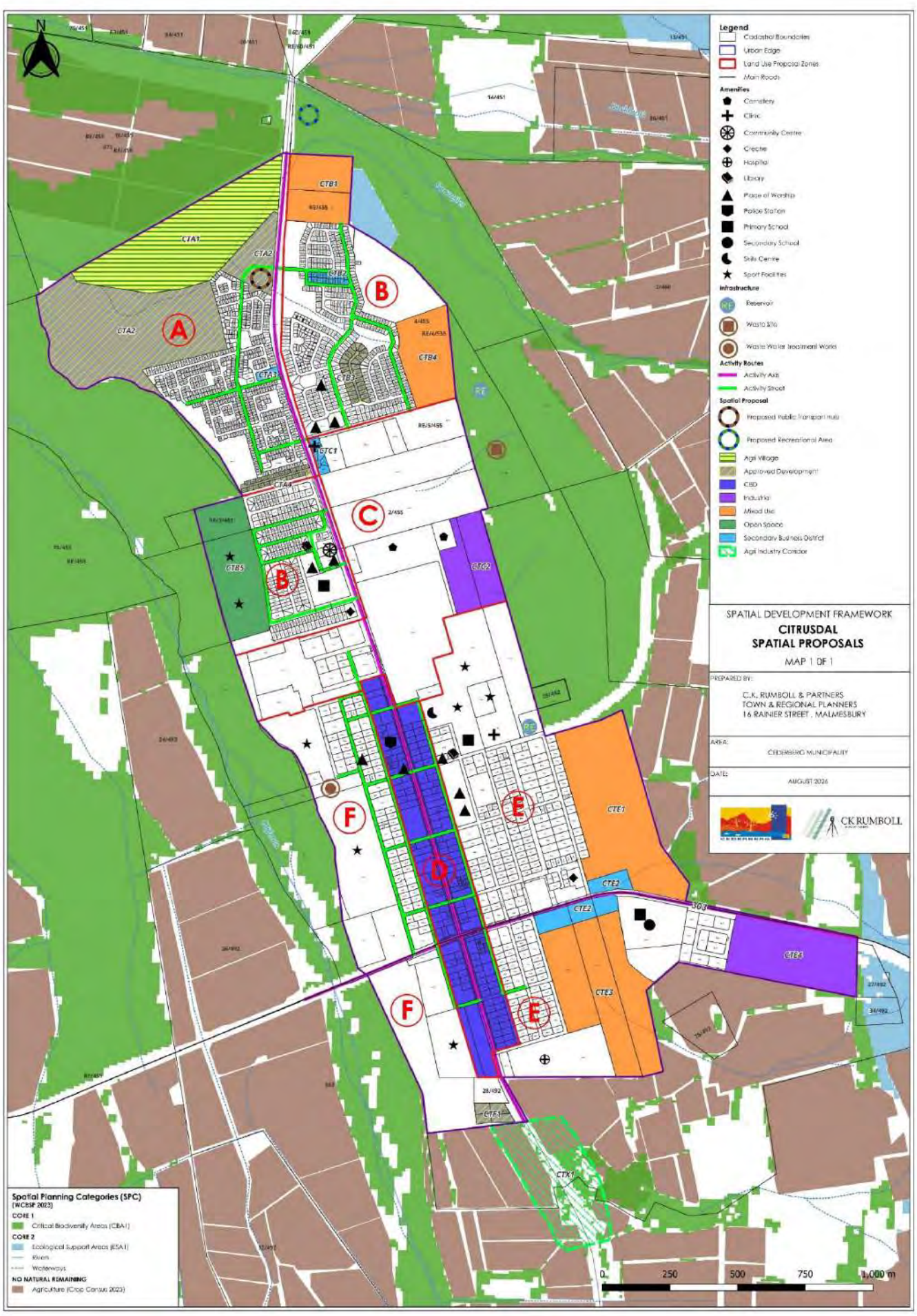
5.2.3.2 Coded Proposals

Table 86: Map coded proposals

Code	Zone	Proposal	Detail	Gross Area
CTA1	A	Agri Village	Promote the development of an Agri-Village.	16,78
CTA2	A	Approved Development	Support the existing approved development for subsidised housing including appropriate ancillary uses (proposed transport hub).	20,54
CTA3	A	Secondary Business District	Support the development of commercial uses.	0,28
CTA4	A	Approved Development	Support the development of affordable housing opportunities.	0,96
CTB1	B	Mixed Use	Promote mixed-use development including residential, institutional and community uses.	5,77
CTB2	B	Secondary Business District	Support the development of commercial uses and the subsequent creation of a secondary business district.	0,59

CTB3	B	Approved Development	Support the development of affordable housing opportunities.	1,60
CTB4	B	Mixed Use	Promote mixed-use development including residential, institutional and community uses.	6,06
CTC1	C	Secondary Business District	Support the intensification of existing secondary business district.	0,57
CTC2	C	Industrial	Promote light industrial development.	5,82
CTE1	E	Mixed Use	Promote mixed-use development including residential, institutional, community and commercial (along the R303) uses.	17,51
CTE2	E	Secondary Business District	Support the development of commercial uses and the subsequent creation of a secondary business district.	0,92
CTE3	E	Mixed Use	Promote mixed-use development including residential, institutional, community and commercial (along the R303) uses.	15,84
CTE4	E	Industrial	Promote light industrial development.	10,53
CTF1	F	Approved Development	Support the existing approved development.	0,91
CTX1	Out	Agri Industry Corridor	?	12,12

Map 32: Map proposals for Citrusdal



5.2.4 Development Zones and Proposals for Citrusdal

The table in this section describes development zones identified in Citrusdal and lists development options for each zone. The table must be read in conjunction with Development Zone plans for Citrusdal.

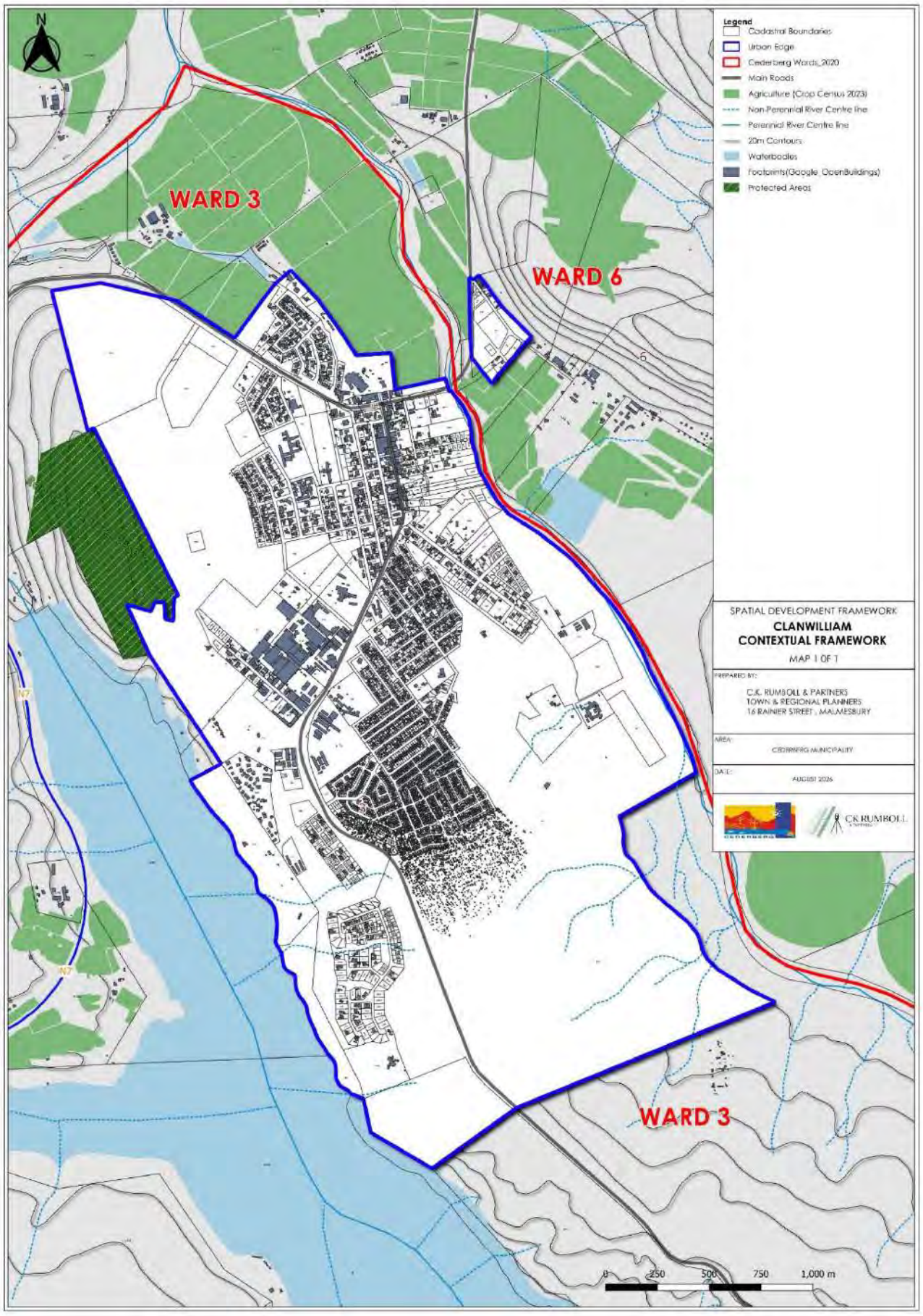
Table 87: Land use zones for Citrusdal

CITRUSDAL LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport / Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Zone A, a high-density residential area with emergency housing, vacant erven for subsidized housing, a small commercial node, identified transport hub and mixed-use nodes.	X	X	X, 1	X	X	X, 2, 3, 4	X, 2, 3, 4	X	X	X	X		X
B	Zone B is a medium to high density residential area which includes institutional uses as well as a secondary business node. The area allows for mixed use developments.	X	X	X, 1	X	X	X, 2, 3, 4	X, 2, 3, 4	X	X	X	X		X
C	Zone C is an Industrial precinct with some institutional uses and allows for limited industrial and cemetery expansion.	X	X	X, 1	X	X	X, 2, 3	X, 2, 3	X	X	X	X	X	X
D	Zone D has been identified as the town's CBD and allows for future Business expansion.	X	X	X	X	X	X	X	X	X	X	X		X
E	Zone E includes a low to medium density residential area with supporting institutional uses. This zone provides opportunity for residential expansions towards the east and business opportunities along Paul de Villiers Street (R303). This zone further includes a secondary business node and allows for mixed use development.	X	X	X, 1	X	X	X, 2, 3, 4	X, 2, 3, 4	X	X	X	X	X	X
F	Zone F is a low-density residential area including a recreation node and the town's wastewater treatment works. Light industrial area proposed to the south provides opportunities for expansion.	X	X	X, 1	X	X, 2	X, 3	X, 3	X	X	X	X	X	X

(1) Flats along activity streets and at nodes (2) At existing nodes (3) Along activity streets (4) At identified Mixed Use Precincts	Business Uses i.e. shop, supermarket and service station. Educational Uses i.e. Schools, places of instruction, crèches/day care, after care. Professional Services i.e. Doctors, dentists, architects. Secondary Business Uses I.e. Allows for neighbourhood business e.g. Café, house shops, small shop & offices and home occupation. House taverns only to be allowed along activity streets in residential areas.

5.3 Clanwilliam – Ward 3

Map 33: Clanwilliam map



5.3.1 Situational Analysis

5.3.1.1 Settlement History

Originally established on the farm Jan Disselsvlei (named after botanist Jan Dissel), the town was renamed Clanwilliam in 1814 in honor of the Earl of Clanwilliam. It attained municipal status in 1901 under its first mayor, Charles Fryer—a descendant of the 1820 Settlers who established early holdings along the Jan Dissels River. Today, the street network encompassing Main, Park, Visser, and Love Streets forms a protected historic precinct that anchors the town's cultural heritage.

5.3.1.2 Sub-Regional Location

Clanwilliam is uniquely positioned to leverage major regional infrastructure projects. Capitalizing on its location along the upgraded N7 national corridor—a critical trade link connecting Cape Town, Namibia, and broader African markets—the town also directly benefits from the capacity expansion of the Clanwilliam Dam. This major water security project provides a strong foundation for expanded agricultural, industrial, and tourism development across the sub-region.

5.3.1.3 Settlement Role and Function

Clanwilliam serves as the main administrative, retail, and agricultural service hub of the Olifants River Valley. The settlement is globally recognized as the capital of the Rooibos tea industry. Beyond its agricultural core and traditional light manufacturing (velskoene), Clanwilliam operates as the primary gateway to the Cederberg Wilderness Area. Its scenic landscape, historic built environment, Ramskop Nature Reserve, and Clanwilliam Dam position the settlement as a premier regional tourism and water-based recreational destination.

5.3.1.4 Settlement Character and Layout Pattern

Clanwilliam follows a traditional grid pattern anchored by two residential nodes in the north and south. These nodes are linked via a central economic and civic corridor along Main Road (the primary activity axis) and its T-junction with Augsburg Street. Centralized within this spine are commercial, industrial, and civic facilities, including municipal offices, sports grounds, and the magistrate's court. While most formal residential neighbourhoods directly adjoin the CBD, peripheral settlements are situated up to 1.5 km (a 30-minute walk) from core amenities. Demographically, the ward accommodates 7,674 residents (15% of Cederberg's population) across 2,412 households, with an average household size of 3.3 persons.

5.3.2 Settlement Services and Infrastructure Analysis

Table 88: Infrastructure analysis

Utility	Capacity
Water	Department of Water Affairs requires R62 million (2017) to upgrade Clanwilliam Dam (2017).
Waste Water	CM requires R21.4 million (2017) to move sewerage works.
Bulk Electricity and Reticulation	Electricity supply is insufficient. CM requires R22 million (2017) to supply 10 MVA.

5.3.3 Settlement Proposals

5.3.3.1 Non-Coded Proposals

Table 89: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Element	No.	Proposals
	Main Roads: N7, main movement network, unhindered access to Cape Town and Namibia. Roads: R364 (542) - Graafwater Way, R2183.	1	Promote the upgrade of R364 to Van Rhynsdorp.
		2	Strengthen connectivity to the West Coast and to the Northern Cape.
	Activity Corridors and Streets	3	Strengthen and beautify Main Street and R364 intersection.
		4	Develop commercial and industrial activities along the changeover from main to DR 2183/ R539. Landscape Main and DR 2183/ R539.
		5	Develop an alternative road link between Graafwater Way (R364) and the industrial area, to alleviate heavy traffic through the historic sections of town (Zones B, F and J).
		6	Provide for a road linking, from the proposed alternative road to Hospital Road in Zone B.
	Pedestrian/ Cycle routes: Pedestrian walkways only along Hoof Street and DR 2183/ R539.	7	Provide for and build pedestrian walkways and bicycle routes for 2 -3 km along R2183 and Main Street to central business district.
		8	Improve disabled access.
		9	Develop pedestrian walkways and bicycle routes along Clanwilliam Dam and Jan Dissels River (part of Open Space Network).

Table 90: Utilities proposals

Objective 2: Proximate, convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand	10	Identify sites and provide adequate land for future bulk infrastructure expansion.
	Water	11.a	Reduce bulk water demand to protect Clanwilliam Dam and control pressure of reticulation network: (phase 1 completed), replace pipe to purification works and upgrade reticulation capacity.
		11.b	Capitalize on the raised Clanwilliam Dam wall once completed: Providing water to residents of Clanwilliam and lower Oliphants River region.
		12	Provide for additional storage capacity required (2.5ML reservoir planned).
		13	Provide for upgrading of water pump station and purification plant (designs are completed) and secure generators for pump station to operate during load-shedding.
	Waste Water	14	Investigate alternative development around sewerage works as a 500m buffer around sewerage works is required, but not executable. Moving sewerage works is an option, however it may not be feasible.

		15	Move sewerage works or investigate alternative uses around sewerage works. Upgrade sewerage works, pump station and feeding lines.
	Bulk Electricity and Reticulation	16	Manage existing electrical capacity and sufficient reticulation capacity; Build a new supply line and transformer (10MVA bulk electricity supply capacity).
		17	Maintain and expand adequate street lighting.
	Roads and Storm water	18	Promote maintenance of gravel roads.
		19	Upgrade stormwater system.
	Waste	20	Maintain weekly domestic waste removal and receiving waste site; Provide for recycling facilities and initiatives. Manage interface of and prohibit illegal dumping along road to municipal waste site.
		21	Maintain building material waste site.
	Safety and Risk Management Services	22	Maintain WCDM Disaster Management and Fire Station and keep accessibility.
		23	Maintain and integrate Police Station.
		24	Implement river maintenance and upgrade programme to promote open space system.
		25	Promote and support sustainable resource use e.g., water harvesting, alternative energy.

Table 91: Built-environment proposals

Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity			
SPACE, BUILT	Element	No.	Proposals
	Heritage and Tourism	26	Support tourism related uses in the settlement to diversify the economy. Maintain and enhance tourism potential (historic buildings, field flowers and scenic landscapes).
		27	Improve access to information about and interaction with heritage assets.
		28	Improve and promote roadside and building signage to be sensitive to the character of landscapes and buildings.
		29	Protect cultural and heritage resources: Clanwilliam is home to grade buildings, spaces, precincts and features, architectural treasures, representing different periods.
		a)	Control alterations and demolitions of buildings older than 60 years.
		b)	Register Main, Park, Visser and Love Street area (in Zone E and G) as Heritage Zone.
		c)	Promote settlement setting within natural landscape, of the Cederberg and the Olifants River, contrasted by cultivated landscapes (i.e. citrus and rooibos tea).
	Settlement pattern and urban structure	30	Enhance settlement pattern and layout.
		31	Maintain overall mass and scale, new similar-use buildings should blend into existing mass and scale: introduce Single and double story dwellings, commercial and institutional buildings. Cautiously introduce industrial buildings of similar scale and avoid bulky robust buildings e.g. citrus packing sheds.
		32	Protect eclectic built form and distinctive style of church and administrative buildings.
		33	Enhance growth potential and locational advantage as main Cederberg settlement.
		34	Support higher density developments in southeastern precinct.

		35	Protect low densities along water and conservation bodies (i.e. Jan Dissels River, Clanwilliam Dam) yet allow for limited densification.
		a)	A portion of Ramskop should be development to accommodate higher densities and a variety of housing typologies and provide for some of DWS housing need).
		b)	Zone L should be developed as a tourism and educational node within a tight urban edge.
		36	Provide for low density residential opportunities in mixed use precinct in Zone B inclusive of DWS need. (west of low-density residential area in Zone C). Attend to interface with existing development.
		37	Establish infill residential and mixed-use development, on old school site, along Long Street and consider low densities in Zone C (ownership: Department of Public Works).
		38	Promote infill development on large, vacant residential erven and higher density residential infill development, closer to central business district.
		39	Promote mixed use, including residential, in central business district.
		40	Provide different housing types (accommodating a wider market and promoting densification).
		41	Provide subsidised housing to decrease waiting list of 1398 households (19% of ward population or 61% of ward households).
		42	Enhance functionality and create precincts that integrate with amenities and where required, create additional neighbourhood amenity nodes.
		43	Develop GAP housing east of DR 2183/ R539 in Zone I inclusive of DWS need. Attend to interface with existing development (established south and southeastern Clanwillam and along the dam).
		44	Formalise Informal Settlement Area in Zone I (old and new Khayelitsha).
		45	Identification and subsidised housing development in Zone I (on part of existing golf course and areas east and south of the golf course). Attend to interface with existing development and with prosed development in 43.
		46	Register farm workers and other special category beneficiaries on the housing waiting list.
		47	Provide 314.4 ha of land to accommodate residential growth in Clanwilliam, until 2031.
	Commercial	48	Establish affordable and integrated commercial properties in high density southern precinct (Secondary business district).
		49	Promote mixed uses in central business district, including residential.
		50	Support establishment of house shops and informal trading spaces along activity streets.
		51	Support institutional uses and informal trading in Zone G.
		52	Strengthen commercial development within the central business district, along an activity axis (Zone D, E, and G and F).
		53	Rejuvenate Central Business District and commission a precinct plan.
		54	Provide for a neighbourhood business node within the mixed-use precinct proposed in Zone B.
		55	Develop a central business district in high density residential area in Zone H.
	Industrial	56	Establish mixed use precinct in Zone B (Light/Service Industries, Commercial and Wholesale).
		57	Establish mixed uses in Zone K (Light/Service Industries, Commercial, Wholesale), Zone I (Light/Service industries) and Zone E where appropriate Light/ Service Industries).
		58	Promote industrial erven with easy access to N7.
		59	Expand industrial area:

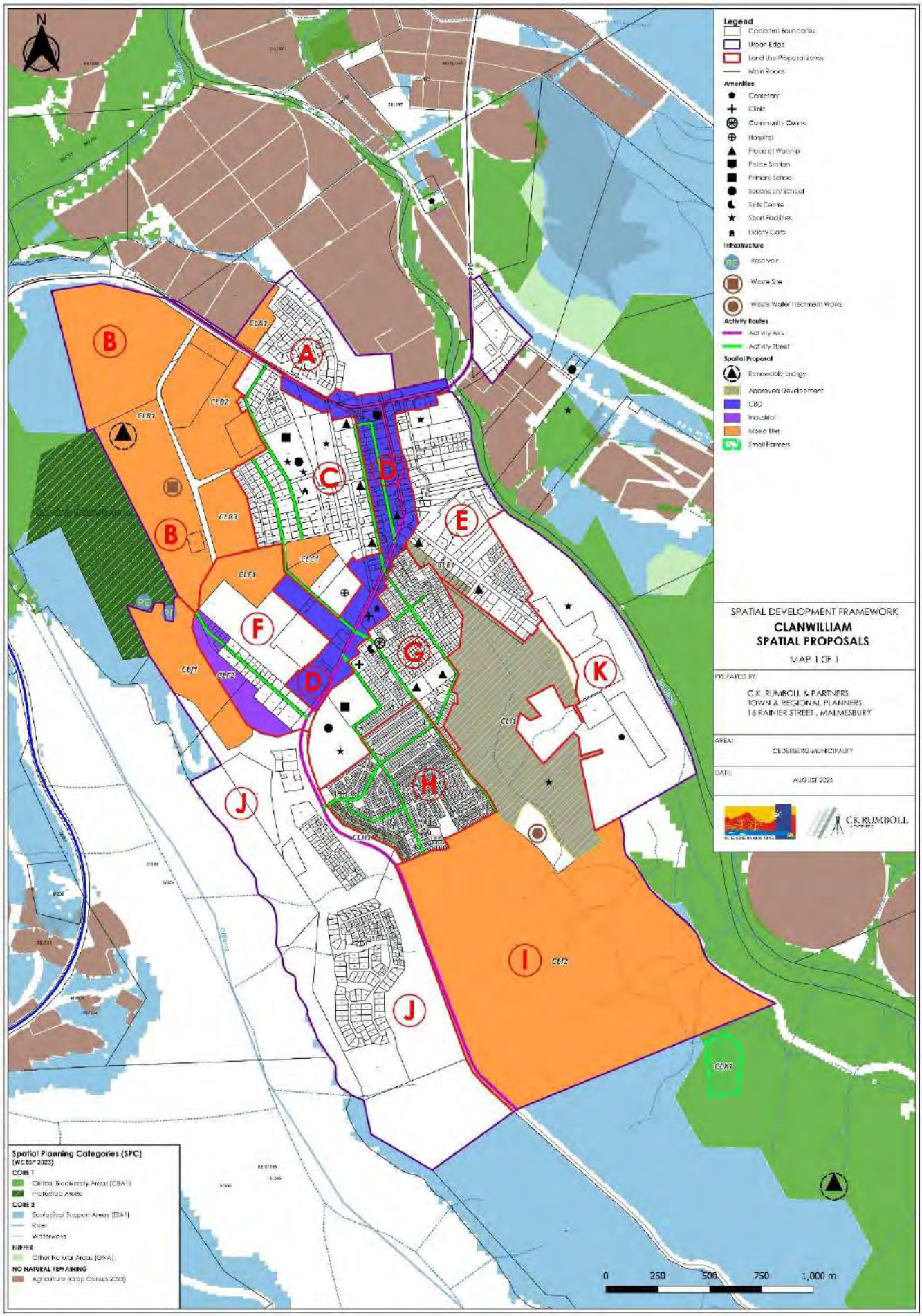
		a)	North of Rooibos agri-processing facility in Zone F.
		b)	Southwest of proposed alternative link road in Zone J (road linking DR 2183/ R539 and Graafwater Way).
		c)	Along the southern boundary of Zone C.
		60	Strengthen and support agri-processing and agri-related industries to allow the production of value-added products close to the source of the raw material (both on farm and in settlement).
		61	Enhance access to irrigation water from Clanwilliam Dam for small farmers and community gardeners.
	Land Reform	62	Promote Land Reform in area identified south of Zone I to facilitate small farming and community gardens on municipal commonage.
		63	Expand central industrial area north wards and introduce industrial activities along Jan Dissels around the showgrounds.

5.3.3.2 Coded Proposals

Table 92: Map coded proposals

Code	Zone	Proposal	Detail	Gross Area
CLA1	A	Mixed Use	Promote mixed-use development including residential, institutional and commercial uses.	2,55
CLB1	B	Mixed Use	Promote mixed-use development including residential, institutional, commercial, industrial and authority use.	56,03
CLB2	B	Mixed Use	Promote mixed-use development including residential, institutional and commercial uses.	22,59
CLB3	B	Mixed Use	Promote mixed-use development including residential, institutional and commercial uses.	7,74
CLC1	C	Mixed Use	Promote mixed-use development including residential, institutional and commercial uses.	4,21
CLE1	E	Approved Development	Support the existing approved development.	1,75
CLF1	F	Mixed Use	Promote mixed-use development including industrial and commercial uses.	7,44
CLF2	F	Industrial	Encourage the development of industrial uses.	7,67
CLH1	H	Approved Development	Support the existing approved residential development.	2,52
CLI1	I	Approved Development	Support the existing approved residential development.	48,44
CLI2	I	Mixed Use	Promote mixed-use development including residential, institutional, commercial and industrial uses.	142,98
CLX1	X	Small Farmers	Support the formalisation small scale/subsistence farming activity	

Map 34: Clanwilliam mapped proposals



5.3.4 Development Zones and Proposals for Clanwilliam

The table in this section describes development zones identified in Clanwilliam and lists development options for each zone. The table must be read in conjunction with Development Zone plans for Clanwilliam.

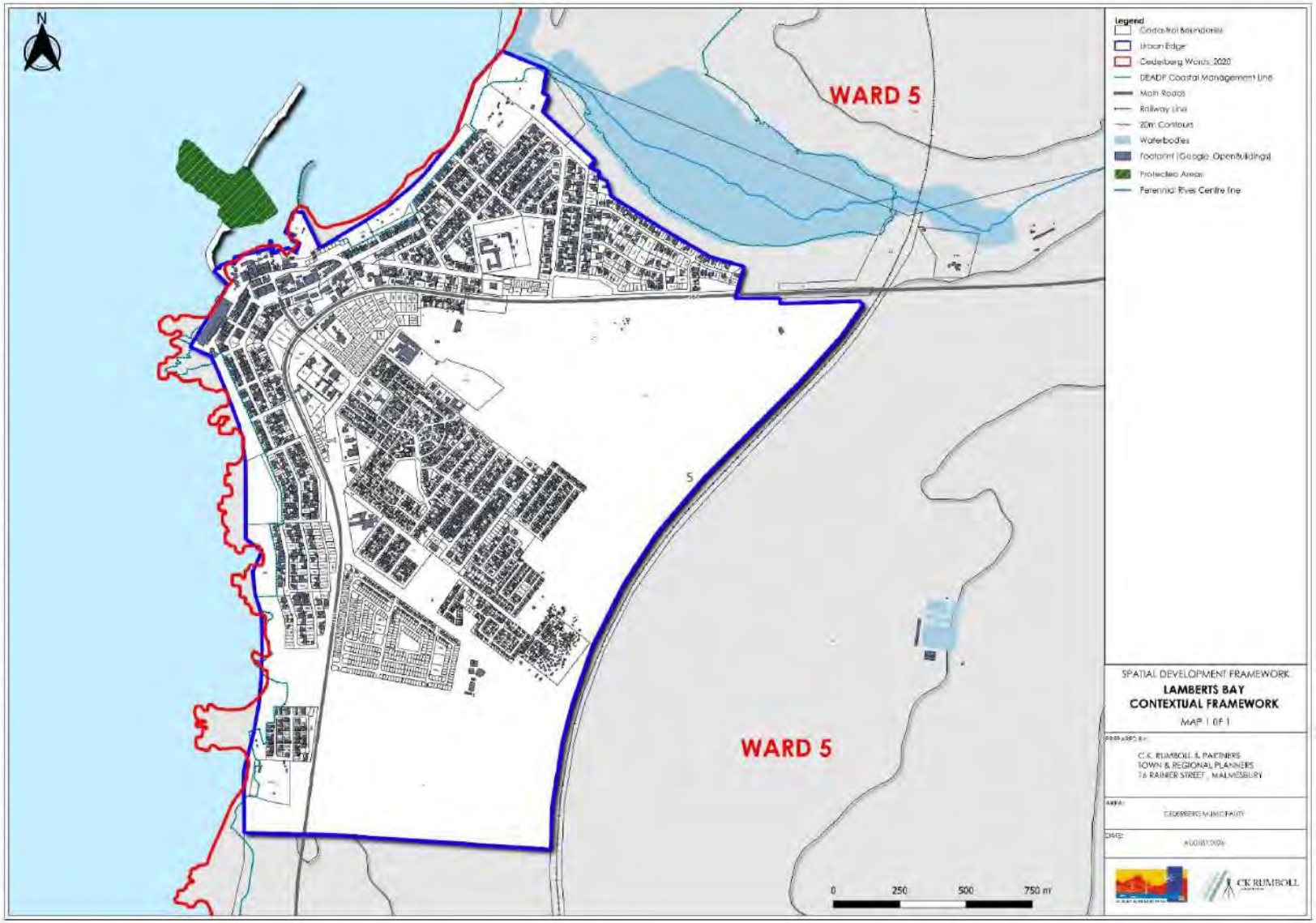
Table 93: Land use zone proposals

CLANWILLIAM LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Zone A, a low-density residential area, accommodates limited, supporting commercial uses along Graafwater Way.	X	X	X, 1	X	X		X, 3, 4	X	X	X	X		X
B	Zone B provides opportunities for urban expansion, including recreational, residential and mixed uses. The proposed link road between Graafwater Way and DR 2183/ R539 and the proposed link with Hospital Road are located within Zone B.	X	X	X	X	X	X	X	X	X	X	X	X	X
C	Zone C, a low-density residential area with relevant supporting social services, and institutional uses. Vacant land adjacent to Hospital provides for institutional expansion.	X	X	X,1	X	X		X, 3, 4	X	X	X	X	X, 4	X
D	Zone D includes the Central Business District. Strengthening the area as the business core of the town. Allow for various mixed uses in the area which include residential, commercial and light industries.	X	X	X	X	X	X	X	X	X	X	X	X	X
E	Zone E includes large residential erven along Jan Dissels River and Park Street. Park Street is a tourism and heritage street with strong focus on accommodation. This zone further includes historic furrows. Development to be sensitive to Heritage resources and furrows within this zone.	X	X	X	X	X		X, 4, 6	X	X	X	X		X
F	Zone F represents the industrial precinct with expansion proposed to the northern side.			X, 1	X	X	X	X	X	X	X	X	X	X
G	Zone G contains a historic high density residential area with supporting educational and institutional uses, identified as a heritage precinct, and has potential for tourism development. Small secondary business nodes are proposed adjacent Bloekom Avenue and Denne Street.	X	X	X, 1	X	X		X, 2, 3	X	X	X	X		X
H	Zone H, a high-density residential area with relevant supporting social services and a small secondary business node.	X	X	X 1	X	X		X, 2, 3	X	X	X	X		X

I	Zone I is earmarked for proposed mixed use development with supporting institutional and commercial uses such as a correctional services facility (juvenile detention centre) and a cemetery site the zone is also home to the Khayelitsha informal settlement. Infill medium density residential expansion is proposed along the DR 2183/ R539, with cemetery site. Allow for expansion of the cemetery site. This Zone also includes a secondary business node along Park Street and development should be sensitive to furrows within this zone.	X	X	X	X	X	X	X	X	X	X	X	X	X
J	Zone J, a low-density residential area along Clanwilliam Dam and Ramskop Conservation Area. Expansion of resort and residential opportunities along the Dam. Nodal points for resort and tourism development are proposed south of the urban edge, along Olifants River.	X	X	X	X	X		X	X	X	X	X		X
K	Zone K consists of Clanwilliam Cemetery East, Golf Club and rural residential areas.	X, 5		X, 5	X							X		X
L	Zone L consists of the Augsburg agricultural school and training centre and farm.													
(1) Flats along activity streets and at nodes (2) At existing nodes (3) Along activity streets (4) At identified Mixed Use Precincts (5) Secondary to Institution (6) Along Park Street		Business Uses i.e. shop, supermarket and service station. Educational Uses i.e. Schools, places of instruction, crèches/day care and after-care. Professional Services i.e. Doctors, dentists, architects. Secondary Business Uses I.e. Allows for neighbourhood business e.g. Café, house shops, small shops and offices and home occupation. House taverns only to be allowed along activity streets in residential areas.												

5.4 Lambertbaai – Ward 5

Map 35: Lambertsbaai map



5.4.1 Situational Analysis

5.4.1.1 Settlement History

Established on the farm Otterdam, Lamberts Bay originally developed as an agricultural export node, utilizing its natural harbour to transport wheat under landowner Joseph Carl Stephan. Named after British Royal Navy Admiral Lambert, the bay served as a naval anchorage during the Anglo-Boer War (1900–1902). The town's industrial foundation was formally laid in 1918 with the opening of its first crayfish factory, establishing commercial fishing and marine processing as core economic anchors.

5.4.1.2 Sub-Regional Location

Situated along the Atlantic West Coast approximately 290 km north of Cape Town and 62 km west of Clanwilliam, Lamberts Bay serves as a key coastal node within the sub-region.

5.4.1.3 Settlement Role and Function

Lamberts Bay has transitioned from a traditional fishing village into a dual-engine economy driven by tourism and agro-processing. Former fish processing facilities have been adapted for processing and exporting Sandveld agricultural produce. The town's tourism sector relies on coastal amenities—such as municipal caravan parks and a golf course—and ecological assets like Bird Island, a prominent seabird colony sustained by the Benguela Current. Urban form and growth are dictated by coastal setback lines around its historic rocky promontory harbour, while terrestrial development is bounded by the Sishen rail corridor, which acts as a buffer against adjacent terrestrial Critical Biodiversity Areas (CBAs). To the north, the Jakkalsvlei River represents a key Aquatic CBA requiring conservation oversight.

5.4.1.4 Settlement Character and Layout Pattern

Lamberts Bay's urban fabric transitions from an historic, coast-aligned grid seaward of the R365 to curvilinear suburban networks inland. Burrell Street provides direct connectivity across the R365 into the CBD's two primary public squares, with commercial activity concentrated along Church Street and industrial uses anchored at the harbour. Density patterns shift from low-density residential coastal strips in the north and south to a high-density, single-storey residential precinct in the east, with mixed densities in the core. While extensive modern renovations and utilitarian designs have diminished much of the town's Cape Dutch Revival built heritage, local functional integration remains intact: most residential areas directly adjoin the CBD, and the isolated eastern precinct is self-serviced by local schools, churches, sports fields, and neighbourhood shops.

5.4.2 Settlement Services and Infrastructure Analysis

Table 94: Infrastructure analysis

Utility	Capacity
Water	Inadequate bulk water supply (boreholes) and borehole balancing dam capacity. Desalination plant built but not in operation.
Waste Water	Sewerage works upgraded but reticulation pipe capacity is inadequate. Connect unconnected precincts to new sewer works.
Bulk Electricity and Reticulation	Electricity supply of 2.7MVA is insufficient.
Roads	R364 and 365 connects. R365 and run parallel to the coastline through Lamberts Bay.
Rail	Sishen-Saldanha railway runs east of Lamberts Bay.

5.4.3 Settlement Proposals

5.4.3.1 Non-Coded Proposals

Table 95: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Elements	Nr	Proposal
	Roads	1	Promote links to N7, Clanwilliam and Graafwater.
		2	Promote connectivity to West Coast and Northern Cape.
	Activity Corridors and Streets: Van Zyl, Ferreira and Lizzy Brett Burrel, Church and Main Street, Corporation, Voortrekker and Strand.	3	Encourage landscaping along activity streets. Sensitively and naturally landscape gateways to announce settlement entrances.
		4	Enhance commercial activities located along activity corridors.
		5	Maintain main roads. Improve and formalize access to the beach.
	Rail:		None
	Pedestrian/ Cycle routes:	6	Develop a pedestrian and cycling link along coast.

Table 96: Utilities proposals

Objective 2: Proximate convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand	7	Identify sites and provide adequate land for future bulk infrastructure expansion.
	Water	8	Use and connect newly built desalination plant.
		9	Upgrade borehole reservoir to 3ML.
		10	Provide for upgrading of pump station, as standby pump and reservoirs at Wadrif are constantly used. (Future use of borehole is dependent on court decision) (Requires R3.5million, 2017).
	Waste Water		None
	Bulk Electricity and Reticulation	11	Upgrade electricity capacity from 2.7MVA to 3.5MVA (as part of proposed housing development).
	Roads and Storm water	12	Maintain gravel roads.
	Waste	13	Maintain weekly removal of domestic waste. Provide for, manage and maintain transfer station to transfer waste to the proposed regional waste site at Vredendal.
		14	Rehabilitate and manage waste site according to national norms. Rehabilitate and rejuvenate industrial area northeast of Lamberts Bay, outside urban edge, at eastern entrance, east of railway bridge.
	Safety and Risk Management Services	15	Maintain and integrate Police Station.
		16	Implement river maintenance and upgrade programme to promote open space system.
		17	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Table 97: Built-environment proposals

	Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity		
	Element	No.	Proposals
SPACE, BUILT	Heritage and Tourism	18	Enhance Settlement Pattern informed by historic pattern.
		19	Maintain overall mass and scale: New, similar use, building should blend into existing mass and scale.
		20	Promote setting of the town within scenic coastal landscapes in and surrounding Lamberts Bay.
		21	Sensitively and naturally landscape gateways to announce settlement entrances. Encourage landscaping along activity streets, whilst maintain the esthetical value of this coastal town and surrounding scenic landscapes.
	Residential	22	Proposed expansion of low density and some higher density residential uses in Zone B, on northern urban edge near mouth of the Jakkals River.
		23	Proposed infill development for mixed density residential uses in Zone E, west of the Main Road and south of Malkop Bay.
		24	Infill opportunities on existing large and vacant residential erven with higher density residential infill development closer to the Central Business District (CBD) including flats, group housing etc.
		25	Potential for GAP housing development in Zone D and E.
		26	Proposed subsidised, residential and FLISP housing in Zone F.
		27	Formalisation of informal settlement in Zone F.
		28	Provide 68.9ha land to accommodate residential growth until 2031 in Lamberts Bay.
	Commercial	29	Support establishment of house shops and informal trading along activity streets and home occupation in residential areas.
		30	Support mixed uses in central business district including residential opportunities.
		31	Strengthen commercial development (including informal markets) within central business district, along activity axis (Zone A).
		32	Development of a neighbourhood business node in Zone C.
	Industrial	33	Provide for Lamberts Bay harbour as special economic zone proclamation.
		34	Proposed industrial development around the desalination plant in Zone F.
		35	Proposed industrial development in Zone D.
		36	Rejuvenate central business district.
		37	Rehabilitate and rejuvenate industrial and amenity (waste site) area northeast of Lamberts Bay, outside urban edge, at eastern entrance, east of railway bridge.
		37	Enhance development and take up of land, identified outside eastern boundary, to facilitate small farmers and community gardens on commonage.
		38	Drive inclusive economic development. (The harbour area of Lamberts Bay was identified as a Phakisa project, to enhance the ocean economy and revitalise the small harbour and harbour infrastructure, but the future of the project is unsure).

Table 98: Institutional proposals

Objective 3: Sustain material, physical and social wellbeing.			
PUBLIC INSTITUTIONS	Element	No.	Proposals
	Social Infrastructure and Services	39	Identify sites and maintain adequate social infrastructure to create safe living environments.
		40	Locate community facilities in a central area within walking distance.
		41	Align provision of social infrastructure to CSIR norms.
		42	Promote multi-functional recreational areas (e.g. children's play parks, day camping and picnic facilities) close to sport facilities.
		43	Allow for adequate expansion of cemeteries.
		44	Provide for expansion of sports field: to the south where residential infill development is proposed in Zone F. Upgrade and maintain existing sport fields.
		45	Maintain and promote the existing caravan park in Zone E, south of Malkop Bay and west of the coastal road to Cape Town (R365) as well as the caravan park at the northern boundary of Zone A, south of the Jakkals River.

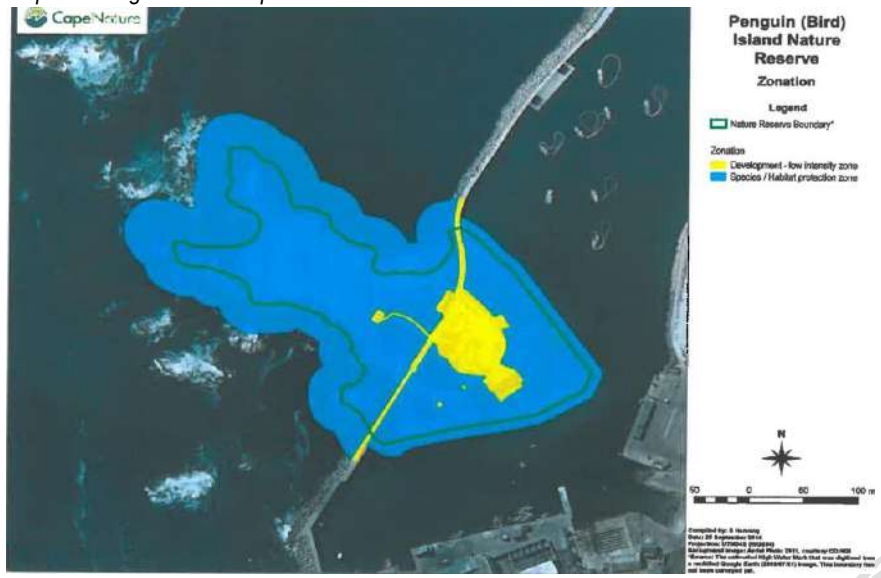
Table 99: Biophysical proposals

	Objective 5: Protect ecological and agricultural integrity		
SPACE, NATURAL	Element	No.	Proposals
	Natural and Conservation	46	Protect scenic routes and vistas, landscape of agricultural fields, beaches, dunes and natural coastal veld.
		47	Protect all CBA areas as per Lamberts Bay CBA and ESA map.
	Waterways	48	Limit urban development and intense agriculture within 32 meters of the Jakkals Riverbank.
		49	Improve visual character of higher density residential and, in particular, subsidised housing developments, through developing functional open space areas and systems:
		a)	Support interactive development along open spaces, where developments face the open space networks.
		b)	Create and protect open space areas inside and adjacent to urban areas (allow for movement between habitat areas).
		c)	Maintain setback lines along river systems (limit potential impacts and improve safety).
		d)	Develop hiking trails, mountain bike trails along open space network and introduce alternative uses i.e. event facilities and venues that can double up as recreational facilities.
		e)	Greening of main activity routes.
	Public and Private Open Space	50	Provide for expansion of existing cemeteries in Zone D.

5.4.3.2 Bird Island

The island is a protected area and, only the area where infrastructure is established, is earmarked for development within the context of protected area (See map below). Proposals for the expansion of the Penguin (Bird) Island and Elands Bay State Forest, Protected Areas, aligned with Section 17 of the National Environmental Management: Protected Areas Act (NEM: PAA), is illustrated on the map included.

Map 36: Penguin zone map of Island Nature reserve



Map 37: Zone map of penguin nature reserve

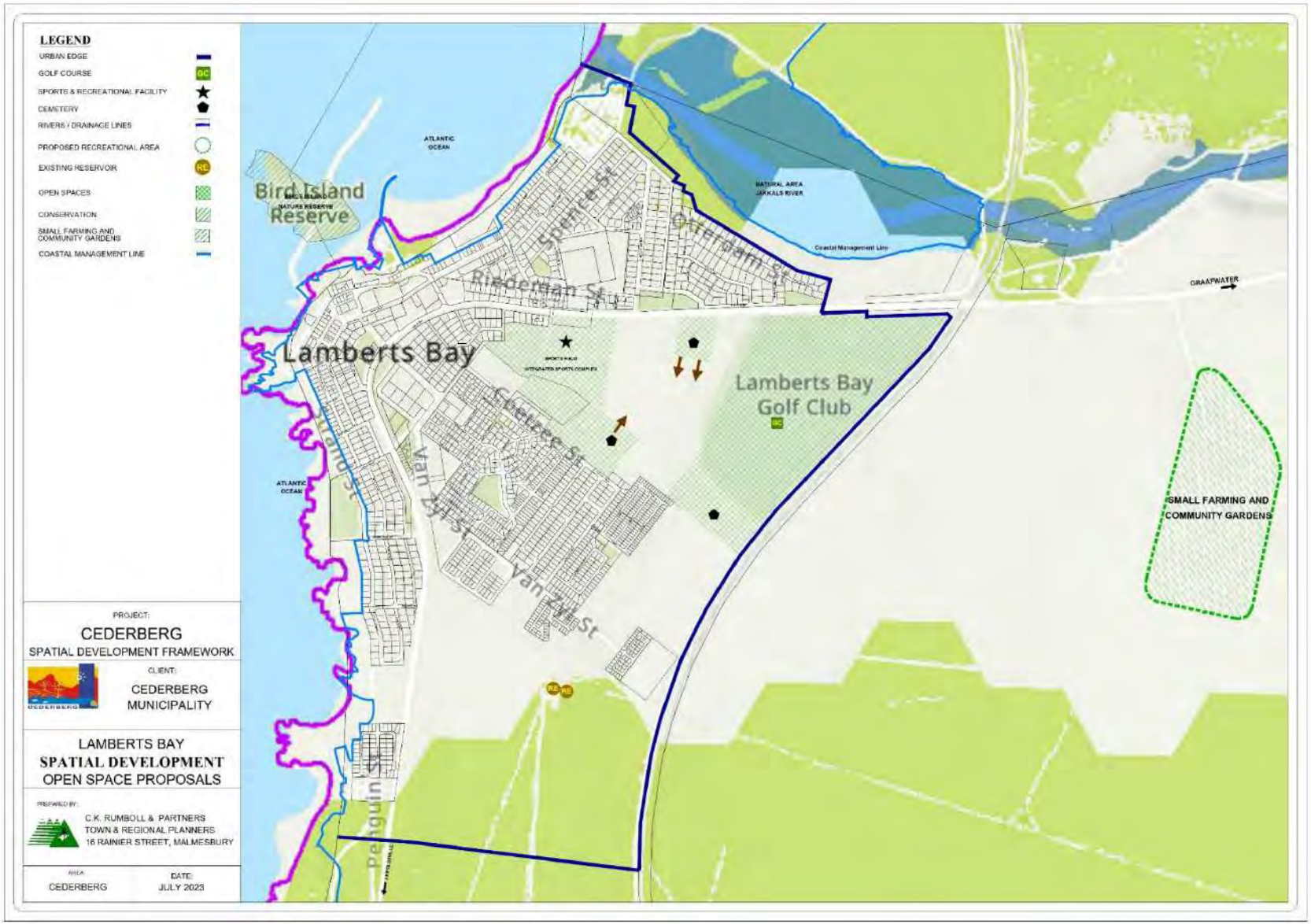


5.4.3.3 Proposals

Protect and preserve sensitive habitats and enhance ecosystems services: Bird Island and Elands Bay State Forest (SS15).

- Ensure biodiversity conservation management through monitoring and research, with an emphasis on the Cape gannet.
- Promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast Region.
- Achieve management excellence through cooperative governance, informed decision making and effective systems in accordance with relevant legislation, policies and procedures.
- Establish and maintain partnerships which support the conservation of Penguin (Bird) Island Nature Reserve.
- EBSF: Conserve the unique West Coast dune habitat.

Map 38: Lamberts Bay open space zone and penguin island



5.4.4 Development Zones and Proposals for Lambertsbaai

Table 100: Land use zones proposals

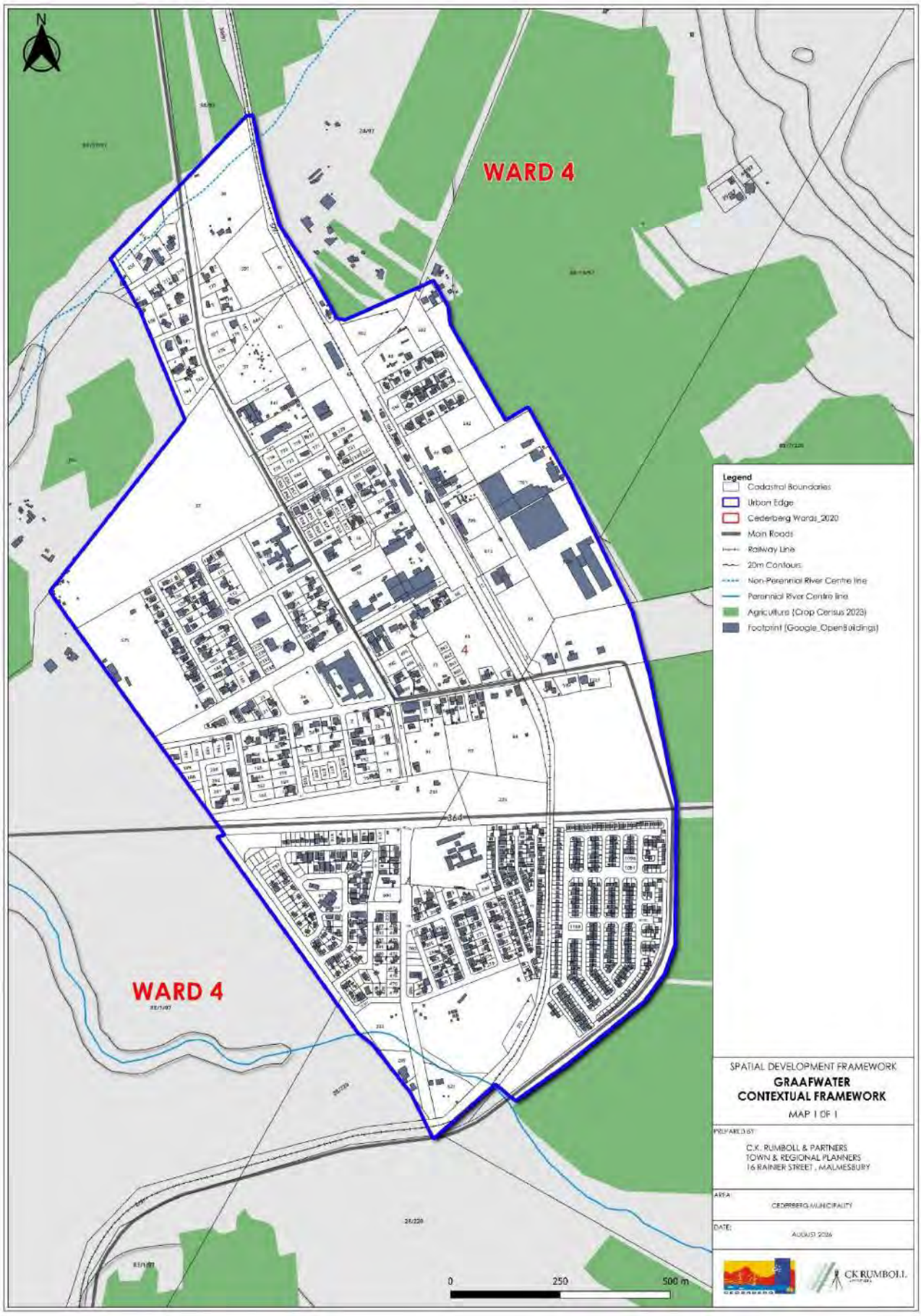
LAMBERTS BAY LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Consists of the CBD, harbour and light industrial uses. Contains medium to high residential erven.		X	X, 1	X	X	X	X	X	X	X	X		X
B	Zone B is a low to medium density residential area with relevant supporting institutional services. This zone provides for residential infill, tourism development as well as residential accommodation.	X	X	X, 1	X	X		X, 3, 4	X	X	X	X		X
C	Zone C is a mixed density residential area, including business nodes, mixed use precinct and relevant supporting institutional services.	X	X	X, 1	X	X	X, 2	X, 3, 4	X	X	X	X	X, 4	X
D	Zone D is an industrial /mixed use precinct including. the golf course and provides for recreation activities. Recreational facilities provide for cemetery expansion. Support proposed linkages between Main Road and Zones C + F /Coetzee Street	X	X	X	X	X	X	X	X	X	X	X	X, 4	X
E	Zone E is a medium and low-density residential area along the coast. This zone provides opportunities for residential infill and resort development.	X	X	X, 1	X	X		X, 3	X	X	X	X		X
F	Zone F is a proposed high density residential area, providing infill residential and industrial development opportunities, with proposed mixed use development nodes.	X	X	X	X	X	X, 4	X, 3, 4	X	X	X	X	X, 2, 4	X
(1) Flats along activity streets and at nodes (2) At existing nodes (3) Along activity streets (4) At identified Mixed Use Precincts		Business Uses i.e. shop, supermarket and service station. Educational Uses i.e. Schools, places of instruction, crèches/day care and aftercare. Professional Services i.e. Doctors, dentists, architects. Secondary Business Uses I.e. Allows for neighbourhood business e.g. Café, house shops, small shop and offices and home occupation. House taverns only to be allowed along activity streets in residential areas.												

Map 39: Lambertsbaai mapped proposals



5.5 Graafwater – Ward 3

Map 40: Graafwater map



5.5.1 Situational Analysis

5.5.1.1 Settlement History

Graafwater ("digging for water") was established as a Dutch Reformed Church parish settlement in the Sandveld following the 1910 completion of the Cape Town–Bitterfontein railway line. The settlement's spatial form was anchored by rail infrastructure and agricultural silos, which formed the focal point of local economic life. As a result, the majority of the town's historic, civic, and commercial buildings remain consolidated along this original linear rail siding corridor.

5.5.1.2 Sub-Regional Location

Situated in the Sandveld approximately 34 km west of Clanwilliam and 30.6 km east of Lamberts Bay, Graafwater serves as a key sub-regional transit node. The settlement is bisected by the R364 (Main Road 55), establishing an east-west movement corridor, while a north-south railway line provides regional rail connectivity. The surrounding terrain is characterized by relatively flat topography, offering few natural physical barriers to development.

5.5.1.3 Settlement Role and Function

Graafwater serves as a primary agricultural service and distribution centre within the Sandveld region. The settlement's economic function is centred on providing essential commercial, technical, and logistical support services to the surrounding farming community, whose primary agricultural outputs include rooibos tea, potatoes, and livestock (mutton).

5.5.1.4 Settlement Character and Layout Pattern

Graafwater features a traditional grid layout of rectangular blocks with localized subdivision, bisected by the R364 regional road into northern and southern sectors. The southern precinct transitions into a modern curvilinear network of small (~300 m²) residential erven, while large tracts of vacant land traversed by bulk services offer clear infill capacity. Business, civic, and educational facilities are concentrated along two primary activity corridors: Van der Stel Street and Stasie Street. The town's-built form comprises a low-density, predominantly single-storey mix of mid-20th-century and historic structures. This is visually contrasted along the railway siding by large-scale, high-mass agri-industrial buildings and silos that anchor the town's industrial identity.

5.5.2 Settlement Services and Infrastructure Analysis

Table 101: Infrastructure analysis

Utility	Capacity
Water	1ML reservoir storage capacity insufficient (2017), and storage capacity of 5ML reservoir was built (R5.4million, 2017).
Waste Water	Oxidation ponds were extended and reticulation system, pump station and feeding lines too (R23.4 million, 2017).
Bulk Electricity and Reticulation	0.75MVA supply is insufficient

5.5.3 Settlement Proposals

5.5.3.1 Non-Coded Proposals

Table 102: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Elements	Nr	Proposal
	Activity Streets	1	Promote Van der Stel, Stasie (east) and Lamberts Bay Street, Lambrechts Crescent. Ceder (north), Keurtjie, September Street, within new subsidised development, and intersections between these roads as activity streets
		2	Enhance commercial activities and intensification along two main activity corridors and roads parallel thereto: Ceder and Stasie streets.
		3	Encourage landscaping along activity streets.
	Pedestrian/ Cycle routes	4	Promote speed calming measures such as paving Van der Stel and Cedar Streets with a different surface to slow down traffic on R364 intersection as surface warns approaching cars to slow down.
		5	Formalize pedestrian route from Zone D to Zone C along southern side of R364.
		6	Classify R364 section through Graafwater as "sub-urban environment" (according to RDE). Develop pedestrian crossings for easy movement between north and south.

Table 103: Utilities proposals

Objective 2: Proximate convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand	7	Identify sites and provide adequate land for future bulk infrastructure expansion.
	Water	8	Protect adequate bulk water supply, Reduce bulk water demand.
		9	Address potential impacts of climate change.
	Waste Water	10	Finalise upgrading of reticulation system, pump station and feeding lines.
	Bulk Electricity and Reticulation	11	Manage adequate street lightning.
		12	Upgrade electricity supply to 1MVA. (Part of Phase 1 subsidized housing project) (2017).
	Roads and stormwater network	13	Maintain gravel roads and improve storm water reuse.
	Waste	14	Provide for weekly domestic waste removal and management of transfer stations.
	Safety and Risk Management Services	15	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy and address potential impacts of climate change.

Table 104: Built-environment proposals

	Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity		
	Element	No.	Proposals
SPACE, BUILT	Heritage and Tourism	16	Protect Place Identity: Residential.
		17	Protect Lamberts Bay Road with its surrounding area as a heritage resource in Zone A.
		18	Protect graded cultural and heritage resources (buildings, spaces and features): Control alterations and demolitions of buildings older than 60 years where appropriate.
		19	Beautify main access points to Graafwater.
		20	Enhance Settlement Pattern:
		A	Maintain overall mass and scale.
		B	Promote setting of the town within the natural landscape of the Sandveld plains, rooibos tea and spring flowers.
		C	Acknowledge heritage resources' significance and need for protection.
		21	Maintain and enhance tourism assets to attract passing visitors.
		A	Develop a tourism node at the southern boundary of Zone A i.e. a farm stall along the R364 (TR55/1/30).
		B	Support tourism related uses to diversify the economy.
	Residential		Protect built and urban form
			Expansion and infill development opportunities for residential uses exist in Zone A, B and C: Promote higher densities, particularly in Graafwater north whilst being sensitive to existing urban form and design. (Zone A, east of the Van der Stel Street (DR2193), on Erf 37, north of Erasmus van Zyl Street; on southern boundary of Zone A and B, north of the R364 (TR55/1/30); on existing large and vacant residential erven, with higher density residential infill development, closer to central business district e.g. group housing.
			Enhance functionality and create linkages between various precincts.
			Register farm workers and special beneficiaries on housing waiting list.
			Provide 39.66ha land in Graafwater, to accommodate potential residential growth until 2031.
			Strengthen growth potential and tourism opportunities along main traffic routes passing through the settlement should be supported to attract tourists.
	Commercial: Economic Base		Support central business district including house shops and informal markets along Cedar Road, an activity street, in southern settlement precinct, in Zone C.
			Strengthening of commercial development within central business district along activity axis (Zone A and B).
			Support a CBD in Zone D, along the identified activity street.
			Strengthen agri processing and agri-industries, featuring export products: Rooibos tea and potatoes.
			Potential for a mixed-use precinct, along the activity street in Zone B, with light/service industries, commercial and wholesale uses.
			Provide services to the seasonal workers from surroundings.
			Renew central business district.
			Establish small farmers, on land identified south of the R364 and west of Zone C, to facilitate small farming and community gardens on municipal commonage.
	Industrial		Expansion of the industrial development on a portion of Erf 37, west of Van der Stel Street, in Zone A.

			Expansion potential for industrial uses on the eastern boundary, in Zone B.

Table 105: Institutional proposals

Objective 3: Sustain material, physical and social wellbeing			
PUBLIC INSTITUTIONS	Element	No.	Proposals
	Social Infrastructure and Services		Protect and provide adequate social infrastructure and sites for future infrastructure to create safe living environments: sport facilities and well-known education facilities. Align provision of social infrastructure to norms.
			Promote multi-functional recreational areas (e.g. children's play parks, day camping and picnic facilities) close to sport facilities.
			Upgrade and maintain two existing sport facilities.
			Provide for long-term expansion of the cemetery.

Table 106: Biophysical proposals

Objective 5: Protect ecological and agricultural integrity			
SPACE, NATURAL	Element	No.	Proposals
	Natural and Conservation		Protect scenic routes, vistas and agricultural landscape.
			Protect critically endangered and endangered geophytes and other endemic plants, especially where new extensions are proposed.
			Protect all critical biodiversity areas as per the Graafwater CBA and ESA map.
	Waterways		Limit urban development and intensive agriculture within 32 meters of Peddies and Jakkals Riverbanks: Maintain setback lines along river systems.
			Improve visual character of higher density residential and, in particular, subsidised housing developments, through planting of trees along streets and developing functional open space areas.
			Support interactive development along open spaces, with developments and residences facing the open space networks.
			Create and protect open space areas inside and adjacent to urban areas (allow for movement between habitat areas).
			Develop hiking trails, mountain bike trails and alternative uses for event facilities and venues.
			Promote greening of main activity routes.
			Provide street furniture and landscape in the central town.
			Sensitively and naturally landscape gateways to announce settlement entrances. Encourage landscaping along activity streets.
			Expansion of cemetery, east of Van der Stel Street, in Zone A.

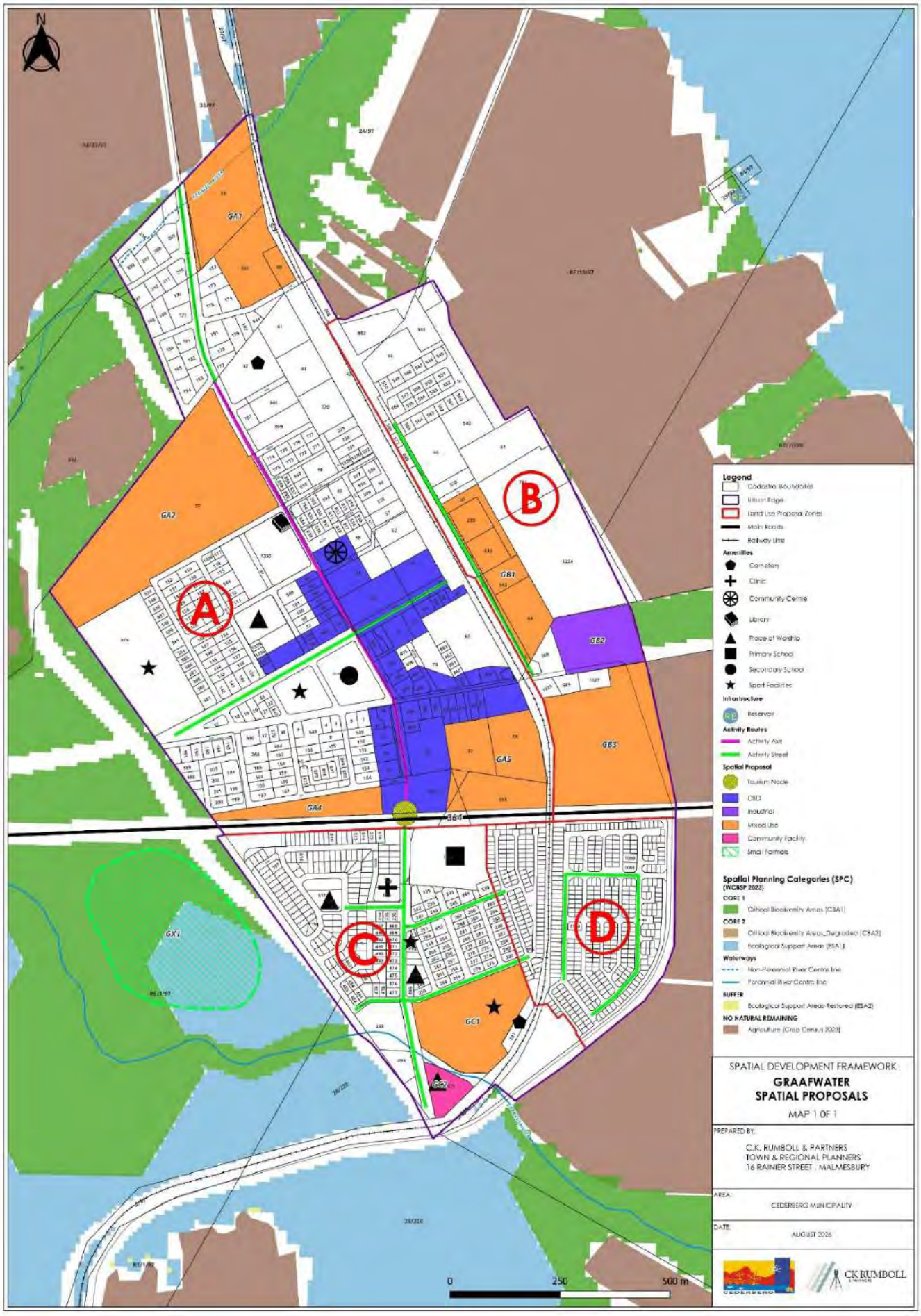
5.5.4 Development Zones and Proposals for Graafwater

The table in this section describes development zones identified in Graafwater and lists development options for each zone. The table has to be read in conjunction with Development Zone plans for Graafwater.

Table 107: Land use zones proposals

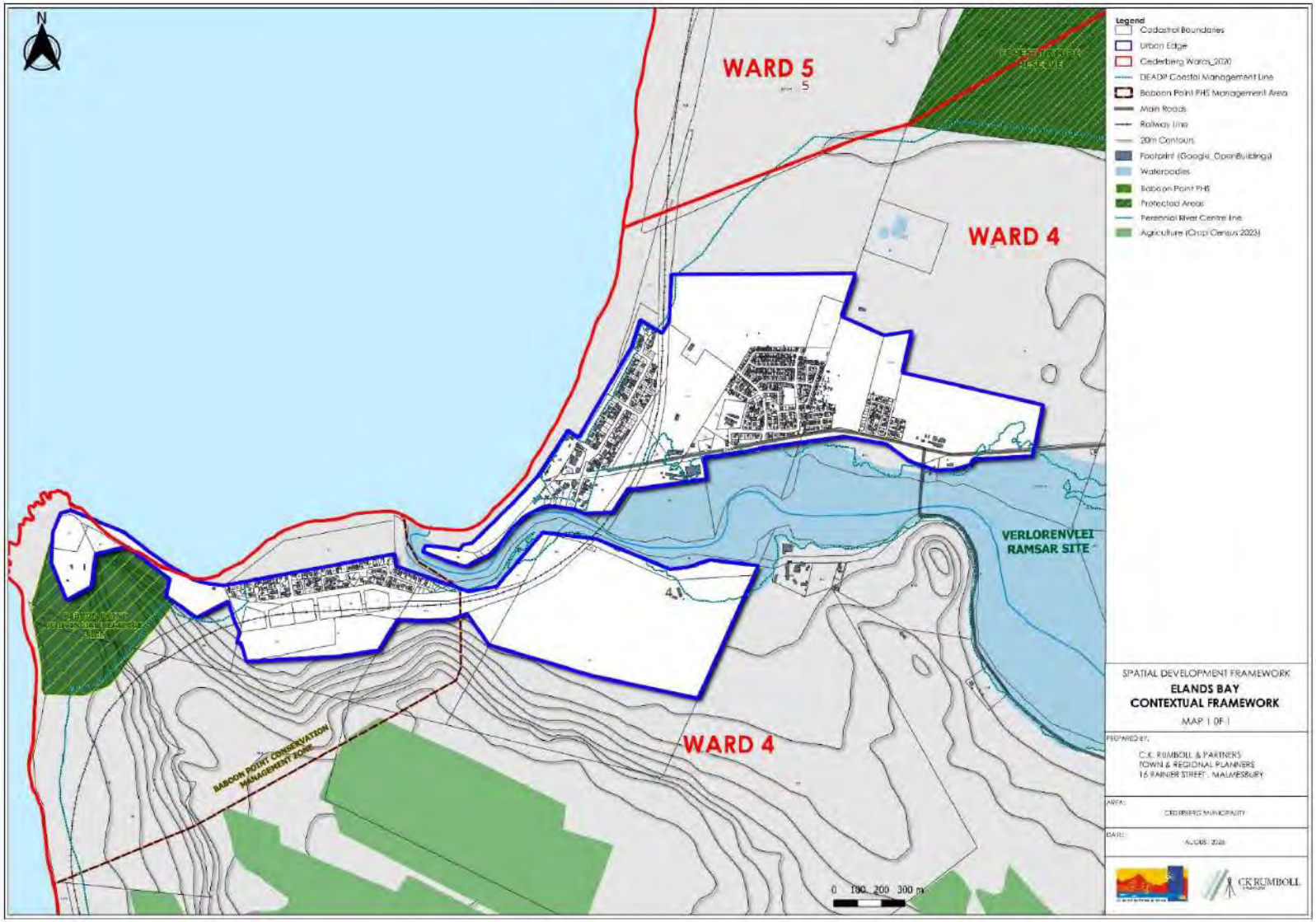
GRAAFWATER LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade &	Institution
A	Graafwater North, a mixed-use area, mixed density residential areas, the CBD, supporting social services and light industrial uses. Zone A provides infill opportunities for residential & industrial development and cemetery expansion.	X	X	X, 1	X	X	X, 2, 3	X, 3	X	X	X	X	X, 4	X
B	Zone B contains an Industrial precinct to the east of the railway line with a small residential component. The area allows for industrial expansion and mixed-use development.	X	X	X, 1	X	X	X, 3, 4	X, 3, 4	X	X	X	X	X	X
C	Zone C is a medium to low density residential area with supporting social and institutional services. Opportunities for limited infill residential development and limited commercial uses at existing secondary business node.	X	X	X, 1	X	X	X, 2	X, 2, 3	X	X	X	X		X
D	Zone D is a high-density residential area with a secondary business node.		X	X	X	X	X, 2	X, 2, 3	X	X	X	X		X
(1) Flats along activity streets and at nodes (2) At existing nodes (3) Along activity streets (4) At identified Mixed Use Precincts		Business Uses i.e. shop, supermarket and service station. Educational Uses i.e. Schools, places of instruction, crèches/day care, and aftercare. Professional Services i.e. Doctors, dentists, architects. Secondary Business Uses I.e. Allows for neighbourhood business e.g. Café, house shops, small shop & offices and home occupation. House taverns only to be allowed along activity streets in residential areas.												

Map 41: Graafwater mapped proposals



5.6 Elands Bay – Ward 4

Map 42: Elands Bay map



5.6.1 Situational Analysis

5.6.1.1 Settlement History

Elands Bay evolved from a traditional fishing village into a key coastal tourism node anchored by exceptional natural and cultural assets. Its deepest history centres on Baboon Point—a protected provincial heritage site containing rock art, shell middens, and archaeological deposits that trace pre-colonial San and Khoekhoe occupation and marine resource utilization. Mid-20th-century history is marked by World War II radar defences established along the promontory. Today, its coastal position and direct proximity to the Verlorenvlei estuarine system offer strong potential for eco-tourism, heritage preservation, and low-impact residential expansion.

5.6.1.2 Sub-Regional Location

Elands Bay is a coastal town situated at the estuary mouth where the Verlorenvlei River enters the sea. The settlement occupies a key sub-regional position with direct access to inland freight corridors via the R366 (connecting to Piketberg and the N7) and a secondary link to the R365. Strategic coastal mobility is provided by the R27 connecting southwards to Velddrif, while an unpaved coastal road extends northwards to Lamberts Bay.

5.6.1.3 Settlement Role and Function

CoElands Bay serves as a low-order coastal service centre providing basic retail and daily amenities to its local community. The town's primary economic base is driven by commercial fishing and Sandveld potato agriculture, with large-scale industrial processing facilities establishing a prominent visual anchor in its urban profile. Concurrently, Elands Bay functions as a major coastal and eco-tourism node, renowned globally as a premier surfing destination and destination for nature-based outdoor recreation.

5.6.1.4 Settlement Character and Layout Pattern

Elands Bay exhibits a distinct spatial density pattern, transitioning from high-density residential developments in the northeast to low-density coastal plots in the west, while keeping development around the Verlorenvlei estuary strictly constrained. The town's-built form features a notable concentration of double-storey structures relative to other Cederberg settlements, though its overall architectural composition remains eclectic and visually decoupled from the natural landscape. Functionally, while most residential areas adjoin the central core—where the CBD, police station, library, and campsite are consolidated—the western subsidized housing neighbourhood is spatially separated, though it is locally serviced by its own educational, religious, and sports facilities.

5.6.2 Settlement Services and Infrastructure Analysis

Table 108: Infrastructure analysis

Utility	Capacity
Water	Adequate bulk water supply, two boreholes. Water reticulation network has some spare capacity, as diameter of pipe is sufficient.
Waste Water	Sewerage treatment works is inadequate (lacks capacity), and the reticulation system is limited.
Bulk Electricity and Reticulation	Sufficient electrical capacity (1MVA substation, only 400KVA are used) and reticulation. Can accommodate waiting list.

5.6.3 Settlement Proposals

5.6.3.1 Non-Coded Proposals

Table 109: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
	Element	No.	Proposals
CONNECTIVITY	Activity Corridors and Streets		Sensitively and naturally landscape gateways to announce settlement entrances. Encourage landscaping (tree lanes) along activity streets.
			Enhance industrial activity along Hunter Street.
			Promote upgrade of R540 to harbour and provide, mitigate and formalize parking for vehicles including boat trailers. Note that according to the Baboon Point Conservation Plan, areas 1, 11, 12 and 13 earmarked for conservation overlap with proposed parking.
	Harbour/ Launching area		Promote upgrading of slipway and alternative uses in structures Elands Bay harbour.
			Promote improvement of passage to the sea via a slipway, for boat launching, north of Zone E.
	Pedestrian/ Cycle routes		Develop a pedestrian and cycling link between the northeastern and southwestern part of the settlement: along and across the Verlorenvlei River aligned with the EMPr.

Table 110: Utilities proposals

Objective 2: Proximate, convenient and equal access			
	Element	No.	Proposals
PUBLIC UTILITIES	Future Demand		Identify sites and provide adequate land for future bulk infrastructure expansion.
			Improve telecommunications network.
	Water		Promote and support sustainable use of resources – e.g. water harvesting.
			Provide for additional water storage capacity of 1ML required (R5 million required, 2017).
	Waste Water		Provide for the general overload of the wastewater system during the holiday season in summer. Decrease household reliance on conservancy tanks. Promote alternative sewerage management and reuse of treated water.
			Provide for upgrading of reticulation network and pump station, requires R15 million (2017).
	Bulk Electricity and Reticulation		Promote and support sustainable use of resources – e.g. alternative energy.
	Roads and Storm water		Maintain gravel roads.
			Maintain weekly domestic waste removal. Manage transfer stations.
			Rehabilitate and manage waste site according to national norms.
	Safety and Risk		Implement river maintenance and upgrade programme.
	Management Services		Caution development along the coast and around wetlands, given the risk of flooding, inundation, erosion and severe storms.

Table 111: Built-environment proposals

Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity			
	Element	No.	Proposals
SPACE, BUILT	Heritage and Tourism	18	Promote and Support Baboon Point Conservation Management Plan.
		a)	Maintain historical fishing industry and WWII infrastructure
		b)	Development in Zone E to protect heritage resources (SS11) and grow cultural potential: Baboon Point (SS12) (See section Baboon Point at the end of Elands Bay proposals)
		19	Promote and Support Verlorenvlei Environmental Management Plan and prohibit development in sensitive area particularly south of the "vlei".
		20	Protect Verlorenvlei Heritage Settlement, Portions 18 – 36 of Farm Verlorenvlei No 8, A Grade 2 Heritage Site and a Provincial Heritage Site of architectural and cultural significance.
		21	Promote information about and connection with heritage assets and maintain and enhance tourism assets.
		22	Promote roadside and building signage to be sensitive to character of landscape and buildings.
		23	Protect cultural, heritage and landscape resources including graded buildings, spaces and features. Control alterations and demolition of buildings older than 60 years.
		24	Enhance settlement pattern informed by coastal geometry, a 2km long beach and estuary flood lines.
		25	Enhance settlement Development Potential: Promote settlement setting within natural landscape i.e. coast and Verlorenvlei. Promote landscape features of Cederberg as tourism attraction. Market area as a hotspot to view the scenic and archaeological landscapes: Verlorenvlei, Bobbejaanspunt (Baboon Point) and Elands Bay. Acknowledge heritage resources' significance and need for protection. Maintain and enhance the caravan park on the beach to be a sought-after destination (Zone A).
	Residential	26	Expand residential development: - To facilitate subsidised housing in Zone C, north of sport field and east of cemetery. - To eastern boundary of Zone E, north of railway line. Mitigate interface of proposed residential development with existing areas and areas on the urban edge.
		27	Infill opportunities on existing large and vacant residential erven, with higher density residential infill development closer to the Central Business District (CBD), including flats, group housing etc.
		28	Enhance Development Potential and particular of heritage and natural resources and capitalize on residential, tourism, agriculture and fishery use: • Promote residential expansion and infill development opportunities, • Tourism opportunities, along main road through and along settlement, • Tourism related uses in and around settlement (diversify economy): - Create a tourism/ recreational node on the beach front to provide ablution and parking facilities for surfers and day visitors. - Tourism node outside urban edge seaside of Zone D (consider coastal management line). Promote old school site, southeast of Verlorenvlei River, along the Redelinghuys link road, as tourism facility.

		29	Provide a 34.6ha additional land required for future residential growth in Elands Bay, until 2031.
	Commercial	30	Support mixed uses in central business district, including residential opportunities.
		31	Support establishment of house shops and informal trading along activity streets and home occupation in residential areas.
		32	Develop a neighbourhood business node in high density residential area, in Zone B, that will accommodate informal market trading.
		33	Renew central business district, strengthen existing uses and formalization of town square in Zone A, especially at the market and restaurant area on the square along Dune Street.
		34	Promote upgrading of slipway and potential for alternative uses in degraded factories at Elands Bay Harbour.
		35	Provide for future development including potential industrial and institutional development, north of the fish market in Zone B, where mixed use precinct is proposed. (Light/Service Industries, Commercial and Wholesale uses).
		36	Establish a development node at the town entrance along R366, around the fish market.
		37	Develop alternative land, identified for small farmers and community gardens, north of Zone B.

Table 112: Institutional proposals

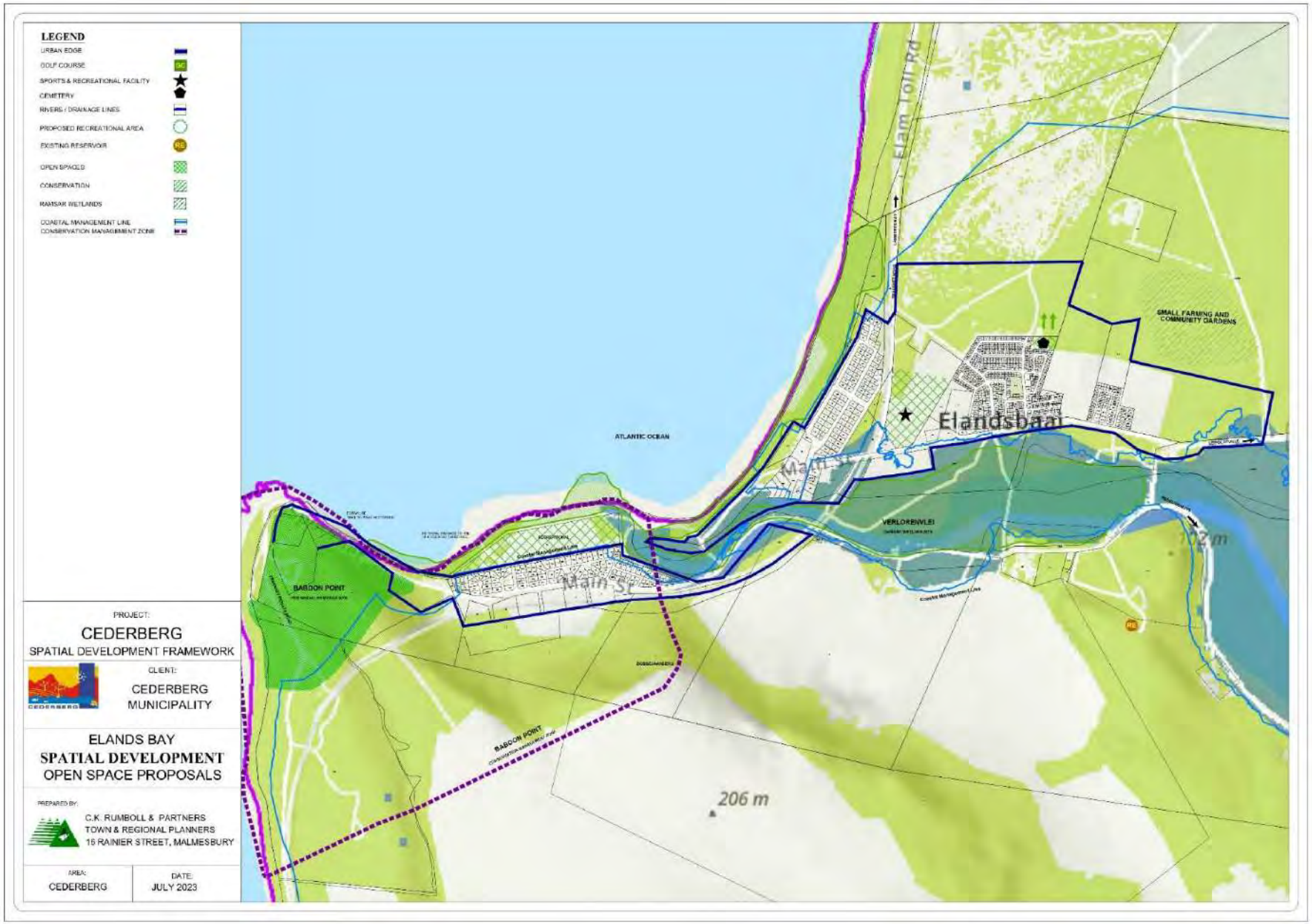
Objective 3: Sustain material, physical and social wellbeing			
	Element	No.	Proposals
PUBLIC INSTITUTIONS	Social Infrastructure and Services	38	Identify sites and maintain adequate infrastructure to create safe living environments.
		39	Locate community facilities within walking distance and align the provision of social infrastructure to CSIR norms.
		40	Promote multi-functional use and provide functional and safe recreational areas (e.g. children's' play parks, day camping and picnic facilities) close to sport facilities.
		41	Allow for adequate expansion of cemeteries.
		42	Upgrade and maintain the existing two sport facilities.
		43	Enlarge preschool and crèche.

Table 113: Biophysical proposals

Objective 5: Protect ecological and agricultural integrity			
	Element	No.	Proposals
SPACE, NATURAL	Natural and Conservation	44	Protect all CBA areas as per Elands Bay CBA and ESA map.
		45	Promulgate Baboon Point and Verlorenvlei as Heritage zones (as per NHRA 99 requirements). Investigate opportunities for supportive uses within the protected area.
	Waterways	46	Support interactive development along waterways serving as open spaces where developments face the open space networks.
		47	Apply flood line (1: 50 years) on the northern bank of the Verlorenvlei River to determine limited development potential of the land. Restrict development South of Road towards Verlorenvlei except for identified land.
		48	Create and protect open space areas inside and adjacent to urban area (allow for movement between habitat areas).
		49	Maintain setback lines along river systems (limit potential impacts and improve safety).

		50	Continued protection of the Verlorenvlei River area, which is identified as a RAMSAR wetland site.
	Public and Private Open Space	51	Upgrade and maintain existing cemeteries.
		52	Beautify main access points to Elands Bay to protect and maintain the esthetical value of the town and surrounding scenic landscapes.
		53	Improve visual character of higher density residential areas, and subsidised housing developments, through greening of streets and developing functional open space areas.
		54	Promote greening main activity routes.
		55	Develop pedestrian and cycling routes along the beach front and along the Verlorenvlei River.
		56	Development of an active open space system including walking trails along the Verlorenvlei River and the beach.
		57	Develop hiking trails, mountain bike trails and alternative uses for event facilities and venues.

Map 43: Elands Bay map



5.6.3.2 Coded Proposals

Table 114: Coded proposals

Code	Zone	Proposal	Detail	Gross Area
EBA1	A	Mixed Use	Support mixed use development	1,43
EBC2	C	Mixed Use	Support mixed use development	2,28
EBC1	C	Mixed Use	Support mixed use development	20,35
EBC3	C	Mixed Use	Support mixed use development	26,83
EBA1	A	Mixed Use	Support mixed use development	1,31
EBX1	Out	Open Space	Maintain as open space.	8,51
EBE1	E	Mixed Use	Support mixed use development	1,99
EBB1	B	Cemetery Expansion	Support the expansion of the cemetery	2,16

5.6.4 Development Zones and Proposals for Elands Baai

The table in this section describes development zones identified in Elands Bay and lists development options for each zone. The table must be read in conjunction with Development Zone plans for Elands Bay.

Table 115: Land use zone proposals

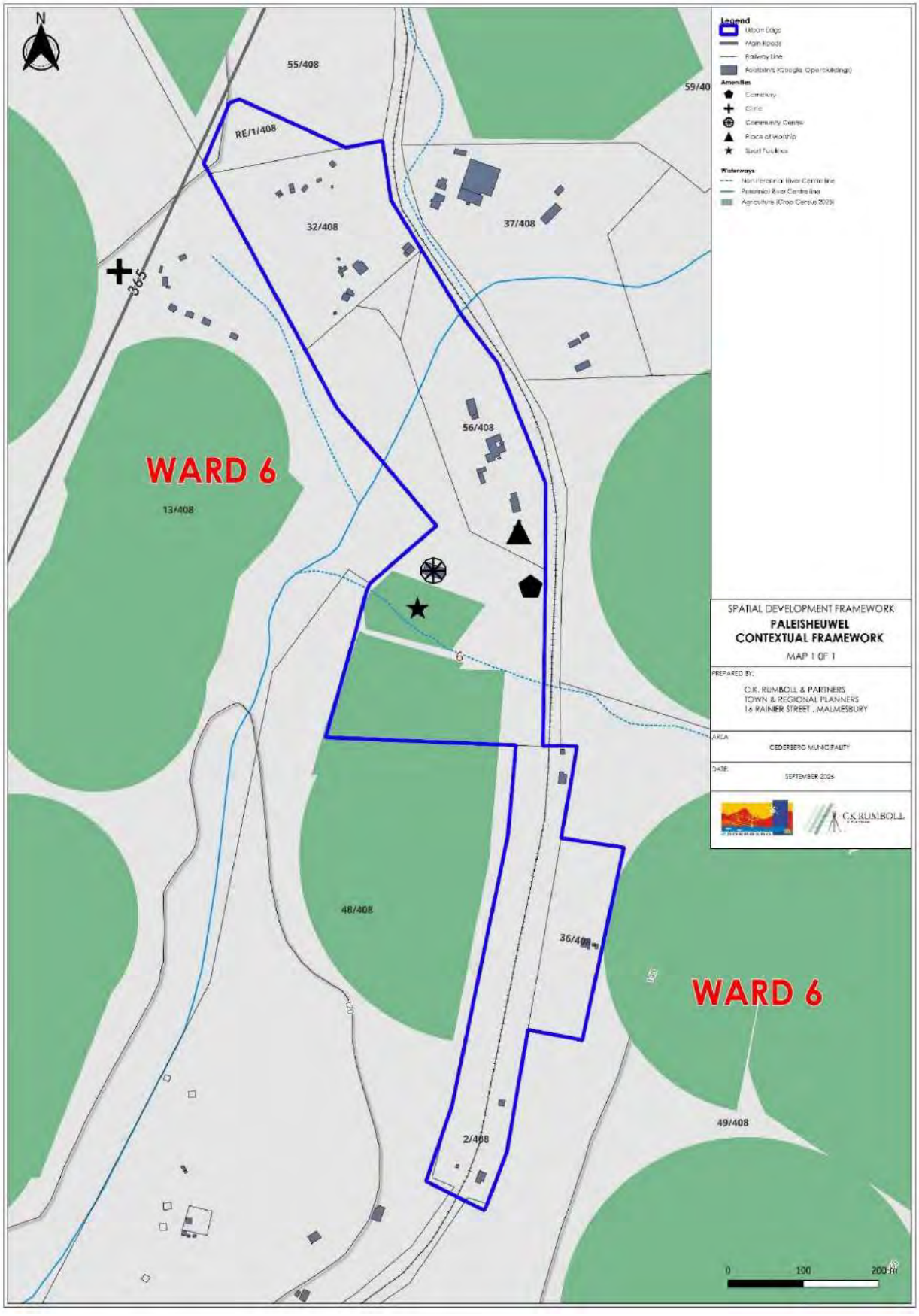
ELANDS BAY LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Residential area and CBD with tourism and recreational uses along the beachfront. Allow for accommodation opportunities.	X	X	X, 1, 2	X	X	X, 2	X, 2, 3	X	X	X	X	X, 4	X
B	Medium to high density residential area with areas allowing expansion. Supporting institutional services with potential for a secondary business node along Strand Street. Development to be sensitive to Verlorenvlei.		X	X, 1	X	X	X, 2	X, 2, 3	X	X	X	X		X
C	Mixed use area allowing for limited mixed uses along the southern side of Main Road. Development to be sensitive to Verlorenvlei. Allow for expansion and for development of a mixed-use Precinct surrounding the Fish market. Proposed development node adjacent the R366 and road to Redelinghuys intersection.	X	X	X	X	X	X	X	X	X	X	X	X	X
D	Low density residential area on beachfront. Allow for limited infill residential development and support accommodation opportunities.	X	X		X	X			X	X	X	X		X
E	Area surrounding Elands Bay harbour and Baboon Point. Development to be sensitive to the environment and provincial heritage site.	X	X	X	X	X		X, 3	X	X	X	X	X, 4, 5	X
F	Zone F, Area south of Verlorenvlei Ramsar Site. For future urban expansion.													
(1) Flats along activity streets and at nodes (2) At existing nodes (3) Along activity streets (4) At identified Mixed Use Precincts (5) To be sensitive to heritage site		Business Uses i.e. shop, supermarket and service station. Educational Uses i.e. Schools, places of instruction, crèches/day care and aftercare. Professional Services i.e. Doctors, dentists, architects. Secondary Business Uses I.e. Allows for neighbourhood business e.g. Café, house shops, small shop and offices and home occupation. House taverns only to be allowed along activity streets in residential areas.												

Map 44: Elands Bay mapped proposals



5.7 Paleisheuwel – Ward 4

Map 45: Paleisheuwel map



5.7.1 Situational Analysis

5.7.1.1 Settlement History

Paleisheuwel has developed as a small rural hamlet associated with the surrounding intensive agricultural area and the historical railway connection to Bitterfontein. The settlement is characterised by a limited number of dwellings and a rural service function linked primarily to the surrounding farming community.

5.7.1.2 Sub-Regional Location

Paleisheuwel is accessed from the R365 (Main Road 538) between Piketberg and Leipoldtville. The R365 forms the western boundary of the village, while the railway line to Bitterfontein is located to the east. The railway crosses the R365 and the Bergvallei River shortly after the railway siding.

5.7.1.3 Settlement Role and Function

Paleisheuwel functions as a small rural settlement supporting residents associated with the surrounding intensive agricultural activities. Its economic base is predominantly residential and dependent on employment and livelihood opportunities on nearby farms. The railway siding historically provided an additional regional connection; however, railway services have since been downsized, and the siding is no longer operational.

5.7.1.4 Settlement Character and Layout Pattern

Paleisheuwel exhibits a linear settlement form, with a small number of single-storey dwellings located predominantly along the railway line. The settlement is low density and has a compact rural character, with the local shop within walking distance of the residential area. More specialised services are accessed in Citrusdal or Piketberg.

The settlement has limited development potential and is primarily suited to residential functions associated with seasonal farm workers. The surrounding agricultural landscape, railway infrastructure and Bergvallei River are important components of its spatial setting. Opportunities identified for the settlement include the establishment of a small agri-village and provision for community gardens, while maintaining and potentially supporting the railway connection.

5.7.2 Settlement Services and Infrastructure Analysis

Table 116: Infrastructure analysis

Utility	Capacity
Water	Sufficient bulk water source and storage capacity.
Waste Water	Wastewater is managed through conservancy tanks.
Bulk Electricity and Reticulation	Eskom provides electricity to Paleisheuwel. Existing electrical supply and reticulation capacity are sufficient.

5.7.3 Settlement Proposals

5.7.3.1 Non-Coded Proposals

Table 117: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Element	No.	Proposals
	Roads	1	Promote connectivity between Sandveld and West Coast.
	Activity Corridors and Streets		None
	Pedestrian/ Cycle routes		None

Table 118: Utilities proposals

Objective 2: Proximate, convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand	2	Identify sites and provide adequate land for future bulk infrastructure expansion.
	Water	3	Reduce bulk water demand.
		4	Upgrade reticulation capacity.
	Roads and Storm water	5	Maintain gravel roads and improve storm water.
	Waste	6	Weekly domestic waste removal.
	Safety and Risk Management Services	7	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Table 119:Built-environment proposals

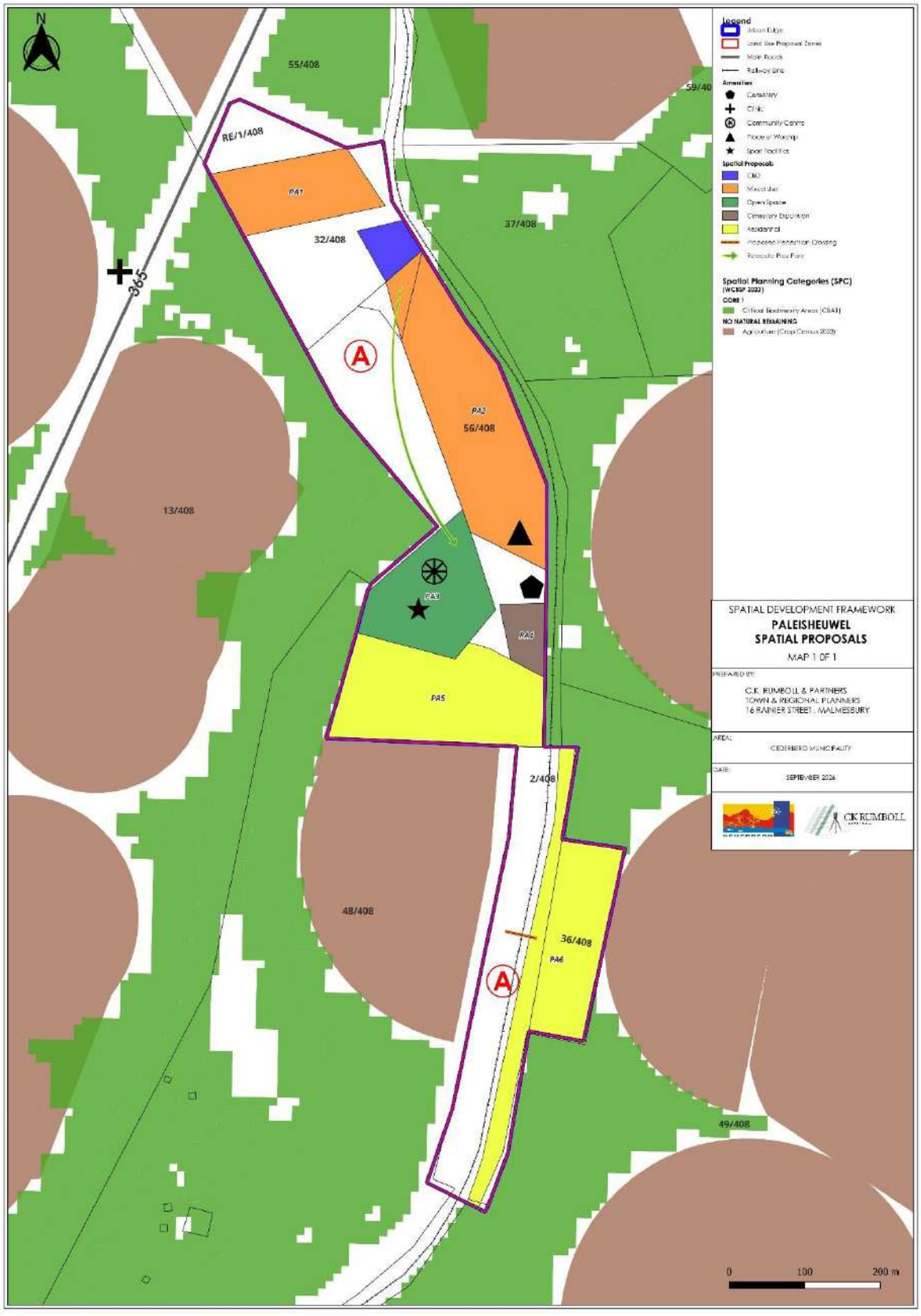
Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity			
SPACE, BUILT	Element	No.	Proposals
	Heritage and Tourism	8	Address loss of and impact on, cultural and heritage resources.
	Residential		None.
	Locational Advantage	9	Promote railway connection.
	Land Reform	10	Develop a small agri-village and provide space for community gardens.

Table 120: Biophysical proposals

Objective 5: Protect ecological and agricultural integrity			
SPACE, NATURAL	Element	No.	Proposals
	Natural and Conservation	11	Plant lanes or clusters of trees.
	Public and Private Open Space	12	Use private cemeteries or cemeteries at Citrusdal.

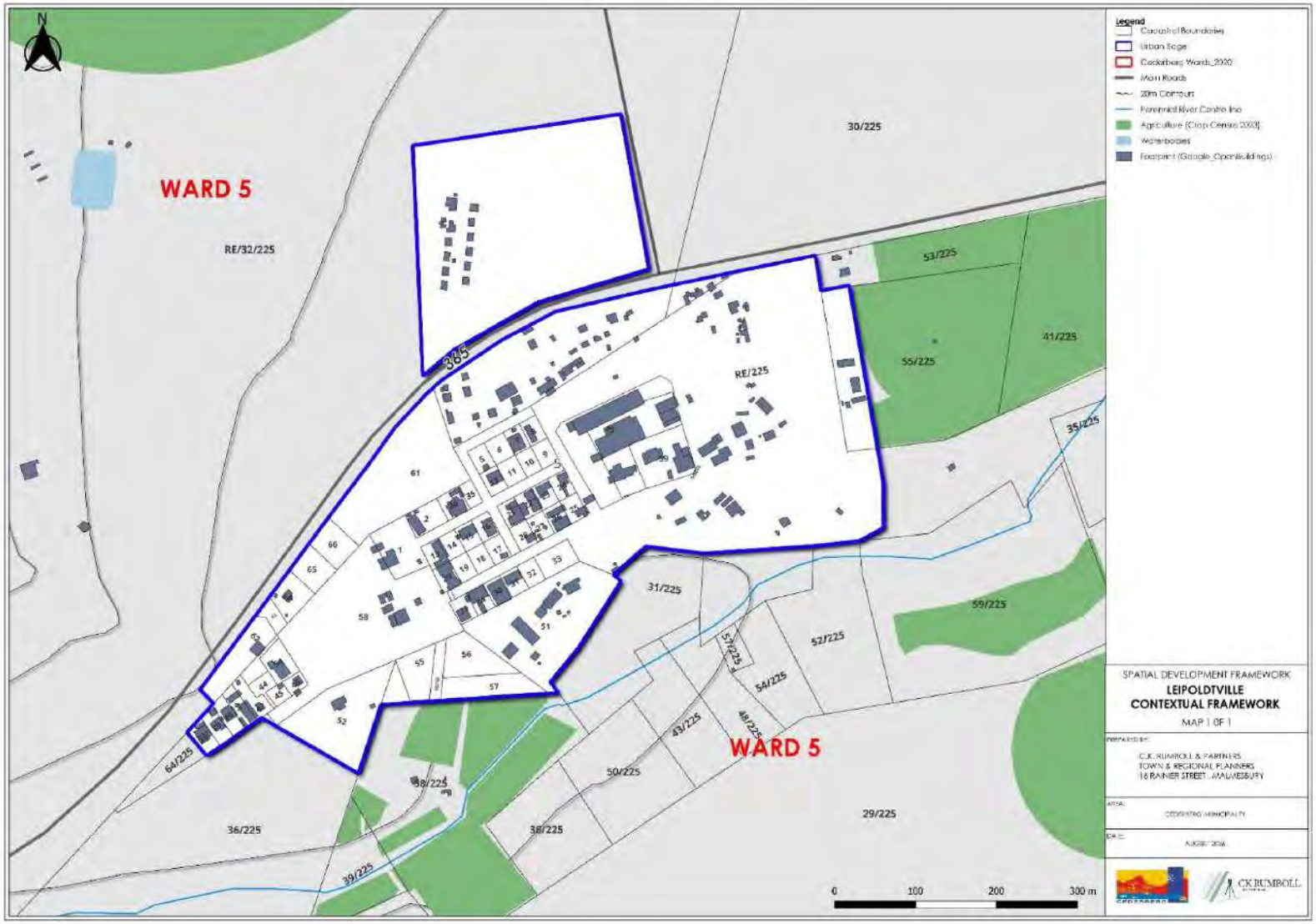
5.7.4 Proposal Map

Map 46: Mapped proposals



5.8 Leipoltville – Ward 5

Map 47: Leipoltville map



5.8.1 Situational Analysis

5.8.1.1 Settlement History

Established by the Dutch Reformed Church, the historic Sandveld village of Leipoldtville was named after Reverend C.F. Leipoldt (father of poet C. Louis Leipoldt). Nestled within a rural basin framed by Spioenkop and the Langvlei Mountains to the north-west, the Bobbejaanfontein Mountains to the south-east, and the Langvlei River to the south, the village retains a distinct rural identity (SPC designation). Spatial directives prioritize conserving graded heritage assets and maintaining strict development controls over alterations or demolitions of structures older than 60 years to safeguard its historic built character.

5.8.1.2 Sub-Regional Location

Leipoldtville is a rural settlement situated within the Sandveld agricultural hinterland, enjoying strategic regional road connectivity. The town is directly accessible via the R365, which forms a key inland-to-coastal link between Paleisheuwel and Lamberts Bay. It is further integrated into the sub-regional transport network via connections to the R364, facilitating movement between Graafwater, Lamberts Bay, and Vredendal.

5.8.1.3 Settlement Role and Function

Leipoldtville operates as an agri-tourism node and rural service centre within the Sandveld. Its primary function is providing basic social, commercial, and agricultural support services to the surrounding rural farming populations of the Langvlei River Valley and the Wadrif ("Soutpad") area.

5.8.1.4 Settlement Character and Layout Pattern

Leipoldtville is a compact, low-density rural settlement whose spatial growth and integration are constrained by the R365 to the north and a natural stream to the south. Commercial and agricultural service functions are concentrated along the main access road off the R365/R364 intersection, which serves as the village's primary activity axis. The built environment is low-rise and single-storey, featuring mid-century and early 20th-century dwellings alongside medium-scale agri-industrial structures, while civic amenities (church, school, cemetery) are centrally located. With a low overall economic growth potential, the hamlet's future development hinges on expanding its agri-tourism profile and addressing mounting residential pressures, particularly housing for seasonal agricultural workers.

5.8.2 Settlement Services and Infrastructure Analysis

Table 121: Infrastructure proposals

Utility	Capacity
Waste Water	No formal sewerage system. Some septic tanks and bucket system being used.
Bulk Electricity and Reticulation	Electricity is provided by Eskom, and there is sufficient electrical and reticulation network capacity.

5.8.3 Settlement Proposals

5.8.3.1 Non-Coded Proposals

Table 122: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Element	No.	Proposals
	Roads		Promote connectivity to West Coast.
	Activity Corridors and Streets		Place new commercial buildings next to main activity corridor and street.
	Pedestrian/ Cycle routes		Promote signage between the connecting roads. Encourage a dedicated lane for cyclists and pedestrians.

Table 123: Utilities proposals

Objective 2: Proximate, convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand		Provide adequate land for future bulk infrastructure expansion: reservoirs, overhead power lines, future roads and a water pipeline.
	Water		Reduce bulk water demand and identify new source as iron content of boreholes is too high.
			Provide for storage capacity to be increased as new 0.5Ml reservoir is required. Reticulation capacity will have to be established.
	Waste Water		Provide waste removal services.
			A bulk sewerage treatment plant is needed, including a pipe network (reticulation capacity). Promote alternative sewerage management technologies.
	Roads and Storm water		Maintain gravel roads.
	Waste		Maintain weekly domestic waste removal and maintain transfer station.
	Safety and Risk Management Services		Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Table 124: Built-environment proposals

Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity			
	Element	No.	Proposals
SPACE, BUILT	Heritage and Tourism		Formalise the establishment of a settlement.
			Protect settlement pattern.
			Develop tourism potential.
	Residential		Promote the variety of development opportunities offered that includes the expansion of residential, tourism and agri-industrial uses.
			The latter land uses should be enhanced along access road into Leipoldtville.
	Land reform		Develop a small agri-village and provide space for community gardens north of Leipoldtville outside urban edge and in LV2, west of eastern entrance.
	Commercial and Industrial		Any proposed development should be consistent with and sympathetic to the rural hamlet character, scale and architecture of the settlement

Table 125: Institutions proposals

Objective 3: Sustain material, physical and social wellbeing			
	Element	No.	Proposals
PUBLIC INSTITUTION	Social Infrastructure and Services		Upgrade and maintain existing facilities.

Table 126: Biophysical proposals

Objective 5: Protect ecological and agricultural integrity			
	Element	No.	Proposals
SPACE, NATURAL	Natural and Conservation		Protect all CBA areas as per Leipoldtville CBA and ESA map.
			Sensitively and naturally landscape gateways to announce settlement entrances.
	Public and Private Open Space		Provide for expansion of the existing cemetery.

Map 48: Leipoltville map

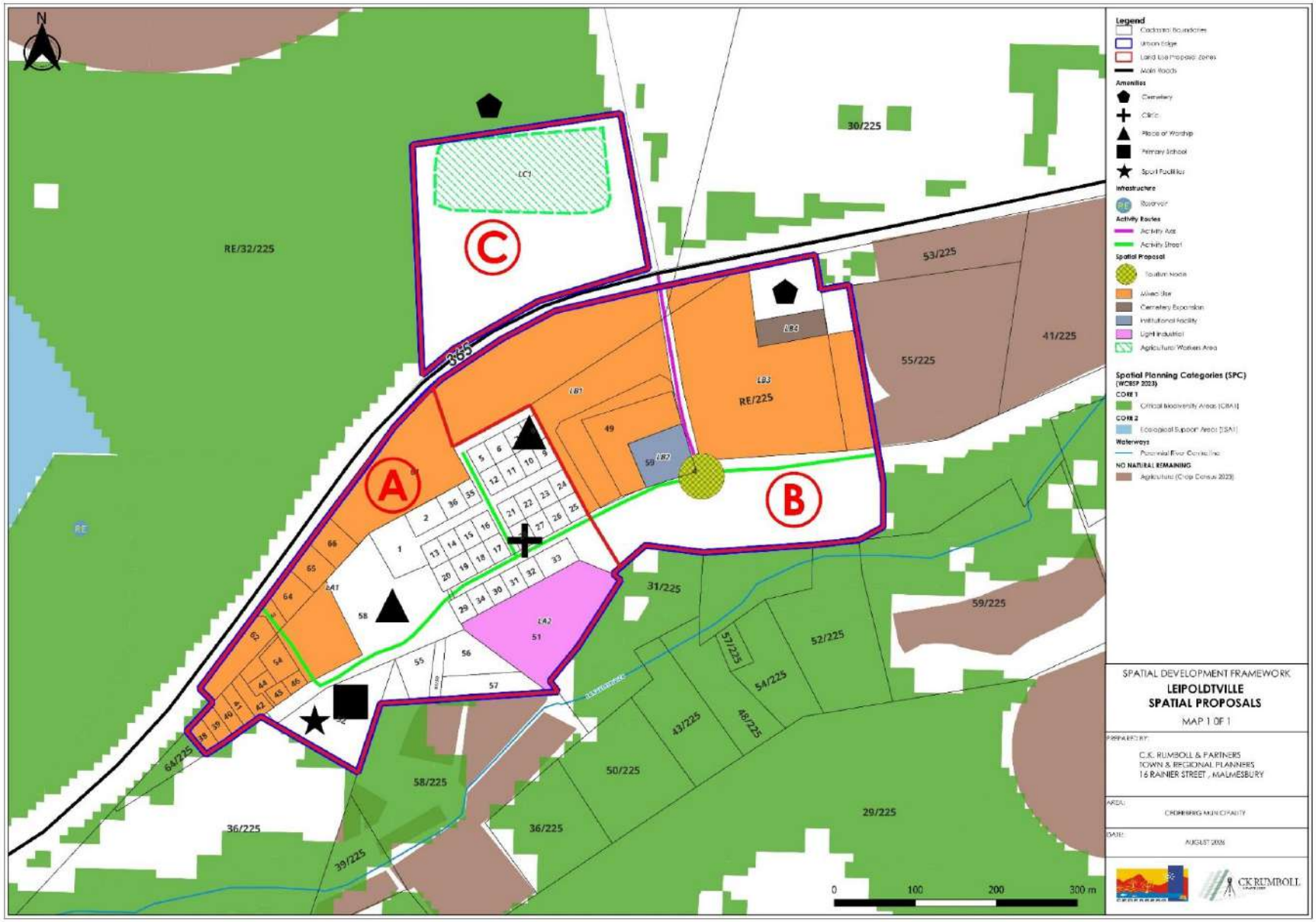


5.8.3.2 Coded Proposals

Table 127: Coded proposals

Code	Zone	Proposal	Detail	Gross Area
LA1	A	Mixed Use	Support mixed use development	4,02
LA2	A	Light Industrial	Support light industry	1,49
LB1	B	Mixed Use	Support mixed-use development	4,5
LB2	B	Institutional Facility	Promote the development of institution facility	0,41
LB3	B	Mixed Use	Support mixed use development	3,99
LB4	B	Cemetery Expansion	Support the expansion of the cemetery	0,28

Map 49: Leipoltville mapped proposals



5.8.4 Development Zones and Proposals for Leipoldtville

The table in this section describes development zones identified in Leipoldtville and lists development options for each zone. The table must be read in conjunction with Development Zone plans for Leipoldtville.

Table 128: Land use zone proposals

LEIPOLDTVILLE LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
A	Zone A is a mixed-use area, which includes large low density residential erven with supportive institutional services, industrial uses and a secondary business node. Zone A provides for infill opportunities for residential and industrial development as well as mixed use development.	X	X	X3	X	X	X 2 3 4	X 2 3 4	X	X	X	X	X 2	X
B	Zone B has a mixed-use character and includes a cemetery expansion, a secondary business node, as well as tourism nodes with supporting social services.	X	X	X	X	X	X2 3 4	X 3 2 4	X	X	X	X	X 4	X
C	Zone C consists of agricultural or rural residential areas to the north.													
(1) Flats along activity streets and at nodes (2) At existing nodes (3) Along activity streets (4) At identified Mixed Use Precincts		Business Uses i.e. shop, supermarket and service station. Educational Uses i.e. Schools, places of instruction, crèches/day care and after care. Professional Services i.e. Doctors, dentists, architects. Secondary Business Uses I.e. Allows for neighbourhood business e.g. Café, house shops, small shop and offices and home occupation. House taverns only to be allowed along activity streets in residential areas.												

5.9 ALGERIA – WARD 6

Map 50: Algeria



5.9.1 Situational Analysis

5.9.1.1 Settlement History

Algeria has developed as a small rural forestry settlement within the Cederberg mountains. Its present-day character is closely associated with the forestry function of the settlement and its location within a predominantly natural and mountainous landscape.

5.9.1.2 Sub-Regional Location

Algeria is situated within a kloof in the Cederberg mountains and adjacent to a river. The settlement is accessed via Divisional Road 2182 and functions as a gateway to the Cederberg Wilderness Area. Its isolated location and environmental setting strongly influence its spatial structure and development potential.

5.9.1.3 Settlement Role and Function

Algeria functions as a small rural forestry settlement serving the surrounding Cederberg Wilderness Area. It also has an agri-tourism and conservation-tourism role, supported by its scenic mountain setting and proximity to the wilderness area. A camping site is also located in the area.

5.9.1.4 Settlement Character and Layout Pattern

Algeria comprises two rectangular settlement nodes with a partial grid layout, located within walking distance of one another. The settlement has a medium-density character and includes a square block of single residential houses. The built form is predominantly characterised by small, single-storey forestry dwellings.

A sports field and community hall are located within walking distance of the two residential nodes, while other social and institutional services are accessed in Citrusdal or Clanwilliam. The settlement's location within the wilderness area and its forestry function limit opportunities for outward expansion, with future growth primarily intended to accommodate the forestry workforce.

5.9.2 Settlement Services and Infrastructure Analysis

Table 129: Infrastructure analysis

Utility	Capacity
Water	Adequate bulk water sources are available from a spring and borehole. No water purification takes place, as the community prefers untreated water. Existing water storage is to be maintained.
Waste Water	Sewerage capacity is insufficient. The sewerage station sludge pump and treatment works require upgrading, together with pipe capacity to accommodate expansion. Alternative sewerage management technologies should also be considered. The Skilpad Dorp extension is to be connected to the sewerage treatment works.
Bulk Electricity and Reticulation	Eskom provides electricity. Existing supply and reticulation capacity are sufficient.

5.9.3 Settlement Proposals

5.9.3.1 Non-Coded Proposals

Table 130: Connectivity proposals

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access			
CONNECTIVITY	Element	No.	Proposals
	Roads	1	Promote connectivity to the Cederberg.
	Activity Corridors and Streets		None
	Pedestrian/ Cycle routes		None

Table 131: Utilities proposals

Objective 2: Proximate, convenient and equal access			
PUBLIC UTILITIES	Element	No.	Proposals
	Future Demand	2	Identify sites and provide adequate land for future bulk infrastructure renewal.
	Water	3	Reduce bulk water demand.
		4	Address additional borehole capacity requirements.
		5	Maintain water storage.
	Waste Water	6	Upgrade the sewerage station sludge pump.
		7	Upgrade the sewerage treatment works and the pipe capacity to handle expansion. Promote alternative sewerage management technologies.
		8	Connect Skilpad Dorp extension to sewerage treatment works.
	Roads and Stormwater	9	Maintain gravel roads.
	Waste	10	Weekly removal of domestic waste. Manage transfer stations.
		11	Manage transfer stations.
	Safety and Risk Management Services	12	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Table 132: Built-environment proposals

Objectives 1 and 4: Grow economic prosperity and protect and grow place identity and cultural integrity			
SPACE, BUILT	Element	No.	Proposals
	Heritage and Tourism	13	Protect heritage resources and landscapes: The settlement functions as forestry village, amidst the wilderness area, limits its expansion.
	Residential	14	Expand settlement, limited to accommodate the forestry workforce.

Table 133: Institutions proposals

Objective 3: Sustain material, physical and social wellbeing			
PUBLIC INSTITUTION	Element	No.	Proposals
	Social Infrastructure and Services	15	Upgrade (or move) and maintain existing sports field.

Table 134: Biophysical proposals

Objective 5: Protect ecological and agricultural integrity			
SPACE, NATURAL	Element	No.	Proposals
	Natural and Conservation	16	Protect all critical biodiversity areas as per Algeria and Skilpaddorp CBA and ESA map.
	Public and Private Open Space	17	Enlarge the cemetery.

CHAPTER 6: Rural Development Proposals and Management Framework

Cederberg is defined by its landscapes and natural environment, offering a variety of values to its inhabitants. Cederberg is home to seven bio-regions that can be distinguished by the natural environment and economy or value (as per the matrix below). The bio-regions are:

- Coastal
- Lang and Verlorenvlei
- North-West Agriculture
- Oliphants River
- Nardouw Agricultural Area
- Doring River
- Cederberg Wilderness Area

Table 135: Natural landscapes in Cederberg

Value / Landscapes	Wilderness: Coastal and Dunes	Wilderness: Mountains	Waterways and Connections	Connection Routes and	Agricultural Landscape	Social Focus and community	Cultural and historical, and Routes
Express Sense of Place/ Place Making	X	X	X			X	X
Provide ecosystem services	X	X	X				
Counter Climate Change (Conserve natural vegetation and habitat)	X	X					
Tourism attraction (routes & social amenities)	X	X	X		X		X
Economic resource and opportunities				X			X
Access and Mobility (connectors)				X			
Food security					X		
Employment Generation					X		X
Safety and security						X	

Different landscape character types, based on the elevation of the landscape, are identifiable (Norberg-Schulz, 1980):

- Cosmic: does not contain individual places but forms a continuous neutral ground.
- Classic: clearly defined mountains and hills, imaginable spaces such as valleys and basins.
- Romantic: indefinite multitude of different places.

The map and table to follow provide an overview of the five regions:

Map 51: Cederberg Bio-Regions

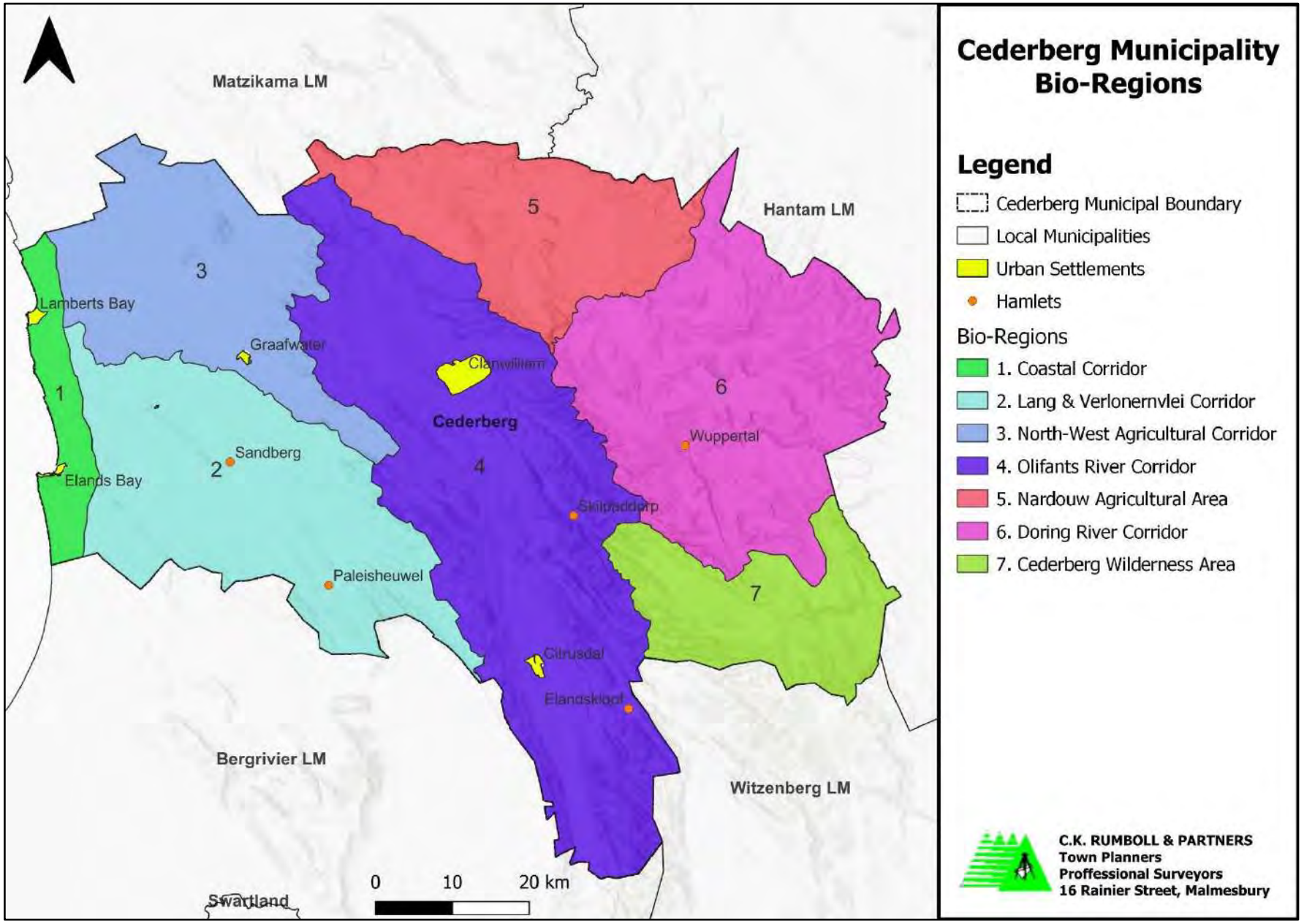


Table 136: Corridors in Cederberg

	COASTAL CORRIDOR	LANG EN VERLORENVLEI CORRIDOR	NORTH-WEST AGRICULTURAL AREA	OLIPHANTS RIVER CORRIDOR	NARDOUW AGRICULTURAL AREA	DORING RIVER CORRIDOR	CEDERBERG WILDERNESS AREA
Altitude (m)	100 – 250	200 – 1 400	100 - 700	100 - 700	200 – 1 500	500 – 1 500	500 – 1 500
Population distribution	Elands Bay: 1 830, Lamberts Bay: 7 346 Total urban: 9 176	Leipoldtville: 358 (Urban)	Graafwater: 2 714 (Urban)	Citrusdal: 8 615 Clanwilliam: 9 211 Higher rural population. Total urban: 17 826	Sparse	Wupperthal (Urban)	Sparse
Agriculture (Primary Economy)	Potatoes, vineyards and fishing.	Potatoes.	Rooibos and small stock.	Citrus and tropical fruit.	Rooibos and Potatoes.	Rooibos and conservation.	Vineyards and conservation.
Mining (Primary Economy)	None.	None.	None.	Sand mines.	None.	None.	None.
Bio-diversity	Coastal fynbos.	Aquatic biodiversity and fynbos.	Fynbos.	Cederberg fynbos.	Nardouw.	Cederberg and Succulent Karoo	Cederberg and Succulent Karoo
Secondary Economy	Agri-Processing and Wineries.			Agri-Processing.			Wineries
Tertiary Economy	Eco-Tourism.	Eco-Tourism.	Agri-Tourism.	Agri-Tourism.	Eco-Tourism.	Eco-Tourism.	Eco-Tourism.
Renewable energy potential	Relatively medium wind speeds. Medium levels of solar radiation.	Relatively medium wind speeds. Medium levels of solar radiation.	Relatively medium wind speeds. Medium levels of solar radiation.	Relatively medium wind speeds. Medium levels of solar radiation.	Medium to high levels of solar radiation.	Medium to high levels of solar radiation.	Medium to high levels of solar radiation.
Hydrology	The Verlorenvlei and Langrivier – moderately modified.	The Verlorenvlei and Langrivier – moderately modified.	Jakkalsrivier – moderately modified.	Oliphants River - largely Modified.	Doringrivier – moderately modified.	Natural and moderately modified.	Natural.
Landscape character	Cosmic	Cosmic	Cosmic	Classical	Classical	Romantic	Romantic

6.1 Development Proposals for the Cederberg: Rural and Regional

Detailed rural development proposals include national and provincial projects and investments by state-owned entities.[23] as illustrated in the map below. These projects include the raising of the Clanwilliam dam wall (Department of Water Affairs and Forestry), farmer production support units at Clanwilliam and Citrusdal, upgrading of the harbour at Lamberts Bay (Department of Environmental Affairs), social housing in Clanwilliam (Department of Human Settlements) and housing in Elandskloof (Department of Rural Development and Land Reform). The upgraded N7, which was completed in 2017, also served as an informant for the development proposals to follow.

Water Bodies and ecological infrastructure

- Delineate Flood lines in Citrusdal and Elands Bay and all other settlements, as coastal erosion and flooding are a risk.
- Promote open spaces and social amenities along rivers and tributaries acting as a spine for a continuous open space network within settlements, which connect to the rural surroundings, for example the Olifants, Verlorenvlei, Langvlei and Jakkels.
- Invest in ecological infrastructure and:
- Promote the restoration of moderately modified rivers across Cederberg and the Olifants River and its tributaries that are largely modified.
- Delineate, during the wet season, and promote the implementation of buffers around wetlands, estuaries, salt marshes, rivers, and drainage water courses.
- Promote the delineation of existing as well as historical connections between wetlands, drainage ports and rivers/streams spatially with groundwater information where applicable.
- Promote the restoration of connections of wetlands wherever possible.
- Promote supportive infrastructure and enhance water sports and recreation on freshwater bodies such as the Clanwilliam and Bulshoek dams (governed by the Boating by-law) as well as on the sea.
- Capitalize on the raised Clanwilliam Dam wall once completed: Providing water to residents of Clanwilliam and the lower Oliphants River region.
- Preserve rural character around dams and water bodies and at sea.

Landfill sites, cemeteries, alternative energy generation and social amenities

- Provide for waste locally, keeping in mind that a regional waste facility at Vredendal is proposed.
- Promote local rather than regional cemeteries.
- Prepare and be ready for wildfires likely in the mountain areas along the N7 and in the Cederberg: Delineate firebreak buffers around towns.
- Delineate alternative energy zones and promote energy generation facilities in viable zones only. Overall – viability of energy source to be confirmed by specialist studies; Broadly: Clanwilliam – hydroelectricity, wind – west of N7, solar - Cater for future urban expansion.
- Promote Solar Energy overall in the Cederberg, particularly regions 4, 5, 6 and 7 that have higher solar radiation, yet with great sensitivity around the visual impact in protected and conservation areas
- Caution the establishment of commercial solar and wind farms in and around environmentally and visually sensitive areas, and especially not in the Cederberg Wilderness Area. Especially do not support wind and solar farms on slopes as it has increased visibility and potentially a negative visual impact.
- Promote Wind Energy, particularly west of the N7, hydroelectricity at Clanwilliam, and Hydrogen along the coast.

[23] SOE and Government Agencies: Section 12(1)(h) of SPLUMA

- Limit potential air pollution sources in the Cederberg, including but not limited to biomass (veld fires), domestic fuel-burning mainly wood and paraffin within settlements, vehicle and generator tailpipe emissions from petrol and diesel, and waste treatment and disposal sites, and develop an Air Quality Management Plan.
- Promote use of rail as alternative transport (freight – agriculture and mining) and introduce passenger rail (commuters & tourists) through West Coast (Clanwilliam to Citrusdal and from Belville to Bitterfontein (inter-municipal route)).
- Promote nodes at N7 intersections and where SANRAL criteria allow nodes:
    - Nodes to blend in with surrounding agricultural landscape.
    - Nodes to focus on tourism and agricultural development and support services.
    - Public Transport on N7: Determine the viability of a reliable public transport service along the N7 between Clanwilliam and Citrusdal to increase mobility to the West Coast District (Piketberg and Malmesbury) and to the Metropole.
    - Safeguard intersection nodes through visibility.

Support the development of transport nodes along the N7, R363 and R366 and improve mobility between rural and urban areas. Nodes and associated infrastructure (farm stalls, service stations) along transport corridors should be sensitive to the agricultural landscape (R363, R364, R365 and N7) and should blend into the environment.

Promote access to education at all levels from preschool to tertiary by providing for such facilities, enhancing mobility of community members and provide social amenities according to CSIR standards.

Agriculture

- Delineate and protect intensive and extensive agricultural productive land to secure food production. Preserve the agricultural character of the Cederberg, particularly along the Olifants River.
- Support the development of an Intensive Rural Development Corridor along the N7 between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval.
- Promote the production of niche products on-farm (value-adding) and investigate the production of new agricultural-related and complementary products e.g., stream aqua culture along the Olifants River, Verlorenvlei and in farm dams.
- Promote and provide for tourism-related activities on farms and along waterways and water sources (such as the Olifants River and Verlorenvlei) e.g. farm stays, leisure accommodation and resort development, agri-processing, tastings, restaurants, farm stalls, wineries and private nature reserves.
- Promoting the protection of homogeneous farming areas connecting cultivation across municipal borders, including rooibos tea cultivation, conservation agriculture towards the north (Matzikama) and northeast (Hantam), potatoes to the south (Bergrivier) and citrus at the centre of the Cederberg.

Promote agri-tourism opportunities

- On farms, especially along the Olifants, Verlorenvlei, Langvlei, Doring, Matjies, Rondegat and Jan Dissels Rivers and in the surrounding mountain ranges.
- Along existing routes and destinations within the West Coast District Municipal jurisdiction, incorporating the areas of Swartland, Cederberg, Matzikama and Bergrivier.
- The West Coast Way “Berg Route” which starts in Velddrif and includes Elands Bay, Verlorenvlei, Piekenierskloof Mountain Resort and

Citrusdal, covering an area that stretches from the Berg River to the start of the Cederberg Mountains.

- The West Coast Way "Wild Route" begins at Piekenierskloof Mountain Resort and follows a course through Citrusdal, Clanwilliam, Wupperthal, and to Matzikama down the coast southwards, ending at the Verlorenvlei.
- And establish new tourism routes and destinations combined with art, sport and food:
    - Citrus route from Clanwilliam to Citrusdal, Rooibos Tea route around Graafwater towards Calvinia;
    - Seafood route from Elands Bay to Lamberts Bay;
    - Cultural route from Elands Bay (Baboon Point) to Cederberg;
    - Conservation Route R366, R365 and DR 1487 and 2182 (Cederberg Wilderness); Flower Route: N7, R364, 365 and 366;
    - Conservation and Heritage areas: Cederberg and Matjiesrivier Conservation Area, Verlorenvlei (R366) and Jakkalsvlei (R365);
    - Outdoor Sport and Recreation routes including hiking and mountain biking, bird watching, wildflower viewing, horse trails, fishing and water sport in and around the Greater Cederberg Conservation Corridor;
    - The Cultural Heritage Route is one such route amongst the villages of Heuningvlei, Brugkraal and Wupperthal.
- Promote renewal/ upgrading existing railway station and siding buildings, including grain silos and water storage facilities along the
- determine their viability (based on financial viability [i.e., quality of the sand] versus environmental degradation [aesthetic value, tourism, conservation, citrus, potatoes, rooibos tea and intensive agricultural land uses]. Develop guidelines for these areas to prohibit mining work against tourism. Mitigate existing impacts, effective rehabilitation and alternative transportation to dispatch product.

ailway line.Promote the formal protection and management of a valuable cultural resource within Cederberg being home to some of the oldest population groups (Khoisan) in southern Africa.

- Promote tourism development nodes at intersections: along R364 (between Graafwater and Lamberts Bay; to Northern Cape and Karoo) and R365 (between Leipoldtville and Lamberts Bay); (from coast to Bergrivier Municipality).
- Attract more retirees and working people (for whom remote working is an option due to improved technology and connectivity) who want to live in a more tranquil rural environment to settle in Cederberg municipal area (improved rates and taxes).

Fishing and sea

- Implement the Elands Bay Slipway and Parking area and maintenance of existing and related fishing infrastructure to keep a sense of place.
- Protect natural landscapes, delineate development lines around mountains and koppies and in marshes or a water sponge or in a floodplain.
- Prepare for coastal erosion particularly at Elands Bay.

Mining

- Identify all mineral and geological sources suitable for mining and

- Caution mining activities that are not viable and are counterproductive to the character of the area, such as regions 5, 6, and 7, as well as particularly sand mining.
- Protect sensitive environments (visual, agricultural resources, natural, cultural) from the potential impact of mining. Give careful consideration to mining applications that will have the potential to impact directly,

cumulatively or indirectly or in the long term, on the existing aesthetic value, tourism, agricultural industry, and intensive agricultural land uses.
- Caution generation of dust that cause colouration of the landscape.
- Caution mining and non-compliance to rehabilitate to prevent high visual impact and cumulative impact on scenic landscapes.
- Where mines exist, provide opportunities for the growth (which can create additional employment opportunities and are labour intensive) of mining-related industries, mineral beneficiation and the provision of support services to the mining sector.

Conservation

- Promote the Sandveld Environmental Management Framework (EMF) addressing the cumulative impact on ecological degradation and biodiversity loss.
- Promote conservation plans for and protect sensitive habitats including Verlorenvlei, Bird Island and Elands Bay State Forest.
- Promote application of spatial planning categories to facilitate decision-making in development applications.
- Core Areas (Cederberg Wilderness Area, Matjies River Nature Reserve, Coastline, Public and Private Nature reserves).
- Buffer Areas (Pakhuisberg, Kransvlei Berg, Piekenierskloof, Smalberg, Maraisberg, Koerkasieberg).
- Intensive Agricultural areas (Olifants River Valley, Traval South).
- Promote the establishment of Cederberg Conservancy and West Coast Conservation Corridor to serve simultaneously as a climate change corridor and:
- Provide for ecological links to support connectivity between habitat areas and establish from the Cederberg to the coast a landscape and buffer area.
- Support the formalization of Open Space Networks and Conservation Corridors in urban and rural areas to protect natural habitat areas.
- Protect and promote conservation of coastal ecosystems (estuaries, sandy beaches and dune systems, dune groves and fynbos).
    - Strandveld dune thicket and dune fynbos: Corridors of at least 20m width of natural vegetation must be retained in dune fynbos as well as dune thicket, to allow movement of birds and animals between undisturbed and continuous habitats. And avoid development that disturbs connections between valley roughs and dune thickets.
    - Lowland fynbos ecosystems (sand fynbos and limestone fynbos): Corridors of sand fynbos must be at least 300m wide.to protect limestone fynbos types are slow growing and vulnerable and must be protected.
    - Mediterranean and mountain fynbos ecosystems (alluvial fynbos, granite, ferrous, conglomerate and silkretefynbos, grass fynbos and sandstone fynbos): Orchards and indigenous plantations (proteas, buchu) must not be closer than 2km from where such plants naturally occur.
    - Renosterveld ecosystems (coastal renosterveld and interior renosterveld): Ideally, a buffer of at least 30m must be left between all development, especially agricultural land and core renosterveld conservation areas.
- Support farm owners to develop agri-villages where erven will become worker-owned. The agri-villages can either be on farms or on municipal land in townships. Funding is available for either. Enrol farmworkers on housing waiting list.

Netting, tunnels and agricultural industry:

The erection and location of poly tunnels and agricultural shade netting or/ and the establishment of an agricultural industry on a farm of 2000 m² and more in

extent should address concerns of adverse impacts on visual, cultural and heritage amenities and the Municipality may require repositioning, screening and

any other measures which may address negative adverse impacts whilst taking cognisance of the importance of agriculture and food security.

The decommissioning of poly tunnels and agricultural shade netting is required. The conversion of agri-industrial buildings for a different purpose instead of demolishing of such infrastructure, should address again concerns of adverse impacts on intensity of surrounding use (traffic, movement, noise) character (sense of place) and cultural and heritage amenities.

An adverse impact on surrounding properties, in respect of, but not limited to, noise, traffic congestion, pollution, emissions or the gathering of large numbers of people, or the presence of people hindering agriculture e.g. during spraying season, nor may the tourist activities have an adverse impact on any *bona fide* agricultural activities on the farm itself or on neighbouring properties.

Fences:

Fences comprising of only wire or steel palisade (painted charcoal, black or dark green), not exceeding 2,1m are allowed. No masonry wall exceeding 1 meter and no brick piers shall be permitted in wire or steel palisade fences, and only the entrance gate structure may be of solid brick structures in moderation.

Public Utilities:

- Promote communication corridors and zones, improved communication networks and promote access to information and technology including access to internet prioritizing rural areas.
- Support the establishment and sensitive location of communication network facilities/ data centres/telecommunication towers in rural areas and on farms.
- Provide for adequate bulk infrastructure and the location thereof according to the change directives above.
- Encourage keeping and maintaining water trucks on farms and conservation areas for fire-fighting.

6.2 Regional and Rural Proposals; Climate Change

The rural spatial framework focuses on its natural resources: Water, Soil (Land), Minerals, Vegetation – Fauna - Ecosystems, Air - Wind, Sun and Connectors (the only man-made resource). The framework considers *Natural Disasters*, *Opportunities* and *Risks* for each natural resource.

The combination of the impact on the environment or environmental threats and the vulnerability of the Cederberg Community measured as governance and municipal management, are illustrated in map below:

6.2.1 Water / Hydrology

6.2.1.1 Natural Resource: Surface (Rivers), Ground Water and Coastal Erosion

Protect

- Provide for current and future basic human water needs.
- Provide equal access to water.
- Promote the effective and sustainable use of water in the interests of the general public.
- Facilitate social and economic development through access to water.
- Preserve aquatic and associated ecosystems and their biological diversity.
- Reduce and prevent pollution and the degradation of water resources.
- Effectively manage floods and droughts.
- Create new irrigation schemes for sustainable water use.
- Monitor irrigation from rivers and use of underground water sources.
- Monitor ground water quality and capacity.
- Prohibit the overexploitation of underground water resources and aquifers.
- Maintain water catchment areas by especially removing alien vegetation with the exception of heritage trees (trees older than 20 years).

Change

- Investigate alternative water resources to alleviate water shortages during droughts. Promote the sustainable use of water in the Coastal settlements of Cederberg, to be able to absorb long periods of droughts. Project planning of alternative water projects should include an accurate costing of the running cost and maintenance thereof e.g. desalination plant at Lamberts Bay which is currently not in use due to high operational costs.
- Plan for, provide and maintain adequate water resources, water storage capacity and networks.
- Maintain sanitation according to prescribed standards and expand bulk infrastructure.

Develop

- Encourage water harvesting and installation of domestic water tanks. Water harvesting and promote water storage tanks.
- Promote reuse of water and storm water (industrial use, irrigation of golf courses).

An Environmental Management Framework for hydrological zones is outlined below:

Table 137: Hydrology zones for EMF

Management Priority	Priority Focus Area
Improve and rehabilitate	Rehabilitation of flood plains and catchments and storm water management and treatment need to be improved. Including demarcation of development buffer areas for rivers and their flood plains and management and control thereof. Rehabilitation, monitoring and evaluation directed and regulated by an area specific environmental management plan.
Conserve and preserve	A 32m wide buffer area along banks of the dam must be adhered to. No development, except if an environmental impact assessment authorizes it, may occur within dam buffers or on riverbanks.
Environmental Impact Assessment Requirements	All proposed developments covering an area of 50m² and more and within 32m from the banks of a water source, must have completed a Basic Environmental Impact Assessment and have Environmental Approval before development may proceed.
Monitoring and management aspects	River and dam monitoring must take place within the guidelines of the Department of Water Affairs River Health Programme.
Research and Education	The river health projects, as managed by the Department of Water Affairs. Education in schools to make youth aware of the value of water resources, flood plains and wetland, and the impact of climate change on water resources and its scarcity. Community awareness campaigns, to specially emphasize water scarcity.

Environmental Impact Management directives for hydrological zones are outlined below:

Table 138: EIM directives

Types of developments, land uses or activities:	Types of developments, land uses or activities:			Related environmental management policies and guidelines
	That should not occur	That may have significant impact	That have no significant impact	
Flood Risk Area 1 Include areas within the 1:50 flood line, where floods are equal to or greater than every 50-year average.	Any Development.	Residential, commercial; industrial developments; intensive agriculture; waste management areas; storage and handling of harmful substances.	Grazing by cattle.	Environmental Impact Assessment and Guidelines. Provincial Spatial Development. Framework for the Western Cape Province. All legislation with an environmental aspect and corresponding regulations, policies and guidelines.
Flood Risk Area 2 Include areas within the 1: 100 flood line, where floods are equal to or greater than every 100-year average.	Cemeteries; Industrial Areas; Fuel Storage Facilities; and	Residential, commercial; industrial developments; intensive agriculture; fuel storage facilities.	Residential development; Expansion of services; mitigation as per environmental impact	
Flood Risk Area 3				

The area is exposed to floods not only caused by rivers, but by groundwater or storm water collection and run-off in low-lying areas.	Intensive Agriculture.		study and specialist studies.	
Rivers, wetlands and buffer areas The buffer areas are calculated by standardized methodology (refer to Floodplains and Rivers Management Policy): River buffer areas vary between 10 - 40m from the riverbank. Vleiland buffer areas differ and can be up to 75m wide, measured from the outer edge of the wetland.	Any Infrastructure Development.	Residential, Commercial and Industrial Developments, Intensive agricultural practices and Fuel storage facilities.	Grazing by cattle.	
Highly productive underground water sources The zones include highly productive interrelated, broken down, and a combination of both, underground water sources.	Waste disposal sites.	Intensive agricultural activities, waste management (transfer and recycle) sites, Fuel storage facilities and Industrial areas.	Residential development, Standard, sustainable agricultural practices.	
Average productive underground water source The zones include average productive interrelated, broken and inter granular and broken ground underground water resources.	Waste disposal sites.	Residential, Commercial and Industrial Developments. Intensive agricultural practices, Fuel storage facilities.		

Freshwater bodies such as the Clanwilliam dam are governed by the Boating by-law that regulates:

- Permission to enter and operate a boat on the dam, control the operation of boats on the dam, the rules of boating and prohibition the pollution of the dam.
- Required equipment of vessels, demarcated areas for water-skiing and the prohibition of operating a vessel or a boat.
- Powers of authorised officers, removal of boats from the dam, exception from liability in respect of injury and/or damage.

The Boating By-law provides guidance for Bulshoek dam too.

Table 139: Boating By-law

Development that should not occur/ only in Designated Areas	Regulated/ Confined development that may have significant impact if not regulated	Related environmental management policies and guidelines
No activity, without municipal consent may: • No person may enter the dam and operate a boat on the dam without the permission from the Municipality. • No person shall operate a boat on the dam while it is leaking oil, petrol or any toxic or noxious substance.	The municipality determines: • All life-saving apparatus on board a vessel in the water must be in good working condition and within easy reach for immediate and effective use.	Promote the integrated and cooperative management of the river/damn banks by: • An authorized officer has the right to board a boat at any time and to inspect it for the purposes of ensuring compliance with the provisions of this By-law.

• No person shall operate a vessel or allow it to be operated in such a manner that it endangers or creates a nuisance to any other vessel or the occupants thereof or to other persons or property or installations in the water or at the water's edge. • No substance such as petrol, oil or any toxic or noxious substance shall be deposited or disposed of in the dam. • No person is allowed to pick, uproot, fell or damage or attempt to pick, uproot, fell or damage in any way any plant or tree growing in the dam area.	• Water-skiing shall only be permitted within the zones or sectors designated for water-skiing on the zoning map. • The Municipality may prohibit any vessel if it is satisfied that the vessel or boat is no longer safe or seaworthy or is a source of pollution in the vicinity of the dam.	• If, in the opinion of the Municipality any boat constitutes a danger in the dam or causes pollution by the discharge of petrol or oil, such boat may be removed forthwith by the Municipality. • The Municipality shall not be liable for any injury which is sustained by any person using the dam or any facility or for damage to any property thereon, whatever the cause may be.

6.2.1.2 Natural Disaster: Droughts, Floods, Coastal Erosion and Flooding

Drought and Flooding are natural disasters enhanced by climate change.

According to the climate change risk and vulnerability map for Cederberg flooding is anticipated in and around Citrusdal.

Environmental Impact Management directives for hydrological zones are outlined below:

Table 140: EIM directives

Types of developments, land uses or activities	Types of developments, land uses or activities:			Related environmental management policies and guidelines
	That should not occur	That may have significant impact	That have no significant impact	
Flood Risk Area 1 Include areas within the 1:50 flood line, where floods are equal to or greater than every 50-year average.	Any Development or Infrastructure.	Residential, commercial; industrial developments; intensive agriculture; waste management areas; storage and handling of harmful substances.	Grazing by cattle.	Environmental Impact Assessment and Guidelines. Provincial Spatial Development Framework for the Western Cape Province. All legislation with an environmental aspect and corresponding regulations, policies and guidelines
Flood Risk Area 2 Include areas within the 1: 100 flood line, where floods are equal to or greater than every 100-year average.	Cemeteries; Industrial Areas; Fuel Storage Facilities; and Intensive Agriculture.	Residential, commercial; industrial developments; intensive agriculture; fuel storage facilities.	Residential development; Expansion of services; mitigation as per environmental impact study and specialist studies.	
Flood Risk Area 3 The area is exposed to floods not only caused by rivers, but by groundwater or storm water collection and run-off in low-lying areas.				
Rivers, wetlands and buffer areas The buffer areas are calculated by standardized methodology (refer to Floodplains and Rivers Management Policy): River buffer areas vary between 10 - 40m from the riverbank. Vleiland buffer areas differ and can be up to 75m wide, measured from the outer edge of the wetland.	Any Infrastructure Development.	Residential, Commercial and Industrial Developments, Intensive agricultural practices and Fuel storage facilities.	Grazing by cattle.	
Highly productive underground water sources The zones include highly productive interrelated, broken down, and a combination of both, underground water sources.	Waste disposal sites.	Intensive agricultural activities, waste management (transfer and recycle) sites, Fuel storage facilities and Industrial areas.	Residential development, Standard, sustainable agricultural practices.	
Average productive underground water source	Waste disposal sites.	Residential, Commercial and Industrial Developments. Intensive		

The zones include average productive interrelated, broken and inter granular and broken ground underground water resources.		agricultural practices, Fuel storage facilities.		

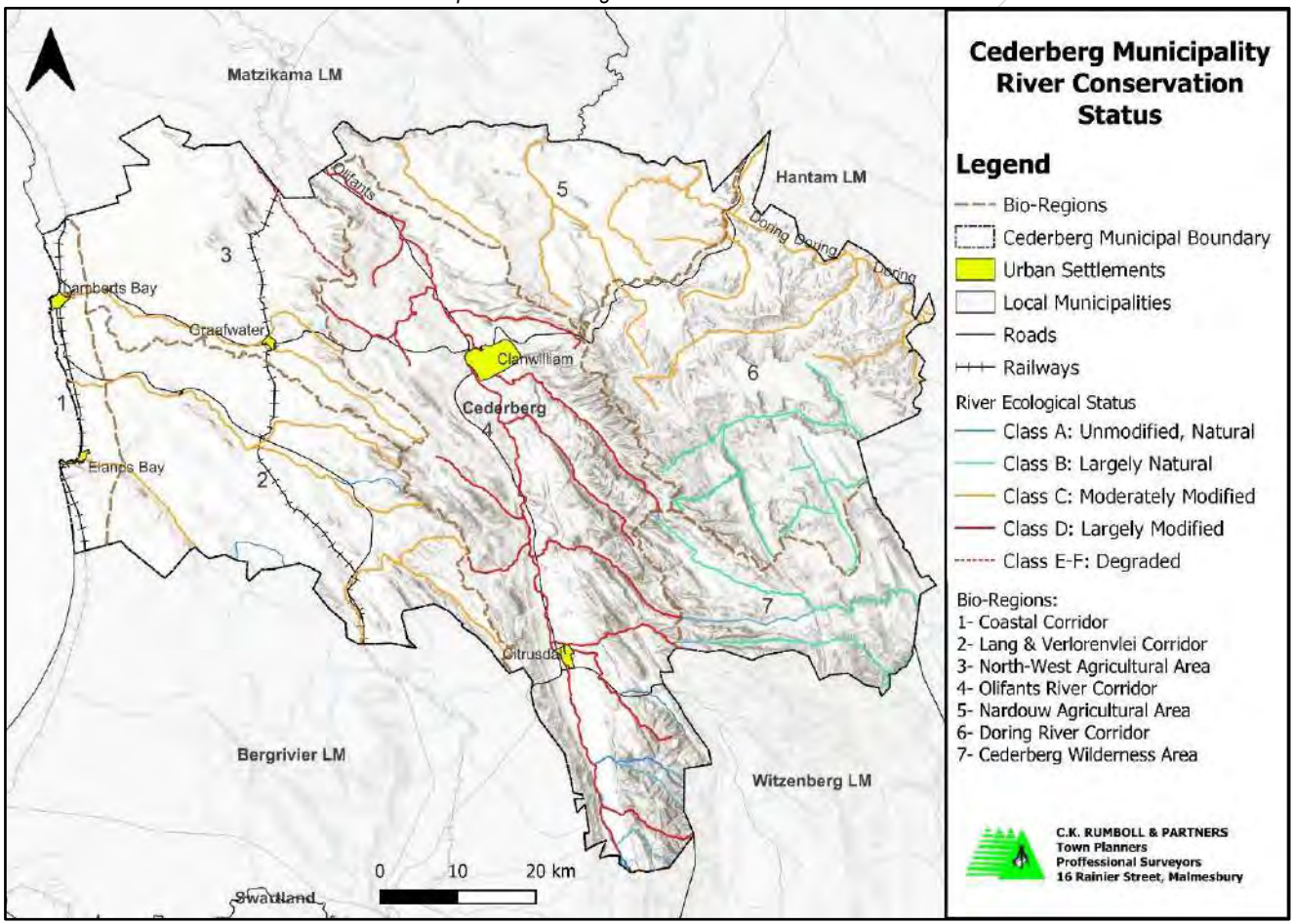
6.2.1.3 Opportunities: Dams, Irrigation and Recreation

The main inland water bodies (dams) are the Clanwilliam and Bulshoek Dams.

Rivers and tributaries act as the spine for a continuous open space network within settlements, which connect to the rural surroundings for example the Olifants, Verlorenvlei, Jakkels, Langvlei Rivers.

Irrigation (Agriculture) causes rivers to be modified. National Freshwater Ecosystem Priority Areas NFEPA (2007), class the Oliphants River and its tributaries within the Oliphants River Corridor bio-region, as largely modified. All the rivers in the southern half of the Doring River corridor area and in the Cederberg Wilderness area bio-regions are natural. All the rivers in the remaining bio-regions, are moderately modified.

Map 52: Cederberg River Conservation Status



Water source and bodies provide opportunity for recreation. The preservation of the rural character around dams and water bodies proactively enhances the local economy.

Management directives for water sources and bodies include:

Develop

- Ensure the primary and operational requirements of dams and other water resources (e.g. water quality, safety and flood control).
- The development in and around dams and other water features can be evaluated, considered and implemented through the development of a water resources zoning plan as reference.
- Prevent the unsustainable, uncontrolled and unsafe use of state water resources.
- g., Clanwilliam Dam and Bulshoek Dam opportunities for canoeing, fishing and water sports.
- Promote catchment area:
    - Berg River;
    - Oliphants River; and
    - Doring River.

Wetlands:

- Demarcate wetlands before planning for development commences.
- Demarcate during the wet season.
- Allow adequate buffers for rivers and drainage trenches.
- Indicate existing as well as historical connections between wetlands, drainage ports and rivers/streams spatially, with groundwater information where applicable. Connections must be maintained as well as restored wherever possible.
- Connect small wetland areas by means of open spaces, existing drainage lines. Corridors must be conserved. ecological services must be provided through previously disturbed areas.
- Strengthen the natural and cultural environment around dams and water resources through development of tourism, sport and recreation facilities, which will also provide opportunities for the creation of job opportunities.
- Effective and fair management of State dam basins, water resources and catchment areas. Take social, economic and environmental impact into consideration. Include all land located within the catchment areas of a dam or water resource to effectively manage the health of the system.
- Change
- Promote recreation including fishing, resorts: camping, caravan parks including the hot springs.
- Support and capitalise on recreation and sports events as commercial opportunities, e.
- Use sufficient open spaces as buffers between wetlands/developments. Activities with a filtering function will be applicable.

Rivers:

- Allow adequate buffers for rivers and drainage channels.
- Indicate existing as well as historical connections between wetlands, drainage ports and rivers/streams spatially, with groundwater information where applicable. Connections must be maintained as well as restored wherever possible.
- Continuous river corridors facilitate movement of animals as well as plants spread across domestic and coastal gradients.

Estuaries:

- Development or land use activities must be bordered by a buffer strip. The width of the buffer strip will be determined by scale and type of development, the 1:50 year flood line, the likelihood of soil contamination as well as the vegetation types growing in the buffer strip.
- No permanent structures may be erected within the 1:50 year flood line.

- Salt marshes must be left alone with no activities allowed.

Sandy beaches and dune systems:

- Infrastructure must be placed in such a way as to prevent damage to coastal processes.
- Developmental rehabilitation guidelines must be strictly enforced to protect against the following coastal processes:
    - Impact of successive heavy storms.
    - Coastline movement.
    - Global sea level rise.
    - Change of natural coastal processes.
    - Any combination of the above.
- Development rehabilitation guidelines must take into account biodiversity and ecosystem requirements.
- Removal and fragmentation of indigenous vegetation, in the buffer area, on dunes and on the coastline area, must be avoided at all costs.
- The precautionary principle must be strictly adhered to when installing fixed infrastructure under the high watermark.
- Vehicles (driving) on sandy beaches above the high tide or in the dune systems must be prevented.
- Prohibition of vehicles on the beach should apply to popular swimming beaches, beaches that support sea life, e.g. feeding and breeding areas and coastal areas of coastal conservation areas.

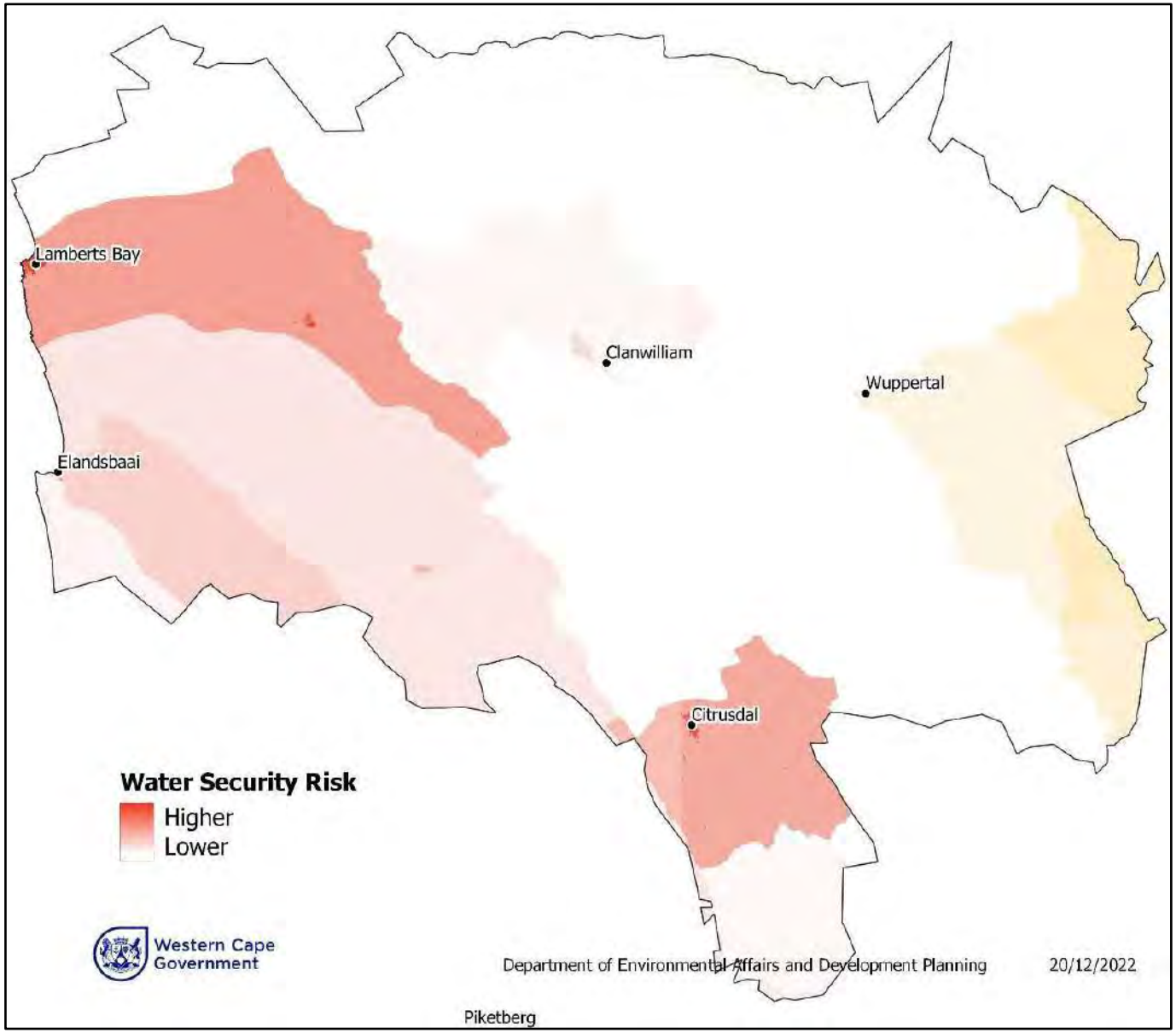
6.2.1.4 Risks: Water Security, Pollution, Cemeteries and Waste Sites

Water and water security (Climate Change Theme 4) is a key factor for socio-economic development, food security and healthy ecosystems, and is vital for reducing the burden of disease and improving the health, welfare and productivity of communities. A deteriorating water catchment system will consequently lead to lower inputs into the water supply systems, and a lower overall water security due to lower natural retention and lower quality of water.

According to the climate change risk and vulnerability map (below) for Cederberg, water security does not show the severity of the risk, just the relative risk between regions. It must be understood as highlighting areas with the highest risk, rather than as absolute values.

The vulnerability score is derived by combining the default socio-economic/ governance score with a groundwater dependency score obtained from the Ecological Infrastructure Investment Framework (EIIF) project of DEA&DP4.

Map 53: Water Security in Cederberg



Management directives for water sources and bodies, should development in general be considered, include:

Change

- All resources, especially surface water resources, need to be re-evaluated, especially where demand is close to the safe, one-in-twenty-year yields. Assurance of supply levels of all water sources should be established.
- Increase assurance of supply of the water resources by ensuring that there is at least 10% additional capacity (headroom), when considering the maximum 24-hour demand at the highest demand month of the year.
- Do not undertake new developments unless a proper investigation of the implication on water sources and sustainability in the long term has been undertaken.
- Vigorously implement Water Demand Management measures, especially in terms of the following:
    - increased water efficiency;
    - frequent monitoring of the water supply system, from the sources to the consumers; and
    - regular and adequate system maintenance and repairs.
- Diversify water resources, e.g., surface water, groundwater and wastewater re-use.
- Promote small sewerage treatment package plants and alternative technologies on farms with intensive settlements and in rural settlements.

Protect

- Consider water quality standards and thresholds in all development and planning processes.
- Consider all applicable guidelines, policies and legislation pertaining to freshwater impacts where relevant to developments.
- Encourage efficient water use in all development proposals.
- Pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.

Management directives for water sources and bodies, should development of cemeteries and waste sites (Climate Change Theme 1) be considered, include:

Develop

- A regional cemetery.
- A regional waste facility.

Change: Cemeteries

- To expand settlement cemeteries as per cemetery identification report (2019).

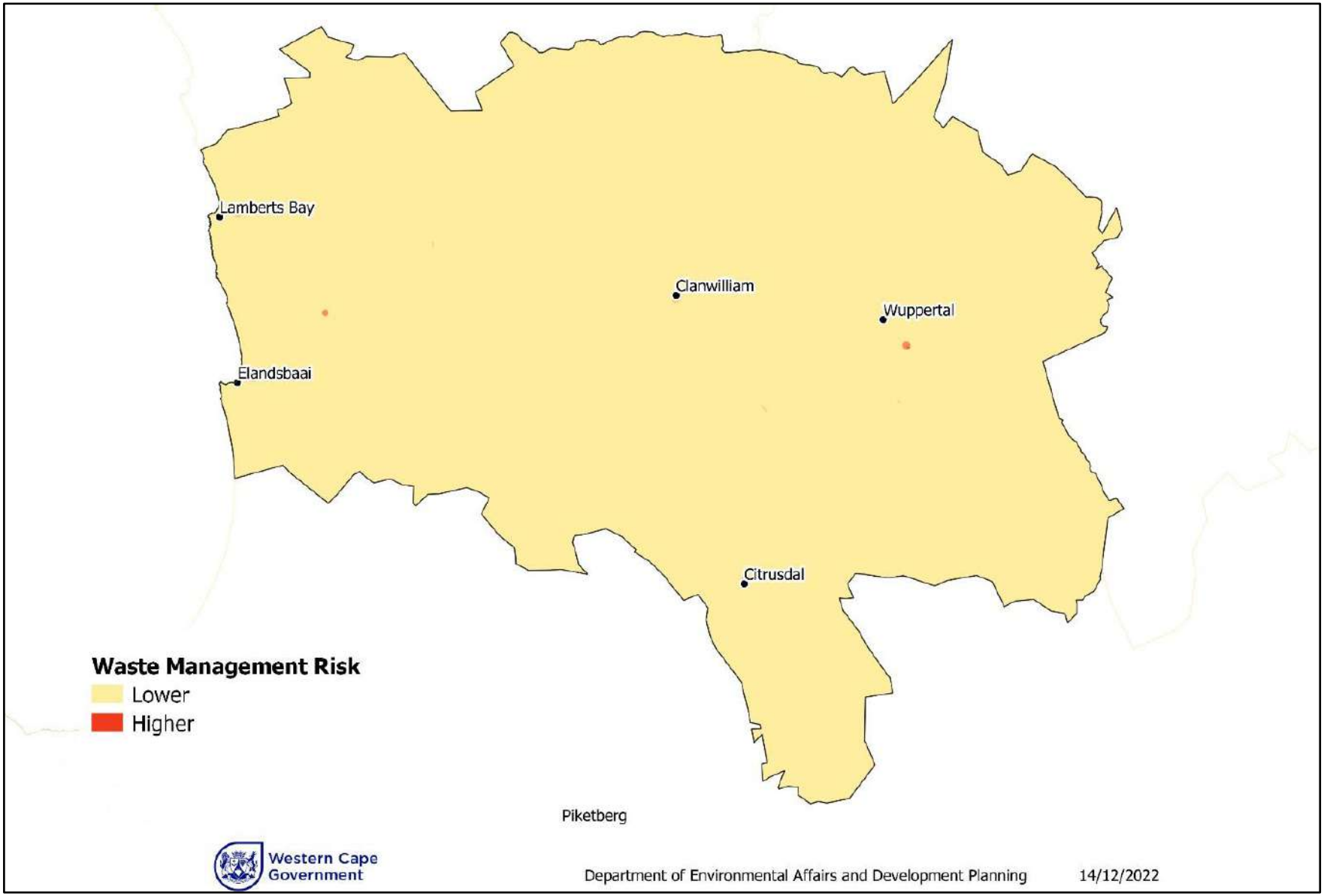
Change: Waste/ Landfill Site

- Investigate and identify locations for municipal waste/ landfill site.
- Investigate locations for transfer stations along major routes and at large farming operations; Investigate recycling of domestic and garden waste.

- Implement a waste management strategy.
- Protect environmental health & prevent ecological degradation as per norms and standards (waste management, control, licensing & remediation of contaminated land).
- Implement a waste management hierarchy during lifecycle of waste:
    - avoid and reduce waste,
    - re-use and recycle,
    - recover,
    - Treat and dispose.
- Address potential impacts of climate change and manage waste sustainable:
    - Divert waste to regional landfill sites.
    - Minimize adverse impacts.



Map 54: Waste management risk in Cederberg



An Environmental Management Framework for hydrological zones is outlined below:

Table 141: EMF for hydro zones

Management Priority	Priority Focus Area
Improve and rehabilitate	All intensive farming practices impacting on ground and underground water sources: • intensive feed farming i.e. cattle housing: prohibit storm water pollution. • Agricultural poisons: improve blending and taking in spray practices of aircraft and spray equipment. • Industrial and service station/ fuel distribution depo practices. Storm water management and treatment need to be improved. Rehabilitation of flood plains and catchments. Including demarcation of development buffer areas for rivers and their flood plains and management and control thereof. Rehabilitation, monitoring and evaluation directed and regulated by an area specific environmental management plan. Facilitate and manage access to the coast for all people fully compliant with the relevant provisions in the Integrated Coastal Management Act (ICMA) and: • implement the West Coast District Municipality Coastal Access Audit. • Increase awareness of the impact of illegal activities on coastal zone. • Improve conditions of access roads to coastal areas. • Improve communication between local communities and authorities regarding public access within the coastal zone. • Minimize alienation of land that prohibits coastal access for example aquaculture, mining and residential estates. • Strengthen and promote tourism opportunities and economic benefits to communities (engage with "working for coast infrastructure programmes). • Facilitate effective management of Public Launch Sites. • Manage recreational and commercial events on beaches. • Ensure Public safety and security. Improve pollution control, management and monitoring of effluent generating infrastructure and facilities to prevent pollution of the coastal zone and: • Manage the discharge of effluent, stormwater and other industrial-based pollutants into coastal waters. • Continue to plan, install, alter, operate, maintain, repair, replace, protect and monitor municipal WWTWs in coastal towns. • promote effective management of Air Quality. • ensure effective management of solid waste in the coastal zone. • encourage the reinstatement of the Blue Flag Beach Programme. • encourage households to adopt a reduce-reuse-recycle waste management culture. • Capacitate Cederberg municipal staff with waste management skills.

	• Report pollution events. Enhance socio-economic development of Coastal Communities and: • Promotes and support renewable energy projects in WCDM area. • Create support for Cederberg to generate renewable energy. • Sustainably develop harbours, fisheries, processing and aquaculture facilities (coastal economy infrastructure). • Promote Small Harbours as part of the SDF & Economic Development Framework proposals. • Develop marine aquaculture. • Support Small-Scale Fisheries Industry. • Facilitate coastal tourism development.
Conserve and preserve	A 32m wide buffer area along riverbanks and wetlands must be adhered to. No development, except if an environmental impact assessment authorizes it, may occur within river buffers, on riverbanks and within wetlands. Promote implementation of Estuary Management and apply estuarine management plans for the Jakkalsvlei, Wadrif (Langvlei) and Verlorenvlei estuaries and: • Establish and apply implementation of strategies to improve the management and protection of estuarine resources as estuaries within Cederberg are heavily impacted and of high value. • Facilitate the designation of Responsible Managing Authorities (RMA). • Support the development of Estuarine Management Plans for smaller estuaries in the WCDM. • Facilitate the implementation of Estuarine Management Plans in the District. Promote the management and protection of natural resources (terrestrial and marine environment) as aesthetic and economic assets. The vulnerability of marine resources with high integrity subject to a variety of impacts largely resulting from varying levels of human induced pressure, requires effective management: • Maintain ecosystem integrity and health. • Assess and effectively manage coastal protected areas. • Effectively control of invasive alien plants. • Cooperative management of Protected Areas. • Monitoring mining activities in the coastal zone. • Facilitate the coordinated management of Marine Living Resources. Promote the formal protection and management of a valuable heritage and cultural resource within Cederberg being home to some of the oldest population groups (Khoisan) in southern Africa.
Environmental Impact Assessment Requirements	All proposed developments covering an area of 50m² and more and within 32m from the banks of a water source, must have completed a Basic Environmental Impact Assessment and have Environmental Approval before development may proceed.

	All proposed developments impacting on estuary, terrestrial, marine and heritage environments, must confirm the applicability of the Environmental Management Act before development may take place. Promote cooperative governance and clarification of institutional arrangements for coastal management and capacity generation. Promote the continuous implementation and updating of the Coastal Management Programme.
Monitoring and management aspects	River monitoring must take place within the guidelines of the Department of Water Affairs River Health Programme. Borehole monitoring must take place in all developments that could lead to possible groundwater pollution, e.g., waste landfills, intensive farming practices. Water quality monitoring is required for all water treatment systems. Regulated management and monitoring aspects by an Environmental Management Plan. Coastal Planning and Development to promote responsible coastal planning for the sustainable development of the coastal zone, is achieved by: • incorporating appropriate spatial principles into the SDF; • defining and establishing urban edges for all urban nodes in the coastal zone and; • ensuring that climate change adaptation and mitigation measures are included in the planning processes. Incorporate biodiversity, environmental and climate change policies into town planning processes: - Address Coastal Erosion within the coastal zone; - Address the high percentage of vacant plots and the low occupancy levels of residential dwellings. • Ensure rehabilitate the coastal zone. Make sure: Promote responsible coastal planning for sustainable use of coastal zone: • Incorporating appropriate spatial principles into the CLM SDF, • defining and establishing urban edges for all urban nodes in the coastal zone and, • Ensuring that climate change adaptation and mitigation measure are included in the planning processes. Enhance Compliance Monitoring and Enforcement Efforts in the District: Effective implementation and enforcement of various legislation developed to protect coastal and marine resources. Preserve the integrity of these systems are required to prohibit exploitation and degradation of sensitive and risk prone coastal and marine environments as a result of anthropogenic activities: • Capacitate municipalities to monitor and enforce coastal management objectives. • Develop Local Authority Environmental Management Inspectorate and Honorary Marine Conservation Capacity. • Facilitate and encourage public reporting of illegal activities. • Facilitate the development and enforcement of Municipal by-laws. • Address the increase in illegal off-road Vehicle activity.
Research and Education	The river health projects, as managed by the Department of Water Affairs.

	Education in schools to make youth aware of the value of water resources, flood plains and wetland, and the impact of climate change on water resources and its scarcity. Community awareness campaigns, to specially emphasize water scarcity. Instil a sense of custodianship of the coast amongst all coastal communities through education, training and awareness of coastal conservation and management. Conserve and effectively manage natural heritage through awareness and education of the coastline. Develop and Facilitate Awareness, Education, Training, Capacity Building and Information Gathering in the District. • Facilitate the training of municipal officials on coastal management and informed decision making. • Facilitate public awareness and access to information. • Support existing education and awareness projects. • Support research and development and graduate skills.

Environmental Impact Management directives for hydrological zones are outlined below

Table 142: EIM for hydro zones

Types of developments, land uses or activities				
Rivers, wetlands and buffer areas	That should not occur	That may have significant impact	That have no significant impact	Related policies and guidelines
Rivers, wetlands and buffer areas The buffer areas are calculated by standardized methodology (refer to Floodplains and Rivers Management Policy): River buffer areas vary between 10 - 40m from the riverbank. Vleiland buffer areas differ and can be up to 75m wide, measured from the outer edge of the wetland.	Any Infrastructure Development.	Residential, Commercial and Industrial Developments. Intensive agricultural practices. Fuel storage facilities.	Grazing by cattle.	Environmental Impact Assessment and Guidelines. Provincial Spatial Development Framework for the Western Cape Province. All legislation with an environmental aspect and corresponding regulations, policies and guidelines.
Highly Productive Underground Water Sources The zones include highly productive interrelated, broken down, and a combination of both, underground water sources.	Waste disposal sites.	Intensive agricultural activities, waste management (transfer & recycle) sites. Fuel storage facilities. Industrial areas.	Residential development. Normal agricultural activities.	
Average productive underground water source The zones include average productive interrelated, broken and inter granular and broken ground underground water resources.	Waste disposal sites.	Residential, Commercial and Industrial Developments. Intensive agricultural practices. Fuel storage facilities.	Residential development. Normal agricultural activities.	

6.2.1.5 Proposals

Water bodies and ecological infrastructure

- Delineate Flood lines in Citrusdal and Elands Bay and all other settlements, as coastal erosion and flooding are a risk.
- Promote open spaces and social amenities along rivers and tributaries acting as a spine for a continuous open space network within settlements, which connect to the rural surroundings, for example the Olifants, Verlorenvlei, Langvlei and Jakkels.
- Invest in ecological infrastructure and:
    - Promote the restoration of moderately modified rivers across Cederberg and the Olifants River and its tributaries that are largely modified.
    - Delineate, during the wet season, and promote the implementation of buffers around wetlands, estuaries, salt marshes, rivers, and drainage watercourses.
    - Promote the delineation of existing as well as historical connections between wetlands, drainage ports and rivers/streams spatially with groundwater information where applicable.
    - Promote the restoration of connections of wetlands wherever possible.
- Promote supportive infrastructure and enhance water sports and recreation on freshwater bodies such as the Clanwilliam and Bulshoek dams (governed by the Boating by-law) as well as on the sea.
- Capitalize on the raised Clanwilliam Dam wall once completed: Providing water to residents of Clanwilliam and the lower Oliphants River region.
- Preserve rural character around dams and water bodies and at sea.
- Enhance use of rivers and dams for recreation aligned with the relevant Cederberg by-laws.

Landfill sites, cemeteries, alternative energy generation and social amenities

- Provide for waste locally, keeping in mind that a regional waste facility at Vredendal is proposed.
- Promote local rather than regional cemeteries.
- Prepare and be ready for wildfires likely in the mountain areas along the N7 and in the Cederberg: Delineate firebreak buffers around towns.
- Delineate alternative energy zones and promote energy generation facilities in viable zones only. Overall – viability of energy source to be confirmed by specialist studies; Broadly: Clanwilliam – hydro-electricity, wind – west of N7, solar- cater for future urban expansion.
- Promote Solar Energy overall in the Cederberg, particularly regions 4, 5, 6 and 7 that have higher solar radiation, yet with great sensitivity around the visual impact in protected and conservation areas
- Limit potential air pollution sources in the Cederberg, including but not limited to biomass (veld fires), domestic fuel-burning mainly wood and paraffin within settlements, vehicle and generator tailpipe emissions from petrol and diesel, and waste treatment and disposal sites, and develop an Air Quality Management Plan.
- Promote use of rail as alternative transport (freight – agriculture and mining) and introduce passenger rail (commuters & tourists) through West Coast (Clanwilliam to Citrusdal and from Belville to Bitterfontein (inter-municipal route).
- Promote nodes at N7 intersections and where SANRAL criteria allow nodes:
    - Nodes to blend in with surrounding agricultural landscape.
    - Nodes to focus on tourism and agricultural development and support services.
    - Public Transport on N7: Determine the viability of a reliable public transport service along the N7 between Clanwilliam and

Citrusdal to increase mobility to the West Coast District (Piketberg and Malmesbury) and to the Metropole.
- Safeguard intersection nodes through visibility.
- Protect mobility function of routes: Arterial Management Plans to be developed, where applicable to DTPW Roads Branch approval. (See Annexure 4)

Support the development of transport nodes along the N7, R363 and R366 and improve mobility between rural and urban areas. Nodes and associated infrastructure (farm stalls, service stations) along transport corridors should be sensitive to the agricultural landscape (R363, R364, R365 and N7) and should blend into the environment.

Promote access to education at all levels from preschool to tertiary by providing for such facilities, enhancing mobility of community members and provide social amenities according to CSIR standards.

Fishing and sea

- Implement the Elands Bay Slipway and Parking area and maintenance of existing and related fishing infrastructure to keep a sense of place.
- Protect natural landscapes, delineate development lines around mountains and koppies and in marshes or a water sponge or in a floodplain.
- Prepare for coastal erosion, particularly at Elands Bay.

6.2.2 Land / Soil

6.2.2.1 Natural Resource: Soil Suitability (Agriculture)

Management directives for soil and land resources include:

Protect

- Protect and preserve agricultural resources (productive land and landscape).
- Retain and conserve the rural character and agricultural landscape of the area.
- As the main economic sector in Cederberg, agricultural cultivation connects with most of the surrounding municipalities. The cross-boundary activities include rooibos tea cultivation and conservation agriculture towards the north and northeast, potatoes to the south (Bergrivier municipality), and citrus at the centre of the Cederberg.

Change:

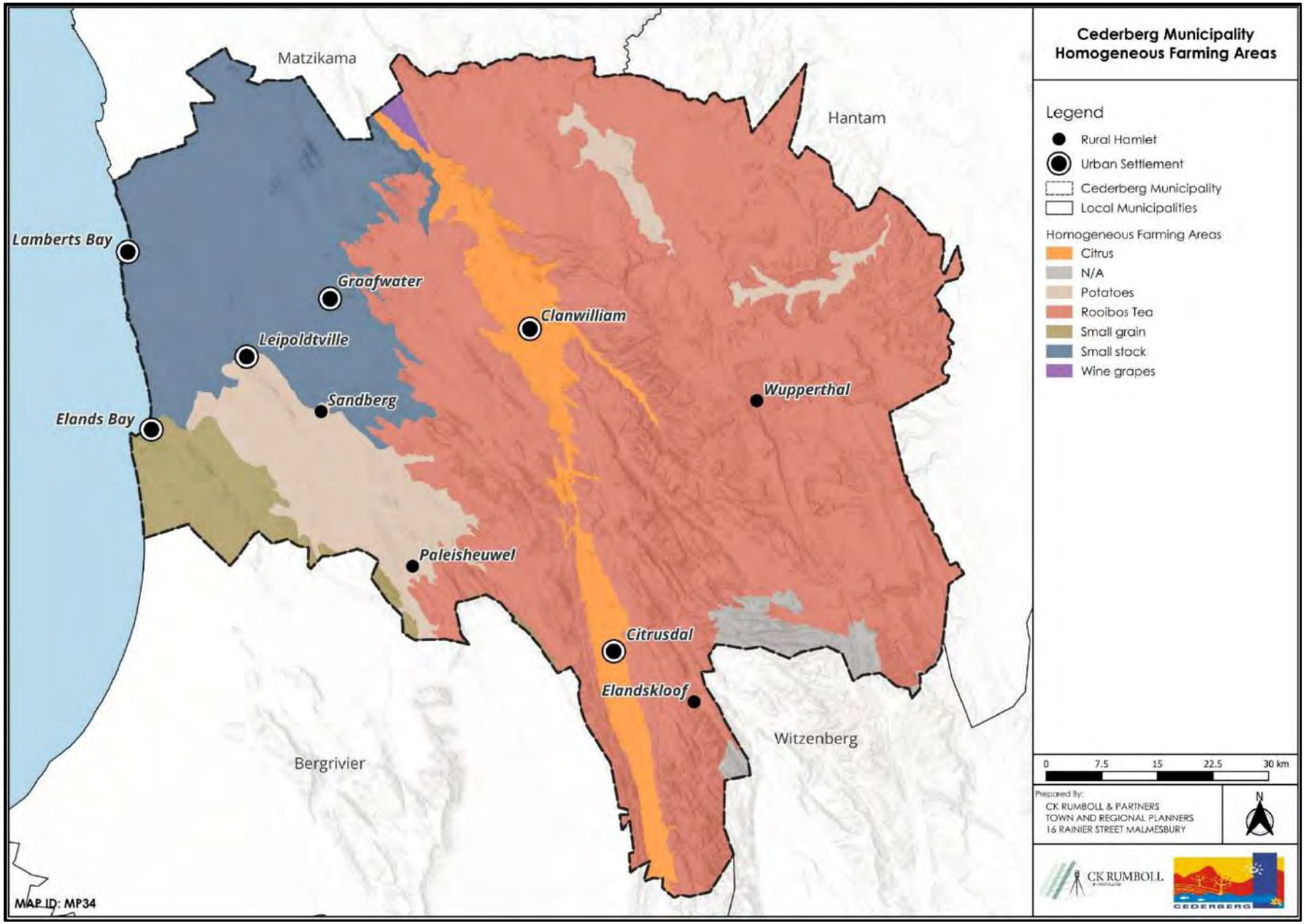
- Support crop cultivation as a landscape attraction promoting tourism and preserve and support the agricultural production areas and landscapes.
- Support continued research into climate change on current crop production & sustainable cultivation.
- Protect agriculture both extensive agricultural production and intensively irrigated areas along Oliphants River and other watercourses.
- Protect limited underground water, practice dry land cultivation instead of irrigation.
- Effectively manage erosion using conservation agriculture methods, planting of perennial legumes and management of contour lines.
- Maintain fire breaks around farms.
- Support different sizes of agricultural entities. (Support both creation of extensive agricultural farms and smaller farm units).
- Promote the delineation of intensive and extensive agricultural land as agriculture is the biggest GDP and employment contributor and an important economic, environmental and cultural resource.
- Increase the variety of agriculturally related land uses including tourism.
- Subdivision of agricultural land for creation of smaller economic-production entities should be guided by current policies of the Department of Agriculture.
- Distinguish between “small farm units” of various sizes and rural living smallholdings.
- Support cultivation and conservation e.g., Biodiversity and Wine Initiative.

- Support Cederberg cultivation routes (rooibos, citrus and potatoes) and the development of related infrastructure, facilities and accommodation.

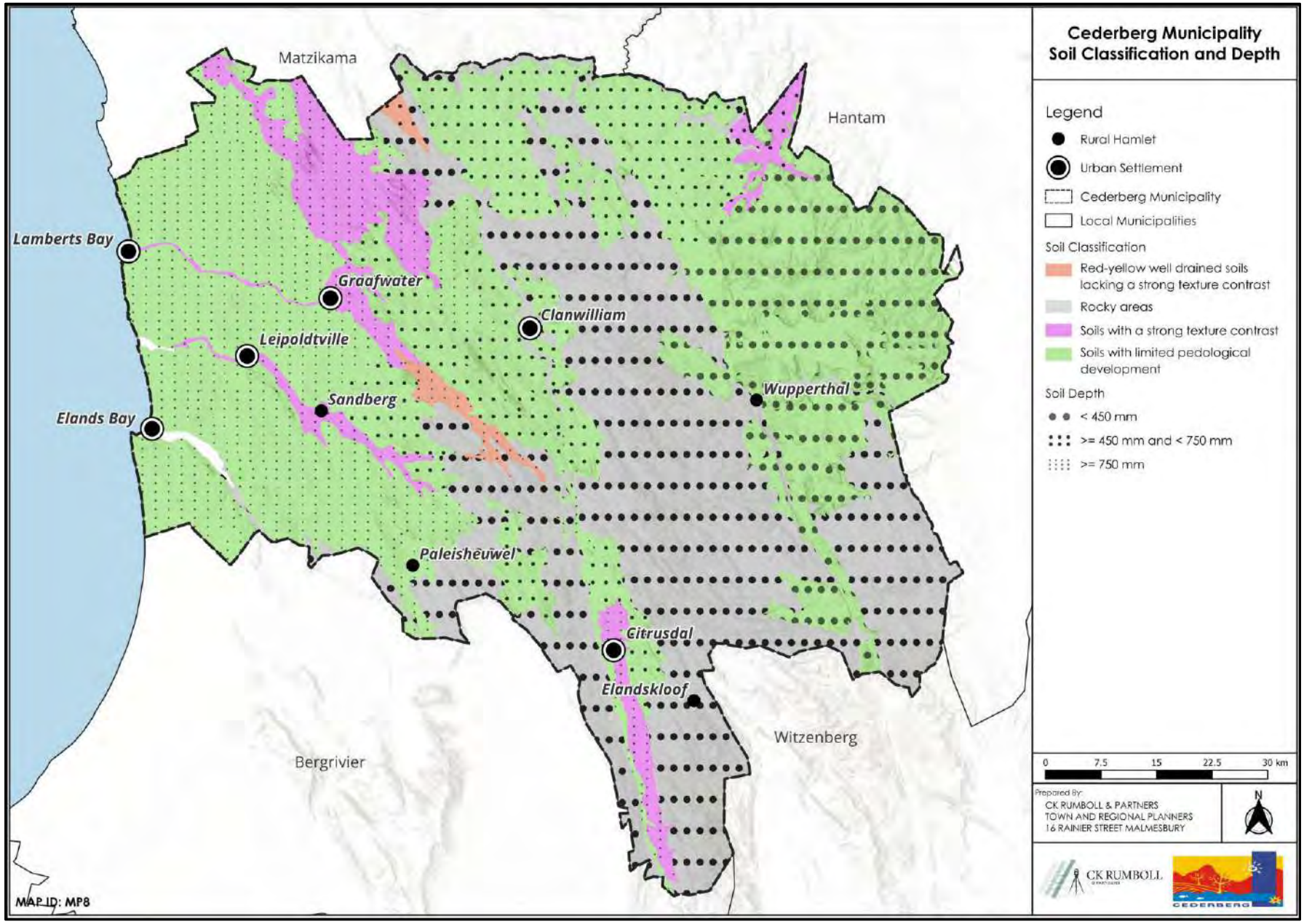
Develop

- Increased production to participate in value chain.
- Settle new and upcoming farmers (small and commercial).
- Support existing land reform projects and identify opportunities for land reform in intensive irrigation areas.
- Create a smallholdings forum for informal farming areas to deliberate development issues and establish development parameters.
- Support the development of an Intensive Rural Development Corridor along the N7 between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval.
- Provide for and support land uses to promote tourist facilities and farm stalls and big box agri sheds.
- Provide for skills development facilities of agricultural workers to develop skills in agriculture, tourism and niche products.
- Support and provide for nodal development in agricultural areas along prominent transport connectors (dual carriageways, regional links) and intersections.
- Prepare Clanwilliam and surrounding area as a potential future Agricultural Farmer Production Support Unit (FPSU) for the proposed Vredendal Agri Hub (as per as part of the West Coast District Rural Development Plan).

Map 55: Cederberg Homogenous Farming



Map 56: Cederberg Soils and Clay content



An Environmental Management Framework for soils as economic aid zones is outlined below:

Management priorities: Natural Economic Zones

Table 143: Management priorities

Management Priority	Priority Focus Area
Improvement and rehabilitation.	High potential agricultural land.
Conservation and preservation.	High potential agricultural land.
Environmental Impact Assessment Requirements.	All infrastructure requiring environmental approval as prescribed in the Environmental Impact Assessment Regulations.
Monitoring and management aspects.	All Environmental Approvals' implementation is regulated by an approved Environmental Management Plan that regulates management and monitoring aspects.

6.2.2.2 Natural Disaster: Climate change changes type of farming

Crop production and animal rearing cease. Climate change contributes to prohibit agricultural cultivation and rearing of stock, and other agricultural activities may replace traditional activities.

6.2.2.3 Opportunities: Agri-industries and Processing, Land Reform and Agri-tourism

Agri-industrial activities are all related to farming activities in the Cederberg. Management directives for soil and land resources include:

Agri-Industries and Processing

Change

- Provide for and promote agricultural and agricultural related industries: composting, alternative energy generation, communication network facilities.
- Provide for support services to agricultural activity (e.g. repairs).
- Provide for agricultural industries to enhance job opportunities.
- Support alternative transport i.e. rail for mining stock to limit impact on roads and improve economic viability of the railway network: Cape Town over Graafwater to Bitterfontein.

Develop

- Promote the production of niche products on-site (value adding) on the farm. Investigate the production of new agricultural-related and complementary products and promote their production on farms, e.g. aqua culture farming.
- Provide for tourism-related activities on farms and along waterways and water sources (such as the Olifants River and Verlorenvlei), e.g., farm stays, leisure accommodation and resort development, Agri-processing, tastings, restaurants, farm stalls, wineries and private nature reserves.
- Encourage labour intensive processing and manufacturing (for small scale agriculture).
- Promote a brand for Cederberg produce.
- Provide for initiation of commercial activities in which farm workers are involved (e.g. farm stalls and local markets).
- Enhance opportunities to establish new markets at local, regional, provincial and national level.
- Promote growing products and markets of agricultural produce (cultivation of citrus, potatoes and rooibos tea) and by-products. (Current products and current markets, i.e., labelling, niche products, biofuel,

develop agricultural service industries, strengthening supply chains, job creation).

- Promote growing and diversifying the agricultural sector combining cultivation (citrus, rooibos and potatoes) and conservation area creating new products and new markets i.e., natural resources, alternative energy (biofuel, electricity from wind, sun and water), tourism and conservation (Mediterranean climate and unique landscape features and markets and niche products).
- Support development of commercial infrastructure on farms along routes, including farm stalls and agri-processing, to support transport network and tourism routes.
- Strengthen value chain and support tourism development on farms.
- Promote the delineation of areas to establish agricultural and Agri-industrial structures outside settlements, along the Olifants River and in other areas where intensive cultivation takes place. Such areas have to provide security of tenure.

Develop:

- Update Land Reform Implementation map below (2011).
- Promote innovative land reform models with access to land and water.
- Identify suitable land in government and Municipal ownership.
- Promote stream aqua culture along the Olifants River, Verlorenvlei and in Farm dams.

Develop:

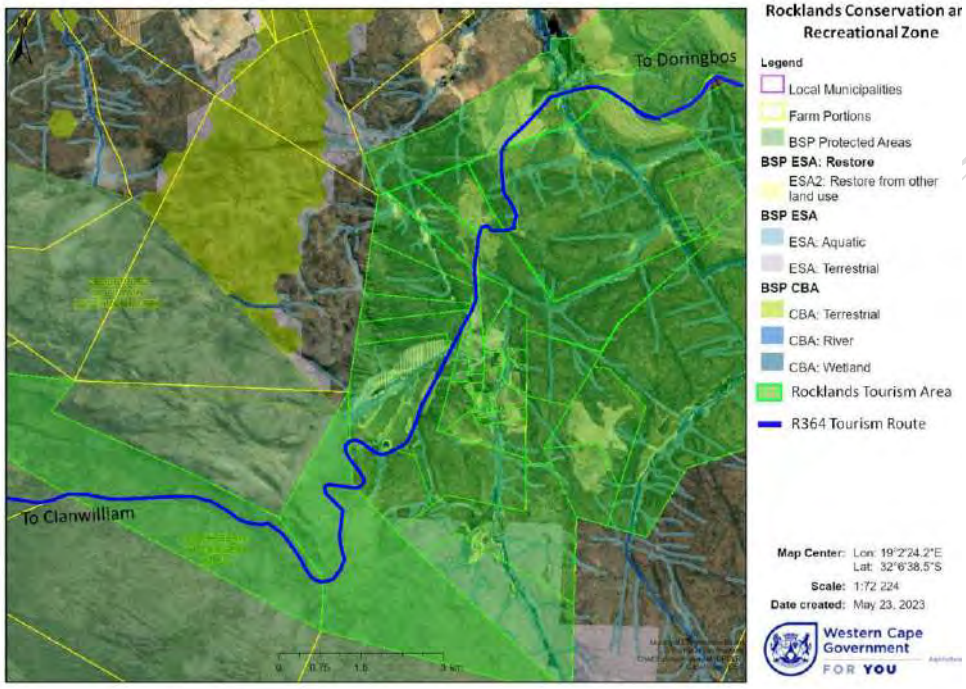
- Capitalise on the mild Mediterranean climate: October – April: Hot dry summers (30°C); May – August: Mild wet winters (20°C).
- Provide for Agri-tourism opportunities on farms, especially along the Olifants, Verlorenvlei, Langvlei, Doring, Matjies, Rondegat and Jan Dissels Rivers and in the surrounding mountains ranges.
- Support tourism related activities on farms and along waterways and water sources comprising farm stays, leisure accommodation and resort development, agri-processing, tastings, restaurants, farm stalls, wineries and private nature reserves.
- Strengthen and promote tourism routes and destinations within the West Coast District Municipal jurisdiction, incorporating the areas of Swartland, Cederberg, Matzikama and Bergrivier.
    - The West Coast Way "Berg Route" which starts in Velddrif and follows a course through Laaiplek, Port Owen, Dwarskersbos, Rocherpan Nature Reserve, Elands Bay, Aurora, Redelinghuys and Verlorenvlei, the Piekenierskloof Mountain Resort, Citrusdal, Eendekuil, Porterville, Piketberg, Wittewater and Goedverwacht – covering an area that stretches from the Berg River to the start of the Cederberg Mountains.
    - The West Coast Way "Wild Route" begins at Piekenierskloof Mountain Resort and follows a course through Citrusdal, Clanwilliam, Wupperthal, Vanrhynsdorp, Garies, Strandfontein, the West Coast of Matzikama and Cederberg, ending at the Verlorenvlei.
- Promote the development of new tourism routes and destinations:
    - Citrus route from Clanwilliam to Citrusdal, Rooibos Tea route around Graafwater towards Calvinia;
    - Seafood route from Elands Bay to Lamberts Bay;
    - Cultural route from Elands Bay (Baboon Point) to Cederberg;
    - Conservation Route R366, R365 and DR 1487 and 2182 (Cederberg Wilderness); Flower Route: N7, R364, 365 and 366;
    - Conservation and Heritage areas: Cederberg and Matjiesrivier Conservation Area, Verlorenvlei (R366) and Jakkalsvlei (R365).

Figure 16: Tourism routes



- Enhance the Rockland conservation and recreational zone.

Map 57: Rockland conservation zone



- Support the development and establishment of:
  - Farm stalls, involve more people in the tourism industry.
  - Recreational routes and accommodation facilities.
  - Agri-tourism (harvesting and cooking).
  - Grow Cederberg as part of the bigger West Coast and Karoo region: Birdlife, Biomes, agricultural landscape, small stock farming, fishing and limited wine production.
  - Strengthen and promote events/ festivals and wine tasting to build the agricultural brand:
  - Rooibos Tea Arts Festival.
  - Clanwilliam flower show.
  - Fresh Pak Fitness Festival.

6.2.2.4 Risks: Food Security

Extensive research is underway by the relevant department and only the impact of securing food production will be addressed in the MSDF.

Management directives for soil and land resources include:

Protect:

- Protect agricultural landscapes.
- Protect water sources and quality.
- Promote food security.
- Conserve and protect agricultural resources:
  - Ensure no cultivation of virgin land takes place without the written consent of the Minister of Agriculture.
  - Ensure no land with a slope of more than 20% will be cultivated without written consent of the Minister of Agriculture.
  - Ensure cultivated land is effectively protected against water and wind.
  - Avoid use of vegetation in a marsh or a water sponge or in a floodplain.
  - Reserve productive agricultural land for agricultural purposes.

- Preserve the agricultural character of the Cederberg particularly along the Olifants River.

Change:

- Promote locally produced agricultural products (in mass or small scale) to be produce of preference.
- Promote innovative land reform models.
- Foster innovative food production and diversification.
- Promote the revitalisation of the rural economy to address poverty and improve access to local economy.
- Promote the maintenance of existing and related fishing infrastructure to keep sense of place.
- Investigate aquaculture in the Olifants River or other rivers.
- Provide for manufacturing and maintenance of watercraft.
- Implement the Elands Bay Slipway and Parking area.
- Identify potential areas within urban areas to be utilised for community gardens.
- Re-orientate existing agricultural model to allow for the creation of smaller agricultural units in rural areas.
- Promote the Sandveld Environmental Management Framework (EMF) addressing the cumulative impact on ecological degradation and biodiversity loss.

Develop:

- Identify areas with low, medium and high potential agricultural soil close to urban development.
- Promote agricultural units of different sizes providing for intensive cultivation, alternative farming, small holdings and extensive residential holdings.
- Strengthen associations to promote community participation in local development issues and to determine land use-/ zoning guidelines.
- Develop an intensive agricultural corridor along the N7 between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval. Such a corridor can include heritage resources.

Environmental Impact Management directives for soil and land resources outlined below:

Table 144: EIM for soils

Environment/ Space	Types of developments, land uses or activities			Related environmental management policies and guidelines
	That should not occur	That may have significant impact	That have no significant impact	
High potential unique agricultural land	Any development that will not exploit the high agricultural potential and value.	Any development that will not exploit the high agricultural potential of the area.	Any development that will exploit the high agricultural potential of the land.	All guidelines, policies and legislation applicable to the Agricultural Industry.
Agricultural land of significant value	Any development that will not utilize the significant potential and value of the land.	Any development that will not exploit the significant potential of the land.	Any development that will exploit the significant potential of the land.	
Other Agricultural Areas	Uncontrolled development.	Uncontrolled development.	Controlled development.	
Smallholdings and agricultural uses	Non-agricultural oriented activities.	Non-agricultural oriented activities.	Managed agricultural oriented developments.	
Priority Mineral Resource Areas	No development that is in contradiction with the mine.	Worker's housing.	Mine-oriented infrastructure.	
Infrastructure servitudes	Any development that conflicts with the inherent right as contained in the servitude.	Any development that conflicts with the inherent right as contained in servitude.	Any development that does not conflict with the inherent right as contained in servitude.	Environmental Impact Assessment and Guidelines. Provincial Spatial Development Framework for the Western Cape Province. All legislation with an environmental aspect and corresponding regulations, policies and guidelines.

6.2.2.5 Proposals

Agriculture

- Support the development of an Intensive Rural Development Corridor along the N7 between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval.
- Promote the production of niche products on-farm (value adding) and investigate the production of new agricultural related and complimentary products e.g. stream aqua culture along the Olifants River, Verlorenvlei and in Farm dams.
- Promote and provide for tourism related activities on farms and along waterways and water sources (such as the Olifants River and Verlorenvlei) e.g., Farm stays, leisure accommodation and resort development, Agri-processing, tastings, restaurants, farm stalls, wineries and private nature reserves.
- Promoting the protection of homogeneous farming areas connecting cultivation across municipal boarders including rooibos tea cultivation, conservation agriculture towards the north (Matzikama) and northeast

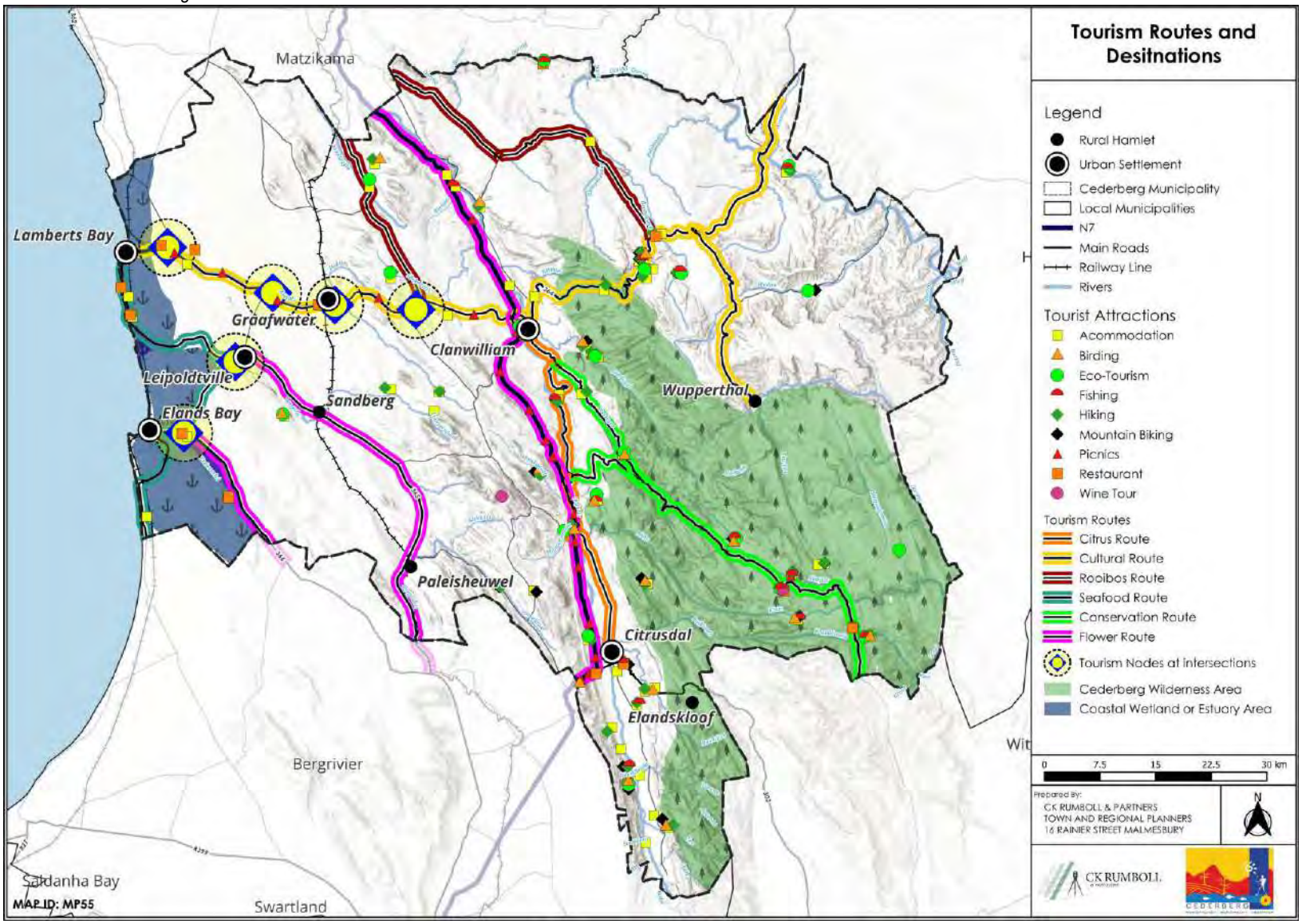
(Hantam), potatoes to the south (Bergrivier) and citrus at the centre of the Cederberg.

- Protect intensive and extensive agricultural land to secure food production.

Promote Agri-tourism opportunities

- On farms especially along the Olifants, Verlorenvlei, Langvlei, Doring, Matjies, Rondegat and Jan Dissels Rivers and in the surrounding mountains ranges.
- Along existing routes and destinations within the West Coast District Municipal jurisdiction, incorporating the areas of Swartland, Cederberg, Matzikama and Bergrivier.
    - The West Coast Way "Berg Route" which starts in Velddrif and includes Elands Bay, Verlorenvlei, Piekenierskloof Mountain Resort and Citrusdal, covering an area that stretches from the Berg River to the start of the Cederberg Mountains.
    - The West Coast Way "Wild Route" begins at Piekenierskloof Mountain Resort and follows a course through Citrusdal, Clanwilliam, Wupperthal, and to Matzikama down the coast southwards ending at the Verlorenvlei.
- And establish new tourism routes and destinations combined with art, sport and food:
    - Citrus route from Clanwilliam to Citrusdal, Rooibos Tea route around Graafwater towards Calvinia;
    - Seafood route from Elands Bay to Lamberts Bay;
    - Cultural route from Elands Bay (Baboon Point) to Cederberg;
    - Conservation Route R366, R365 and DR 1487 and 2182 (Cederberg Wilderness); Flower Route: N7, R364, 365 and 366;
    - Conservation and Heritage areas: Cederberg and Matjiesrivier Conservation Area, Verlorenvlei (R366) and Jakkalsvlei (R365);
    - Outdoor Sport and Recreation routes including hiking and mountain biking, bird watching, wildflower viewing, horse trails, fishing and water sport in and around the Greater Cederberg Conservation Corridor;
    - Cultural Heritage Route is one such a route amongst villages of Heuningvlei, Brugkraal and Wupperthal.
- Promote renewal/ upgrading existing railway station and siding buildings including grain silos and water storage facilities along the railway line.
- Promote the formal protection and management of a valuable cultural resource within Cederberg being home to some of the oldest population groups (Khoisan) in Southern Africa.
- Promote tourism development nodes at intersections: along R364 (between Graafwater and Lamberts Bay; to Northern Cape and Karoo) and R365 (between Leipoldtville and Lamberts Bay); (from cost to Bergrivier Municipality).

Map 58: Tourism and Heritage



6.2.3 Mineral Resources

6.2.3.1 Natural Resource: Minerals

Lime and sand are the main mineral resources in the Cederberg.

Consider mines by taking into account the socio-economic impact, the sustainability of the operations and environmental impact, the quality and type of sand, the financial viability, environmental justification and rehabilitation of the mine. The best quality sand, and most generally used in the building industry, is hill wash and colluvial sand. Hill wash and colluvial sand have been moved downslope under the influence of gravity and by surface wash. These processes occur during major storms which cause saturation of the soil followed by surface runoff.

Management directives for mineral resources include:

Protect

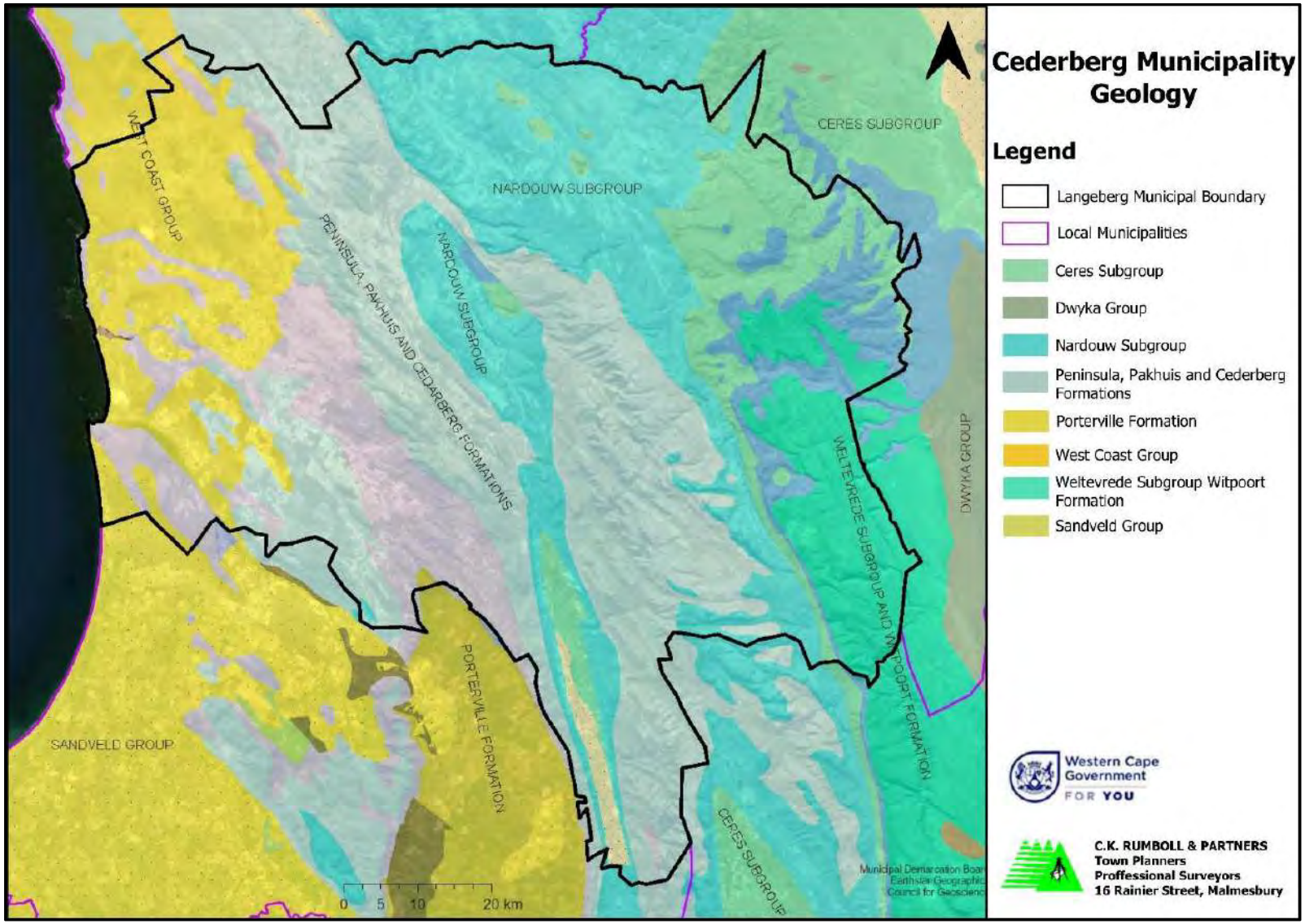
- Protect sensitive environments (visual, agricultural resources, natural, cultural) from the potential impact of mining. Caution mining activities which is not viable and are counterproductive to the character of the area such as region 5, 6, 7 as well as particularly sand mining.
- Map all viable mineral and geological resources for mining.

Change

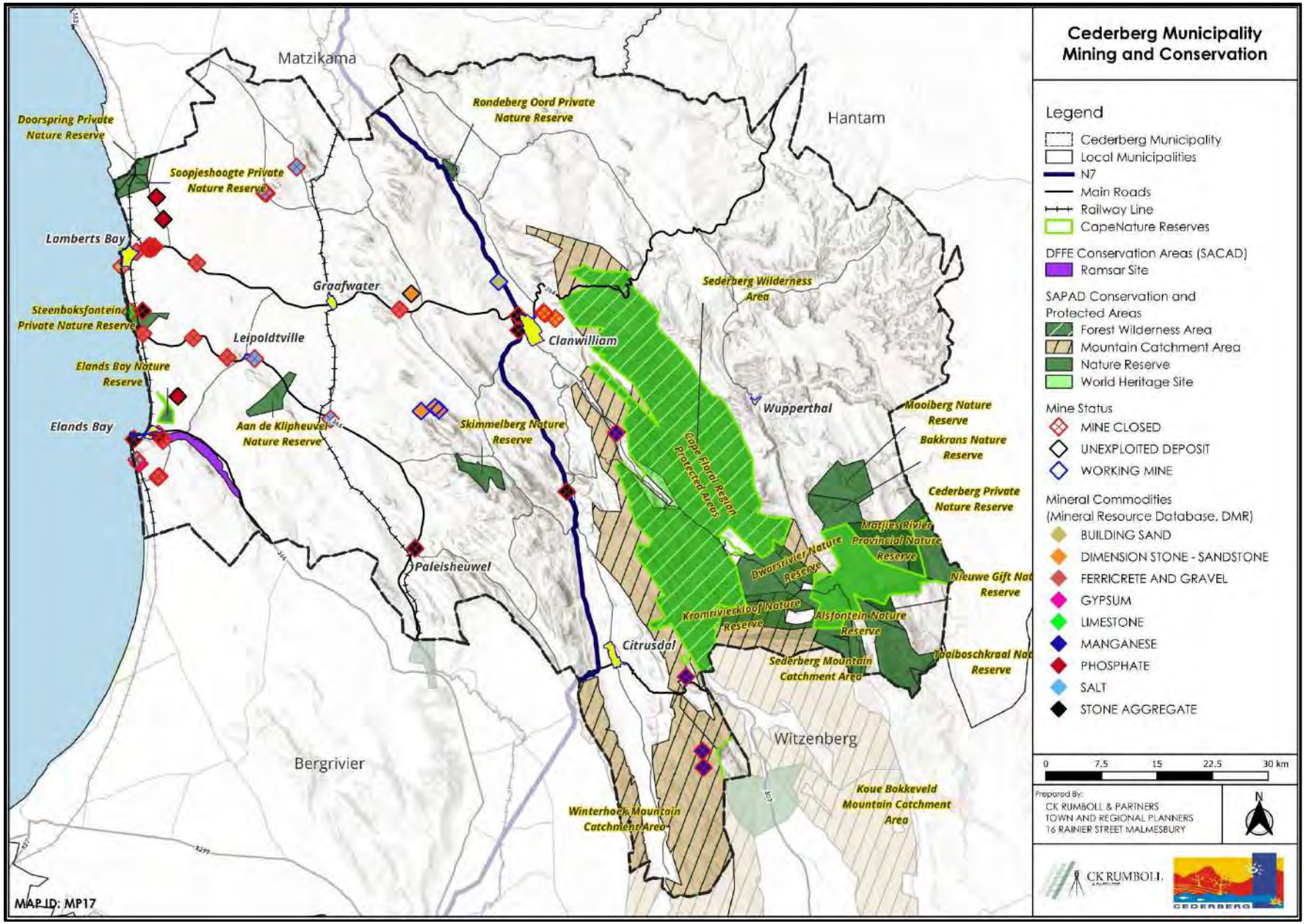
- Support sustainable mining and determine the potential cumulative impacts associated with mining activities on the Cederberg landscape. Facilitate mining activities to limit ecological and aesthetic damage (visual intrusion). Rehabilitate ceased mines and as per EMPr.
- Develop guidelines for the assessment of sand mining applications in the Cederberg to limit impact on other resources such as the landscape.
- Align mining activities with spatial planning, land use and environmental norms: Ensure the protection of landscape features and natural and agricultural environment during exploitation and rehabilitation.
- Caution mining activities which is not viable and are counterproductive to the character of the area such as region 5, 6, 7 as well as particularly sand mining.
- Control rehabilitation of mines and ensure continued rehabilitation of mining operations during and after operations, whilst the rehabilitation of mines not previously rehabilitated is promoted.
- Limit potential impact of mine dumps (sand mine heaps) on rural landscape feature. Store overburden on acquired farm next to mine.
- Require compliance to sustainable environmental norms (minimizing economic, environmental and social impacts) in the consideration of mining applications in the Cederberg.
- Identify all mineral and geological sources suitable for mining and determine its viability (based on financial viability [i.e., quality of the sand] versus environmental degrading [aesthetic value, tourism, citrus, rooibos, potatoes, agricultural land uses and conservation]. Develop detailed Precinct Plans for these areas to prohibit mining work against conservation and tourism.
- Assign land use parameters to suitable resources and support the land use changes required for excavating natural resources, applying

- sustainability norms, mitigate existing impacts, effective rehabilitation and alternative transportation to dispatch product.
- Caution mining activities which is not viable and are counterproductive to the character of the area such as region 5, 6, 7 as well as particularly sand mining.

Map 59: Cederberg Mineral Resources



Map 60: Cederberg Operational Mines and Mineral Commodities vs Protected and Conservation Areas



6.2.3.2 Natural Disaster: Earthquakes and Floods

Floods happening within the 100-year flood plan.

6.2.3.3 Opportunities: Mining related Industry

Opportunities include related industry development and growth and employment creation.

6.2.3.4 Risks: Dust, Colouration and Visual Impact

Risks in the mining industry include:

- Generation of dust that cause colouration of the landscape.
- High visual impact on the magnificent landscape.
- No compliance to rehabilitate.

Environmental Impact Management directives for Mineral zones are outlined below:

6.2.3.5 Proposals

- Identify all mineral and geological sources suitable for mining and determine its viability (based on financial viability [i.e. quality of the sand] versus environmental degrading [aesthetic value, tourism, conservation, citrus, potatoes, rooibos tea and intensive agricultural land uses]. Develop guidelines for these areas to prohibit mining work against tourism. Mitigate existing impacts, effective rehabilitation and alternative transportation to dispatch product.
- Caution mining activities which is not viable and are counterproductive to the character of the area such as region 5, 6, 7 as well as particularly sand mining.
- Caution generation of dust that cause colouration of the landscape and high visual impact on the magnificent landscape, no compliance to rehabilitate.

Table 145: EIM for mineral zones

Environment/ Space	Types of developments, land uses or activities			Related policies and guidelines
	That should not occur	That may have significant impact	That have no significant impact	
Priority Mineral Resource Areas	No development that is in contradiction with the mine.	Workers' housing.	Mine related infrastructure.	All guidelines, policies and legislation applicable to the Agriculture and Mineral Industry.

6.2.4 Vegetation, Fauna, Ecosystems

6.2.4.1 Natural Resource: Natural Environment (critical and common fauna and flora) and Landscapes

Management directives for natural environment zones include:

Protect:

- The disturbance of ecosystems should be avoided, minimized, or restored.
- Any activities concerning mining, cultivation, or business operations that have an impact on the environment need to comply with the regulations of the National Environmental Management Act.
- Allow no development within the flood lines.
- Maintain environmental setback lines.
- Create an open space network system along rivers.
- Classify all renosterveld as Core 1 and 2 areas, as it is listed as a threatened ecosystem that is classified as a Critical Biodiversity Area (CBA).
- Promote the application of spatial planning categories to facilitate objective decision-making in development applications, including:
    - Core Areas (Cederberg Wilderness Area, Matjies River Nature Reserve, Coastline, Public and Private nature reserves).
    - Buffer Areas (Pakhuisberg, Kransvlei Berg, Piekenierskloof, Smalberg, Maraisberg, Koerkasieberg).
    - Intensive Agricultural areas (Olifants River Valley, Traval South).
- Promote a register of Nature Reserves, Private and state-owned.
- Promote the official categorization of all mountains and all Public and Private Nature Reserves as Core 1 and 2 areas.
- Plan an informed balance between and establish targets for natural, cultivated, and built areas.
- Promote establishing buffer conservation areas along mountain corridors and the coast. Target the inclusion of remnants of natural vegetation to expand their conservation area.
- Protect natural assets and resources including biodiversity, topography, soils and water resources, geology, hydrology, and promote the beneficial use of environmental resources serving the public interest and simultaneously protecting it as common heritage.

Change:

- Manage conservation areas in accordance with national norms and standards.
- Integrate ecological processes with the needs of the communities to ensure the sustainable use of resources in and around the Mountain areas and along rivers (bioregional planning based on bioregional planning principles).
- Combine tourism and conservation. Eco-tourism catering for the local and international tourist market has become the primary economic activity on farms. Promote eco-tourism and tourism-related land uses, especially in the Cederberg Wilderness Area and other sensitive environments:
    - Enhance eco-tourism in the Cederberg Wilderness Area, including camping and rock climbing and hiking, numerous day and overnight hikes including the popular and spectacular Wolfberg Arch, Wolfberg Cracks and the Maltese Cross and the amateur astronomical observatory, hosting public open evenings.
- Carefully consider the type, mass and scale of eco-tourism and related developments that is proposed, compared to the receiving environment. (Western Cape Land Use Planning Guidelines – Rural Areas (March 2019) provide directives).

- Promote alternative and more effective use of conservation areas to allow opportunities for alternative income generation on the farms.
- Promote use of rivers, mountains and other natural features to enhance tourism.
- Promote soft uses such as outdoor sport and recreation routes, including hiking and mountain biking, bird watching, wildflower viewing, horse trails, fishing and water sports.
- Build awareness of conservation and cultivation in supporting sports festivals: Rooibos Tea Arts Festival, Clanwilliam flower show, Fresh Pak Fitness Festival.
- Continuously clear alien vegetation.
- Limit internal fences to create a natural corridor.
- Promote and support responsible stewardship of natural resources and the environment and conservation area, including mitigation of environmental damage.
- Minimise waste and environmental damage in the food production chain.
- Be cautious where the impacts are unknown and uncertain.
- Act within ecological constraints and preserve critical natural capital that provides for continuous income from ecosystem advantages such as biological diversity, mineral resources and clean air and water.
- Ensure that the joint capacity of the biophysical environment is not exceeded.

Develop:

- Promote the establishment of Cederberg Conservancy and West Coast Conservation Corridor; and
- Provide for ecological links to support connectivity between habitat areas.
- Promote the establishment of a climate change corridor on the southern boundary of the Cederberg municipal area, bordering the Bergrivier municipal area.
- Establish, from the Cederberg to the coast, a landscape and buffer area.
- Support the formalization of Open Space Networks and Conservation Corridors in urban and rural areas to protect natural habitat areas.
- Promote sustainable coastal development, in the interests of the current and future generations to obtain a balance between material prosperity, social development, cultural values, spiritual fulfilment and ecological integrity.
- Promote the establishment of wildflower and nature reserves.
- Provide for recreational opportunities: Hiking, mountain bike trails around and along adjoining hills and mountains, bird watching, horse riding, 4 x 4 trails and clay pigeon shooting, whale watching.
- Develop interface guidelines (use of colours, landscaping, lighting, massing and form) to manage open space & river frontage and routes.
- Determine a development line along the foot of the mountain (conservation and landscape).

Coastal ecosystems (estuaries, sandy beaches and dune systems, dune groves and fynbos)

Strandveld dune thicket and dune fynbos:

- Development must avoid all rocky reefs and coastal dunes.
- Natural corridors must be maintained along north-south as well as coastal-interior gradients.
- Avoid impact on wetland areas or riverbanks.
- Node development is better in dune fynbos.
- Corridors of at least 20m width of natural vegetation must be retained in dune fynbos as well as dune thicket, to allow movement of birds and animals between undisturbed and continuous habitats.
- Avoid development that disturbs connections between valley roughs and dune thickets.

Lowland fynbos ecosystems (sand fynbos and limestone fynbos)

- Since sand fynbos and limestone fynbos are highly susceptible to being overtaken by alien plants, habitat fragmentation and disturbance of the boundaries of such areas must be avoided.
- Settlement infrastructure is not compatible with the conservation of fynbos, but if development should take place, the context must determine whether linear development will take place. Houses / structures must be grouped to allow firebreaks. Building materials must be fire-resistant, with thatched roofs deemed inappropriate.
- Developing wetlands should be prevented and wetlands must be provided with buffers.
- Most plant communities within sand fynbos and limestone fynbos are located parallel to the coast. Spatial planning must allow for sub-communities perpendicular to the coast.
- Corridors of sand fynbos must be at least 300m wide.
- Most limestone fynbos types are slow-growing and vulnerable and must be protected.

Mediterranean and mountain fynbos ecosystems (alluvial fynbos, granite, ferrous, conglomerate and silcrete fynbos, grass fynbos and sandstone fynbos)

- Develop to allow for controlled/uncontrolled fires, with firebreaks as part of the development footprint.
- Fynbos, located in lower-lying areas, must be linked to rocky areas and outcrops by natural vegetation corridors.
- Avoid fragmenting ecological corridors.
- Orchards and indigenous plantations (proteas, buchu) must not be closer than 2km from where such plants naturally occur.
- Mountain peaks should not be used for telecommunications masts, 4x4 routes or roads.
- Footpaths should be carefully laid out and maintained regularly to prevent erosion.

Renosterveld ecosystems (coastal renosterveld and interior renosterveld)

- Ideally, a buffer of at least 30m must be left between all development, especially agricultural land and core renosterveld conservation areas.
- Prevent further fragmentation of renosterveld. Systems are usually already fragmented, so connections between sections need to be maintained. Where possible, connections should be rehabilitated.
- Silcrete, ferric and quartzite portions must be fenced off, but must still allow the free movement of turtles and small buck species.

Environmental Management Framework for the natural environment is outlined below:

Table 146: EMF for natural resources

Management priority	Priority focus areas
Improve and rehabilitate	All management and rehabilitation activities within the biodiversity priority zones must be set out by the Environmental Management Plans for the identified areas. The following Early Detection and Rapid Response (EDRR) measures must be implemented: • Regular surveys of municipal properties must be undertaken to detect any new or emerging listed invasive alien plants. • Category 1a species must be reported immediately to the Department of Environment, Forestry and Fisheries, and assistance for the control of the species. • Emerging or new species must not be allowed to produce seeds or offspring or start growing vegetatively and must be removed immediately. • The invasive alien plant control plan must be updated by including these species and indicating where on the property they were located. • Areas that have been cleared must be checked regularly to remove re-sprouting plants or seedlings quickly.
Conserve and preserve	Conservation areas designated as biodiversity priority areas as indicated in the Spatial Development Framework must be retained and preserved. All other impacts on natural veld must be guided by a biodiversity assessment and, if needed, an environmental impact study. The following preventive EDRR measures must be implemented: • No listed invasive alien plant species will be planted. • Areas bordering onto neighbouring properties, particularly along ecological pathways, i.e., river valleys and remnant indigenous vegetation, will be prioritized for control to prevent existing invasive alien plants from spreading beyond the boundaries of the property, and for the maintenance of firebreaks. • The prevention measures must be communicated to all users of the property (where applicable).
Environmental Impact Assessment Requirements	All proposed impacts that will lead to the clearing of more than 300m² of natural vegetation, where natural vegetation covers more than 75% of the area, must be subjected to an environmental impact assessment and environmental approval must be obtained before the activities may take place. Proposed large scale tourism facilities must be subjected to an environmental assessment, and environmental approval must be obtained before the development may take place. The following EDRR measures may require an EIA: • Possible pollution caused by fuel and oil when alien plants are manually removed using mechanized tools. • The use of herbicides may contaminate sites used for drinking water, for washing and fishing, and can therefore, threaten human and animal health. May kill non-target plants or species. • Any use of chemicals around bio-control agent colonies may adversely affect the potency of this control method. • Cannot be used where the bio-control agent would threaten commercial populations of the target species that may exist nearby including community woodlots.

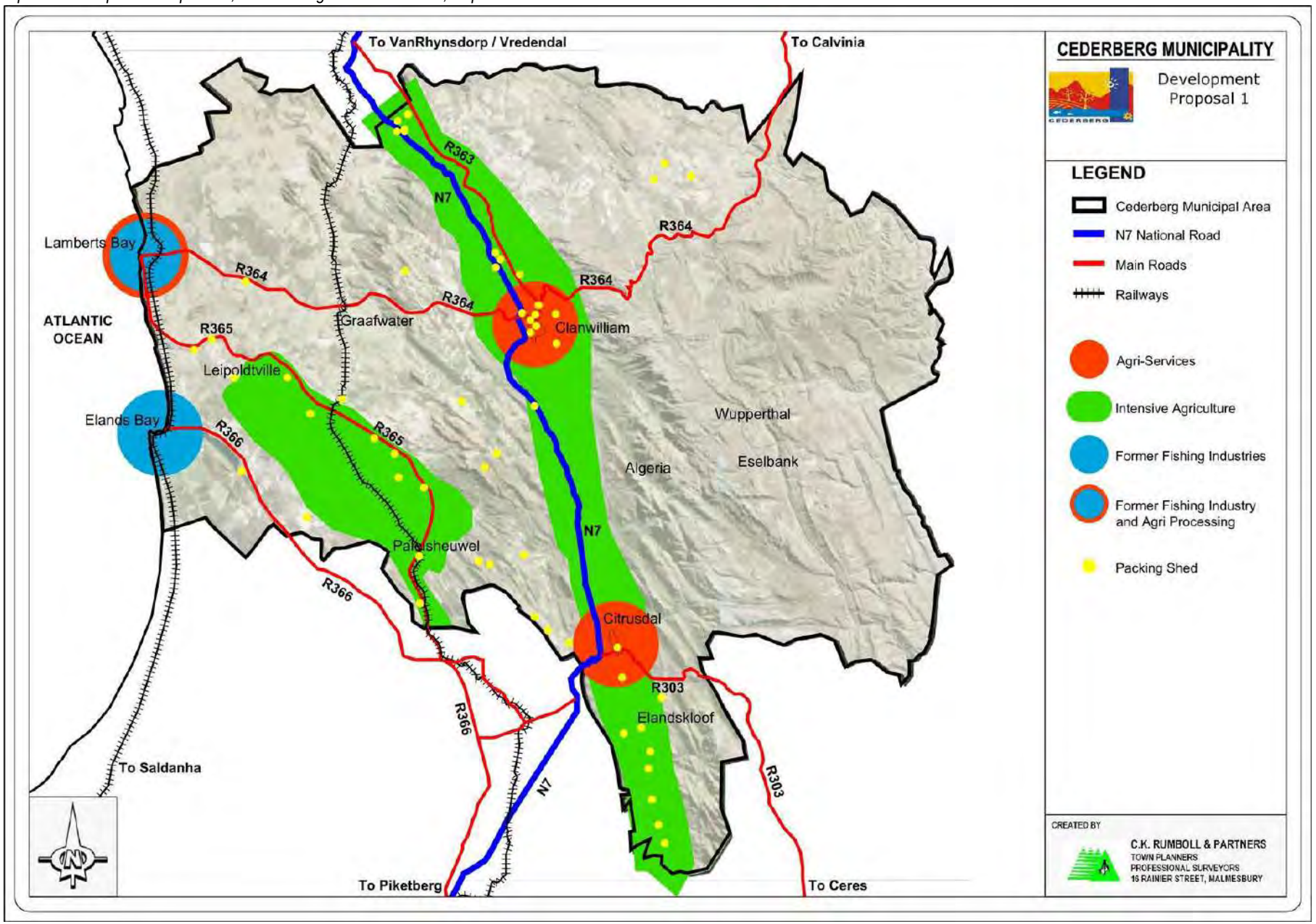
Monitoring and management aspects	All monitoring and management aspects must be set out by a biodiversity environmental management plan, to be drawn up for priority areas. The National Environmental Management: Biodiversity Act (NEM: BA) and Regulations place an obligation on a person to exercise Duty of Care when controlling invasive alien plants: • Comply with the permit conditions for permitted species in terms of Section 65(1) and 71(1). • Take all the required steps to minimize the harm to biodiversity, including sensitive riparian areas. • Notify the competent authority, in writing, of the listed invasive alien plants that occur on the property. • Take all the required steps to control and eradicate the listed invasive alien plants on the property and prevent it from spreading. Where invasive alien plants occur within sensitive riparian and wetland areas, areas with steep slopes and Critical Biodiversity Areas low impact manual (no heavy machinery such as back actors) control methods with limited use of herbicide must be used. The Fertilizer, Farm Feeds, Agricultural and Stock Remedies Act (Act 36 of 1947), governs the use and application of herbicide and includes the following requirements: • All herbicide applications are to be made under the direct supervision of a registered Pest Control Operator. • All persons applying herbicide are to be trained in their use. • Correct Personal Protective Equipment must be worn when applying herbicide (listed on herbicide label). • Only registered herbicides may be used. Invasive alien plants increase fuel loads and thereby the risk and intensity of vegetation fires. The landowner must, therefore, put measures in place that prevent the starting and spreading of vegetation fires on the property to neighbouring communities and properties: • Manage invasive alien plant fuel loads by implementing effective invasive control methods and removing (chipping, transport to a legal dumpsite, community firewood etc.) cut biomass. • Prepare and maintain firebreaks around the property and infrastructure. • Ensure that the removal of biomass and the preparation of firebreaks do not cause soil erosion. The Cederberg Municipality must bring invasive alien plants under control through systematic, integrated and appropriate control methods as stipulated in the control plan. Sufficient funding must be allocated to ensure the long-term control of invasive alien plants: • Mechanical control involves the physical destruction or total removal of plants. Mechanical methods are generally appropriate for sparse infestations and for species that do not coppice after cutting and include pulling out plants by hand or manual removal using hand tools. • Chemical control of invasive alien plants involves the use of herbicides to kill targeted plants. Managers and herbicide operators must have a basic understanding of how herbicides function, as this will guide the correct selection of herbicides for different purposes and plants. • Biological control, or bio-control, is the introduction of natural enemies to remove the plants' competitive advantage (spreading very rapidly due to lack of natural enemies, e.g., browsers or pathogens) and reduce population vigour to a level comparable to that of the natural vegetation.
Research and Education	

Environmental Impact Management directives for the Natural Environment are outlined below:

Table 147: EIM directives

Environments/ Spaces	Types of developments, land uses or activities			Related environmental management policies and guidelines
	That should not occur	That may have significant impact	That have no significant impact	
Conservation areas	Developments that are not focused on eco-tourism.	Developments that are not focused on eco-tourism.	Eco-tourism developments.	Environmental Impact Assessment and Guidelines. Provincial Spatial Development Framework for the Western Cape Province. All legislation with an environmental aspect and corresponding regulations, policies and guidelines.
Critical Biodiversity Areas 1	Developments that are not closely focused on eco-tourism.	Developments that are not focused on eco-tourism.	Eco-tourism developments.	
Critical Biodiversity Areas 2 (Rehabilitate and irreplaceable areas)	Developments that are not closely focused on eco-tourism.	Any developments that are not focused on eco-tourism.	Eco-tourism developments.	
Critical Ecological Support Areas. Other Ecological Support Areas	Developments that are not closely focused on eco-tourism.	Residential Developments, Commercial and Industrial Developments. High intensity agricultural activities.	Services distribution. Limited development after Environmental Impact Assessment has determined the guidelines.	
Other Natural Vegetation Areas	Uncontrolled development.	Residential Developments, Commercial and Industrial Developments. High-intensity agricultural activities must be requested.	Residential Developments, Commercial and Industrial Developments.	

Map 61: Development Proposal 1; Intensive agricultural corridor, Oliphant River



Management directives for natural environment and agricultural zones include: Agriculture and Conservation.

Protect:

- Protect critical biodiversity areas, ecological corridors and natural habitats and provide for ecological links to support connectivity between habitat areas.
- Promote Conservancies enhancing land management.
- Promote the conservation of natural, cultivated & domestic (farmyard) Cederberg landscapes; Protect landscape features including heritage elements, old farmsteads, mature trees and tree lanes, changing of seasons reflected in landscape colour and structure.
- Protect scenic routes and vistas and unique natural landscapes.
- Promote erosion (wind and water) prevention and rehabilitation through protective preparation methods and the planting of perennial crops.

Change:

- Establish landscape and buffer areas or climate change corridors.
- Support the establishment of Open Space Networks and Conservation Corridors in urban and rural areas to protect natural habitat areas and to mitigate climate change.
- Establish buffer conservation area along mountain corridors to ensure effective conservation and management of natural vegetation remnants.
- Protect and conserve the agricultural landscape through development guidelines.
- Support evolving heritage as tourism destinations such as cultural and landscape routes.
- Protect the sensitive natural environment and agricultural resources maintaining food security from inappropriate and opportunistic development.

Develop:

- Support development of capacity for environmental awareness and education.
- Support the application of an Environmental Management Framework (as part of this SDF) for Cederberg.
- Promote management and conservation of catchment areas, clearing of alien vegetation, wetland and river management.
- Promote risk and disaster management plans.

Environmental Impact Management directives for natural environment zone are outlined below:

Table 148: EIM directives

Management priority	Priority focus areas
Improve and rehabilitate	All management and rehabilitation activities within the biodiversity priority zones, must be set out by the Environmental Management Plans for the identified areas.
Conserve and preserve	Conservation areas designated as biodiversity priority areas as indicated in the Spatial Development Framework, must be retained and preserved. All other impacts on natural veld must be identified and guided by an environmental impact study.
Environmental Impact Assessment Requirements	All proposed impacts that will lead to the clearing of more than 300m² of natural vegetation, where natural vegetation covers more than 75% of the area, must be subjected to an environmental impact assessment and environmental approval must be obtained before the activities may take place. Proposed large scale tourism facilities must be subjected to an environmental assessment, and environmental approval must be obtained before the development may take place.
Monitoring and management aspects	All monitoring and management aspects must be set out by a biodiversity environmental management plan, to be drawn up for priority areas.

6.2.4.2 Opportunities: Tourism and Agri-tourism

The natural landscape provides a sense of place that reflects the cultural integrity and heritage of the environment. Cederberg as a conservation and ecotourism area provide a magnitude of opportunities to establish tourism routes.

Conservation and Agri-Tourism

Develop:

- Tourism Routes, activity routes and destinations including:
- Eco-tourism opportunities.
- Recreation: Hiking, Cycling/mountain biking, Fishing.
- Resorts: Camping, caravan parks, hot springs and game reserves.
- Nature reserves, the West Coast wildflowers and Eco (Cederberg) and adventure tourism.

Promote tourism strategy being revised regularly:

- Promote the link between rural, urban and Agri-tourism opportunities. Map farms offering tourism opportunities and link them as part of wider tourism routes.
- Promote effective management and maintenance of existing tourist attractions and investigate new tourism opportunities.
- Provide for tourism infrastructure (roads and existing services), based on environmental impact assessment considerations.
- Provide opportunities for the local community, especially unemployed and disadvantaged people, to access to economic opportunities (arts and crafts, local guides, and local food).
- Support Agri-tourism opportunities on farms especially along the Cederberg Rivers and in mountains ranges.
- Promote the primary right of a camping site, limited to a maximum of 10 tent or caravan stands catering for not more than 40 people, included in the definition of “Agriculture” and being a primary right as per the municipal zoning scheme.
- Promote the socio-economic opportunities generated from natural resources such as the biomes, wildflowers, unique natural vegetation, reserves, conservation areas, historical and cultural heritage and landscapes as tourism resources.
- Support tourism routes within the West Coast District Municipal jurisdiction, incorporating the areas of Cederberg, i.e.
    - The West Coast Berg Route including Elands Bay, Verlorenvlei, Piekenierskloof and Citrusdal.
    - The West Coast Wild Route: Piekenierskloof, Citrusdal, Clanwilliam, Wupperthal and Verlorenvlei.
- Support the development of water resources for sport and recreation. Provide specifically for picnic areas on and in the water.
- Conserve the pristine coastline and provide formal public access to limit the impact on the environment.
- Promote infrastructure that will support the local tourism industry in urban and rural areas.
- Delineate zones and routes related to agriculture and tourism & support farm stays and tourism accommodation to these zones and routes.
- Development of guidelines for resorts along Oliphants and Doring Rivers and other rivers in Cederberg.
- Encourage Film industry uses (business tourism).

Agri-Tourism

- Promote development of infrastructure (private and public), facilities and accommodation on farms that support tourism routes and freight networks, including farm stalls (leisure tourism) and agri-processing (business tourism) informed by environmental impact assessments where required.
- Support tourism accommodation, leisure accommodation and resort development along tourism routes, on farms and along waterways and water sources e.g., Oliphants River.

- Promote a camping site, limited to a maximum of 10 tent or caravan, catering for not more than 40 people, included in the definition of Agriculture and as a primary right per the municipal zoning scheme.

- Incorporate heritage resources as part of festivities.
- Strengthen value chain and support tourism development on farms as an additional source of income.
- Capitalise on recreation and sports events as commercial opportunities e.g. water skiing and create more opportunities or canoeing, river rafting, fishing and water sports.
- Strengthen tourism routes between Cederberg and neighbouring municipalities.
- Provide opportunities where the local community, especially unemployed and disadvantaged people can get access to economic opportunities (arts and crafts, local guides, local food).
- Strengthen and expand tourism routes, festivals (e.g., Rooibos Tea Arts Festival and Fresh Pak Fitness Festival) and events (e.g., Clanwilliam flower show).
- Support Agri-tourism opportunities on farms especially along the Oliphants River and other rivers.
- Support and develop socio-economic opportunities arising from unique landscapes, conservation and the cultivation of rooibos tea, potatoes and citrus.
- Support aqua and marine culture and eco-tourism at Lamberts and Elands Bay.
- Support Agri- and eco-tourism at Paleisheuwel, Graafwater, Wupperthal and Algeria.
- Redevelop the railway stations at Graafwater, Paleisheuwel and Sandberg as tourism destinations.
- Grow Cederberg as part of the bigger West Coast tourism region: Birdlife – Verlorenvlei and Malgas Island; Wildflowers – Citrusdal, Elands Bay, Lamberts Bay and Graafwater.
- Develop water resources for sport and recreation: Sports and recreational tourism: Olifants River.

Develop

In rural and urban areas with economic potential, develop opportunities and promote growth in the following:

- Regional and local agricultural service centres (as Clanwilliam – Ward 3, Citrusdal – Wards 1 and 2, Graafwater – Ward 4 and Lamberts and Elands Bay – Ward 5).
- Strengthening and support of the Agri-tourism industry (improve accommodation facilities on farms, development of niche products, develop hiking and mountain bike trails, support agricultural festivals in the region, develop new tourism routes, support farm stalls, involve more people in the tourism industry).
- Grow Cederberg as part of the bigger West Coast and Karoo region: Birdlife, Biomes, agricultural landscape, small stock farming, fishing and limited wine production.
- Support economic incentives to stimulate growth.
- Promote the informal economy in the tourism industry.
- Support alternative uses of farms.
- Re-orient existing agricultural model to allow for the creation of smaller agricultural units and co-operative farming in rural areas.
- Capitalise on mild climate: Hot dry summers and mild wet winters.
- Promote development of infrastructure (private and public) and facilities on farms that support freight networks, including agri-processing and storage.

An Environmental Management Framework for Natural Environment Zones are outlined below:

Table 149: EMF for natural environment zones

Management priority	Priority focus areas: Cultural and Recreation Resource Zone
Improve and rehabilitate	Rehabilitate buildings that have culturally historical value.
Conserve and preserve	Manage, rehabilitate and preserve culturally historical landscapes, graves, monuments, etc. as described under the Heritage and Cultural Law.
Environmental Impact Assessment Requirements.	All monitoring and management aspects must be set out by an environmental management plan to be drawn up for biodiverse priority areas. The assessment process will determine what impacts may occur on the cultural-historical aspect.
Monitoring and management aspects	Specialist studies will identify monitoring and management aspects. These must be included in the Environmental Management Plan, which will regulate the management and monitoring of all cultural historical areas.

Management directives for natural environment zones concerning landscapes and settlements include:

Landscapes

Change:

- Preserve the character of the Cederberg, inclusive of the unique landscape of agriculture, including citrus, potatoes and rooibos, and mountains.
- Promote information about heritage resources and the prohibition of loss of and impact on cultural & heritage resources.
- Promote improved roadside signage and buildings in sensitive landscapes.
- Promote and protect the landscape (natural and heritage) features of the Cederberg as part of the tourism attraction.
- Promote the utilization of heritage resources as assets that need protection and can be utilised as a tourism attraction.
- Promote tourism to develop sensitively and contribute to the protection of the landscape and heritage landscape.
- Map landscape, incorporate in tourism maps and promote the protection of these landscapes.
- Promote the planting of trees by all households settled within Cederberg.
- Promote the:
    - Declaration of special heritage planning areas.
    - Protection of heritage resources and creation of areas with a fresh or new sense of place through urban design and rejuvenation. Support the restoration of historic spatial patterns and the effective and efficient use of existing infrastructure.
    - Issue of development and no-development instruction.
- Submit the inventory of heritage resources and the heritage overlay zones to the relevant provincial heritage authority for formalization. The inventory should include historic buildings and structures, archaeological resources and heritage landscapes.

Develop:

- Develop understated, unique gateways/entry point features to settlements.
- Map heritage areas on farms and in settlements to ensure appropriate development.
- Develop support infrastructure and spaces for festivals, events and celebrations.
- Support the development of integrated settlements and establish precincts with a fresh or new sense of place.
- Limit the impact of development and urban growth on significant landscape features.

- Promote scenic and heritage routes and the development of special management guidelines.

Develop:

- Support farm owners to develop Agri-villages for their workers. These erven will become worker owned. The Agri-villages can either be on farms or on Municipal land in townships. Funding is available for either. Enrol farmworkers on housing waiting list.
- Promote urban agriculture: Make land available in urban areas, particularly in Citrusdal and Clanwilliam, for community gardens.
- Harvest storm water to cultivate community gardens.
- Develop design and development parameters to protect settlement patterns and visual landscape: Conserve historical town centres often determined by the location of drinking water or a church and grid layout pattern.
- Develop interface guidelines (use of colours, landscaping, lighting, massing and form) to manage open space and river frontage and routes.
- Protect unique character of settlement and within settlements.
    - Protect critical biodiversity areas, ecological corridors and ecosystems.
    - Protect unique natural and manmade landscape features and structures.
    - Protect scenic routes and vistas.
    - Protect heritage features and landscapes and create future heritage landscapes.
    - Preserve the Marine and Coastal environments.

Table 150: Proposals for settlements and rural areas

Promote the development of tourism routes or strengthen what existing routes offer:	
Citrus Route	Promote the establishment of a citrus route between Clanwilliam and Citrusdal. Such a route should include farms, pack sheds, museums (particularly Citrusdal and Clanwilliam Museums), and industries that tell the story of citrus production in the Cederberg. Promote Biodiversity and Cultivation initiatives and include on route farms as showcases.
Rooibos tea route around Graafwater towards Calvinia,	Promote the development of a rooibos tea route: • Strengthen the promotion of the Rooibos Tea route, which includes cultivation, history, activities, restaurant, tea house, beauty treatments and accommodation. • Promote Graafwater, its railway station and surroundings and the R364 towards Calvinia for rooibos tea production and as tourist destinations. Include the Agri-processing facility in Clanwilliam. • Protect the natural Cederberg rooibos tea cultivation landscape with various mountain ranges and the Doring River meandering on the eastern border. • Include northern Intensive Agriculture and Agricultural Industry Corridor along the R363 between Clanwilliam and Traval into Rooibos tea route and promote both as tourist destination. • Market Clanwilliam as the Rooibos Capital.
Seafood Route from Elands Bay to Lamberts Bay	Promote the regional seafood route from the Verlorenvlei, including Elands Bay to Lamberts Bay.
Civilization and historic route from Elands Bay (Bobbejaanpunt/ Baboon Point) to Cederberg Reserve	Develop a Cederberg Civilization route to include main heritage sites such as Baboon Point, Verlorenvlei, Clanwilliam (historical walkabout, Strassberger Shoe Factory), Rock Art[24] (e.g., Sevilla Rock Art Trail including. Stadsaal Caves and Bushmen paintings as well as Truitjieskraal), Cederberg Wilderness Reserve, Matjies River Nature Reserve and Wupperthal (Rhenish mission and veldskoene). Include former roads such as the DR 2183/ R539, parallel to the N7, and R364 (Soldaatkop and Leipoldt's grave) including the Cederberg Observatory. Mission Station Cultural Route: Elandskloof to Clanwilliam (R303 and DR 2183 or R539 /alternatively N7). Allow for more tourism related facilities to develop around these routes (accommodation, recreation facilities, Agri-processing and selling of products, venues, etc.). Promote and strengthen Clanwilliam and Citrusdal as a prominent agri-processing and tourism related destinations. Promote the informal economy in the tourism industry.
Spring flower and Wildflower route	Promote the strengthening of the Spring and Wildflower route and include public and private nature reserves and surrounding natural areas. Harvest wildflowers as an activity forming part of the attraction of the Spring Flower route.

[24]Cederberg rock paintings range from 8 000 years to 100 or 200 years in age. These paintings most commonly depict animal scenes, and particular animals such as Eland, have important symbolic religious meanings.

Outdoor Sport and Recreation Routes	Promote the development of Cederberg Outdoor Sport and Recreation routes: Encourage outdoor recreational opportunities (hiking and mountain biking, bird watching, wildflower viewing, horse trails, fishing and water sport (e.g., canoeing and skiing)) and create hiking trails and mountain bike trails on farms, public and private nature reserves in and around the Greater Cederberg Conservation Corridor. Promote the Cederberg Heritage Route is one such a route. Walking for 4 to 6 days among the community guest cottages in the Moravian Mission villages of Heuningvlei, Brugkraal and Wupperthal, on the eastern side of the Cederberg Wilderness area, and guesthouses in, or near Clanwilliam on the western side, while luggage is transported by donkey cart.

An Environmental Management Framework for the natural environment is outlined below:

Table 151: Management priorities

Management priority	Priority focus areas: Conservation and Biodiversity Zone
Improve and rehabilitate	All management and rehabilitation activities within the biodiversity priority zones, must be set out by the Environmental Management Plans for the identified areas.
Conserve and preserve	Conservation areas designated as biodiversity priority areas as indicated in the Spatial Development Framework, must be retained and preserved. All other impacts on natural veld must be identified and guided by an environmental impact study.
Environmental Impact Assessment Requirements	All proposed impacts that will lead to the clearing of more than 300m² of natural vegetation, where natural vegetation covers more than 75% of the area, must be subjected to an environmental impact assessment and environmental approval must be obtained before the activities may take place. Proposed large scale tourism facilities must be subjected to an environmental assessment, and environmental approval must be obtained before the development may take place.
Monitoring and management aspects	All monitoring and management aspects must be set out by a biodiversity environmental management plan, to be drawn up for priority areas.

6.2.4.3 Risks: Impact of Agricultural and Mining Production and Technology

Management directives for natural environment zones include:
Netting, tunnels and agricultural industry and public utilities.

Netting, tunnels and agricultural industry:
The erection and location of poly tunnels and agricultural shade netting or/ and the establishment of an agricultural industry on a farm of 2000 m² and more in extent should address concerns of adverse impacts on visual, cultural and heritage amenities and the Municipality may require repositioning, screening and any other measures which may address negative adverse impacts whilst taking cognisance of the importance of agriculture and food security.

The decommissioning of poly tunnels and agricultural shade netting is required. The conversion of Agri-industrial buildings for a different purpose instead of demolishing of such infrastructure instead of demolishing should address again concerns of adverse impacts on intensity of surrounding use (traffic, movement, noise) character (sense of place) and cultural and heritage amenities.

An adverse impact on surrounding properties, in respect of, but not limited to, noise, traffic congestion, pollution, emissions or the gathering of large numbers of people, or the presence of people hindering agriculture e.g., during spraying season, nor may the tourist activities have an adverse impact on any *bona fide* agricultural activities on the farm itself or on neighbouring properties.

Fences:
Fences comprising of only wire or steel palisade (painted charcoal, black or dark green), not exceeding 2,1m are allowed. No masonry wall exceeding 1 meter and no brick piers shall be permitted in wire or steel palisade fences and only the entrance gate structure maybe of solid brick structures in moderation.

Public Utilities:

- Promote communication corridors and zones, improved communication networks and promote access to information and technology including access to internet prioritizing rural areas.
- Support the establishment and sensitive location of communication network facilities/ data centres / telecommunication towers in rural areas and on farms.
- Provide for adequate bulk infrastructure and the location thereof according to the change directives above.

Encourage keeping and maintaining water trucks on farms and conservation areas for fire-fighting.

Environmental Impact Management directives for the Natural Environment are outlined below:

Table 152: EIM directives

Types of developments, land uses or activities				
Conservation and Critical Biodiversity Areas	That should not occur	That may have significant impact	That have no significant impact	Related policies and guidelines
Conservation areas	Developments that are not focused on eco-tourism.	Developments that are not focused on eco-tourism.	Eco-tourism developments.	Environmental Impact Assessment and Guidelines. Provincial Spatial Development Framework for the Western Cape Province. All legislation with an environmental aspect and corresponding regulations, policies and guidelines.
Critical Biodiversity Areas 1	Developments that are not closely focused on eco-tourism.	Developments that are not focused on eco-tourism.	Eco-tourism developments.	
Critical Biodiversity Areas 2 (Rehabilitate and irreplaceable areas)	Developments that are not closely focused on eco-tourism.	Any developments that are not focused on eco-tourism.	Eco-tourism developments.	
Critical Ecological Support Areas. Other Ecological Support Areas	Developments that are not closely focused on eco-tourism.	Residential Developments, Commercial and Industrial Developments. High intensity agricultural activities.	Services distribution. Limited development after Environmental Impact Assessment has determined the guidelines.	
Other Natural Vegetation Areas	Uncontrolled development.	Residential Developments, Commercial and Industrial Developments. High intensity agricultural activities.	Residential Developments, Commercial and Industrial Developments.	

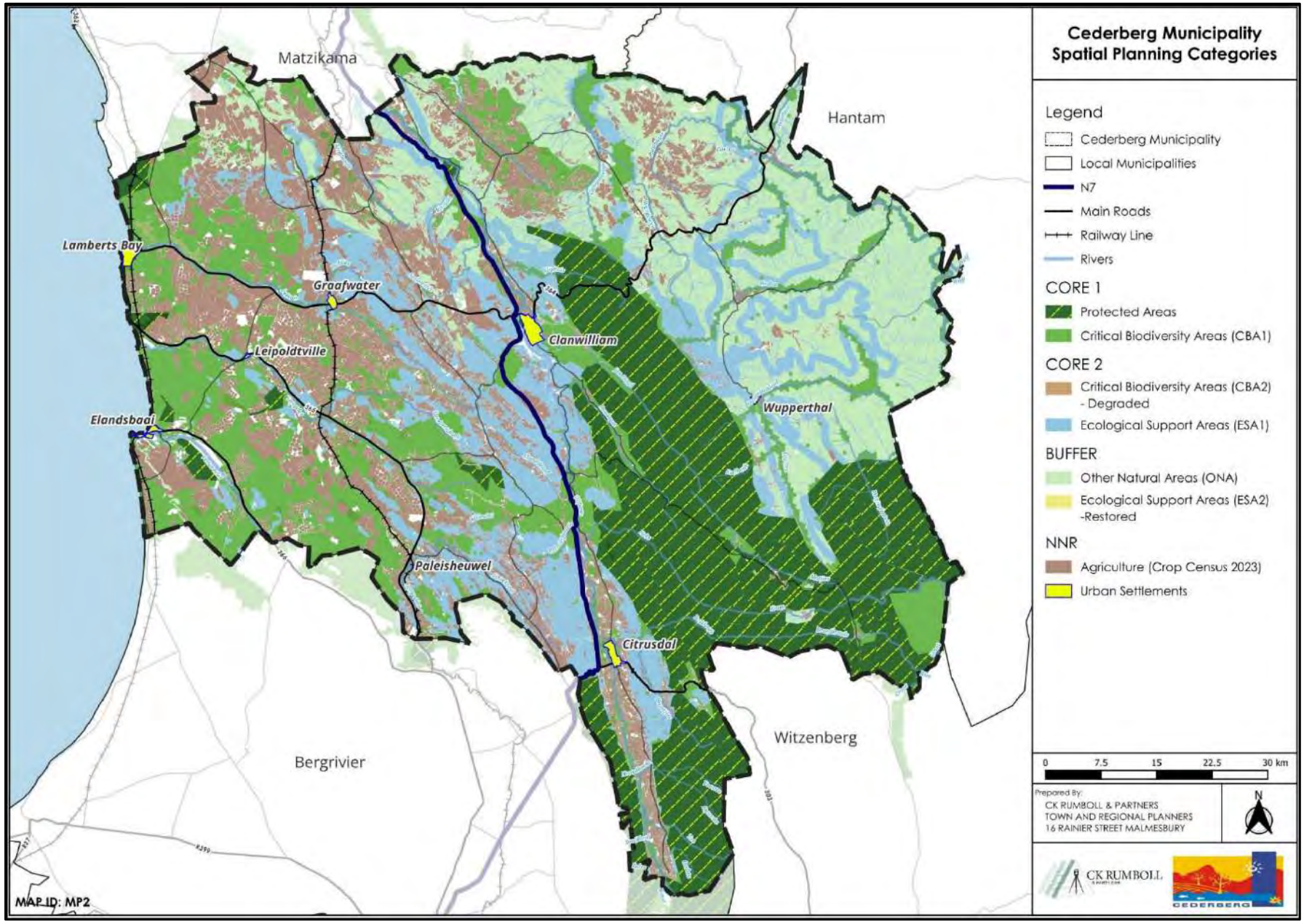
Environmental Impact Management directives for the Natural Environment are outlined below

Table 153: EIM directives

Cultural and historical areas	Types of developments, land uses or activities			
Environmental Impact management	That should not occur	That may have significant impact	That have no significant impact	Related policies and guidelines
Towns	Demolition of historical buildings. Any negative impacts on buildings or sites that have cultural or historical values.	Any development.	Restoration of buildings for offices, guest houses, etc.	Cultural and historical legislation, policies and guidelines.
Landscapes	Uncontrolled, unsightly development.	Uncontrolled, unsightly development.	Limited, low-density development that is not visually apparent and adds value to the environment.	Cultural and historical legislation, policies and guidelines.
Historical areas	Uncontrolled, unsightly development.	Uncontrolled, unsightly development.	Limited, light density development that is not visually apparent and adds value to the environment.	Cultural and historical legislation, policies and guidelines.
Scenic routes	Uncontrolled, unsightly development e.g., wind farms	Uncontrolled, unsightly development.	Limited, light density development that is not visually apparent and adds value to the environment.	Cultural and historical legislation, policies and guidelines.

Public open spaces*:*	That should not occur	That may have significant impact	That have no significant impact	Related policies and guidelines
Structured open spaces and networks	Commercial, Industrial or residential developments.	Commercial, industrial or residential developments.	Limited development.	Environmental Impact Assessment and Guidelines. Provincial Spatial Development Framework for the Western Cape Province. All legislation with an environmental aspect and corresponding regulations, policies and guidelines.

Map 62: Cederberg Spatial Planning Categories



6.2.4.4 Proposals

- Investigate the establishment wildland interfaces of a 100m – 1000m respectively using the outline of settlements and agricultural production units as per previous SPC map where all farming areas are categorised as buffer areas.
- Promote the Sandveld Environmental Management Framework (EMF) addressing the cumulative impact on ecological degradation and biodiversity loss
- Promote conservation plans for and protect sensitive habitats including Verlorenvlei, Bird Island and Elands Bay State Forest.
- Promote application of spatial planning categories, to facilitate decision making in development applications.
    - Core Areas (Cederberg Wilderness Area, Matjies River Nature Reserve, Coastline, Public and Private Nature reserves),
    - Buffer Areas (Pakhuisberg, Kransvlei berg, Piekenierskloof, Smalberg, Maraisberg, Koerkasieberg).
    - Intensive Agricultural areas (Olifants River Valley, Traval South) areas.
- Promote the establishment of Cederberg Conservancy and West Coast Conservation Corridor to serve simultaneously as a climate change corridor and:
    - Provide for ecological links to support connectivity between habitat areas and establish from the Cederberg to the coast a landscape and buffer area.
    - Support the formalization of Open Space Networks and Conservation Corridors in urban and rural areas to protect natural habitat areas.
- Protect and promote conservation of coastal ecosystems (estuaries, sandy beaches and dune systems, dune groves and fynbos).
    - Strandveld dune thicket and dune fynbos: Corridors of at least 20m width of natural vegetation must be retained in dune fynbos as well as dune thicket, to allow movement of birds and animals between undisturbed and continuous habitats. And Avoid development that disturbs connections between valley roughs and dune thickets.
    - Lowland fynbos ecosystems (sand fynbos and limestone fynbos).: Corridors of sandfynbos must be at least 300m wide.to protect limestone fynbos types are slow growing and vulnerable and must be protected.
    - Mediterranean and mountain fynbos ecosystems (alluvial fynbos, granite, ferrous, conglomerate and silkretefynbos, grass fynbos and sandstone fynbos): Orchards and indigenous plantations (proteas, buchu) must not be closer than 2km from where such plants naturally occur.
    - Renosterveld ecosystems (coastal renosterveld and interior renosterveld): Ideally a buffer of at least 30m must be left between all development, especially agricultural land and core renosterveld conservation areas.
- Support farm owners to develop Agri-villages where erven will become worker owned. The Agri-villages can either be on farms or on municipal land in townships. Funding is available for either. Enrol farmworkers on housing waiting list.

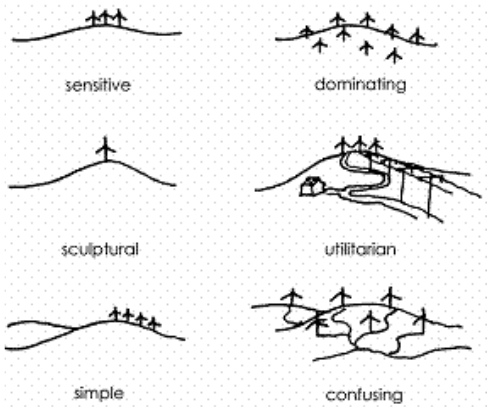
6.2.5 Air and Wind

6.2.5.1 Opportunities

Alternative energy sources mitigate climate change and air quality contribute to good health.

- Promote alternative energy generation facilities in viable zones only:
- Promote Solar Energy overall Cederberg, particularly regions 4, 5, 6 and 7 that have higher solar radiation, yet with great sensitivity around the visual impact in protected and conservation areas.
- Promote Wind Energy particularly west of the N7, particularly regions 2 and 3 and partially in 4, hydroelectricity at Clanwilliam and Hydrogen along the coast.
- Protect Surface and Groundwater: Design of roads and treatment of runoff from roads and disturbed surfaces, to reduce sedimentation and eliminate erosion. Prohibit potential for erosion and soil types of influence caused by road construction and re-vegetation.
- Detailed vegetation assessment needed if the proposal is not in an agriculturally disturbed area; Assessment should include location and condition of:
    - Extent of disturbed or alien vegetation.
    - Extent of any natural vegetation.
    - Indigenous and endemic species.
    - Rare and threatened species.
- Consider the following for terrain suitability:
    - Slopes by gradient classes.
    - Rocky areas.
    - Soil type and permeability.
    - Natural watercourses and areas with high water tables, rainfall data.
    - Vegetation.
- Require highly stable underlying geology for heavy wind turbines and concentrated sun facilities: Investigate existence of bedrock, subterranean voids and possible seismic activity.
- Consider placement on Slopes given impact on:
    - Wind Potential: slopes, up to a certain gradient, orientated towards prevailing wind directions, tend to augment average wind speed;
    - Solar radiation – slopes influence placement, and various technologies require different placement direction;
    - Visibility – wind and solar farms on slopes have increased visibility;
    - Road layout and design – slopes to be considered in road layout to reduce erosion potential, of road run-off, rock-fall and landslide potential;
    - Tower foundation/ pedestal design – needs to consider falls across the platforms;
    - Soil stabilization – steep road verges and cuts require re-vegetation to reduce erosion from run-off.

Figure 17: Location options of wind turbes



6.2.5.2 Proposals

Management directives for air and wind include:

Develop:

Promote planting of trees and plants that keep air clean as part of every development.

Potential air pollution sources in the Cederberg have been identified as:

- Industrial operations: mainly emissions from small boiler sources and larger industry such as canning factories and lime mining.
- Agricultural activities: although not quantified, agricultural activities are considered to be a contributor to ambient particulate concentrations. Agriculture is a dominant land-use within the Cederberg.
- Mining Activities: pollution sources are mainly surface activities like waste loading and unloading, iron ore loading and unloading, exposed screening plants, waste dumps, stock yards, exposed pit surfaces, transport roads and haul roads.
- Biomass burning (veld fires): also not quantified, owing to the irregular and seasonal nature of this source.
- Domestic fuel burning: mainly wood and paraffin burning in informal settlements. Mostly around larger towns such as Vredendal, Malmesbury, Clanwilliam and Piketberg. Cederberg and Matzikama Municipalities are the largest contributors to domestic fuel burning emissions, mainly due to the predominant use of wood.
- Vehicle tailpipe emissions: from petrol and diesel vehicles along major roads, but this is not considered to be a significant air pollution source.
- Waste Treatment and Disposal: information regarding disposal facilities (landfills and incinerators) has been partially collected.
- Dust from paved and unpaved roads.
- Other fugitive dust sources such as wind erosion of exposed areas.
- Particulate and gaseous emissions from industrial operations, domestic fuel burning and vehicle tailpipe emissions have been quantified for this assessment (See SANS 1929:2005 - Ambient Air Quality - Limits for common pollutants and National Environmental Management: Air Quality Act 39 of 2004).

Air quality can decrease because of increased temperatures, greenhouse gas emissions and demand for local fuels. Impacts associated with climate change and the failure to implement mitigation measures may result in increased air pollution episodes. Measures to address climate change include increasing the number of monitoring stations in the Western Cape, effective dissemination of air quality information and introducing cleaner fuel programmes for households and transport.

Develop:

Support Cederberg Municipality to:

- Identify priority pollutants (in terms of its by-laws).
- Establish Local air quality standards (more stringent).
- Establish Local emission standards.
- Appoint Local Air Quality Officer.
- Develop an Air Quality Management Plan (AQMP) as part of their IDPs.
- Monitor ambient air quality.
- Prepare an annual report regarding the implementation of the AQMP.

Environmental Impact Management directives for air quality are outlined below:

Table 154: Management priorities for air quality

Management priority	Priority focus areas
Improve and rehabilitate	Ensure that air pollution is avoided, or where it cannot be altogether avoided, mitigated or minimized in accordance with the Cederberg Air Quality by-law or any other related laws.
Conserve and preserve	Applicable areas to be designated as air quality impact areas in the Spatial Development Framework. Serve as informant of future development in close proximity and guided by an environmental impact study.
Environmental Impact Assessment Requirements	All proposed activities including smoke caused by burning, generated dust, odours and spraying, where emissions exceed intensities as per listed activities in section 21 and 23 of the Air Quality Act, must be subjected to an environmental impact assessment and environmental approval must be obtained before the activities may take place. Proposed large scale tourism facilities must be subjected to an environmental assessment, and environmental approval must be obtained before the development may take place.
Monitoring and management aspects	All monitoring and management aspects must be set out by regulations of Air Quality by-law or as per environmental management plan, to be drawn up for priority areas: agriculture and mining, utilities (sewerage, waste) and industrial areas (areas of production within settlements). Adopted goals • Improve compliance enforcement and management of air quality. • Improve awareness with respect to air quality management. • Improve the current air quality management tools. • Invest in adequate human and financial recourses to ensure effective implementation and management of air quality. • Integrate Climate Change and Air Quality Management.

An Environmental Management Framework for air quality is outlined below:

Table 155: EMF for air quality

Risks	Types of Development		Monitoring and management aspects
	That should not occur	That may have significant impact (and needed mitigation)	
Smoke / Emissions/ Sprays	Utilities and Industry: • Listed activities. • Process setups. Burning waste and tyres. Eco-tourism developments have no significant impact.	Agricultural Activities: • Farmland burning. • Listed activities. Spraying of pesticides near residential areas.	<u>Air Quality Monitoring Networks:</u> Cederberg Local Municipality lacks monitoring stations. A service provider should be appointed to conduct passive

Dust Dust Cover (Staining of building, vehicles and infrastructure) Iron ore dust. Manganese ore dust.	Utilities, Industry and Mining. Spillage of particulate matter. Windblown dust from stockpiles. Windblown dust from open trucks. Construction. From road networks. Manganese ore handling. Ship loading activities. Material offloading. Material reclaiming. Open air storage of material.	Agricultural Activities. Open air storage of material. Spillage of particulate matter. Unpaved roads.	monitoring. Passive H2S monitoring of Lambert's Bay factory to be conducted (smelly). <u>Climate Change: CO2 Emissions</u> Reduction Strategies in WCDM: Adopt climate change mitigations to reduce GHG emissions. This is done to build a sustainable low carbon economy including but not limited to: a reduction in need for transport fuels, compact settlement planning, a reduction in energy use and a switch to renewable energy.

Table 156: Development activities

Types of developments, land uses or activities that call for		Likely Land Uses calling for duty of care		
Duty of Care	As no person may unlawfully, intentionally or negligently commit any act or omission which causes or likely to cause air pollution.			
Prohibition of dark smoke from premises.	No emissions for an aggregate period exceeding three minutes during any continuous period of thirty minutes.	Waste	Industry	Agri
Authorisation of open burning and burning of material.	Apply for prior written authorisation.	Waste		Agri
Spraying of a pesticide, herbicide or other related material.	Spraying of only registered pesticide, herbicide or other related material is allowed.			Agri
Dust emissions.	Adopt best practical environmental option.	New development	Industry	Agri
Emissions caused by tyre burning and burning of rubber and other material for the recovery of metal.	Apply for written authorisation (incl. synthetically coated, covered or insulated products and electronic or other equipment).	Waste	Industry	
Prohibition of dark smoke from compression ignition powered vehicles.	A compression ignition powered vehicle or power generator that emits dark smoke may not be used.		Industry	
Prohibition of emissions that cause nuisance (conducting sand blasting, shot blasting, grinding, finishing or similar activity which customarily produce emissions of dust).	If harmful to public health or causes a nuisance, take control measures.		Industry	
Prohibition of emissions that cause offensive odours.	Apply control measures when conducting listed and/or controlled emitter activities or non-listed activities that produce emissions of offensive odours.	Utilities	Industry	

Application for atmospheric emission licence.	Undertaking a listed activity, as per section 21 and 23 of the Air Quality Act, only being in possession of an atmospheric emission licence issued by the West Coast District Municipal air quality officer.	Utilities	Industry	
Installation of controlled emitters.	Prior written authorization of the Municipality required to install, alter, extend or replace any controlled emitter.	Utilities	Industry	

6.2.6 Solar radiation, Heatwaves, Energy and Evaporation

6.2.6.1 Proposals

- See management directive for alternative wind energy facilities.
- Identify alternative energy zones and promote energy generation facilities in viable zones only. Overall, viability of energy source to be confirmed by specialist studies;
- Promote Solar Energy overall in the Cederberg, particularly regions 4, 5, 6 and 7 that have higher solar radiation, yet with great sensitivity around the visual impact in protected and conservation areas.
- Promote wind energy, particularly west of the N7, particularly regions 2 and 3 and partially in 4, hydroelectricity at Clanwilliam, and Hydrogen along the coast.
- Provide for solar facilities to cater for future urban expansion. Generate alternative energy for all settlements: Clanwilliam – hydroelectricity.
- Provide for expansion of transmission infrastructure.
- Delineate firebreak buffers around towns.
- Promote Solar Energy allowable overall of Cederberg, particularly regions 4, 5, 6 and 7 that have higher solar radiation, yet with great sensitivity around the visual impact in protected and conservation areas.

6.2.7 Connectors

6.2.7.1 Proposals

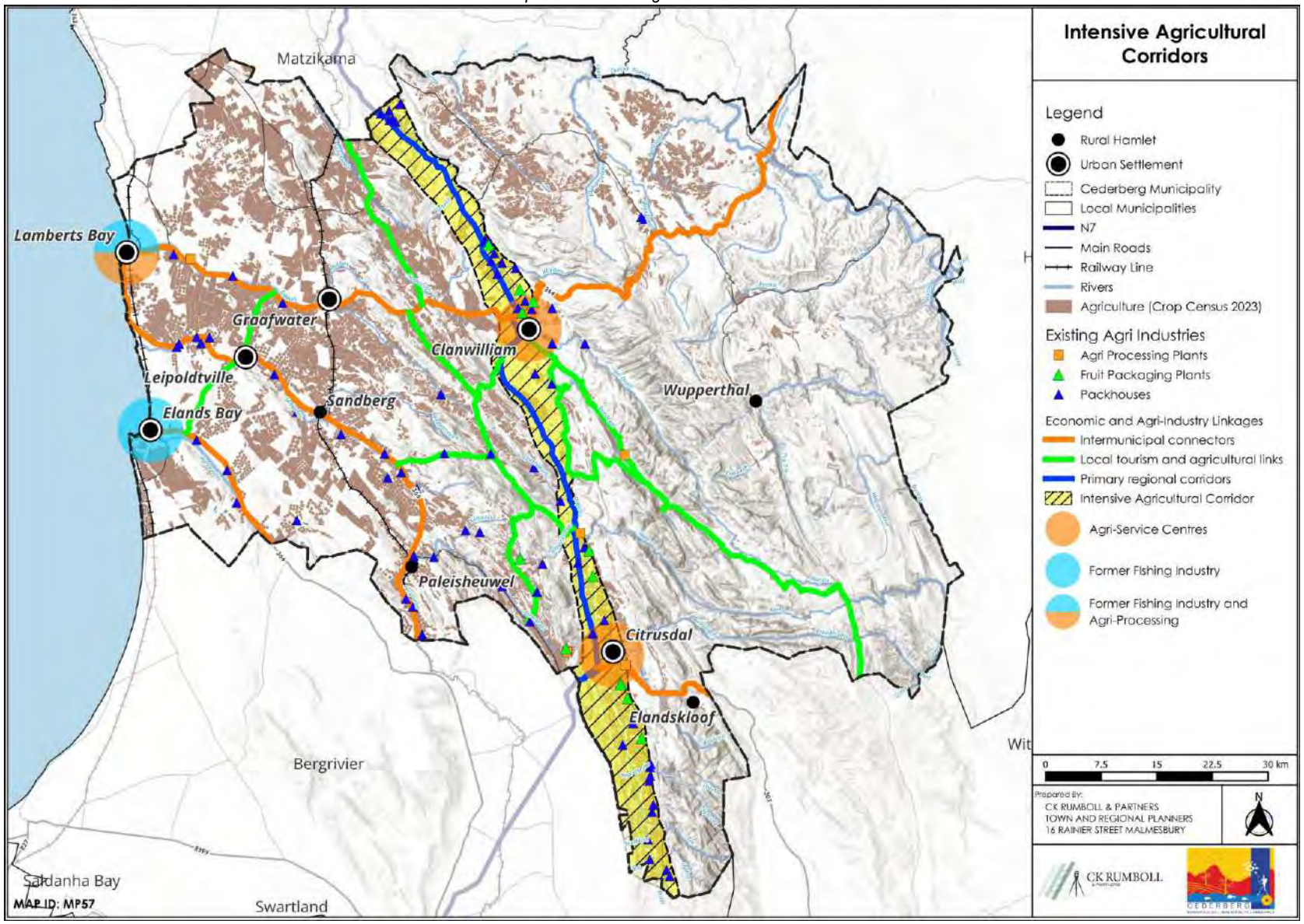
Management directives and development proposals for connectors include:

Table 157: Directives for connectors

Mobility, Transport Networks and Economic links	Protect Maintain existing and develop new transport infrastructure sensitively to the agricultural and conservation landscape conservation. Change Rail • Promote use of rail as alternative transport (freight – agriculture and mining) and introduce passenger rail (commuters and tourists) through West Coast (Clanwilliam to Citrusdal and from Belville to Bitterfontain (inter municipal route)). • Promote renewal/ upgrading existing station buildings as well as grain silos and crop storage facilities along the line. • Promote private rail operators to provide alternative transport between Graafwater (including Clanwilliam and Citrusdal), Piketberg and Malmesbury to strengthen economic links and mobility of people. Road • Functionally (easy access) integrate rural and urban areas using connector roads. • Promote maintenance of road network to support economic activities (commercial, industrial and agricultural). • Protect mobility function of routes: Arterial Management Plans to be developed, where applicable to DTPW Roads Branch approval (See Annexure 4).
N7 and R27	Support the enhancement of freight routes: • N7 form Namibia to Cape Town and provide for opportunities in freight and distribution related industries; • R27 as link between Cape Town and West Coast and provide for tourism infrastructure and activities; • And regional roads that provide links between main settlement and regions, such as West Coast, Berg River, Boland and Cape Metropole regions.
R365, DR 2183 or R539	• Promote regional, economic and Agri-tourism links and routes to benefit from the Municipal area as a connector between the Cape Metropole (R27), the West Coast (R27, Elands Bay to Velddrif and Saldanha), the Northern Cape (N7), R366 (to Matzikama Municipality) and R303 (to Witzenberg): R365 (Elands Bay to Lamberts Bay over Leipoldtville), N7 (Citrusdal to Clanwilliam), DR 2183 or R539 (Main Road, Clanwilliam to Algeria, parallel to N7) and R363 (Clanwilliam and Traval) and R364 (between Graafwater and Lamberts Bay: to Northern Cape and Karoo). • Provide for an Intensive Agriculture and Agri-industry Corridor along the N7, between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval.
Public Transport	Promote investigating the feasibility and reliability of public transport service along the N7 and R27 to facilitate socio-economic development in the region: • And increase the mobility of the local community to access opportunities (work, education, services); • And move goods to make them accessible to a market;

	• And create direct and indirect jobs (West Coast District Municipal Integrated Transport Plan, 2020 - 2024).
Transport Nodes	Promote nodes at N7 intersections and where SANRAL criteria allow nodes: • Nodes to blend in with surrounding agricultural landscape. • Nodes to focus on tourism and agricultural development and support services. • Public Transport on N7: Determine the viability of a reliable public transport service along the N7 between Clanwilliam and Citrusdal to increase mobility to the West Coast District (Piketberg and Malmesbury) and to the Metropole. • Safeguard intersection nodes through visibility. Promote tourism development nodes at intersections: along R364 (between Graafwater and Lamberts Bay; to Northern Cape and Karoo) and R365 (between Leipoldtville and Lamberts Bay); (from cost to Bergrivier Municipality). Support the development of transport nodes along the N7 (dual carriage way and Freight route), R363 and R366 and improve mobility between rural and urban areas. Such nodes and associated infrastructure (farm stalls, service stations) along transport corridors should be sensitive to the agricultural landscape (R363, R364, R365 and N7) and should blend into environment.
	Provision of access along Proclaimed Provincial and National Roads to be assessed and provided in accordance with the WCG DTPW Access Management Guidelines (2020) and SANRAL policies.
Railway	Support the implementation of special train trips.

Map 63: Intensive Agricultural Corridors



Social Amenities

Change:

- Promote tertiary education facilities in the Cederberg, e.g., West Coast College Satellite in Citrusdal.
- Promote farm schools and sport facilities to ensure easy access to education and a balanced life.
- Promote mobile social services to be provided in rural areas, including mobile clinics, early childhood education facilities, mobile libraries, firefighting, ambulance service, buses, taxis, and law enforcement.
- Promote improved mobility in rural areas by providing for upgrading pedestrian routes and adequate lighting.
- Promote access for farm workers to education and development programmes.
- Identify strategic sites to provide for consolidated, centralised social and sport infrastructure in highly accessible nodes i.e., sport complexes combined with community facilities such as a Thusong centre.
- Identify and provide for safe/all-weather bus/taxi stops along main transport network to serve the rural community.
- Provide social amenities according to CSIR standards to ensure access to social services

Develop:

- Provide for and support development of early childhood education facilities on farms and rural areas.
- Enhance public areas or spaces through promoting urban design and landscaping.
- Promote the identification and formalization of public open spaces along specific water courses.
- Promote safe living environments and provision of supportive infrastructure.

6.2.8 Estuaries

6.2.8.1 Wadrif River Estuary (Wadrifvlei) and Jakkals River Estuary (Jakkalsvlei)

Both estuaries are important coastal and wetland systems within the Cederberg Municipality and support significant bird habitat and associated ecological functions. Development and land-use activities within their Estuarine Functional Zones (EFZs) should therefore be managed to maintain ecological functioning, improve degraded systems and prevent further habitat loss.

Table 158: EIM for estuaries

Environment/ Spaces	Types of developments, land uses or activities		Related environmental management policies and guidelines
	That should not occur	That may have significant impact	
Wagon Drift Farm is home to the Wadrift River estuary (also commonly known as Wadriftvlei or Langvlei).	Farming, abstraction of water: Abstraction activities for irrigating potato crops.	Recreational activities, such as birding, particularly when the Vlei contains more water, and camping in the vicinity of the mouth resulting in numerous vehicle tracks over dry vlei areas.	
Residential and commercial infrastructure is located close to the southern edge of the Jakkals River estuary.			

Table 159: Management priorities for estuaries

Management Priority	Priority Focus Area
Wadrift River estuary (also commonly known as Wadriftvlei or Langvlei)	The Wadrift River estuary (also commonly known as Wadriftvlei or Langvlei) is defined in the 2018 National Biodiversity Assessment (NBA) (SANBI, 2019) as an arid, predominantly closed estuarine system situated on the west coast of South Africa, approximately 13 km south of the town of Lamberts Bay and 12 km north of the town of Elands Bay, in Cederberg Local Municipality, West Coast District. The extent of the estuary, as defined by the Estuarine Functional Zone, is approximately 509.8 ha, extending over a length of 3.2 km. Vision: Wadriftvlei is a healthy ecosystem that is protected for current and future generations.
Jakkals River Estuary (also commonly known as Jakkalsvlei)	The Jakkals Estuary or (also commonly known as Jakkalsvlei) is defined as a large, temporarily closed estuary located in the cool temperate region of the Western Cape near the town of Lamberts Bay, in Cederberg Local Municipality, West Coast District (DWS, 2023). It lies adjacent to the northern boundary of Lamberts Bay. The estuary forms part of an important bird area (IBA) and supports a range of waterbirds. Vision: Jakkalsvlei is a healthy ecosystem that is protected for current and future generations
	Environmental pressures

Improve and rehabilitate	• Environmental hazards such as droughts, flooding, and climate change; • Land use and infrastructure development challenges, including poor design of the Sishen-Saldanha railway bridge and nearby road infrastructure and causeway, resulting in reduced estuary-sea connectivity and increased salinity imbalances. Due to reduced freshwater inflow, large parts of the vlei have dried up, and it appears that significant sedimentation has occurred. A redesign of the culverts under both the Transnet service road and the railway line is needed to restore connectivity; • Degraded water quality due to reduced freshwater inflow and nutrient loading from unsustainable agricultural practices. Breaching and especially the duration of open Wadrift River Estuary mouth conditions is likely less frequent than under natural conditions, due to reduced runoff and the existence of the culvert obstructions. Legal water abstraction and agricultural best practice must be enforced; Recommendations • Strict management of agricultural return flows to maintain water quality; • Limiting further water resource development in the catchment to improve base flows to the estuary; • Re-design of the culverts under both the Transnet service road and Sishen railway line to restore connectivity and support estuarine functioning. These actions aim to reverse the estuary's ecological decline, safeguard bird habitats, and support sustainable resource use under increasing climate pressure.
	Environmental pressures affecting the Jakkalsvlei estuary include • Environmental hazards such as droughts, flooding, and climate change; • Land use and infrastructure development challenges, such as Removal/degradation of vegetation in the estuary functional zone (direct habitat destruction) • Degraded water quality due to reduction of freshwater inflow (ground- and surface water) to the estuary; increase in nutrient loads to the system; infilling near the mouth; Recommended interventions include • Reduce levels of inorganic nutrients: a) Reduction in fertilizer use in inflowing water from the catchment in the catchment b) Educate landowners/farmers on the impacts of excessive fertilizer c) Reduce direct inputs of inorganic nutrients into the estuary d) Eliminate septic and conservancy tanks from properties on the banks of the estuary through the provision of sewage reticulation infrastructure • Institute and enforce appropriate development set-back lines around the estuary provide adequate protection for estuarine fauna and flora

	• Improved compliance that in respect of the use of living marine and estuarine resources (legal and illegal fishing) • Investigate the removal of sediment at the mouth to restore connectivity skimming the sand berm to a lower level.
Conserve and preserve	Wadrift Estuary • Protect the Langvlei River catchment (approx. 60 km in length) within the Berg-Olifants Water Management Area, essential for supporting abiotic functions; • Conserve key vegetation types: Arid Estuarine Salt Marshes (177.5 ha), Lamberts Bay Strandveld (132.2 ha), and Cape Seashore Vegetation (96.9 ha); • Maintain the estuary as critical avifaunal habitat supporting over 60 bird species over a 16-year period, complementing the role of nearby Verlorenvlei; • Promote stewardship and environmental custodianship among local landowners within the estuary functional zone; and include in the CapeNature stewardship programme; • Encourage DEADP to appoint a regional estuarine management coordinator/ champion within either DEADP or CapeNature to support the river management Area; • Categorize Wadrift as a Core 1 Critical Biodiversity Area, promoting low-impact use and safeguarding unique wetland habitats for arid west coast birdlife. • Acknowledge the regional functional and biodiversity value of the system, it is proposed that the entire estuary functional zone be designated as a conservancy. Encourage activities in the estuary functional zone that are directed toward accessing and appreciating nature. The primary purpose of this zone is to manage and direct low impact use so as to minimize impacts on the coastal environment.
	Jakkalsvlei Estuary • Conduct more research regarding its importance as roosting, foraging and/or nesting area for marine and coastal birds. • Conserve salt marsh vegetation and protect the estuary's critical nursery and feeding functions. • Integrate Jakkalsvlei into biodiversity corridors and protected area expansion plans (e.g., CapeNature stewardship). • Encourage partnerships with local stakeholders to support custodianship, education, and sustainable land use around the estuary. • Recognize its biodiversity value and ecosystem services through ongoing inclusion in provincial estuarine management frameworks.
Environmental Impact Assessment Requirements	Integrated Resource Monitoring Plan • Water level: The current Department of Water and Sanitation's water level recorder within the Wadrift water body is not functional due to the exceedingly low water levels. • Birds: Biannual counts of the bird populations are undertaken by CapeNature as part of the Western Cape Avifaunal Count. It is imperative that this monitoring continues. Land-use and Infrastructure Planning and Development

	• Impacts associated with developments and proposed changes in land-use, including infrastructure and agriculture, are minimized.
Monitoring and management aspects	• The Wadrift estuary is the primary water supply for Lamberts Bay, via groundwater abstraction, which began in the late 1970's, and had a significant negative impact on the ecological structure and function of the system and its Abiotic Function. • Institutional and Management Structures: The Wadrift River estuary is managed well through effective co-operative governance • Disaster Risk Management: Potential risks that could impact the Wadrift River estuary are reduced, including climate change impacts.
Research and Education	Ecological Health Status, Importance, and Recommended Future State • The ecological health of the Wadrift estuary falls under the E Category, which means the estuary is 'seriously modified', and the loss of natural habitat, biota and basic ecosystem functions is extensive. • In terms of conservation importance, the estuary is deemed to be of 'average importance' in respect to biodiversity value due to its small extent. Jakkalsvlei falls under the D Category, which means the estuary is largely modified, with significant changes to natural habitat, flow, and ecosystem functioning. • In terms of conservation importance, the estuary is deemed to be of 'low to average importance'. Both the Wadrift and Jakkalsvlei estuaries are known as important sites for bird diversity. • It is recommended that Wadrift should be restored to a C category and Jakkalsvlei be maintained at a D Category. Biotic Function • The Wadrift estuary is not highly important from a fish perspective. Important Ecosystem Goods and Services • It is evident that these estuaries provide very limited ecosystem services due to its largely modified state. • Motivate members of society to be sensitive to, and aware of and value the importance of both estuaries.

6.2.8.2 Management priorities: Verlorenvlei Estuary

Table 160: Management priorities for Verlorenvlei estuary

Management Priority	Priority Focus Area
Verlorenvlei	Verlorenvlei is one of the ten most important wetlands for wading birds in the South-Western Cape.
Improve and rehabilitate.	Key Objectives • Verlorenvlei ecosystem receives formal protection status under the Protected Areas Act, 2004 • Further degradation of the Verlorenvlei ecosystem is halted. • Ecological health of the ecosystem is improved to Category C/B (moderately modified by 2022.

	• Ecological health of the ecosystem is improved to Category A/B (near natural) by the year 2030.
Conserve and preserve.	Conservation • Promote and reinforce Ramsar status of Verlorenvlei through promulgation as a Formally Protected Area. • Adopt a formal conservation zoning plan for Verlorenvlei (as part of the estuary zoning plan), ensure alignment and incorporation of local IDP/SDF with conservation zoning plan and other formal initiatives. • Obtain formal protection of heritage areas in and around Verlorenvlei. • Promote the preparation and implementation of a rehabilitation and restoration programme for Verlorenvlei. • Promote the development and implementation of a climate change adaptation plan for Verlorenvlei (in response to changes in freshwater flow, sea level rise, etc.). Living Resources Management • Eradicate alien fish in Verlorenvlei. • Eradicate alien vegetation in Verlorenvlei with the assistance of the Working for Wetlands programmed. • Investigate deterioration of fish health in Verlorenvlei. • Investigate the occurrence of avian botulism in wading bird population of Verlorenvlei. • Investigate the viability of fishing competitions (for alien fish) and aquaculture in Verlorenvlei. Water Quantity and Quality (including waste and wastewater management) • Determine the Ecological water requirements of Verlorenvlei at a comprehensive level. • Develop and implement a water resource utilization plan (including registration and licensing). • Prepare and implement a mouth management plan (to improve connection with the sea). • Address sanitation and sewage treatment facilities in Redelinghuys and Elands Bay. • Appropriately manage solid waste dump sites along Verlorenvlei. • Investigate the impact of water abstraction on groundwater in Verlorenvlei. • Investigate the link between nutrient dynamics and algal blooms in Verlorenvlei. • Design and implement a water quality monitoring programmed for Verlorenvlei. • Redesign and upgrade poorly constructed road crossings: prohibit back flooding at Redelinghuys wetlands because under designed road bridge culverts cause insufficient through-flow. Agriculture • Develop and implement agricultural best practice specifically to reduce nutrient enriched return flow and sediment erosion (e.g., through Biodiversity and Potatoes/Rooibos Initiatives). • Develop and implement a protocol for reed management in Verlorenvlei (addressing excessive growth, harvesting, e.g., for thatching and burning). • Manage and control salt marsh grazing in Verlorenvlei.
Environmental Impact	Town and Tourism Development • Remove or upgrade of road crossings through Working for Wetlands programme.

Assessment Requirements.	• Ensure appropriate development in and around Verlorenvlei and include the proposal in the SDF. • Increase and improve eco-tourism access (e.g., for birding) in Verlorenvlei. • Promote the informal economy in the tourism industry.
Monitoring and management aspects.	Heritage • The cultural, historical and archaeological sites in and around Verlorenvlei receives official protection status (e.g., Protected Areas Act, National Heritage Act). Socio-economic • The community (farmers, fishers, residents, commercial concerns, NGOs, authorities, etc.) functions in an integrated, cooperative manner through a trusting and fully representative Estuary Advisory Forum ("integrated and empowered community"). • A sustainable tourism market is established for the area, utilizing the diverse range of values offered by Verlorenvlei ("sharing values" and "valued visitors"). • Unemployment (and associated poverty) in the Verlorenvlei area is reduced through innovative job creation initiatives, e.g., tourism, fisheries, food security, ecological restoration, etc. ("fair standard of living"). • Promote the compilation of a Maintenance Management Plan and facilitate general reed harvesting throughout the system that does not compromise the filtration and ecological function performed by the reed beds, wetlands and Peat wetlands but promote system for sustainable use of reed resources. • Mitigate substantial water abstraction, both legal and illegal from the Verlorenvlei system. Make licensing compulsory, monitored by individual inspections and the planning and allocation considers future climate change. • Heavy mining traffic using the causeways crossing the Verlorenvlei, must be managed to prevent degradation of sensitive habitats. Law Enforcement and Compliance • Sign an MoU (CapeNature and Department of Forestry, Fisheries and Environment to increase compliance capacity and formalize agreement on the removal of gillnetting. • Increase environmental law enforcement and compliance capacity with respect to pollution (e.g., from waste and wastewater and agricultural return flows). • Increase environmental law enforcement and compliance capacity with respect to water quantity (abstractions). • Increase environmental law enforcement and compliance with respect to infrastructure development and land-use. • Develop a safety and security plan for the Verlorenvlei area (e.g., "Buurtwag"). Funding Sources and Opportunities • Prepare a financial plan for the implementation of the Verlorenvlei EMP. General • Update the Sandveld Reserve Study and include estuarine requirements of Verlorenvlei (a cursory estimate of the present health of the Verlorenvlei) and amend EMP accordingly. • Continue the estuary forum and provide an advisory service to the RMA on issues specific to the management and implementation of project plans, day-to-day management actions, formal delegations according to Municipal By-Laws, funding and traveling. Use the CapeNature Governance Tool to identify, monitor, track, and report on the implementation of management objectives.

	• Appoint a suitably qualified and knowledgeable candidate to co-ordinate management actions of the Verlorenvlei and seconded to the Cederberg Municipality.
Research and Education	Innovative Opportunities for Job Creation • Investigate and deploy job opportunities for communities in the Verlorenvlei area linked to tourism (e.g., guides for hiking trails/boat trip). • Investigate and deploy projects the area to increase food security, e.g., hydroponics programmed or ecological restoration/ rehabilitation. • Encourage the development of the unused primary school as a suitable venue for a range of activities, including a museum of the area, a wetlands museum and interpretive centre, and a training centre for supporting the establishment of work opportunities in the community. Institutional Arrangements and Empowerment • Establish the Verlorenvlei Estuary Advisory Forum, comprising broader representation from relevant government authorities and the community. Draft a constitution for the forum to formalize its status. • Develop and deploy a human resource plan for implementation of the Verlorenvlei Environmental Management Plan. • Develop and deploy an education and awareness programme for Verlorenvlei.

6.2.8.3 Environmental Impact Management: Verlorenvlei Estuary

Table 161: EIM Verlorenvlei estuary

Environment/ Spaces	Types of developments, land uses or activities		Related environmental management policies and guidelines
	That should not occur	That may have significant impact	
Verlorenvlei Primary Boundary (Red Zone: Estuary Functional Zone).	Gillnetting. Speed Boating. Driving through the flood plain. Farming. Sumps. Discharges. Solid Waste Dumping.	Swimming. Birding. Canoeing. Line Fishing. Light Grazing.	• Ensure appropriate development in and around Verlorenvlei aligned with IDP/SDF. • EMP revisions to include any changes in Verlorenvlei Mouth Management Plan (MMP). • Future revisions of the zoning plan should provide for flexible recreational use areas as well as peak user days regulations.
Verlorenvlei Secondary Boundary: Orange Zone.	Farming. Solid Waste Dumping.	Light Grazing. Development. Recreational Areas.	
Verlorenvlei Secondary Boundary: Yellow Zone.	Solid Waste Dumping.	Recreational Areas. Grazing. Farming. Development.	

6.2.8.4 Environmental Impact Management: Coastal Zone as Public Amenity

- Promote the Cederberg Municipality Coastal Management Programme (CMP), an integrated coastal planning tool to manage the diverse range of activities that occur in the coastal zone, without compromising environmental integrity or economic development.
- Promote the Coastal By-Law providing procedures, methods and practices to regulate the use and management of the coastal zone and to control activities in the coastal zone and to provide for matters incidental thereto.

Table 162: Development directives for the municipality

Development that should not occur/ only in Designated Areas	Regulated/Confined development that may have significant impact if not regulated	Related environmental management policies and guidelines
No activity, without municipal consent, may: • Cause a fence, structure, dam, shelter or anything else at a designated area set aside for this purpose, to be erected. • In contravention of a notice-board, bring any animal into a public amenity. • May in or at a public amenity, pull out, pick, cut or damage any flora growing in the amenity, make a fire or burn refuse or excavate soil, sand or stone or remove organic or inorganic objects. • Parking must not be permitted to encroach on dunes or dune vegetation or have an adverse impact on the environment. • No interference with or misuse or damage to any building, facility, structure or other amenity provided for the use of the public on the beach area.	The municipality determines: • The maximum number of persons or vehicles that may be in or at a PA at any time (admission). • The activities that may or may not be undertaken in or at PA • Levy different entrance fees and issue entrance tickets. • Erect a notice-board at the entrance to or in the immediate vicinity of a public amenity. • May enter into an agreement in terms of which public amenity or any part thereof may be used for the purposes and subject to the conditions set out in the agreement. • May issue a permit to a person who is undertaking scientific, educational or similar research (on application, subject to any conditions). • Determine fees payable in terms of the relevant by-law.	Promote the integrated and cooperative management of the coastline by: • Bringing all relevant stakeholders together. • Coastal governance and co-responsibility. • Integrated, coordinated decision-making (institutional arrangements for coastal management including capacity). • Planning and development. • The continued learning and practical implementation of programmes and processes (CMP). • Ensuring compliance with international conventions, protocols and agreements. • Capacitate the municipality to monitor and enforce coastal management objectives (Compliance, monitoring and enforcement to protect sensitive coastal and marine environments prone to exploitation and degradation as a result of anthropogenic activities).

Table 163: Regulated development

Development that has significant impacts if not regulated	
Use of Vehicles and Boats/Watercrafts • Launching of boats only when in possession of a valid Certificate of Competency. • Only boat/vessel deemed seaworthy shall be allowed to launch.	Recreation • No swimming in any part of the bathing area in which swimming has been prohibited. • No organising, participating or competing in any swimming race or aquatic sport or event, within or on any beach area except with prior municipal consent.

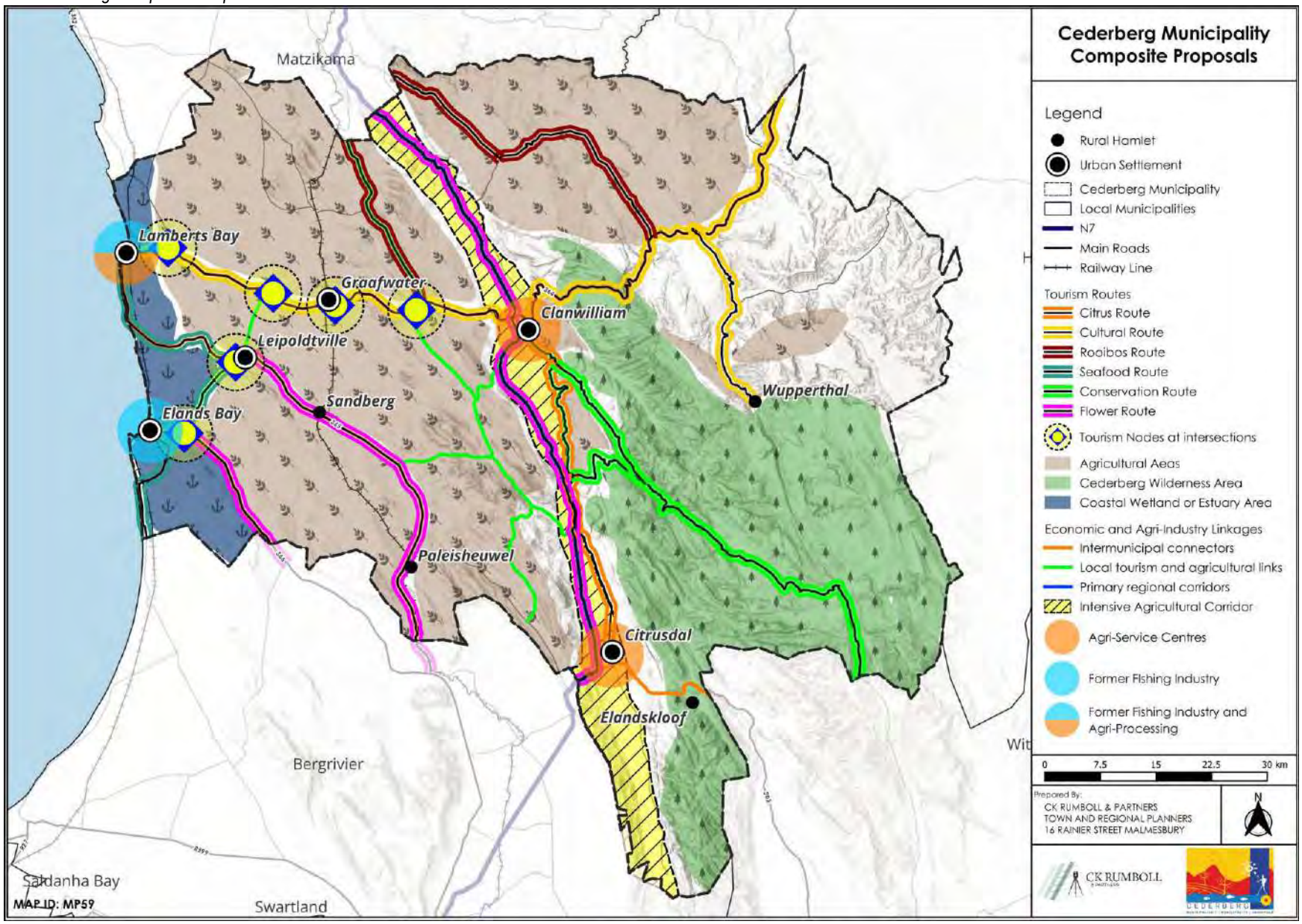
• Strictly avoid ecologically sensitive areas in the vicinity of the launch site, vehicles and people. • Do not pollute or foul a water body with fuel, oil, garbage, offal, bilge, sewerage, refuse or rubble of any kind whatsoever. • No, dump, accumulate, place, deposit, leave or cause or allow to be dumped, accumulated, placed, deposited or left any waste whatsoever, whether for gain or otherwise, on or in a public road or a public place. • Do not discard, place or leave waste on any municipal land, a public road or a public place other than in a receptacle provided or approved by the municipality for the discarding of waste by the public.	• Where fishing and angling is allowed, a person may not cast or manipulate his fishing equipment in a manner which may endanger or cause annoyance to anyone. • Dogs or horses or both may be allowed on designated parts of the beach area, on such conditions, requirements, restrictions or tariffs it deems necessary after an impact assessment and public participation process. • No person may behave in a dangerous or reckless manner.
General • Burning or burying of any waste is not permitted on this site. • No burning waste except at an authorised incinerator operated by the Municipality; or a place designated by the Municipality for such purpose. • No kindling of a fire in the beach area (without the prior written permission), except at places and amenities provided. • No discharge any fireworks or pyrotechnic works within the beach area, coastal access land, or coastal public property. • Keep noise to a minimum and within the ambiance of relevant noise control By-Laws/regulations. • No camping or overnight on land not demarcated (within the boundaries of a camping area only). • Determine conditions for the establishment of private caravan parks. • Whether for reward or gain, no conduct, build, erect or place a building or structure of any kind on any part of the beach area. • Maintain coastal land to ensure public has access to the relevant coastal public property. • Municipality may by means of a notice set aside and reserve any area of the beach area, including a bathing pool exclusively for bathing or sunbathing.	
Research and Education	Instil a sense of custodianship of the coast amongst all coastal communities through education, training and awareness of coastal conservation and management. Conserve and effectively manage natural heritage through awareness and education of the coastline. Develop and Facilitate Awareness, Education, Training, Capacity Building and Information Gathering in the District. • Facilitate the training of municipal officials on coastal management and informed decision making. • Facilitate public awareness and access to information. • Support existing education and awareness projects. • Support research and development and graduate skills.

6.3 Composite Proposals

The composite spatial plan[25] illustrates all the rural development proposals and the well-connected location of the Cederberg and the opportunities for spatial integration that the rural development proposals provide.

[25] Composite SDF: SPLUMA Section 12(g)(k)(l)(o), Section 21(b)(n)(o) and Sec21(p)(iii)

Map 64: Cederberg Composite Proposal



Cross Boarder Spatial Linkages

6.4 Cross-Border Spatial Linkages

6.4.1 Cross-Border Spatial Objectives

Objective 1: Protect and Strengthen Shared Environmental Measures

Unique aspects of the Karoo landscape, ecosystems and culture must be identified and protected. Development proposals for and marketing of the Karoo must focus on these unique aspects. (Development agenda: The identification of spatial elements that support the unique character of the Karoo Region).

Objective 2- Provide Regional Transformation Guidance

Regional spatial organisation should address (1) historical inequality, (2) lack of access to services and economic opportunities, and (3) climate change threats. For this purpose, the role of specific spatial elements, especially towns and connecting infrastructure, must be clearly identified and strengthened by spatial development proposals. (Development Agenda: The establishment of a well-connected network of human settlements, consisting of Regional Development Anchors and smaller towns, with clearly defined roles (1) in the regional economy and (2) as rural service centres). This can be done through shared regional systems rather than municipal boundaries in development and investment. Connect Cederberg communities to neighbouring towns, markets, and services. Moreover, Position Cederberg within the wider regional economy by improving linkages between agriculture, tourism, logistics, small towns and surrounding economic centres. Promote collaborative planning of shared water resources, energy, and other infrastructure to improve long-term resilience and security.

Objective 3: Prioritise Regional Heritage and Conservation

The value inherent in the Karoo's natural and cultural assets must be activated and enhanced to contribute to education, innovation and economic development. The immediate and long-term benefit to local communities of protecting, conserving and sustainably using these assets in value-adding activities must be (1) demonstrated and emphasised, and (2) ensured by meticulously measuring and assessing the long-term benefit of proposals for the short-to-medium term utilisation and valorisation of assets (Development Agenda: Protection and sustainable use of natural and cultural resources).

Objective 4: Support Regional Collaborative Action

Institutional and other mechanisms should be set up that ensure collaborative spatial targeting in government, non-government and private sector investment and spending. Create a mechanism for cooperation between Cederberg, neighbouring municipalities, the district and Western Cape government, Northern Cape and other departments of government on things of shared significance.

Objective 5: Strengthen Rural and Settlement Networks

In small settlements closer to towns in other municipalities, coordinate and collaborate to improve access to services, economic opportunities, and social infrastructure.

6.4.2 Cross-Border Considerations

Cross-border spatial links identified, and regional comparisons are as follows:

Table 164: Regional links

	Cross-Border Spatial Links	Karoo Spatial Considerations
i.	Rural Development, Agriculture and Climate Change	Growth, innovation and change Key economic sectors for exploration are (1) Agriculture, niche exports, irrigation and large-scale farming, agro-industrial and agro-processing, (2) renewable energy, biofuels and carbon credits, (3) tourism, local and international, archaeological, historical and adventure tourism, (5) mining and mining beneficiation, (6) Higher education and research, (8) green economy and the 4th industrial revolution.
ii	Biodiversity and Climate Change	Heritage and Conservation Promote sustainable economic activities for contributing carbon credits. Include assessment of activities that might have a negative impact on other regional potentials (e.g. mining along the coast).
iii	Coast, Marine Culture and Climate Change	Growth, innovation and change Key economic sectors for exploration: (7) Ocean economy.
iv	Water Catchment Areas and Climate Change	Growth, innovation and change Consider (2) Water resources planning and (3) alternative energy (KRSDF, 2021).
v	Tourism and Economic Development and Climate Change	Heritage and Conservation Apply the UNESCO model. Establish the role and protection of heritage resources. Growth, innovation and change Consider expansion of ICT network (4) supportive economic infrastructure. Consideration for development and growth of regional economy (1) Issues of scale (2) Matching of supply and demand (3) Access to information (4) Strengthen inter-governmental coordination and capability (5) Strengthen development compact with social partners (6) Prioritise sectoral interventions and objectives in the Karoo region. Transformation Guidance Importance of rural towns and points of service delivery, connection, distribution and value addition in the rural economy. Exploration of the economic role of rural settlements in relation to the functional rural regions they are located in. Focus on access to land and land reform in the rural development context.
vi	Energy and Air Quality	None
vii		Collaborative action To achieve shared spatial planning concepts and structuring elements, institutional structures to facilitate collaboration and inclusion of the non-government sector as an important driver of development.

Table 165: Cross-border spatial issues

Cross-Border Spatial Issues	Cederberg	Bergrivier	Witzenberg	Matzikama	Hantam and Namakwa District
Rural Development and Agriculture	Clanwilliam, Citrusdal FPSU; Elands and Lamberts Bay Aqua FPSUs.	Piketberg FPSU.		Vredendal Agri-hub Ebenhaeser, Doringbaai, Bitterfontein FPSU.	Springbok Agri-hub Nieuwoudtville FPSU Hantam Local Municipality – Rooibos Tea and Wool Sheep.
Biodiversity: Greater Cederberg Biodiversity Corridors and Features	Cederberg, Sandveld and Olifantsberg Corridor: Cederberg Wilderness Area, Matjiesrivier Reserve, Elands Bay State Forest and Bird Island and Verlorenvlei Reserve.	Sandveld Corridor: Verlorenvlei River and Rocherpan Nature Reserve.	Groot Wintershoek Corridor: Groot Wintershoek Wilderness Area, the Cape Floristic Region (including a small portion of the Succulent Karoo) and Rock Art.	Bokkeveld Corridor: Extending northwards from Cedarberg Wilderness Area towards Oorlogskloof Nature Reserve.	Bokkeveld Corridor: Tankwa Karoo Nature Reserve and Oorlogskloof Nature Reserve.
Coast, Marine Culture: Harbours and Coastal Towns	Elands Bay, Lamberts Bay (Phakisa).	Velddrif (and Laai-plek), Dwarskersbos.	None.	Doringbaai, Strandfontein, Papendorp, Ebenhaeser.	None.
Water Catchment Areas: Sub-Catchment Areas and Features	Sandveld: Upper Olifants, Middle Olifants, Cederberg: Doorn, Verlorenvlei Estuary, Olifants River.	Sandveld: Verlorenvlei.	Koue Bokkeveld, Witzenberg, Ceres Karoo: Doring River, Olifants. Provide for Buffer Areas as part of GCBDC.	Nama Karoo: Doring River, Lower Olifants River.	Ceres Karoo, Hantam: Orange, Olifants, Doring River. (Other rivers: Oorlogskloof).
Energy and Air Quality	Solar farms close to Graafwater.	Several wind farms.		Solar farms in Van Rhynsdorp.	
Tourism and Economic Development	Berg Route, West Coast Wild Route.	Berg Route: West Coast Way from Berg River to the start of the Cederberg Mountains.	R303: Citrusdal to Ceres; R355: Calvinia; Koue Bokkeveld and Tankwa Karoo; Koue Bokkeveld and Swartruggens Mountains.	West Coast Wild Route: Cederberg to West Coast of Matzikama, ending at the Verlorenvlei.	
Climate Change	See Regional Proposals.				
Economic Development	N7 corridor and Rural Development and Agriculture proposals. Greater Cederberg Biodiversity Corridor and all the above conservation initiatives.				

Waste Management	Transfer stations to replace waste site.	Transfer stations.	Not applicable.	Regional landfill site.	Not applicable.

6.5 Climate Change Response Plan

The following management programmes should be implemented as a high priority. Across regions and Municipal boundaries to increase the resilience of Agriculture, Biodiversity, Water and Coastal Resources towards climate change impacts:

- Manage the change in what is cultivated in grain, viticulture, citrus and deciduous fruit production areas.
- Manage increasing risks to livestock.
- Manage the loss of high-priority biomes.
- Manage the decreased quality of drinking water.
- Manage the quantity of water available for irrigation and drinking.
- Manage decreased water quality in ecosystems.
- Manage impact on Marine, Coastal and Estuary Ecosystems.
- Manage increased damage to property and loss of land from sea level rise.
- Facilitate decision-making (enhance processing and assessment of applications), promote consistency and integrate resources (environment and heritage).
- Protect against alien infestation.
- Declare protected areas (state, private and communal land).
- Conserve biodiversity of ecologically sensitive coastal zone and maintain the natural diversity of coastal environments.
- Give effect to ratified binding international agreements relating to biodiversity.
- Maintain and protect essential ecological processes.
- Manage fire regimes.
- Promote sustainable utilisation of protected areas.
- Sustainably manage, develop and use forests for the benefit of all and for environmental, economic, educational, recreational, cultural, health and spiritual purposes.
- Promote community forestry.
- Prevent and combat veld, forest and mountain fires in South Africa.

The development proposals and guidelines at Municipal level, summarized below, address the management and reduction of natural and man-made disaster risks and climate change and serve as proposals for cross-border:

- Adapt economic activities dependent on natural biodiversity, i.e., tourism and agriculture (Cederberg Wilderness Area, coastal towns and agricultural enterprises in the Cederberg).
- Address vulnerabilities in the local economy (fishing industry, agriculture, and tourism).
- Source water where water sources are currently replenished by topography-linked rainfall (Cederberg Mountains) to ensure water security for domestic, industrial, and agricultural use.
- Identify new habitat areas to replace existing areas that will become climatically unsuitable and strengthen ecosystem functioning to maintain the sustainability of natural resources.
- Improve access to basic services and the reliability of supply.

6.5.1 Cross-Border Implementation Plan

The implementation plan for the Karoo region includes:

Table 166: Cross-border implementation plan

Biodiversity and Ecosystem Health • Protecting biodiversity, as a healthy ecosystem is central to human well-being and is the foundation for achieving clean air and water, fertile soil and food production. Well-functioning ecosystems buffer communities from climate change impacts such as extreme weather, floods and droughts, erosion, and the invasion of alien species. • Promote the establishment and maintenance of the Greater Cederberg Biodiversity Corridor, create a cross-border corridor "from Karoo to Coast" and include Sandveld, Groot Wintershoek and Cederberg Core Corridor: • Promote the Cederberg Nature Reserve Complex, which comprises the Cederberg Wilderness, Matjies River Nature Reserve, Hexberg State Forest, Cederberg Wilderness Area (with links to the Tankwa Karoo National Park), the Cederberg Conservancy and the Rooi Cederberg Karoo Park. • Counteract the fragmentation of ecosystems and provide migratory routes for all life forms, from the West Coast to the Cederberg Mountains and beyond to the Succulent Karoo.
Protect Food Security and Land • Maintain the production potential of land, e.g. soil, water and land cover, and prevent its erosion (e.g. over-utilisation), depletion of water sources and alien vegetation infestation. • Promote area-wide planning and conservation (best practice guidelines), e.g. Sandveld Corridor: Irrigation and tillage practices can overcome rainfall constraints, especially in the high-value commercial agricultural sector. (Irrigation consumes roughly 60% of the country 's surface water.
Waste Management • Develop and implement a cross-border Integrated Waste Management Strategy. • Implement a waste management hierarchy and divert reduced waste to a regional landfill site. • Develop a landfill site between Vredendal and Klawer to serve Cederberg.
Mining • Prioritize ownerless mines for rehabilitation (based on their impact on future tourism development). Include a strategy and cost estimates for rehabilitation. • Ensure that every person who mines complies with an environmental management plan (EMP), where required. • Demand that applicants for a prospecting right, mining right or mining permit make financial provisions for rehabilitation. • Explore mineral beneficiation and the provision of support services to the mining sector. • Mitigate dust generation that causes colouration of the landscape. • Avoid high visual impact on the significant landscapes. • Caution mining activities that are not viable and are counterproductive to the character of the area, such as regions 5, 6, and 7, as well as particularly sand mining.
Economy Large-scale regional economic activities and infrastructure form the macro-economic base and (1) deliver economic growth and job opportunities at a regional scale while (2) contributing to the national and the global economy in several areas: • Extensive, low-intensity livestock and intensive, predominantly irrigation-based crop-based agriculture; Mining; Solar and wind-energy generation; (Cederberg has no renewable energy concentration zone or REDZ zone; gas on the West Coast) • Corridor-focused mineral beneficiation and industrialisation, including the Boegoebaai Harbour and rail link to Upington as export node;

- Technological installations, i.e. the Square Kilometre Array; connectedness (ICT) through broadband infrastructure;
- Rural tourism; and oceans economy (e.g. fisheries).
- Promote and enhance (strengthen and sustain) Agricultural Value Chains or 'Regional-Rural Development Model' (NSDF and Karoo SDF).
- Establish downstream economic activities related to the large-scale activities in the Anchors to localize economic benefits.
- Promote agri-processing facilities and hubs as regions share medium to high potential agricultural soil (Cederberg, Witzenberg, Bergrivier and Matzikama) (KRSDF).
- Rural Urban Market Centres (RUMCs) are in a larger urban centre and have three main purposes (KRSDF).
- Ensure anchors are systemically connected to smaller settlements in functional economic sub-regions, serving as (1) markets for input materials and products and (2) conduits to larger urban and global markets.

Tourism

- Record, survey and declare cross-border roads as scenic routes, and develop tourism opportunities.
- Enhance awareness of the Tankwa / Roggeveld / Cederberg link.
- Share the R303 with Witzenberg, between Citrusdal and Ceres.

Harbours and Small Towns

- Have limited development in Admiralty Reserve.
- Monitor access control and conservation of coastline must consider the presence and significance of archaeological and palaeontological heritage resources located along it.
- Ensure that the construction of surface infrastructure on the coast does not cause unacceptable degradation of the ecological and aesthetic qualities of the coastal zone.
- Manage state land along the high-water mark.

6.6 Annexures

International			
Policy	Objectives	Directives	Implications
SDGs	Goal 1 Goal 2 Goal 3 Goal 4 Goal 5 Goal 6		Prioritize compact and inclusive settlement growth. Protect agricultural and biodiversity assets. Strengthen economic nodes and tourism opportunities. Improve infrastructure and public service accessibility. Promote climate-resilient development and disaster risk reduction. Expand green infrastructure and public open spaces.

	Goal 7 Goal 8 Goal 9 Goal 10		
United Nations Educational, Scientific and Cultural Organization World Heritage Convention	Promotes the identification, protection, conservation and management of cultural and natural heritage of outstanding universal value. Within the Cederberg Municipality, this is particularly relevant to the Diepkloof Rock Shelter and the internationally significant cultural landscapes associated with the Cederberg region.	Protect sites of cultural, archaeological and natural significance. Integrate heritage conservation into municipal spatial planning. Protect landscapes that contribute to the Outstanding Universal Value of heritage resources. Ensure development is compatible with heritage conservation objectives. Promote research, monitoring and management of cultural and natural heritage. Support heritage tourism as an economic development opportunity.	Protect heritage precincts. Limit incompatible development near heritage resources. Promote heritage tourism routes. Integrate heritage assets into place-making initiatives.
Intergovernmental Panel on Climate Change Sixth Assessment Report	Emphasizes climate-resilient development through integrated planning, institutional capacity, inclusive governance and coordinated action across sectors.	Strengthen municipal capacity for climate adaptation. Integrate climate change considerations into all spatial planning decisions. Promote cross-sectoral planning between land use, transport, energy, water and agriculture. Support nature-based solutions and renewable energy where appropriate. Coordinate adaptation and mitigation actions to maximise environmental, economic and social benefits.	Avoid development in high-risk flood and wildfire areas. Increase green infrastructure. Promote water-sensitive urban design. Encourage renewable energy opportunities. Align infrastructure planning with climate resilience objectives.

		Prioritise investment in climate-resilient infrastructure. Promote inclusive governance through stakeholder participation.	
Convention on Biological Diversity Kunming-Montreal Global Biodiversity Framework	The Convention promotes biodiversity conservation, sustainable use of natural resources and the integration of biodiversity into development planning.	Protect biodiversity and ecological infrastructure. Integrate biodiversity priorities into land use planning. Support sustainable agriculture, tourism and natural resource management. Protect indigenous knowledge associated with biodiversity. Promote intergovernmental coordination in biodiversity management. Encourage environmental education and awareness.	Protect Critical Biodiversity Areas. Maintain ecological corridors. Avoid habitat fragmentation. Support eco-tourism. Protect environmentally sensitive landscapes.
Ramsar Convention on Wetlands	Promotes the conservation and wise use of wetlands. Within Cederberg, this is particularly relevant to the Verlorenvlei Wetland near Elands Bay, which is recognised as a Wetland of International Importance. Vision: A world living in harmony with nature where wetlands are valued, conserved, restored and wisely used, maintaining ecosystem services supporting a healthy planet and delivering benefits for all people.	Protect wetlands from inappropriate development. Restore degraded wetland ecosystems. Incorporate wetland conservation into municipal planning. Apply an ecosystem-based approach to land use planning. Strengthen resilience to climate change through wetland protection. Promote inclusive participation in wetland management. Improve monitoring and management of internationally significant wetlands.	Prevent urban expansion into wetland systems. Establish ecological buffers around wetlands. Improve stormwater management. Protect biodiversity and water resources. Promote sustainable tourism associated with wetland ecosystems.

National			
National Climate Change Act	It aims to build climate resilience, reduce greenhouse gas emissions, and ensure that climate risks are integrated into planning and decision-making across all levels of government.		
National Water Act	The Act recognises water as a national resource that must be managed sustainably and equitably to meet the needs of present and future generations while protecting aquatic ecosystems.		
National Infrastructure Plan			
Regional			
Western Cape Biodiversity Spatial Plan			
One Plan	Provides an integrated development framework for the West Coast District and aligns planning and investment across all spheres of government.	Improve education and social wellbeing through equitable access to facilities. Promote safer settlements. Strengthen the regional economy by defining the strategic economic role of Cederberg within the West Coast region. Develop a transformed, efficient and sustainable spatial structure that supports economic development.	Strengthen the settlement hierarchy. Coordinate infrastructure with future growth areas. Promote integrated economic nodes. Improve access to social services.

		Align infrastructure investment with the Municipality's spatial structure and economic priorities. Promote improved governance, innovation and coordinated implementation.	
West Coast Integrated Transport Plan Creating a quality destination of choice through an open opportunity society'	Provides guidance on transport investment and mobility across the West Coast District. It identifies Clanwilliam as a central place within the regional transport network.	Promote denser settlement patterns that support public transport. Improve integrated public transport services within rural settlements. Provide public transport and non-motorised transport infrastructure. Ensure safe and accessible public transport systems. Maintain strategic road infrastructure. Improve freight movement and logistics.	Concentrate growth around transport corridors. Improve pedestrian and cycling infrastructure. Enhance connectivity between settlements. Protect transport corridors for future upgrades. Reinforce Clanwilliam's role as the primary regional service centre.
West Coast Tourism Strategy	Tourism is recognised as a major economic driver for the West Coast District. The Strategy promotes tourism growth through destination marketing, product development, community participation and sustainable tourism practices.	Identify and protect tourism development opportunities. Support tourism product development and tourism-related SMMEs. Promote destination branding and improve visitor experiences. Encourage community participation in tourism. Promote sustainable and responsible tourism practices. Align tourism development with relevant policies and industry regulations.	Strengthen tourism gateways and visitor facilities. Protect cultural and natural tourism assets. Promote tourism investment within settlements. Support local enterprise and job creation through tourism. Integrate tourism routes and public spaces into settlement planning.

Annexure 1: International, National, Regional Policy and Legislation linkages

West Coast Vegetation Types

The following vegetation types in the Saldanha Bay, Bergrivier, Cederberg and Matzikama Municipalities and the percentage of each vegetation type occurring in each municipality can be seen in the table below.

Vegetation Type	Saldanha	Bergrivier	Cederberg	Matzikama
Agter-Sederberg Shrubland			62.88%	
Arid Estuarine Salt Marshes			9.70%	37.49%
Bokkeveld Sandstone Fynbos			16.83%	35.41%
Cape Estuarine Salt Marshes	3.00%	49.55%	8.71%	
Cape Inland Salt Pans	25.01%	9.84%	9.98%	4.41%
Cape Lowland Freshwater Wetlands	1.28%	26.80%	37.15%	1.11%
Cape Seashore Vegetation	2.14%	1.39%	6.07%	1.07%
Cape Vernal Pools	33.97%	61.57%		4.47%
Cederberg Sandstone Fynbos		1.15%	50.34%	
Central KnersvlakteVygieveld				37.72%
Citrusdal Vygieveld			99.20%	
Doringrivier Quartzite Karoo		0.16%	64.57%	19.70%
Graafwater Sandstone Fynbos		6.59%	89.85%	3.52%
Hopefield Sand Fynbos		34.19%	52.22%	1.19%
Kamiesberg Mountains Shrubland				4.06%
Klawer Sandy Shrubland			1.30%	98.70%
Knersvlakte Dolomite Vygieveld				100%
Knersvlakte Quartz Vygieveld			0.05%	58.66%
Knersvlakte Shale Vygieveld				46.38%
Lamberts Bay Strandveld			71.17%	28.81%
Langebaan Dune Strandveld	27.43%	68.22%	4.35%	
Leipoldtville Sand Fynbos	27.04%	15.22%	6.61%	2.59%
Namaqualand Riviere			0.88%	11.82%
Namaqualand Salt Pans				1.18%
Namaqualand Sand Fynbos			5.39%	24.00%
Namaqualand Spinescent Grassland			0.11%	99.89%
Namaqualand Strandveld				23.63%
Northern Inland Shale Band Vegetation		8.95%	29.09%	

Northern KnersvlakteVygieveld				0.19%
Olifants Sandstone Fynbos		13.97%	75.83%	
Piketberg Quartz Succulent Shrubland	9.13%	90.87%		
Piketberg Sandstone Fynbos		100%		
Saldanha Flats Strandveld	51.80%	32.12%	1.73%	
Saldanha Granite Strandveld	91.89%			
Saldanha Limestone Strandveld	86.70%			
Southern Afrotemperate Forest		0.23%	0.52%	
Swartland Alluvium Renosterveld	10.64%	11.58%		
Swartland Shale Renosterveld	3.93%	28.09%	0.12%	
Vegetation Type	Saldanha	Bergrivier	Cederberg	Matzikama
Swartland Silcrete Renosterveld	6.48%	16.12%		
Swartruggens Quartzite Fynbos			31.07%	
Swartruggens Quartzite Karoo			26.26%	
Tanqua Karoo			3.56%	
Tanqua Wash Riviere			0.18%	
Vanrhynsdorp Ganna bosveld			1.98%	82.14%
Vanrhysdorp Shale Renosterveld			0.01%	74.14%
Western Altimontane Sandstone Fynbos		2.77%		
Winterhoek Sandstone Fynbos		22.75%	0.01%	

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