



CEDERBERG

SPATIAL DEVELOPMENT

FRAMEWORK

2023-2027



Prepared by CK RUMBOLL & PARTNERS

Cederberg Spatial Development Framework 2023 – 2027

Executive Summary

Status of Cederberg SDF 2023-2028, Draft 1

The Cederberg SDF, 2023 -2028 will be adopted as core component of the 5th generation Cederberg IDP, 2023 – 2028 (MSA Section 26(e)). The rewrite of the SDF focus on proposals that will be included as projects planned for the next five years and for the next 20-year and alignment of these projects with the Capital Expenditure Framework of Cederberg Municipality. The rewrite forms part of Cederberg Integrated Development Plan (IDP) five-year cycle review. SDF Draft 1 will be circulated for public participation, after adoption by Cederberg Council.

Purpose and vision

The purpose of the Cederberg Spatial Development Framework (SDF) is to guide growth and development in the Cederberg’s municipal area in a sustainable manner. Hence, future growth, development and land use planning will embrace the spatial vision and principles to protect and develop integrated, sustainable settlements and liveable environments and enable economic and social prosperity. The spatial vision for the Cederberg is: “An economically prosperous region and sustainable liveable environment for all Cederberg residents.”

Land Requirements and Supply

The land required for future settlement development is tabulated below:

Wards	1 & 2	3	4	5	6	
	Citrusdal	Clanwilliam	Graafwater & Elands Bay	Leipoldtville & Lamberts Bay	Wupperthal	Total
Land (ha) required for:						
Subsidized housing	96.9	88.9	72.9	82.3	39.7	380.7
Affordable housing	101.9	50.3	45	188.7	29.1	415
Private housing	66.3	36.8	26.1	44.2	22.7	196.1
Total land required: 5 years	30.7	27.2	13.1	25.6	0.1	96.7
Total land required: 20 years	265.1	176	130	315.2	91.5	977.8
Land per SDF 2017	64.3	48.8	64.1	75.8	0	253
Land per SDF 2023	32.7	276.4	74.2	81	0	464
Oversupply (Shortfall) '17	(200.7)	(127.2)	(86.8)	(239.5)	(91.5)	(745.7)
Oversupply (Shortfall) '22	(200.7)	100	(55.5)	(234.2)	(91.5)	(481.9)

Table: Land Requirements based on growth rates applied

Housing demand¹ in the short term (5 years) is for 16 427 units, of which 5 760 (approximately 35%) are on the current waiting list (2023). Land for future growth is under provided for with 482ha. While sufficient provision was made for land in the next 5 years, there is not sufficient land identified for the long term (next 20 years).

Provincial Government contributed to Social Infrastructure and particular to Housing, Education and Health and Transport (Roads) and Cederberg to sports and recreation, social development and public safety with the bulk of the budget allocated to tradeable services such as electricity, water management, and waste management.

An overview of the status of the Bulk Infrastructure Capacity

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

Towns		Water: Enhance or new Source, Storage or Reticulation	Waste Treatment (Bulk and Pipe Capacity)	Water (WWT) (Bulk and Pipe Capacity)	Electricity Supply, and reticulation	Solid Waste Removal and Management
Elandskloof	1	R11 million.	R14 million WWTW required.		Adequate.	Regular.
Citrusdal	1 and 2	R15 million: 3MI reservoir and upgrade of reticulation capacity (no reserves).	Adequate, WWTW was relocated and increased.		Adequate 1MVA, using 0.5MVA.	Weekly waste removals.
Clanwilliam	3	2.5MI 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. (1.5MI 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.
Paleisheuvel	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: 1MI reservoir.	R23.4 million: Increase WWTW capacity and upgrade.	Adequate 1MVA, using 400KvA.	Weekly waste removals.	
Lamberts Bay	5	R3.5 million: 3MI 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: 0.5MI 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

Development Proposals per Settlements

Ward 1: Elandskloof

Functional Integration

Activity Streets: *Minor dirt road.*

Social Integration

Protect social amenities: community hall and church and promote multi-functional use thereof.

Provide for functional recreational areas (e.g., children's play parks).

Promote disabled access at clinic and other social amenities.

Provide for sports facilities.

Provide for a resort, day camping and picnic facilities.

Intensification & Variety

Protect Place Identity.

Develop an architectural guideline for planned restitution development.

Promote and protect graded buildings, landscapes and features.

Establish and promote Elandskloof as a tourist destination.

Promote Elandskloof as a hotspot for hiking and mountain biking.

Promote a diversity of agricultural activities as tourism activities.

Spatial Integration

Enhance connectivity to West Coast and Witzenberg through sensitive agricultural and conservation related development or conservation.

Provide for development of safe pedestrian walkways and bicycle routes along minor road.

Proposals

- Develop ecological infrastructure of Elandskloof River to address the lack of sufficient water in summer.
- Formalize establishment of settlement.

Ward 2: Citrusdal

Functional Integration

Activity Streets: *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.*

Social Integration

Locate future facilities in a central location. Align social infrastructure provision to norms.

Protect, maintain and promote adequate social infrastructure to create safe living environments
Education (crèches, secondary and tertiary education, sport, and primary health care).

Promote multi-functional recreational areas.

Make clinic more accessible.

Maintain sport fields and provide for sport facilities (soccer fields) within Zone F.

Intensification & Variety

Protect place identity and town character: Citrus industry capital (Agricultural Service Centre and local node (SPC)).

Protect buildings and structures with heritage value.

Enhance the Settlement Pattern: Citrusdal primarily consists of 2 residential precincts (one south and one north).

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).

Spatial Integration

Protect unhindered access to Cape Town, Northern Cape and Namibia.

Protect location along regional and national transport corridor.

Connectivity to West Coast and Witzenberg.

Strengthen commercial activities along Voortrekker and Paul de Villiers streets and those parallel to or leading off these roads.

Enhance and extend safe pedestrian walkways and bicycle routes along Voortrekker Street.

Proposals

- Protect settlement layout.
 - Infill opportunities for GAP housing.
 - Grow and develop agri-industries and processing.
 - Enhance commercial use of community resources.
 - Support tourism related development, diversify agriculture.
 - Formalise natural swimming pool in Olifants River (currently used by community).
-

Ward 3: Clanwilliam

Functional Integration

Activity Streets: *Graafwater Way (east-west) Main Street and DR 2183/R539 (north –south) Visser Street, Voortrekker, Denne, Suikerbos, Magnolia Bloekom Avenue and Industrial area.*

Social Integration

Protect and provide adequate social infrastructure to create safe living environments: sport facilities and well-known education facility.

Locate community facilities in central areas.

Align provision of social infrastructure to norms.
Allow for adequate expansion of cemeteries.
Promote multi-functional recreational areas (e.g., children's play parks, day camping and picnic facilities) close to sport facilities.
Promote and support adequate primary health and education facilities: crèches, secondary/tertiary facilities (agricultural skills focus).
Expand resort next to Clanwilliam dam southwards (Zone J).
Provide sport facilities (soccer fields) within high density residential Zone I or in Zone K.

Intensification & Variety

Support tourism related uses in the town to diversify the economy. Maintain and enhance tourism potential (historic buildings, field flowers and scenic landscapes).
Address loss of, and impact on cultural and heritage resources: Clanwilliam is home to architectural treasures, representing different periods.
Conserve graded buildings, areas and features.
Promote setting of towns within natural landscape, of the Cederberg and the Olifants River, contrasted by cultivated landscapes (i.e., citrus and rooibos tea).
Enhance settlement pattern and layout.

Spatial Integration

Strengthen connectivity to the West Coast and to the Northern Cape.
Develop an alternative link road between Graafwater Way (R364) and the industrial area, to alleviate heavy traffic through the historic sections of town (Zones B, F and J).
Provide for a road, linking, from the proposed alternative road, to Hospital Road in Zone B.

Proposals

- Allow for adequate expansion of cemeteries.
 - Provide sport facilities.
 - Promote mixed use, including residential, in CBD.
 - Provide street furniture and landscape the central town.
-

Ward 4: Graafwater

Functional Integration

Activity Streets: *Street, Lambrechts Crescent.*
Ceder (north), Keurtjie, September Street, within new subsidised development.
Intersections between these roads.

Social Integration

Maintain adequate social infrastructure to create safe living environments.
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 existing two sport facilities.
Allow for long term expansion of cemetery.
Enhance functionality and create linkages between various precincts.

Intensification & Variety

Maintain and enhance tourism assets to attract passing visitors.
Enhance Settlement Pattern.
Acknowledge heritage resources' significance and need for protection.

Promote setting of towns within the natural landscape of the Sandveld plains, rooibos tea and spring flowers.

Expansion and infill development opportunities for residential uses exist in Zone A, B and C.

Enhance commercial activities along two main activity corridors and roads parallel thereto: Ceder and Stasie streets.

Plant Tree lanes.

Proposals

- Develop a tourism node at the southern boundary of Zone A i.e. a farm stall along the R364 (TR55/1/30).
 - Expansion and infill development opportunities for residential uses.
 - Expansion of the existing cemetery, east of Van der Stel Street, in Zone A.
-

Ward 4: Sandberg

Social Integration

Upgrade and maintain existing facilities.

Intensification & Variety

Address loss of an impact on, cultural and heritage resources.

Spatial Integration

Develop a small agri-village and provide space for community gardens.

Proposals

- Provide suitable cemetery space in Graafwater.
 - Use private cemeteries or cemetery at Graafwater.
-

Ward 4: Elands Bay

Functional Integration

Main Street: provides access to beach and CBD.

Hunter, Long and Strand Street.

Social Integration

Maintain adequate infrastructure to create safe living environments.

Locate community facilities in central areas.

Align the provision of social infrastructure- to the norm, and to enhance safety.

Promote multi-functional use and provide effective and functional recreational areas (e.g. children's' play parks, day camping and picnic facilities) close to sport facilities.

Allow for adequate expansion of cemeteries.

Maintain existing sport facilities.

Enlarge preschool and crèche.

Upgrade and maintain the existing two sport facilities.

Expand crèche.

Intensification & Variety

Support tourism related uses in the town to diversify the economy.

Address loss of an impact on, cultural and heritage resources.

Control alterations and demolition of buildings older than 60 years.

Enhance settlement pattern: Informed by coastal geometry and estuary flood lines: a 2km long beach.

Spatial Integration

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.

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.

Develop a pedestrian and cycling link between the north eastern and south western part of the settlement: along and across the Verlorenvlei River aligned with the EMPr.

Proposals

- Residential Infill.
 - Upgrade and maintain existing cemeteries.
 - Promote multi-functional use and provide effective and functional recreational areas.
-

Ward 5: Lamberts Bay

Functional Integration

Activity Streets: Van Zyl, Ferreira and Lizzy Brett Burrel, Church and Main Street, Corporation, Voortrekker and Strand.

Social Integration

Maintain adequate social infrastructure to create safe living environments.

Locate community facilities in a central area.

Align provision of social infrastructure to norm to enhance safety.

Promote multi-functional recreational areas (e.g. children's play parks, day camping and picnic facilities) close to sport facilities.

Allow for adequate expansion of cemeteries.

Expansion of sports field: to the south where residential infill development is proposed in Zone G.

Upgrade and maintain existing sport fields.

Maintain and support 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.

Intensification & Variety

Enhance Settlement Pattern: Lamberts Bay, seaward of R365, comprises a rectangular grid, aligned with the coast line.

Maintain overall mass and scale.

Historic: Protect Place Identity: Former fishing village, vacation destination and local node (SPC).

Coastal town.

Proposed infill development for mixed density residential uses in Zone E, west of the Main Road and south of Malkop Bay.

Proposed subsidised, residential and FLISP housing in Zone G.

Spatial Integration

Enhance links to N7, Clanwilliam and Graafwater.

Connectivity to West Coast and Northern Cape.

Plant Tree lanes.

Enhance commercial activities located along activity corridors.

Maintain main roads and improve access to the beach.

Develop a pedestrian and cycling link along coast.

Sishen-Saldanha railway runs east of Lamberts Bay.

Proposals

- Enhance links to N7, Clanwilliam and Graafwater.
 - Plant Tree lanes.
 - Develop a pedestrian and cycling link along coast.
 - Beautification of main access points.
 - Formalisation of informal settlement in Zone F.
 - Locate community facilities in a central area.
-

Ward 5: Leipoldville

Functional Integration

Activity Streets: - Activity corridor: north eastern entrance into Leipoldville.

Activity Street: main road in town towards the church.

Social Integration

Upgrade and maintain existing facilities.

Intensification & Variety

Different housing typologies and densities in brown field developments.

Historic: Traditional grid pattern urban structure along two main access streets (Long & Main) Has a unique agricultural character.

Utilize heritage character as tourism attraction.

Spatial Integration

Enhance Settlement Pattern: Main route, R365 links Piketberg and Lamberts Bay. R364 meets R365 at town entrance and entrance road is an activity axis. No formal industrial area, yet some Agri-industrial activities. Business area limited and concentrated around main access route.

Develop a small agri-village and provide space for community gardens.

Proposals

- new commercial buildings next to this main activity corridor and street.
 - Enhance Settlement Pattern.
 - Tourism potential.
 - Develop a small agri-village and provide space for community gardens.
-

Ward 6: Wuppertal

Functional Integration

Activity Streets:

A minor dirt road from the north link up with a divisional road (2262).

Social Integration

Upgrade and maintain existing facilities.

Intensification & Variety

Address loss of an impact on, cultural and heritage resources.

Control alterations and demolitions of buildings older than 60 years.

Enhance Settlement Pattern. *Wuppertal primarily consists of a residential precinct with a community activity node.*

Maintain overall mass and scale, new, similar use, building should blend into existing mass and scale.

There are only single storey buildings, mostly residential, in Wuppertal.

Spatial Integration

Promote connectivity to West Coast.

Place new commercial buildings next to main activity corridor and street.
Promote signage between the connecting roads.
Encourage a dedicated lane for cyclists and pedestrians.

Proposals

- Cemetery Expansion.
 - Residential Expansion.
 - CBD intensification.
 - Flood line formalization.
 - Landscape Gateway.
-

Ward 4: Paleisheuvel

Social Integration

Intensification & Variety

Paleisheuvel is a railway siding.

Place Identity: Small hamlet in rural areas and Rural settlement (SPC).

Settlement Pattern and Layout: Village has a linear form with a few houses (along the railway line).

Spatial Integration

Promote connectivity between Sandveld and West Coast.

Proposals

- Identify sites and provide adequate land for future bulk infrastructure expansion.
 - Develop a small agri-village and provide space for community gardens.
 - Plant lanes or clusters of trees.
-

Ward 6: Algeria

Social Integration

Upgrade (or move) and maintain existing sport field.

Intensification & Variety

Small settlement in rural area and Rural settlement (SPC).

Algeria is a forestry village, serving the Cederberg wilderness area. There is also a camping site with the same name.

Two rectangular nodes with a partial grid layout within walking distance from one another.

It has a medium density character and consists of one square block of single residential houses.

Spatial Integration

Promote connectivity to the Cederberg.

Proposals

- Identify sites and provide adequate land for future bulk infrastructure renewal.
 - Expand settlement, limited to accommodate the forestry workforce.
 - Enlarge the cemetery.
-

Liveable Settlement Directives

- To limit the extent of land required, the following guidelines for Connectors and Settlement Densities direct settlement Form and Function:
 - Roads
 - Clanwilliam, Citrusdal, Elands and Lamberts Bay: Introduce speed calming & greening of route. Introduce landscaping/ tree lanes, street furniture and sufficient lighting. Provide for multi-purpose crossings.
 - Improve Mobility.
 - All settlements: Develop guidelines for commercial facades, advertising signs and information signs: Main Road to have a rural character.
 - Protect mobility function of routes: Arterial Management Plans to be developed, where applicable to DTPW Roads Branch approval (See Annexure 4).
 - Gateways
 - All settlements: Enhance and announce town entrances and gateways: plant trees and landscape entrances.
 - Activity Streets & Corridors
 - Concentrate higher order social amenities and mixed-use development along activity streets.
 - Provide for public transport, Non-Motorised Transport and pedestrian mobility.
 - Provide for a taxi rank/bus stop next to Central Business District.
 - Rail
 - Alternative for freight & passengers. Investigate alternative transport, such as rail for agricultural and forestry production, to limit impact on roads and improve economic viability of the railway network (Cape Town - Bitterfontein line).
 - Pedestrian & Cycling
 - Develop trails and routes in settlements linked to natural conservation areas or farmland.
 - Clanwilliam, Citrusdal, Elands and Lamberts Bay: Provide for safe pedestrian walkways between residential areas.

Settlement Densities

Settlement	Density in 2008	Proposed du/ha 2027	Proposed du/ha 2032
Clanwilliam	8	12	16
Citrusdal	8	12	16
Graafwater	6	8	10
Lamberts Bay	10	12	14
Elands Bay	12	14	16
Leipoldtville		6	8

Table: Proposed densification targets for Cederberg settlements

Development Proposals for the Cederberg: Rural and Regional

Cederberg is home to six/ seven bio-regions that can be distinguished according to the natural environment and economy or value. The region is defined by its landscapes, natural environment and agricultural crops offering a variety of values to its inhabitants (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

Value	Landscapes	Wilderness: Coastal and Dunes	Wilderness: Mountains	Waterways and Connections	Connection Routes and Corridors	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								

Different landscape character types, based on elevation of the landscape, are identifiable (Norberg-Schulz's (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 table to follow provides an overview of the five regions:

	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	Leipoldville: 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

Water Bodies and ecological infrastructure

- Delineate Flood lines in Citrusdal and Elands Bay.
- Promote open spaces and social amenities along rivers and tributaries.
- Invest in ecological infrastructure.
- Promote infrastructure for water sports and recreation at Clanwilliam and Bulshoek dams..
- Preserve rural character around dams and water bodies and at sea.

Landfill sites, cemeteries, alternative energy generation and social amenities

- Provide for waste locally.
- Promote local rather than regional cemeteries.
- Delineate alternative energy zones and promote energy generation facilities in viable zones only.
- Limit potential air pollution sources in the Cederberg.
- Promote nodes at N7 intersections and where SANRAL criteria allow nodes, as well as along R363 and R366. Nodes and associated infrastructure should be sensitive to the agricultural landscape.
- Promote access to education at all levels by providing 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 protect food security and as biggest GDP and employment contributor).
- 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 and new products on-farm (value adding) e.g. stream aqua culture along the Olifants River, Verlorenvlei and in farm dams.
- Protect homogeneous farming areas across municipal borders.

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.
 - A camping site, limited to a maximum of 10 tent or caravan stands catering for not more than 40 people, is included in the definition of "Agriculture" and is a primary land use right.
- 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" and The West Coast Way "Wild Route".
- 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;

- Conservation and Heritage areas: Cederberg and Matjiesrivier Conservation Area, Verlorenvlei (R366) and Jakkalsvlei (R365);
- Outdoor Sport and Recreation routes.
- Promote renewal/ upgrading existing railway station and siding buildings.
- Promote tourism development nodes at intersections: along R364 (between Graafwater and Lamberts Bay; to Northern Cape and Karoo) and R365 (between Leipoldville and Lamberts Bay); (from coast to Bergrivier Municipality).

Fishing and sea

- Implement the Elands Bay Slipway and Parking area and maintenance of existing and related fishing infrastructure to keep 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 Eands Bay.

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.

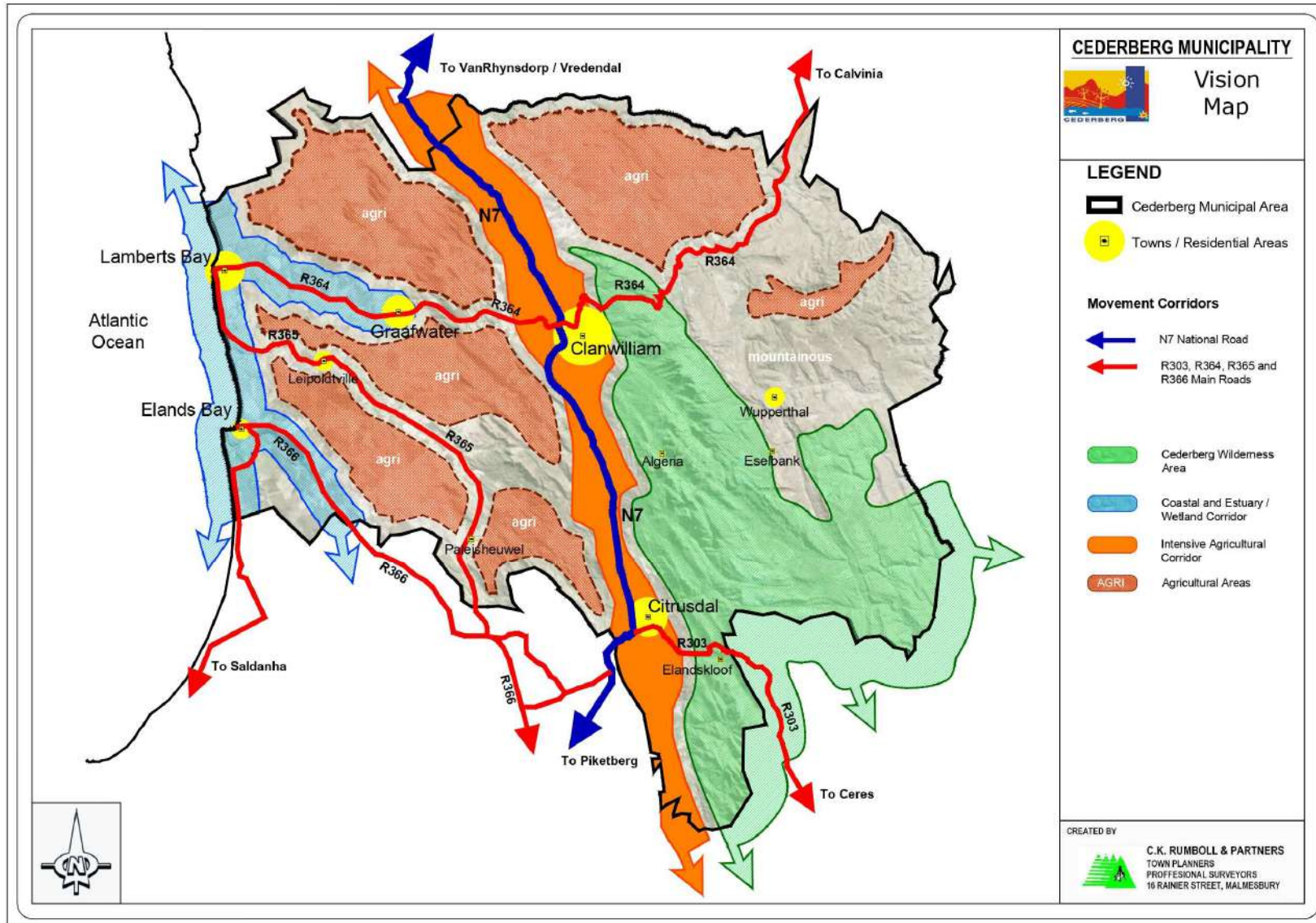
Conservation

- 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 the establishment of Cederberg Conservancy and West Coast Conservation Corridor to serve simultaneously as a climate change corridor.
- Protect and promote conservation of coastal ecosystems (estuaries, sandy beaches and dune systems, dune groves and fynbos):
 - Strandveld dune thicket and dune fynbos;
 - Lowland fynbos ecosystems (sand fynbos and limestone fynbos);
 - Mediterranean and mountain fynbos ecosystems (alluvial fynbos, granite, ferrous, conglomerate and silcretefynbos, grass fynbos and sandstone fynbos);
 - Renosterveld ecosystems (coastal renosterveld and interior renosterveld).
- Support farm owners to develop agri-villages.

Formalise guidelines for netting tunnels, agri-industry facilities and public utilities regarding positioning screening, adverse impacts and decommissioning.

The rural and regional proposals are illustrated in the composite map to follow:

Map: Cederberg Composite Proposal



Spatial Objectives

The spatial objectives of the SDF will be informed by the IDP strategic objectives as tabled below and indicated by the highlighted Batho Pele principle. The IDP strategic objectives are supportive to the eight Batho Pele principles valued by Cederberg Municipality.

SDF Objectives	Objective 1: <i>Grow (and unlock) economic prosperity.</i>	Objective 2: <i>Proximate convenient and equal access.</i>	Objective 3: <i>Sustain material, physical and social well-being.</i>	Objective 4: <i>Protect and grow place identity and cultural integrity.</i>	Objective 5: <i>Protect ecological and agricultural integrity.</i>
1. Sustainable services		Access			
2. Financial viability	Redress			Information	
3. Optimise resource efficiency		Access		Standards	
4. Economic Growth	Value for money				Value for money
5. Good governance			Consultation	Courtesy	
6. Social cohesion			Openness and transparency		

The five spatial objectives and strategies are as tabled below:

SPATIAL OBJECTIVES, IDP OBJECTIVES		SPATIAL STRATEGIES
Objective 1: Grow (and unlock) economic prosperity Related IDP Strategic Objectives: <ul style="list-style-type: none"> Facilitate, expand and nurture sustainable economic growth and eradicate poverty.(SO 4). Financial viability and economically sustainability (SO 2). 	SS1 SS2 SS3	Grow the economy & stimulate sector diversification and product development. Strengthen mobility and economic links (investor confidence). Develop product and trade advantages (export value chain & agri-industry corridors) and competitive advantage.
Objective 2: Proximate convenient and equal access Related IDP Strategic Objectives: <ul style="list-style-type: none"> Improve and sustain basic service delivery and infrastructure development. (SO 1). Enable a resilient, sustainable, quality and inclusive living environment and human settlements i.e. Housing development and informal settlement upgrade (SO 5). 	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: <ul style="list-style-type: none"> Good Governance, community development and community participation. (SO 3). 	SS7 SS8 SS9	Protect safety and security. Protect fundamental community resources (air, water & energy). Provide social infrastructure and services (as per norm) to facilitate smart growth.

<ul style="list-style-type: none"> • Enable a resilient, sustainable, quality and inclusive living environment and human settlements i.e. Housing development and informal settlement upgrade. (SO 5). • To facilitate social cohesion, safe and healthy communities.(SO 6). 	SS10	Manage risk and disaster (man-made and natural).
<p>Objective 4: Protect and grow place identity (sense of place) and cultural integrity</p> <p>Related IDP Strategic Objectives:</p> <ul style="list-style-type: none"> • Financial viability and economically sustainability. (SO 2). • To facilitate social cohesion, safe and healthy communities. (SO 6). • Development and transformation of the institution to provide a people-centred human resources and administrative service to citizens, staff and Council (SO 7). 	SS11 SS12 SS1	Protect heritage resources and place identify. Grow cultural potential. Grow economy (landscape & conservation, tourism & new markets and economic sectors) & stimulate sector diversification.
<p>Objective 5: Protect ecological and agricultural integrity</p> <p>Related IDP Strategic Objectives:</p> <ul style="list-style-type: none"> • Good Governance, Community Development & Public Participation (SO 3). • Facilitate, expand and nurture sustainable economic growth and eradicate poverty (SO 4). 	SS13 SS14 SS4 SS15	Protect food and water security and apply bioregional classification. Grow conservation potential and 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 enhancing Ecosystem services.

Table: Spatial Objective and Strategies

Sectoral Plan and Provincial & Regional SDF Analysis and Directives

Three sector plans or strategies, Local Economic Development Plan, Tourism Strategy and Risk Management Plan, provide spatial and development directives inclusive of:

- Enabling policy;
- Accelerating the economy;
- Growing tourism (longer stays, average spend increase, number of visitors);
- Focus on capital investment supportive of the tourism industry;
- Create job and business opportunities as tourism sector strengthen and grows;
- Rural communities to socially benefit from tourism sector economy;
- Enhance conservation; and
- Integrate Disaster Risk Management into the strategic, operational planning and project implementation of all line functions and role players within Cederberg municipality.

TABLE OF CONTENTS

CHAPTER 1: SDF Purpose and Principles.....	1
1.1 Purpose	1
1.2 Spatial Context	1
1.3 Structure of the SDF Document.....	2
1.4 Status of Cederberg SDF and IDP, National and Provincial Policies Alignment.....	3
1.5 Values and Performance Qualities	6
1.5.1 Spatial Elements of Settlements and Regions	6
1.5.2 Structural Tools and SPLUMA Principles	9
1.5.3 Policy as a structural tool.....	12
1.5.4 Application	18
CHAPTER 2: Issues, Vision and Goals	19
2.1 Overall Priorities of Cederberg	19
2.2 Strengths, Weaknesses, Opportunities and Threats.....	19
2.3 Conceptual proposal.....	21
2.4 Spatial Vision and Strategy.....	22
2.5 Conceptual proposal.....	23
2.6 Spatial Objectives.....	23
2.7 Planning Legislation and Policy Frameworks	24
CHAPTER 3: Status Quo: Municipal & Neighbouring Municipalities, Sector Plans and Legislation	25
3.1 Spatial Analysis of Status Quo	25
3.2 Sectoral Plan and Provincial & Regional SDF Analysis and Directives	37
3.3 Spatial Analysis of Neighbouring Municipal Resources and Regional Directives	38
CHAPTER 4: Land Demand, Supply and Settlement Development Guidelines	47
4.1 Land Demand and Supply Projections.....	47
4.1.1 Population Growth Projections	47

4.1.2	Land Demand	48
4.1.3	Bulk Infrastructure Capacity.....	49
4.2	Land Supply.....	51
4.2.1	Urban Edges.....	51
4.2.2	Settlement Form and Function.....	51
CHAPTER 5: Settlement Proposals		54
5.1	Guidelines for achieving compact settlements.....	54
5.2	Guidelines for Liveable Settlement Directives:	56
5.3	Management priorities: Built Environment and Service Areas	57
5.4	Ward 1: Elands kloof.....	59
5.5	Ward 2: Citrusdal.....	63
5.6	Ward 3: Clanwilliam	71
5.7	Ward 4: Graafwater	79
5.8	Ward 4: Sandberg	88
5.9	Ward 4: Elands Bay.....	90
5.10	Ward 5: Lamberts Bay	103
5.11	Ward 5: Leipoldtville	112
5.12	Ward 6: Wupperthal.....	119
5.13	Ward 4: Paleisheuwel	124
5.14	Ward 6: Algeria.....	126
CHAPTER 6: Development Proposals: Rural and Regional, Environmental & Climate Change Management		128
6.1	Development Proposals for the Cederberg: Rural and Regional	131
6.2	Regional and Rural Proposals & Climate Change	136
6.2.1	Water/ Hydrology	137
6.2.1.1	Natural Resource: Surface (Rivers), Ground Water and Coastal Erosion.....	137

6.2.1.2	Natural Disaster: Droughts, Floods, Coastal Erosion and Flooding	141
6.2.1.3	Opportunities: Dams, Irrigation and Recreation	144
6.2.1.4	Risks: Water Security, Pollution, Cemeteries and Waste Sites.....	146
6.2.1.5	Proposals.....	153
6.2.2	Land/ Soil.....	155
6.2.2.1	Natural Resource: Soil Suitability (Agriculture)	155
6.2.2.2	Natural Disaster: Climate change changes type of farming	157
6.2.2.3	Opportunities: Agri-industries and Processing, Land Reform and Agri-tourism	157
6.2.2.4	Risks: Food Security.....	160
6.2.2.5	Proposals.....	162
6.2.3	Mineral Resources.....	164
6.2.3.1	Natural Resource: Minerals	164
6.2.3.2	Natural Disaster: Earth Quakes and Floods.....	166
6.2.3.3	Opportunities: Mining related Industry	166
6.2.3.4	Risks: Dust, Colouration and Visual Impact.....	166
6.2.3.5	Proposals.....	167
6.2.4	Vegetation, Fauna, Ecosystems	168
6.2.4.1	Natural Resource: Natural Environment (critical and common fauna & flora) and Landscapes	168
6.2.4.2	Natural Disaster: Ecosystem Deterioration	175
6.2.4.3	Opportunities: Tourism and Agri-tourism	176
6.2.4.4	Risks: Impact of Agricultural and Mining Production and Technology	184
6.2.4.5	Proposals.....	187
6.2.5	Air & Wind.....	189
6.2.5.1	Natural Resource: Air and Wind	189
6.2.5.2	Natural Disaster.....	189
6.2.5.3	Opportunities: Alternative Energy	190
6.2.5.4	Risks: Air Quality	191
6.2.5.5	Proposals.....	196
6.2.6	Sun	196
6.2.6.1	Natural Resource: Solar Radiation	196
6.2.6.2	Natural Disaster: Heat waves	196

6.2.6.3	Opportunities: Alternative Energy	196
6.2.6.4	Risks: Evaporation.....	197
6.2.6.5	Proposals.....	197
6.2.7	Connectors	197
6.2.7.1	Man-made Resource: Roads and Rail, Social Amenities	197
6.2.7.2	Disasters: Natural Disasters	197
6.2.7.3	Opportunities	198
6.2.7.4	Risk.....	199
6.2.7.5	Proposals.....	200
6.2.8	Estuaries.....	201
6.2.8.1	Wadrif River Estuary (Wadrifvlei).....	201
6.2.8.2	Management priorities: Verlorenvlei Estuary	203
6.2.8.3	Environmental Impact Management: Verlorenvlei Estuary	205
6.2.8.4	Environmental Impact Management: Coastal Zone as Public Amenity.....	206
6.3	Composite Proposals.....	208
CHAPTER 7: Cross Border Spatial Linkages		209
7.1	Regional Spatial Objectives.....	209
7.2	Cross Border Spatial Considerations:.....	211
7.3	Climate Change Cross Border Response Plan.....	213
7.4	Cross Border Implementation Plan	214
CHAPTER 8: Capital Expenditure Framework and Implementation Plan		218
8.1	Implementable SDF Proposals	218
8.1.1	List of proposals for settlements and rural area	218
8.1.2	List of infrastructure requirements	224
8.2	Long- and medium-term Capital Expenditure Budget.....	228
8.2.1	Long-term Capital Expenditure budget	228
8.2.2.	Medium term Capital Expenditure Budget	228
8.2.3	Overview and comparison of all budgets	229

8.2.4	Priorities.....	229
8.2.5	Funding.....	243
8.3	Proposed priorities/ Affordability	243
8.3.1	Spatial Priority Areas	243
8.3.2	Precinct Plans.....	244
8.3.3	Comprehensive List of projects.....	244
8.4	Implementation Requirements.....	244
Annexures		246
Annexure 1:	Coastal Setback Lines	247
Annexure 2:	West Coast Vegetation Types	253
Annexure 3:	Ward Map	255
Annexure 4:	Comprehensive List of Infrastructure Master Plan Projects	256
Annexure 5:	Comprehensive List of Settlement Development Projects and Implementation Plan	264
Annexure 6:	Comprehensive Proposal Maps Key	281
Annexure 7:	Description of proposed land uses for development zones.....	291
Works Cited		292

LIST OF TABLES

Table 1:	CBA and ESA Maps Categories, recommended corresponding Spatial Planning Category.....	13
Table 2:	Description of Spatial Planning Categories and recommended land use activities.....	14
Table 3:	IDP priorities (IDP , 2022).....	19
Table 4:	SWOT Analysis.....	20
Table 5:	Cederberg Settlement Population (StatsSA, 2016).....	48
Table 6:	Cederberg Population & Households (StatsSA, 2011) (StatsSA, 2016)	48
Table 7:	Land Requirements based on growth rates applied.....	48
Table 8:	Infrastructure Capital Investment Framework, Cederberg towns	50
Table 9:	Proposed densification targets for Cederberg settlements	54
Table 10:	Extent of land use proposal per settlement, immediately implementable.....	219

Table 11: Swartland Land Use Proposals: 2023 - 2027.....	220
Table 12: Swartland Land Use Proposals: 2027 - 2032.....	221
Table 13: Swartland Land Use Proposals: 2032+.....	222
Table 14: Master Plan Electricity Infrastructure Projects	224
Table 15: Master Plan Sewerage Infrastructure Projects.....	225
Table 16: Master Plan Bulk Water Infrastructure Projects	225
Table 17: Water Infrastructure Projects	225
Table 18: Solid Waste Infrastructure Projects.....	226
Table 19: Master Plan Roads Infrastructure Projects	226
Table 20: Budget requirement per settlement per SDF cycle	227
Table 21: Cederberg 2022 – 2027 Capital Expenditure Budget	228

LIST OF FIGURES

Figure 1: Map representing the new Cederberg Municipal Wards.....	1
Figure 2: Application of LUMs Risk Zones Overlay Example.....	17
Figure 3: Cederberg Living Standard Measures	33
Figure 4: Proposed urban edges including existing informal settlement precincts.....	53
Figure 5: Cederberg Land Use Proposals: Implementable from 2023.....	219
Figure 6: Cederberg Land Use Proposals: 2023 - 2027	220
Figure 7: Cederberg Land Use Proposals: 2027 - 2032	221
Figure 8: Cederberg Land Use Proposals: 2032+	222
Figure 9 Cederberg Priority Development Areas.....	231
Figure 10: Cederberg Settlement Proposals, 2023 – 2027 and immediately implementable.....	232
Figure 11: Cederberg Settlement Proposals, 2028 – 2032 and beyond	233
Figure 12: Master Plan projects vs SDF proposals.....	237
Figure 13: Master Plan budget for period 2023 – 2027+	237
Figure 14: Master Plan budget for period 2028 - 2032	238
Figure 15: Master Plan budget for period 2033+	238
Figure 16: Cederberg Infrastructure (Water & Sewer) Costs, 2022 – 2027	239
Figure 17: Cederberg Infrastructure budget, 2022 – 2027	239
Figure 18: Proposed Development Extent per Category: 2023 - 2027	240

Figure 19: Proposed Total Development Extent per Settlement: 2023 - 2027	240
Figure 20: Swartland Capital Budget: 2023 - 2026	241

LIST OF MAPS

Map 1: Cederberg Spatial Planning Categories.....	15
Map 2: Coastal Management Setback line and zone in Elands Bay and Lamberts Bay.....	17
Map 3: Conceptual Map.....	23
Map 4: Cederberg Land Capability & Hydrology.....	27
Map 5: Ecological Status of the Natural Vegetation in Cederberg	28
Map 6: Cederberg Conservation and Mining	29
Map 7: Cederberg Agri-tourism	30
Map 8: Cederberg Homogenous Farming Areas	39
Map 9: Swartland Cross-border Ecological Infrastructure.....	40
Map 10: Cederberg Cross-border Settlement Hierarchy and Transport Connectors	42
Map 11: Conservation zones around Verlorenvlei.....	98
Map 12: Baboon Point Heritage Resources.....	100
Map 13: Baboon Point Buffer Area.....	101
Map 14: Cederberg Bio-Regions	129
Map 15: Vulnerability to environmental threats in Cederberg (combining socio-economic and governance indicators).....	137
Map 16: Cederberg Water Management	138
Map 17: Cederberg Flooding Risk	141
Map 18: Flood area in Citrusdal.....	142
Map 19: Elands Bay Coastal Erosion and Flooding Risk.....	142
Map 20: Cederberg River Conservation Status	144
Map 21: Water Security in Cederberg.....	147
Map 22: Waste management risk in Cederberg	149
Map 23: Cederberg Homogenous Farming	156
Map 24: Cederberg Soils and Clay content	157
Map 25: Cederberg Mineral Resources	165
Map 26: Cederberg Operational Mines and Mineral Commodities vs Protected and Conservation Areas ...	166

Map 27: Development Proposals 2 and 3; Enhance establishment of Greater Cederberg Conservation Corridor.	173
Map 28: Development Proposal 1; Intensive agricultural corridor, Oliphant River	174
Map 29: Ecosystems Deterioration Risk in the Western Cape, highlighting areas where compromised natural features coincide with vulnerable population	175
Map 30: Cederberg Tourism Routes.....	179
Map 31: Average Wind Speed, Cederberg	189
Map 32: Risk of increased wildfires in Cederberg.....	190
Map 33: Relative index of air quality related risk	192
Map 34: Solar Radiation, Cederberg	196
Map 35: Proposals in Cederberg	200
Map 36: Cederberg Composite Proposal.....	208

CHAPTER 1: SDF Purpose and Principles

This chapter states the purpose of the Spatial Development Framework and details the principles required to achieve the desired spatial form and outlines the project plan to compile the SDF.

1.1 Purpose

The purpose of the Cederberg Spatial Development Framework (SDF) is to guide growth and development in the Cederberg's municipal area in a sustainable manner. Hence, future growth, development and land use planning will embrace the spatial vision and principles to protect and develop integrated, sustainable settlements and liveable environments and enable economic and social prosperity.

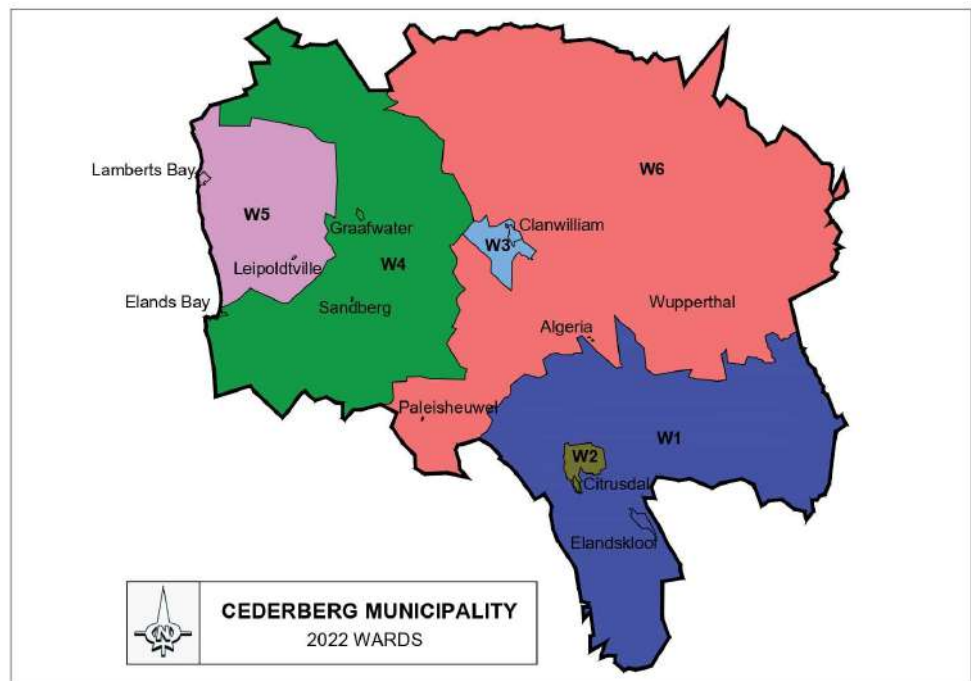
This rewritten version of the Cederberg SDF is for the 2023 – 2027 period.²

1.2 Spatial Context

The Cederberg Municipality (WCO12) is located on the West Coast of the Western Cape Province and forms part of the West Coast District Municipality together with Bergrivier, Matzikama, Saldanha and Swartland Municipality.

The Cederberg Municipal area stretches from the Atlantic coast in the west to the Cederberg on the east, the Hantam and Matzikama in the north and Witzenberg and Bergrivier in the south.

Figure 1: Map representing the new Cederberg Municipal Wards



²Scope of Work: SPLUMA Section 12 and SMA Section 24 (1) and 26 (e)

The municipality is divided into 6 six Wards. The wards consist of 6 urban settlements and surrounding rural areas, which contain the agricultural and natural environments. The table below lists the urban settlements and rural areas within the different wards.

Ward 1	Elandskloof and Citrusdal Farms	Rural Settlement
Ward 2	Citrusdal	Major town, gateway to Cederberg.
Ward 3	Clanwilliam	Administrative centre.
Ward 4	Elands Bay Graafwater and Sandveld	Graafwater: Agricultural service centre. Paleisheuwel and Sandberg are former sidings. Elands Bay indicated as a small fishing village with tourism attraction.
Ward 5	Lamberts Bay Leipoldtville	Coastal town with tourism nodes. Agricultural settlements with tourism potential.
Ward 6	Wupperthal Algeria	As an old missionary station. Rural and forestry settlements.

1.3 Structure of the SDF Document

The SDF provides the municipality with the necessary tools for the effective management of future development to ensure that development is balanced, sustainable and which creates socio-economic opportunities. The document comprises the following chapters:

- Chapter 1: SDF Purpose and Principles.
- Chapter 2: Issues, Visions and Goals.
- Chapter 3: Status Quo: Municipal & Neighbouring Municipalities, Sector Plans and Legislation.
- Chapter 4: Land Demand, Supply and Settlement Development Guidelines.
- Chapter 5: Settlement Proposals
- Chapter 6: Development Proposals: Rural and Regional, Environmental & Climate Change Management.
- Chapter 7: Cross Boarder Spatial Linkages.
- Chapter 8: Capital Expenditure Framework and Implementation Plan.

1.4 Status of Cederberg SDF and IDP, National and Provincial Policies Alignment

The Cederberg SDF, 2023 -2027 will be adopted as core component of the 5th generation Cederberg IDP, 2023 – 2027 (MSA, 2000). The rewrite of the SDF focus on proposals that will be included as projects planned for the next five years whilst proposals for the next 20 years will be included as well and alignment of these proposals with the Capital Expenditure Framework of Cederberg Municipality.

In accordance with Section 3(1) of the Cederberg Municipality: Land Use Planning By-Law, April 2016, the Cederberg SDF was prepared as part of the municipal IDP in accordance with the provisions of the Municipal Systems Act (MSA, 2000). Chapter 2 of the Cederberg Municipality: Land Use Planning By-Law guides the content of and procedure to follow to compile or amend an SDF. The approval or adoption of this SDF, will be undertaken in accordance with Section 10 of the Cederberg Municipality: Land Use Planning By-Law. This Cederberg SDF once adopted is then valid for five years³.

Besides legislation instructing the development and amendment of Spatial Development Frameworks, municipal spatial development frameworks have to be aligned with different national, provincial and local legislation, policies⁴ and strategies which provide a spatial planning agenda. The alignment between these strategies is illustrated in the table below:

³Scope of Work: SPLUMA Section 12; MSA Section 24 (1) and 26 (e)

⁴National Policy Context: SPLUMA Section 12(5) and Section 7e(ii) and Municipal Policy Context SPLUMA Chp4, Section 12.1©, Sec 20(2) and Sec 7(e)(ii)



Political Mandate	NDP 2030	NSDF	IUDF 2016	WCPSDP 2014	Karoo RSDF	Cederberg	
						SDF	IDP
Political Theme and SPLUMA and LUPA Principle: Jobs and Opportunities, Spatial Justice							
<ul style="list-style-type: none"> • EPWP expansion. • LED one stop shops, prioritise job-creation, partner local business. • Provide a range of housing. • Ownership transferred. • Connect communities to internet. 	<ul style="list-style-type: none"> • 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.	<i>Grow economic prosperity</i> (Obj 1).	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							
<ul style="list-style-type: none"> • Graduate recruitment appointments. • Access drug addiction treatment. 	<ul style="list-style-type: none"> • Building 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.	<i>Protect and grow place identity and cultural integrity</i> (Obj 4). <i>Protect ecological and agricultural integrity</i> (Obj 5).	Good Governance, community development and public participation (SO 3).
Political Theme and SPLUMA and LUPA Principle: Better Service Delivery – Efficiency and Spatial Sustainability							
<ul style="list-style-type: none"> • Maintain roads (potholes). • Access to electricity, water and sanitation. • Regular maintenance of infrastructure. 	<ul style="list-style-type: none"> • 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.	<i>Sustain material, physical and social well-being</i> (Obj 3) [Social Environment]. <i>Grow economic prosperity</i> (Obj 1) [Economic Environment].	Improve and sustain basic service delivery and infrastructure development (SO 1).

Political Theme and SPLUMA and LUPA Principle: **Stop Corruption – Good Administration**

<ul style="list-style-type: none"> • Effective systems complaints processing. • Staff appointed: add value. • Exclude councillors from recruitment. • Open tender adjudication. • Open council meetings. • True B-BBEE. 	<ul style="list-style-type: none"> • Fighting Corruption (No 12). 	<p>Focus economic and settlement growth along nodes & activity corridors.</p> <p>Action agenda and urgent interventions.</p> <p>Enhance cross – jurisdictional boundary collaboration.</p> <p>A systemic view of rural areas.</p>	<p>Efficient land governance and management (No 5).</p> <p>Empowered active communities (No 7).</p> <p>Effective urban governance (No 8).</p> <p>Sustainable finance (No 9).</p>	<p>Protect, manage and enhance sense of place, cultural and scenic landscapes (S1).</p>	<p>Action agenda, project and initiative focused.</p> <p>Cooperation Collaboration and joint action.</p> <p>Rural-urban continuum and interlinked regionalism.</p> <p>3) Decisive spatial transformation, in accordance with a <i>shared spatial, social and economic development vision</i> for the region.</p>	<p><i>Protect and grow place identity and cultural integrity</i> (Obj 4) [Built Environment].</p>	<p>Good Governance, community development and public participation (SO 3).</p> <p>Enable a resilient, sustainable, quality and inclusive living environment and human settlement i.e. housing development and informal settlement upgrade (SO 5).</p>
---	--	---	--	---	--	---	---

Political Theme and SPLUMA and LUPA Principle: **Meaningful redress – Spatial Justice**


<ul style="list-style-type: none"> • Infrastructure-led growth. • Inclusive amenities and spaces. • Urban planning integrates communities and levels of income. • Reliable public transport; Implement taxi and bus services. 	<ul style="list-style-type: none"> • Environmental resilience (No 3). • Transform settlements (No 6). • Nation Building (No 13). 	<p>Regional adaptation, economic diversification and agro-innovation at scale.</p> <p>Encourage and support “going off the grid”.</p> <p>Enhance ICT linkages to support long-distance learning.</p> <p>Spatial transformation and land reform.</p> <p>Focus state investment on areas with economic growth potential.</p>	<p>Integrated urban planning and management (No 1).</p> <p>Integrated transport and mobility (No 2).</p> <p>Integrated sustainable human settlements (No 3).</p>	<p>Promote compact, mixed use and integrated settlements (S3).</p> <p>Balance and coordinate the delivery of facilities and social services (S4).</p> <p>Promote sustainable, integrated and inclusive housing in formal and informal markets (S5).</p>	<p>Marketing, job creation, skills development and entrepreneurship development.</p> <p>(2) Sustainable and inclusive economic growth including job creation.</p>	<p><i>Proximate, convenient and equal access</i> (Obj 2) [Economic Environment].</p>	<p>Enable a resilient, sustainable, quality and inclusive living environment and human settlement i.e. housing development and informal settlement upgrade (SO 5).</p> <p>To facilitate social cohesion, safe and healthy communities (SO 6).</p>
---	---	--	--	---	---	--	---

Political Theme and SPLUMA and LUPA Principle: Making Communities safer – **Spatial Resilience**

<ul style="list-style-type: none"> - Prevention units: gang and drugs. - Law enforcement service: traffic and crime. 	<ul style="list-style-type: none"> • Social protection (No 9). • Safer Communities (No 10). 	<p>Compact settlement development around social service provision nodes.</p> <p>Limit expansion and development of new settlements in arid areas.</p> <p>Discourage temporary settlement formation for mining and infrastructure construction, upgrading and maintenance projects.</p> <p>Focus economic and settlement growth along nodes & activity corridors.</p>	<p>Empowered active communities (No 7).</p> <p>Effective urban governance (No 8).</p>	<p>Promote compact, mixed use and integrated settlements (S3).</p> <p>Balance and coordinate the delivery of facilities and social services (S4).</p>	<p>(1) Equitable basic service provision and social development.</p>	<p><i>Sustain material, physical and social well-being</i> (Obj 3) [Social Environment].</p>	<p>Good Governance, community development and public participation (SO 3).</p> <p>To facilitate social cohesion, safe and healthy communities (SO 6).</p>
--	---	--	---	---	--	--	---

1.5 Values and Performance Qualities

The settlement and rural proposals were informed by the values and performance qualities described below. Planning shifted from separate development and modernism (functionalism) to human and nature centred settlement making. Such settlements are scaled for pedestrians (neither pedestrians nor vehicles dominate); are compact (with high building densities); are integrated; composite parts reinforcing each other; have a strong spatial feel with well-defined public spaces and have complex spatial structures offering choices i.t.o. intensity of interaction, privacy of living conditions, lifestyles, housing options and movement systems (physical, social and economic integration). Well-performing settlements and regions have the qualities of Liveable Environments and Sustainable Settlements.

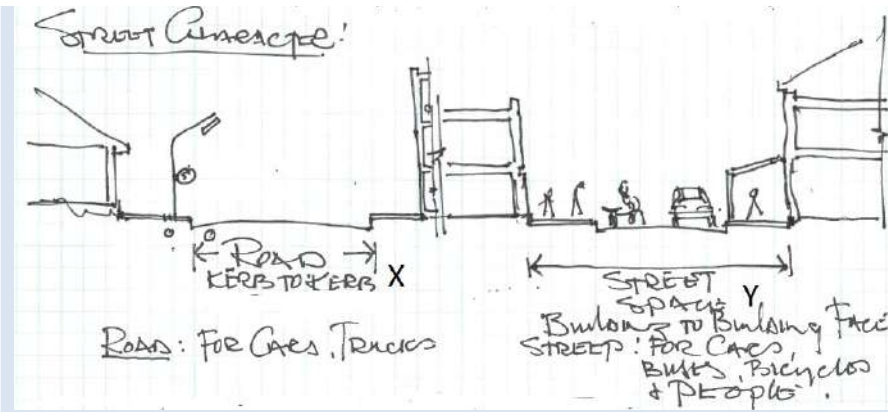
Definition SPLUMMA	Features and qualities
<p>Liveable Environments</p> <p><i>A liveable settlement satisfies more than the basic needs of a community as the individual as well as the community's needs for social facilities and health facilities are met. Quality of life is key. (Van Kamp et al, 2003).</i></p>	<p><i>Liveable environments are recognized by the present relationship between people and their settlements and features economic growth, accessibility and Place identity.</i></p>
<p>Sustainable Settlements:</p> <ul style="list-style-type: none"> - 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 (Department of Local Government and Housing, 2005). - Improve the liveability of settlements by reducing the impact on the environment through reduced use of resources and the generation of less waste. 	<p>- Present the future relationship between settlement and environment and features Ecological integrity (Planet), Social justice (People) and Economical effectiveness (Prosperity).</p> 

1.5.1 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:

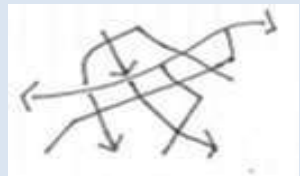
Space, built and natural	
At settlement level	At regional level
<ul style="list-style-type: none"> Lies at the heart of a non-programmatic approach to settlement making, not just one element or space e.g. public open space, but is part of the whole. Characterised by diversity, different spaces on continuum of public to private, there is a structural order. Public spaces in settlement are meeting places of people, comprising of urban “rooms” and “seams” of connectivity. There is a degree of both publicness and privacy. A continuum or hierarchy of public 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. 	<ul style="list-style-type: none"> Delineated and merged landscapes which are characterised by conservation, cultivation and nature. Mountains and Fynbos Ecosystems, Rivers and Freshwater ecosystems, Wetlands, Formal and Informal Conservation areas, Arable land, Beaches and Dunes.
Institutions (public amenities)	
At settlement level	At regional level
<ul style="list-style-type: none"> Institutions most valued by society, i.e. institutions of learning, worship, exchange, markets, served as structuring elements. Their location determined the location of other more private uses. Most important public institution today is the open or social space. Location of institutions in relation to other elements of structure is of critical importance (central places, easily accessible i.t.o movement patterns, announced by public space). Abutting institutions give unique character and often attract informal activities. 	
Connection including networks and systems	
At settlement level	



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

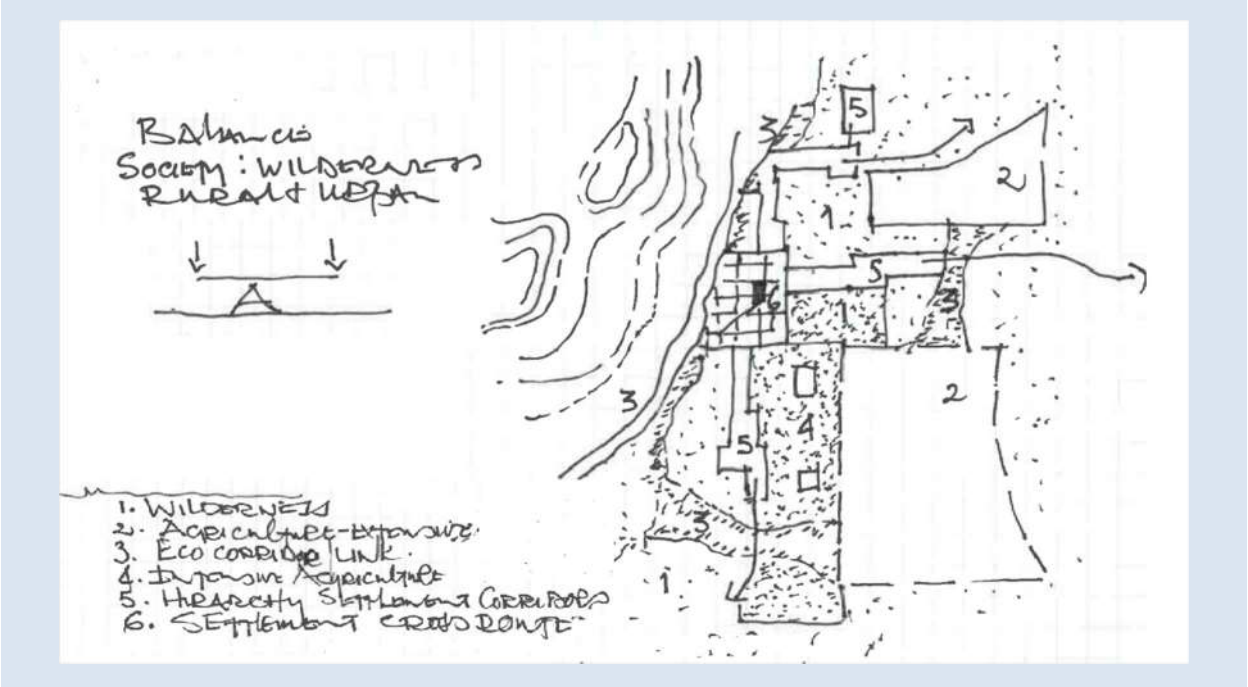
At regional level

- are movement system and network of movement or circulation network; linear spaces connecting settlements.
- Movement Infrastructure include Main Routes, Railway line and Stations between and within Settlements.
- Movement of people, goods and services are channelled along specific routes.



Utility services (engineering services)

Settlement	Regional
<ul style="list-style-type: none"> • Refer to engineering services that are essential services 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 human and nature centred approach to settlement making. • Utility services should follow structure, not lead. 	<p>Refer to bulk services that are essential to functioning of regions (area) e.g. solar farms.</p>



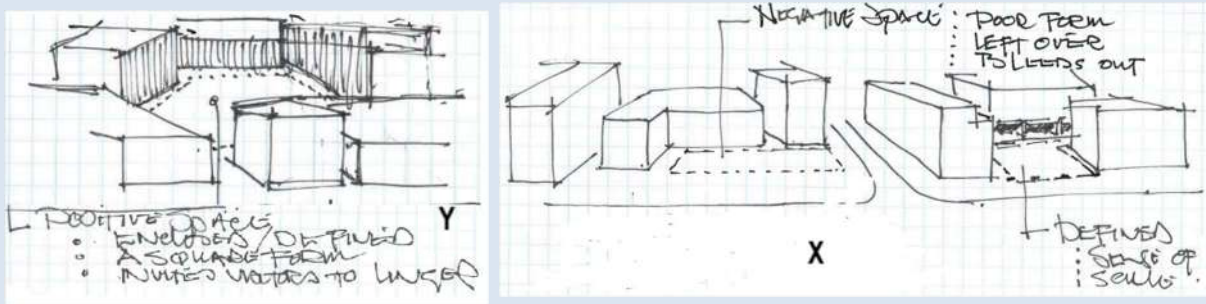
1.5.2 Structural Tools and SPLUMA Principles

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 i.t.o. 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.

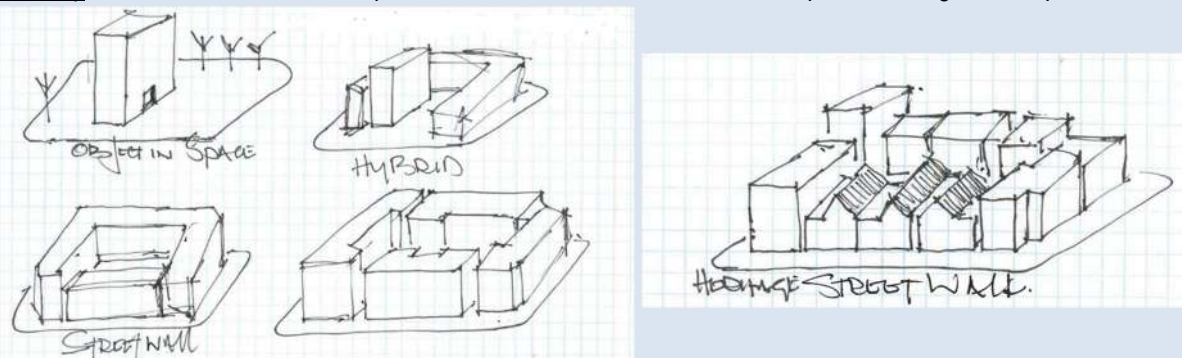


Structural Tools: Continuity and Discontinuity (Containment).

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 prosper economic activities.
- the conditions for sustainable public transport systems.

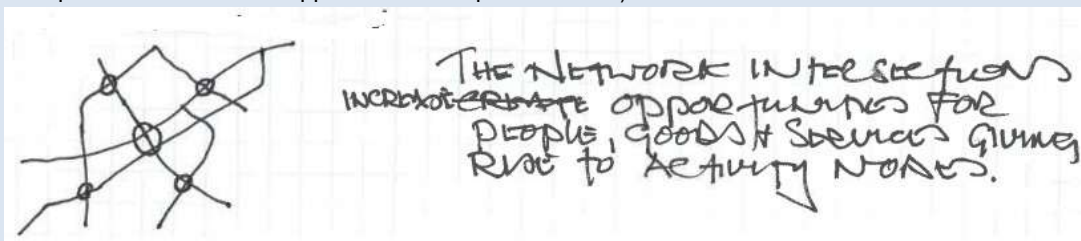
- effective infrastructure use, improved land use, contributing to compact urban areas, reduced transportation and energy use as well as the reduction of pollution.

Structural Tools: Denseness and Sparsity (Openness).

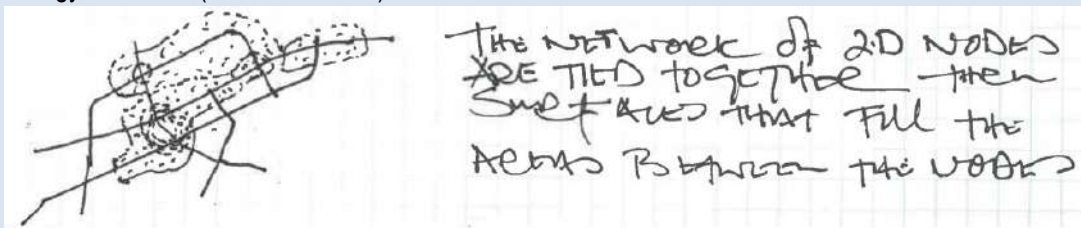
(CSIR., 2000)

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

- Centres/ Parks/ Precincts (Administrative, Educational, Legal and Services).
- Nodes (Collective & 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 transport demand and/or supporters of transport functions).

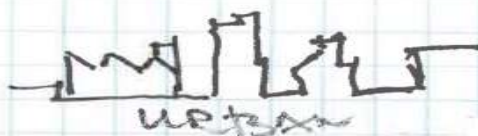
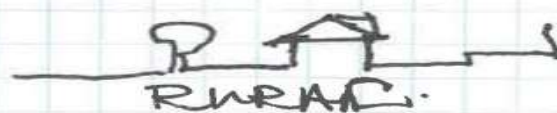


- Hubs (Economic specialization: Jewellery, Petro Chemical, Logistics, highly accessible).
- Axis or Streets (Transport & mobility Spines).
- Corridors (include, but not limited to scenic, tourism, freight, transport, industrial development zones (IDZ), intensive agriculture or rural including agri-industry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



(CSIR., 2000)

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

DENSENESS SPARSITY.	
 	
DENSENESS (REINFORCEMENT)	
SPARSITY (OPENNESS)	
Connection	<p>Single corridor movement network: Different forms of transport are brought together (pedestrian, bicycle, train, taxi, bus and vehicles).</p> <p>Activity Axis is the core of activity corridor/ tertiary network or Street (local network).</p> <p>Activity nodes: Different forms of transport connect.</p>
	<p>Single mode transport networks (thresholds are too low to justify other modes) or Roads.</p>

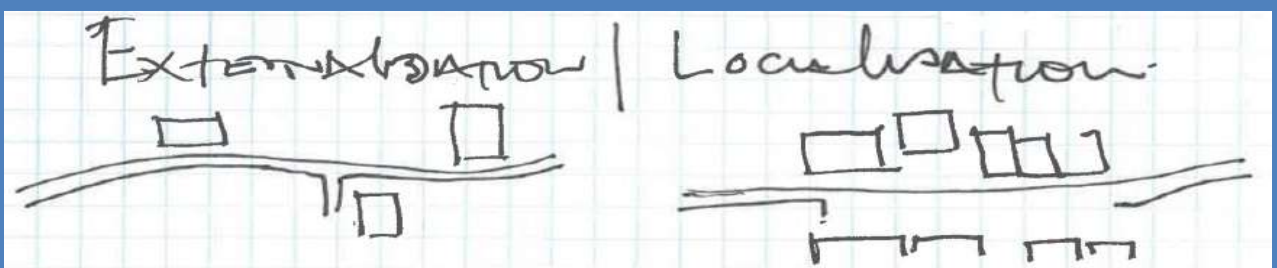
Space	Economic agglomeration (integration of different developments (new and old)). Densification and Strategic densification: Reduction of erf size, alternative housing types (housing topologies), infilling, redesign, mixed development. Natural open space network is a key component of a sustainable urban landscape.	Movement networks (part of a system of public places). Protection and enhancement of Heritage Resources through either Heritage overlay zone 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. school.
Public Utilities	Infrastructure cluster where different utilities are managed e.g. water & sewerage	Single Infrastructure yard e.g. sewerage works or solar farm.



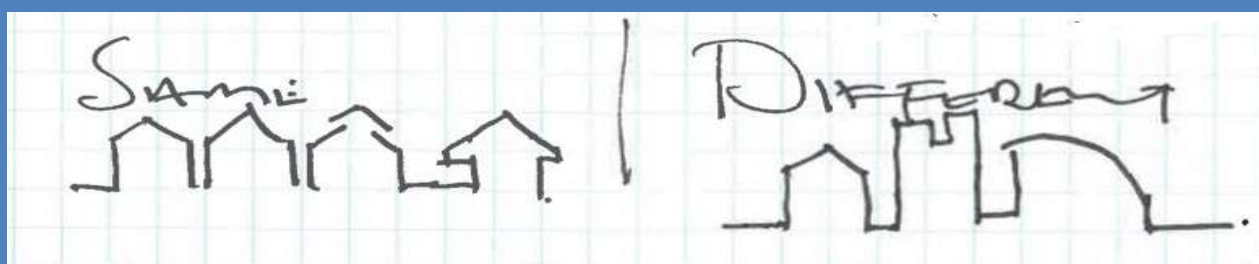
CONTINUITY

DISCONTINUITY (CONTAINMENT)

Connection	Ordering structure of movement networks: Settlement level: network energy released through stopping, exit (not through movement); server rather than integrate space. Inter-settlement level: Routes which do not allow stopping (i.e. freeways) serve as integrators of space.	Along 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, allow migration of species, 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. Absorb settlement output: in green spaces i.e. evaporation ponds and storm water retention systems.	Public space used to interrupt built form, to ensure convenient access or create dimensions of scale. Multifunctional centres. 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 most accessible points along continuous movement routes.
Space	Higher order facilities should reinforce private quality of residential areas and contribute to symbiotic relationship between different activities and facilities.	<ul style="list-style-type: none"> • Multi-purpose facilities as public spaces. • Corridors as agglomeration of economic and industrial activities.
Public Institutional	Higher order facilities not to be 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 service 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; mix 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 institutional level, not at 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 farm, electrical transformers, etc.

1.5.3 Policy as a structural tool

Policies that organise space and provide structure, when applied, are the Critical Biodiversity Framework, Spatial Bioregional Planning Categories and Coastal Management:

Sustainable development is generally defined as development that satisfies the needs of the current generation without jeopardising the ability of future generations to provide for their needs. The National Environmental Act, Act 107 of 1998, defines sustainable development as 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:

- **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, was 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. These maps form the basis of the SDF maps (WCBA, 2021).

○ **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.

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)

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

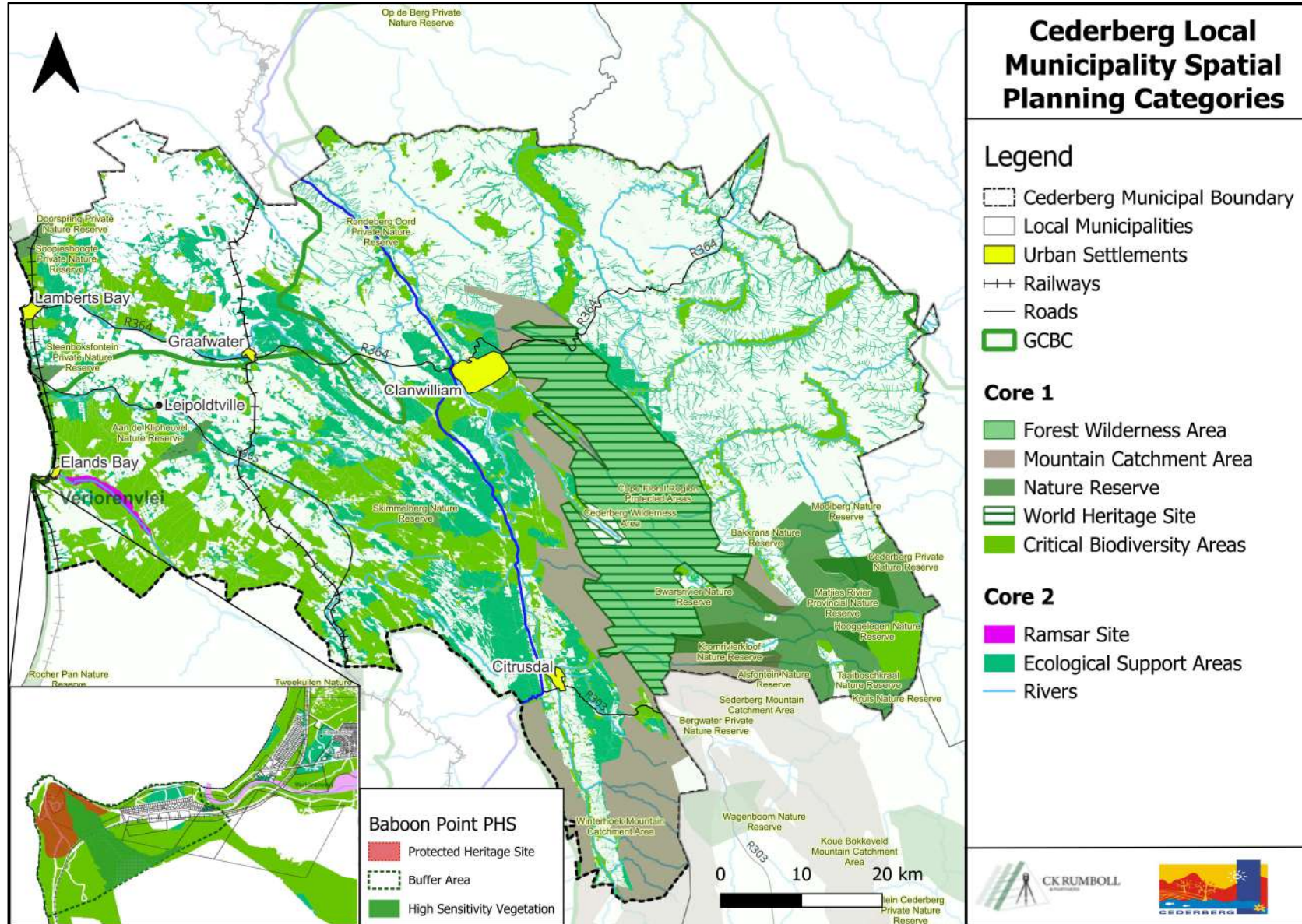
Spatial Planning Categories	Formal Conservation Status:
Core 1, Wilderness areas, & Critical Biodiversity Areas 1 regardless of if area is located in a rural or urban area or in a formal conservation area or not.	No go area, only non-consumptive activities are permitted, e.g. passive recreation and tourism (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 & 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.

<p><i>Buffer 1, Other Natural areas, public conservation, private conservation.</i></p>	<p>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.</p> <p>Extensive agriculture: game and livestock farming:</p> <p>Public conservation areas: Public conservation areas with statutory conservation status - not qualifying for A.a status, surrounding, or within Core Areas, e.g. contractual national parks, national monuments, local authority nature reserves.</p> <p>Private conservation areas: De facto conservation areas in private ownership, no statutory conservation status, but ideally within registered conservancies – protecting integrity of core areas.</p>
<p><i>Buffer 2: Other Natural areas, ecological corridors, rehabilitation areas.</i></p>	<p>Activities and uses directly related to primary agricultural enterprise, including a homestead, agricultural buildings and worker accommodation, additional dwelling units to limited 5 units.</p> <p>Additional land uses include: small scale holiday accommodation (farm stay, B&B, guesthouse, boutique hotel); restaurant, lifestyle retail, venue facility; farm stall & farm store; home occupation; local product processing (e.g. cheese making), and Tourist and recreational facilities (e.g. hiking trail, mountain biking, 4x4 routes).</p> <p>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.</p> <p>Rehabilitation areas:</p> <p>Rehabilitation Areas designated for rehabilitation (i.e. conservation-worthy areas previously degraded by agriculture, mining, forestry).</p>
<p><i>Intensive Agriculture Agriculture</i></p>	<p>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.</p>
<p><i>Settlement</i></p>	<p>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”.</p>

Table 2: Description of Spatial Planning Categories and recommended land use activities

A SPC map has been developed for the Cederberg municipal area.

Map 1: Cederberg Spatial Planning Categories



○ **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;
- *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/ Soopjeshoogte.

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 is 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 northern part of the development to proceed.

*CML - Coastal Management Line

- *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.

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:



Map 2: Coastal Management Setback line and zone in Elands Bay and Lamberts Bay

This Concept Coastal management/setback line for the Cederberg is included as an Annexure enable the municipality to take informed decisions when considering development proposals along the coastline.

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. Development in these zones is possible under certain circumstances and after appropriate environmental and risk assessments have been undertaken. Restrictions in this area can be applied strictly and consistently, since it is informed by scientifically modelled coastal processes or hazard zones. Three Coastal Management Overlay Zones are proposed for WCD urban areas:



Figure 2: Application of LUMs Risk Zones Overlay Example

- 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 years – medium risk line to low-risk line.

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

Coastal Protection Zone:

The National Environmental Management: 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.

1.5.4 Application

The coastal management lines and overlay zones should be included in the Cederberg Integrated Zoning Scheme after identification and adoption of a Coastal Overlay Zone.

The SPLUMA principles and structural and spatial tools will be applied at regional (rural) and settlement levels to generate SDF proposals (Chapters 5 and 6) to enhance the desired performance qualities.

CHAPTER 2: Issues, Vision and Goals

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

2.1 Overall Priorities of Cederberg

SO1	Improve and sustain basic service delivery and infrastructure development.
SO2	Strive for financial viability and economically sustainability.
SO3	Promote Good Governance, Community Development & 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, 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.

Table 3: IDP priorities (IDP, 2022)

The ward needs that inform the priorities and are spatially related are included in both the *Development Proposals per Settlement* and for *Regional and Rural Areas*:

2.2 Strengths, Weaknesses, Opportunities and Threats

The following table provides a SWOT analysis of the biophysical, social and economic and built environments (as per the Status Quo report) and highlights the key strategic issues.

<p>Opportunities</p> <p>Access value chains:</p> <ul style="list-style-type: none"> • IDZ, Saldanha: R27 links to Saldanha Bay, WC014. • Access to Cape Town: N7 provides easy access to ports (air and sea), linking Namibia and Southern Africa. <p>Access to information driving future economic development.</p> <p>Governance and regulation (SPLUMA):</p> <ul style="list-style-type: none"> • SPLUMA: Municipality governs development and investment to enable economic growth. <p>Education:</p> <ul style="list-style-type: none"> • West Coast College Campus in Citrusdal. <p>Infrastructure</p> <ul style="list-style-type: none"> • Raising of Clanwilliam Dam Wall: Water to residence & lower Oliphants River region. • Tourism opportunities. • Alternative energy generation. 	<p>Threats</p> <p>Economic Globalization:</p> <ul style="list-style-type: none"> • Machination and technology require less but skilled labour. <p>Climate change:</p> <ul style="list-style-type: none"> • Causes changes to precipitation, seasons, micro-climates and habitat stability, this therefore. • Impacts negatively on the region, economy, natural resources and social sector. • 3km wide servitude transmission line (Vredendal to Grootfontein, Saldanha Bay). <p>Urbanization:</p> <ul style="list-style-type: none"> • Population increased from 49 768 (2011) to 52 949 (2016) of which 50.3% is urbanized. • A high percentage of these households are dependent on state subsidized housing: challenge to create compact liveable urban environments, frugal resource and finance utilization and to sustain service delivery. <p>Water Security / Resilience</p>
---	---

<ul style="list-style-type: none"> • Transmission line from Vredendal to Grootfontein in Saldanha Bay Municipality. <p>World economy:</p> <ul style="list-style-type: none"> • Cederberg is home to export industries and business (to rest of South Africa and world). The reduction of red tape can enable businesses to be internationally competitive, particularly to provide for sufficient industrial and commercially zoned land in Citrusdal. • Green economy – some solar farms. <p>World nature conservation initiatives:</p> <ul style="list-style-type: none"> • Cederberg Conservation Area and links to conservation areas outside the municipal area. • Climate change present new industries & opportunities. 	<ul style="list-style-type: none"> • Expensive Potable Water: Coastal Towns: Not sufficient water sources. Desalination was introduced. Maintenance of plant is expensive and energy requirements are high prohibiting operation. • Unsustainable use of groundwater for irrigation (potato farming). <p>Insufficient & unreliable electricity provision:</p> <ul style="list-style-type: none"> • Clanwilliam has insufficient electrical capacity; funding (own contribution) not forthcoming. • Loadshedding <p>Poverty and Unemployment.</p>
<p>Strengths</p> <p>Settlements:</p> <ul style="list-style-type: none"> • Growth towns/ Service Centres (Clanwilliam - regional, Citrusdal - agricultural Elands Bay and Lamberts Bay – agricultural and agri - tourism). • Tourism nodes (Elands Bay and Lamberts Bay). <p>Urban Edges:</p> <ul style="list-style-type: none"> • For 20-year periods: protecting high value agricultural land, encourage compact urban form and spatial integration. <p>Water Sources/ Courses:</p> <ul style="list-style-type: none"> • Olifants and Doring River. <p>Land Cover:</p> <ul style="list-style-type: none"> • Mountains and Hills: Cederberg, Olifants River Mountains and Skurwe mountain range. • Natural coastal belt (West Coast). <p>Diversity in agriculture:</p> <ul style="list-style-type: none"> • Unique produce i.e. Rooibos tea. <p>International Sport and recreation</p> <ul style="list-style-type: none"> • Rock climbing: Rocklands at Pakhuys pass • Surfing: Elands Bay <p>Infrastructure:</p> <ul style="list-style-type: none"> • Roads (N7, R27) <p>Economy:</p> <ul style="list-style-type: none"> • Agriculture (35%), highest employment contributor, followed by General Government and Community – Social Services (27%), Commercial Services (26%). • Agriculture (26.2%), highest GDP contributor, followed by Wholesale and Retail, Catering and Accommodation (17.4%) and Finance, Insurance, Business Services (15, 4%). • Intensive Agriculture takes place along the Olifants River and on the Sandveld plains. 	<p>Weaknesses</p> <p>Maintenance of Infrastructure:</p> <ul style="list-style-type: none"> • Maintain. upgrade infrastructure and provide for future development including state subsidized housing. <p>Zoned land and Shelter:</p> <ul style="list-style-type: none"> • Require 746ha over the next 25 years (till 2030) (as per 2006 Vacant Land Audit and 2015 Human Settlement Plan). Sufficient provision made in Clanwilliam and Lamberts Bay. • Housing backlog in 2023: 5 760 households. • Need for industrial land within settlements. Need for agri-industrial land within and outside settlements. <p>Unemployment.</p> <p>Low levels of income/ Poverty 2020/2021:</p> <ul style="list-style-type: none"> • 2487 indigent households increased dependency on municipal support and resources. • Gini Coefficient (income inequality): 0.61 (income generated is mainly received by less than half of the households in the Cederberg). • Dependency ratio: 47% or 1:1 (number of working age population (aged 15 to 64) to dependants (aged zero to 14 and over 65)). • Human Development Index (Cederberg, 2020)): 0.71, lower than WC: 0.74. Dependency on subsidies. <p>School drop outs 2020/2021:</p> <ul style="list-style-type: none"> • Given the grade 10 – 12 Retention Rate: being 68.4%, access to early childhood development for children aged seven and fourteen (7-14) becomes imperative. • Literacy rate (successful completion of a minimum of seven years of formal education for those 14 years of age and older) in the Cederberg is 72.6%.

Table 4: SWOT Analysis

2.3 Conceptual proposal

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 south west (Sandveld) with a conservation (and tourism) corridor connection the Cederberg Conservation area and the coast, which all centres around Citrusdal and Clanwilliam.

Within settlements, the following transitions are important:

From	To
Built Environment	
<p>Development in the sixties fragmented communities and destroyed the unique character and quality of life in rural settlements as it caused:</p> <ul style="list-style-type: none"> ▪ Unsympathetic architecture and structure. ▪ Wide roads and excessive black tar surfaces. ▪ Conflict between pedestrians and motorcars. ▪ Commercial ribbon development and an overload of billboards. ▪ Security gates, telephone poles, masts and satellite dishes. ▪ Loss of continuous open spaces. ▪ Minimal landscaping (and being repeated day zero). ▪ Absence of Non-Motorised Transport (NMT) and inadequate pavement provision. 	<p>Rejuvenate and grow settlements to be liveable, diverse and enable the population to be economically mobile.</p> <ul style="list-style-type: none"> ▪ Promote complementing 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 networks. ▪ Encourage landscaping and require each land unit being created to plant two trees. ▪ Prepare for climate change and as topography inform development.
<p>Settlement urban edges were delineated for 5-, 10- and 20-year horizons whilst low densities prevailed.</p>	<p>Intensify land uses within settlement edges in accordance with IZS.</p>
<p>Density norms were determined for each town. A densification rate was determined and infill development is encouraged in order for settlements to achieve its 50- year's density parameters.</p>	<p>Promote rejuvenation of settlement whilst keeping precinct character including infill development, increased floor factor and where subdivisions or renewal development can occur.</p>
<p>Cederberg Municipality owns 1337.2ha common land and 3 208.7ha in total. A vacant land audit⁵ identified developable land within the urban areas.</p>	<p>Enhance economic mobility and sustainable settlements.</p>
Socio-Economic	
<p>Although there are excellent primary and secondary schools, only half of the population is semi-skilled or skilled.</p>	<p>Ensure there are accessible opportunities for educational progression for example FET college and university</p> <p>Promote crèches and preschools and provide for safe multi-disciplinary schools.</p>

⁵ The urban edges determined in 2012 were 20year urban edges. Several of these urban edges are serving its purpose without amendment. Amendments were required in the service centre such as Clanwilliam and Citrusdal, and more recently in Elands Bay.

Citrusdal and Clanwilliam district hospitals are accessible to the community.	Supportive community health care is delivered across the municipal area and particularly to the rural areas.
A migrating workforces cause diversity.	Provide safe living spaces Provide for skills training. Promote entrepreneurial spaces and skills.
Biophysical Environment	
Extensive and intensive agriculture remove most natural vegetation and impact on water resources (Sandveld).	Practice conservation agriculture and protect agricultural land and water resources
Landscape assets such as Agricultural landscape, Wilderness landscape, Waterways and connectors, Cultural-historical landscape, Connector routes and Corridors, social Foci and Community facilities and activities lack definition and structure.	Enhanced landscapes are tourist destinations.
Lack of foci of outstanding natural assets and internationally important conservation sites are.	Cederberg become an international and regional destination as conservation of Verlorenvlei Ramsar Site, Baboon Point World Heritage site, Rocklands international rock face climbing area are consolidated.

2.4 Spatial Vision and Strategy

The spatial vision, emerging from the SWOT analysis, the spatial analysis of the biophysical, socio-economic and built environment status quo and the conceptual proposal, is:

“An economically prosperous region and sustainable liveable settlement environments for all Cederberg residents.”

To attain this vision, the overall goal or mission is:

- To establish Cederberg as diverse conservation destination and capitalise on its assets: Cederberg Wilderness Area, Nardouw region, Olifants River Valley and along the West Coast.
- To establish Climate Change corridors across the southern half of the municipal area and along all rivers flowing into the sea whilst enhancing agriculture in the Sandveld and along the Olifants River Valley.
- To strengthen sense of place of Cederberg settlements and rural areas whilst enhancing economic opportunities, and particularly at intersections announcing settlements.
- To enhance economic development and provide sufficient business and industrial zoned land.

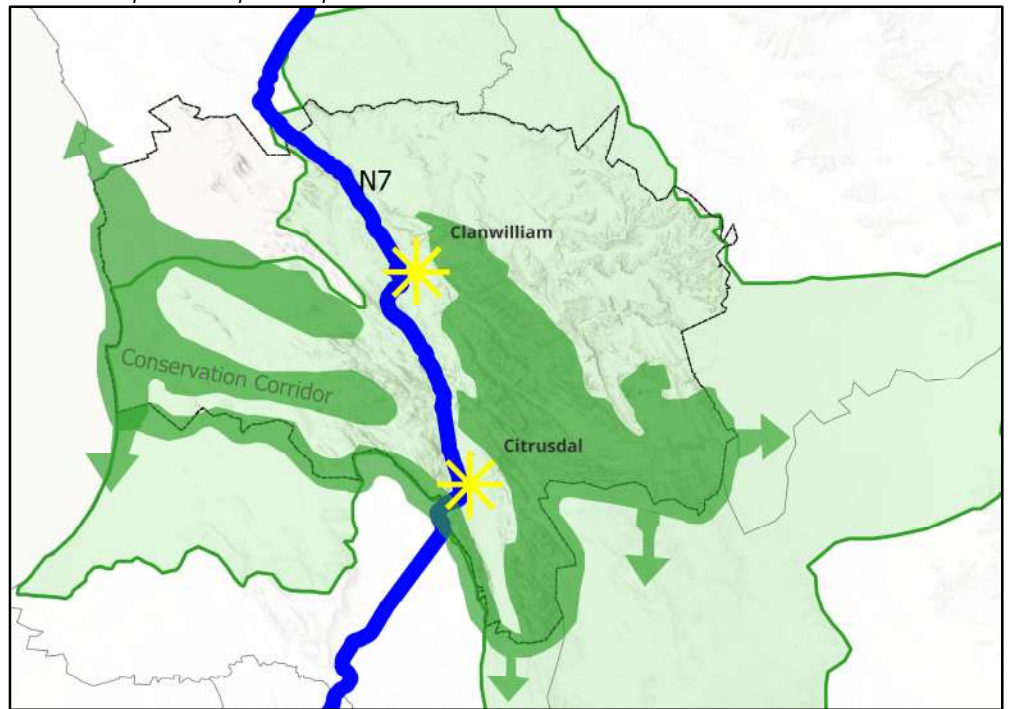
The SDF Vision is in support of Cederberg IDP vision:

“Cederberg municipality, your home of good governance, service excellence and opportunities for all” (IDP , 2022).

2.5 Conceptual proposal

Cederberg has strong agricultural corridors running along the Oliphants River (mainly citrus) and West of the Oliphant's 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 is home to threatened biomes.

Map 3: Conceptual Map



To prudently manage this vision in the spatial realm, the objectives below will assist in achieving it:

2.6 Spatial Objectives

The spatial objectives of the SDF will be informed by the IDP strategic objectives and the Cederberg SDF Vision. The Cederberg Municipality spatial objectives and strategies are aligned with the strategic objectives of the IDP (IDP , 2022).

SPATIAL OBJECTIVES, IDP OBJECTIVES		SPATIAL STRATEGIES
<p>Objective 1: Grow (and unlock) economic prosperity Related IDP Strategic Objectives:</p> <ul style="list-style-type: none"> Facilitate, expand and nurture sustainable economic growth and eradicate poverty.(SO 4). Financial viability and economically sustainability (SO 2). 	<p>SS1</p> <p>SS2</p> <p>SS3</p>	<p>Grow the economy & stimulate sector diversification and product development.</p> <p>Strengthen mobility and economic links (investor confidence).</p> <p>Develop product and trade advantages (export value chain & agri-industry corridors) and competitive advantage.</p>
<p>Objective 2: Proximate convenient and equal access Related IDP Strategic Objectives:</p> <ul style="list-style-type: none"> Improve and sustain basic service delivery and infrastructure development. (SO 1). Enable a resilient, sustainable, quality and inclusive living environment and human settlements i.e. Housing development and informal settlement upgrade (SO 5). 	<p>SS4</p> <p>SS5</p> <p>SS6</p>	<p>Protect economic vibrancy.</p> <p>Provide sustainable infrastructure and services (smart growth).</p> <p>Provide zoned land for residential and industrial development.</p>

<p>Objective 3: Sustain material, physical and social well-being Related IDP Strategic Objectives:</p> <ul style="list-style-type: none"> • Good Governance, community development and community participation. (SO 3). • Enable a resilient, sustainable, quality and inclusive living environment and human settlements i.e. Housing development and informal settlement upgrade. (SO 5). • To facilitate social cohesion, safe and healthy communities.(SO 6). 	SS7 SS8 SS9 SS10	Protect safety and security. Protect fundamental community resources (air, water & energy). Provide social infrastructure and services (as per norm) to facilitate smart growth. Manage risk and disaster (man-made and natural).
<p>Objective 4: Protect and grow place identity (sense of place) and cultural integrity Related IDP Strategic Objectives:</p> <ul style="list-style-type: none"> • Financial viability and economically sustainability. (SO 2). • To facilitate social cohesion, safe and healthy communities. (SO 6). • Development and transformation of the institution to provide a people-centred human resources and administrative service to citizens, staff and Council (SO 7). 	SS11 SS12 SS1	Protect heritage resources and place identify. Grow cultural potential. Grow economy (landscape & conservation, tourism & new markets and economic sectors) & stimulate sector diversification.
<p>Objective 5: Protect ecological and agricultural integrity Related IDP Strategic Objectives:</p> <ul style="list-style-type: none"> • Good Governance, Community Development & Public Participation (SO 3). • Facilitate, expand and nurture sustainable economic growth and eradicate poverty (SO 4). 	SS13 SS14 SS4 SS15	Protect food and water security and apply bioregional classification. Grow conservation potential and 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 enhancing Ecosystem services.

2.7 Planning Legislation and Policy Frameworks

Several national acts and policies provide spatial directives which enabling Municipalities to guide development and to focus capital expenditure.⁶

⁶ National Policy Context: SPLUMA Section 12(5) and Section 7e(ii)

CHAPTER 3: Status Quo: Municipal & Neighbouring Municipalities, Sector Plans and Legislation

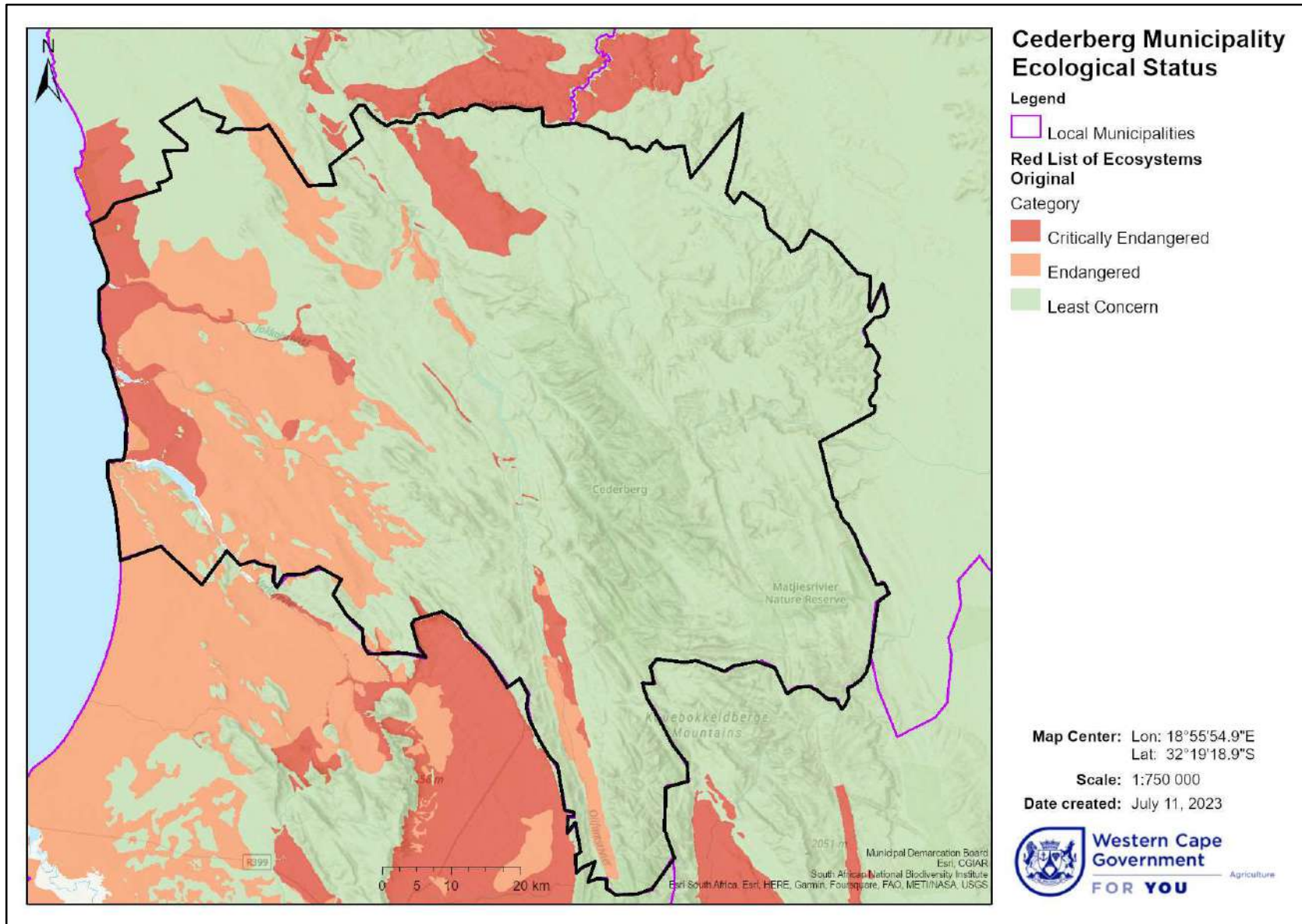
The spatial analysis of three environments, that is biophysical, socio-economic, and built environment, will link to the directives derived from the applicable legislation governing these resources. The spatial analysis and derived directives will then be aligned with the sector plans and cross cutting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

3.1 Spatial Analysis of Status Quo

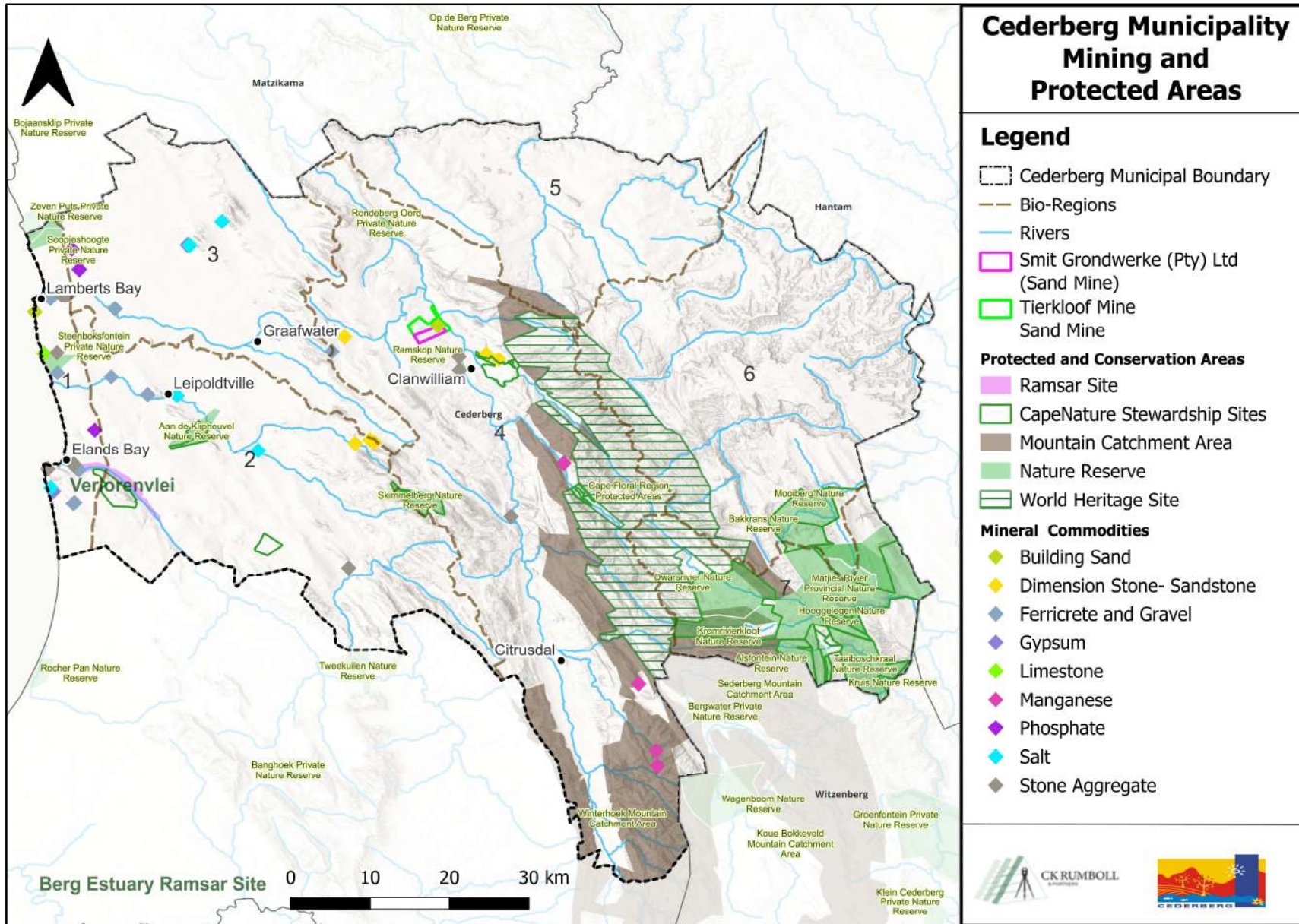
Biophysical	
Geology & Soils:	Soils are characterized by sandy loam to clay soils generally derived from shales and mudstones of the Cederberg Formation. Cederberg soils are highly leached acid sands, low in nutrients with a low moisture retaining capacity.
Climate: Rainfall	A typically Mediterranean 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. Although Cederberg is in a winter rainfall region, the Oliphant's River valley (Clanwilliam and Citrusdal) gets an annual rainfall of 180mm (classified semi-desert). The high Cederberg mountains get much more rain (over 1000mm in parts) and can have snow on the peaks.
Wind	The wind direction is north west in autumn and the entire winter, whilst in spring and summer the south eastern wind blow. The wind speed is mostly between 5 - 6m/second whilst along the coast, the northern boundary coast wards and the Nardouw mountains the wind speed increases to 7-8m/second.
Sun	Horizontal Global Irradiance is lower from the Oliphants Valley to the coast and range from 1901 to 2100kWh/m ² /annum. From the Oliphants Valley inland the irradiance is 2101 to 2200kWh/m ² /annum. Solar irradiation measure 5 251W/m ² to 5 500W/m ² overall with 5 751Wm ² to 6 000W/m ² in the south east.
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.

Hydrology:	<p>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.</p> <p>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.</p>
Biodiversity:	<p>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.</p>
Mining:	<p>Mining in the Cederberg is limited as the most important sand deposits in the Cederberg are Hill wash and Colluvial Sand. These sands have been moved downslope under the influence of gravity and by surface wash during major storms which cause saturation of the soil (followed by surface runoff).</p> <p>Mining is limited to sand mining and there are three operating sand mines around Citrusdal and Clanwilliam. Prospecting to extract gas started on the West Coast.</p>
Agriculture:	<p>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.</p> <p>Small scale farming or subsistence farming is limited.</p> <p>Agri-processing is largely represented by, but not limited to, Rooibos tea and wineries.</p>
Tourism & Agri-tourism:	<p>As a wilderness area, the primary activity is eco-tourism, including camping and rock climbing and hiking. There are numerous day and overnight hikes including the popular and spectacular Wolfberg Arch, Wolfberg Cracks and the Maltese Cross. The area is also home to an amateur astronomical observatory, which regularly hosts open evenings for the public.</p> <p>The agricultural productive landscape together with the magnificent scenery including the mountains, coast and wilderness area, forms the basis of its tourism industry. A number of farms have become predominantly tourism farms catering for the local and international tourist market.</p>

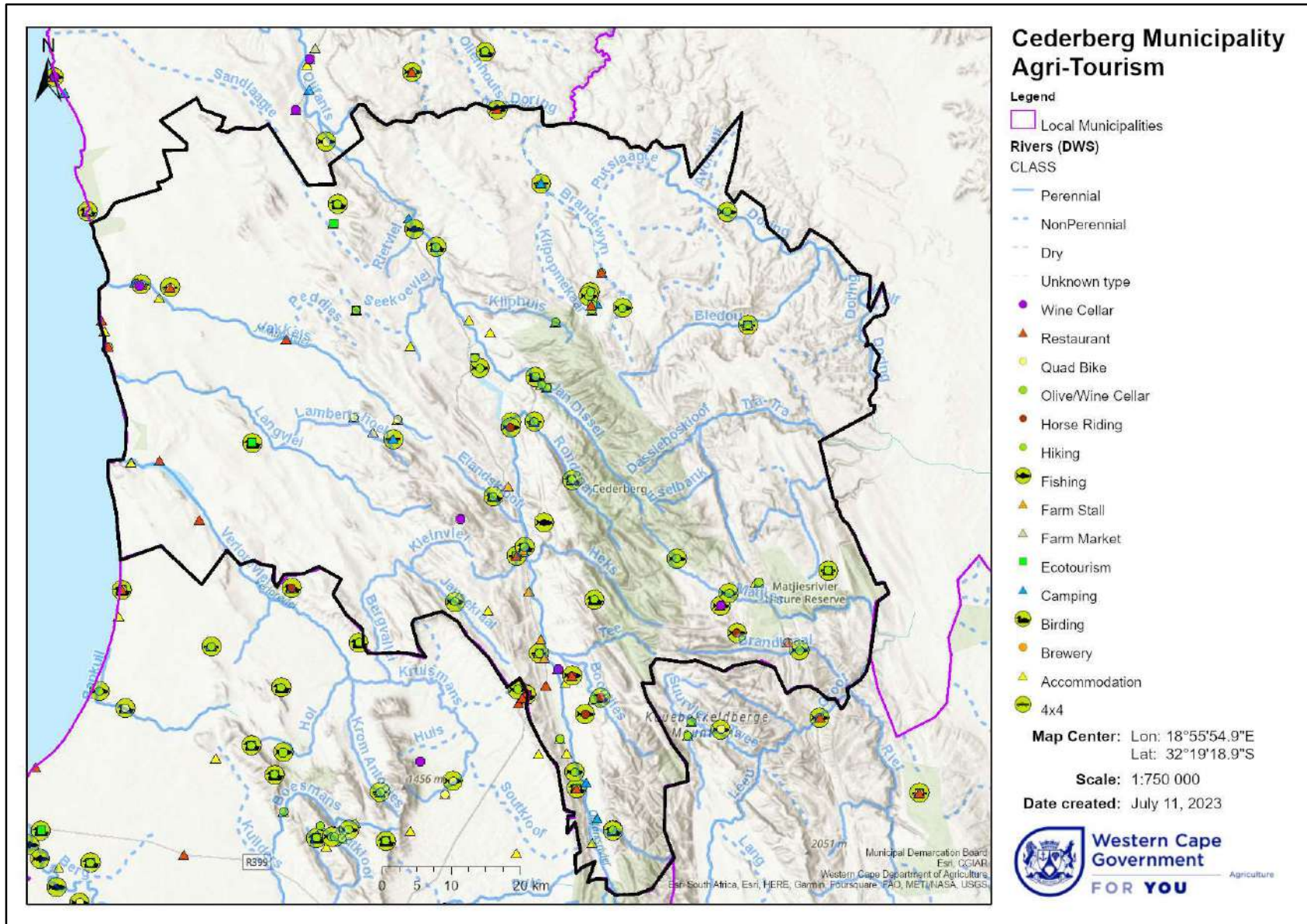
Map 5: Ecological Status of the Natural Vegetation in Cederberg



Map 6: Cederberg Conservation and Mining



Map 7: Cederberg Agri-tourism



Demography Cederberg has the smallest population estimated at 59 737 (2021) and 16 721 households, which represents 12.8% of the total population of the West Coast. Between 2016 and 2021, the population of Cederberg increased by 7 000 people and 1 939 households over a five-year period. The population growth rates projected until 2025 is 1.1 percent per annum:

	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.

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%

33% of the population is 18 years old and younger. 61% is 18 -64 years of age whilst 6% is over 64 years of age. 91% of children 14 and younger have both parents.

Urban Rural Population & Settlement Classification Cederberg’s settlements classified according to their populations (‘000) have:
 - Citrusdal, Clanwilliam, Elands Bay, Lamberts Bay as villages (population between 5 000 – 25 000) and,
 - Graafwater and Leipoldville as remote village (population ≤5 000).

There is no regional service Centre in the Cederberg as there is no settlement population between 25 000 – 60 000.

Town	Citrusdal	Clanwilliam	Elands Bay	Lamberts Bay	Graafwater	Leipoldville
Population, 11	7 177	7 674	1 525	6 120	2 261	298
Population, 21	8 615	9 211	1 830	7 348	2 714	358

Half (49.7%) of the population resides in rural areas.

Health In 2021, Cederberg municipal area had the following Health Facilities:
 11 public primary healthcare clinics (PHC) of which 6 PHCs were fixed and 5 PHCs were mobile and satellite.

2 district hospital (Citrusdal and Citrusdal), 5 ART clinics/treatment sites and 11 TB treatment clinics (IDP 2022-2023).

The immunisation rate is 105.3%, acute malnutrition rate (under 5 per 1 000 000) is 2.1%, neonatal mortality rate (per 1 000 live births) is 5.2%, the maternal mortality rate (per 100 000 live births) is 0%, and the teenage pregnancies-delivery rate to women under 20 is 15.5%. There are 2 774 registered AIDs patients receiving ART treatment of which 249 registered in 2020/21.

Education In 2021 there are 23 schools, of which 8 (35%) have libraries. 13 (57%) of these schools are no fee schools and are registered with the Western Cape Department of Education as no-fee schools.

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	Registered ECD preschools accommodate 6 children and more. Facilities having 6 children and less register as a play-schools and are excluded.
Number of children	1 959	4 071	2 515	
% All children 5 -17	5.7	12	7%	
% All children 0-6	23	48	29	

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

no or incomplete primary school	completed primary or incomplete secondary schooling and are semi-skilled	complete secondary schooling or a tertiary qualification
18%	48%	29%

Cederberg however had the lowest learner teacher ratio of 30 learners per teacher which is similar to the rest of the district. Cederberg has a retention rate of 64% in 2020, the lowest in the West Coast District, whilst the pass rate was 82.8%.

Economy

Major contributors to Cederberg region's economy (GDP) in 2019 were: Manufacturing contributed 22% (885.0), Agriculture, forestry & fishing 19% (738.6), Wholesale, retail, trade, catering & 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

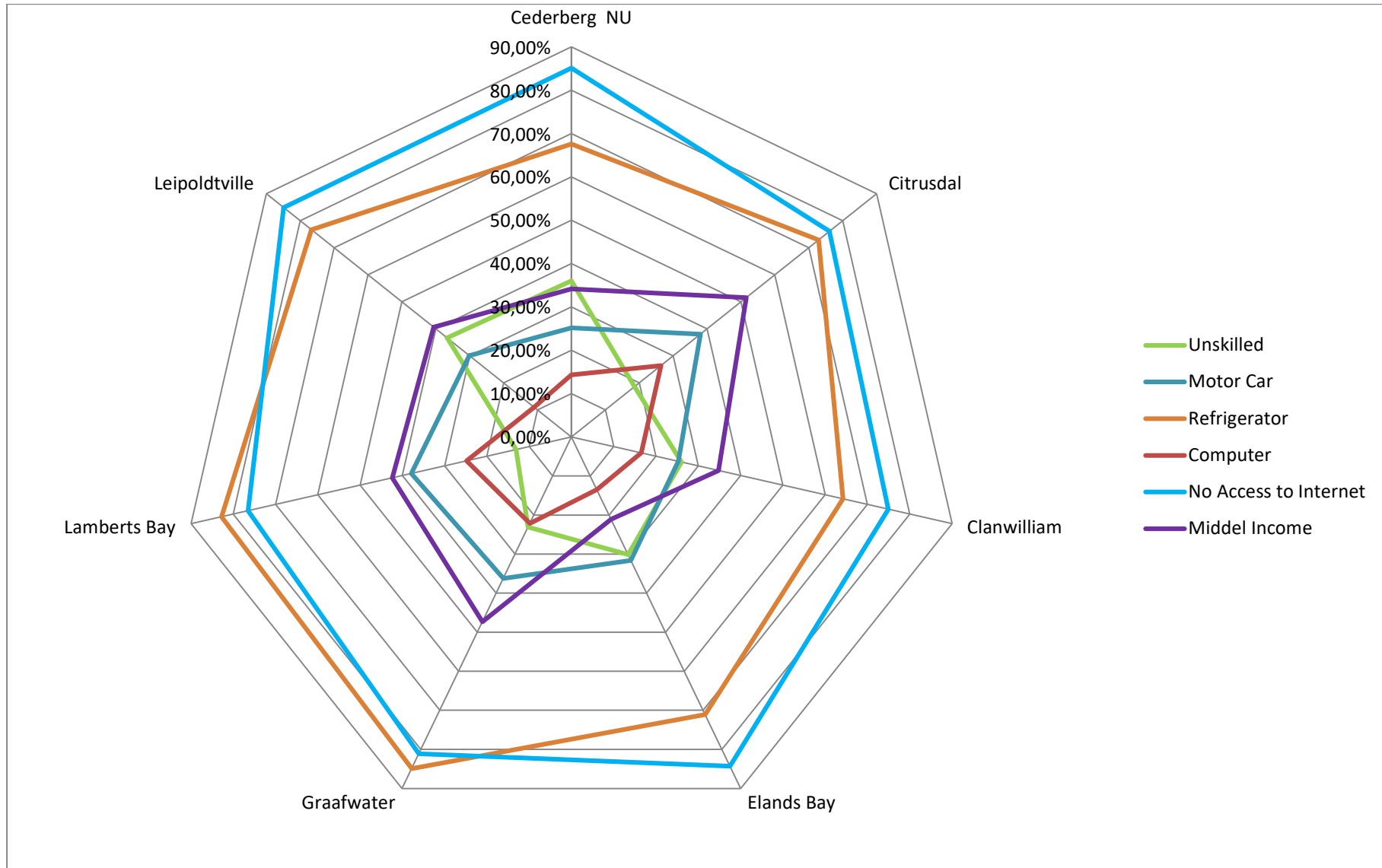
Rank	1	2	3	4	5
Employment	Agriculture	Retail & Accom	Manufacturing	Community & Social	Government
Economy	Manufacturing	Agriculture	Retail & Accom	Transport	Finance & Real Estate

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 is 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.

(SEP, 2021)

Figure 3: Cederberg Living Standard Measures



Hierarchy and Role of Settlements

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 citrus capital and 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 are determined by human capital, infrastructure availability, economy, physical attributes, institutional capacity.

	Human Capital	Economy	Physical attributes	Infrastructure	Institutional	Composite Growth potential index
Clanwilliam	Medium	Low	Medium	Low	High	Low
Citrusdal	Medium	Low	High	Low	High	Low
Graafwater	High	Very low	Low	Medium	Medium	Low
Lambert Bay	Medium	Very low	Very low	High	High	Low
Elands Bay	Medium	Low	Medium	Medium	High	Medium
Cederberg	Low	Low	Medium	Low	High	Low

Roads & Transport on modes

Mini-bus taxi (MBT) is the dominant public transport mode providing both commuter and long-distance services with limited supportive infrastructure.

Bus services do exist for transporting learners (a contract service provided by Western Cape Department of Education) and for long distance travellers (private providers such as InterCape provide a commercial service daily) with no public bus stop facility.

Rail infrastructure exists for freight movement only and pass through Graafwater. National Household Travel Survey (NHTS) highlighted that over 51% of all work trips are made on foot.

The Cederberg has two main routes i.e., the N7 and the R27 linking the municipal area to Namibia and to ports (air and water) in Cape Town and Saldanha.

Minor routes i.e., the R363, 364, 365 and 366 traverse the region and connect to the N7, to the inland and to the coast.

Waste

Fifty eight percent (58.1%) of Cederberg households have waste removed at least once a week.

Settlement	Status	Village	Status
Citrusdal	Waste Site, unlicensed	Algeria	Unofficial Waste Site
Clanwilliam	Waste Site, unlicensed	Elandskloof	Unofficial Waste Site
Elands Bay	Waste Site, unlicensed	Leipoldtville	Unofficial Waste Site
Graafwater	Waste Site, unlicensed	Paleisheuwel	Unofficial Waste Site
Lamberts Bay	Waste Site, unlicensed	Wupperthal	Unofficial Waste Site

Sewerage	Over eighty percent (82.4%) of households have access to flush toilets (connected to sewerage or septic tanks).			
	Settlement	Status	Village	Status
	Citrusdal	Sewerage works upgraded during previous SDF cycle.	Algeria	Upgrade of R1 million required.
	Clanwilliam	New sewerage works required at estimated cost of R21.4 million.	Elandskloof	New sewerage works required.
	Elands Bay	Upgrade or new sewerage works required at R23.4 million given overload during summer.	Leipoldtville	New sewerage works required at estimated cost of R10 million.
	Graafwater	New sewerage works required at estimated cost of R23.4 million.	Paleisheuwel	Upgrade of R0.15 million required.
Lamberts Bay	New sewerage works required at estimated cost of R22.3 million.	Wupperthal	Sewerage upgrade after fire, though Moravian Church is responsible.	
		Sandberg		
Electricity	Nearly ninety percent (88.1 %) of households have access to electricity as primary source of lighting.			
	Settlement	Status	Village	Status
	Citrusdal	Adequate 1MVA, using 0.5MVA.	Algeria	Adequate
	Clanwilliam	R13 million: Create 5MVA capacity. An additional R8.5 million as security waver.	Elandskloof	Adequate
	Elands Bay	Adequate 1MVA, using 400KvA	Leipoldtville	Adequate
	Graafwater	Upgrade will take place during phase II subsidized housing development. Requires upgrade from 0.75MVA to 1MVA.	Paleisheuwel	Adequate
Lamberts Bay	Upgrade from 2.7MVA to 3.5MVA. Upgrade alongside subsidized housing development.	Wupperthal	Adequate	
		Sandberg	Adequate	
Water	Water Sources are listed below			
	Settlement	Status	Village	Status
	Citrusdal	R15 million: 3MI reservoir and upgrade of reticulation capacity (no reserves).	Algeria	None.
	Clanwilliam	R62 million: 2.5MI reservoir, pressure management and replacement of pipe to purification works.	Elandskloof	R0.5 million.
	Elands Bay	R5 million: 1MI reservoir.	Leipoldtville	R5 million: 0.5MI reservoir.
	Graafwater	R5.4 million required. (1.5MI reservoir upgrade).	Paleisheuwel	R0.25 million required (Reticulation upgrade).
Lamberts Bay	R3.5 million: 3MI reservoir and upgrade reticulation. R12 million co-funding for desalination.	Wupperthal	R8 million: Upgrade reticulation.	
		Sandberg		
Nearly ninety-seven percent (97.2%) have access to piped water within the dwelling or within 200m form the dwelling.				

Human Settlement and Tenure	The housing need within Cederberg exists primarily for the lower income groups. According to provincial database, 2023, the backlog in the Cederberg is 5 760 households and the table below provides a breakdown of the 2014 backlog.							
	Settlement	Sub	GAP	Total	Type	Sub	GAP	Total
	Clanwilliam	1177	199	1376	Wuppertal	4	0	4
	Citrusdal	1487	132	1617	Outside	22	0	22
Lamberts Bay	881	109	992	Algeria	25	-	25	
Elands Bay	324	19	343	Elandskloof	320	-	320	
Graafwater	665	37	702	Total	4905	496	5401	
Leipoldville	-	-	-					
	A real need has been identified within the GAP housing market, which is not currently provided for by either the private or the public sector. Citrusdal, Clanwilliam and Lamberts Bay has the highest need for GAP housing.							
	According to the SDF 2017 - 2022, 225ha of land is required to provide for tenure opportunities:							
	Settlement	Clanwilliam	Citrusdal	Elands Bay	Graafwater	Lamberts Bay	Leipoldville	Total
	Land (ha)	86,33	17,8	48	53,8	19,2		225,13
	The 2023 – 2027 SDF allows for 502ha of land for residential and mixed-use development.							
Amenities	Most of the towns and settlement in the Cederberg have their own cemetery. There is no regional cemetery. Cemetery capacity is sufficient in most settlements. Citrusdal started using a new cemetery site was last SDF cycle. Clanwilliam need a new cemetery site, whilst provision is made that Lamberts and Elands Bay, Graafwater and Leipoldville cemeteries can expand. Early childhood Development facilities are required and should be firmly promoted.							
Heritage	The settlements in Cederberg were founded between 1814 and 1916:							
	Founded				Declared	Settlement		
	1916				1957	Citrusdal		
	1725 (Jan Disselsvalleij) / 1814 (Clanwilliam)				1901	Clanwilliam		
						Elands Bay		
	1887				1969	Lamberts Bay		
	1910					Graafwater		
	1905					Leipoldville		
	The settlements were established on a grid layout.							
	The two scenic routes are:							
	<ul style="list-style-type: none"> • The West Coast Way “Berg Route”. • The West Coast Way “Wild Route”. 							
	The Cederberg mountains and nature reserve are named after the endangered Clanwilliam cedar (<i>Widdringtoniacedarbergensis</i>), which is a tree endemic to the area. The art of the earliest human inhabitants bears evidence of these trees but forestry and agriculture led to massive destruction of the local cedar trees, with thousands felled for telephone poles, furniture and housing.							
	The European arrival pushed the San population out of the region. In the north, the old Moravian mission station of Wuppertal still remains, the heart of a small subsistence farming community, and home to a local industry producing <i>veldskoene</i> , traditional soft leather shoes.							
	Historic buildings in rural areas are modest and simple using neoclassical detail.							

3.2 Sectoral Plan and Provincial & 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:

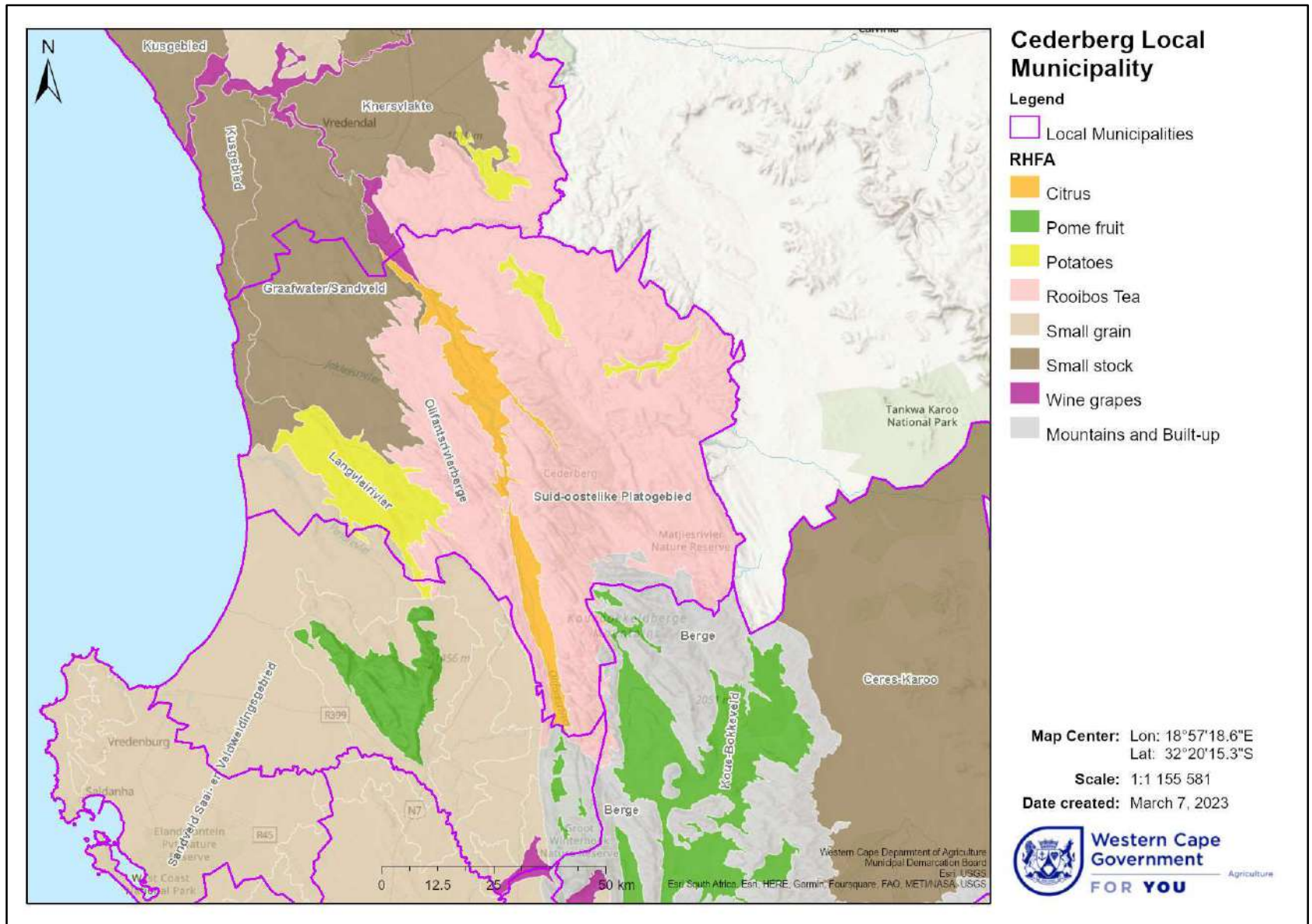
	Local Economic Development	Air Quality Management	Disaster Management Strategy	Coastal Management Programme
Economic Sector & Rural Development.	1. Supporting development of resilient, food secure and increasingly commercially orientated production of fresh fruit and vegetables.	Improve compliance enforcement 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 & 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 & 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.

3.3 Spatial Analysis of Neighbouring Municipal Resources and Regional Directives

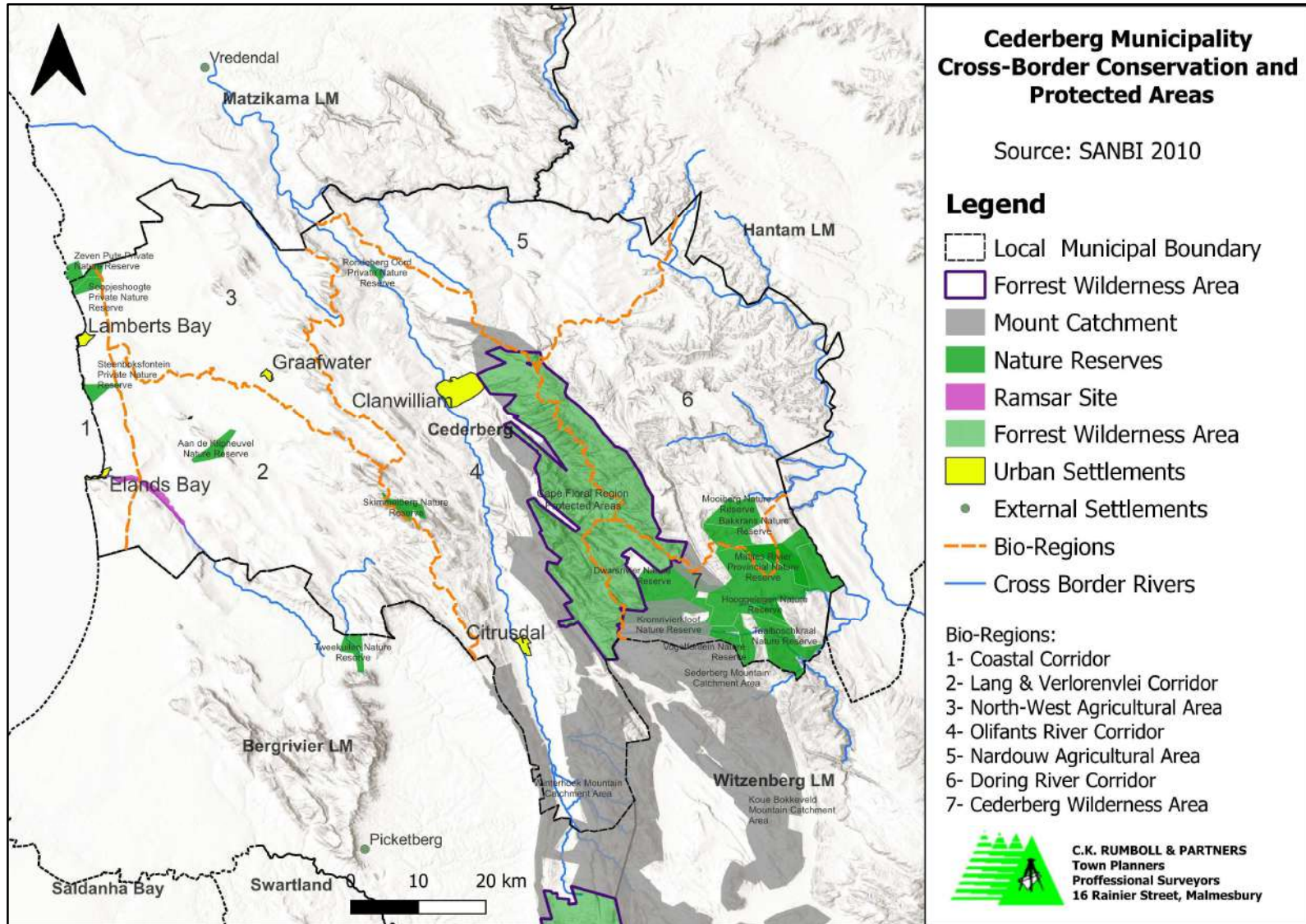
Four local municipalities abut Cederberg Municipality, namely the Bergrivier, Witzenberg, Hantam and Matzikama Municipality. Cross boundary resources follow:

Municipality	Bergrivier	Witzenberg	Hantam	Matzikama
Shared Boundary	Southern boundary	Small section on south eastern boundary	Eastern boundary	Northern boundary
Agriculture <ul style="list-style-type: none"> 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 & Proclaimed conservation areas <ul style="list-style-type: none"> Cross boarder Nature Reserves. Cross boarder 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: <ul style="list-style-type: none"> 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, Gembokkloof, Voetpad, Brakfontein, Elandsdrif, Zoutkloof, (Matzikama). Doornbosch, Langkuils, Moerberg, Rheenen Wes, Verzien, Swartskeur, Oudekraal, Wildehondskloof (Cederberg).	Kolvlieberg, Heerlogementsberg, Vondelingsberg (Cederberg) & Gifberg, Ordinanskop, Melkboomkraal] (Hantam).

Map 8: Cederberg Homogenous Farming Areas

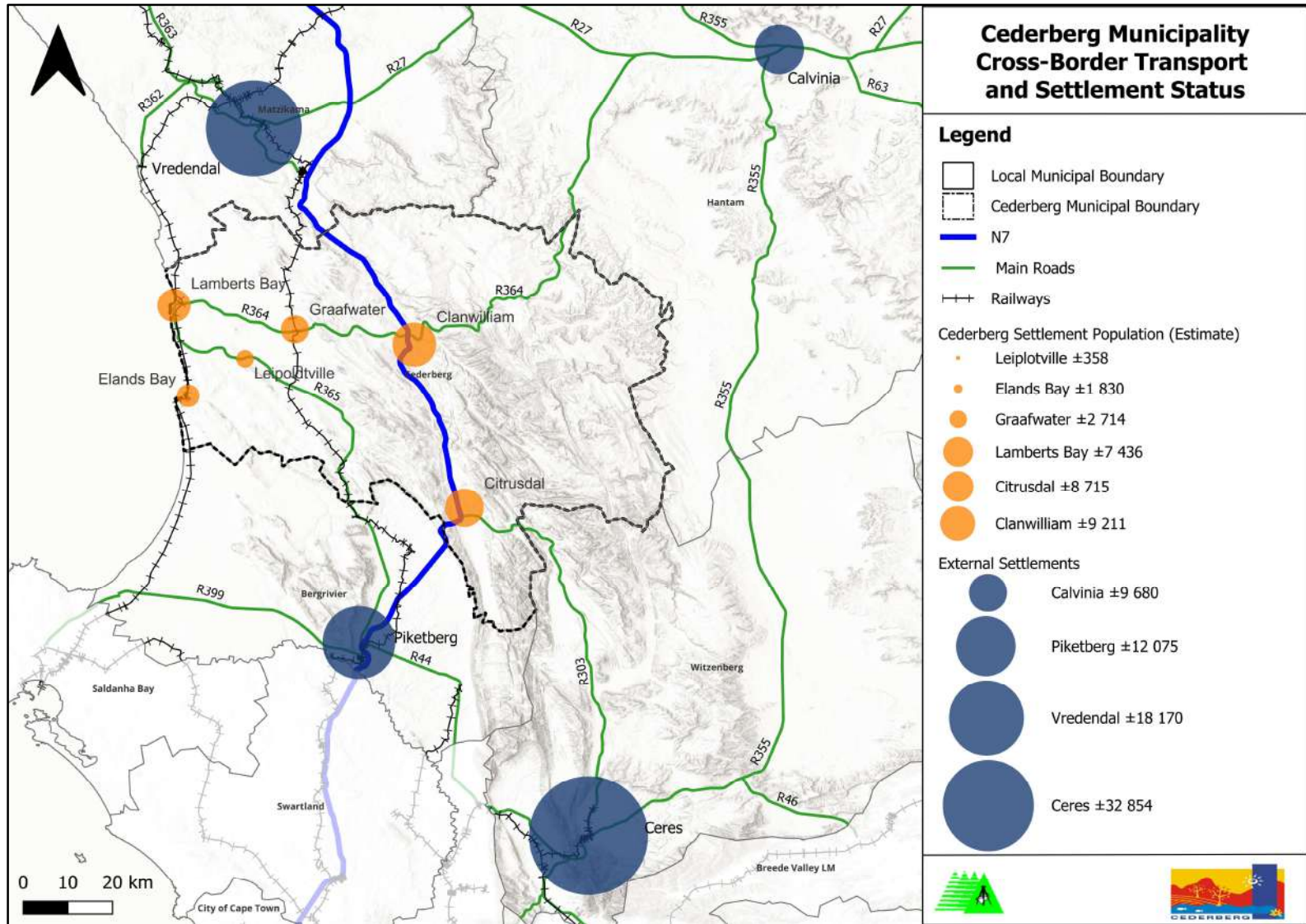


Map 9: Swartland Cross-border Ecological Infrastructure



Ecological Infrastructure – Rivers <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Hospitals • Clinics 	Redelinghuis and Eendekuil Clinics (visited by rural population of Cederberg)	None	None	Clanwillaim & Citrusdal district hospitals in Vredendal health district.
Educational Facilities serving across boarders <ul style="list-style-type: none"> • Schools • Tertiary education facilities • Crèches and catchment areas 	West Coast Collage Redelinghuis & Eendekuil Primary Schools	None	None	West Coast Collage
Economy: Cross boarder market areas	None	None	Nardouw area, Rooibos Tea	North west agricultural area, small stock & Rooibos.
Safety and Security: <ul style="list-style-type: none"> • 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 & 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 10: Cederberg Cross-border Settlement Hierarchy and Transport Connectors

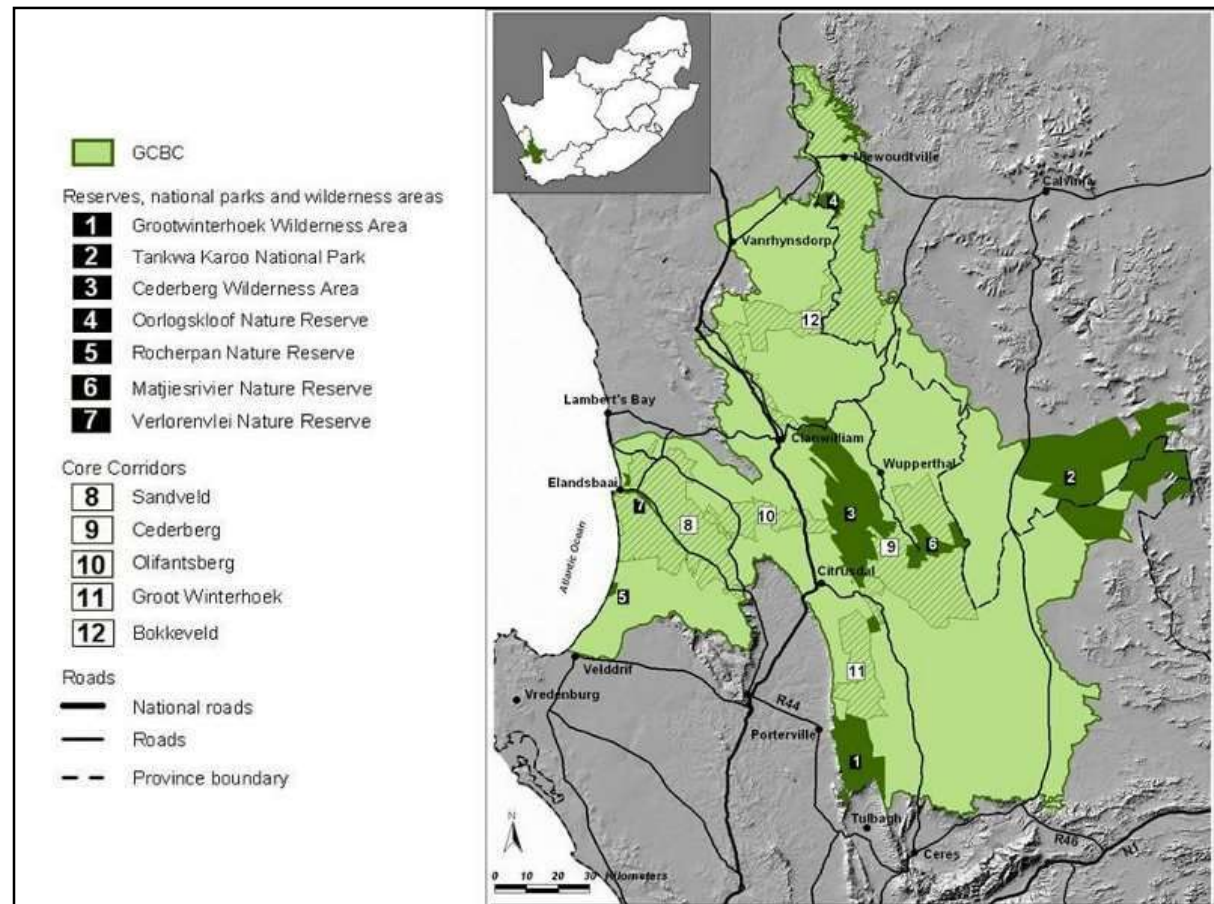


Biodiversity & Ecosystem Health:

Protect 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.

Protect food security and:

- Maintain the production potential of land, e.g. soil, water and land cover, and combat and prevent erosion (e.g. over-utilisation), depletion of water sources and alien vegetation infestation.
- Promote area wide planning and conservation (best practise 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 boarder Integrated Waste Management Strategy.
- Implement a waste management hierarchy and divert reduced waste to regional landfill site.
 - avoid and reduce waste,
 - re-use and recycle,
 - recover,
 - treat and dispose.
- Develop landfill site between Vredendal and Klaver to serve Cederberg.

Mining:

- Prioritize ownerless mines for rehabilitation (based on its impact on future tourism development). Include a strategy and cost estimates for rehabilitation.
- Ensure that every person who mines complies to an environmental management plan (EMP), where required.
- Demand rehabilitation as applicants for a prospecting right, mining right or mining permit, has to make financial provisions for rehabilitation.
- Explore mineral beneficiation and the provision of support services to the mining sector.
- Mitigate dust generation that cause colouration of the landscape.
- Avoid high visual impact on the significant landscapes.

Economy:

Large-scale regional economic activities and infrastructure forms the macro-economic base and (1) delivers 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 Kilometer Array;connectedness (ICT) through broadband infrastructure;
- Rural tourism; and
- The oceans economy (e.g. fisheries).

Promote and enhance (strengthen and sustain) Agricultural Value Chains or 'Regional-Rural Development Model' (NSDF & Karoo SDF).

- Promote establishing 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 located in a larger urban centre and has three main purposes (KRSDf).
 - Linking and contracting rural, urban and international markets (KRSDf).
 - Acting as a holding-facility and releasing produce to urban markets based on seasonal trends.
 - Availing market intelligence and information feedback to the Anchors and Farming Support units, using information and communication technologies. (KRSDf).

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.
- Enhance awareness of the Tankwa / Roggeveld / Cederberg link.
- Share the R303 with Witzenberg, between Citrusdal and Ceres.
- Develop across boarder tourism opportunities.

Harbours and Small Towns:

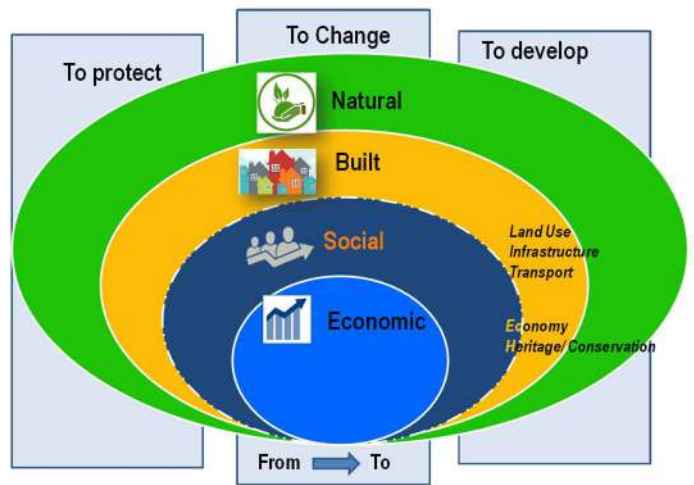
- Limited development in admiralty reserve.
- Monitoring, access control and conservation of coastline must consider the presence and significance of archaeological and palaeontological heritage resources located along it:
 - Ensure that the construction of surface infrastructure on the coast does not cause unacceptable degradation of the ecological and aesthetic qualities of the coastal zone.

Manage state land along the high-water mark.

Directives generated from national, provincial, and local laws, policies and strategies are aligned to the Status Quo analysis, can broadly be categorised into proposals:

- to protect;
- to change; and
- to develop resources in the three environments.

The proposals and directive in the chapters to follow are presented accordingly.



CHAPTER 4: Land Demand, Supply and Settlement Development Guidelines

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.

Index	Citrusdal	Clanwilliam	Elands Bay	Graafwater	Lambert 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 & Economic characteristics) are very low in Graafwater and Elands Bay, Low in Lamberts Bay and medium in Citrusdal and Clanwilliam.

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

4.1 Land Demand and Supply Projections

4.1.1 Population Growth Projections

SPLUMA requires that the future demand/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.

The needs and projected demand were established using the demographic information from the 2016 Community Census data as incorporated in the Status Quo report.

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 Leipoldville, Elandskloof, Sandberg, Skilpaddorp and Wupperthal being a remote village.

Town	Clanwilliam	Citrusdal	Lamberts Bay	Elands Bay	Graafwater	Leipoldville
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

Table 5: Cederberg Settlement Population (StatsSA, 2016)

Out of the total population, the urban rural split is 50:50: 25 055 people live in urban areas whilst 24 713 reside in the rural areas. Applying the same growth rate in 2011 (2.3%) until 2027, the population is expected to increase to 78 427 people (one and a half times the current population).

	Census 2016	SEP 2021	SEP 2025	2030	2035
Population	52 949	59 737	63 244	67 341	70 607
Households	11 031 (4.8)	16 721 (3.8)	16 676 (3.7)		
Annual Growth Rate	8.6%	1.1%	1.2%		

Table 6: Cederberg Population & Households (StatsSA, 2011) (StatsSA, 2016)

Cederberg is the least populated areas in the West Coast District. The majority 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%

4.1.2 Land Demand

The land required for future settlement development is tabulated below:

Wards	1 & 2	3	4	5	6	
	Citrusdal	Clanwilliam	Graafwater & Elands Bay	Leipoldville & Lamberts Bay	Wupperthal	Total
Land (ha) required for:						
Subsidized housing	96.9	88.9	72.9	82.3	39.7	380.7
Affordable housing	101.9	50.3	45	188.7	29.1	415
Private housing	66.3	36.8	26.1	44.2	22.7	196.1
Total land required: 5 years	30.7	27.2	13.1	25.6	0.1	96.7
Total land required: 20 years	265.1	176	130	315.2	91.5	977.8
Land per SDF 2017	64.3	48.8	64.1	75.8	0	253
Land per SDF 2023	32.7	276.4	74.2	81	0	464
Oversupply (Shortfall) '17	(200.7)	(127.2)	(86.8)	(239.5)	(91.5)	(745.7)
Oversupply (Shortfall) '22	(200.7)	100	(55.5)	(234.2)	(91.5)	(481.9)

Table 7: Land Requirements based on growth rates applied

Housing demand⁷ in the short term (5 years) is for 16 427 units, of which 5 760 (approximately 35%) are on the current waiting list (2023). Land for future growth is under provided for with 482ha. While sufficient provision was made for land in the next 5 years, there is not sufficient land identified for the long term (next 20 years).

Provincial Government contributed to Social Infrastructure and particular to Housing, Education and Health and Transport (Roads) and Cederberg to sports and recreation, social development and public safety with the bulk of the budget allocated to tradeable services such as electricity, water management, and waste management.

4.1.3 Bulk Infrastructure Capacity

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

Towns		Water: Enhance or new Source, Storage or Reticulation	Waste Water Treatment (WWT) (Bulk and Pipe Capacity)	Electricity Supply, and capacity reticulation	Solid Waste Removal and Management
Elandskloof	1	R11 million.	R14 million WWTW required.	Adequate.	Regular.
Citrusdal	1 and 2	R15 million: 3MI reservoir and upgrade of reticulation capacity (no reserves).	Adequate, WWTW was relocated and increased.	Adequate 1MVA, using 0.5MVA.	Weekly waste removals.
Clanwilliam	3	2.5MI 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. (1.5MI 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: 1MI reservoir.	R23.4 million: Increase WWTW capacity and upgrade.	Adequate 1MVA, using 400KvA.	Weekly waste removals.
Lamberts Bay	5	R3.5 million: 3MI 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.

⁷ Housing Demand and Supply: SPLUMA Section 21(f),(l), Section 7(b)(vi) and Sec7(a)(v)

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

Table 8: Infrastructure Capital Investment Framework, Cederberg towns

(Officials, 2017, 2022)

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:

- a) Ensure that a base level of services is available for all residents in the municipality including those households qualifying for indigent grants.
- b) Where possible implement GAP housing schemes as part of subsidy projects so as to help cross-subsidise the required infrastructure projects.
- c) 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.
- d) Determine the bulk infrastructure required in the Cederberg over the next 20 years considering the growth rate, densification strategy and needs of the community.
- e) Determine the most suitable locations for bulk infrastructure facilities to allow the delivery of services at an acceptable cost.
- f) Use non-renewable resources in a responsible manner not exceeding predetermined limits.
- g) Provide environmentally friendly infrastructure and services in rural areas (improved quality of life of people living in the rural areas and effective environmental sustainability).
- h) 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.
- i) Capitalize on the raised Clanwilliam Dam wall once completed: Providing water to residents of Clanwilliam and lower Oliphants River region.

4.2 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.

4.2.1 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).

In order 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 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 has to be conducted within the framework of national, provincial, and relevant Cederberg municipal guidelines. The revision should take into account the economic and social development as well as the environmental sustainability of the Cederberg region (SPLUMA, 2013).

The directives below shall apply:

- Give sufficient protection to land requiring protection, inter alia, high value agricultural land currently under cultivation;
- 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.

4.2.2 Settlement Form and Function

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

Consideration	Land Supply Directives	WCPSDF, 2014	SDF Objective	SDF & 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 & Lamberts Bay, coastal settlements and agri-processing hubs, need industrial & residentially zoned land. Wupperthal and Elandskloof as tourism destination, limited residential development.	Policy S3: <i>Ensure compact, balanced & strategically aligned activities & land use.</i>	Obj 1: <i>Economic prosperity is supported.</i>	Same – Different & 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 development 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: <i>Protect, manage & enhance province's sense of place, heritage & cultural landscapes</i> Policy S5: <i>Ensure Sustainable, Integrated and Inclusive human settlement planning and implement - range of housing & tenure options.</i>	Obj 3: <i>material, physical and social well-being sustained (Obj 4): place identity and cultural integrity are protected and grown.</i>	Denseness – Sparsity Continuity- Discontinuity. And Spatial sustainability and efficiency (SPLUMA).
Settlement From: Restructuring and Integration	Restructuring through <i>socio economic integration</i> : 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. <i>Provide a variety of housing types</i> , 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 <i>functional integration</i> : - Implement the “within walking distance” principle (walking distance norm: 20 minutes/1 kilometer) 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.	<i>Policies S1: sense of place, heritage and cultural landscapes.</i> <i>Policy S3: Ensure compact, balanced & strategically aligned SPLUMA activities & land use.</i> <i>Policy S5: Sustainable, Integrated and Inclusive housing planning and implementation.</i>	Social and functional integration is achieved mainly through development along main activity routes which include mixed use (a combination of commercial, residential and low impact service industries).	Spatial sustainability, resilience and efficiency (SPLUMA).

Figure 4: Proposed urban edges including existing informal settlement precincts



CHAPTER 5: Settlement Proposals

To support spatial sustainability in accordance with the planning principles as advocated in SPLUMA and LUPA, a compact urban form is supported. The following guidelines direct a compact urban form:

5.1 Guidelines for achieving compact settlements

Densification

- Densification ensures optimal use of land and efficient use of infrastructure and services.
- Smart growth and containing urban sprawl within settlements can be achieved through infill, intensification and densification targets.
- Densification targets for Cederberg, mindful of transport infrastructure, biodiversity, heritage resources, open spaces, flood lines, services capacity and existing densities are in the table below:

Settlement	Density in 2008	Calculated 2023	Proposed du/ha 2027	Proposed du/ha 2032
Clanwilliam	8		12	16
Citrusdal	8		12	16
Graafwater	6		8	10
Lamberts Bay	10		12	14
Elands Bay	12		14	16
Leipoldtville			6	8

Table 9: Proposed densification targets for Cederberg settlements

Intensification

- Sensitively fill in and redevelop major arterial axes in clearly defined precincts;
- Develop both sides of activity streets and corridors to concentrate activities;
- Sensitively develop around and incorporate heritage buildings;
- Enhance street character through landscaping, street furniture and architectural guidelines for new developments;
- Encourage mixed use development to provide a range of businesses (start-up to mature) multi level market entries and to create jobs;
- Enhance links between nodes and corridors within and amongst settlements; and,
- Encourage densification and intensification as allowed by services capacity within corridors.
- Cluster together a hierarchy of three levels at urban nodes, containing business and community facilities, to ensure that larger investments, for higher order facilities, will be enjoyed by the greatest number of people:
 - Tertiary: Technicon’s, hospitals, courts, multi-purpose centres, regional or metropolitan transport interchanges, museums and indoor sports complexes; and
 - Secondary: high schools, day care centres, hospitals, libraries, sports and community halls and sports fields; and
 - Primary: primary schools, crèches, clinics, bus and mini-bus taxi stops.
- Develop nodes to concentrate business therein and, where growth is required, nodes should be encouraged to grow, along corridors, towards each other. This is to control and prioritise the implementation of needed infrastructure, in a strategic and orderly manner, and to provide the best opportunity for success of these businesses.

Restructuring and Integration

- Provide for social amenities according to the land requirement standards:
 - 1 crèche / 5 000 persons – 0.08ha
 - 1 primary school/ 3 000 – 4 000 persons of 1 000 dwellings – 2.8ha
 - 1 secondary school/ 6 000 – 10 000 persons of 2 500 dwellings – 2.6ha
 - 1 library/ 10 000 persons of 2 500 dwellings – 0.1ha
 - 1 church / 1 000 persons – 0.015 – 0.3ha
 - 1 mobile clinic / 5 000 persons of 1 250 dwellings
 - 1 community hall/ 10 000 persons/ 2 500 dwellings – 0.2ha
 - 1 police station/ 25 000 persons/ 6 250 dwellings – 0.1ha
- Locate activities (residential, transport, work, recreation, etc.) within walking distance;
- Locate most frequented activities in the most central / accessible localities, e.g. industrial and commercial;
- Do not, as a general rule, target Human Settlement schemes exclusively at a single income group, usually Subsidy or Site and Service, and always include at least a GAP housing and top structure subsidy component;
- Arrange housing, for the various income groups, according to the socio-economic gradient principle, with the higher end of the market closest to the main thorough fare;
- Use all well-located vacant land;
- Locate all future residential areas within walking distance of urban centres, where space permits; and,
- Give residents freehold tenure immediately, i.e. title deeds, so that shack upgrading will commence as soon as possible.

Open Space Systems:

- Create open space systems that integrate significant elements of a settlement to contribute to a meaningful urban structure. This can be done by:
 - Create connectivity and establish linkages between open spaces;
 - Define open spaces with surrounding public buildings; and
 - Establishing a continuum of special activities along major routes and open space corridors.
- Link symbolic elements (heritage building) and public facilities (library, clinic, etc.) to open spaces in relation to their importance and character.
- Balance defined public open space (by surrounding buildings) with private spaces.
- Create visual recognition and surveillance along open spaces and public routes through:
 - Locating buildings around open spaces and along streets so that sufficient enclosure is created;
 - Ensuring appropriate heights of buildings;
 - Locating highest buildings along the southern side of the open space, with lower buildings or trees along the northern side.
- Permit occasional activities such as markets at highly accessible locations to ensure the greatest viability possible. These locations include modal interchanges and intersections of the movement network directing urban structure.

- Accommodate a variety of users in and uses along streets by the following:
 - Concentrate intensive activities along major vehicular and public transport routes;
 - Locate the majority of public buildings and increase densities along these routes; and
 - Locate buildings closer, rather than further, from the streets to increase pedestrian activity, a sense of enclosure and surveillance.
- Create appropriate road cross-section widths that can provide for vehicle traffic, parking, pedestrian movement, cycling and landscaping.
- Promote access (penetration) and encourage economic activity by orientating the short side of blocks to major streets, wherever possible.
- Plan for adequate solar exposure of buildings. Orientate roof pitches of buildings in such a way that roof solar panels maximise continuous direct access to the sun.
- Consider the heritage value, elements of vernacular architecture and, where possible, retain these important elements when entertaining proposals for the development of buildings. Similarly, the historical characteristics of existing buildings should be considered to be integrated, where practical, into the design and construction of close by new buildings.
- Preserve the character of the Cederberg settlements and the West Coast character of the coastal settlements.
- Create some new, enhance historic and economic place identity of neighbourhoods within settlements and of settlements.
- Encourage the use of local materials in the construction of new buildings.
- Encourage appropriate water-wise landscaping.
- Create sustainable and integrated living environments in all Cederberg settlements.
- Sensitively and naturally landscape gateways to announce settlement entrances. Encourage landscaping along activity streets.

5.2 Guidelines for Liveable Settlement Directives:

To limit the extent of land required, the following guidelines for Connectors and Settlement Densities direct settlement Form and Function:

- Roads
 - Clanwilliam, Citrusdal, Elands and Lamberts Bay: Introduce speed calming & greening of route. Introduce landscaping/ tree lanes, street furniture and sufficient lighting. Provide for multi-purpose crossings.
 - Improve Mobility. Protect mobility function of routes: Arterial Management Plans to be developed, where applicable to DTPW Roads Branch approval.
 - All settlements: Develop guidelines for commercial facades, advertising signs and information signs: Main Road to have a rural character.
- Gateways
 - All settlements: Enhance and announce town entrances and gateways: plant trees and landscape entrances.

- Activity Streets & Corridors
 - Concentrate higher order social amenities and mixed-use development along activity streets.
 - Provide for public transport, Non-Motorised Transport and pedestrian mobility.
 - Provide for a taxi rank/bus stop next to Central Business District.
 - Protect mobility function of routes: Arterial Management Plans to be developed, where applicable to DTPW Roads Branch approval (See Annexure 4).
- Rail
 - Alternative for freight & passengers. Investigate alternative transport, such as rail for agricultural and forestry production, to limit impact on roads and improve economic viability of the railway network (Cape Town - Bitterfontein line).
- Pedestrian & Cycling
 - Develop trails and routes in settlements linked to natural conservation areas or farmland.
 - Clanwilliam, Citrusdal, Elands and Lamberts Bay: Provide for safe pedestrian walkways between residential areas.
- Supportive Infrastructure
 - Service or filling stations are part of supportive infrastructure to the transport network across the municipal area. Electric Vehicle Recharging Stations should be promoted at existing service stations and where possible not as a single facility (given related uses such as convenience shops, solar facilities and the impact on the rural character).

5.3 Management priorities: Built Environment and Service Areas

An Environmental Management Framework for the Built Environment is outlined below:

Management Priority	Priority Focus Area: Utilities, Industrial& Commercial facilities, Amenities
Improvement and rehabilitation.	U: Rehabilitate after construction and demolition and upgrade as required. A: Restore buildings and spaces that have cultural and historical value.
Conservation and preservation.	U: Maintain utility, industrial and commercial facilities and zones. A: Maintain and preserve cultural historical landscapes, graves, monuments, etc. as described under the Heritage and Cultural Law.
Environmental Impact Assessment Requirements.	U: All utility, industrial and commercial zones and their likely impact have to be subject to environmental assessment to mitigate impacts. A: 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.	U: All assembly and management actions must be implemented according to the standards, permit requirements, environmental management plans as applicable. A: 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.

Environmental Impact Management directives for the built environment are outlined below:

Environments	Types of development			Related environmental management policies and guidelines
	That should not occur	That may have significant impact	That have no significant impact	
Energy Zones	Any development except energy generating infrastructure.	Any development except energy generating infrastructure.	Energy generating infrastructure.	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.
Wastewater / sewerage sites and Buffer areas	Any development except waste landfill infrastructure.	Any development except waste landfill infrastructure.	Wastewater/ sewerage infrastructure. Wastewater recycling and reclamation facilities.	
Infrastructure servitudes	Any development that conflicts with the inherent right as contained in 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.	
Industrial Areas	Any conflicting uses i.e. residential and commercial.	Residential, commercial, utilities, amenities.	All industrial related infrastructure.	
Commercial Areas	Any conflicting uses i.e. residential and industrial.	Industrial and utilities.	All commercially related infrastructure.	
Structured open spaces and open space network	Commercial, Industrial or residential developments.	Commercial, industrial or residential developments.	Tourism related development.	
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.
Scenic routes	Uncontrolled, unsightly development e.g. wind farms, shade netting.	Uncontrolled, unsightly development.	Limited, light density development that is not visually apparent and adds value to the environment.	
Historical spaces	Uncontrolled, unsightly development.	Uncontrolled, unsightly development.	Limited, light density development that is not visually apparent and adds value to the environment.	
Settlements	Demolition of heritage buildings. Any negative impacts on buildings or sites that have cultural or historical values.	Any development.	Restoration of buildings for alternative uses (offices, guest houses, etc.).	

5.4 Ward 1: Elandskloof

Economic Base	Place Identity	Locational Advantage	SPC
<i>Residential with agriculture and tourism potential, with Citrusdal as the nearest settlement, approximately 20km away.</i>	Informal Rural Settlement on farm mainly covered with mountain fynbos and natural veld (2 400ha).	Along R303 road network. Within Cederberg Wilderness Area and Winterhoek Catchment Area.	Rural settlement.

Objectives 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY		
Elements	No.	Proposals
<u>Roads:</u> <i>R303 (310) linking Citrusdal and Ceres.</i>	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.
<u>Activity Corridors and Streets:</u> <i>Minor dirt road.</i>	4	Provide for formalizing an "activity street" as part of minor road.
<u>Pedestrian/ Cycle routes:</u>	5	Provide for development of safe pedestrian walkways and bicycle routes along minor road.

Objective 2: Proximate convenient and equal access

PUBLIC UTILITIES		
Elements	No.	Proposals
<u>Future Demand:</u>	6	Protect settlement extent and limit households to 320 as per court order (1996).
<u>Water:</u> <i>Water reservoir of 1M.</i>	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).
<u>Waste Water:</u> <i>No sewerage works.</i>	9	Promote building of sewerage works and install reticulation capacity: EA was issued, consider alternative sewerage management technology.
<u>Bulk Electricity and Reticulation:</u> <i>Eskom provided capacity.</i>	10	Protect and promote maintenance of electrical reticulation system.
<u>Roads and Storm water:</u>	11	Promote maintenance of gravel road and improve storm water system.
<u>Waste:</u>	12	Promote weekly removal of domestic waste.
<u>Communication:</u>	13	Promote the erection of a network tower.
<u>Safety and Risk Management</u>	14	Promote and support sustainable use of resources e.g. water harvesting, alternative energy.
<u>Services:</u>	15	Secure a fire fighting vehicle (tractor with water tank).

Objective 1 and 4: Grow economic prosperity and Protect & grow place identity and cultural integrity

SPACE, BUILT		
Elements	No.	Proposals
<u>Heritage and Tourism:</u> <i>A mission station, established mid 1800's. In 1960, Elandskloof was sold and the community forced to leave the land. In 1996, the Elandskloof community returned. Informal Rural Settlement: Rural and farm character, harvesting wild buchu.</i>	16	<u>Protect Place Identity:</u>
	a)	Protect institutional node around 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.
<u>Built form: Some formal and informal dwellings. Residential: SPC rural settlement.</u>	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).

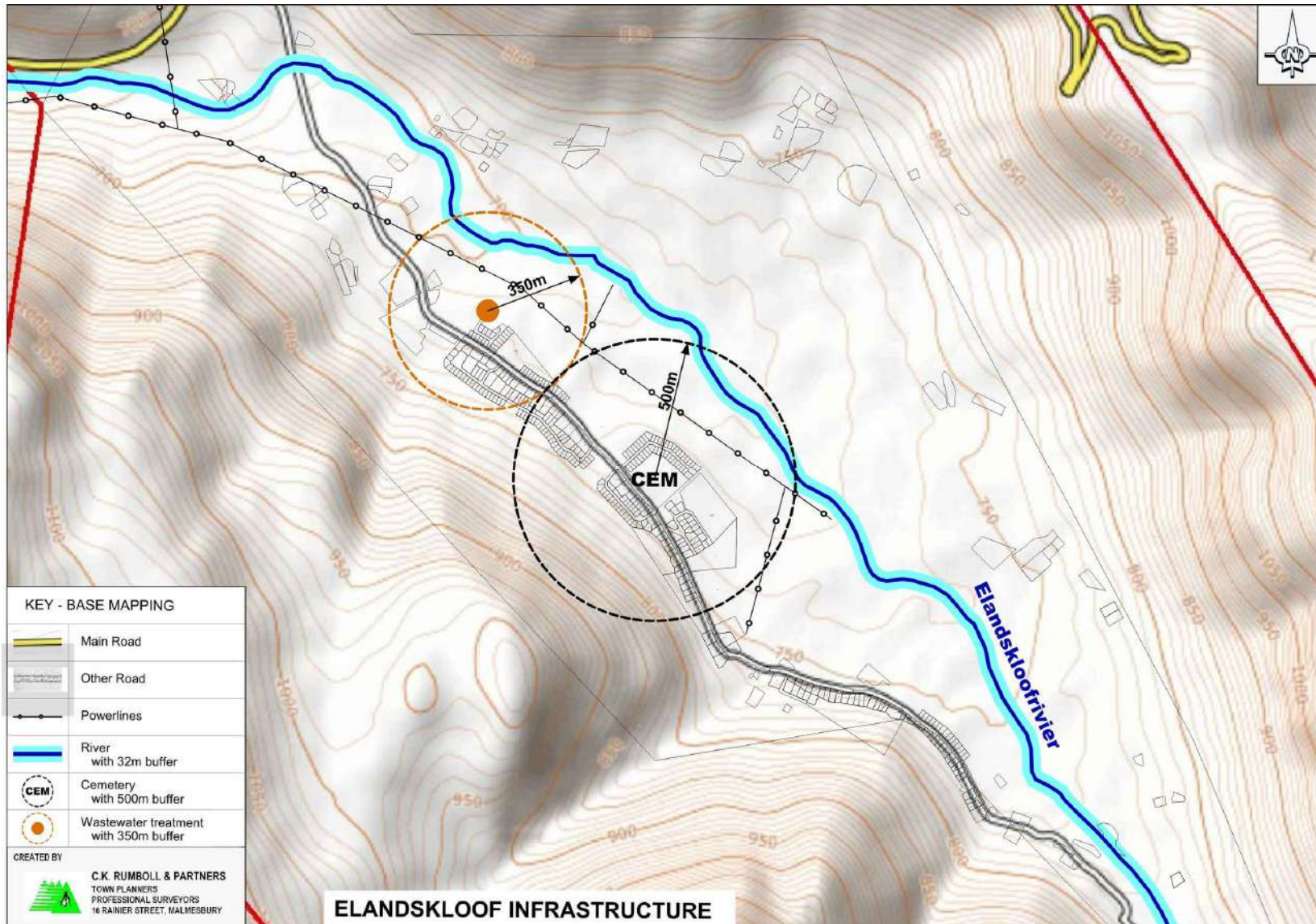
<u>Functionality and urban design:</u> <i>Ribbon development pattern along the river, on both sides of gravel road, arranged as four precincts at the entrance, around the cemetery, church, community hall cluster, at the kloof end and across the river (outposts and gardens): all in walking distance.</i> <u>Locational Advantage:</u> <i>R303 movement network; Cederberg Wilderness Area and Olifant's Doorn Catchment Area.</i>	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.
<u>Commercial and Industrial:</u> <i>Primarily subsistence agriculture</i> <u>Economic Base:</u> <i>Residential with agriculture and tourism potential, with Citrusdal as the nearest settlement, approximately 20km away.</i> <u>Growth potential:</u> <i>Low development potential (mainly residential).</i>	23	Provide for limited but excellent tourism and conservation opportunities (<i>area separated from surroundings by Kouebokkeveld Mountains</i>).
	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.

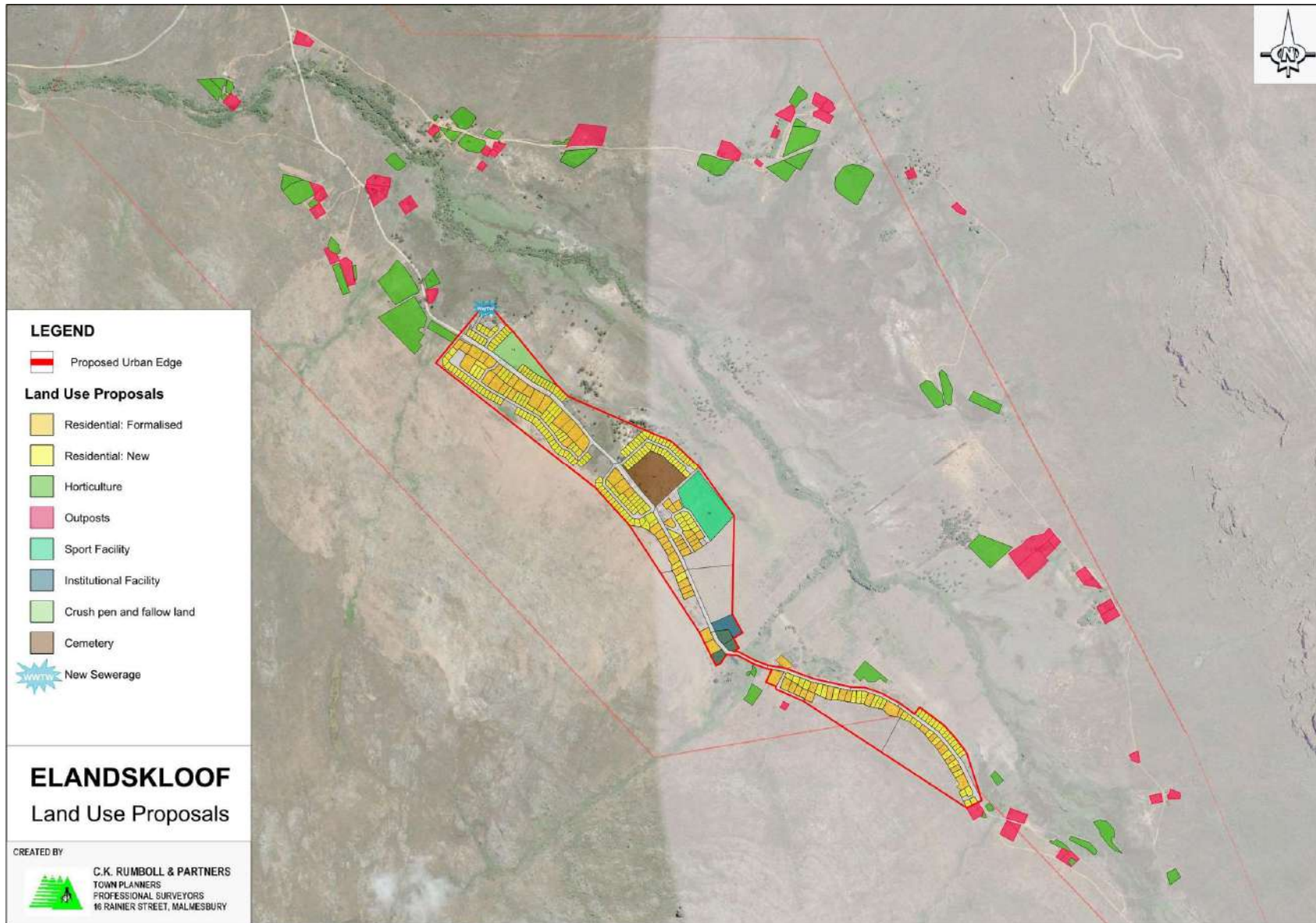
Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Elements	No.	Proposals
<u>Social Infrastructure and Services:</u> <i>Community hall and church, part of the original settlement.</i>	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.

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Elements	No.	Proposals
<u>Natural and Conservation:</u> <i>Scenic routes and vistas.</i> <i>Mountainous landscape.</i>	32	Promote protection of mountain slopes and prohibit development on slopes.
	33	Promote protection 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.
<u>Waterways:</u> <i>Elandskloof River</i>	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.
<u>Public and Private Open Space:</u>	37	Maintain cemetery and provide for adequate expansion of cemetery.
	38	Landscape gate way and access road sensitively and naturally. Provide appropriate pedestrian and traveler infrastructure.





5.5 Ward 2: Citrusdal

Economic Base	Place Identity	Locational Advantage	SPC
Agricultural service centre ±180km north of Cape Town: DR 2183/ R539 becoming Voortrekker Road running north-south (east of Olifants River). Paul De Villiers Street crosses Olifants River connecting to the N7. Agricultural surroundings.	Agricultural service centre, characterised by a scenic landscape, Olifants River (west) and pristine mountain ranges: Oliphant's and Cederberg (east) and Piketberg (west) Mountain, contained by its valley topography: spatial form and expansion possibilities are defined.	N7 (north south: Namibia Cape Town) and R303 (east, Ceres to west) road network. Service and tourist centre: in a narrow, highly fertile, valley at foothills of Cederberg and Moon Mountains and situated on the eastern banks of the Olifants River.	Local node.

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
Element	No.	Proposals
<u>Main Roads:</u> N7, main movement network.	1	Protect unhindered access to Cape Town, Northern Cape and Namibia.
	2	Protect location along regional and national transport corridor.
<u>Roads:</u> 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.
<u>Activity Corridors and Streets:</u> 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.	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.
<u>Pedestrian/ Cycle routes:</u> Walkways along Paul de Villiers and Voortrekker Streets.	8	Enhance and extend safe pedestrian walkways and bicycle routes along Voortrekker Street.
	9	Improve disabled access to pavements.

Objective 2: Proximate convenient and equal access

PUBLIC UTILITIES		
Element	No.	Proposals
<u>Future Demand:</u>	10	Identify sites and provide adequate land for future bulk infrastructure expansion.
<u>Water:</u> 3.3ML reservoir.	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).
<u>Waste Water:</u> New sewerage works, inadequate pipe capacity.	13	Provide for upgrading pipe capacity and establish connections to new and existing precincts.
<u>Bulk Electricity and Reticulation:</u> Sufficient capacity (1Mva, 0.5Mva used) and reticulation	14	Upgrade will take place alongside subsidized housing development.
<u>Roads and Storm water network:</u>	15	Maintain roads network.
<u>Waste:</u>	16	Maintain weekly removal of domestic waste and manage transfer stations.
<u>Safety and Risk Management Services:</u>	17	Maintain and functionally integrate 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.

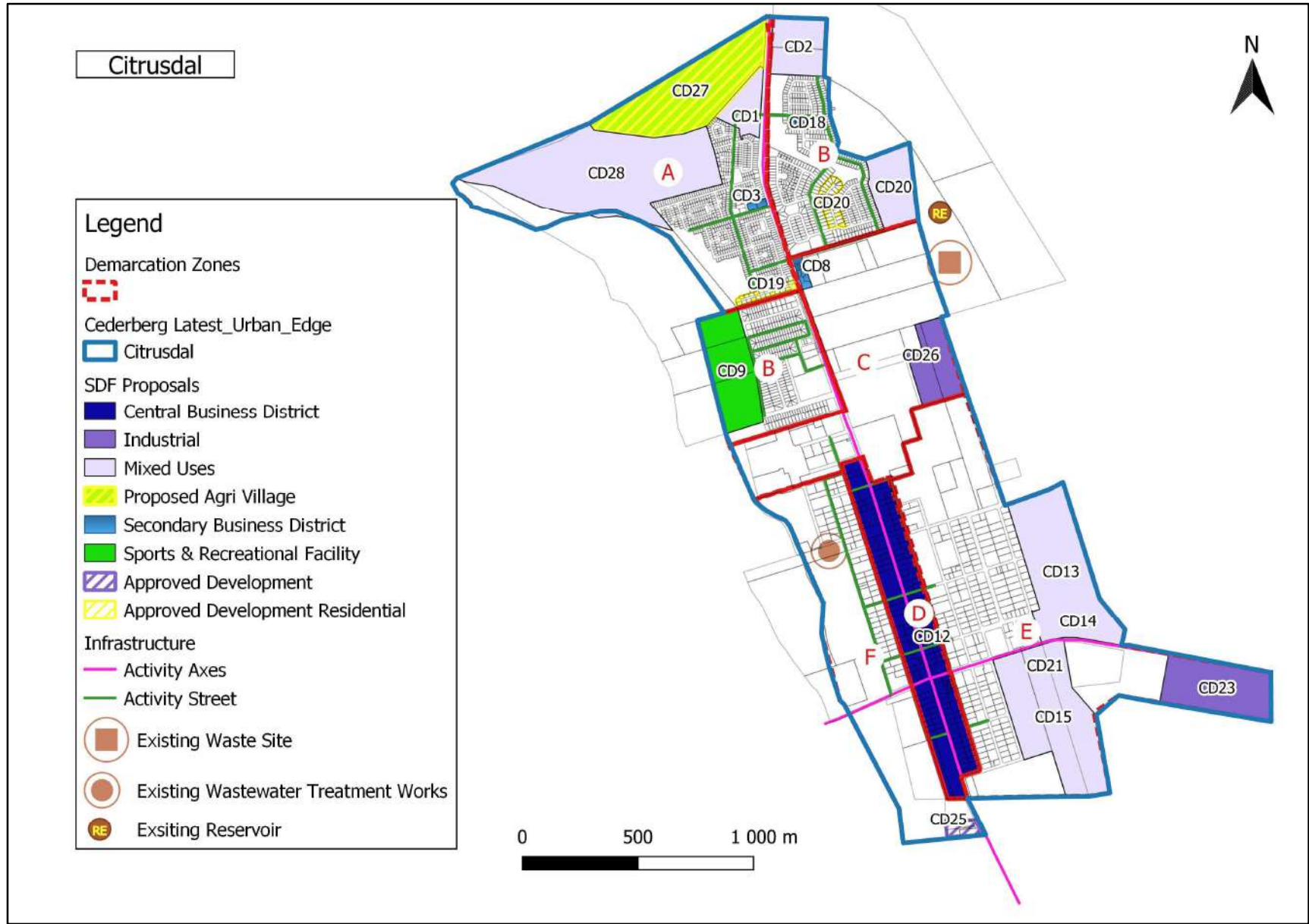
Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT		
Element	No.	Proposals
<p>Heritage and Tourism: <i>Citrusdal was established (circa 1918) at the foot of Piekenierskloof Pass on farm Modderfontein. In 1725 this farm supplied meat to the Dutch East India Company. The village was moved across the Olifants River to its current location, after the McGregor family, who owned Modderfontein from 1860, lost their name bearers to Spanish Flu in 1918. In 1855, Thomas Bain started work on the 12km Grey's Pass (later renamed Piekenierskloof Pass) with the help of 100 convicts.</i></p> <p><i>Citrusdal, as citrus capital, is the fastest growing town in Cederberg: Citrusdal offers also development potential as a tourist destination, given the hot water springs, farm and river accommodation, 4x4 routes and Epic cycle tour passing through.</i></p>	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 <i>Single and double story dwellings, commercial and institutional buildings</i> . Cautiously introduce <i>industrial building of similar scale and avoid bulky robust buildings e.g. citrus packing sheds</i> .
	24	Maintain and promote tourism assets and uses to diversify the economy.
	25	Promote the settlement setting within 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 western boundary of settlement (support resort development along Olifants River, south of Citrusdal) and in the rural area.
	<p>Residential: <i>Settlement Layout: 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.</i></p> <p><i>Density: 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.</i> <i>Ward 2 population of 7 178 (2016) people (13.5% of Cederberg's population), and 1957 households. Average household size is 3.7 persons.</i></p>	29
30		Support resort development in and near 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 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).
<p>Commercial: <i>Economic Base: an agricultural service centre to citrus industry, an export crop and intensive agricultural practice.</i> <i>Locational Advantage: Tourism, N7 transport and service centre:</i></p>	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).
<u>Industrial:</u> <i>Citrus industry requires extensive industrial plots to establish appropriate agri-industrial infrastructure. As there is simply not enough space and land left, between the river and the mountain range to provide for the entire industry, an intermittent urban edge is required.</i>	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.
<u>Land Reform</u>	51	Provide for and formalize small farming and community gardens on north western periphery (of Zone A) along river and on municipal commonage.

Detailed land use proposal, as per Proposal Map

Name	Zoning, Proposed	Gross Area	Zone
CD1	Mixed Uses	3,3	A
CD12	Central Business District	24,8	D
CD13	Mixed Uses	18,4	E
CD14	Secondary Business District	1,1	E
CD15	Mixed Uses	18,9	E
CD18	Secondary Business District	0,6	B
CD19	Approved Development	1	A
CD2	Mixed Uses	5,7	B
CD20	Mixed Uses	6	B
CD20	Approved Development	1,6	B
CD21	Secondary Business District	1,9	E
CD23	Industrial	10,1	E
CD25	Approved Development	1	F
CD26	Industrial	5,8	C
CD27	Proposed Agri Village	16,3	A
CD28	Mixed Uses	29,6	A
CD3	Secondary Business District	0,3	A
CD8	Secondary Business District	0,6	C
CD9	Sports & Recreational Facility	9,2	B



Objective 3: Sustain material, physical and social wellbeing.

PUBLIC INSTITUTIONS		
Element	No.	Proposals
<u>Social Infrastructure and Services:</u>	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.

Objective 5: Protect ecological and agricultural integrity

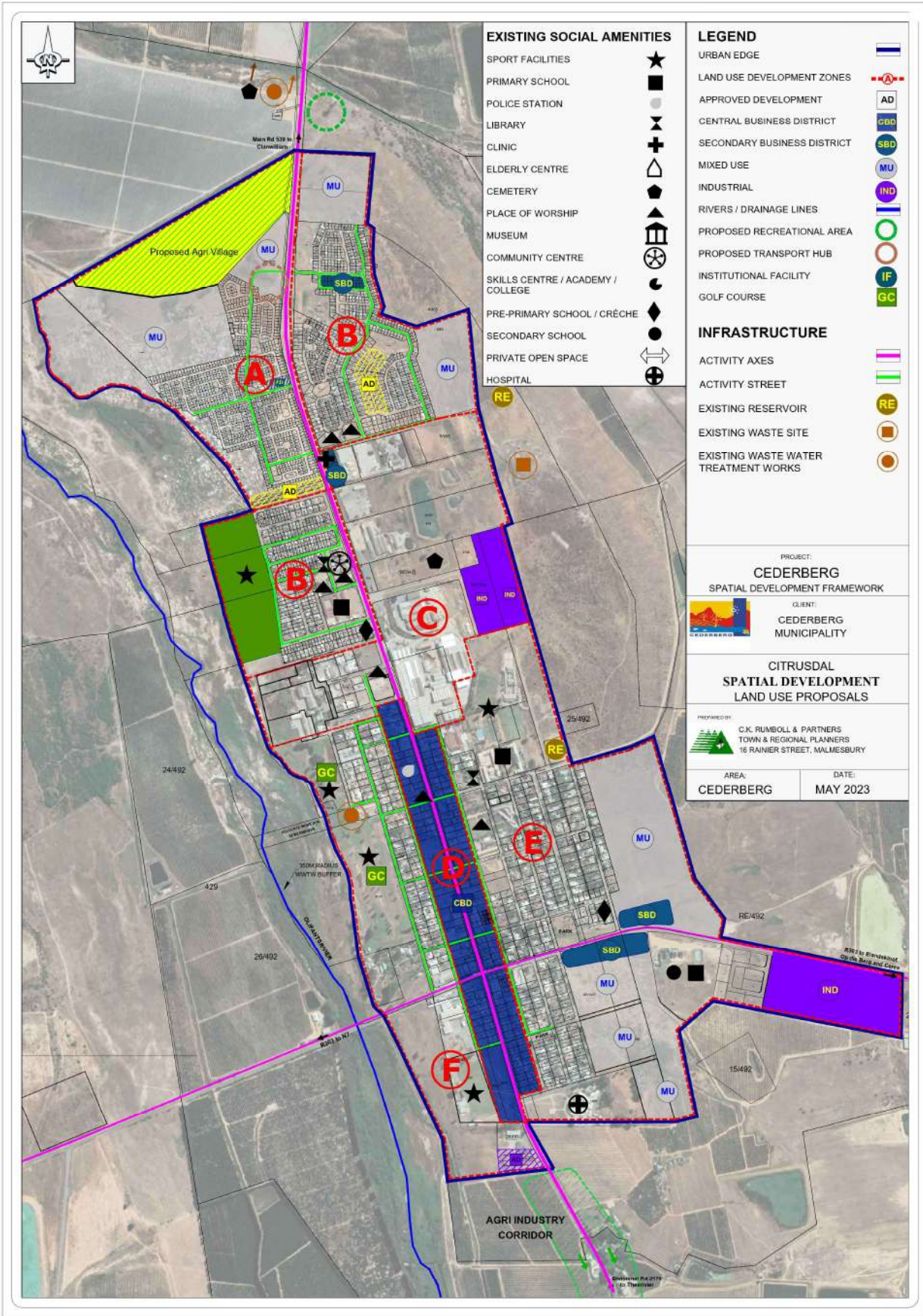
SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation:</u>	57	Protect scenic routes, vistas, Cederberg Mountains landscape, citrus orchards and water bodies.
	58	Protect endangered Citrusdal Shale Renosterveld in urban edge extension east of primary school.
<u>Waterways:</u>	59	Protect all 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).
<u>Public and Private Open Space:</u> Cemetery with space for long term established north of Citrusdal.	70	Rejuvenate and landscape central town.



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 has to be read in conjunction with Development Zone plans 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 waste water 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.												



5.6 Ward 3: Clanwilliam

Economic Base	Place Identity	Locational Advantage	SPC
Regional retail and agricultural service centre and Rooibos Tea. Approximately 230km north of Cape Town. Graafwater is 35km away.	Administrative centre and Rooibos tea capital of Olifants River Valley and gateway to Cederberg Wilderness Area. Located between western slopes of Cederberg Mountains and Jan Dissel River, bordering the eastern bank of the Olifants River, at Clanwilliam dam and Ramskop Nature Reserve. Historic buildings, cultural history, rooibos tea and leather shoes (“velskoene”) are all associated with town. Clanwilliam dam is a popular water sports attraction and recreational destination. Dominant agricultural character, especially Rooibos.	Access to Clanwilliam is obtained via the R364 (Main Road 55), with an off-ramp from the N7, which runs parallel to the Olifants River and the Clanwilliam dam.	Sub-regional node.

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access

CONNECTIVITY		
Element	No.	Proposals
<u>Main Roads:</u> N7, main movement network, unhindered access to Cape Town and Namibia. <u>Roads:</u> 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.
<u>Activity Corridors and Streets:</u> Graafwater Way (east-west) Main Street and R2183 (north –south). Visser Street, Voortrekker, Denne, Suikerbos, Magnolia. Bloekom Avenue and Industrial area.	3	Strengthen and beautify Main Street and R364 intersection.
	4	Develop commercial and industrial activities along changeover from main to DR 2183/ R539. Landscape Main and DR 2183/ R539.
	5	Develop an alternative link road 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.
<u>Pedestrian/ Cycle routes:</u> 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 Mainstreet 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).

Objective 2: Proximate convenient and equal access

PUBLIC UTILITIES		
Element	No.	Proposals
<u>Future Demand:</u>	10	Identify sites and provide adequate land for future bulk infrastructure expansion.
<u>Water:</u> Department of Water Affairs requires R62 million (2017) to upgrade Clanwilliam Dam (2017).	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 loadshedding.
<u>Waste Water:</u> CM requires R21.4 million (2017) to move sewerage works.	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.
<u>Bulk Electricity and Reticulation:</u> Electricity supply is insufficient. CM requires R22 million (2017) to supply 10 MVA.	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 lightning.
<u>Roads and Storm water:</u>	18	Promote maintenance of gravel roads.
	19	Upgrade storm water system.

<u>Waste:</u>	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.
<u>Safety and Risk Management Services</u>	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.

Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

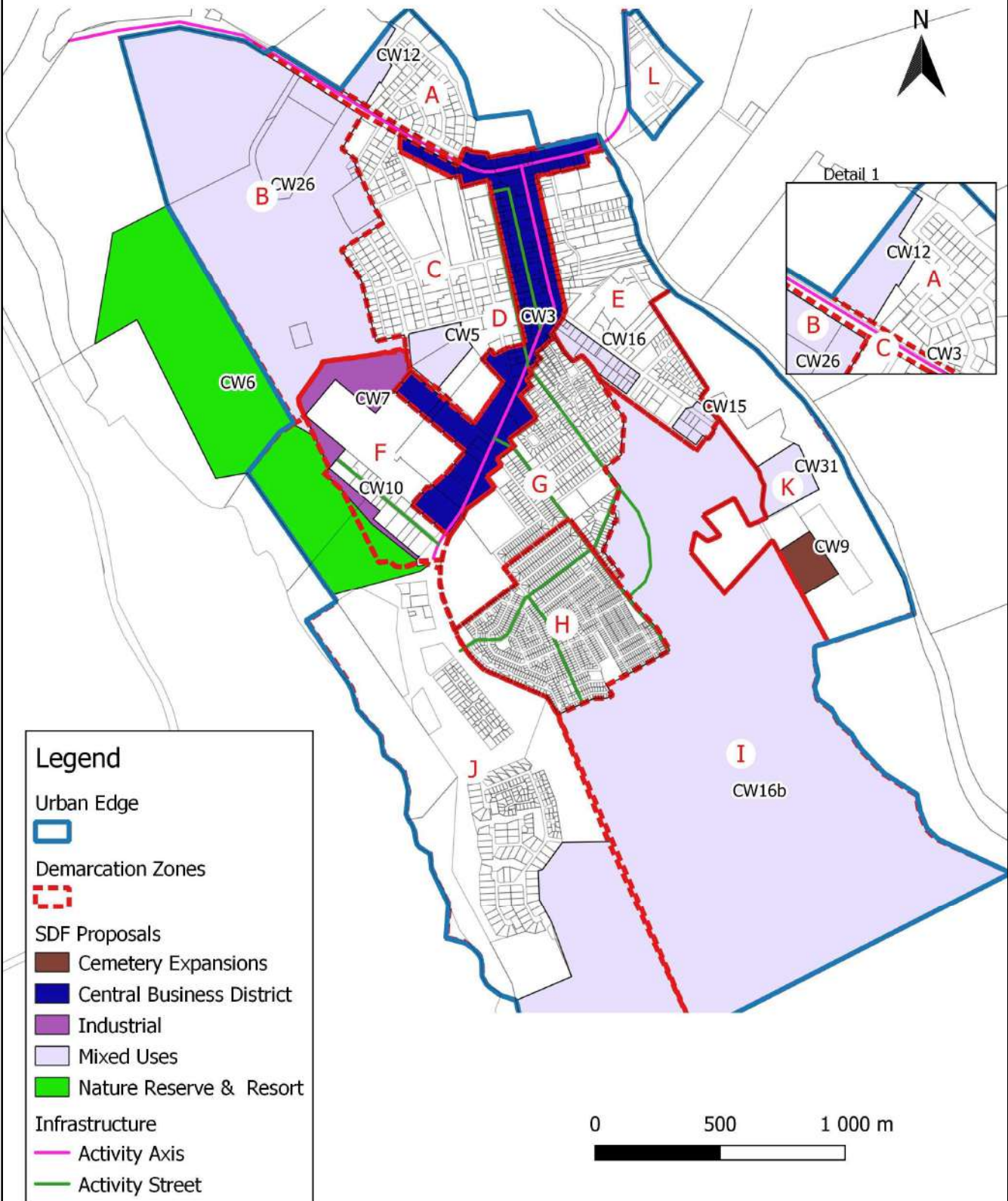
SPACE, BUILT		
Element	No.	Proposals
<u>Heritage and Tourism:</u> <i>Clanwilliam was established on the Farm Jan Disselvlei named after botanist Jan Dissel and the settlement carried the same name. In 1814 it was renamed after the Earl of Clanwilliam. In 1901 the village became a municipality, the first mayor being Charles Fryer, an Irish descendant of the 1820 Settlers, who settled along the Jan Dissels River. Main, Park, Visser and Love Street with its surroundings is a historic precinct.</i>	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).
<u>Settlement pattern and urban structure:</u> Traditional grid pattern: <i>Clanwilliam consists of two residential nodes, one south and another north. These nodes are linked by business, industrial and mixed including residential uses, structured along Main Road (primary activity axis) and around T junction with Augsburg street (east- west).</i>	30	Enhance settlement pattern and layout.
	31	Maintain overall mass and scale, new similar-use buildings should blend into existing mass and scale: introduce <i>Single and double story dwellings, commercial and institutional buildings</i> . Cautiously introduce <i>industrial building of similar scale and avoid bulky robust buildings e.g. citrus packing sheds</i> .
	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 south eastern 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).
<u>Residential:</u> <i>Ward population of 7 674 (2011) people (15% of Cederberg's population), and 2412 households. Average household size is 3.3 persons. Residential areas are located next to CBD, except for Khayelitsha (informal settlement), and development along Dam - southern side (1.5 km or 30 minutes walking distance). Community facilities (municipal offices, sport grounds and magistrate office) are centrally located.</i>	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 promote 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 south eastern Clanwilliam and along the dam).
	44	Formalise Informal Settlement Area in Zone I (old and new Kayalitsha).
<i>Main town within Cederberg region, benefit of regional developments: N7 upgrading (linking Cape Town and Namibia into Africa) and enlargement of the Clanwilliam Dam.</i>		

	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 proposed development in 43.
	46	Register farm workers and other special category beneficiaries on housing waiting list.
	47	Provide 314.4ha land to accommodate residential growth in Clanwilliam, until 2031.
<u>Commercial:</u> <i>CBD at T junction (Main and R364) intersection and along secondary roads off Main.</i> <i>Economic Base and locational advantage: Regional retail and agricultural service centre and sub-regional node.</i> <u>Place identity:</u> Administrative centre: Rooibos tea capital and gateway to municipality.	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.
<u>Industrial</u> <i>Main industrial area (centre of Clanwilliam) and north along Augsberg street.</i> Unique agricultural character: Heart of Rooibos tea: Dr Pieter Le Fras Nortier (District Surgeon and botanist) cultivated the first rooibos tea on farms Eastside and Klein Kliphuis.	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 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.	
<u>Land Reform</u>	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.

Detailed land use proposal, as per Proposal Map

Name	Zoning, Proposed	Gross Area	Zone
CW10	Industrial	1,5	J
CW12	Mixed Uses	2,6	A
CW15	Mixed Uses	1,7	E
CW16	Mixed Uses	3,6	E
CW16b	Mixed Uses	240,4	I
CW26	Mixed Uses	93,3	B
CW3	Central Business District	36,5	D
CW31	Mixed Uses	4,3	K
CW5	Mixed Uses	4,2	C
CW6	Nature Reserve & Resort	59,3	A portion in Zone J and a portion outside the land use zoning
CW7	Industrial	7,2	F
CW9	Cemetery Expansions	3,2	K

Clanwilliam



Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Element	No.	Proposals
<u>Social Infrastructure and Services:</u>	64	Protect and provide adequate social infrastructure to create safe living environments: sport facilities and established education facility.
	65	Locate and integrate community facilities in central areas.
	66	Align provision of social infrastructure to norms.
	67	Promote multi-functional recreational areas (e.g. children's play parks, day camping and picnic facilities) close to sport facilities.
	68	Allow for adequate expansion of cemeteries.
	69	Expand resort next to Clanwilliam dam southwards (Zone J).
	70	Promote and support adequate primary health and education facilities: crèches, secondary/tertiary facilities (agricultural skills focus).
	71	Provide sport facilities (soccer fields) within high density residential Zone I or in K.

Objective 5: Protect ecological and agricultural integrity

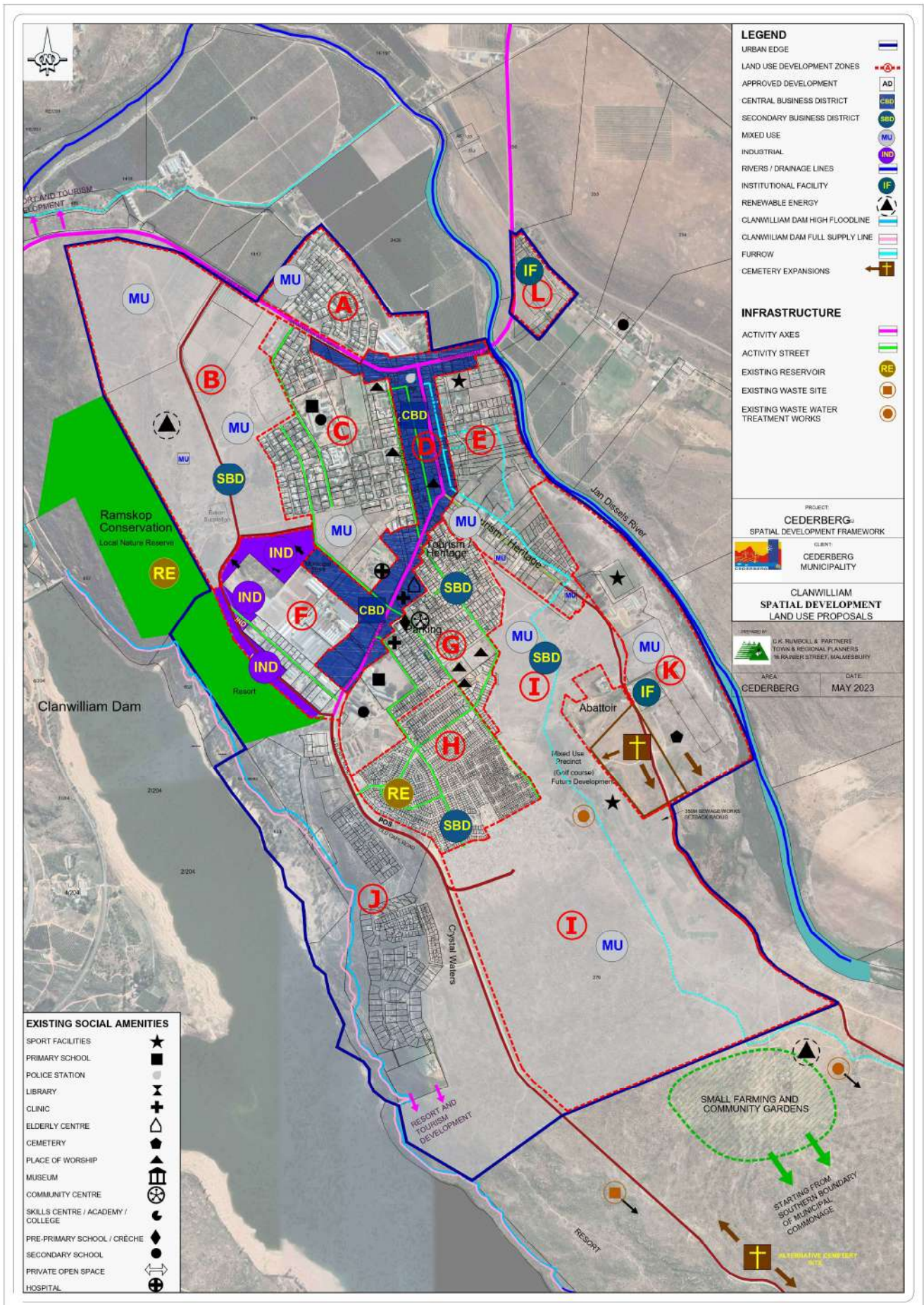
SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation: Waterways:</u> <i>Jan Dissels River and Olifants River, running north-south and connecting in north.</i> <i>As the Bulshoek Dam had insufficient capacity for irrigation, the Clanwilliam Dam was built in 1932-35. Today the Clanwilliam Dam is also used for water-skiing and other water sport.</i>	72	Protect scenic routes, vistas, mountain and water landscapes.
	73	Protect all critical biodiversity areas as per Clanwilliam CBA and ESA map.
	74	Reconfigure Ramskop Nature Reserve to manage maintenance and use. Promote private and public partnerships to support upgrading of the Ramskop Nature Reserve to become a tourist destination of choice (Zone J).
	75	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.
	76	Support interactive development along open spaces with developments facing the open space networks.
	77	Create and protect open space areas inside and adjacent to urban areas (allow for movement between habitat areas).
	78	Maintain setback lines along river systems (limit potential impacts and improve safety).
	79	Develop hiking trails, mountain bike trails and alternative uses e.g. event facilities and venues.
	80	Promote greening of main activity route.
	81	Support expansion of existing Clanwilliam Dam Resort south of Zone J, outside the urban edge and support additional resort where applicable and sustainable.
	82	Promote recreation on Clanwilliam Dam such as water skiing and fishing.
	83	Promote enhancement of water sources of the region and of agricultural cultivation and thus raising the Clanwilliam Dam wall: Agricultural growth takes place according to allocated irrigation quotas.
	<u>Public and Private Open Space:</u>	84
85		Beautify main town access points.
86		Provide for expansion of cemetery in Zone K south wards and for establishment of new cemetery outside and south east of DR 2183/ R539 out of Clanwilliam in Zone I.
87		Relocate golf course.
88		Sensitively and naturally landscape gateways to announce settlement entrances (Graafwater-Augsberg Way and DR 2183/ R539) to Clanwilliam to protect and maintain the esthetical value of the settlement and surrounding scenic landscapes. Encourage landscaping along activity streets.

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 has to be read in conjunction with Development Zone plans for Clanwilliam.

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 houses/Lodge	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. Strengthen 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 activity 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 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	X	X	X	X	X	X	X	X	X	X	X	X	X

	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.												
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, consist of the Augsburg agricultural school and training centre and farm.	X 5		X 5	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 (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 shop & offices and home occupation. House taverns only to be allowed along activity streets in residential areas.											



5.7 Ward 4: Graafwater

Economic Base	Place Identity	Locational Advantage	SPC
Agricultural service centre, situated between Clanwilliam (34km) and Lamberts Bay (30.6km).	Residential settlement within overwhelmingly rural and agricultural Sandveld surroundings. Peddies River runs north and the Jakkalsvlei River south of the town.	Railway connection (north to south). East west road network, R364 (Main Road 55) dissecting the settlement. Relatively flat topography.	Rural settlement.

Objective 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY			
Element	No.	Proposals	
<u>Roads:</u> R364 (543) links to Lamberts Bay and Clanwilliam. Two divisional roads: north – R2193 and south - R2180.		None.	
<u>Activity Corridors and Streets:</u> Van der Stel, Stasie (east) and Lamberts Bay Street, Lambrechts Crescent. Ceder (north), Keurtjie, September Street, within new subsidised development. Intersections between these roads.	1	Enhance commercial activities and intensification along two main activity corridors and roads parallel thereto: Ceder and Stasie streets.	
	2	Encourage landscaping along activity streets.	
<u>Rail:</u> Major railway line east of settlement.		None.	
<u>Pedestrian/ Cycle routes:</u>	3	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.	
	4	Formalize pedestrian route from Zone D to Zone C along southern side of R364.	
	5	Classify R364 section through Graafwater as “sub-urban environment” (according to RDE). Develop pedestrian crossings for easy movement between north and south.	

Objective 2: Proximate, convenient and equal access

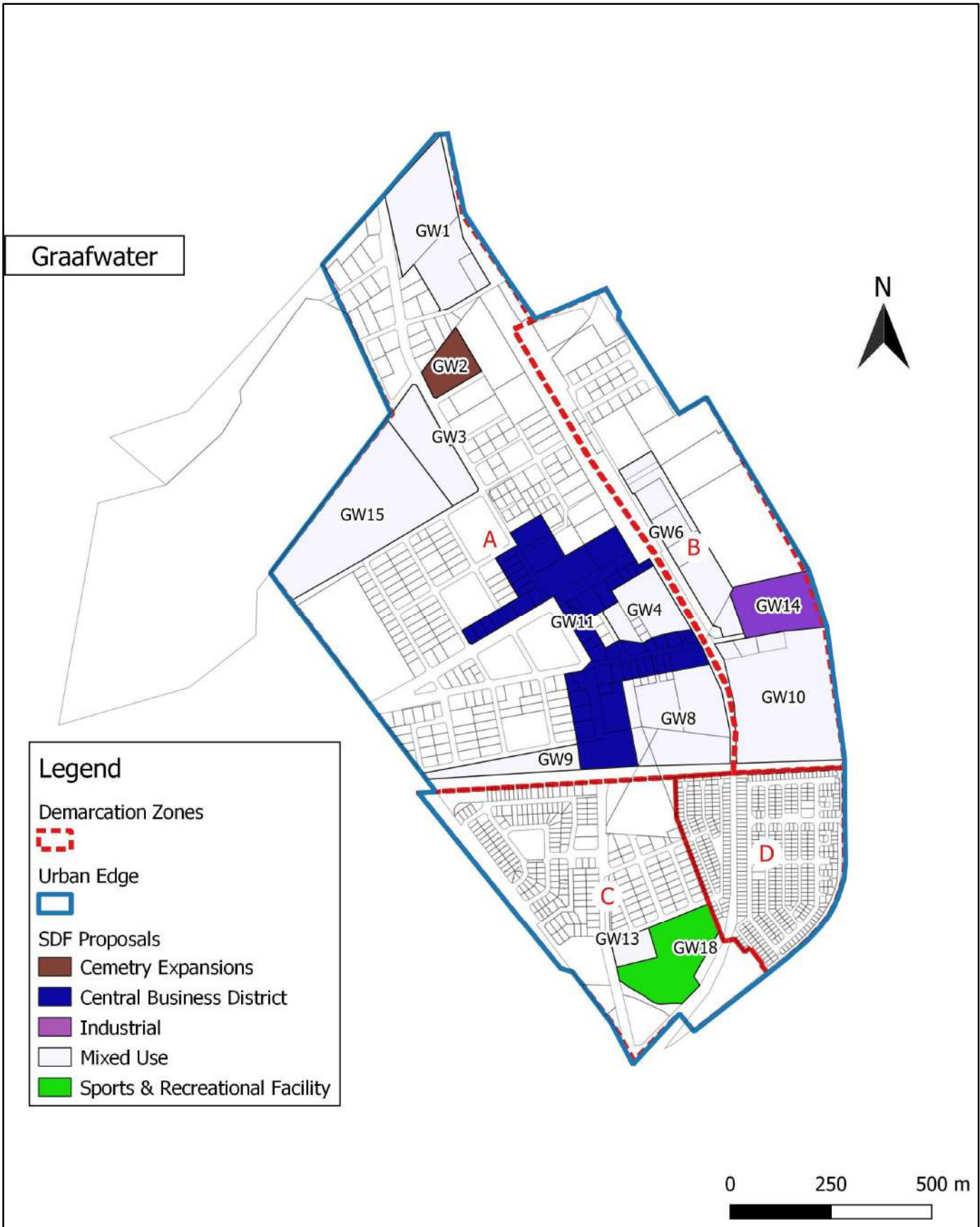
PUBLIC UTILITIES			
Element	No.	Proposals	
<u>Future Demand:</u>	6	Identify sites and provide adequate land for future bulk infrastructure expansion.	
<u>Water:</u> 1ML reservoir storage capacity insufficient (2017), and storage capacity of 5ML reservoir was built (R5.4million, 2017).	7	Protect adequate bulk water supply, Reduce bulk water demand.	
	8	Address potential impacts of climate change.	
<u>Waste Water:</u> Oxidation ponds were extended and reticulation system, pump station and feeding lines too (R23.4 million, 2017).	9	Finalise upgrading of reticulation system, pump station and feeding lines.	
<u>Bulk Electricity and Reticulation:</u> 0.75MVA supply is insufficient	10	Manage adequate street lightning.	
	11	Upgrade electricity supply to 1MVA. (Part of Phase 1 subsidized housing project) (2017).	
<u>Roads and Storm water:</u>	12	Maintain gravel roads and improve storm water reuse.	
<u>Waste:</u>	13	Provide for weekly domestic waste removal and management of transfer stations.	
<u>Safety and Risk Management Services:</u>	14	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy and address potential impacts of climate change.	

Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT			
Element	No.	Proposals	
<p>Heritage and Tourism: A Sandveld town was established by the Dutch Reformed Church after the railway junction between Cape Town and Bitterfontein was built in 1910. The silos, accessed by a rail siding, formed the focus of the town and most of the public, commercial and historic buildings are located along this route. Name refers to "digging for water" Graafwater.</p> <p>Settlement Layout and urban structure: A grid layout with rectangular blocks of which some were subdivided into smaller erven. Large tracts of vacant land are crossed by bulk services, a curvilinear layout and ±300m² erven south of R364. The R364 (linking Clanwilliam with Lamberts Bay) divides the settlement into two parts: Van der Stel Street, an activity axis, with a concentration of businesses, schools and municipal offices and Stasie Street, another activity street containing various businesses.</p>	15	Protect Place Identity: Residential.	
	16	Protect Lamberts Bay Road with its surrounding area as a heritage resource in Zone A.	
	17	Protect graded cultural and heritage resources (buildings, spaces and features): Control alterations and demolitions of buildings older than 60 years where appropriate.	
	18	Beautify main access points to Graafwater.	
	19	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.	
	20	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.		
<p>Residential: Density: Southern precinct (south of R364): high density, Northern precinct: low density.</p> <p>Built Form: A mixture of modern (50's) and historic buildings. Most dwellings are single story. Double story buildings are the exception i.e. the school hostel. Along the railway line and at the siding platform are larger industrial buildings with larger, more dominating, mass and scale and forms part of the character of the town.</p>	21	Protect built and urban form:	
	a)	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.	
	b)	Enhance functionality and create linkages between various precincts.	
	22	Register farm workers and special beneficiaries on housing waiting list.	
	23	Provide 39.66ha land in Graafwater, to accommodate potential residential growth until 2031.	
	24	Strengthen growth potential and tourism opportunities along main traffic routes passing through the settlement should be supported to attract tourists.	
	<p>Commercial: Economic Base: Agricultural service centre and Rural Settlement (SPC).</p>	25	Support central business district including house shops and informal markets along Cedar Road, an activity street, in southern settlement precinct, in Zone C.
		26	Strengthening of commercial development within central business district along activity axis (Zone A and B).
		27	Support a CBD in Zone D, along the identified activity street.
		28	Strengthen agri processing and agri-industries, featuring export products: Rooibos tea and potatoes.
29		Potential for a mixed-use precinct, along the activity street in Zone B, with light/service industries, commercial and wholesale uses.	
30		Provide services to the seasonal workers from surroundings.	
31		Renew central business district.	
32		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.	
<p>Industrial: Rooibos tea, potatoes and mutton are major agricultural produce. Locational Advantage: Railway connection</p>	33	Expansion of the industrial development on a portion of Erf 37, west of Van der Stel Street, in Zone A.	
	34	Expansion potential for industrial uses on the eastern boundary, in Zone B.	

Detailed land use proposal, as per Proposal Map

Name	Zoning, Proposed	Gross Area	Zone
GW1	Mixed Use	5,66	A
GW2	Cemetery Expansions	1,32	A
GW3	Mixed Use	2,62	A
GW4	Mixed Use	2,47	A
GW6	Mixed Use	4,3	B
GW8	Mixed Use	5,48	A
GW9	Mixed Use	2,64	A
GW10	Mixed Use	8,2	B
GW11	Central Business District	12,2	A
GW12	Mixed Use	0,48	B
GW13	Mixed Use	0,71	C
GW14	Industrial	2,79	B
GW15	Mixed Use	8,21	A
GW16	Secondary Business District	0,91	C
GW17	Secondary Business District	0,55	D
GW18	Sports & Recreational Facility	3,43	C
GW20	Community Facility	0,09	C

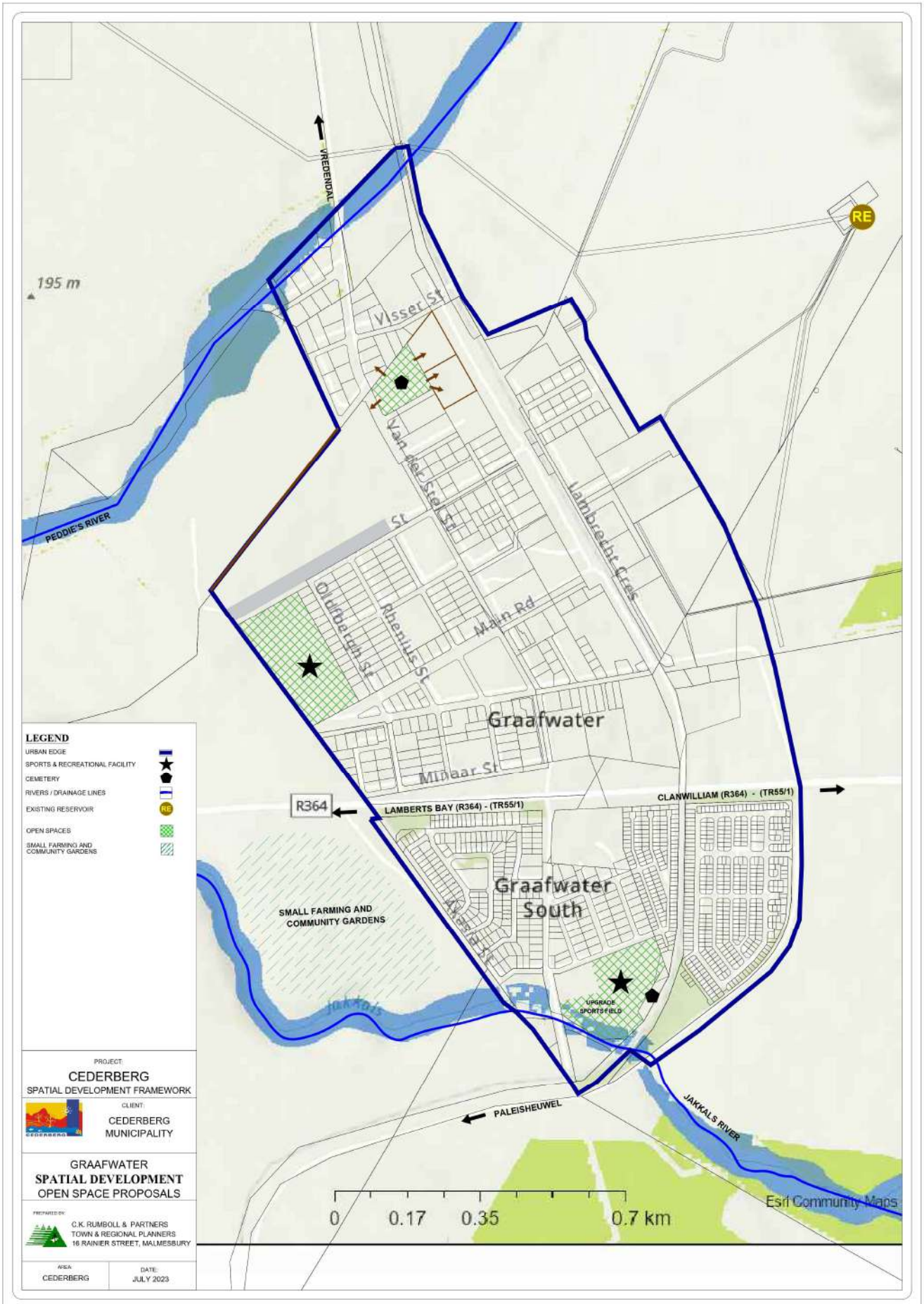


Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Element	No.	Proposals
<u>Social Infrastructure and Services:</u>	35	Protect and provide adequate social infrastructure and sites for future infrastructure to create safe living environments: sport facilities and well-known education facility. Align provision of social infrastructure to norms.
	36	Promote multi-functional recreational areas (e.g. children's play parks, day camping and picnic facilities) close to sport facilities.
	37	Upgrade and maintain two existing sport facilities.
	38	Provide for long term expansion of cemetery.

Objective 5: Protect ecological and agricultural integrity

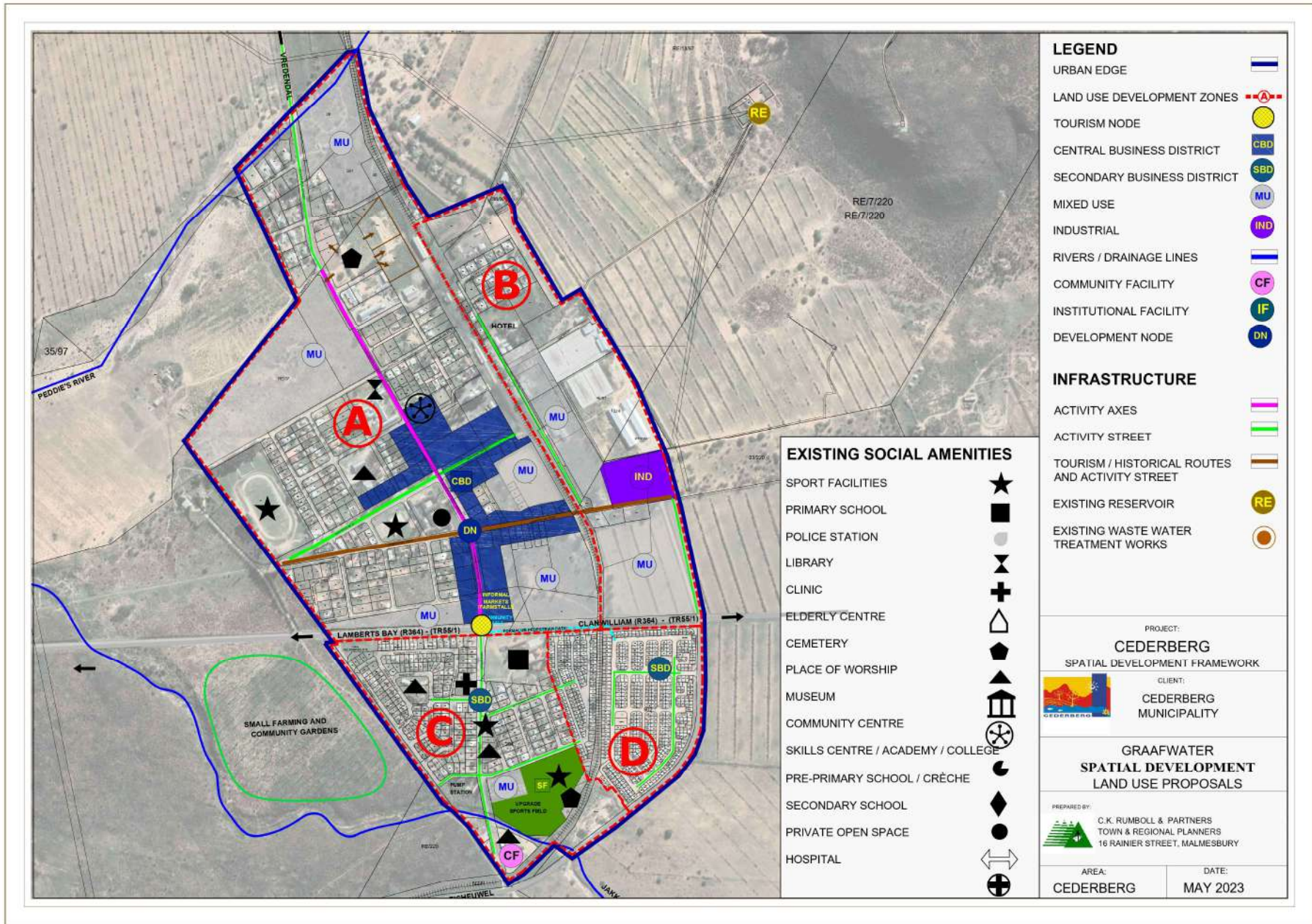
SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation:</u> <i>Home to critically endangered and endangered geophytes and endemic plants e.g. Heterorachycentrid.</i>	39	Protect scenic routes, vistas and agricultural landscape.
	40	Protect critically endangered and endangered geophytes and other endemic plants especially where new extensions are proposed.
	41	Protect all critical biodiversity areas as per Graafwater CBA and ESA map.
<u>Waterways:</u> <i>Peddies and Jakkals Rivers.</i>	42	Limit urban development and intense agriculture within 32 meters of Peddies and Jakkals River banks: Maintain setback lines along river systems.
	43	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.
	44	Support interactive development, along open spaces, with developments and residences facing the open space networks.
	45	Create and protect open space areas inside and adjacent to urban areas (allow for movement between habitat areas).
	46	Develop hiking trails, mountain bike trails and alternative uses for event facilities and venues.
	47	Promote greening of main activity routes.
	<u>Public and Private Open Space:</u>	48
49		Sensitively and naturally landscape gateways to announce settlement entrances. Encourage landscaping along activity streets.
50		Expansion of cemetery, east of Van der Stel Street, in Zone A.



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.

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 & Industries	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.												



5.8 Ward 4: Sandberg

Economic Base	Place Identity	Locational Advantage	SPC
Residential within intensive agricultural surroundings, with Leipoldville as the nearest settlement, approximately 15km away. Farmworkers working on surrounding farms are hosted on these farms.	Small rural hamlet. The Lambertshoek River runs parallel and below the road. The Lambertshoek River connects to the Langvlei River.	Railway siding along the railway line to Bitterfontein. Access to Sandberg is obtained from the R365 (Main Road 538) stretching from Piketberg to Leipoldville and crossing the railway south of the siding.	Rural settlement.

Objectives 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY		
Element	No	Proposals
<u>Roads:</u> R365 (538). A minor dirt road connects Sandberg and R365.	1	Promote connectivity to West Coast.
<u>Activity Corridors and Streets:</u>		None.
<u>Rail:</u> Belville - Bitterfontein railway line (cross R365).		None.
<u>Pedestrian/ Cycle routes:</u>		None.

Objective 2: Proximate, convenient and equal access

PUBLIC UTILITIES		
Element	No	Proposals
<u>Future Demand:</u>	2	Identify sites and provide adequate land for future bulk infrastructure expansion.
<u>Water:</u> Sufficient source and storage capacity.	3	Reduce bulk water demand and Upgrade reticulation capacity.
<u>Waste Water:</u> Use conservancy tanks, pumped out by municipal honey sucker.	4	Maintain conservancy tanks and consider alternative technologies for waste water treatment.
<u>Bulk Electricity and Reticulation:</u>	5	Eskom provides electricity: sufficient electrical capacity and reticulation.
<u>Roads and Storm water:</u>	6	Maintain gravel roads.
<u>Waste:</u>	7	Weekly remove domestic waste and maintenance of transfer station.
<u>Safety and Risk Management Services:</u>	8	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT		
Element	No.	Proposals
<u>Heritage and Tourism:</u> Sandberg is a railway siding. Place Identity: Small hamlet in rural areas and Rural settlement (SPC).	9	Protect cultural and heritage resources and landscapes.
<u>Residential:</u> Urban Structure, Settlement Pattern and Layout: Village has a linear form with a row of houses along the railway line. There is a village store (shop), a primary school with a pre-primary facility and a community hall. Density: Low density settlement. Built form: All dwellings are single story dwellings. Functionality: All dwellings are within walking distance from the shop. All other services are accessed in higher order towns such as Lamberts Bay and Clanwilliam. Growth potential is low.	10	Allow sensitive development aligned with character and service capacity: Develop a small agri-village and provide space for community gardens to promote land reform.
<u>Commercial and Industrial:</u> Economic Base depends on the surrounding intensive agricultural activities. Railway services were downsized and siding is no longer in operation. <u>Commercial and Industrial:</u> Development potential in this rural settlement is limited to residential functions, which will remain the highest due to season workers looking for accommodation.	11	Promote locational advantage and revitalize railway connection and railway station.

Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Element	No.	Proposals
Social Infrastructure and Services:	12	Upgrade and maintain existing facilities.

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation:</u> Scenic routes, vistas and landscape of agricultural fields. Protect all CBA areas as per Sandberg CBA and ESA map. <u>Waterways:</u> Lambertshoek River.	13	Keep settlement entrance un-announced. Encourage tree planting.
<u>Public and Private Open Space:</u>	14	Use private cemetery at Graafwater.



5.9 Ward 4: Elands Bay

Economic Base	Place Identity	Locational Advantage	SPC
Coastal and wetland tourism node, lower order service centre, providing goods and services to surrounding local residents.	Former fishing village. Vacation and tourism destination. Scenic landscape, including coast line and beach, Distinctive fishing village character. Well-known surfing destination. Verlorenvlei River and Estuary, is an aquatic CBA area and a RAMSAR site and an "important" bird habitat for some 500 bird species and part of the Whale Watching route. Elands Bay nature reserve, north of settlement. Bobbejaanberg and home to Elands Bay Cave and Baboon Point (Cape Deseada), a Provincial heritage site and Bushmen art and paintings, Sishen railway line. Coastline determine linear layout of Elands Bay, Coastal setback lines to be implemented.	Coastal town, where Verlorenvlei River flows into the sea. Accessible from R366 road from Piketberg and N7 and via a connection road from the R365. The R27 connects Velddrif and Elands Bay and a gravel road, along the coastline, connects Elands Bay and Lamberts Bay.	Local node.

Objectives 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY			
Element	No.	Proposals	
<u>Roads:</u> R366 (2185), entering Elands Bay. MR535, south of Verlorenvlei connecting to Dwarskersbos. R540, Lamberts Bay to Leipoldtville.		None.	
<u>Activity Corridors and Streets:</u> Main Street: provides access to beach and CBD Hunter, Long and Strand Street	1	Sensitively and naturally landscape gateways to announce settlement entrances. Encourage landscaping (tree lanes) along activity streets.	
	2	Enhance industrial activity along Hunter Street.	
	3	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.	
<u>Rail:</u> Sishen-Saldanha railway.		None.	
<u>Harbour/ Launching area:</u>	4	Promote upgrading of slipway and alternative uses in structures Elands Bay harbour.	
	5	Promote improvement of passage to the sea via a slipway, for boat launching, north of Zone E.	
<u>Pedestrian/ Cycle routes:</u>	6	Develop a pedestrian and cycling link between the north eastern and south western part of the settlement: along and across the Verlorenvlei River aligned with the EMPr.	

Objective 2: Proximate, convenient and equal access

PUBLIC UTILITIES			
Element	No.	Proposals	
<u>Future Demand:</u>	7	Identify sites and provide adequate land for future bulk infrastructure expansion.	
	8	Improve telecommunications network.	
<u>Water:</u> Adequate bulk water supply, two boreholes. Water reticulation network has some spare capacity, as diameter of pipe is sufficient.	9	Promote and support sustainable use of resources – e.g. water harvesting.	
	10	Provide for additional water storage capacity of 1ML required (R5 million required, 2017).	
<u>Waste Water:</u> Sewerage treatment works is inadequate (lacks capacity) and the reticulation system is limited.	11	Provide for the general overload of the waste water system during the holiday season in summer. Decrease household reliance on conservancy tanks. Promote alternative sewerage management and reuse of treated water.	
	a)	Provide for upgrading of reticulation network and pump station, requires R15 million (2017).	
<u>Bulk Electricity and Reticulation:</u> Sufficient electrical capacity (1MVA substation, only 400KVA are used) and reticulation. Can accommodate waiting list.	12	Promote and support sustainable use of resources – e.g. alternative energy.	
<u>Roads and Storm water:</u>	13	Maintain gravel roads.	
<u>Waste:</u>	14	Maintain weekly domestic waste removal. Manage transfer stations.	
	15	Rehabilitate and manage waste site according to national norms.	
<u>Safety and Risk Management Services:</u>	16	Implement river maintenance and upgrade programme.	
	17	Caution development along the coast and around wetlands, given the risk of flooding, inundation, erosion and severe storms.	

Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT		
Element	No.	Proposals
<p>Heritage and Tourism: Protect place identity: Former fishing village and Vacation destination and local node (SPC). Baboon Point: known for its caves, which have a number of rock paintings, associated shell middens and archaeological and paleontological sites. The natural and cultural landscape features, together, record a long history of pre-colonial and 20th century human settlement. The history of San hunter-gatherers and Khoekhoe herders and their ancestors, of their reliance on marine and estuarine resource. More recently, World War II activities can be researched. Elands Bay offers a variety of residential and tourism development opportunities due to the town's location on the coast and proximity to Verlorenvlei.</p>	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	<i>Enhance settlement pattern</i> informed by coastal geometry, a 2km long beach and estuary flood lines.
	25	<i>Enhance settlement Development Potential:</i> 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).
<p>Residential: <u>Density:</u> Higher density residential development is located north east and low-density residential development is located west. Verlorenvlei is surrounded by limited development. <u>Built form:</u> Most dwellings are single story, whilst a good number are double storey, more so than in most other Cederberg towns. The overall architecture is eclectic and often does not represent the character of the landscape. <u>Functionality:</u> Most of the residential areas are located close to the CBD, except for the subsidised housing neighbourhood, located in the west of the town. Various community facilities, including the school, preschool, sports field and churches are located within this neighbourhood, whilst the CBD, police station, library and camping site is located in the central area.</p>	26	Expand residential development: <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> • 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): <ul style="list-style-type: none"> - 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 sea side of Zone D (consider coastal management line). - Promote old school site, south east 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.
<p>Commercial: <u>Economic Base:</u> Coastal and wetland tourism node, low order service centre and holiday town that mainly supplies basic goods and services to local inhabitants. Elands Bay is also known as one of the world's best surfing venues. <u>Locational Advantage:</u> Coastal town.</p>	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	<i>Renew central business district, strengthen existing uses and formalization</i> of town square in Zone A, especially at the market and restaurant area on the square along Dune Street.

Industrial:

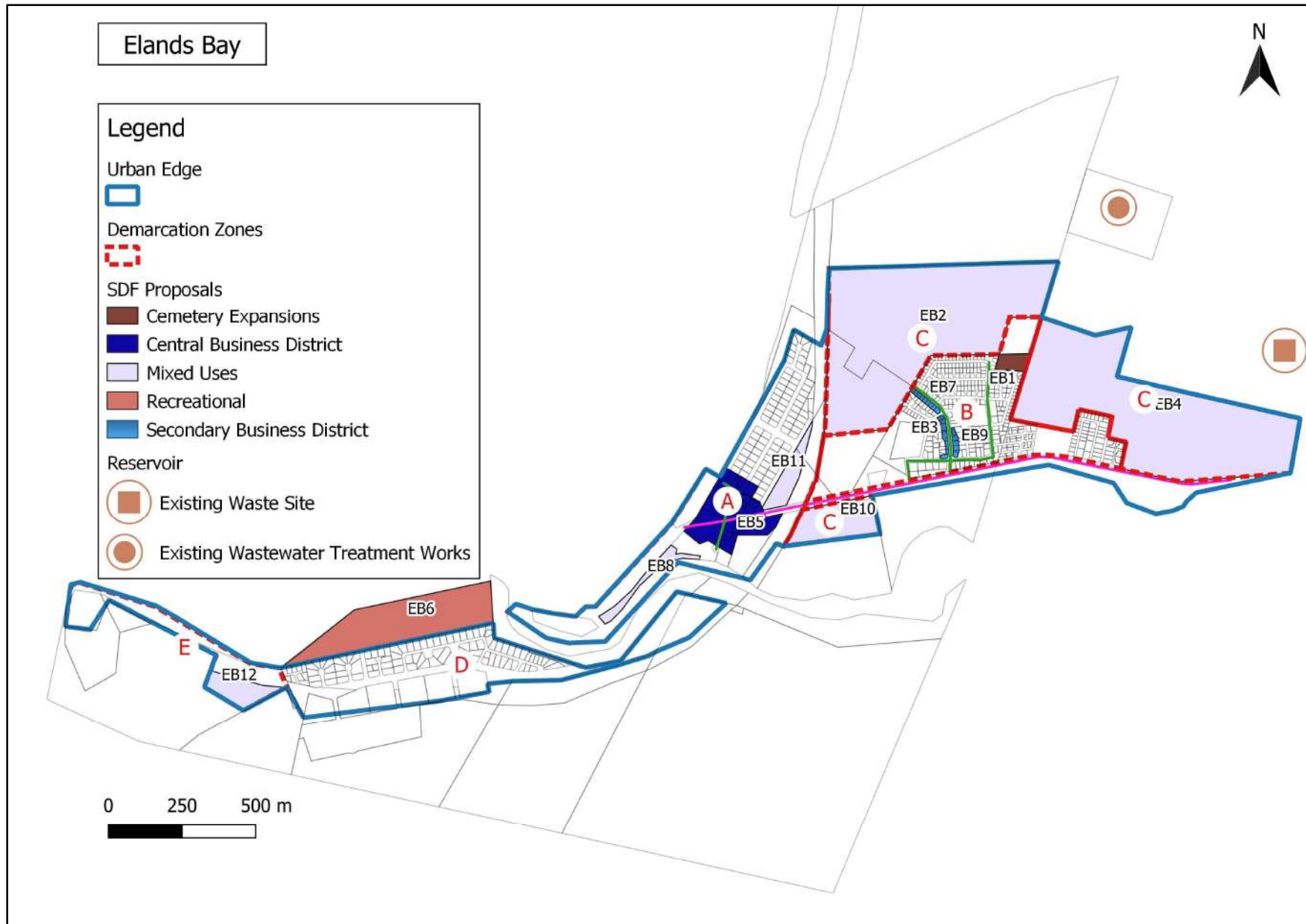
The fishing industry forms the main economic base for Elands Bay, whereas agriculture, especially potato farming, makes a steady contribution to the economy.

The industrial development's mass and scale are noticeable and characterise the town.

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.

Detailed land use proposal, as per Proposal Map

Name	Zoning, Proposed	Gross Area	Zone
EB1	Cemetery Expansions	0,6	B
EB5	Central Business District	4,8	A
EB10	Mixed Uses	3,6	C
EB2	Mixed Uses	28,5	C
EB12	Mixed Uses	1,7	E
EB6	Recreational	8,5	Outside land use zoning
EB8	Mixed Uses	1	A
EB11	Mixed Uses	1,4	A
EB4	Mixed Uses	26,7	C
EB7	Secondary Business District	0,2	B
EB9	Secondary Business District	0,2	B
EB3	Secondary Business District	0,2	B



Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Element	No.	Proposals
<u>Social Infrastructure and Services:</u>	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.

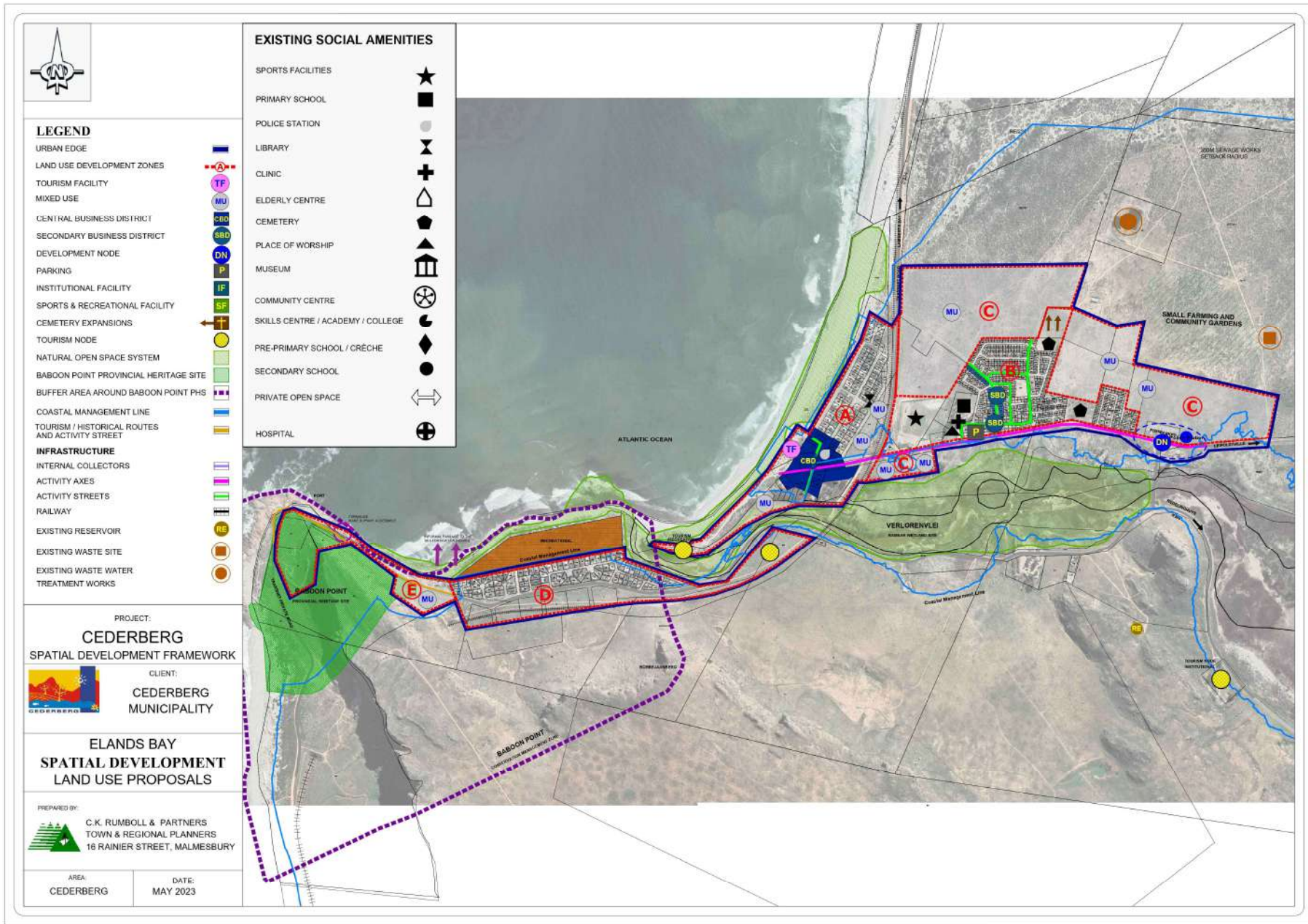
Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation:</u> Scenic routes, vistas and landscape of agricultural fields, the sea, the beaches and natural veld.	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.
<u>Waterways:</u> The Verlorenvlei River, a RAMSAR wetland site.	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 with the exception of 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.
<u>Public and Private Open Space:</u>	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, in particular, 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.

DEVELOPMENT ZONES AND PROPOSALS FOR ELANDS BAY

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

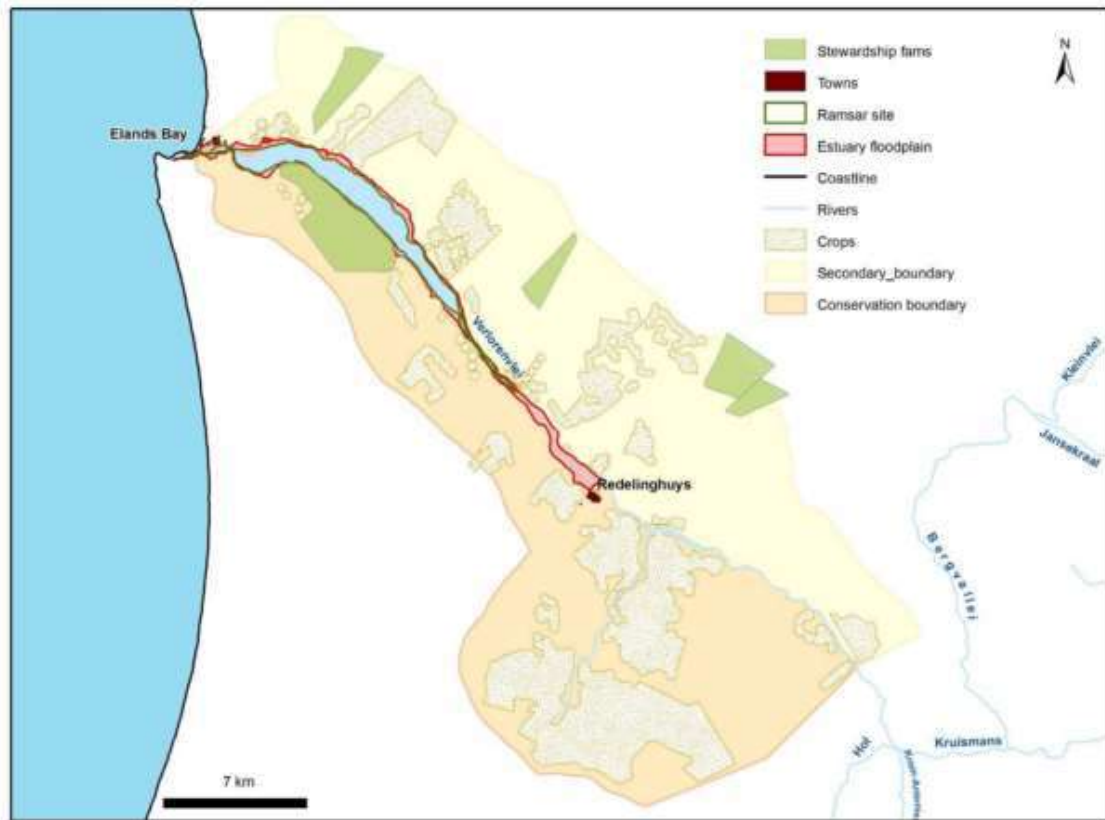
ELANDS BAY LAND USE ZONES		Low Density Residential	Medium Density Residential	High Density Residential	Place of Education	Professional Services	Business	Secondary Business	Place of Worship	Guest houses/Lodge	Authority	Sport/Recreational Facilities	Light Industrial / Service Trade & Industries	Institution
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
(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 & offices and home occupation. House taverns only to be allowed along activity streets in residential areas.												



Verlorenvlei:

Verlorenvlei is a sensitive habitat. The figure below demarcates the geographical boundaries of the **Environmental Management Plan** of the Verlorenvlei Estuary. Ecological value areas are indicated by the red estuary flood boundary. Zones indicated in red, are high sensitivity areas, orange zones are more sensitive to development than yellow zones.

Map 11: Conservation zones around Verlorenvlei.



The location of activities within the Verlorenvlei Estuary has been mapped. However, several existing activities are incompatible with the Environmental Management Plan zones. and the map should be amended to include approved existing and future developments. Development proposals pertaining to Verlorenvlei are set out below and have to be applied together with the overall development proposals for sensitive habitats.

Protect and preserve sensitive habitats and enhance ecosystems services: Verlorenvlei (SS15)

Support Cape Nature to maintain and strengthen conservation status of the Vlei:		
<ul style="list-style-type: none"> Promulgate Verlorenvlei as a Formally Protected Area and reinforce RAMSAR status. Adopt a formal conservation zoning plan for Verlorenvlei (as part of the estuary zoning plan) as proposed below: 		
Zones	Proposed Action	
	Allowed	Prohibited
Primary boundary (Red Zone – Flood Plain)	Swimming. Line Fishing. Light Grazing.	Gill netting, speed boating, driving through the flood plain, farming, sumps, discharges. solid waste dumping.
Secondary Boundary (Orange Zone)	Light grazing. Development. Recreational Areas.	Farming. Solid waste dumping.
Secondary Boundary (Yellow Zone)	Recreational areas. Grazing, Farming. Development.	Solid waste dumping.
<ul style="list-style-type: none"> Obtain formal protection of the heritage areas in and around Verlorenvlei. Prepare and implement a rehabilitation and restoration programme for Verlorenvlei. Develop and implement a climate change adoption plan for Verlorenvlei (in response to change in freshwater flow, sea level rise, etc.). Investigate the viability of fishing competitions (for alien fish) and aquaculture in Verlorenvlei. 		
Promote Water Quality (including waste water and management) protection:		
<ul style="list-style-type: none"> Determine the comprehensive ecological water requirements of Verlorenvlei. Develop and implement a water resource utilization plan (including registration and licensing). Prepare and implement a Verlorenvlei mouth management protocol (to improve connection with the sea). Address sanitation and sewage treatment facilities in Elands Bay (cross boundary: Redelinghuys). Appropriately manage solid waste dump sites along Verlorenvlei. Provide incentives for rural areas along and around the Vlei to dispose of their waste at a properly managed transfer station at Elands Bay. Support composting according to national norms and guidelines. 		
Protect agricultural integrity:		
<ul style="list-style-type: none"> Develop and implement agricultural best practice, specifically to reduce nutrient enriched return flow and sediment erosion. Develop and implement protocol for reed management in Verlorenvlei (addressing excessive growth and harvesting). Manage and control salt marsh grazing in Verlorenvlei. 		
Strengthen town and tourism development:		
<ul style="list-style-type: none"> Remove or upgrade of road crossings through Working Wetlands programme to improve the water flow and volumes. Ensure appropriate development in and around Verlorenvlei as per Verlorenvlei guideline and Estuary Management Plan (Draft, 2021). Increase and improve access (e.g. for birding) in Verlorenvlei. Establish the Verlorenvlei Estuary Forum, comprised of broader representation from the relevant government authorities and the community, TWGs (or liaison teams) and chairperson. Develop and deploy a human resource plan for implementation of the Verlorenvlei EMP. Develop and deploy an education and awareness programme for Verlorenvlei. Prepare a financial plan for the implementation of the Verlorenvlei EMP. 		

Baboon Point:

Archaeological heritage, such as Baboon Point, is a non-renewable resource, which provides irreplaceable evidence of the cultural and natural past, relating to and extending beyond collective community memory. The spatial strategies and development proposals at municipal level, listed below and informed by the **Baboon Point Conservation Plan**, address the challenges regarding conservation, protection and preservation of several heritage resources i.e. the Mid-Holocene raised beach (1), Fishing Industry migrant labour compound (2), WWII barracks (3), BPM shell midden and artefact scatter (4), WWII generator building (5), Cape Deseada shell midden (6), Middle Stone Age site (7), Unnamed rock painting (8), Elands Bay Cave (9), WWII radar station (10), Rubbish pit midden (11), Elands bay Open shell midden (12), Late pottery site compels (13) and Hailstorm midden (13).

Map 12: Baboon Point Heritage Resources



UNESCO requires a World Heritage Site to have a clearly defined core and buffer area/s and that land use and activities within these buffer areas are controlled in order to safeguard the authenticity and integrity of the values of a World Heritage Site. The National Heritage Resources Act (1999), Section 28(2), also makes provision for the establishment of buffer areas.

There are a number of important elements in the cultural landscape which requires the designation of a Buffer Area. These include the prominence of the Point with the old crayfish factory at its base, the view of the north facing cliffs and slopes from Elands Bay town and beaches, the view from the Elands Bay Cave (much the same as the people who inhabited the Point over the last 3000 years would have experienced it), the natural splendour of the setting with Verlorenvlei estuary and the sand dunes of the

Elands Bay Nature Reserve, and the layered history of reliance on the sea for survival. Accordingly, the proposed Buffer Area is defined as follows:

- To the south, by the southern land limit of the view extent from the Elands Bay Cave.
- To the east, by the Point where the existing urban development meets the Verlorenvlei estuary.
- To the south-east, by the northern facing cliffs and slopes of the Bobbejaanberg.
- To the north to include the old crayfish factory.

Map 13: Baboon Point Buffer Area.



The proposals to follow have to be applied together with the overall development proposals for heritage resources and areas.

Protect heritage resources (SS11) and Grow cultural potential: Baboon Point (SS12)

- To safeguard the Baboon Point PHS and broader cultural landscape:
- Designate the Buffer Area as a Protected Area in terms of Section 28 of the National Heritage Resources Act (1999).
 - Engage with the relevant landowners and other stakeholders (HWC to facilitate), to formalise the associated development guidelines for the Buffer Area.
 - Manage expectations and conflicting development rights effectively and sensitively management: restrictive development vs the advantages of a well-managed PHS opening up further possibilities for the land owners e.g. tourism or a high-end ‘eco-estate’ that relies strongly on inherent natural landscape qualities.
 - Proclaim incorporated buffer area as Heritage Area in terms of Section 31 of the National Heritage Resources Act (1999), and as Heritage Area Overlay Zone (HAOZ) Western Cape Provincial Zoning Scheme Model.
 - Apply Section 28 or Section 29 of the National Heritage Resources Act; allowing for provisional protection of a heritage area for a period of two years, should it be required.

Protect Baboon Point which survives within the landscape and, within that context:

- Protect and preserve heritage resources: manage the unique historic landscape of Baboon Point to the advantage of locals and humankind as a whole (As per Conservation Management Plan (CMP)).
- Embrace linkages of the site and its historical cultural landscape to the broader cultural landscape and the local people.
- Strengthen the sense of place of the site and broader cultural landscape.
- Sustainably utilise the site and the resources of the broader landscape to the benefit of local people.
- Seek solutions in close cooperation with stakeholders.
- Foster local custodianship.

Development guidelines for the Buffer Area follow:

- Land use within areas zoned as Agriculture Zone 1 should be limited to stock farming and grazing within the carrying capacity. No feedlots or ploughed fields should for example be further developed.
- Development on properties zoned as Agriculture Zone 1 should be limited to a single homestead with associated outbuildings, with consent/departures required for any additional houses.
- Enterprise development consent land uses as contemplated under the relevant zoning schedules should be aligned with heritage related local economic development and should enhance the overall heritage “package” of Baboon Point and Elands Bay. Enterprise development land uses should be compatible with the Community Benefit Plan (See Baboon Point Conservation Management Plan).
- Architectural guidelines need to be developed, for example:
 - The style of new structures should be such that allow for blending into the landscape.
 - Natural material or materials similar in appearance to those used at the old crayfish factory should be used.
 - Natural colours which blend in with the natural landscape must be used.
- Buildings outside of residential zones should be limited to one storey in height.

5.10 Ward 5: Lamberts Bay

Economic Base	Place Identity	Locational Advantage	SPC
Coastal tourism node, situated along the West Coast, approximately 290km north of Cape Town and 62km west of Clanwilliam. Fertile agricultural soil, but low rainfall.	Former fishing village, vacation destination (along coast, two caravan parks, golf course), tourism attraction: Bird Island, with bird colonies, fed by Benguela current, carrying food for pelagic fish, serving as food source for seals and birds. Coastline and coastal setback line, impact on layout: Harbour, developed around a rocky promontory. Sishen railway line, serve as buffer between settlement and terrestrial CBA (SANBI). Fish processing infrastructure replaced to process (KFC and Mc Cain's) and export Sandveld potatoes. Jakkalsvlei River has an Aquatic CBA (SANBI) area (north of town).	Coastal town, where the Jakkals River flows into the sea. R365 road connects to Clanwilliam, serves as only 'official' entrance of the town.	Local node.

Objectives 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY		
Element	No.	Proposals
<u>Roads:</u> R364 and 365 connects. R365 and run parallel to the coastline through Lamberts Bay.	1	Promote links to N7, Clanwilliam and Graafwater.
	2	Promote connectivity to West Coast and Northern Cape.
<u>Activity Corridors and Streets:</u> Van Zyl, Ferreira and Lizzy Brett Burrel, Church and Main Street, Corporation, Voortrekker and Strand.	3	Encourage landscaping along activity streets. Sensitive 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.
<u>Rail:</u> Sishen-Saldanha railway runs east of Lamberts Bay.		None.
<u>Pedestrian/ Cycle routes:</u>	6	Develop a pedestrian and cycling link along coast.

Objective 2: Proximate, convenient and equal access

PUBLIC UTILITIES		
Element	No.	Proposals
<u>Future Demand:</u>	7	Identify sites and provide adequate land for future bulk infrastructure expansion.
<u>Water:</u> Inadequate bulk water supply (boreholes) and borehole balancing dam capacity. Desalination plant built but not in operation.	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).
<u>Waste Water:</u> Sewerage works upgraded but reticulation pipe capacity is inadequate. Connect unconnected precincts to new sewer works.		None.
<u>Bulk Electricity and Reticulation:</u> Electricity supply of 2.7MVA is insufficient.	11	Upgrade electricity capacity from 2.7MVA to 3.5MVA (as part of proposed housing development).
<u>Roads and Storm water:</u>	12	Maintain gravel roads.
<u>Waste:</u>	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 north east of Lamberts Bay, outside urban edge, at eastern entrance, east of railway bridge.
<u>Safety and Risk Management Services:</u>	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.

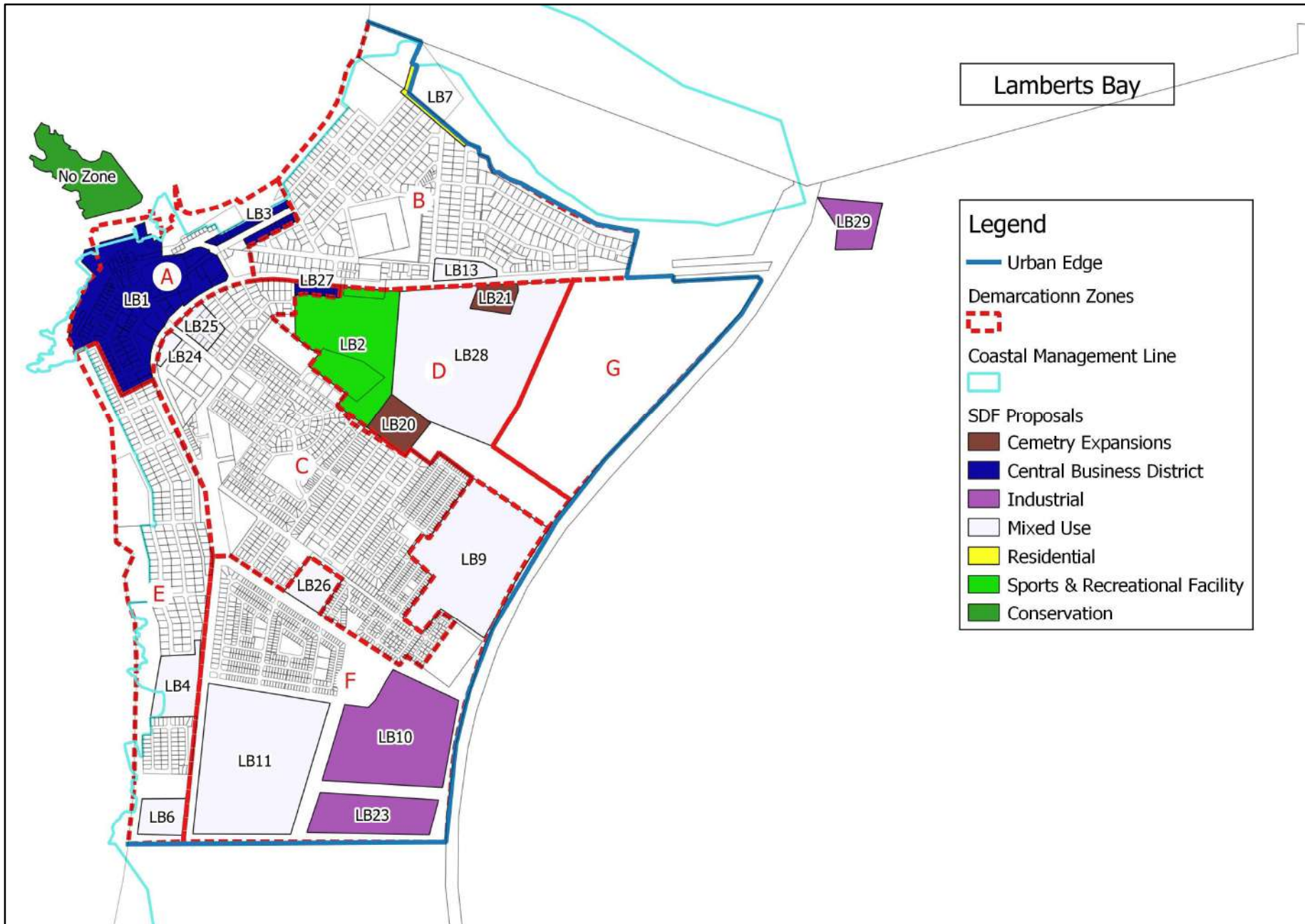
Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT		
Element	No.	Proposals
<p><u>Heritage and Tourism:</u> Protect Place Identity: Former fishing village, vacation destination and local node (SPC). Coastal town: Lambert's Bay was established on the Farm Otterdam and the owner, Joseph Carl Stephan, used the natural harbour for exporting wheat from neighbouring farms. The Marine hotel was built in 1888 by Stephan.</p> <p>Lambert's Bay, named after Admiral Lambert of the British Navy, was used as a lay-up for British warships (1900-1902). A crayfish factory was started in 1918.</p> <p><u>Settlement Pattern:</u> Lamberts Bay, seaward of R365, comprises a rectangular grid, aligned with the coast line. The grid extended inland of R365 along Burrel Street, linking directly to the two squares in the central business district. Later extensions represent curvilinear street networks. Industrial areas are located adjacent to the harbour. Business areas are concentrated around the activity axis in Church Street.</p>	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.
<p><u>Residential:</u> <u>Density:</u> High density residential development is located east, whilst low density residential development is located north and south; mixed densities in CBD. <u>Built form:</u> Historical elements: e.g. the brick factory chimney and some Cape Dutch revival buildings. Most historic buildings have been renovated in such a way as to leave little trace of their heritage. New buildings are utilitarian in design. Dwellings along the coast are a mixture of single and double story buildings, with mostly single-story dwellings in the high-density residential area. <u>Functionality:</u> Residential areas located close to CBD, except eastern precinct. Various community facilities, i.e. the schools, churches, sportsgrounds and limited commercial activities, are located in this neighbourhood.</p>	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.
	<p><u>Commercial:</u> <u>Growth and Development potential:</u> Lamberts Bay, a coastal town, historical fisherman's harbour, with a mild climate, beautiful scenery, offers peaceful living possibilities, either residential or tourism development. <u>Enhance expansion of residential, industrial and commercial uses:</u> Lamberts Bay has seen a significant increase, in the lower- and middle-income groups, in the past decade. This migration is due to the economic impetus of tourism and rural coastal lifestyle living.</p>	29
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.
<p><u>Industrial:</u> <u>Economic Base and Locational advantage:</u> Coastal tourism node: Known as 'the Diamond of the West Coast', because of its white beaches, wildlife and lobsters. Mainly functions as processing site for primary industries (fish, lobster or potatoes). Tourist attractions: An impressive coastline and unique Bird Island. Generally, the mass and scale of industrial developments, in relation to any other development type, dominates. Has been an integral part of the heart of the town.</p>	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 north east 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).

Detailed land use proposal, as per Proposal Map

Name	Zoning, Proposed	Gross Area	Zone
LB1	Central Business District	17,33	A
LB2	Sports & Recreational Facility	12,77	D
LB3	Central Business District	0,99	A
LB4	Mixed Use	3,46	E
LB5	Central Business District	0,63	A
LB6	Mixed Use	2,07	E
LB7	Residential	0,74	B
LB9	Mixed Use	15,04	F
LB10	Industrial	12,34	F
LB11	Mixed Use	18,01	F
LB13	Mixed Use	1,42	B
LB20	Cemetery Expansions	2,54	D
LB21	Cemetery Expansions	1,43	D
LB23	Industrial	5,93	F
LB24	Mixed Use	0,53	C
LB25	Mixed Use	1,57	C
LB26	Mixed Use	2,11	F
LB27	Central Business District	0,68	C
LB28	Mixed Use	24,69	D
LB29	Industrial	2,9	Outside Urban Edge
No Zone	Conservation	5,99	Outside Urban Edge



Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Element	No.	Proposals
<u>Social Infrastructure and Services:</u>	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.

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation:</u> Soil around Lamberts Bay is fertile, but water is scarce, with an annual rainfall of 100 – 200mm per annum only. The settlement is already dependent on groundwater and there are concerns about water table levels. Jakkalsvlei River is an Aquatic Critical Biodiversity Area (CBA). A terrestrial CBA has been indicated around the east of the settlement, roughly in line with the railway	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.
<u>Waterways:</u> Jakkals River	48	Limit urban development and intense agriculture within 32 meters of the Jakkals River bank.
	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 area (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.
<u>Public and Private Open Space:</u>	50	Provide for expansion of existing cemeteries in Zone D.

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).

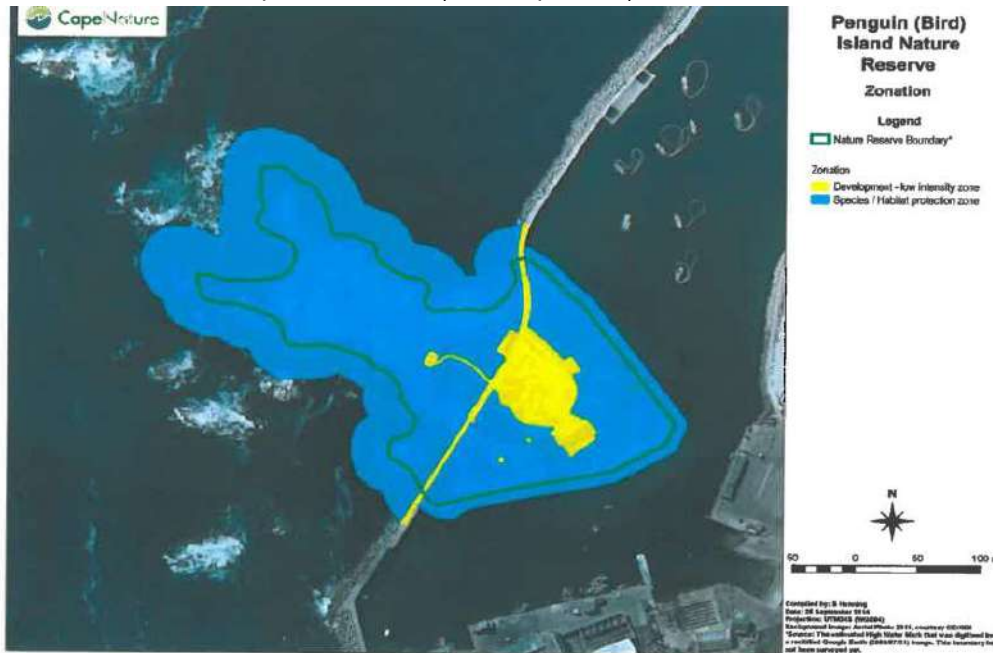


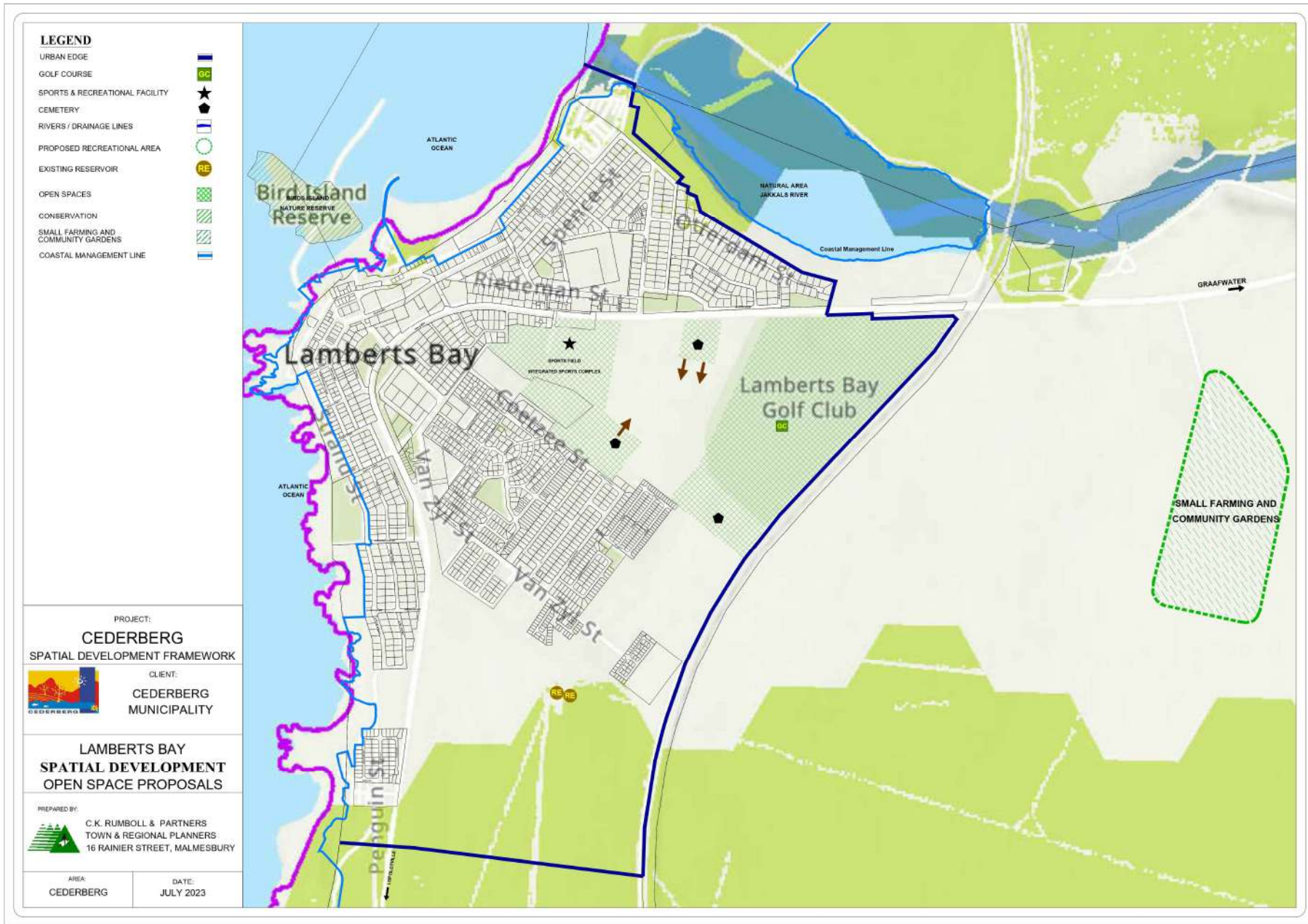
Figure 5.3 Zonation map of Penguin (Bird) Island Nature Reserve

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.

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



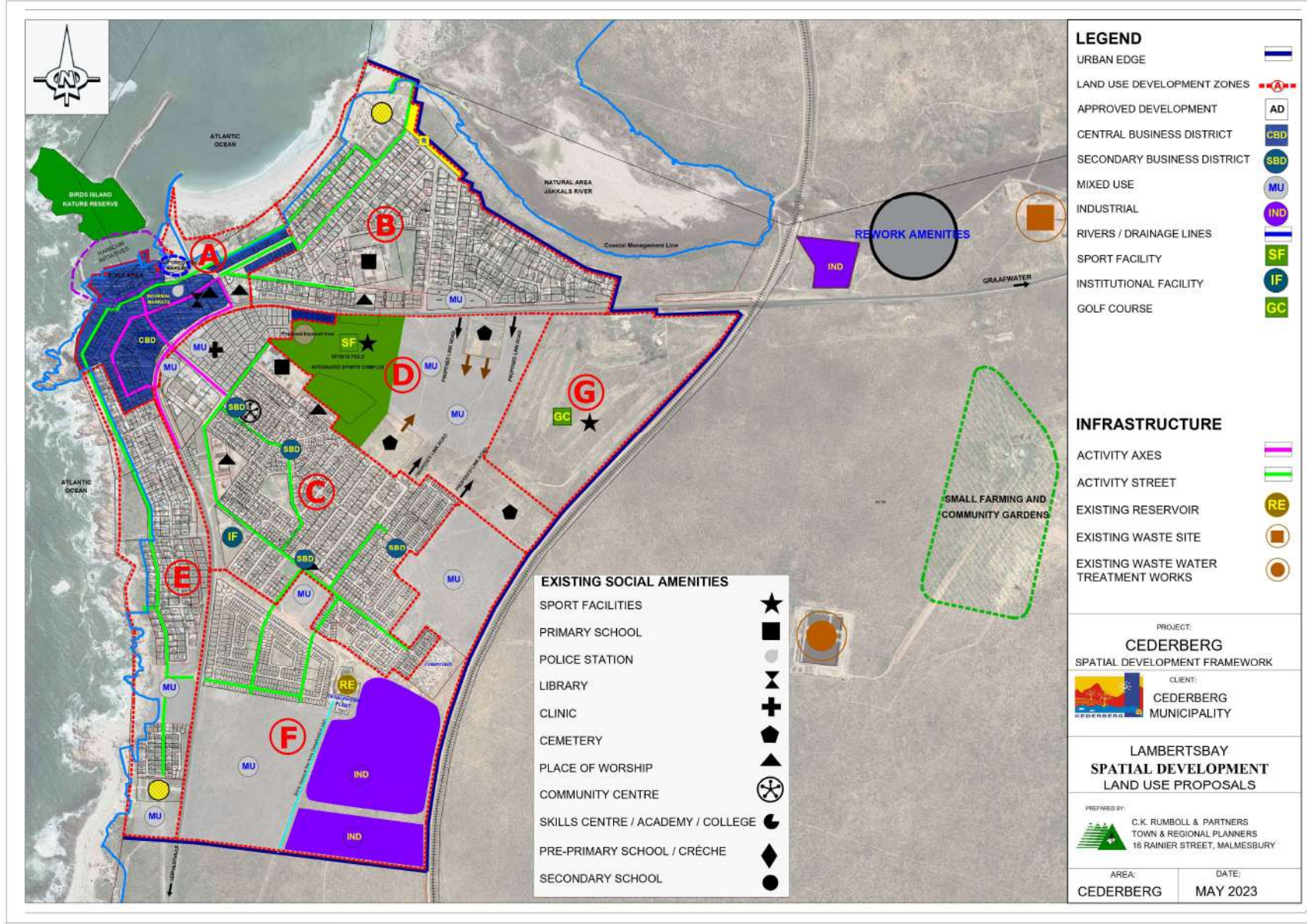
- Ensure biodiversity conservation management through monitoring and research, with an emphasis on the Cape gannet.
- Promote and provide sustainable, eco-sensitive and quality tourism products, contributing to the economy of the West Coast Region.
- Achieve management excellence through cooperative 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.



DEVELOPMENT ZONES AND PROPOSALS FOR LAMBERTS BAY

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

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 3	X	X	X	X	X	X 4	X
D	Zone D is an industrial /mixed use precinct including recreational facilities provides 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
G	Zone G is the golf course and provides for recreation activities.		X	X	X	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 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.												



5.11 Ward 5: Leipoldville

Economic Base	Place Identity	Locational Advantage	SPC
Agri-tourism node: providing for surrounding rural residents of Langvlei River Valley and Wadrif "soutpad" area.	Historic Sandveld village established by the Dutch Reform church. Spioenkop, part of Langvlei Mountains (North West). Langvlei River located south. Bobbejaanfontein Mountains (South East).	Accessible from the R365, connecting Paleisheuvel with Lamberts Bay. Also, via R364 that connects Graafwater with Lamberts Bay (Graafwater - Lamberts Bay - Vredendal Rd).	Rural settlement.

Objectives 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY		
Element	No.	Proposals
<u>Roads:</u> R365 (538) runs along northern boundary of Leipoldville.	1	Promote connectivity to West Coast.
<u>Activity Corridors and Streets:</u> Activity corridor: north eastern entrance into Leipoldville. Activity Street: main road in town towards the church.	2	Place new commercial buildings next to main activity corridor and street.
<u>Rail:</u>		None.
<u>Pedestrian/ Cycle routes:</u>	3	Promote signage between the connecting roads. Encourage a dedicated lane for cyclists and pedestrians.

Objective 2: Proximate convenient and equal access

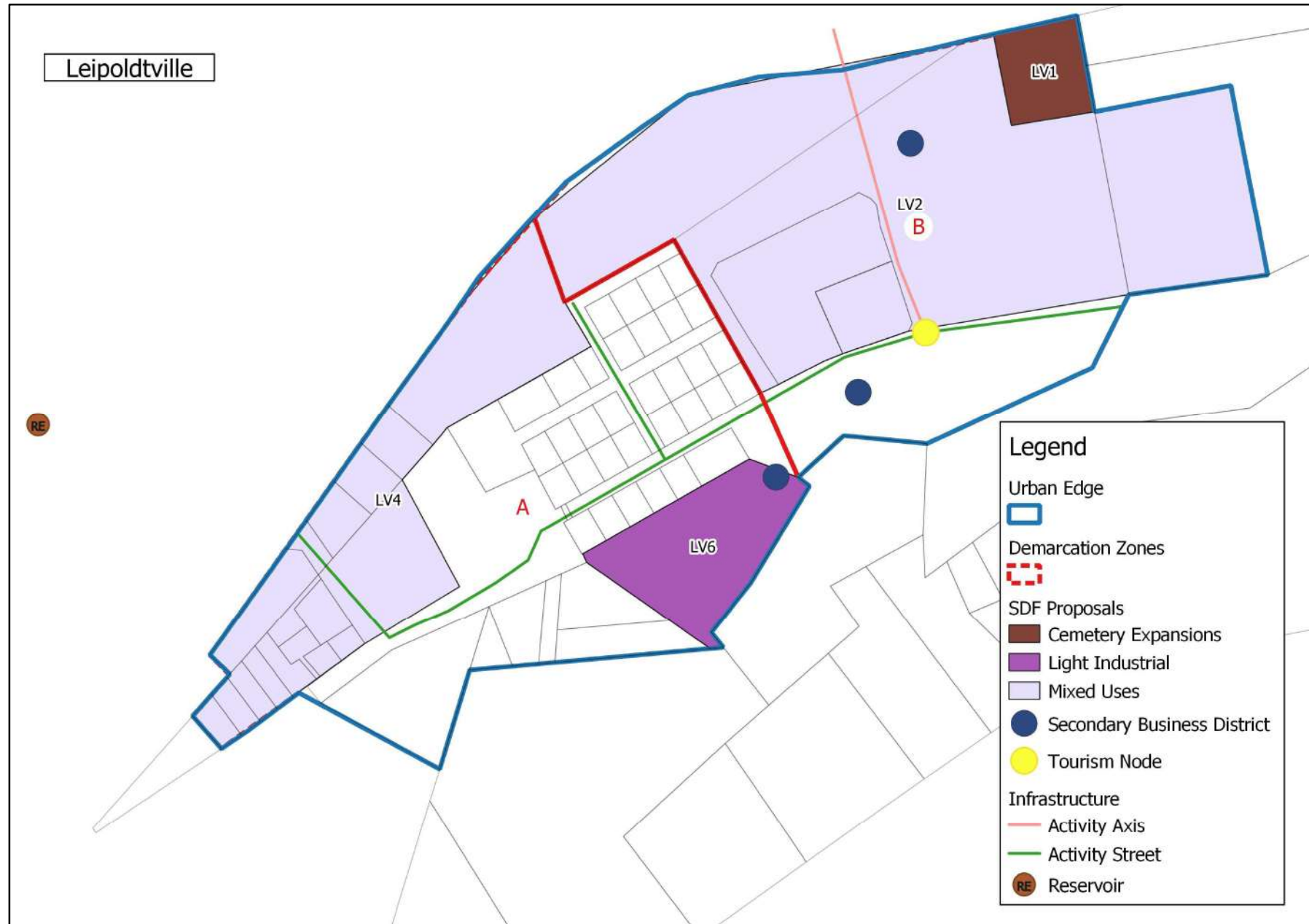
PUBLIC UTILITIES		
Element	No.	Proposals
<u>Future Demand:</u>	4	Provide adequate land for future bulk infrastructure expansion: reservoirs, overhead power lines, future roads and a water pipeline.
<u>Water:</u>	5	Reduce bulk water demand and identify new source as iron content of boreholes is too high.
	6	Provide for storage capacity to be increased as new 0.5MI reservoir is required. Reticulation capacity will have to be established.
<u>Waste Water:</u> No formal sewerage system. Some septic tanks and bucket system being used.	7	Provide waste removal services.
	8	A bulk sewerage treatment plant is needed, including a pipe network (reticulation capacity). Promote alternative sewerage management technologies.
<u>Bulk Electricity and Reticulation:</u> Electricity is provided by ESKOM and there is sufficient electrical and reticulation network capacity.		None.
<u>Roads and Storm water:</u>	9	Maintain gravel roads.
<u>Waste:</u>	10	Maintain weekly domestic waste removal and maintain transfer station.
<u>Safety and Risk Management Services:</u>	11	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Objective 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT		
Element	No.	Proposals
<p><u>Heritage and Tourism:</u> This historic Sandveld village is named after the Reverend C F Leipoldt, a Dutch Reformed minister in Clanwilliam, from 1884 to 1910, and father of the Afrikaans poet C. Louis Leipoldt. Protect Place Identity: Historic Sandveld village and rural settlement (SPC). Control alterations and demolitions of buildings older than 60 years. Conserve graded buildings, areas and features.</p>	12	Formalise the establishment of a settlement.
	13	Protect settlement pattern.
	14	Develop tourism potential.
<p><u>Residential:</u> <u>Density:</u> Leipoldtville has a low residential density character. <u>Built form:</u> Dwellings are early 1900 and 50s: Very few houses reflect typical West Coast and Sandveld building style. Dwellings are single story. Industrial development's mass and scale is medium and has become part of town character. <u>Functionality:</u> Community facilities, including a school, church and cemetery, are located in the central area. <u>Growth potential:</u> A limited economic base exists which full-fills a role of local service point for the surrounding agricultural economy. The existing urban form of Leipoldtville is relatively compact and is limited by the R365 and the natural stream on the southern boundary. The R365 also restricts future integration of the different areas in Leipoldtville. The agri-service and tourism role that the settlement fulfils can be expanded. The need for residential functions will remain the highest due to season workers looking for accommodation, either in the hamlet or nearby, and even to settle close to the seasonal work opportunities. <u>Development potential:</u> Leipoldtville has low economic growth potential. <u>Settlement Pattern:</u> Main route, R365 links Piketberg and Lamberts Bay. R364 meets R365 at town entrance and entrance road is an activity axis. No formal industrial area, yet some Agri-industrial activities. Business area limited and concentrated around main access route.</p>	15	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.
	16	Provide 12.1ha land to accommodate residential growth until 2031 in Leipoldtville.
<p><u>Land Reform:</u></p>	17	Develop a small agri-village and provide space for community gardens north of Leipoldtville outside urban edge and in LV2, west of eastern entrance.
	18	Enhance Agri-industrial development.
<p><u>Commercial and Industrial:</u> Economic Base: Agri-tourism node, limited economic base, local service point for surrounding agricultural community. Service function is limited, primarily social i.e. a primary school and church, general dealer, service station and BandB facility. There is no formal industrial area but agri-industrial activities exist. Business is limited and primarily centre around the main access north and south-east.</p>	19	Any proposed development should be consistent with and sympathetic to the rural hamlet character, scale and architecture of the settlement.
<p><u>Locational Advantage</u> Connection between Elands Bay and Graafwater and N7 Development potential in this rural settlement is limited to residential functions. The isolation of the settlement limits higher development potential.</p>		

As per Proposal Map

Name	Zoning, Proposed	Gross Area	Zone
Name	Zoning_PRP	Gross_Area	Zone
LV1	Cemetery Expansions	0,6	B
LV6	Light Industrial	1,5	A
LV3	Sports & Recreational Facility	0,9	A
LV4	Mixed Uses	4,2	A
LV2	Mixed Uses	11,2	B

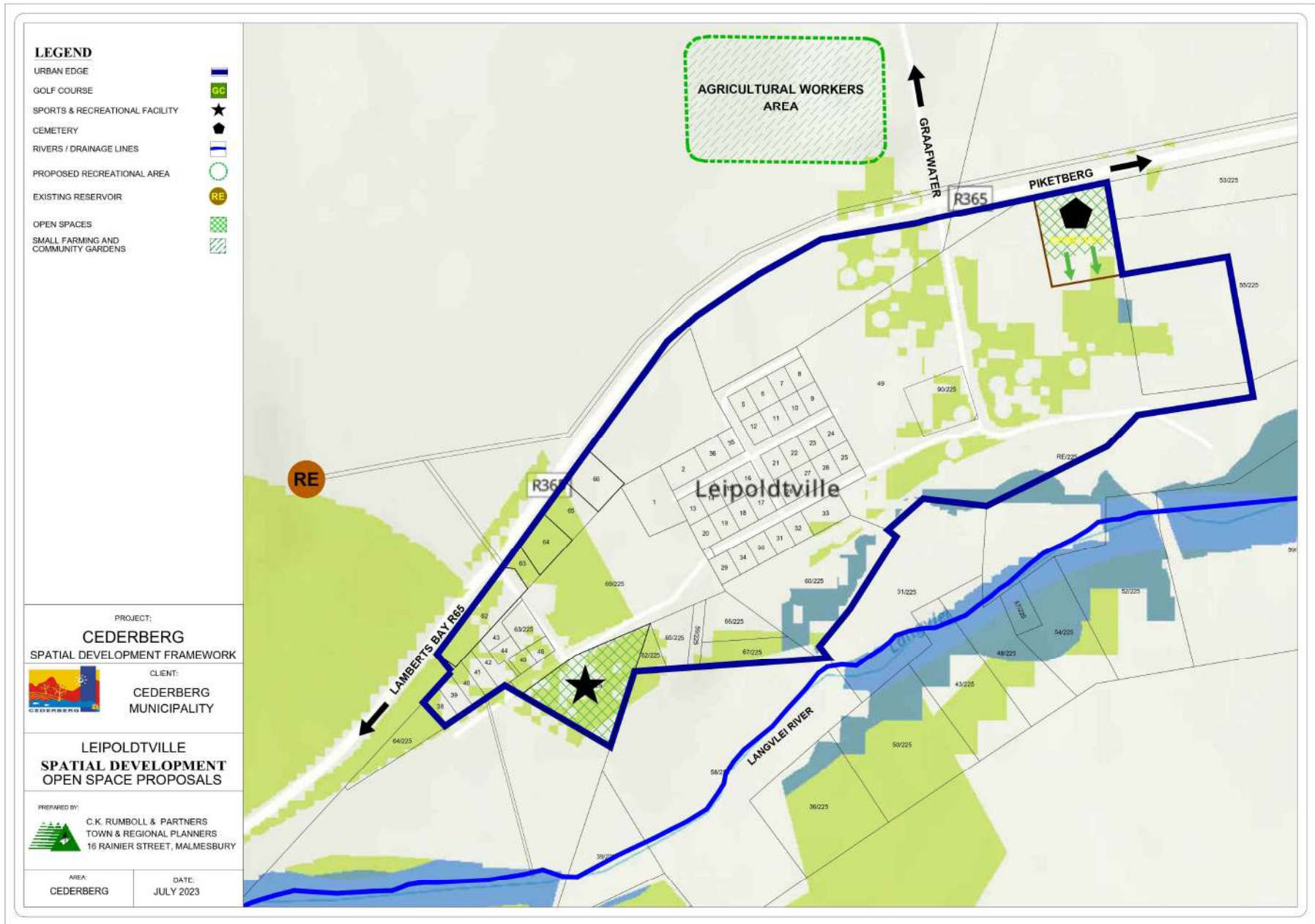


Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation:</u>	19	Protect all CBA areas as per Leopoldtville CBA and ESA map.
Scenic routes, vistas and agricultural landscape.	20	Sensitively and naturally landscape gateways to announce settlement entrances.
<u>Waterways:</u>		None.
<u>Public and Private Open Space:</u>	21	Provide for expansion of the existing cemetery.

Objective 3: Sustain material, physical and social wellbeing

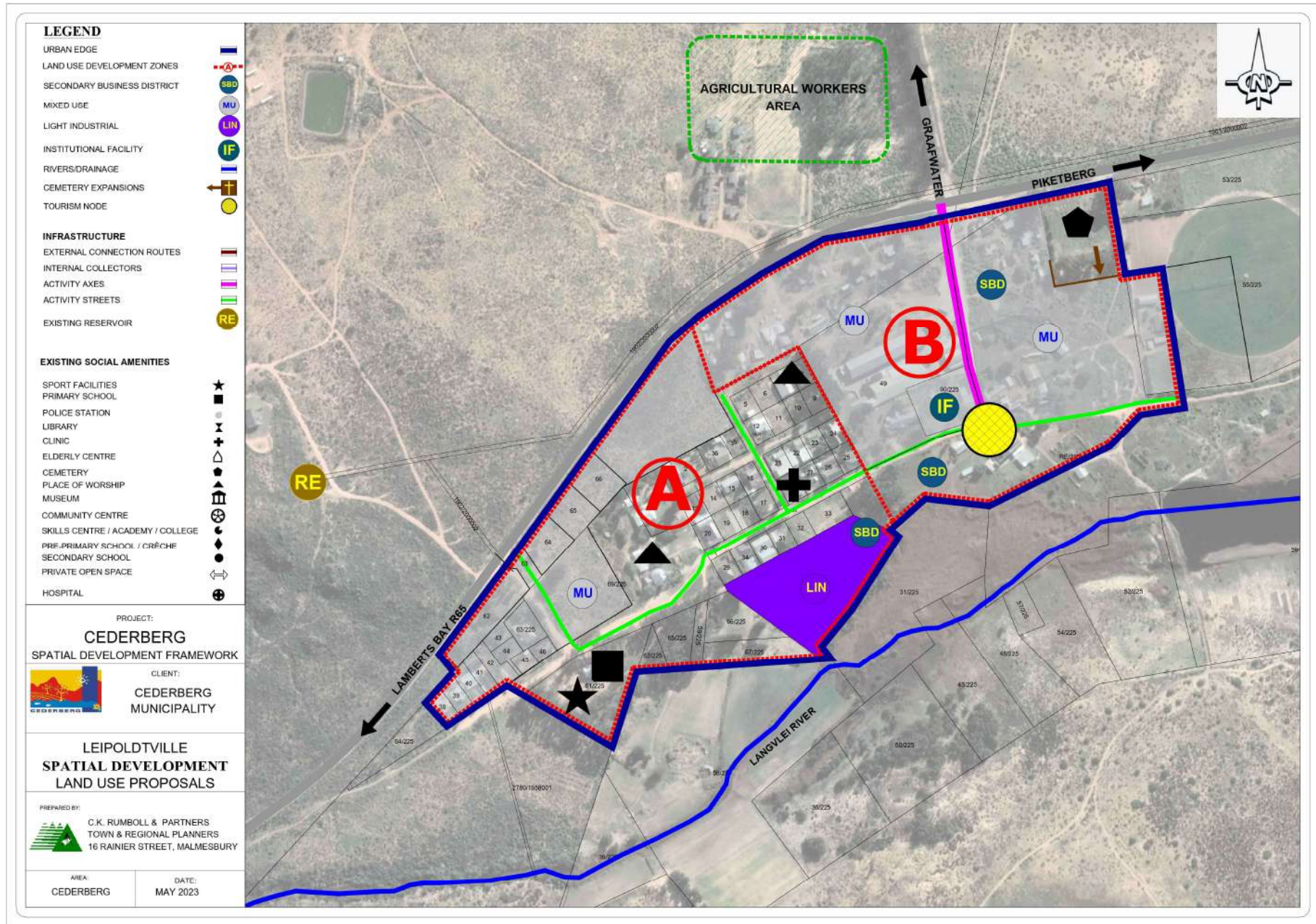
PUBLIC INSTITUTIONS		
Element	No.	Proposals
<u>Social Infrastructure and Services:</u>	22	Upgrade and maintain existing facilities.



DEVELOPMENT ZONES AND PROPOSALS FOR LEIPOLDTVILLE

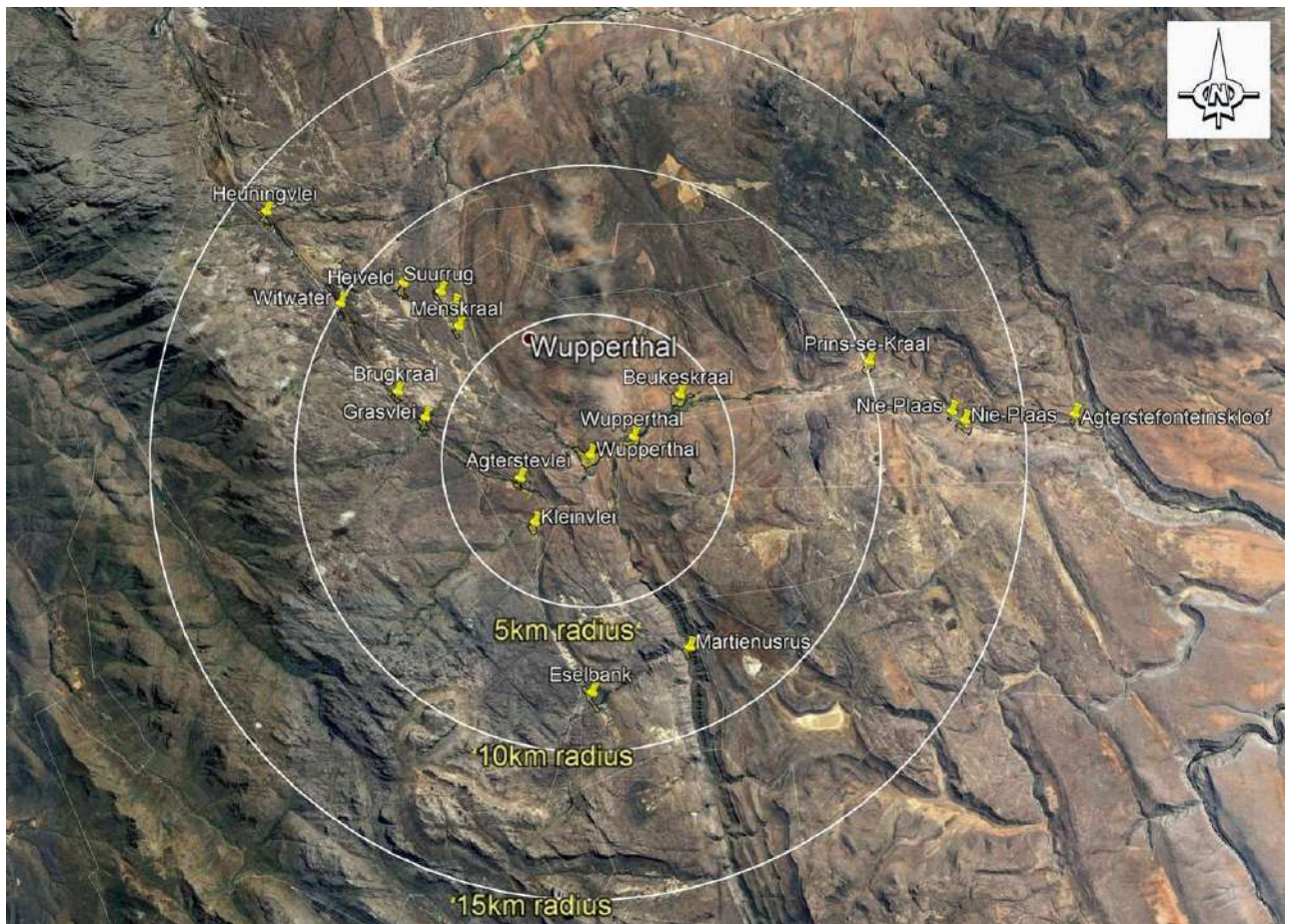
The table in this section describes development zones identified in Leipoldtville and lists development options for each zone. The table has to be read in conjunction with Development Zone plans for Leipoldtville.

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	X 3	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, secondary business node a well as tourism nodes with supporting social services.	X	X	X	X	X	X 2 3 4	X 3 2 4	X	X	X	X	X 4	X
(1) Flats along activity streets and at nodes (2) At existing nodes (3) Along activity streets (4) At identified Mixed Use Precincts		<p>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 & offices and home occupation. House taverns only to be allowed along activity streets in residential areas.</p>												



5.12 Ward 6: Wupperthal

Economic Base	Place Identity	Locational Advantage	SPC
<p>Velskoene (historically), Residential, agriculture (small-scale agriculture or livestock farming as livelihood, rooibos tea as cash crop, mountainous areas provides reasonable grazing for goats), conservation and eco-tourism: scenic Wilderness landscapes, wildflowers, rock art at Boesmanskloof, historical buildings and in August and September, attract tourists for the flower season.</p> <p>Approximately 67km from Clanwilliam.</p>	<p>Small, most isolated settlement in rural area, having fourteen outposts i.e. Eselbank, Heuningvlei, Brugkraal, Kleinvlei and Langkloof, and land owned by Moravian Church. Cederberg Wilderness area, wedged within Cederberg Mountains range and Tra-Tra River with multitude of perennial and non-perennial streams as main water source. Topography and fertile soil dictated hamlet layout. Community facilities include the Moravian Church, a shop, a tea room, a post office, a school with two hostels and a community hall.</p>	<p>Access is via R364, a gravel road from Clanwilliam, over the Pakhuis Pass.</p> <p>Northern tip of Cederberg Wilderness area.</p>	<p>Rural hamlet.</p>



Objectives 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY		
Protect	No.	Proposals
<p><u>Roads:</u> A minor dirt road from the north link up with a divisional road (2262).</p>		None.
<p><u>Activity Corridors and Streets:</u> Existing Node</p>		None.
<p><u>Rail:</u></p>		None.
<p><u>Pedestrian/ Cycle routes:</u></p>		See tourism.

Objective 2: Proximate convenient and equal access

PUBLIC UTILITIES		
Element	No.	Proposals
<u>Future Demand:</u>	1	Identify sites and provide land for limited demand for future bulk infrastructure.
<u>Water:</u> Tra-Tra River is the bulk water supply source and is sufficient. Storage capacity which is sufficient.	2	Reduce bulk water demand.
	3	Maintain the storage capacity. Upgrade the reticulation network.
<u>Waste Water:</u> Sufficient oxidation ponds capacity as waterborne sewerage is provided at some hamlets whilst UDS is provided at Heuning and Moddervlei and Eselsbank. The reticulation capacity is also sufficient. However, ponds need to be maintained.		None.
<u>Bulk Electricity and Reticulation:</u> Eskom provides electricity and there is sufficient supply and reticulation capacity.		None.
<u>Roads and Storm water:</u>	4	Maintain gravel roads.
<u>Waste:</u>	5	Weekly removal of domestic waste. Manage transfer stations.
<u>Safety and Risk Management Services:</u>	6	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Objective 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT		
Element	No.	Proposals
<u>Heritage and Tourism:</u> Place Identity: Small settlement in rural area, having several nodes (14 outposts) that are part of the settlement and Rural settlement (SPC). Wupperthal (sometimes also spelt Wuppertal), a mission station, was founded in 1830 by two German missionaries of the Rhenish Missionary Society. In 1965, Wupperthal was transferred to the Moravian Church. Eselsbank forms part of the outlying hamlets of Wupperthal.	7	Protect heritage resources and promote the “Velskoen” workshop and Rooibos processing facility as tourist attractions. Control alterations and demolitions of buildings older than 60 years
	8	Enhance Settlement Pattern. <i>Wupperthal primarily consists of a residential precinct with a community node.</i>
	9	Maintain overall mass and scale, new, similar use, building should blend into existing mass and scale. <i>There are only single storey buildings, mostly residential, in Wupperthal.</i>
<u>Residential:</u> The main settlement has two residential nodes adjacent to the church, community hall and a shop. There is also a precinct with food gardens along a tributary of Tra-Tra River. Dwellings are single story rural cottages with thatched roofs (of which some have been replaced after the fire). Wupperthal’s development potential is limited by its heritage and isolated location within the Cederberg Wilderness area. It has become a tourism attraction, offering wildflowers, rock art and the missionary village.		None.
<u>Commercial and Industrial:</u> Economic Base: Conservation, agriculture and tourism. Locational Advantage: Northern tip of Cederberg Wilderness area.	10	Strengthen velskoen making and Rooibos processing associated with Wupperthal and include these as tourist attractions. Strengthen tourism and agri-processing projects i.e. 4x4 route, two guest houses and the upgrading of a tea processing facility. Enhance use that promote agri- and conservation tourism (rock art, flowers and heritage resources).

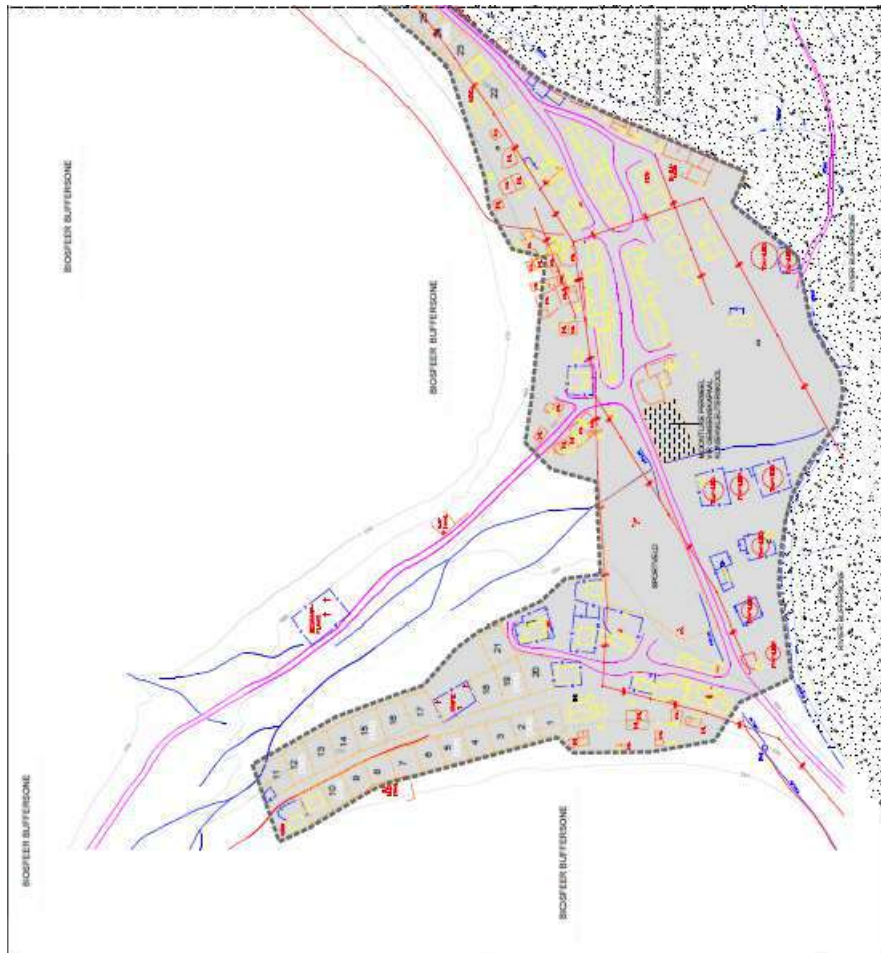
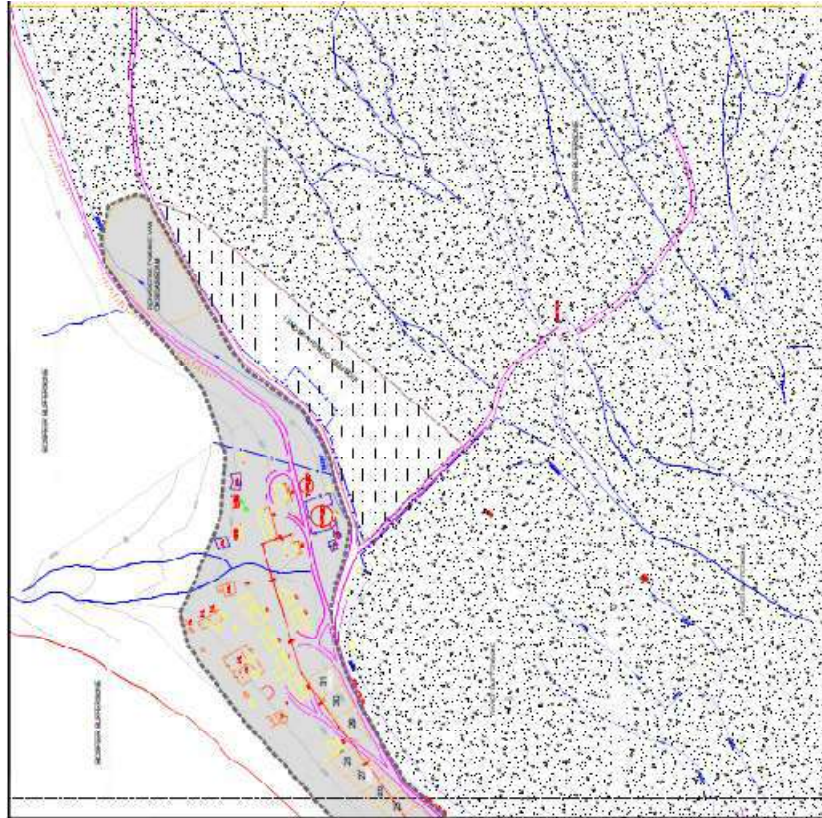
Objective 3: Sustain material, physical and social wellbeing

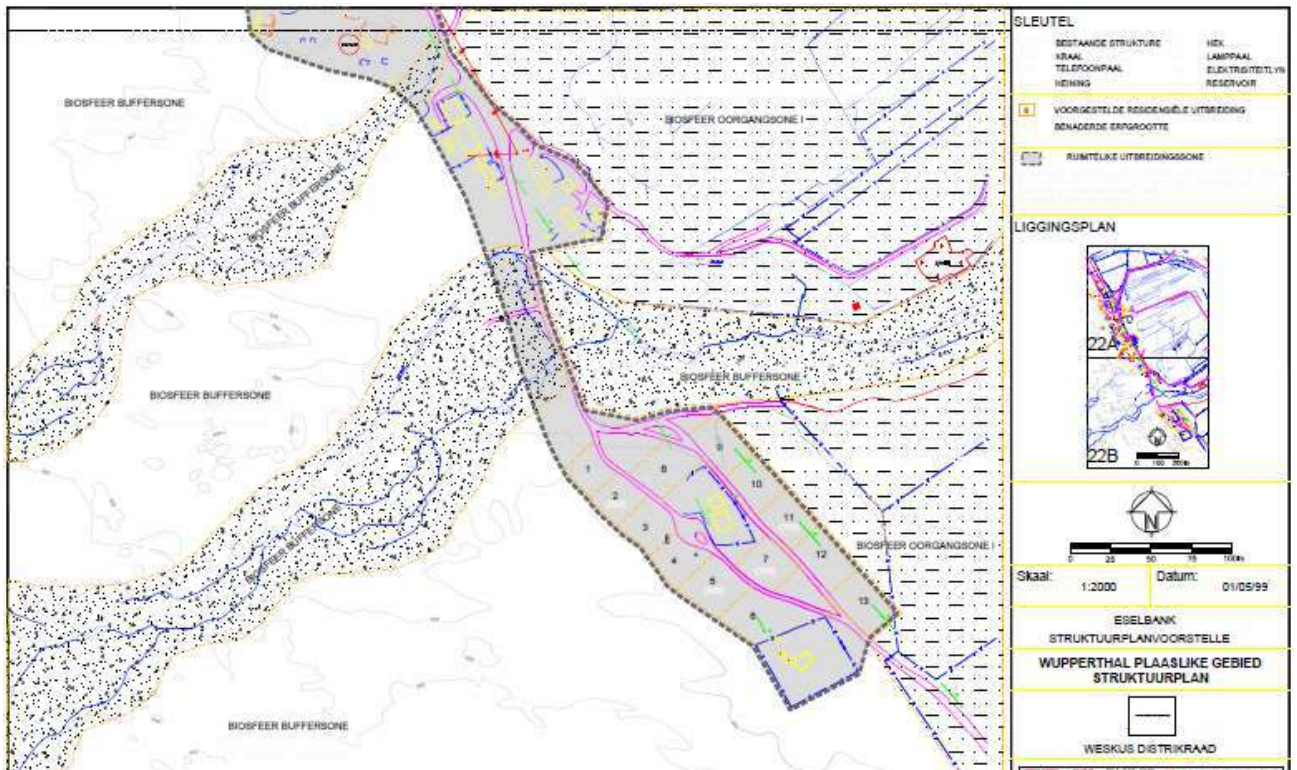
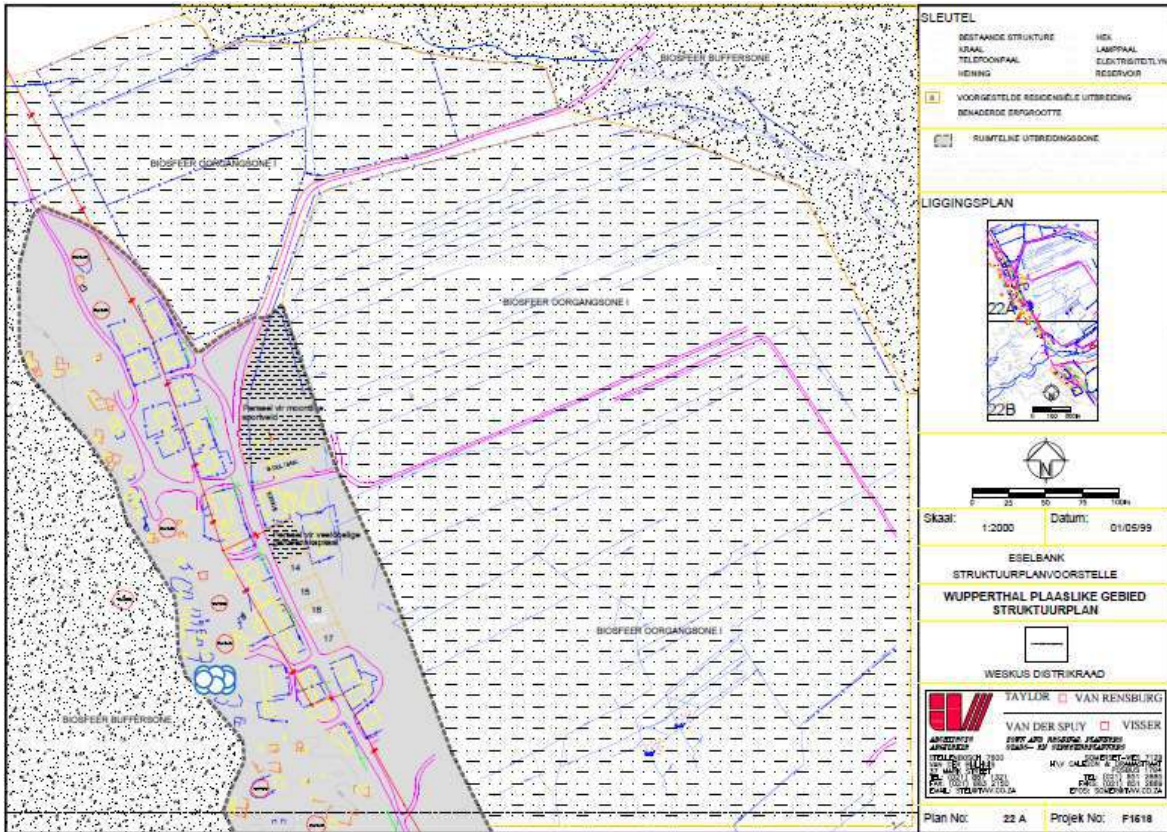
PUBLIC INSTITUTIONS		
Element	No.	Proposals
<u>Social Infrastructure and Services:</u>	11	Upgrade and maintain existing facilities.

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Elements	No.	Proposals
<u>Natural and Conservation:</u> Scenic routes, vistas and agricultural landscapes.	12	Protect all CBA areas as per Wupperthal CBA and ESA map.
<u>Waterways:</u> Tra-tra River.	13	Encourage community gardens.
<u>Public and Private Open Space:</u>	14	Provide for cemetery extension.
	15	Promote community gardens







5.13 Ward 4: Paleisheuvel

Economic Base	Place Identity	Locational Advantage	SPC
Residential within intensive agricultural cultivation, with Citrusdal as the nearest town, approximately 42km away. The settlement hosts residents working on surrounding farms.	Small rural hamlet, railway siding along the railway line to Bitterfontein and west of Bergvallei River.	Railway connection Access to Paleisheuvel is obtained from the R365 (Main Road 538) from Piketberg to Leipoldville. Shortly after the siding, the railway crosses the R365 and the Bergvallei River.	Rural settlement.

Objective 1: Grow economic prosperity and Objective 2: Proximate, convenient and equal access

CONNECTIVITY			
Element	No.	Proposals	
<u>Roads:</u> R365(538), on western boundary of village. A minor dirt road connects Paleisheuvel and R365.	1	Promote connectivity between Sandveld and West Coast.	
<u>Activity Corridors and Streets:</u>		None.	
<u>Rail:</u> Belville- Bitterfontein Railway Line. (East of R365).		None.	
<u>Pedestrian/ Cycle routes:</u>		None.	

Objective 2: Proximate convenient and equal access

PUBLIC UTILITIES			
Element	No.	Proposals	
<u>Future Demand:</u>	2	Identify sites and provide adequate land for future bulk infrastructure expansion.	
<u>Water:</u>	3	Reduce bulk water demand.	
Sufficient source and storage capacity.	4	Upgrade reticulation capacity.	
<u>Waste Water:</u> Use conservancy tanks.		None.	
<u>Bulk Electricity and Reticulation:</u> Eskom provides electricity in Paleisheuvel. There is sufficient electrical capacity and reticulation.		None.	
<u>Roads and Storm water:</u>	5	Maintain gravel roads and improve storm water.	
<u>Waste:</u>	6	Weekly domestic waste removal.	
<u>Safety and Risk Management Services:</u>	7	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.	

Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT			
Element	No.	Proposals	
<u>Heritage and Tourism:</u> Paleisheuvel is a railway siding. Place Identity: Small hamlet in rural areas and Rural settlement (SPC).	8	Address loss of and impact on, cultural and heritage resources.	
<u>Residential:</u> Settlement Pattern and Layout: Village has a linear form with a few houses (along the railway line). Density: a low-density settlement. Built form: All dwellings are single story. Functionality: All dwellings are in walking distance from the shop. All other services are accessed in Citrusdal or Piketberg. Growth potential: Low.		None.	
<u>Locational Advantage:</u>	9	Promote railway connection.	
<u>Land Reform:</u>	10	Develop a small agri-village and provide space for community gardens.	

Commercial and Industrial:
 Economic Base is Residential and depends on surrounding intensive agricultural activities. Railway services were downsized and the siding is no longer in operation.
 Development potential is limited to residential functions as season workers are housed, either in the hamlet or on nearby farms.

11 None.



Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Element	No.	Proposals
Social Infrastructure and Services:	12	None.

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Element	No.	Proposals
<u>Natural and Conservation:</u> Scenic routes, vistas and landscape of agricultural fields. Protect all CBA areas as per Paleisheuwel CBA and ESA map.	13	Plant lanes or clusters of trees.
<u>Waterways:</u> Bergvallei River.		
Public and Private Open Space:	14	Use private cemeteries or cemetery at Citrusdal.

5.14 Ward 6: Algeria

Economic Base	Place Identity	Locational Advantage	SPC
Agri-tourism node.	Small settlement in Cederberg mountains in a “kloof” and next to a river.	Gateway to Cederberg Wilderness area.	Rural settlement.



Objectives 1 and 2: Grow economic prosperity and Proximate, convenient and equal access

CONNECTIVITY		
Element	No.	Proposals
Roads: Divisional Road 2182.	1	Promote connectivity to the Cederberg.

Objective 2: Proximate convenient and equal access

PUBLIC UTILITIES		
Element	No.	Proposals
<u>Future Demand:</u>	2	Identify sites and provide adequate land for future bulk infrastructure renewal.
<u>Water:</u> Adequate bulk water sources (a spring and borehole). No purification takes place as the community prefers untreated water.	3	Reduce bulk water demand.
	4	Address additional borehole capacity requirement.
	5	Maintain water storage.
<u>Waste Water:</u> Sewerage capacity is insufficient.	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.
<u>Bulk Electricity and Reticulation:</u> Eskom provides electricity. There is sufficient supply and reticulation capacity.		None.
<u>Roads and Storm water:</u>	9	Maintain gravel roads.
<u>Waste:</u>	10	Weekly removal of domestic waste. Manage transfer stations.
	11	Manage transfer stations.
<u>Safety and Risk Management Services:</u>	12	Promote and support sustainable use of resources – e.g. water harvesting, alternative energy.

Objectives 1 and 4: Grow economic prosperity and Protect and grow place identity and cultural integrity

SPACE, BUILT		
Element	No.	Proposals
<p><u>Heritage and Tourism:</u> Place Identity: Small settlement in rural area and Rural settlement (SPC). Algeria is a forestry village, serving the Cederberg wilderness area. There is also a camping site with the same name.</p>	13	Protect heritage resources and landscapes: The settlement function as forestry village, amidst the wilderness area, limits its expansion.
<p><u>Residential:</u> Urban Structure and <u>Settlement Pattern:</u> Two rectangular nodes with a partial grid layout within walking distance from one another. <u>Density:</u> It has a medium density character and consists of one square block of single residential houses. <u>Built form:</u> It is characterized by small single story forestry dwellings. Amenities (sports field and community hall) are within walking distance of two rectangular nodes. All other social and institutional services are offered in Citrusdal or Clanwilliam.</p>	14	Expand settlement, limited to accommodate the forestry workforce.
<p><u>Commercial and Industrial:</u> <u>Economic Base:</u> Conservation-tourism node. <u>Locational Advantage:</u> Gateway to Cederberg Wilderness area.</p>		None.

Objective 3: Sustain material, physical and social wellbeing

PUBLIC INSTITUTIONS		
Element	No.	Proposals
<p><u>Social Infrastructure and Services:</u> There is a sports field and community hall. All other social and institutional services are offered in Citrusdal and Clanwilliam.</p>	15	Upgrade (or move) and maintain existing sport field.

Objective 5: Protect ecological and agricultural integrity

SPACE, NATURAL		
Element	No.	Proposals
<p><u>Natural and Conservation:</u> Scenic routes and vistas.</p>	16	Protect all critical biodiversity areas as per Algeria and Skilpaddorp CBA and ESA map.
<p>Landscape of agricultural fields and forestry.</p>	17	Enlarge the cemetery.

CHAPTER 6: Development Proposals: Rural and Regional, Environmental & Climate

Change Management

Being part of the West Coast region stretching from Atlantis in the south to Papendorp in the north, and the Cape Fold Mountains being the inland boarder, Cederberg is home to seven bio-regions that can be distinguished according to 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

Cederberg’s region is defined by its landscapes, natural environment and agricultural crops offering a variety of values to its inhabitants.

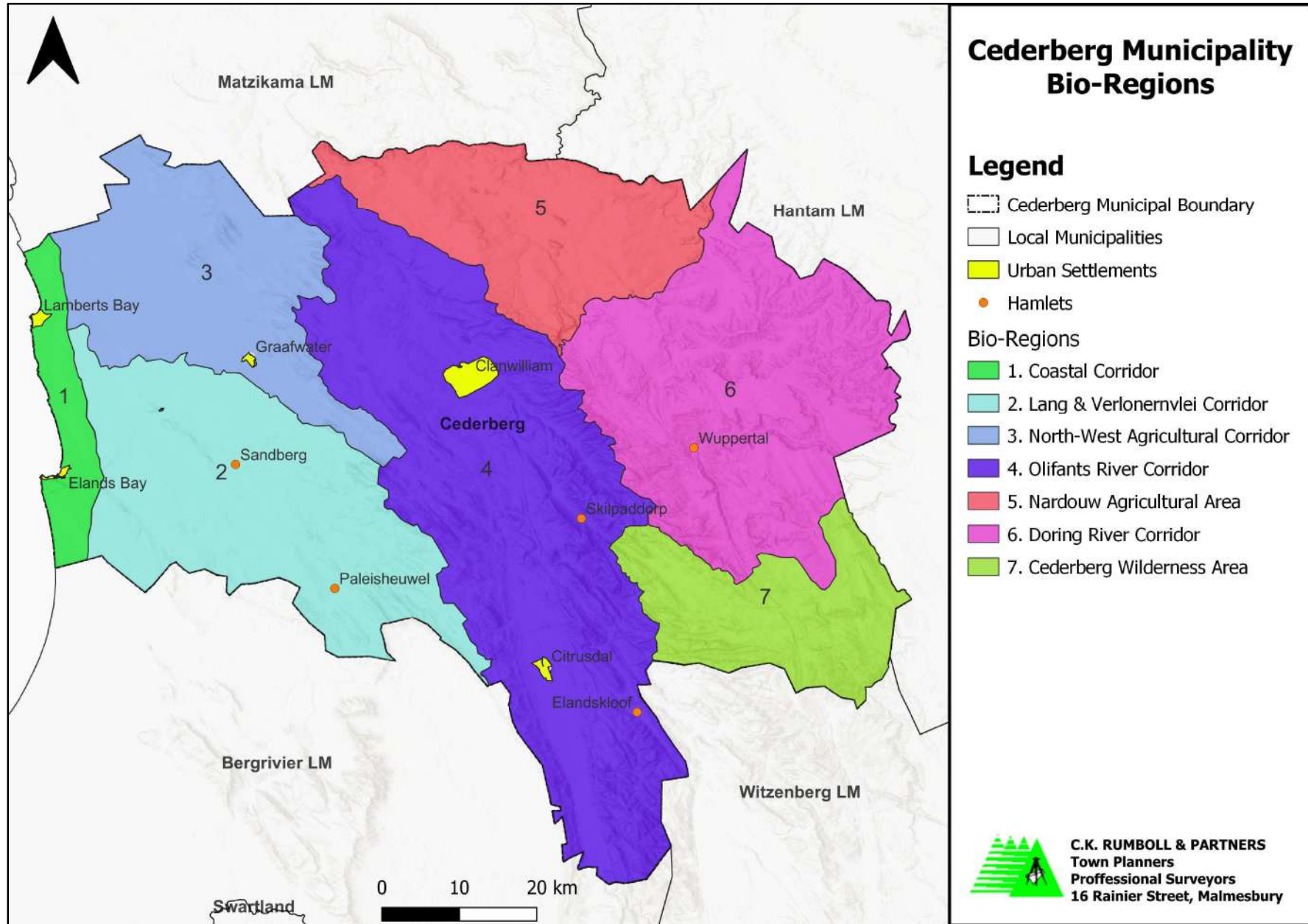
Value	Landscapes						
	Wilderness: Coastal and Dunes	Wilderness: Mountains	Waterways and Connections	Connection Routes and Corridors	Agricultural Landscape	Social Focus and community	Cultural and historical, and Routes
Express Sense of Place/ Place Making	X	X	X			X	X
Provide ecosystem services	X	X	X				
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 elevation of the landscape, are identifiable (Norberg-Schulz’s (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 table to follow provides an overview of the five regions:

Map 14: Cederberg Bio-Regions



	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 entities⁸ 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 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 is 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 Oliphants 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 (govern by the Boating by-law) as well as on sea.
- Capitalize on the raised Clanwilliam Dam wall once completed: Providing water to residents of Clanwilliam and 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 wild fires likely in the mountain areas along the N7 and in the Cederberg: Delineate firebreak buffers around towns.

⁸SOE and Government Agencies: Section 12(1)(h) of SPLUMA
Cederberg Spatial Development Framework 2023-2027

- 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 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 environmental and visual sensitive areas, and especially not in the Cederberg Wilderness Area. Especially do not support wind and solar farms on slopes as it have increased visibility and potentially a negative visual impact.
- Promote Wind Energy particularly west of the N7, hydro electricity at Clanwilliam and Hydrogen along the coast.
- 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 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 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 borders including rooibos tea cultivation, conservation agriculture towards the north (Matzikama) and north east (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 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, wild flower 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 coast to Bergivier 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 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 Eands Bay.

Mining

- 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.
- 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) 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 silcretefynbos, 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 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:

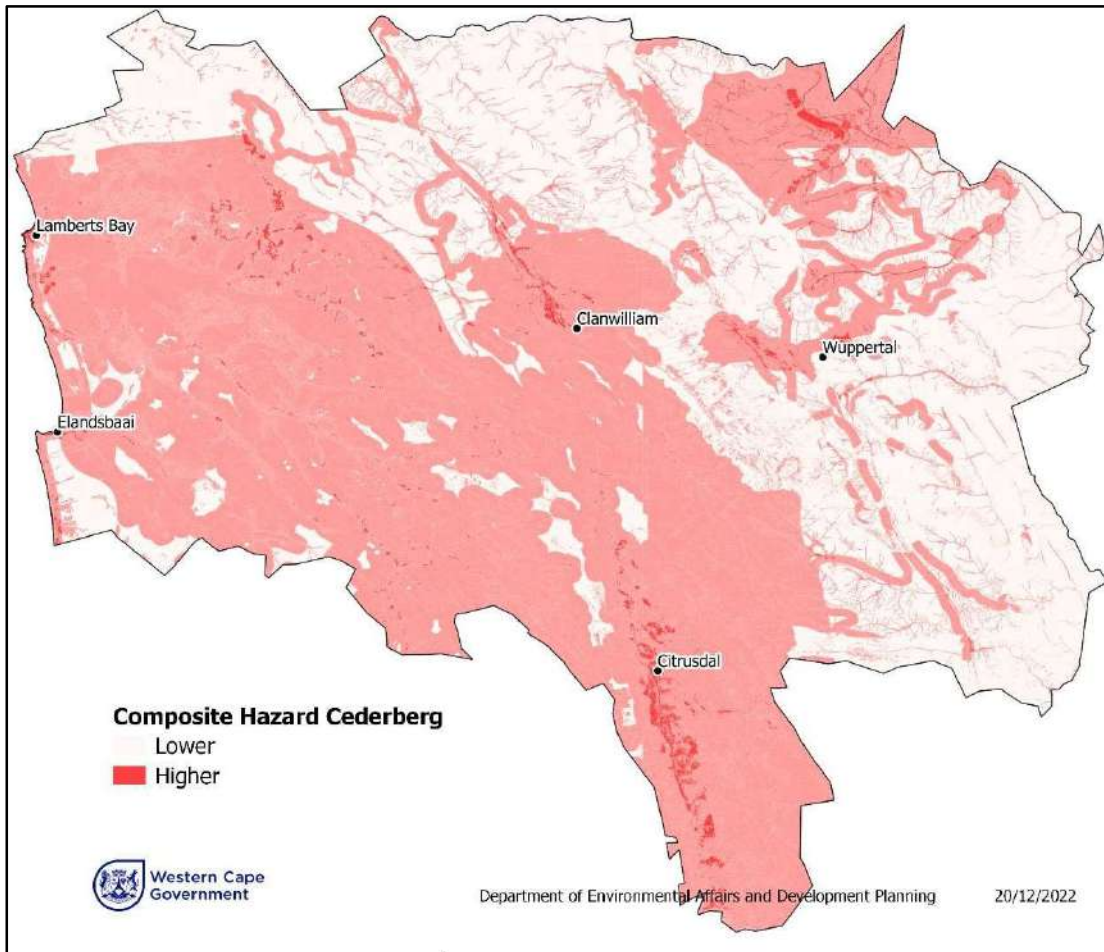
- Promote communication corridors and zones, improved communication networks and promote access to information & technology including access to internet prioritizing rural areas.
 - Support the establishment and sensitive location of communication network facilities/ data centres / telecommunication towers in rural areas and on farms.
 - Provide for adequate bulk infrastructure and the location thereof according 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:

Map 15: Vulnerability to environmental threats in Cederberg (combining socio-economic and governance indicators)



Overall, Cederberg is evaluated to be at a lower risk given its natural resources and its governance.

6.2.1 Water/ Hydrology

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

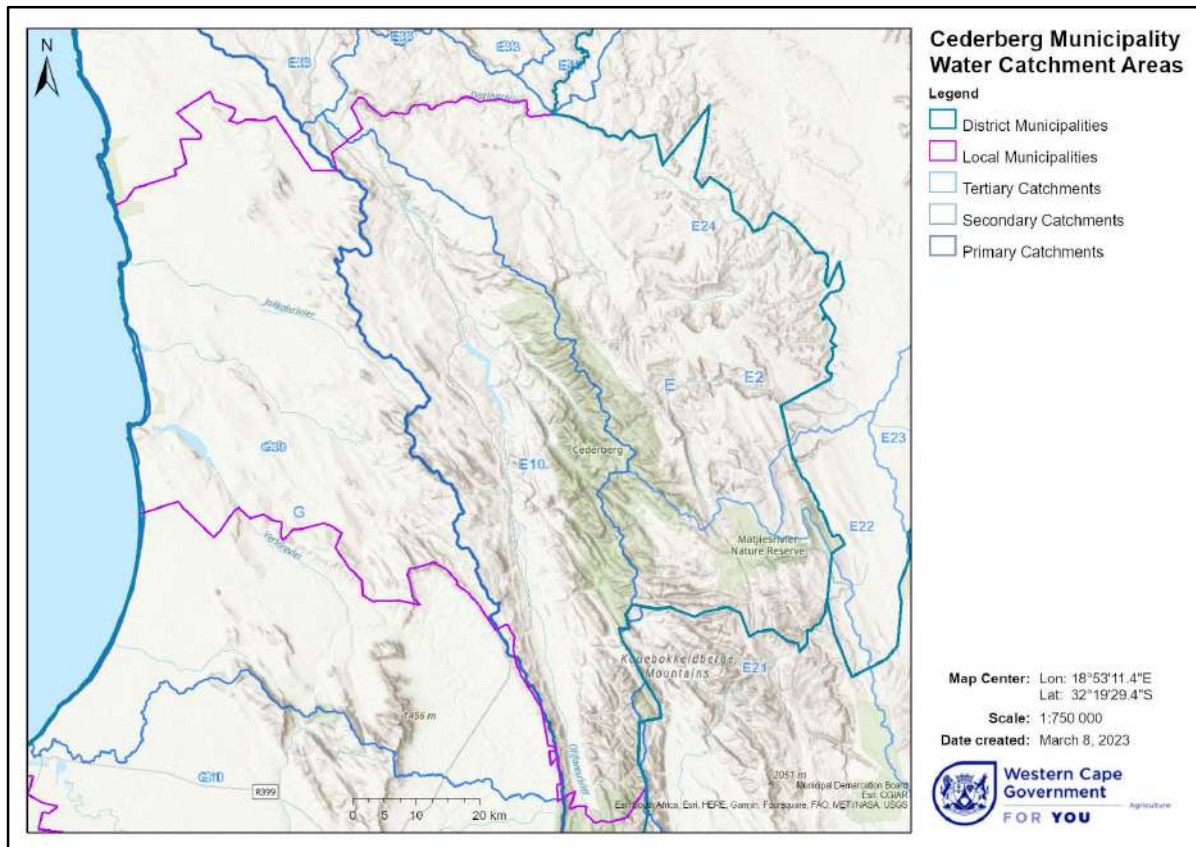
Surface and underground water constitute the natural resource. Cederberg is home too several rivers and boreholes as its water sources.

The major rivers in the Cederberg are: Oliphants (between Oliphant's River Mountains and Skurweberg mountains, Groot, Doring, Verlorevlei, Langvlei, Jakkals, Jan Dissels, Biedau, Kliphuis, Rondegat, Elandskloof, Heks, Boontjies, Matjies, Tee, Jan se Kraal, Bergvallei, Ratel Rivers.

The department of Water Affairs delineated Water Management Area as illustrated by the map below.

The secondary water catchment areas in the Cederberg are the Sandveld (Berg River), Upper and Middle Oliphants and Ceder - Doorn:

Map 16: Cederberg Water Management



The Western Cape population reached 3.5 million in 1986, the saturation point for the available water sources.

Management directives for water sources and water catchment area include:

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:

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 50m ² 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:

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 the 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 the 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.				

<p>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 river bank. Vleiland buffer areas differ and can be up to 75m wide, measured from the outer edge of the wetland.</p>	Any Infrastructure Development.	Residential, Commercial and Industrial Developments, Intensive agricultural practices and Fuel storage facilities.	Grazing by cattle.
<p>Highly productive underground water sources The zones include highly productive interrelated, broken down, and a combination of both, underground water sources.</p>	Waste disposal sites.	Intensive agricultural activities, waste management (transfer and recycle) sites, Fuel storage facilities and Industrial areas.	Residential development, Standard, sustainable agricultural practices.
<p>Average productive underground water source The zones include average productive interrelated, broken and inter granular and broken ground underground water resources.</p>	Waste disposal sites.	Residential, Commercial and Industrial Developments. Intensive agricultural practices, Fuel storage facilities.	

Freshwater bodies such as the Clanwilliam dam is govern 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 theprohibition 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.

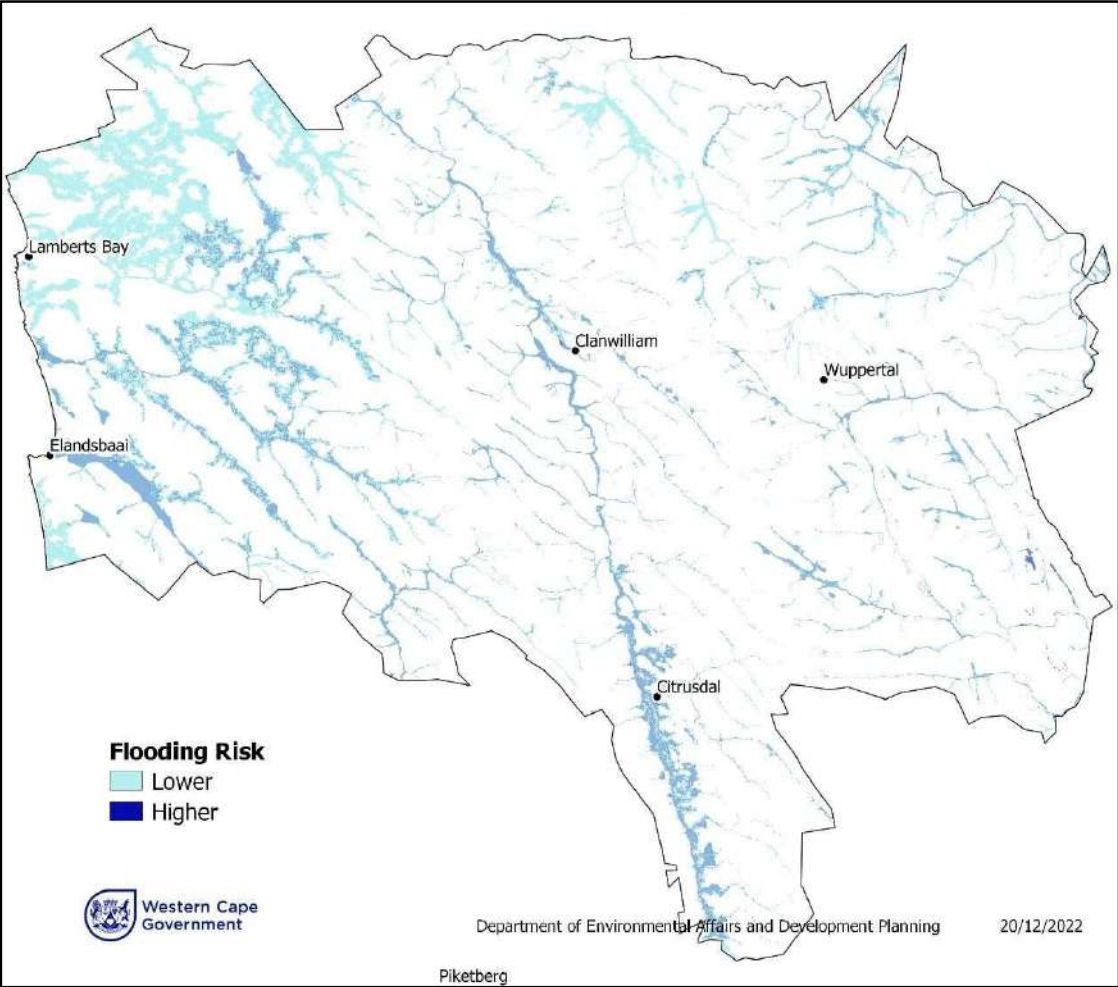
Development that should not occur/ only in Designated Areas	Regulated/ Confined development that may have significant impact if not regulated	Related environmental management policies and guidelines
<p>No activity, without municipal consent may:</p> <ul style="list-style-type: none"> • No person may 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. • 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. 	<p>The municipality determines:</p> <ul style="list-style-type: none"> • 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. • 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. 	<p>Promote the integrated and cooperative management of the river/damn banks by:</p> <ul style="list-style-type: none"> • 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. • 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.

Map 17: Cederberg Flooding Risk

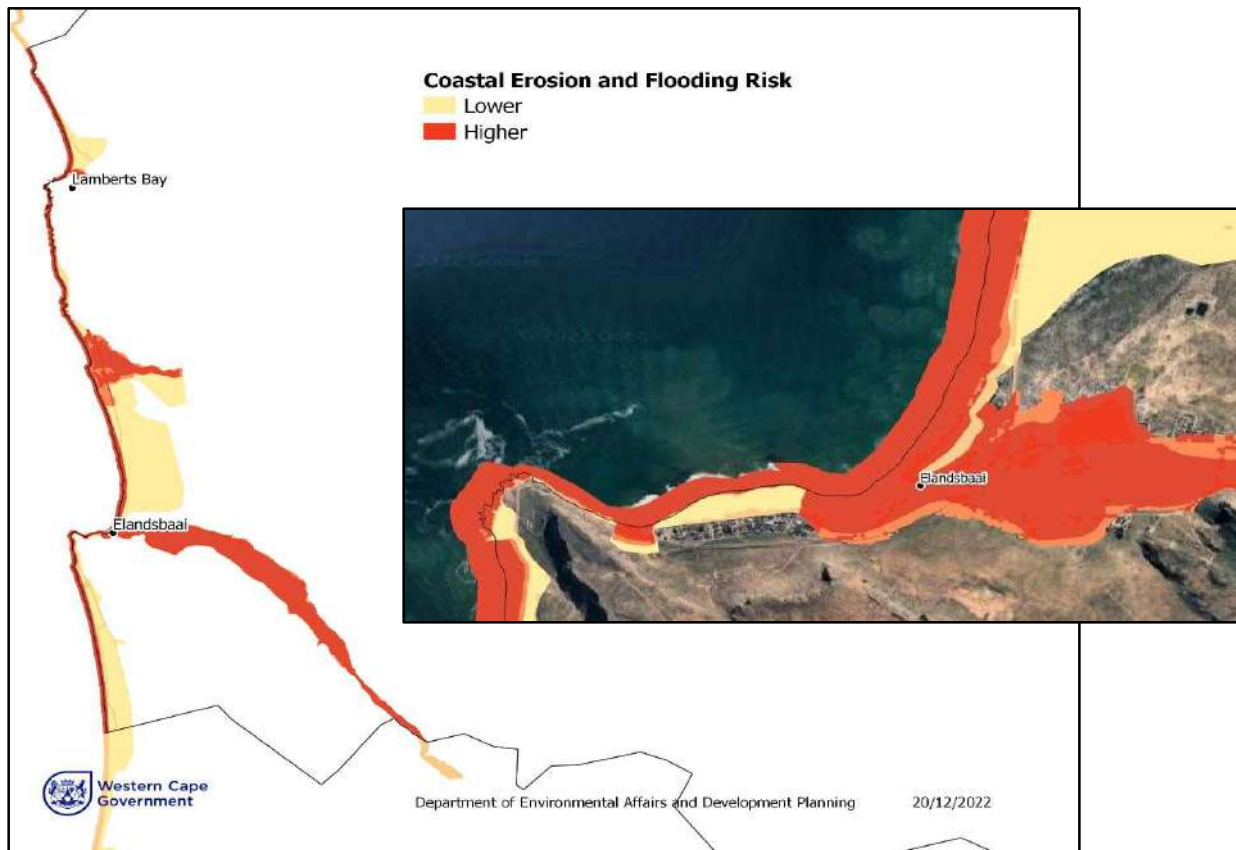


Map 18: Flood area in Citrusdal



Coastal erosion and flooding risk is expected at Elands Bay as shown in the figure below. The risk in estuaries generally ranks higher.

Map 19: Elands Bay Coastal Erosion and Flooding Risk



Environmental Impact Management directives for hydrological zones are outlined below:

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 the 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 the 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 river bank. 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.		

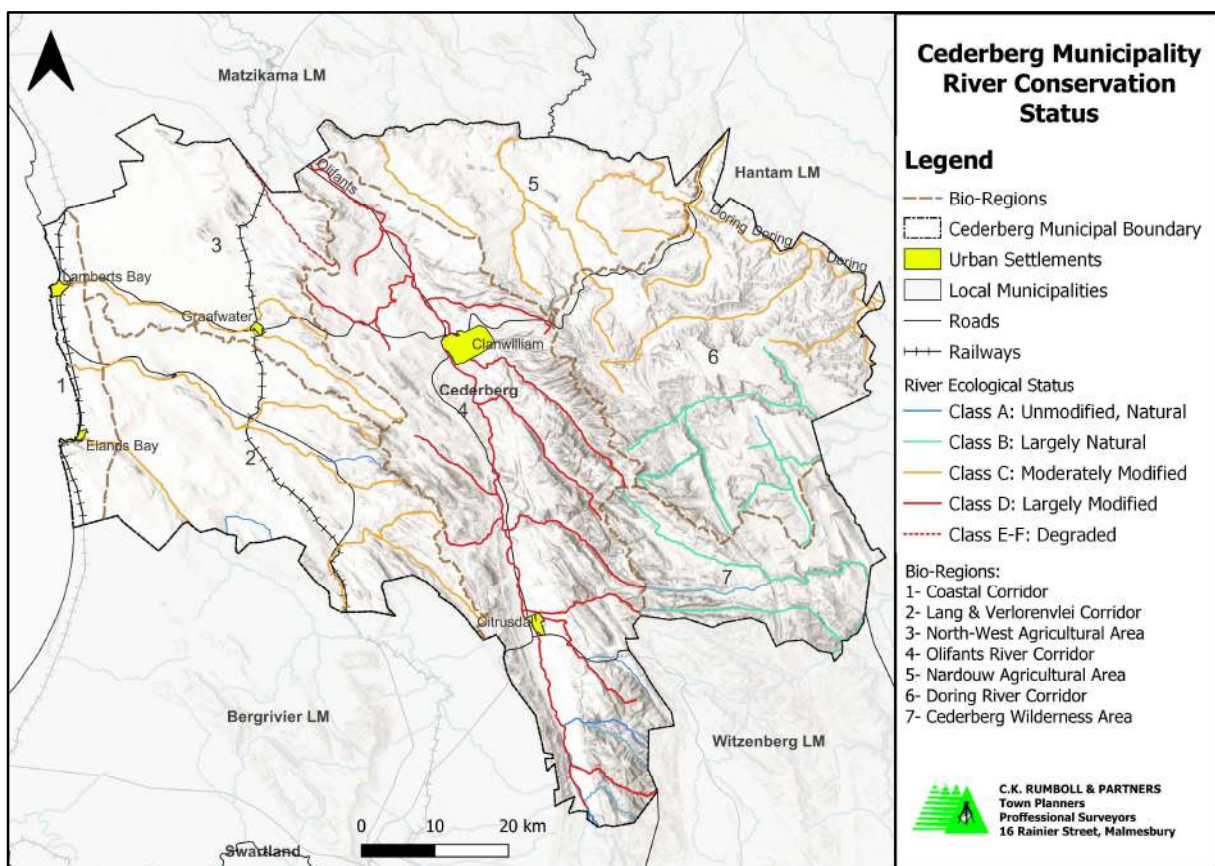
6.2.1.3 Opportunities: Dams, Irrigation and Recreation

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 20: 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.

-
- 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.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.
 - 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 coast line 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.
-

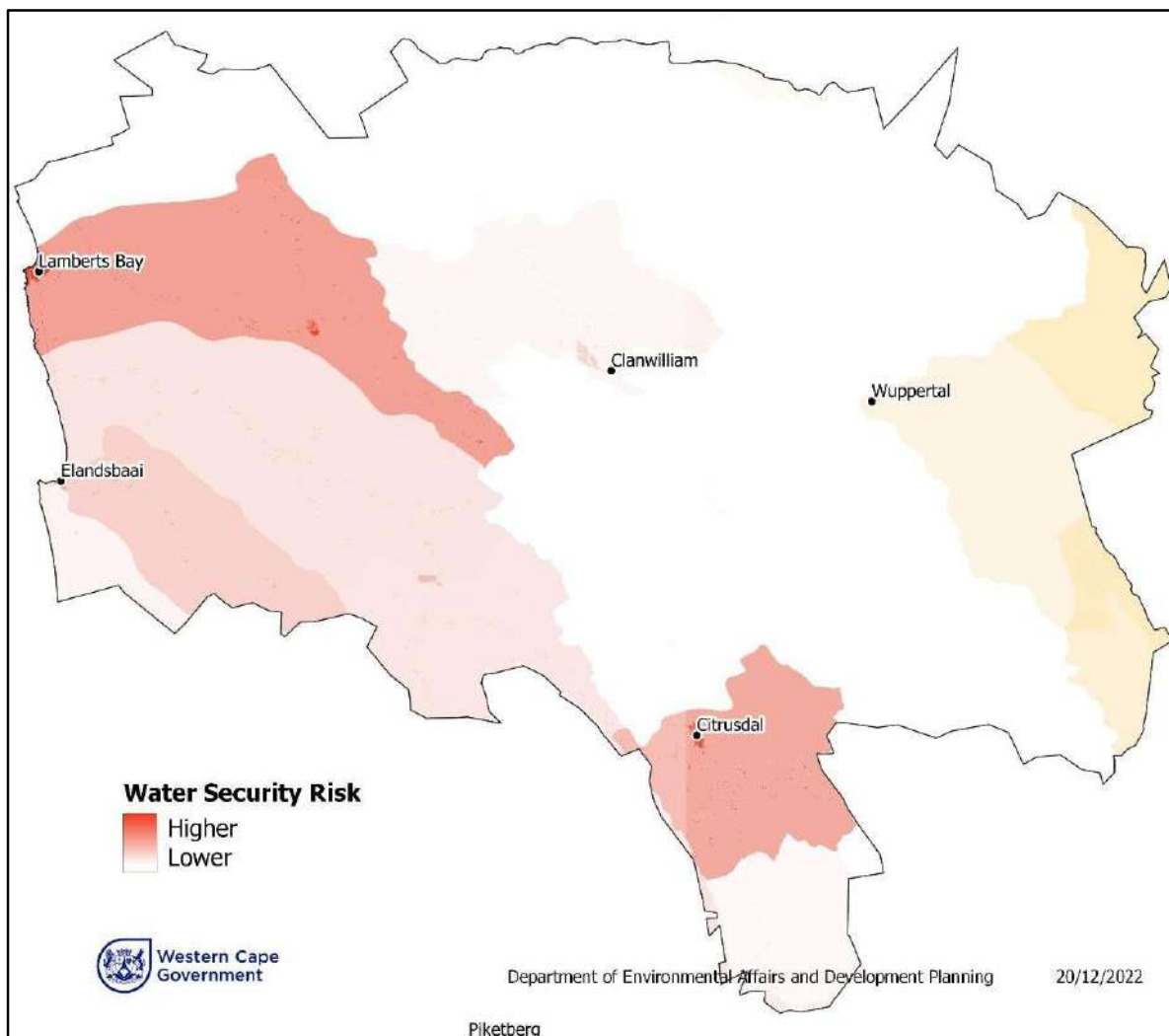
6.2.1.4 Risks: Water Security, Pollution, Cemeteries and Waste Sites

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 21: 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

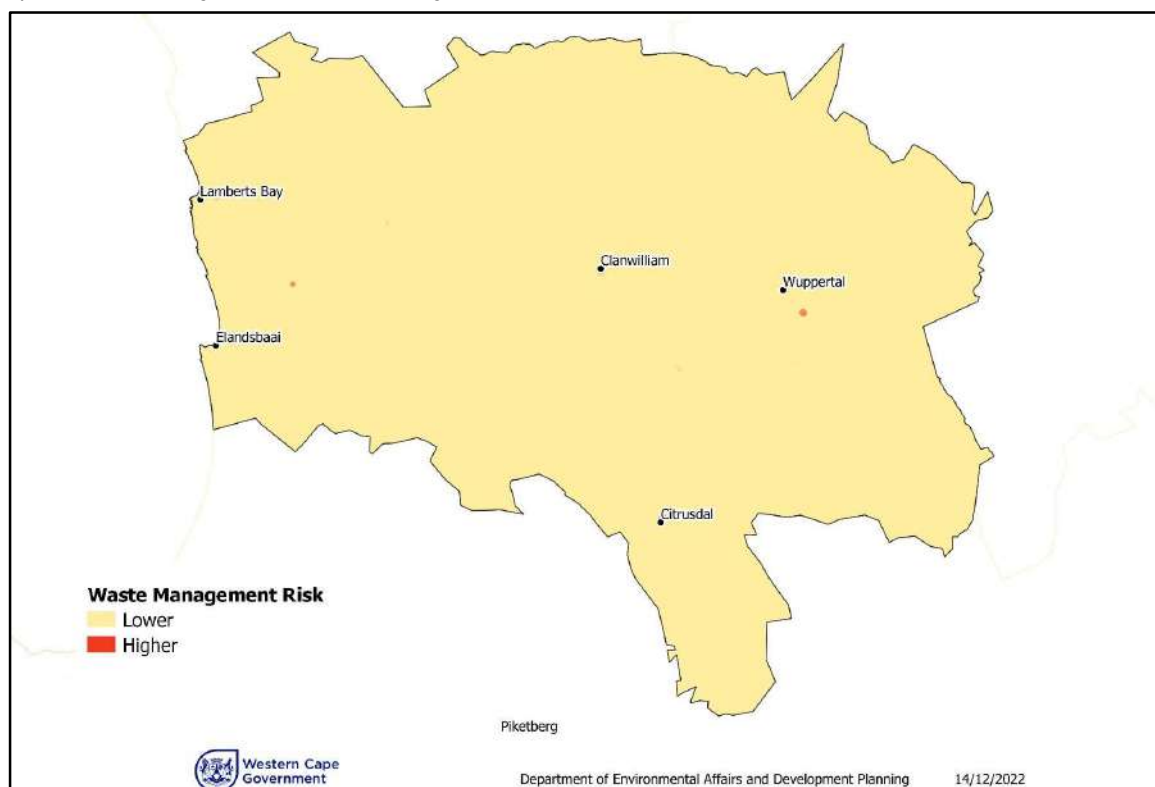
- To expand settlement cemeteries as per cemetery identification report (2019).
-

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 22: Waste management risk in Cederberg



An Environmental Management Framework for hydrological zones is outlined below:

Management Priority	Priority Focus Area
<p>Improve and rehabilitate</p>	<p>All intensive farming practices impacting on ground and underground water sources:</p> <ul style="list-style-type: none"> - 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. <p>Storm water management and treatment need to be improved.</p> <p>Rehabilitation of flood plains and catchments. Including demarcation of development buffer areas for rivers and their flood plains and management and control thereof.</p> <p>Rehabilitation, monitoring and evaluation directed and regulated by an area specific environmental management plan.</p> <p>Facilitate and manage access to the coast for all people fully compliant with the relevant provisions in the Integrated Coastal Management Act (ICMA) and:</p> <ul style="list-style-type: none"> • 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.

	<ul style="list-style-type: none"> • Manage recreational and commercial events on beaches. • Ensure Public safety and security. <p>Improve pollution control, management and monitoring of effluent generating infrastructure and facilities to prevent pollution of the coastal zone and:</p> <ul style="list-style-type: none"> – 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. <p>Enhance socio-economic development of Coastal Communities and:</p> <ul style="list-style-type: none"> - 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	<p>A 32m wide buffer area along river banks 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.</p> <p>Promote implementation of Estuary Management and apply estuarine management plans for the Jakkalsvlei, Wadrif (Langvlei) and Verlorenvlei estuaries and:</p> <ul style="list-style-type: none"> - 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. <p>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:</p> <ul style="list-style-type: none"> - 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.

	<ul style="list-style-type: none"> - Facilitate the coordinated management of Marine Living Resources. <p>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.</p>
<p>Environmental Impact Assessment Requirements</p>	<p>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.</p> <p>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.</p> <p>Promote cooperative governance and clarification of institutional arrangements for coastal management and capacity generation.</p> <p>Promote the continuous implementation and updating of the Coastal Management Programme.</p>
<p>Monitoring and management aspects</p>	<p>River monitoring must take place within the guidelines of the Department of Water Affairs River Health Programme.</p> <p>Borehole monitoring must take place in all developments that could lead to possible groundwater pollution, e.g., waste landfills, intensive farming practices.</p> <p>Water quality monitoring is required for all water treatment systems.</p> <p>Regulated management and monitoring aspects by an Environmental Management Plan.</p> <p>Coastal Planning and Development to promote responsible coastal planning for the sustainable development of the coastal zone, is achieved by:</p> <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> o Address Coastal Erosion within the coastal zone; o Address the high percentage of vacant plots and the low occupancy levels of residential dwellings. - Ensure rehabilitate the coastal zone. <p>Make sure: Promote responsible coastal planning for sustainable use of coastal zone:</p> <ul style="list-style-type: none"> - 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. <p>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:</p>

	<ul style="list-style-type: none"> - 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	<p>The river health projects, as managed by the Department of Water Affairs.</p> <p>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.</p> <p>Community awareness campaigns, to specially emphasize water scarcity.</p> <p>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.</p> <p>Develop and Facilitate Awareness, Education, Training, Capacity Building and Information Gathering in the District.</p> <ul style="list-style-type: none"> – 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 is outlined below

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 & guidelines
<p>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 river bank. Vleiland buffer areas differ and can be up to 75m wide, measured from the outer edge of the wetland.</p>	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.
<p>Highly Productive Underground Water Sources The zones include highly productive interrelated, broken down, and a combination of both, underground water sources.</p>	Waste disposal sites.	Intensive agricultural activities, waste management (transfer & recycle) sites. Fuel storage facilities. Industrial areas.	Residential development. Normal agricultural activities.	All legislation with an environmental aspect and corresponding regulations, policies and guidelines.
<p>Average productive underground water source The zones include average productive interrelated, broken and inter granular and broken ground underground water resources.</p>	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 is 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 Oliphants 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 (govern by the Boating by-law) as well as on sea.
- Capitalize on the raised Clanwilliam Dam wall once completed: Providing water to residents of Clanwilliam and 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 wild fires 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 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 Bitterfontain (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 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 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 iparticularly at Eands 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 sectors 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 north east, potatoes to the south (Bergrivier municipality) and citrus at the centre of the Cederberg.

Change:

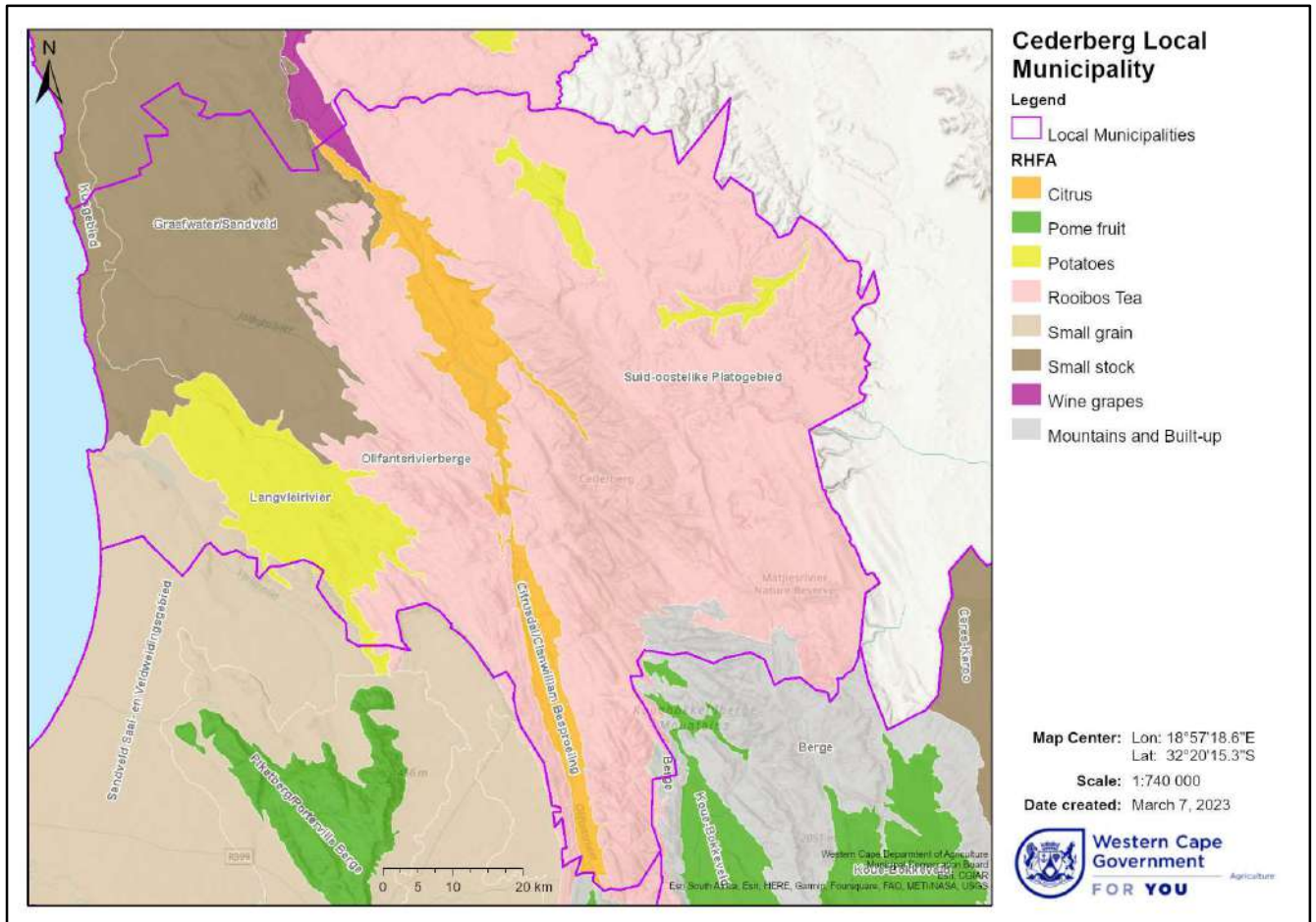
- Support crop cultivation as a landscape attraction promoting tourism and preserve and support the agricultural production areas and landscapes.
- Support continued research into climate change on current crop production & sustainable cultivation.
- Protect agriculture both extensive agricultural production and intensively irrigated areas along Oliphants River and other water courses.
- 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

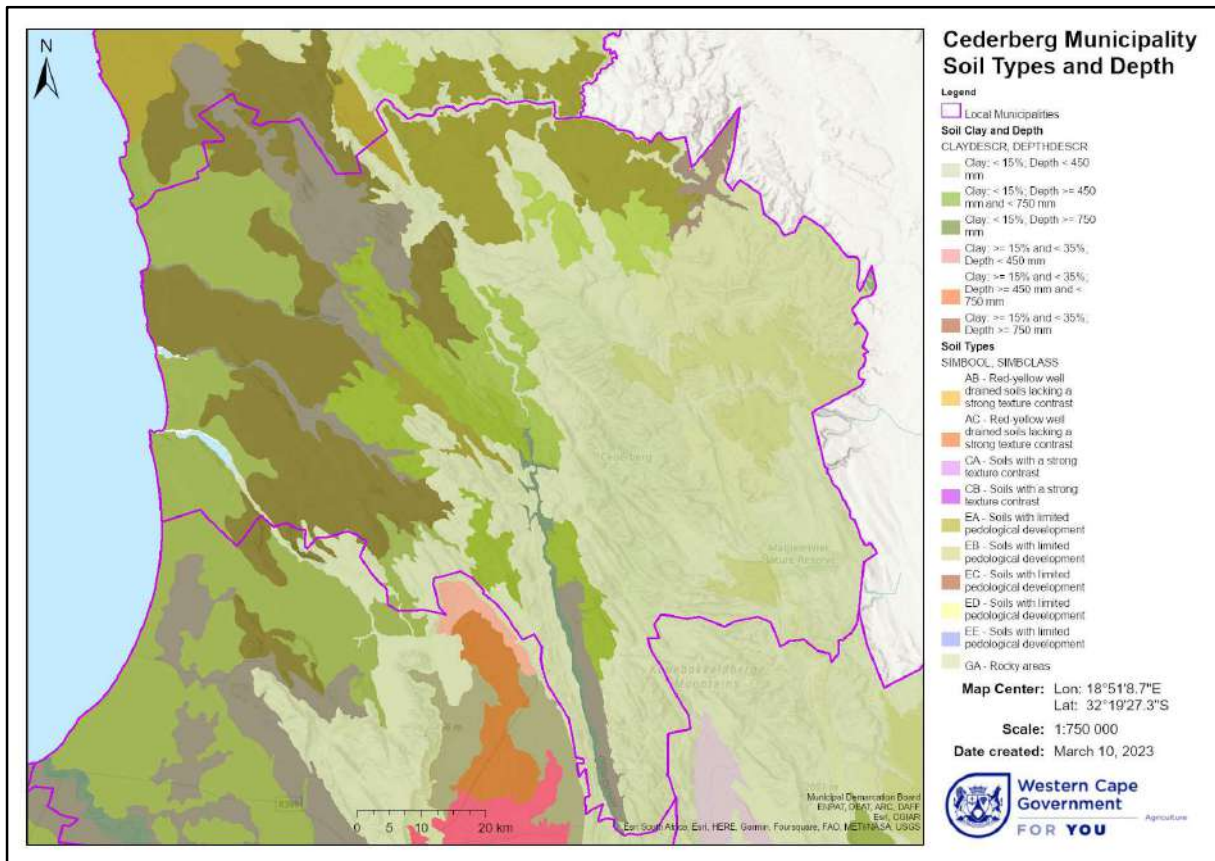
- Increased production to participate in value chain.
 - Settle new and upcoming farmers (small and commercial).
 - Support existing land reform projects and identify opportunities for land reform on intensive irrigation areas.
 - Create a smallholdings forum for informal farming areas to deliberate 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 23: Cederberg Homogenous Farming



Map 24: Cederberg Soils and Clay content



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

Management priorities: Natural Economic Zones

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 complimentary 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, bio fuel, develop agricultural service industries, strengthening supply chains, job creation).
- Promote growing and diversifying agricultural sector combining cultivation (citrus, rooibos and potatoes) and conservation area creating new products and new markets i.e., natural resources alternative energy (bio fuel, 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.

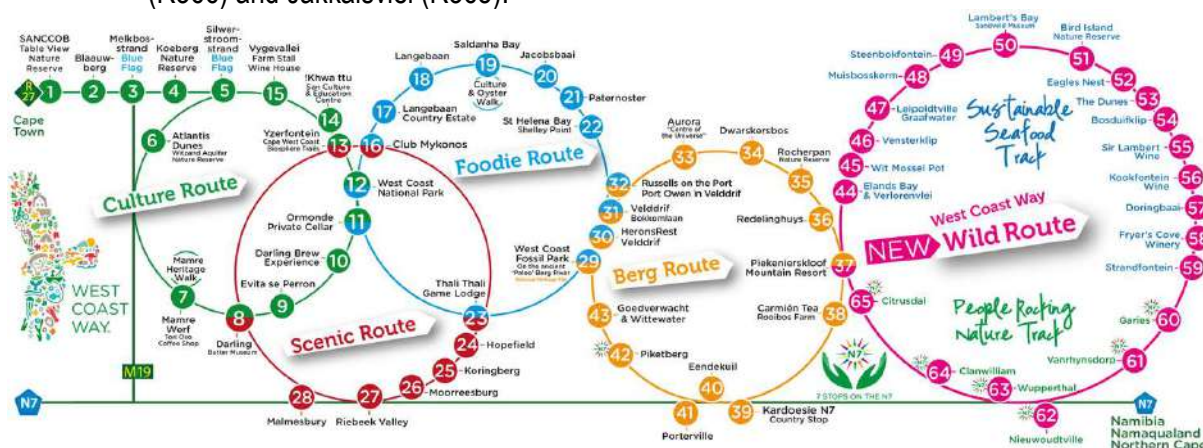
Develop

- 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.

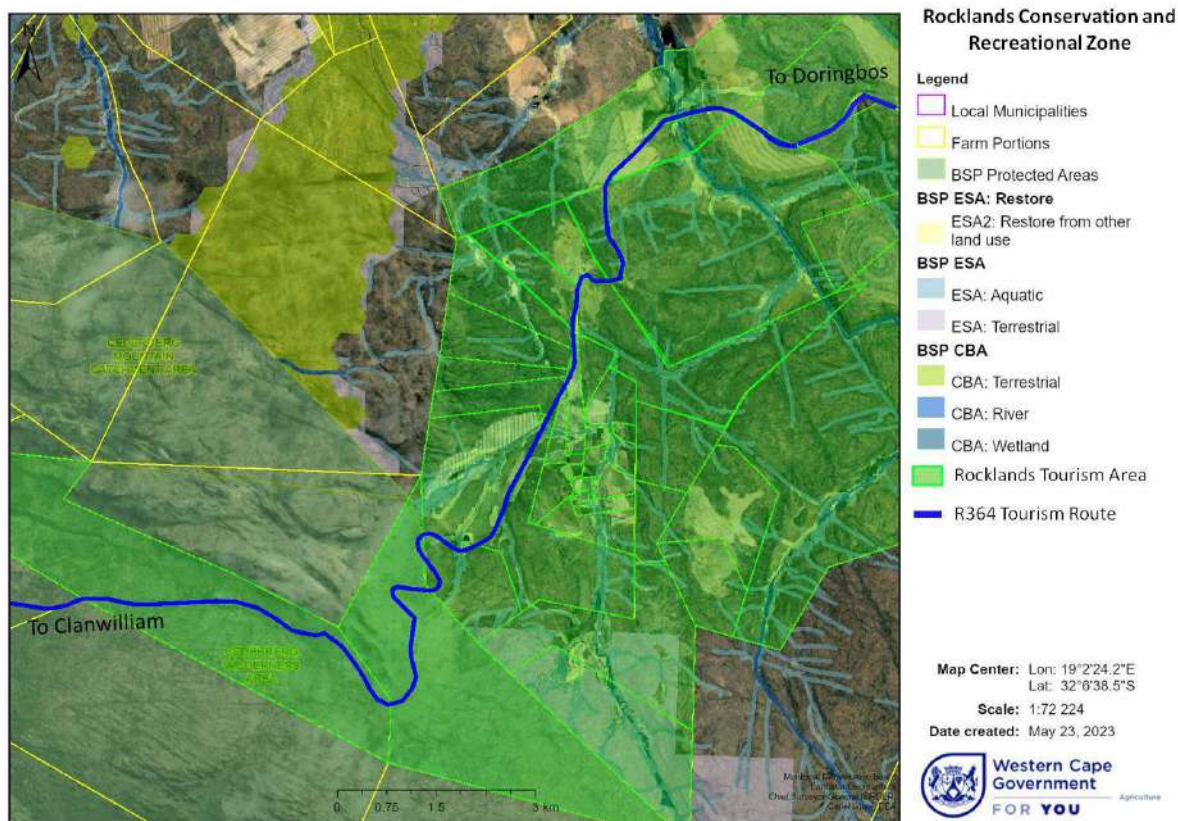
Develop:

- 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 of 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).



- Enhance the Rockland conservation and recreational 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 dealt with 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 aqua culture in Olifants River or other rivers.
- Provide for manufacturing and maintenance of watercraft.
- Implement the Elands Bay Slipway and Parking area.
- 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.
- 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.

Environmental Impact Management directives for soil and land resources outlined below

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 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

- 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 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 borders including rooibos tea cultivation, conservation agriculture towards the north (Matzikama) and north east (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, wild flower 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 Leipoldville and Lamberts Bay); (from coast to Bergrivier Municipality).

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 has 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.

It is recommended that careful consideration should be given to land uses that 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. Further consideration should be given to what **extent linkages between the mining, manufacturing and transport sectors are enhance.**

Management directives for mineral resources include:

Protect

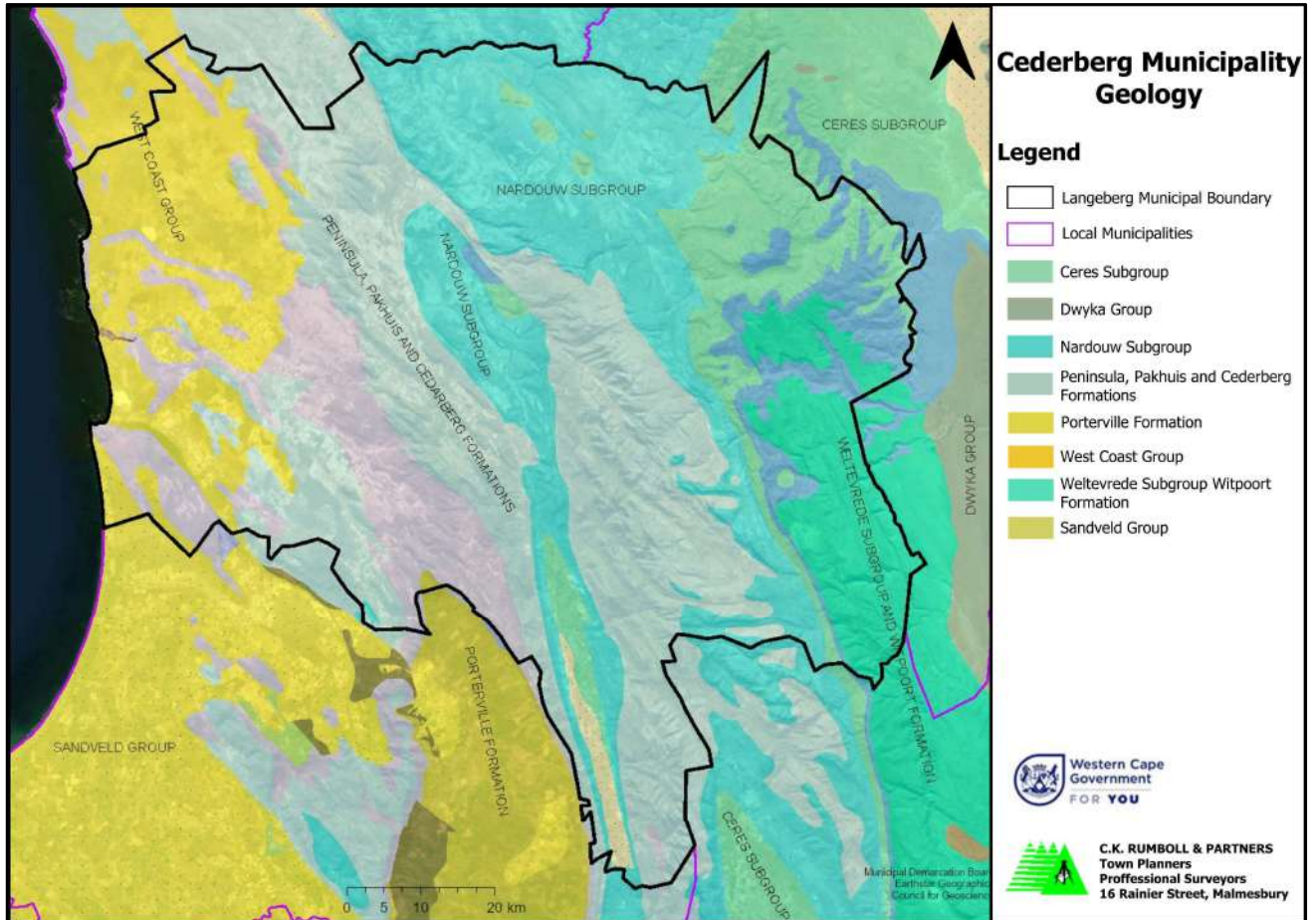
- Protect sensitive environments (visual, agricultural resources, natural, cultural) from the potential impact of mining. Caution mining activities which is not viable and are counterproductive to the character of the area such as region 5, 6, 7 as well as particularly sand mining.
- Map all viable mineral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

Change

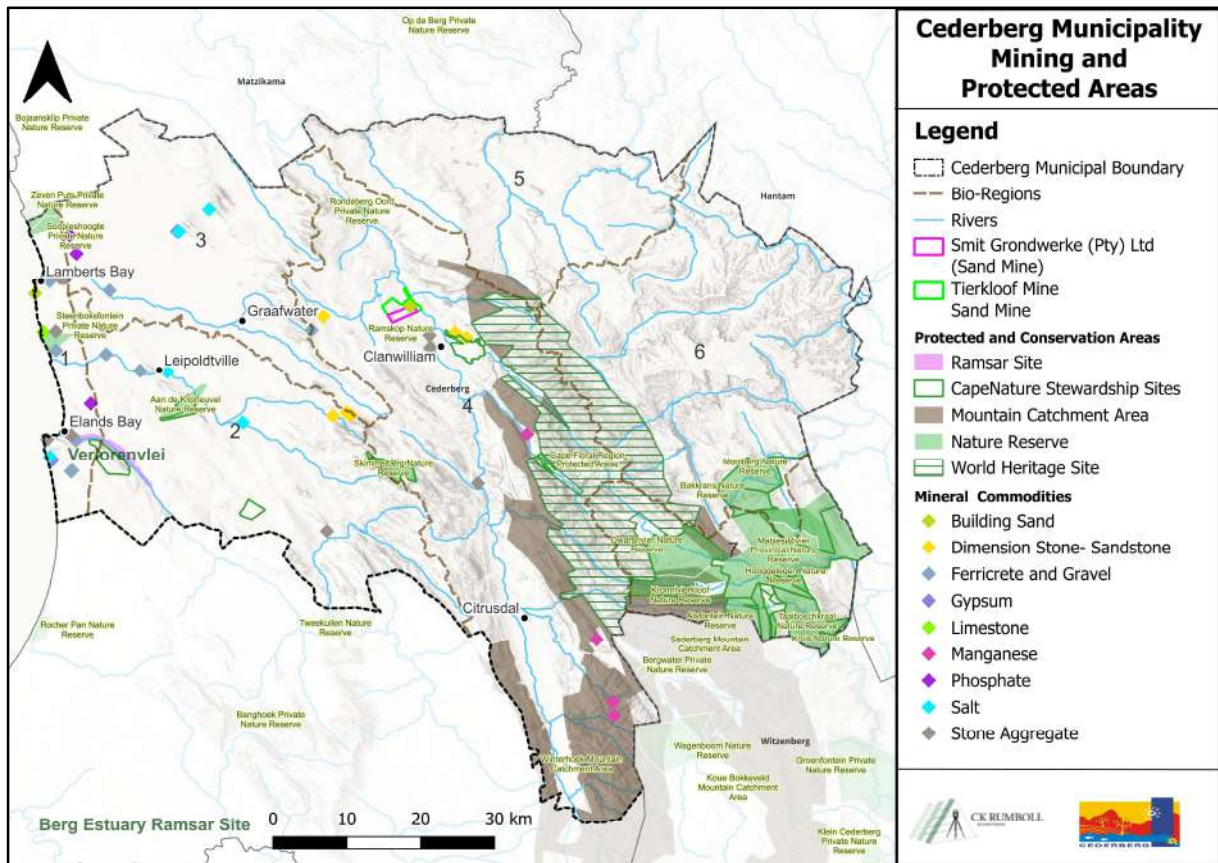
- Support sustainable mining and determine the potential cumulative impacts associated with mining activities on the Cederberg landscape. Facilitate mining activities to limit ecological and aesthetic damage (visual intrusion). Rehabilitate ceased mines and as per EMPr.
 - Develop guidelines for the 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 25: Cederberg Mineral Resources



Map 26: Cederberg Operational Mines and Mineral Commodities vs Protected and Conservation Areas



6.2.3.2 Natural Disaster: Earth Quakes and Floods

None

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:

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.

6.2.3.5 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.

6.2.4 Vegetation, Fauna, Ecosystems

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

The Cederberg is located within one of the richest biodiversity areas of South Africa and forms part of the Cape Floral Region and the Succulent Karoo biome. Sensitive habitats include Verlorenvlei, Bird Island and Elands Bay State Forest.

Management directives for natural environment zones include:

Protect

- The disturbance of ecosystems should be avoided, minimized or restored.
- Any activities being mining, cultivation or business that have an impact on the environment need to comply with regulations of the National Environmental Management Act.
- Allow no development in flood line.
- Maintain environmental setback lines.
- Create open space network along rivers.
- Classify all Renosterveld as Core 1 & 2 areas, as is listed threatened ecosystems that are classified as Critically Biodiversity Areas (CBA's).
- Promote application of spatial planning categories, to facilitate the objective 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 a register of Nature Reserves, Private and State owned. Promote the official categorization of all mountains and all Public and Private Nature Reserve as Core 1 and 2 areas.
- Promote and 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 sport are encouraged.
- Building awareness of conservation and cultivation in supporting 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 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 Cederberg municipal area, bordering 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 wild flower 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 foot of mountain (conservation & 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 river banks.
- 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 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.

An Environmental Management Framework for the natural environment are outlined below:

Management priority	Priority focus areas
Improve and rehabilitate	<p>All management and rehabilitation activities within the biodiversity priority zones, must be set out by the Environmental Management Plans for the identified areas.</p> <p>The following <u>Early Detection and Rapid Response (EDRR)</u> measures must be implemented:</p> <ul style="list-style-type: none"> • 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 ask for 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 indicate where on the property they were located. • Areas that have been cleared must be checked regularly to remove re-sprouting plants or seedlings quickly.

<p>Conserve and preserve</p>	<p>Conservation areas designated as biodiversity priority areas as indicated in the Spatial Development Framework, must be retained and preserved.</p> <p>All other impacts on natural veld must be guided by a bio-diversity assessment and if needed an environmental impact study.</p> <p>The following preventive EDRR measures must be implemented:</p> <ul style="list-style-type: none"> • No listed invasive alien plant species will be planted. • Areas bordering onto neighboring 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 the maintenance of firebreaks. • The prevention measures must be communicated to all users of the property (where applicable).
<p>Environmental Impact Assessment Requirements</p>	<p>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.</p> <p>Proposed large scale tourism facilities must be subjected to an environmental assessment and environmental approval must be obtained before the development may take place.</p> <p>The following EDRR measures may require an EIA:</p> <ul style="list-style-type: none"> • 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.
<p>Monitoring and management aspects</p>	<p>All monitoring and management aspects must be set out by a biodiversity environmental management plan, to be drawn up for priority areas.</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p>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:</p> <ul style="list-style-type: none"> • All herbicide applications are to be made under the direct supervision of a registered Pest Control Operator.

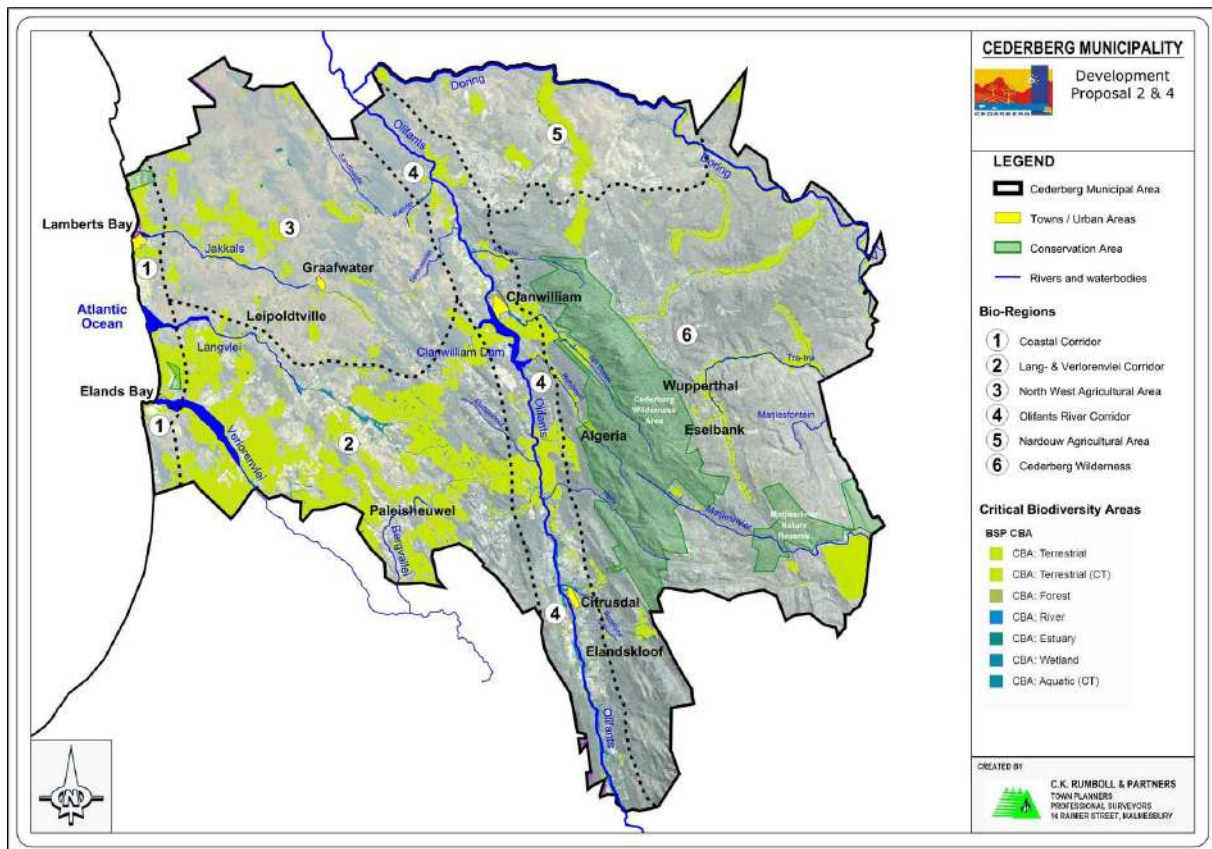
<p>Research and Education</p>	<ul style="list-style-type: none"> • All persons applying herbicide are to be trained in their use. • Correct Personal Protective Equipment must be worn when applying herbicide (listed on herbicide label). • Only registered herbicides may be used. <p>Invasive alien plants 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 neighboring communities and properties:</p> <ul style="list-style-type: none"> • 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. <p>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:</p> <ul style="list-style-type: none"> • 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 vigor to a level comparable to that of the natural vegetation.
-------------------------------	---

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

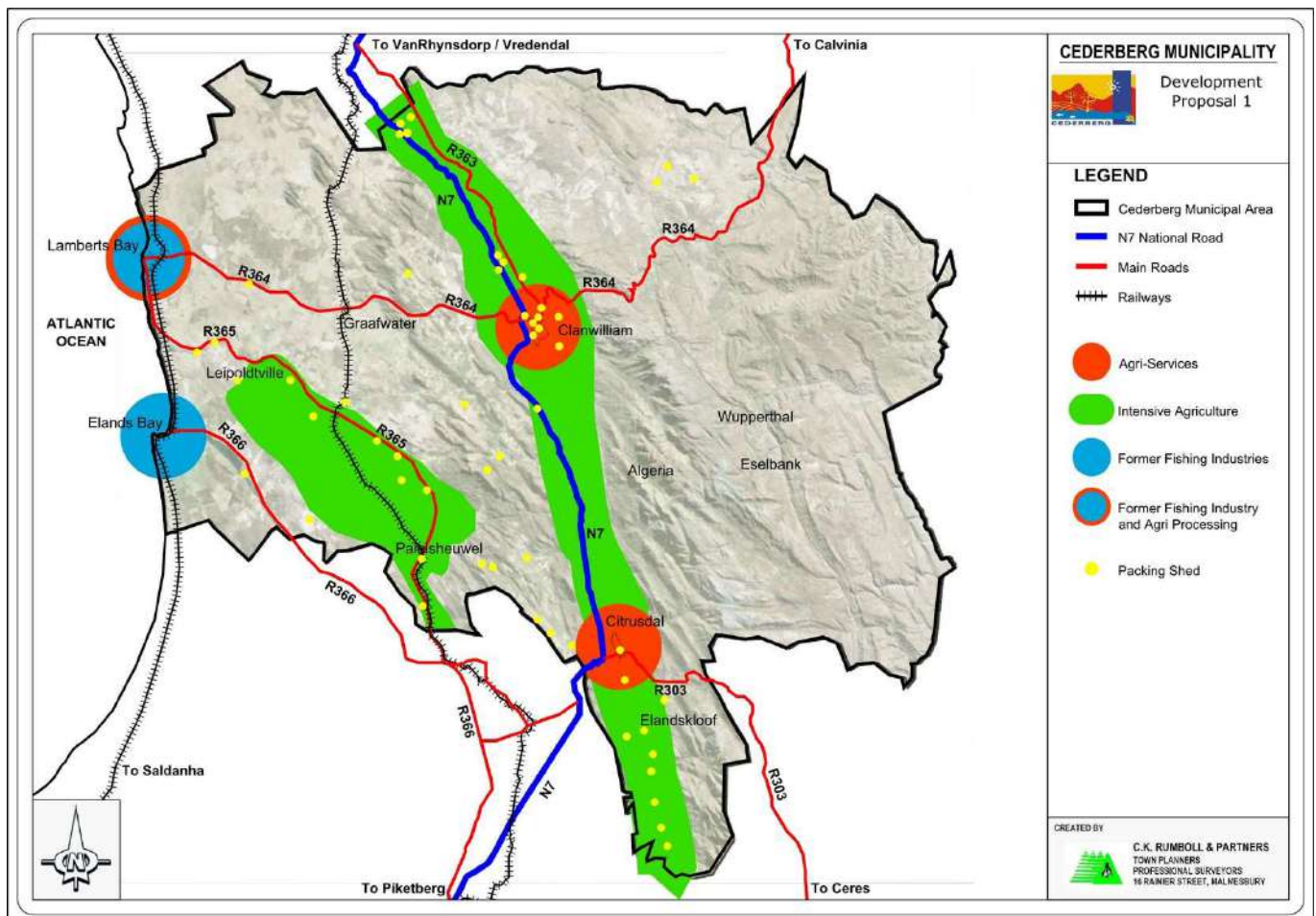
Environments/ Spaces	Types of developments, land uses or activities			Related environmental management policies and guidelines
	That should not occur	That may have significant impact	That have no significant impact	
Conservation areas	Developments that are not focused on eco-tourism.	Developments that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

Map 27: Development Proposals 2 and 3; Enhance establishment of Greater Cederberg Conservation Corridor.



Map 28: 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 (farm yard) 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.

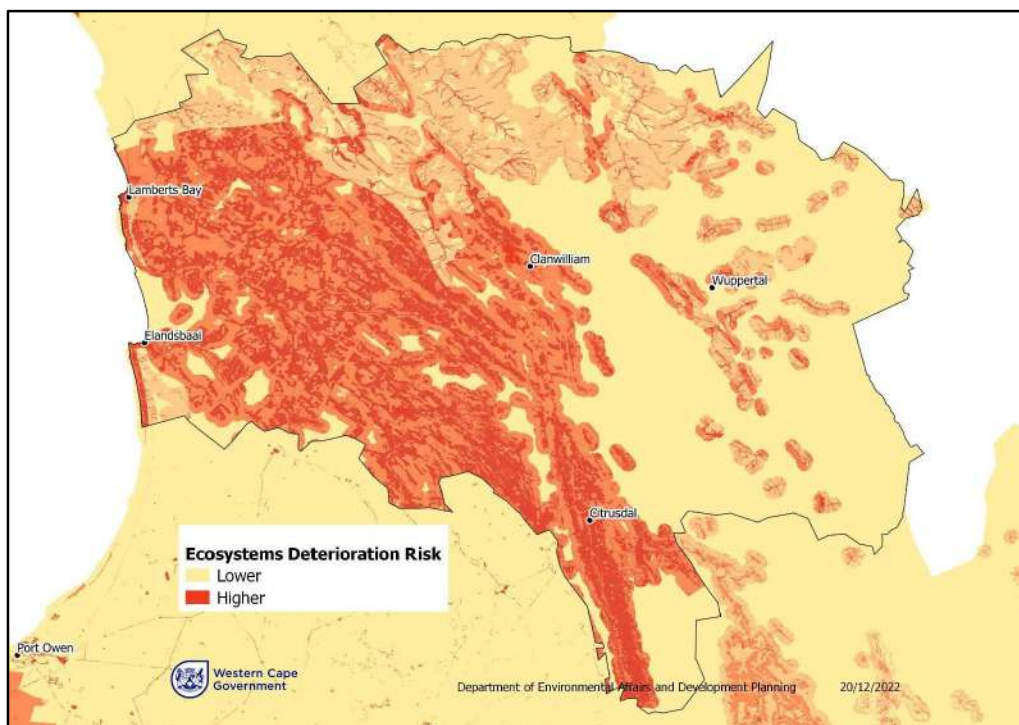
Environmental Impact Management directives for natural environment zone are outlined below:

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 300m ² 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 Natural Disaster: Ecosystem Deterioration

Ecosystems Deterioration (Climate change -Theme 1) should be avoided.

Map 29: Ecosystems Deterioration Risk in the Western Cape, highlighting areas where compromised natural features coincide with vulnerable population



6.2.4.3 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.

Management directives for natural environment and agricultural zones include:

The National Heritage Resources Act, Act 25 of 1999 (NHRA), supports the integration of heritage management and planning functions. Accordingly, and to the provisions of Sections 30 (5) and 31 of this Act, it is the responsibility of the local authority to compile a heritage inventory in its areas of jurisdiction inclusive of heritage resources, landscapes and prominent natural features, which form an important part of the cultural resources and give Cederberg its sense of place and forms the basis of tourism.

Municipalities are responsible for the grading of heritage resources to ensure the effective management and preservation thereof. Grading has to be overseen by the Provincial Heritage Authority. The local authority can, under the Heritage Act, become a heritage authority in the local areas for some of the approved grading. The grading of heritage resources is in three categories: Grade I - heritage resources in the national interest, Grade II – heritage resources in provincial and regional interest, and Grade III – other heritage resources.

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 wild flowers 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 stands 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:

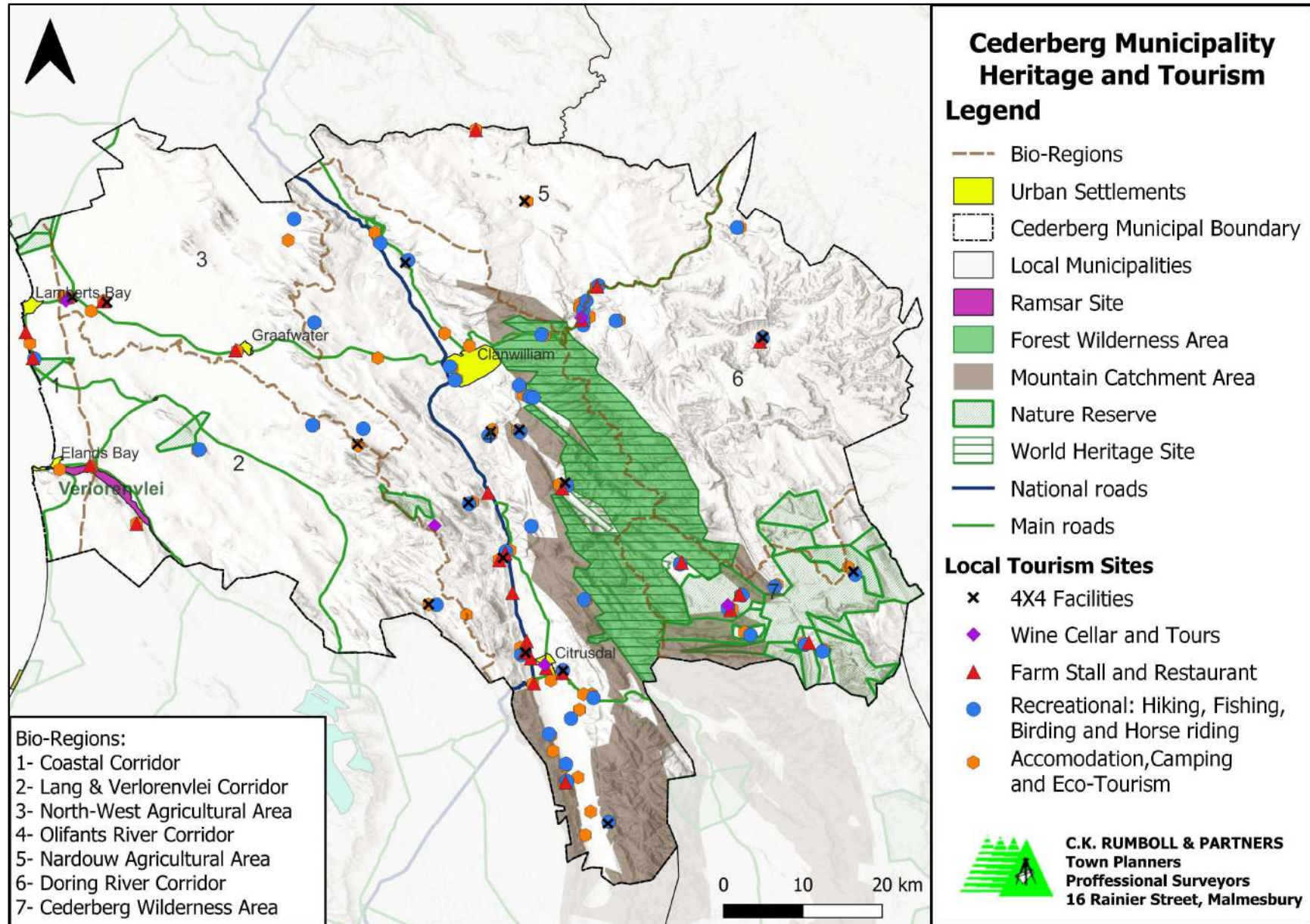
In rural and urban areas with economic potential, develop opportunities and promote growth in the following:

- 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:

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.

Map 30: Cederberg Tourism Routes



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

Landscapes

Change:

- Preserve the character of the Cederberg, inclusive of the unique landscape of agriculture inclusive of citrus, potatoes and rooibos and mountains.
- Promote information about heritage resources and 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 & 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.

Settlements and Rural Settlements and Sense of Place

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 <i>Biodiversity and Cultivation</i> initiatives and include on route farms as showcases.
Rooibos tea route around Graafwater towards Calvinia,	<p>Promote the development of a rooibos tea route:</p> <ul style="list-style-type: none"> • 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 & 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

	<p>Factory), Rock Art⁹ (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.</p> <p>Mission Station Cultural Route: Elandskloof to Clanwilliam (R303 and DR 2183 or R539 /alternatively N7).</p> <p>Allow for more tourism related facilities to develop around these routes (accommodation, recreation facilities, Agri-processing and selling of products, venues, etc.).</p> <p>Promote and strengthen Clanwilliam and Citrusdal as a prominent agri-processing and tourism related destinations.</p> <p>Promote the informal economy in the tourism industry.</p>
Spring flower and Wild flower route	<p>Promote the strengthening of the Spring and Wild Flower route and include public and private nature reserves and surrounding natural areas.</p> <p>Harvest wild flowers as an activity forming part of the attraction of the Spring Flower route.</p>
Outdoor Sport and Recreation Routes	<p>Promote the development of Cederberg Outdoor Sport and Recreation routes: Encourage outdoor recreational opportunities (hiking and mountain biking, bird watching, wild flower 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.</p> <p>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.</p>

⁹Cederberg 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.

An Environmental Management Framework for the natural environment is outlined below:

Management priority	Priority focus areas: Conservation & 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 300m ² 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.

6.2.4.4 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 & 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 the change directives above.

Encourage keeping and maintaining water trucks on farms and conservation areas for fire-fighting.

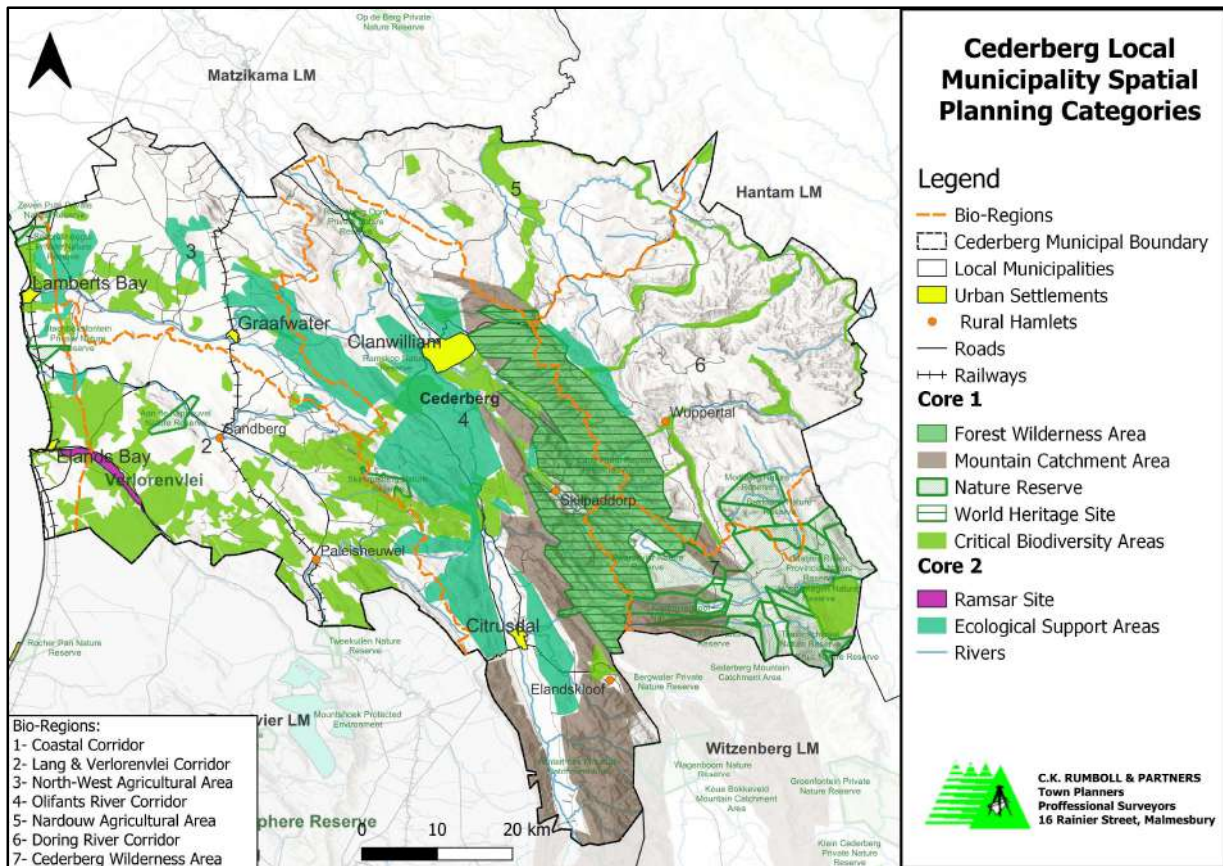
Environmental Impact Management directives for the Natural Environment are outlined below:

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 & 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

Cultural & 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 & 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 & 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: Cederberg Spatial Planning Categories



6.2.4.5 Proposals

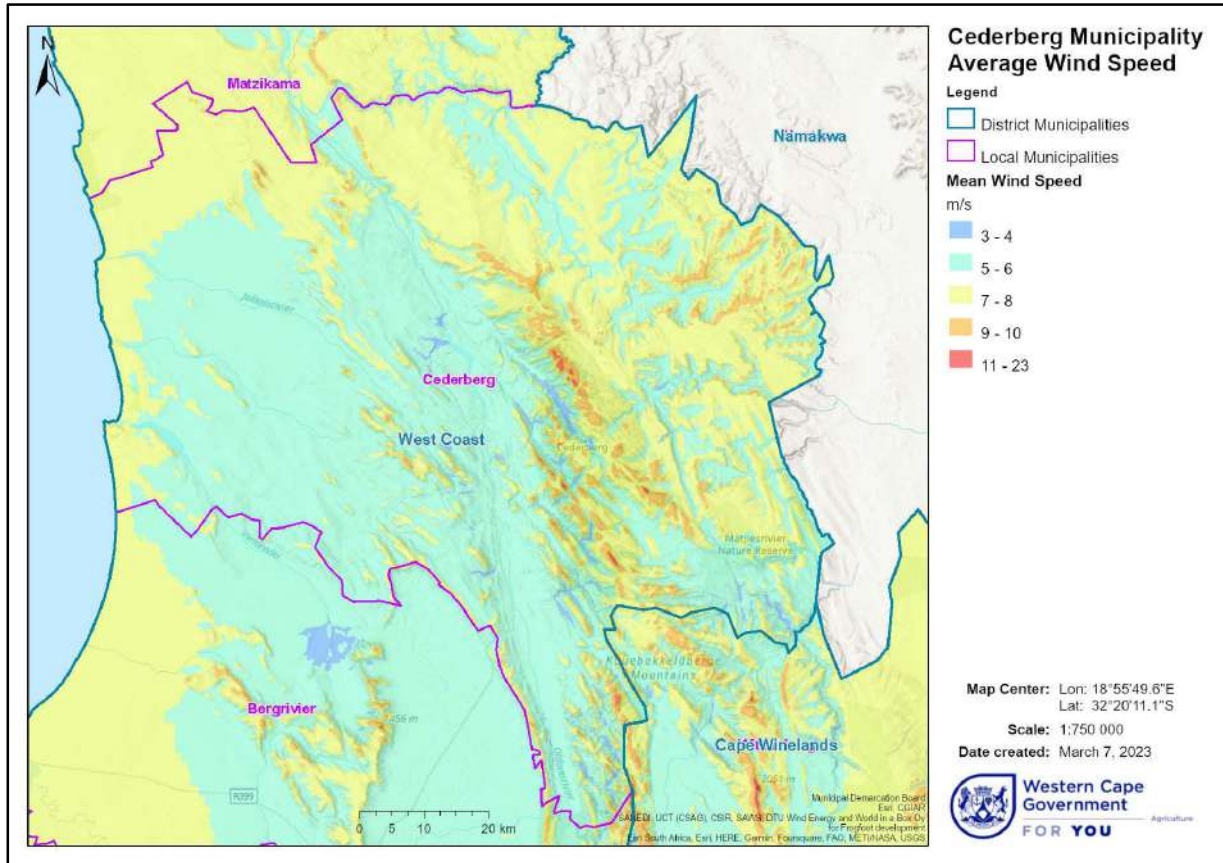
- Investigate the establishment wildland interfaces of a 100m – 1000m respectively using the outline of settlements and agricultural production units as per previous SPC map where all farming areas are categorised as buffer areas.
- Promote the Sandveld Environmental Management Framework (EMF) addressing 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 silcretefynbos, 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 & Wind

6.2.5.1 Natural Resource: Air and Wind

Map 31: Average Wind Speed, Cederberg

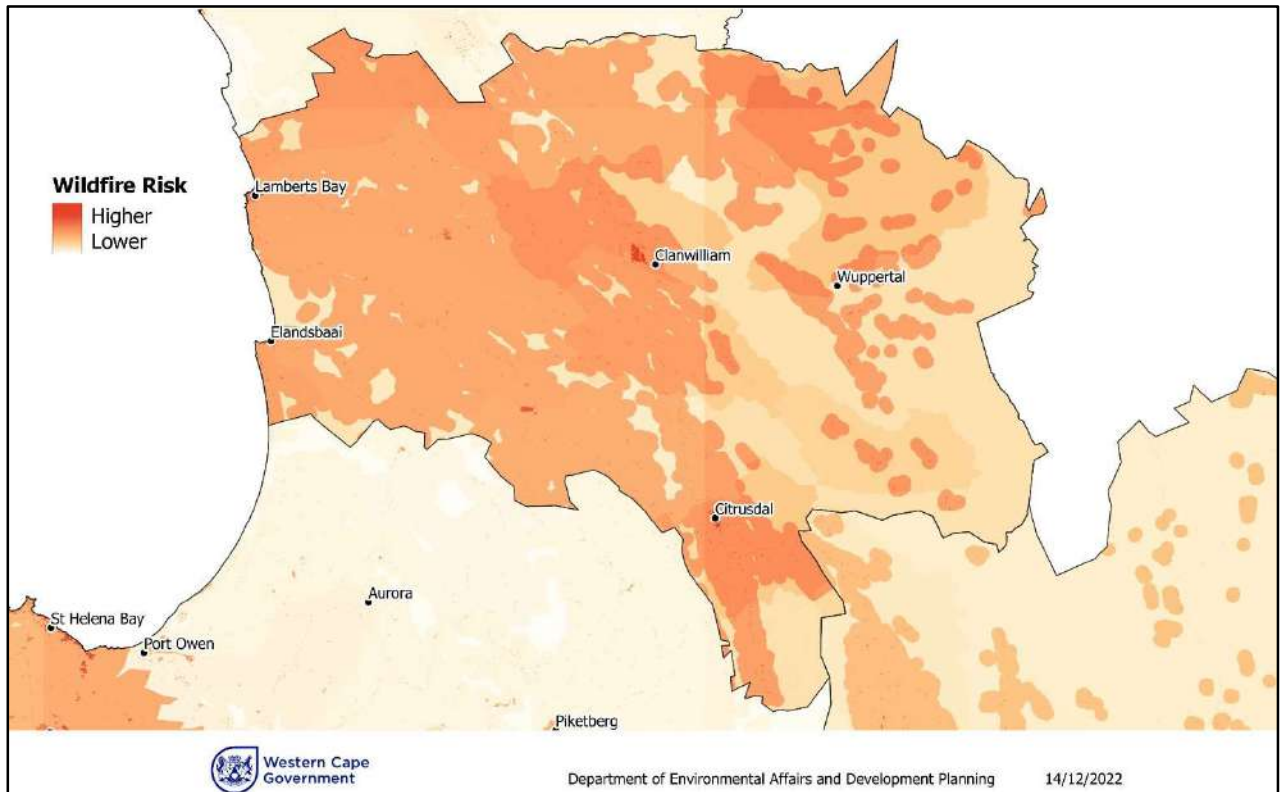


6.2.5.2 Natural Disaster

Cyclones and Tornados, which are unlikely.

Wild fires are likely in the mountain areas along the N7 and in the Cederberg.

Map 32: Risk of increased wildfires in Cederberg



6.2.5.3 Opportunities: Alternative Energy

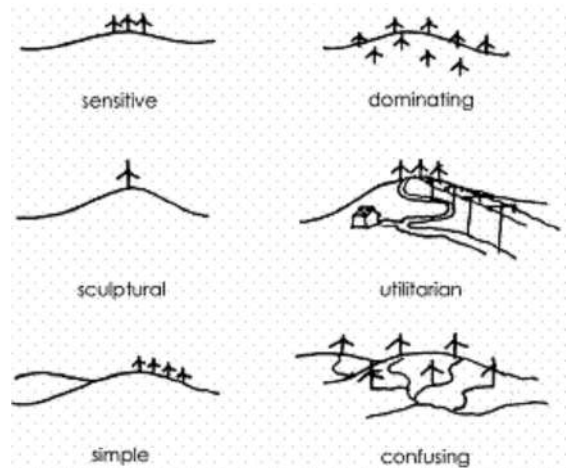
Alternative energy sources mitigate climate change and air quality contribute to good health.

Management directives for air and wind include:

Alternative energy from wind and solar facilities:

- 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, hydro electricity at Clanwilliam and Hydrogen along the coast.
- Protect Surface & 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 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.



Location options for wind turbines

6.2.5.4 Risks: Air Quality

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.

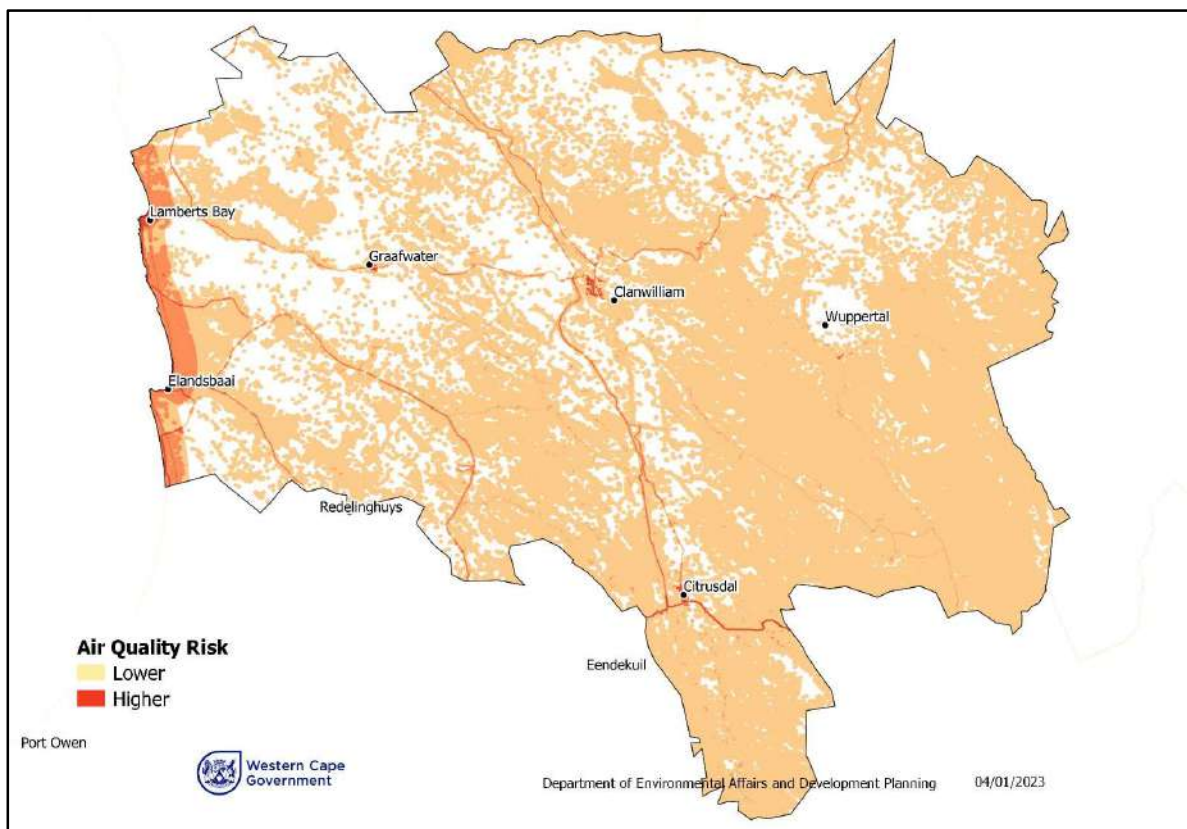
A map of potential risk, i.e., combining air pollution hazard with vulnerability, is generated by multiplying a vulnerability index with the values from potential emissions factors calculations (Figure below). The map shows how the potential hazard (count of potential emissions source types) and vulnerability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

Map 33: Relative index of air quality related risk



Management directives for air and wind include:

Air Quality and Wind

Develop:

Where information is available or where emission factors can be applied to quantify emissions, an emissions inventory for air pollution sources has been compiled for the West Coast District Municipality. 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* – Mining activities, like Port of Saldanha iron ore handling. 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:

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	<p>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.</p> <p>Proposed large scale tourism facilities must be subjected to an environmental assessment and environmental approval must be obtained before the development may take place.</p>
Monitoring and management aspects	<p>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).</p> <p>Adopted goals:</p> <ul style="list-style-type: none"> • 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 resources 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:

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: <ul style="list-style-type: none"> • Listed activities. • Process setups. Burning waste and tyres. Eco-tourism developments have no significant impact.	Agricultural Activities: <ul style="list-style-type: none"> • 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 monitoring. Passive H2S monitoring of Lambert's Bay factory to be conducted (smelly). <u>Climate Change: CO2 Emissions Reduction Strategies in WCDM:</u> 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
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.	

			for transport fuels, compact settlement planning, a reduction in energy use and a switch to renewable energy.		
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	

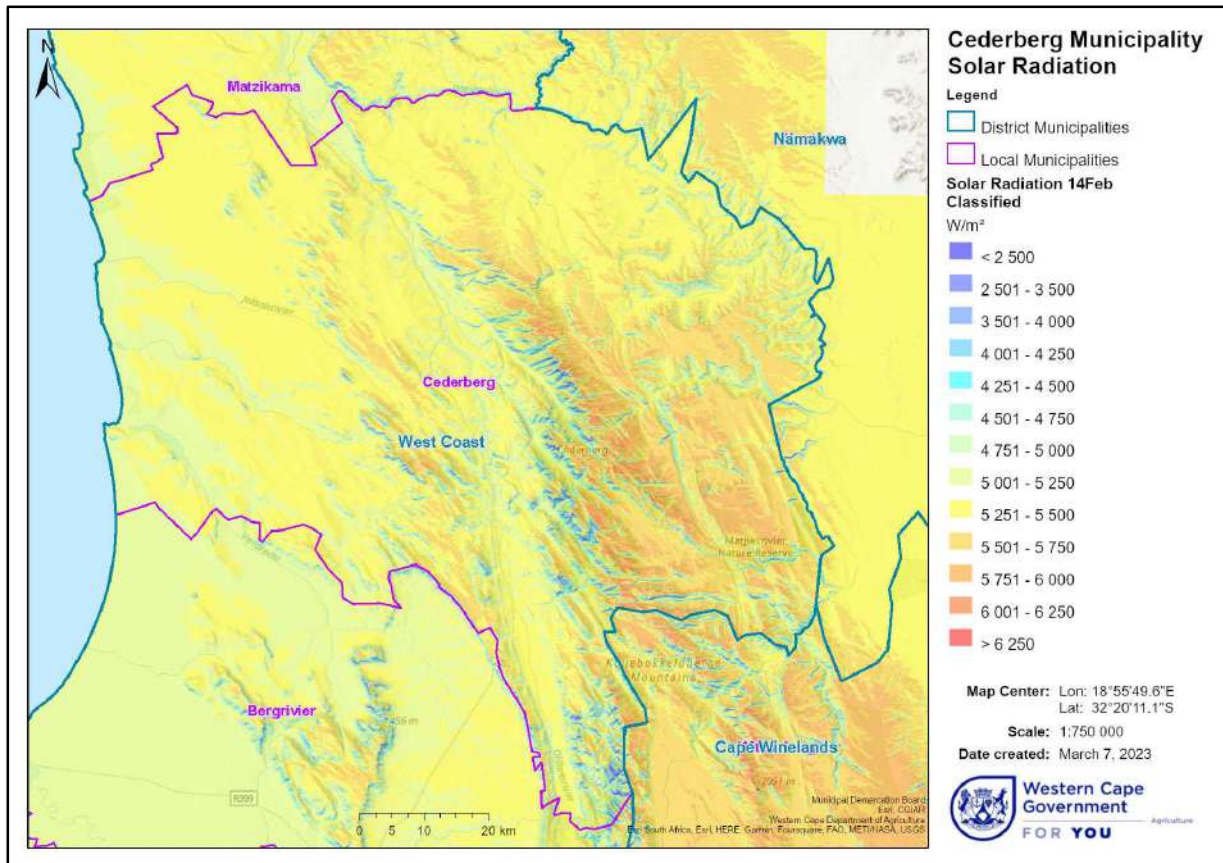
6.2.5.5 Proposals

Promote planting of trees and plants that keeps air clean as part of every development.

6.2.6 Sun

6.2.6.1 Natural Resource: Solar Radiation

Map 34: Solar Radiation, Cederberg



6.2.6.2 Natural Disaster: Heat wavers

Unlikely.

6.2.6.3 Opportunities: Alternative Energy

Management directives for sun include:

Alternative Solar Energy Facilities

Change:

- 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; Broadly: Clanwilliam – hydroelectricity, wind – west of N7, solar – overall.

- 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, hydro electricity 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.

6.2.6.4 Risks: Evaporation

Too high or low evaporation.

6.2.6.5 Proposals

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 Man-made Resource: Roads and Rail, Social Amenities

N7 and R27, R366 and R365 and railway.

N7, R27, R366 and R365	The locality of the Cederberg as connector to between the Western Cape, Northern Cape and Namibia, provide important freight and scenic routes, across the region. These routes are: <ul style="list-style-type: none"> ● N7 as connector to between Namibia and Cape Town, its markets in the south and access to international markets; ● R27, R366 and R365 along the West Coast, providing access to the Cape Metropolitan area, Saldanha Bay IDZ, and neighbouring regions.
Public Transport	Public transport is limited to the local bus and taxi services operating on some public transport routes. There are a total of 19 public transport routes, which were identified by the Taxi Association in the Cederberg area.
Transport Nodes	There are no developed intersection nodes.
Railways	There is a railway line from Bellville to Bitterfontein (Matzikama) that passes through Graafwater. Rail freight has declined significantly, while road freight has increased exponentially with the N7 as a major freight route through the Cederberg.
Airways	There is a private airstrip just south of Clanwilliam, which is used in cases of emergency as the landing strip within Clanwilliam has fallen into disuse.

6.2.7.2 Disasters: Natural Disasters

Flooding disrupting connection.

6.2.7.3 Opportunities

Management directives and development proposals for connectors include:

<p>Mobility, Transport Networks & Economic links</p>	<p>Protect: Maintain existing and develop new transport infrastructure sensitively to the agricultural and conservation landscape conservation.</p> <p>Change:</p> <p>Rail</p> <ul style="list-style-type: none"> 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 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 & Citrusdal), Piketberg and Malmesbury to strengthen economic links & mobility of people. <p>Road</p> <ul style="list-style-type: none"> 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).
<p>N7 and R27</p>	<p>Support the enhancement of freight routes:</p> <ul style="list-style-type: none"> N7 from 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.
<p>R365, DR 2183 or R539</p>	<ul style="list-style-type: none"> 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.
<p>Public Transport</p>	<p>Promote investigating the feasibility and reliability of public transport service along the N7 and R27 to facilitate socio-economic development in the region:</p> <ul style="list-style-type: none"> 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	<p>Promote nodes at N7 intersections and where SANRAL criteria allow nodes:</p> <ul style="list-style-type: none"> • 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. <p>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).</p> <p>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.</p>
	<p>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.</p>
Railway	<p>Support the implementation of special train trips.</p>

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, busses and taxis, law enforcement.
- Promote improved mobility in rural areas: Provide for upgrading pedestrian routes and adequate lighting.
- Promote access for farm workers to education and development programmes.
- 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.
- 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.

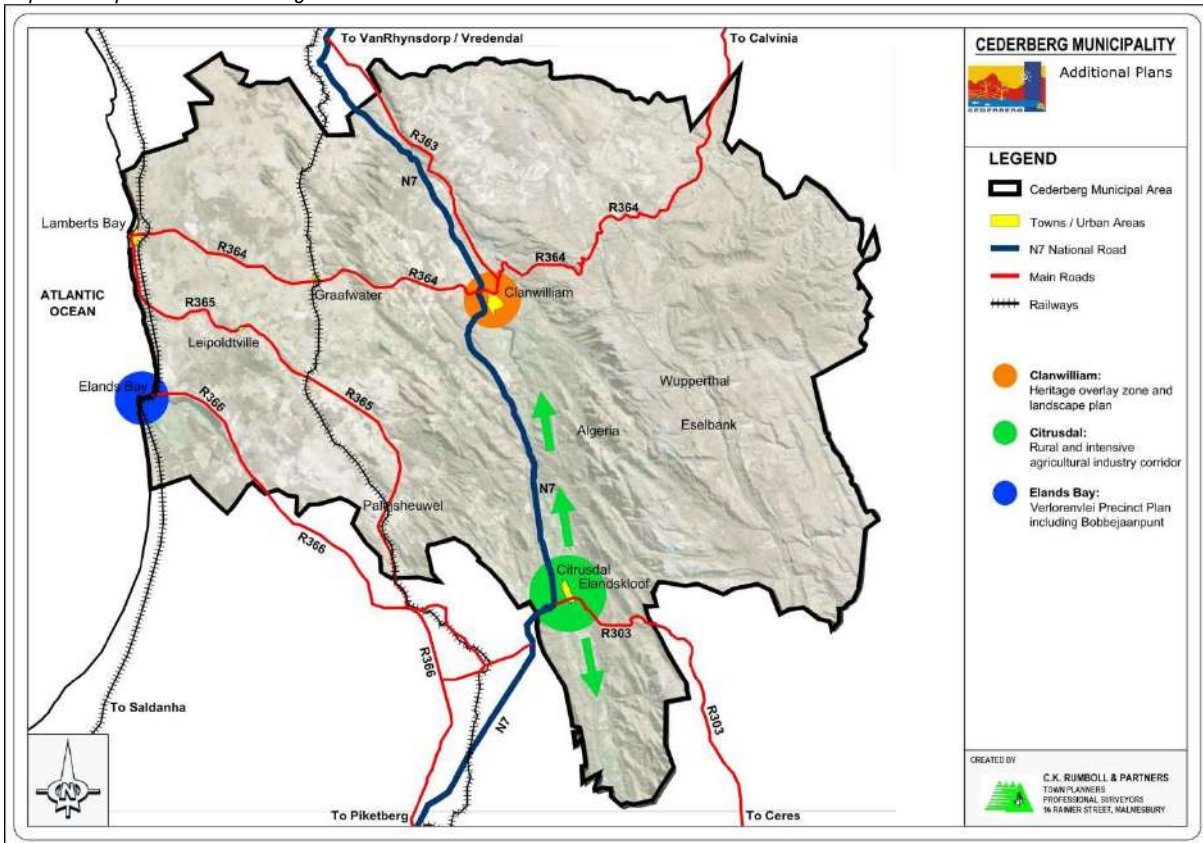
6.2.7.4 Risk

Lack of social services and deterioration Human Development Index.

6.2.7.5 Proposals

Provide social amenities according to CSIR standards to ensure access to social services.

Map 35: Proposals in Cederberg



6.2.8 Estuaries

6.2.8.1 Wadrif River Estuary (Wadrifvlei)

Environmental Impact Management: Wadrif 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	
Wagon Drift Farm is home to 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.	

Management Priority	Priority Focus Area
Wadrift River estuary (also commonly known as Wadriftvlei or Langvlei).	<p>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 Estuarine Functional Zone, is approximately 509.8 ha, extending over a length of 3.2 km.</p> <p>Vision: Wadriftvlei is a healthy ecosystem that is protected for current and future generations.</p>
Improve and rehabilitate.	<p>Environmental processes, activities and developments that pose a threat to Wadrift estuary include:</p> <ul style="list-style-type: none"> • Environmental hazards – drought, floods and climate change impacts; • Land-use and infrastructure development – poor design and construction of the Sishen-Saldanha railway bridge, adjacent road infrastructure and causeway, reduced connectivity with the sea and within the artificial separated water bodies. Resulting in the severance of the mouth region from the main estuary body, and the prevention of seawater influx into the system, thus affecting salinity concentrations in both parts of the present system. Due to reduced freshwater inflow, large parts of the vlei have dried up, and it appears that significant sedimentation has occurred. Appeal must be made for the redesign of the culverts under both the Transnet service road and Sishen railway line to allow for connectivity; and • Water quality and quantity taking strain as the river inflow reaching the estuary is reduced and carrying increased nutrient loads from the catchment due to poor 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; <p>To improve and maintain the present ecological state of the Wadrift River estuary, significant rehabilitation and intervention are required in the catchment and in the estuary, namely:</p> <ul style="list-style-type: none"> • Maintaining good water quality conditions in the catchment through strict management of agricultural return flows; • Maintaining /increasing base flows to estuary, specifically through limiting water resource development activities within the catchment; and • Re-design of the culverts under both the Transnet service road and Sishen railway line to allow for connectivity. <p>To improve Estuarine Health and Functioning:</p> <ul style="list-style-type: none"> • When ecological health and natural functioning of the Wadrift River estuary is improved, its negative ecological trajectory and catchment impacts reversed, living resources are sustainably managed and bird habitat function protected, even as the climate gets hotter and drier.

<p>Conserve and preserve.</p>	<p>Conserve and preserve:</p> <ul style="list-style-type: none"> • The catchment area of the Wadrift estuary, which falls within the Berg-Olifants Water Management Area, and the mainstream river to the estuary is known as the Langvlei River, which is approximately 60 km long. It supports the Abiotic Functions of the estuary; • The vegetation of the Wadrift estuary comprising of three dominant types, namely Arid Estuarine Salt Marshes (177.5 ha), Lamberts Bay Strandveld (132.2 ha) and Cape Seashore Vegetation (96.9 ha) (Biotic Function); • Avifaunal habitat as a total of 60 different species of inter-seasonally and/ or inter-annually water birds have used the estuary over a period of 16 years. The estuary is deemed complementary to the avifaunal habitat provided by the neighbouring Verlorenvlei. (Biotic Function) • And encourage conservation environmental custodianship by landowners of the entire estuary functional zone and to be designated as a conservancy and included 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; • And categorize Wadrift River estuary as Core 1 as it is a Critical Biodiversity Area, with its various supporting ecological habitats, as it plays a critical role in providing very limited wetland-type habitat for estuarine and coastal birds along the arid west coast. Acknowledging the regional functional and biodiversity value of the system, it is proposed that the entire estuary functional zone be designated as a conservancy. Activities encouraged in the estuary functional zone 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; • The biodiversity of the Wadrift River estuary.
<p>Environmental Impact Assessment Requirements.</p>	<p><u>Integrated Resource Monitoring Plan:</u></p> <ul style="list-style-type: none"> • 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. <p>Land-use and Infrastructure Planning and Development: Impacts associated with developments and proposed changes in land-use, including infrastructure and agriculture, are minimized.</p>
<p>Monitoring and management aspects.</p>	<ul style="list-style-type: none"> • 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, inclusive of climate change impacts
<p>Research and Education.</p>	<p><u>Ecological Health Status, Importance, and Recommended Future State:</u> The ecological health of the Wadrift estuary is in an E Category, that is, 'seriously modified', where 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. However, the Wadrift estuary is known as an important site for its rich bird diversity.</p> <p><u>Biotic Function:</u> The Wadrift estuary is not highly important from a fish perspective.</p> <p><u>Important Ecosystem Goods and Services:</u> It is evident that the Wadrift estuary provides very limited ecosystem services due to its largely modified state. Motive members of society to be sensitive to, and aware of and value the importance of the Wadrift estuary.</p>

6.2.8.2 Management priorities: 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.	<p><u>Key Objectives:</u></p> <ul style="list-style-type: none"> • Verlorenvlei ecosystem receives formal protection status under the Protected Areas Act, 2004 • Further degradation of Verlorenvlei ecosystem is halted. • Ecological health of ecosystem is improved to Category C/B (moderately modified by 2022). • Ecological health of ecosystem is improved to Category A/B (near natural) by year 2030.
Conserve and preserve.	<p><u>Conservation:</u></p> <ul style="list-style-type: none"> • 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.). <p><u>Living Resources Management:</u></p> <ul style="list-style-type: none"> • 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. <p><u>Water Quantity and Quality (including waste and wastewater management):</u></p> <ul style="list-style-type: none"> • 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.

	<p><u>Agriculture:</u></p> <ul style="list-style-type: none"> • 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.
<p>Environmental Impact Assessment Requirements.</p>	<p><u>Town and Tourism Development:</u></p> <ul style="list-style-type: none"> • Remove or upgrade of road crossings through Working for Wetlands programmed. • Ensure appropriate development in and around Verlorenvlei and include proposal in SDF. • Increase and improve eco-tourism access (e.g., for birding) in Verlorenvlei. • Promote the informal economy in the tourism industry.
<p>Monitoring and management aspects.</p>	<p><u>Heritage:</u></p> <ul style="list-style-type: none"> • The cultural, historical and archaeological sites in and around Verlorenvlei receives official protection status (e.g., Protected Areas Act, National Heritage Act). <p><u>Socio-economic:</u></p> <ul style="list-style-type: none"> • 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. <p><u>Law Enforcement and Compliance:</u></p> <ul style="list-style-type: none"> • 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., “Buurtweg”). <p><u>Funding Sources and Opportunities:</u></p> <ul style="list-style-type: none"> • Prepare a financial plan for the implementation of the Verlorenvlei EMP.

	<p><u>General:</u></p> <ul style="list-style-type: none"> • 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	<p><u>Innovative Opportunities for Job Creation:</u></p> <ul style="list-style-type: none"> • 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. • Encouraged 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. <p><u>Institutional Arrangements and Empowerment:</u></p> <ul style="list-style-type: none"> • Establish the Verlorenvlei Estuary Advisory Forum, comprising broader representation from relevant government authorities and the community. Draft a constitution for the forum to formalize the status thereof. • 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

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.	<ul style="list-style-type: none"> • 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 zonation 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. For public Amenities, the municipality determines:

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
<p>No activity, without municipal consent may:</p> <ul style="list-style-type: none"> • 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, misuse or damage any building, facility, structure or other amenity provided for the use of the public on the beach area. 	<p>The municipality determines:</p> <ul style="list-style-type: none"> • 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. 	<p>Promote the integrated and cooperative management of the coastline by:</p> <ul style="list-style-type: none"> • Bringing all relevant stakeholders together. • Coastal governance and co-responsibility. • Integrated, coordinated decision making, (institutional arrangements for coastal management including facilitate 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).

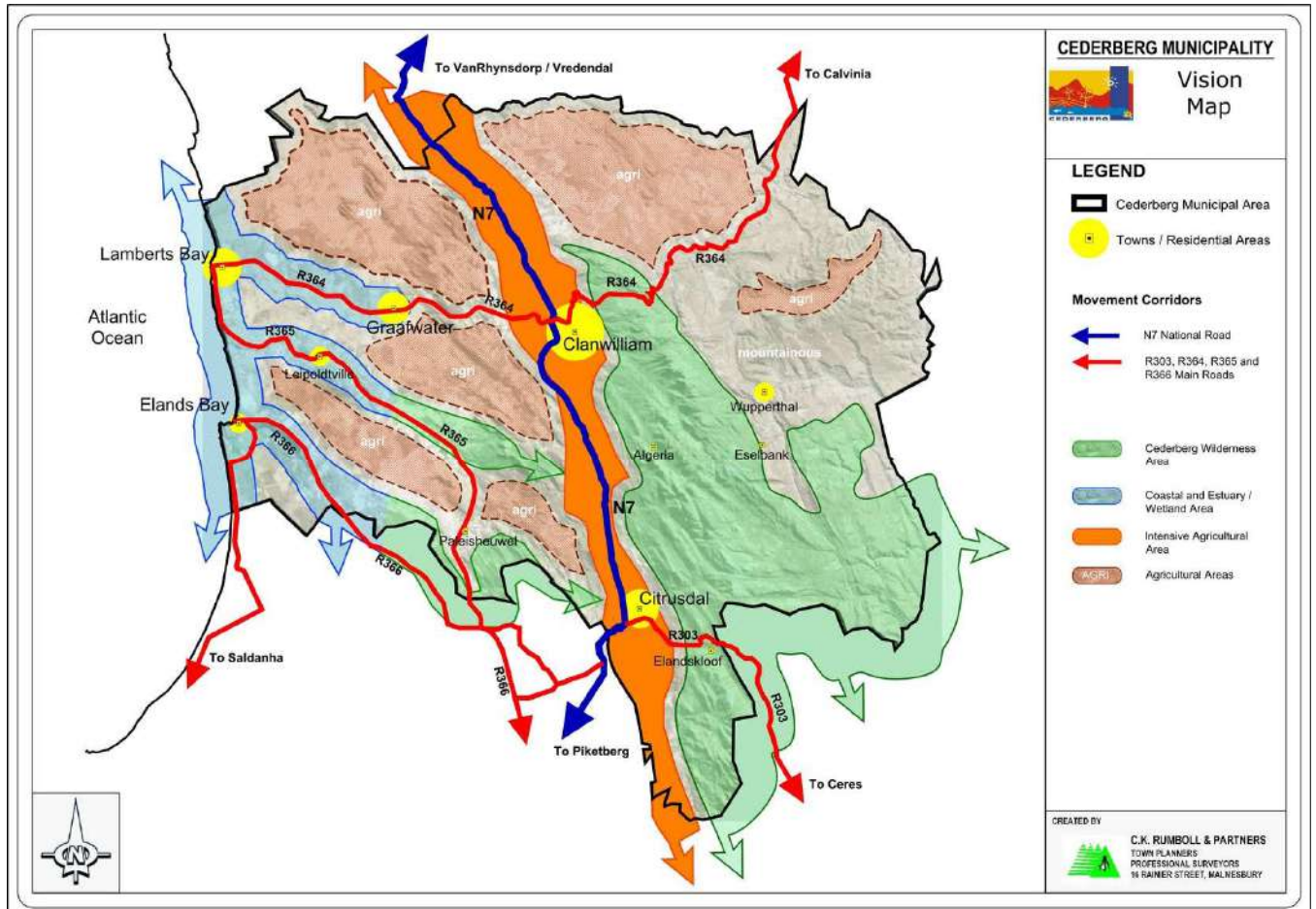
Development that has significant impacts if not regulated	
<p>Use of Vehicles and Boats/ Watercrafts</p> <ul style="list-style-type: none"> • Launching of boats only when in possession of a valid Certificate of Competency. • Only boat/vessel deemed seaworthy shall be allowed to launch. • Strictly avoid 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. 	<p>Recreation</p> <ul style="list-style-type: none"> • 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. • 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.

<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
<p>General</p> <ul style="list-style-type: none"> • 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 ambience 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. 	
<p>Research and Education</p>	<p>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.</p> <p>Develop and Facilitate Awareness, Education, Training, Capacity Building and Information Gathering in the District.</p> <ul style="list-style-type: none"> – 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 plan¹⁰ illustrates all the rural development proposals. The composite plan also illustrates the well-connected location of the Cederberg and the opportunities for spatial integration of the rural development proposals provide.

Map 36: Cederberg Composite Proposal



¹⁰ Composite SDF: SPLUMA Section 12(g)(k)(l)(o), Section 21(b)(n)(o) and Sec21(p)(iii)

CHAPTER 7: Cross Border Spatial Linkages

Cederberg is bounded by the Bergrivier Municipality (WC013) and the Witzenberg Municipality (WC022) (Cape Winelands District) to the south, the Matzikama Municipality (WC011) to the north and the Hantam Municipality (WC014) (Namakwa District, Northern Cape) to the east. Cederberg forms part of the area that is for spatial planning purposes described as the Karoo.



Though part of the West Coast District, the Cederberg was included in the Karoo Region functional area with the following **Spatial Objectives** in support of the functional area's Development Agenda and Spatial Vision are: (KRSDF, 2021).

7.1 Regional Spatial Objectives

1- Support the Karoo Vision and Identity: 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).

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).

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*).

4- Enable Regional Growth, Innovation and Change: Specific spatial opportunities and actions to stimulate optimum economic growth based on regional potential must be identified. The focus should be on (1) innovation, (2) the possibility of generating, codifying, packaging and selling knowledge through such activities, and (3) bringing about a rapid transition towards a more just spatial form (Development Agenda: The strengthening and diversification of *the regional economy* to ensure greater long-term viability and sustainability, including a specific focus on the key spatial network elements of the tourism and niche agricultural sectors).

5- 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.

7.2 Cross Border Spatial Considerations:

Cross Border Spatial Links identified and compared with the Karoo Spatial Considerations are as follows:

	Cross Border Spatial Links	Karoo Spatial Considerations
i.	Rural Development, Agriculture and Climate Change	Growth, innovation and change: Key economic sectors for exploration (1) Agriculture, niche exports, irrigation and large-scale farming, agro-industrial and agro-processing, (2) renewable energy, bio-fuels 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 4 th industrial revolution. [Number 7 included elsewhere in the table].
ii	Biodiversity and Climate Change	Heritage and Conservation <ul style="list-style-type: none"> - Climate change modelling implications. - Promote sustainable economic activities for contributing carbon credits. - Assessment of activities that might have negative impact on other regional potentials (e.g. mining along 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: Supportive infrastructure consideration. (2) Water resources planning (3) alternative energy (KRSDF, 2021).
v	Tourism and Economic Development and Climate Change	Heritage and Conservation <ul style="list-style-type: none"> - Application of UNESCO model. - Role and protection of heritage resources. Growth, innovation and change: Supportive infrastructure consideration (1) 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 <ul style="list-style-type: none"> o Importance of rural towns and point of service delivery, connection, distribution and value addition in the rural economy. o Exploration of economic role of rural settlements in relation to the functional rural regions they are located in. o Focus on access to land and land reform in the rural development context.
vi	Energy and Air Quality	None
vii		Collaborative action to achieved shared spatial planning concepts and structuring elements, institutional structures to facilitate collaboration and inclusion of non-government sector as important driver of development.

Cross Boarder 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 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 Van Rhynsdorp.	
Tourism and Economic Development	Berg Route, West Coast Wild Route.	Berg Route: West Coast Way from Berg River to start of the Cederberg Mountains.	R303: Citrusdal to Ceres; R355: Calvinia; Koue Bokkeveld and Tankwa Karoo; Koue Bokkeveld and Swartuggens 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.

Initiatives and proposals that require cross border spatial linkages include proposals from the Karoo Spatial Development Framework.

7.3 Climate Change Cross Border Response Plan

The following management programmes should be implemented, 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 and summarized below, address the management and reduction of natural and man-made disaster risks and climate change and serve as proposals for cross boarder:

- 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, agricultural 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 as replacements for existing areas that will become climatically unsuitable and strengthen the natural functioning of ecosystems to maintain the sustainability of the natural resources.
- Improve access to basic services and the reliability of supply.

For the detailed proposals see Chapter 5. Development Proposals: Rural and Regional.

7.4 Cross Border Implementation Plan

The implementation plan for the Karoo region includes:

Regional Spatial Governance

G1_ Establish Karoo Regional Intergovernmental Form (RIGF).

G2_ Establish Karoo Regional Development Agency.

G3_ Nominate Karoo Regional Champions.

Resource Management and Risk Mitigation

R1_ Protection of Critical Biodiversity Areas.

R2_ Water risk management.

R3_ Protection of agricultural potential for sustained economic development and food security.

R4_ Land reform policy for arid agricultural areas.

Inclusive Economic Development and Connectivity

E1_ Upington Boegoebaai Economic corridor.

E2_ Regional Tourism Agency.

E4_ Support for lamb and game agricultural sector infrastructure.

E5_ Renewable Energy.

Human Settlement Development and Land Reform

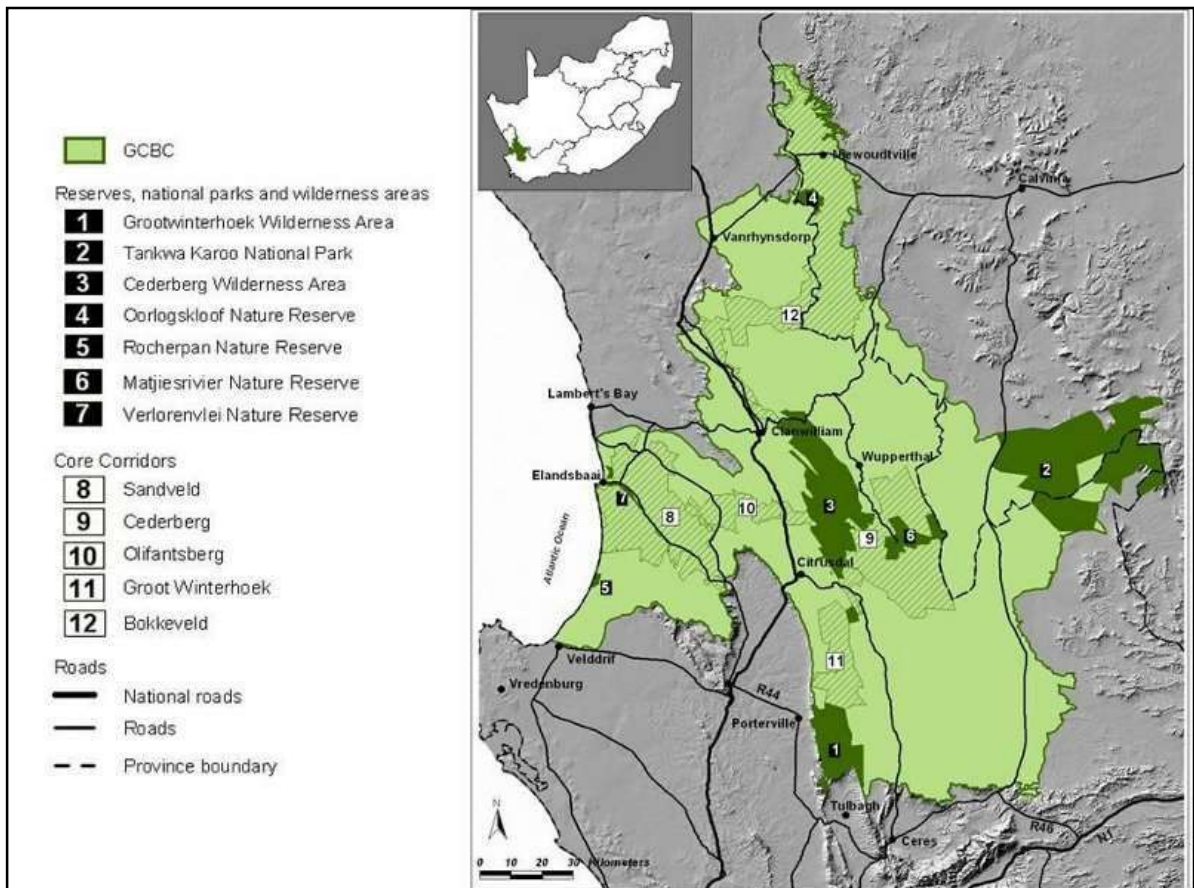
H1_ National coordination of social service delivery in terms of RSDF provisions.

H2_ Land Reform and human Settlement development review.

H3_ Alignment of upstream investment.

Biodiversity & Ecosystem Health:

Protect 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.

Protect food security and:

- Maintain the production potential of land, e.g. soil, water and land cover, and combat and prevent erosion (e.g. over-utilisation), depletion of water sources and alien vegetation infestation.
 - Promote area wide planning and conservation (best practise 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 boarder Integrated Waste Management Strategy.
 - Implement a waste management hierarchy and divert reduced waste to regional landfill site.
 - avoid and reduce waste,
 - re-use and recycle,
 - recover,
 - treat and dispose.
 - Develop landfill site between Vredendal and Klawer to serve Cederberg.
-

Mining:

- Prioritize ownerless mines for rehabilitation (based on its impact on future tourism development). Include a strategy and cost estimates for rehabilitation.
 - Ensure that every person who mines complies to an environmental management plan (EMP), where required.
 - Demand rehabilitation as applicants for a prospecting right, mining right or mining permit, has to make financial provisions for rehabilitation.
 - Explore mineral beneficiation and the provision of support services to the mining sector.
 - Mitigate dust generation that cause colouration of the landscape.
 - Avoid high visual impact on the significant landscapes: 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.
-

Economy:

Large-scale regional economic activities and infrastructure forms the macro-economic base and (1) delivers 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 Kilometer Array;connectedness (ICT) through broadband infrastructure;
- Rural tourism; and
- The oceans economy (e.g. fisheries).

Promote and enhance (strengthen and sustain) Agricultural Value Chains or 'Regional-Rural Development Model' (NSDF & Karoo SDF).

- Promote establishing 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 located in a larger urban centre and has three main purposes (KRSDF).
 - Linking and contracting rural, urban and international markets (KRSDF).
 - Acting as a holding-facility and releasing produce to urban markets based on seasonal trends.
 - Availing market intelligence and information feedback to the Anchors and Farming Support units, using information and communication technologies. (KRSDF).

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.
 - Enhance awareness of the Tankwa / Roggeveld / Cederberg link.
 - Share the R303 with Witzenberg, between Citrusdal and Ceres.
 - Develop across boarder tourism opportunities.
-

Harbours and Small Towns:

- Limited development in admiralty reserve.
 - Monitoring, 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.
-

CHAPTER 8: Capital Expenditure Framework and Implementation Plan

The Capital Expenditure Framework reflect the following question?

- a. What proposals envisioned the MSDF?
- b. What infrastructure is required to service the proposals? Has this infrastructure been planned for?
What is the cost of the balance of infrastructure to service the proposals?
- c. What is long term municipal budget and the municipal capital expenditure budgeted for the SDF cycle? How does these budgets provide for the balance of infrastructure required?

The result of the answers to these questions provides a basis to prioritise proposals.

The framework to follow was compiled without a Long-Term Financial Framework.

8.1 Implementable SDF Proposals

Implementable SDF proposals were derived from the settlement proposal as the rural proposals are mainly conceptual of nature and may require area plans.

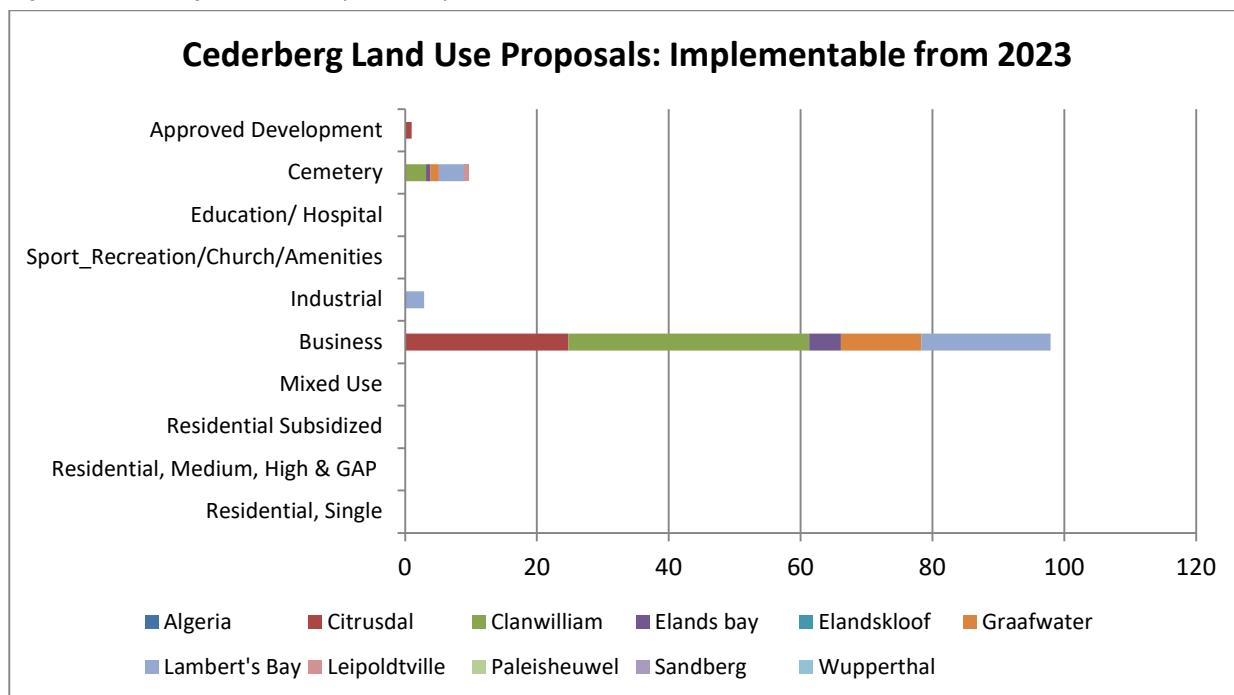
8.1.1 List of proposals for settlements and rural area

A list of SDF proposals and likely timeframes, per settlement are presented as graphs and tables. The proposals per settlement is represented as land use type proposals. Land uses that were not included in the tables and graphs are open space proposals used as buffer in contrast with sports fields within settlements that were included. Small Scale Agriculture was also not included in the tables as it was a standard SDF proposal in all settlements.

Proposals immediately implementable:

The SDF proposals that should be immediately implementable in the SDF cycle, are either approved developments (planned for in the previous SDF cycles) or intensification proposals.

Figure 5: Cederberg Land Use Proposals: Implementable from 2023



Approved developments are limited to transport and mixed use in Citrusdal. Implementable opportunities in Citrusdal, Clanwilliam, Elands Bay, Graafwater and Lambert's Bay include business intensification within the CBDs and secondary business nodes across the settlements. Industrial development is proposed in Lamberts Bay.

Table 10: Extent of land use proposal per settlement, immediately implementable

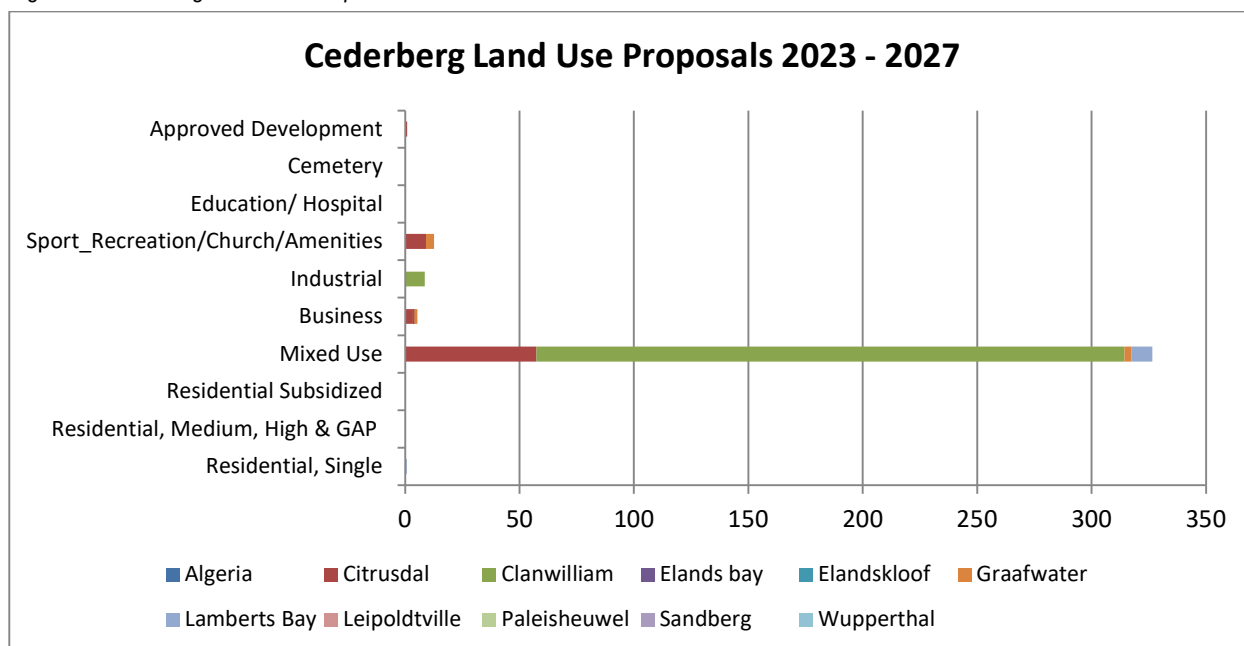
2023, immediately	Residential, Single	Residential, Medium, High & GAP	Residential Subsidized	Mixed Use	Business	Industrial	Sport/ Church/ Amenities	Education/ Hospital	Cemetery	Approved Development
Algeria	0	0	0	0	0	0	0	0	0	0
Citrusdal	0	0	0	0	24,8	0	0	0	0	1
Clanwilliam	0	0	0	0	36,5	0	0	0	3,2	0
Elands bay	0	0	0	0	4,8	0	0	0	0,6	0
Elandskloof	0	0	0	0	0	0	0	0	0	0
Graafwater	0	0	0	0	12,2	0	0,09	0	1,32	0
Lambert's Bay	0	0	0	0	19,63	2,9	0	0	3,97	0
Leipoldtville	0	0	0	0	0	0	0	0	0,6	0
Paleisheuwel	0	0	0	0	0	0	0	0	0	0
Sandberg	0	0	0	0	0	0	0	0	0	0
Wupperthal	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	97,93	2,9	0,09	0	9,69	1

A total of 14ha (2%) are developable immediately either being approved developments or intensifying primary and secondary rights consisting of 10ha business, 3ha industrial and 1 ha residential and transport use. There is also 1ha sports field and 10ha cemetery development that are proposed.

Proposals implementable during SDF cycle: 2023 – 2027:

Proposals over the SDF cycle (until 2027) are illustrated in the figure below:

Figure 6: Cederberg Land Use Proposals: 2023 - 2027



Implementable proposals over the next 5 years (until 2027) are Residential in Lamberts Bay, mixed use in Citrusdal, Clanwilliam Elandskloof and Lamberts Bay. Business use is proposed in Citrusdal, Elands Bay and Graafwater and Industrial use in Clanwilliam. Sport and recreation is proposed in Citrusdal and Graafwater. There is an approved industrial development in Citrusdal.

Table 11: Swartland Land Use Proposals: 2023 - 2027

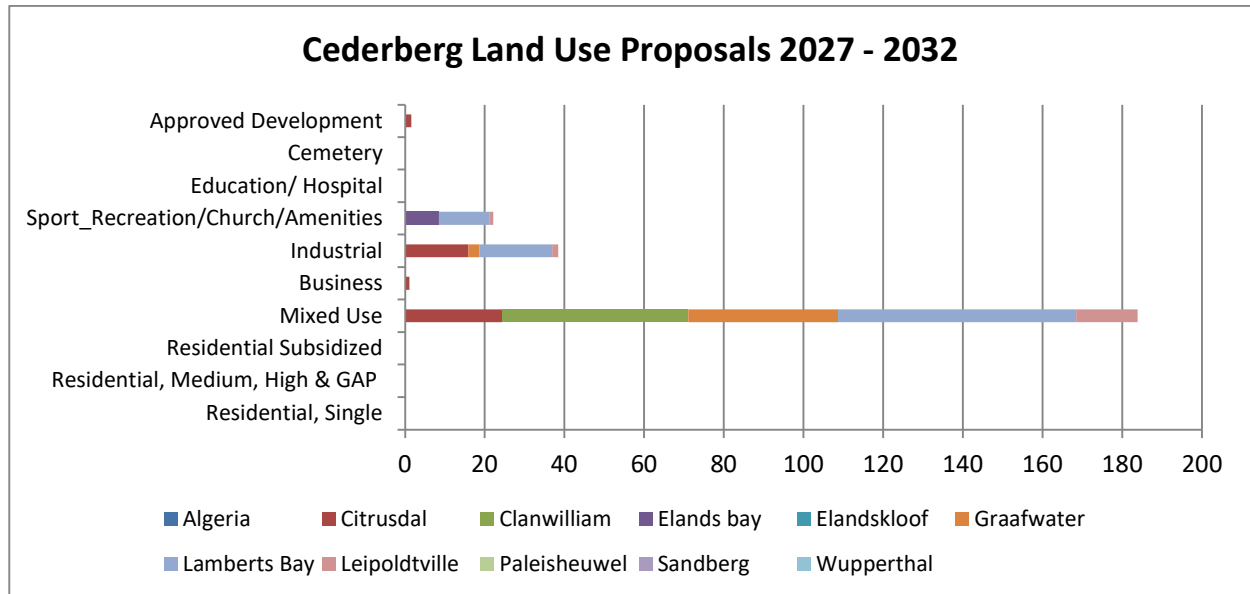
Settlement	Residential, Single	Residential, Medium, High & GAP	Residential Subsidized	Mixed Use	Business	Industrial	Sport /Church/ Amenities	Education/ Hospital	Cemetery	Approved Development
Algeria	0	0	0	0	0	0	0	0	0	0
Citrusdal	0	0	0	57,5	3,4	0	9,2	0	0	1
Clanwilliam	0	0	0	256,8	0	8,7	0	0	0	0
Elands bay	0	0	0	0	0,6	0	0	0	0	0
Elandskloof	0	0	0	0	0	0	0	0	0	0
Graafwater	0	0	0	3,18	1,46	0	3,43	0	0	0
Lamberts Bay	0,74	0	0	9,09	0	0	0	0	0	0
Leipoldtville	0	0	0	0	0	0	0	0	0	0
Paleisheuwel	0	0	0	0	0	0	0	0	0	0
Sandberg	0	0	0	0	0	0	0	0	0	0
Wupperthal	0	0	0	0	0	0	0	0	0	0
Total	0,74	0	0	326,57	5,46	8,7	12,63	0	0	1

A total of 342ha (55%) are developable over the SDF cycle consisting of 218ha residential and amenities, 114ha business and 10ha industrial. There are 13ha sports field and amenities proposed and 1ha approved residential development.

Proposals implementable during SDF long term cycle: 2027 – 2032:

Proposals over the long-term SDF cycle (until 2032) are illustrated in the figure below:

Figure 7: Cederberg Land Use Proposals: 2027 - 2032



Implementable proposals from 2027 to 2032 include mixed use in Citrusdal, Clanwilliam, Graafwater and Lamberts Bay and Leipoldtville. Business use is proposed Citrusdal whilst industrial use is proposed in Citrusdal, Graafwater and Lamberts Bay. Sport and recreation proposals for Elands Bay, Lamberts Bay and Leipoldtville were made. Approved business development is in Citrusdal

Table 12: Swartland Land Use Proposals: 2027 - 2032

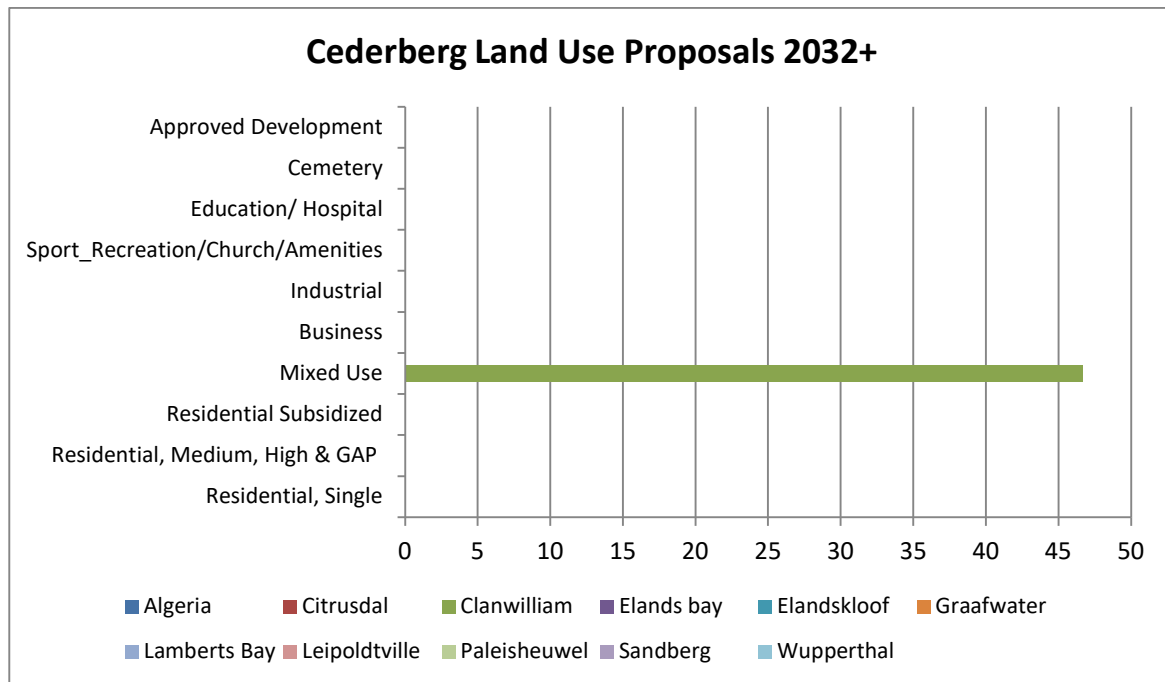
Settlement	Residential, Single	Residential, Medium, High & GAP	Residential Subsidized	Mixed Use	Business	Industrial	Sport /Church /Amenities	Education/ Hospital	Cemetery	Approved Development
Algeria	0	0	0	0	0	0	0	0	0	0
Citrusdal	0	0	0	24,4	1,1	15,9	0	0	0	1,6
Clanwilliam	0	0	0	46,65	0	0	0	0	0	0
Elands bay	0	0	0	0	0	0	8,5	0	0	0
Elandskloof	0	0	0	0	0	0	0	0	0	0
Graafwater	0	0	0	37,59	0	2,79	0	0	0	0
Lamberts Bay	0	0	0	59,81	0	18,27	12,77	0	0	0
Leipoldtville	0	0	0	15,4	0	1,5	0,9	0	0	0
Paleisheuwel	0	0	0	0	0	0	0	0	0	0
Sandberg	0	0	0	0	0	0	0	0	0	0
Wupperthal	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	183,85	1,1	38,46	22,17	0	0	1,6

A total of 247ha (36%) are developable over the 5 years following the SDF cycle (2028+) consisting of 122ha residential, 64ha business and amenities and 39ha industrial. There are 22ha sports field and amenities proposed and 1,6ha approved business development proposed.

Proposals implementable during SDF long term cycle: 2032+:

Proposals over the long-term SDF cycle (until 2032) are illustrated in the figure below:

Figure 8: Cederberg Land Use Proposals: 2032+



The proposals implementable from 2032 onwards, include mixed use in Clanwilliam.

Table 13: Swartland Land Use Proposals: 2032+

Settlement	Residential, Single	Residential, Medium, High & GAP	Residential Subsidized	Mixed Use	Business	Industrial	Sport /Church /Amenities	Education/ Hospital	Cemetery	Approved Development
Clanwilliam	0	0	0	46,65	0	0	0	0	0	0
Total	0	0	0	46,65	0	0	0	0	0	0

A total of 47ha (7%) are developable over the 5 years following the SDF cycle (2028+) consisting of 31ha residential and 16ha business and amenities.

The total extent of developable land in this SDF is ha over 20 years:

	Residential	Business	Sport	Industrial	Total Gross
Hectares	373	204	35	50	671
Percentage	56%	30%	7%	5%	100%

Settlement Priorities:

The preliminary settlement development priority proposals are located in:

First level priorities: Clanwilliam

Second level priorities: Citrusdal, Elands Bay, Elandskloof, Lamberts Bay

Third level priorities: Algeria, Graafwater, Leipoldville, Paleisheuwel, Sandberg and Wupperthal.

Rural Priorities:

Only rural proposal with infrastructure implication was listed below:

No	Rural Proposals	Infrastructure Implications
1.	Delineated flood lines in Citrusdal and Elands Bay	Identify infrastructure that may have to move.
2.	Promote open spaces and social amenities along rivers and tributaries: swimming pool at Citrusdal within Olifants River.	Constructing and maintaining pool.
3.	Promote infrastructure for water sports and recreation on freshwater bodies (Clanwilliam and Bulshoek dams).	Upgrade and expand municipal facilities at Clanwilliam Dam.
4.	Improved management and rehabilitation of waste stites at all settlements.	Infrastructure to manage waste and rehabilitation of site.
5.	Promote local rather than regional cemeteries and provide for maintenance.	Infrastructure and services to expand cemetery.
6.	Promote nodes at N7 intersections and where SANRAL criteria allow nodes, as well as along R363 and R366. Nodes and associated infrastructure should be sensitive to the agricultural landscape.	Develop a detailed plan to determine the level, scope and extend of services required.
7.	Support the development of an Intensive Rural Development Corridor along the N7 between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval.	Develop a detailed plan to determine the level, scope and extend of services required.
8.	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.	Provide for rural waste management infrastructure and services.
9.	Establish new tourism routes and destinations combined with art, sport and food: <ul style="list-style-type: none">○ Citrus route from Clanwilliam to Citrusdal, Rooibos Tea route around Graafwater towards Calvinia;○ Conservation and Heritage areas: Cederberg and Matjiesrivier Conservation Area, Verlorenvlei (R366) and Jakkalsvlei (R365);○ Outdoor Sport and Recreation routes.	Provide for tourism infrastructure and services and develop design and implementation plan.
10	Promote tourism development nodes at intersections: along R364 (between Graafwater and Lamberts Bay; to Northern Cape and Karoo) and R365 (between Leipoldville and Lamberts Bay); (from cost to Bergrivier Municipality).	Provide for tourism infrastructure and services and develop area, design and implementation plan.
11.	Promote renewal/ upgrading existing railway station and siding buildings and particular at Graafwater.	Existing services should be able to accommodate proposal.
12	Implement the Elands Bay Slipway and Parking area and maintenance of existing and related fishing infrastructure to keep sense of place.	Establish firm partnerships to provide the required infrastructure.

13	Support farm owners to develop agri-villages.	Provide for rural waste management infrastructure and related services.
14	Formalise guidelines for netting tunnels, agri-industry facilities and public utilities regarding positioning screening, adverse impacts and decommissioning.	None
15	Invest in ecological infrastructure.	Joint venture with Cape Nature.
16	Delineate and protect intensive and extensive agriculturally productive land to secure food production is, as highest GDP and employment contributor.	Joint venture with Western Cape Department of Agriculture.

8.1.2 List of infrastructure requirements

The infrastructure needed and cost thereof are listed as master plan budget summaries and gaps were filled in from organizational (municipal) knowledge. These summaries served as infrastructure requirements as the alignment of the SDF proposals and the masterplan maps concluded some alignment as outlined in section 7.2 to follow.

Tables of infrastructure planned for as per this MSDF cycle and beyond and cost thereof follows. Infrastructure required as per previous SDF cycle were not included.

Electricity:

Clanwilliam and Lamberts Bay required electricity upgrades. The table below list the electricity infrastructure projects (See detailed table in Annexure 4).

Table 14: Master Plan Electricity Infrastructure Projects

Electricity Supply, capacity and distribution as per 2018 Electricity Master Plans				
Settlements	Ward	Capacity	Status	Cost
Elandskloof	1		Adequate.	
Citrusdal	1 & 2	1MVA	Adequate 1MVA, using 0.5MVA. Distribution upgrades, replacements and added connections	R6 130 000.00
Clanwilliam	3		Inadequate, upgrade in process, to be completed by 2024/25. (Line built from Graafwater). Distribution upgrades, replacements and added connections	R9 280 000.00
Graafwater	4	0.75MVA	Upgrade (0.75MVA to 1MVA) will take place during phase II subsidized housing development. Distribution upgrades, replacements and added connections	R10 460 000.00
Paleisheuwel	4		Adequate.	
Sandberg	4		Adequate.	
Elands Bay	4	1MVA	Adequate 1MVA, using 400kVA.	R11 060 000.00
Lamberts Bay	5	2,7MVA	Upgrade (2.7MVA to 3.5MVA) along with subsidized housing development. Distribution upgrades, replacements and added connections	R13 240 000.00
Leipoldtville	5		Adequate.	
Wuppertal	6		Adequate.	
Algeria	6		Adequate.	
Total		5,45MVA		R50 170 000.00

Sewerage:

Sewer upgrades were planned for all settlements whilst Citrusdal's new sewerage works was completed in the previous SDF cycle. The table below list the sewer infrastructure Projects (See detailed table in Annexure 4).

Table 15: Master Plan Sewerage Infrastructure Projects

Settlement	Waste Water Treatment (WWT) (Bulk and Pipe Capacity)			M = master plan, G = other sources
	Ward	Capacity	Status	Cost
Elandskloof	1		WWTW required.	R14 million (G)
Citrusdal	1 & 2		Adequate, WWTW was relocated and increased. Decommission Heuwelsig & upgrade drainage.	R1, 626 million (M)
Clanwilliam	3		Increase capacity and upgrade WWTW.	R59 million (Overall) (G) or R13, 781 million (2022, 2026, 2036) (M)-
Graafwater	4		Required (replace oxidation ponds).	R23.4 million (G)
Paleisheuwel	4		Upgrade required (maintenance of conservancy tanks).	R0.15 million (G)
Sandberg	4		WWTW required.	
Elands Bay	4		Increase WWTW capacity and upgrade.	R23.4 million (G)
Lamberts Bay	5		Increase capacity and upgrade WWTW (Nuweland) & construct new rising main.	R22.3 million (Overall) (G) or R5, 464 million (2022, 2026) (M)
Leipoldtville	5		WWTW (new) required.	R10 million (G)
Wuppertal	6		Private: Moravian Church responsible	
Algeria	6		Upgrade WWTW.	R1 million (G)

Bulk Water:

Bulk water sources include desalination of sea water (not online as yet) and water from the Clanwilliam dam. It is not known if there are bulk water infrastructure projects planned for.

Table 16: Master Plan Bulk Water Infrastructure Projects

Bulk Water: Source, Storage or Reticulation				
Settlement	Ward	Capacity	Status	Cost

Water:

Water projects were proposed for all settlement. The table below list the water infrastructure projects (See detailed table in Annexure 4)..

Table 17: Water Infrastructure Projects

Settlement	Water: Enhanced or new Source, Storage or Reticulation			
	Ward	Capacity	Status	Cost
Elandskloof	1			R11 million.
Citrusdal	1 & 2	3MI reservoir	Upgrade reticulation capacity (no reserves). Additional reservoir storage capacity required	R15,5 million
			Network reinforcement	R1.32 million
Clanwilliam	3	2.5MI reservoir	Pressure management and replacement of pipe to purification works. Additional reservoir storage capacity required at Cederville site.	R29,794 million
			New water treatment plant	TBC
Graafwater	4	1.5MI reservoir	Require upgrade	R5.4 million

Paleisheuwel	4		Reticulation upgrade	R0.25 million
Sandberg	4		Adequate.	
Elands Bay	4	1MI reservoir		R5 million R0.05 million (2023) (M)
Lamberts Bay	5	3MI reservoir	Upgrade reticulation. Desalination plant non-operational, investigate new groundwater sources.	R3.5 million R1,652 (2023) (M)
Next SDF Cycle			New Booster pump station to be constructed	R4.808 million
Leipoldtville	5	0.5MI reservoir		R5 million
Wuppertal	6		Upgrade reticulation.	R8 million
Algeria	6		None.	

Solid Waste:

Solid Waste Management needs urgent attention and improvement. The table below list the solid waste infrastructure projects. (To be confirmed and completed).

Table 18: Solid Waste Infrastructure Projects

Settlement	Solid Waste Removal and Management			Cost
	Ward	Capacity	Status	
Elandskloof	1		Regular.	
Citrusdal	1 & 2		Weekly waste removals.	
Clanwilliam	3		Weekly waste removals.	
Graafwater	4		Weekly waste removals.	
Paleisheuwel	4			
Sandberg	4			
Elands Bay	4		Weekly waste removals.	
Lamberts Bay	5		Weekly waste removals.	
Leipoldtville	5			
Wuppertal	6			
Algeria	6			

Roads:

Road upgrades. The table below list the roads infrastructure projects. (To be confirmed and completed)

Table 19: Master Plan Roads Infrastructure Projects

Settlement	Roads			Cost
	Ward	Class	Status	
Elandskloof	1			
Citrusdal	1 & 2			
Clanwilliam	3			
Graafwater	4			
Paleisheuwel	4			
Sandberg	4			
Elands Bay	4			
Lamberts Bay	5			
Leipoldtville	5			
Wuppertal	6			
Algeria	6			

Stormwater

No Stormwater Masterplan was available.

A summary of the infrastructure budget per settlement follows:

Table 20: Budget requirement per settlement per SDF cycle

Master Plan	Ending 2022: R'000 000			2023 -2027			2028+		
	Electricity	Water	Sewer	Electricity	Water	Sewer	Electricity	Water	Sewer
Elandskloof		11	14						
Citrusdal	6,9	15,5	1,63		1,32		0,78	3,1	0,65
Clanwilliam	9,28 (8)	29,8	59 (13,8)		TBC		1,3		7,3
Graafwater	10,46	5,4	23,4				0,45	1,67	
Paleisheuwel		0,25	0,15						
Sandberg									
Elands Bay	11,06 (8)	5,05	23,4						
Lamberts Bay	13,24 (6,6)	3,5	22,3 (5,5)					4,81	
Leipoldville		5							
Wuppertal		8	10						
Algeria			1						
Total	50,17	82,95	154,88						

The budget amounts to R50 million for electricity, R83 million for water and R155 million for sewer until 2028 and the total budget is R288 million. No budget figures were available for beyond 2028.

The budget below is a summary of the master plan budget items and does not include budget knowledge from other sources (mainly municipal organizational memory).

Master Plan Only	2023 – 2027			2028 -2032			2033+		
	Water	Sewer	Electricity	Water	Sewer	Electricity	Water	Sewer	Electricity
Citrusdal	15 500 000	974 000	6 900 000	3 120 000		780 000		652 000	
Clanwilliam	29 794 000	5 516 000	7 980 000		4 529 000	1 300 000		2 762 000	
Elands Bay	50 000		10 610 000	1 671 000		450 000			
Graafwater			7 810 000			2 650 000			
Lamberts Bay	1 652 000	5 464 000	6 620 000	4 808 000					

8.2 Long- and medium-term Capital Expenditure Budget

8.2.1 Long-term Capital Expenditure budget

Cederberg Municipality does not have a long-term capital expenditure framework.

8.2.2. Medium term Capital Expenditure Budget

The 5-year Capital Expenditure Budget, approved by Council, per settlement is tabulated below:

Table 21: Cederberg 2022 – 2027 Capital Expenditure Budget

	Community & Social Services	Energy	Finance & Administration	Housing	Planning & Development	Public Safety	Road Transport	Sport & Recreation	Waste Management	Waste Water Management	Water Management	Total
Algeria										25 000		25 000
Citrusdal		840 000				350 000	300 000	40 000		1 265 000	67 444 000	70 239 000
Clanwilliam		3 400 000		59 674 000		350 000	60 000			200 000	900 000	64 584 000
Elands Bay			50 000	133 500	1 809 000						87 000	2 079 500
Elandskloof												
Graafwater	4 554 000	4 305 000	255 000	51 147 000			300 000			73 000	900 000	61 534 000
Lamberts Bay		71 648 000	1 634 000	133 500						52 000	2 659 000	76 126 500
Leipoldtville												
Paleisheuwel												
Sandberg												
Wupperthal												
Whole of Municipality	127 000	1 391 000	106 000		19 000		391 000		7 604 000			9 638 000
Total	4 681 000	81 584 000	2 045 000	59 941 000	52 975 000	700 000	1 051 000	40 000	7 604 000	1 615 000	71 990 000	

8.2.3 Overview and comparison of all budgets

In the absence of an LMTREF, the costing of infrastructure as per Master Plans (and organizational knowledge) compared to the approved 5-year Capital Expenditure budget, concluded the following:

Water Infrastructure: The master plans provide for upgrades for Citrusdal, Clanwilliam, Graafwater, Paleisheuwel, Lamberts Bay and Wuppertal. Budget allocations for Elands Bay and Leipoldville.

In the 2023-2027 budget includes a water project for Citrusdal and some upgrades for Clanwilliam and Lamberts Bay. The remaining allocations are for maintenance. There is limited alignment between the water infrastructure projects planned in the formal settlements of Cederberg Municipality and the allocated budget.

Electricity Infrastructure: Electricity upgrades needed in Graafwater, Clanwilliam and Lamberts Bay.

In the 2023-2027 budget electricity upgrades is partially budgeted for Graafwater and Clanwilliam and a comprehensive budget is allocated for Lamberts Bay. There is thus semi-alignment between the master plan and the budget.

Sewer Infrastructure: WWTW are required in Graafwater (replace oxidation ponds), Elandskloof and Leipoldville. Upgrades of WWTW are required in Clanwilliam, Elands Bay, Lamberts Bay, Algeria and Paleisheuwel. Citrusdal has a budget allocation for decommissioning.

In the 2023-2027 budget Citrusdal has money for decommissioning. Clanwilliam, Elands Bay, Graafwater and Lamberts Bay have maintenance budget allocations. There is limited alignment between the sewer projects planned and the allocated budget.

The conclusion is that for Water and Sewer projects there are limited alignment and for Electricity semi-alignment between the projects planned and the allocations as per 5-year Capital Expenditure budget. The 5-year Capital Expenditure Budget does not make provision for any services in Elandskloof, Paleisheuwel, Sandberg, Leipoldville, Wupperthal and limited provision for Algeria.

8.2.4 Priorities

MSDF initial priorities:

Priorities were informed by analysis illustrated by the figures in the status quo that represent the population distribution across the Cederberg settlements, the distribution of income and the employment rate (based on the 2011 Census) (See socio-economic environment) combined with opportunity generators such as the raising of the Clanwilliam Dam wall, intensification of conservation and the N7 and R27 as connector between Cape Town and Saldanha IDZ.

The following priority areas were identified as illustrated in the map below:

N7:

- Promote nodes at N7 intersections and where SANRAL criteria allow nodes, as well as along R363 and R366. Nodes and associated infrastructure should be sensitive to the agricultural landscape.
- Support the development of an Intensive Rural Development Corridor along the N7 between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval.
- Establish a tourism route and destinations combined with art, sport and food: Citrus route from Clanwilliam to Citrusdal, Rooibos Tea route around Graafwater towards Calvinia.

Tourism:

- Establish a tourism route and destinations combined with art, sport and food: Conservation and Heritage areas: Cederberg and Matjiesrivier Conservation Area, Verlorenvlei (R366) and Jakkalsvlei (R365).
- 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).

Slipway:

Implement the Elands Bay Slipway and Parking area and maintenance of existing and related fishing infrastructure to keep sense of place.

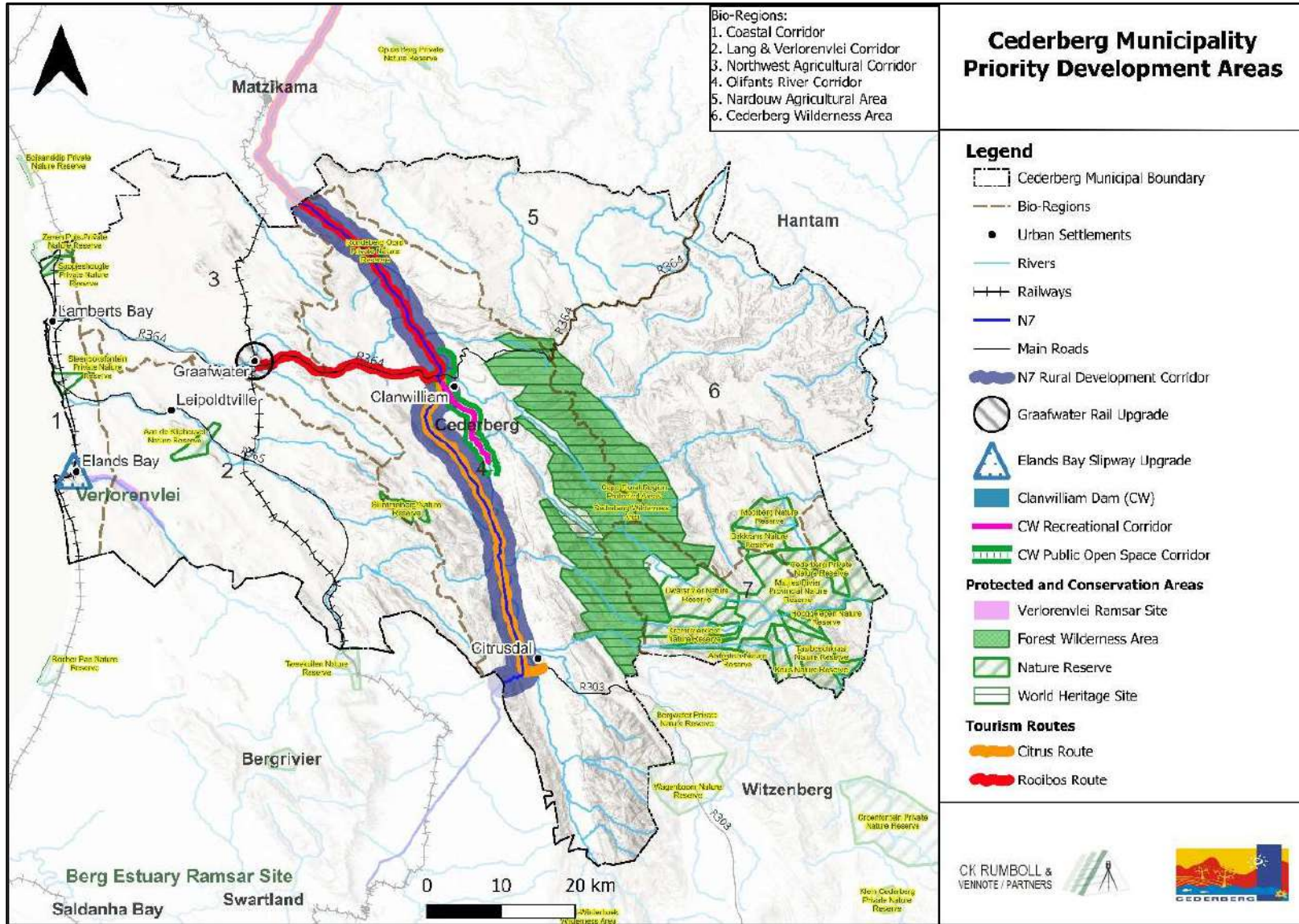
Ecological Infrastructure:

Invest in ecological infrastructure and support and join initiatives with Cape Nature and Department of Water Affairs.

From the SDF proposals, the settlement development priorities should be adjusted.

1. First level: Clanwilliam and Elands Bay.
2. Second level: Citrusdal, Lamberts Bay, Graafwater.
3. Third level: Leipoldtville, Algeria, Elandskloof, Paleisheuwel, Sandberg.

Figure 9 Cederberg Priority Development Areas



Matching Infrastructure budget and SDF proposals:

Priorities were determined by matching infrastructure planned for (budgeted) vs development proposal as per SDF over 5-year intervals as per section 7.1.1. (See figures below). The proposals that were immediately implementable together with proposal for 2023 – 2027 were combined and proposal for after the 5-year cycle were also combined.

Figure 10: Cederberg Settlement Proposals, 2023 – 2027 and immediately implementable

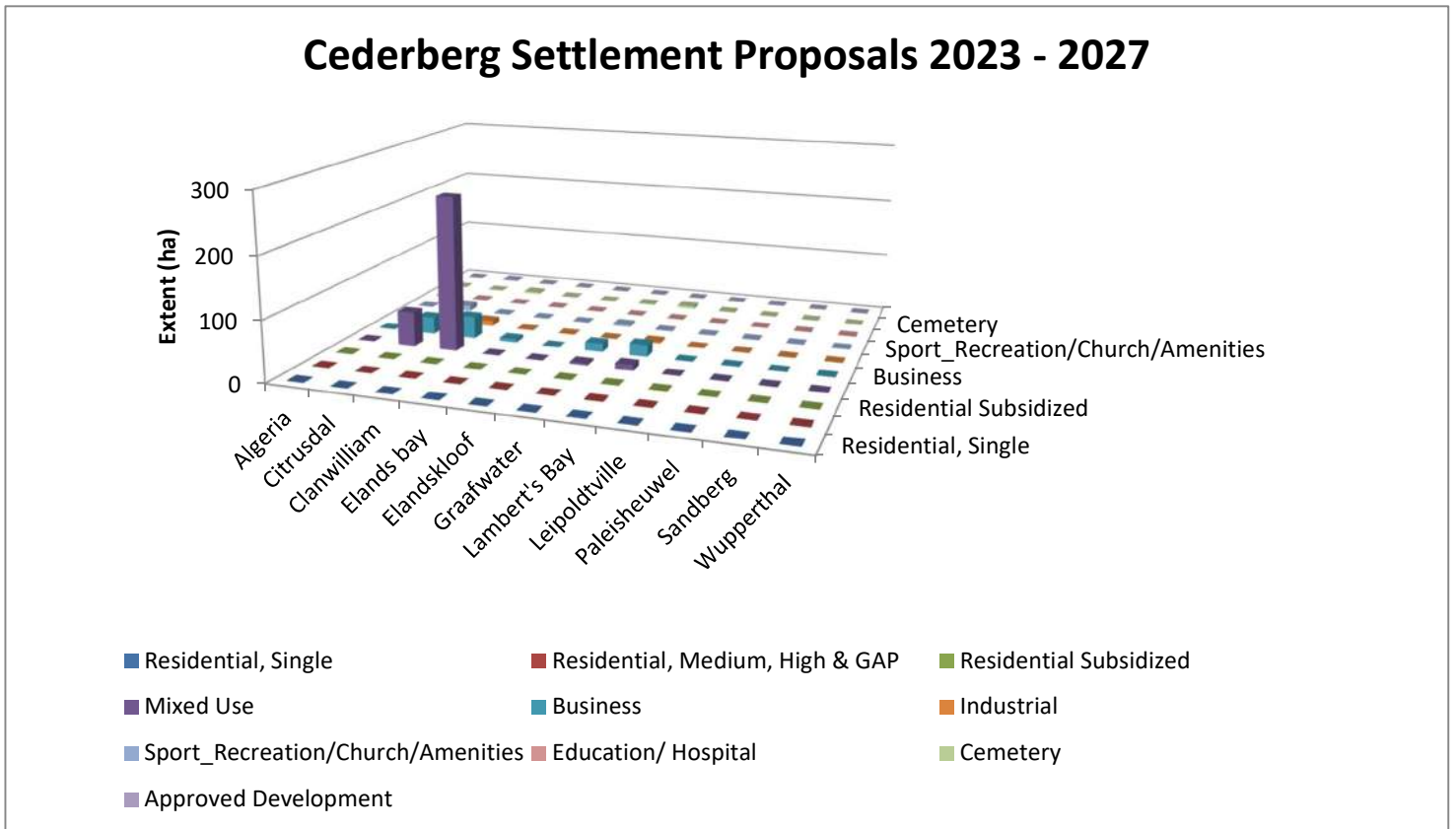
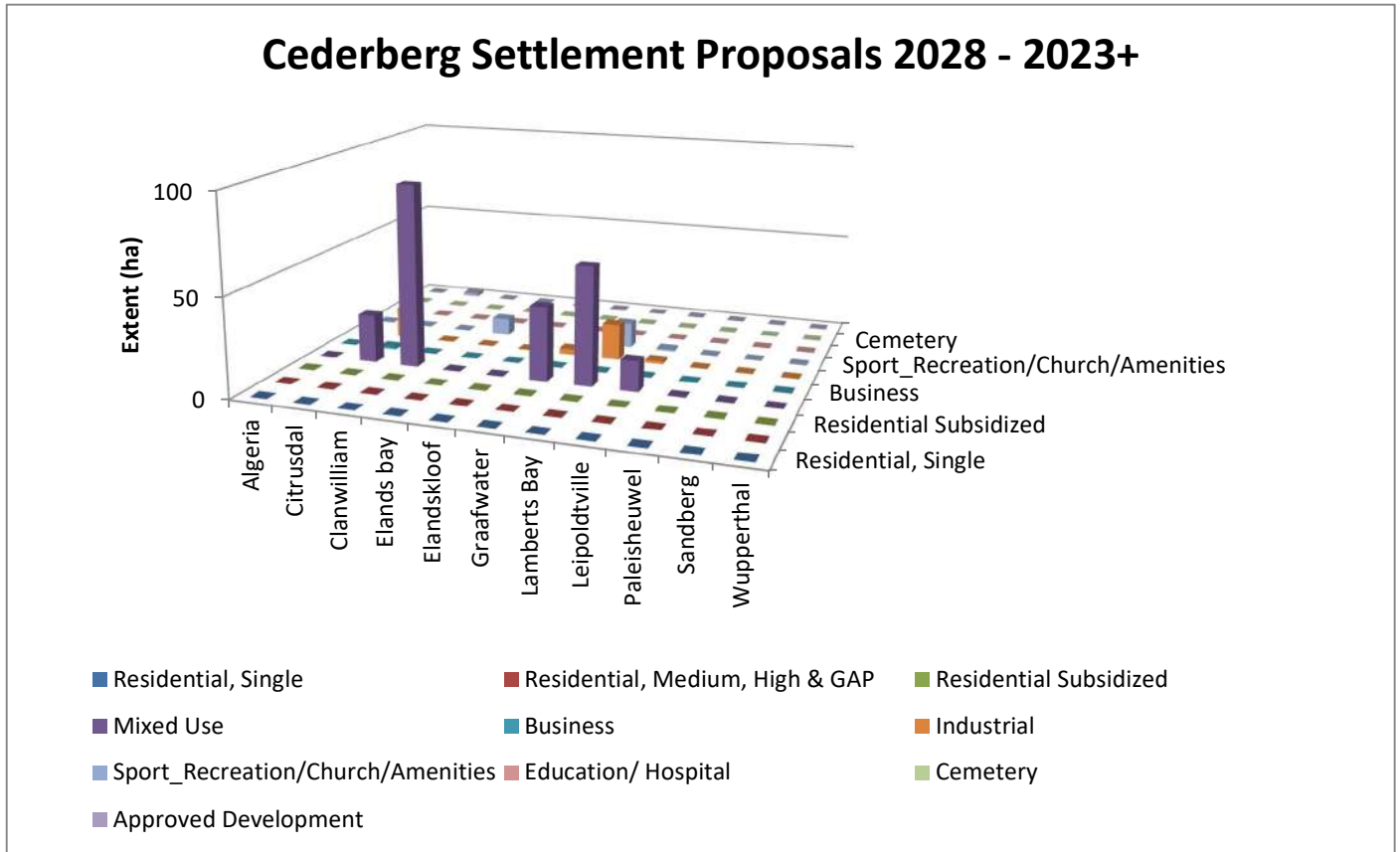


Figure 11: Cederberg Settlement Proposals, 2028 – 2032 and beyond



The civil services masterplans were compiled within this SDF cycle and electrical masterplans the previous SDF. The alignment of the SDF proposals and the costs concluded the following:

There is near alignment between the costing and the SDF proposals for 2023 – 2027 within the following settlement and the differences can likely be absorbed by the budgeted service capacity:

- Graafwater and Leipoldtville.

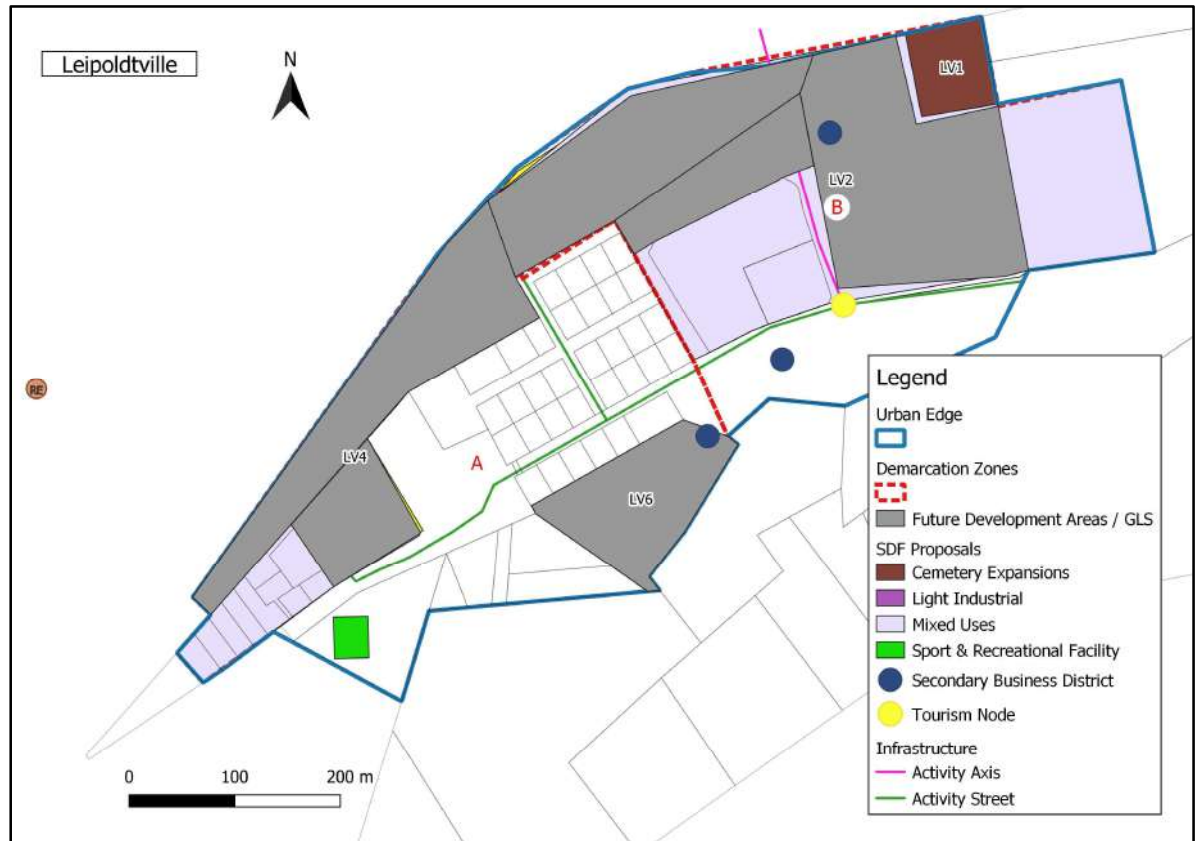
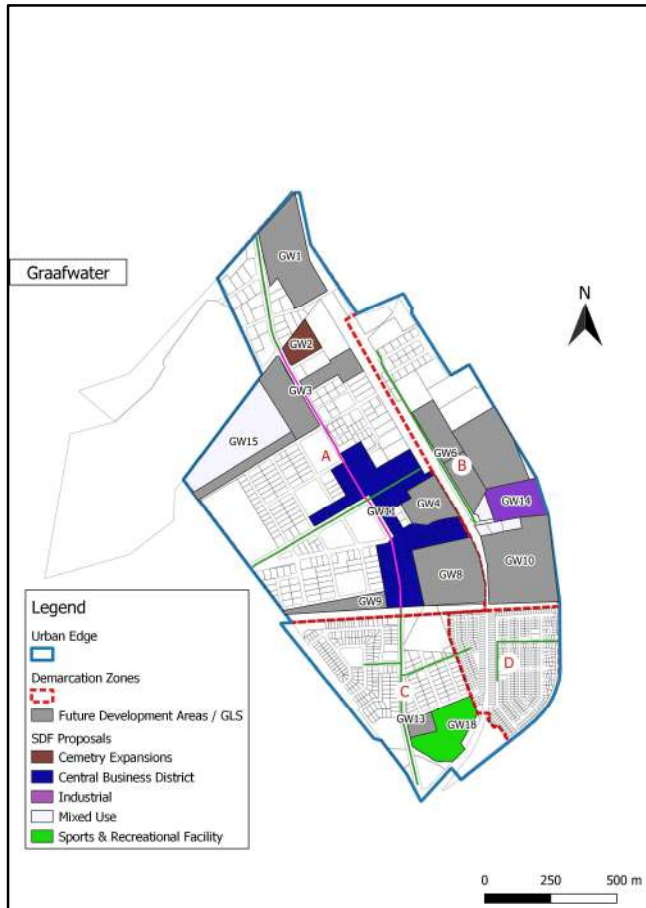
There is under-alignment between the costing and the SDF Cycle 2023 – 2027 proposal as the need for infrastructure was costed but may require revision.

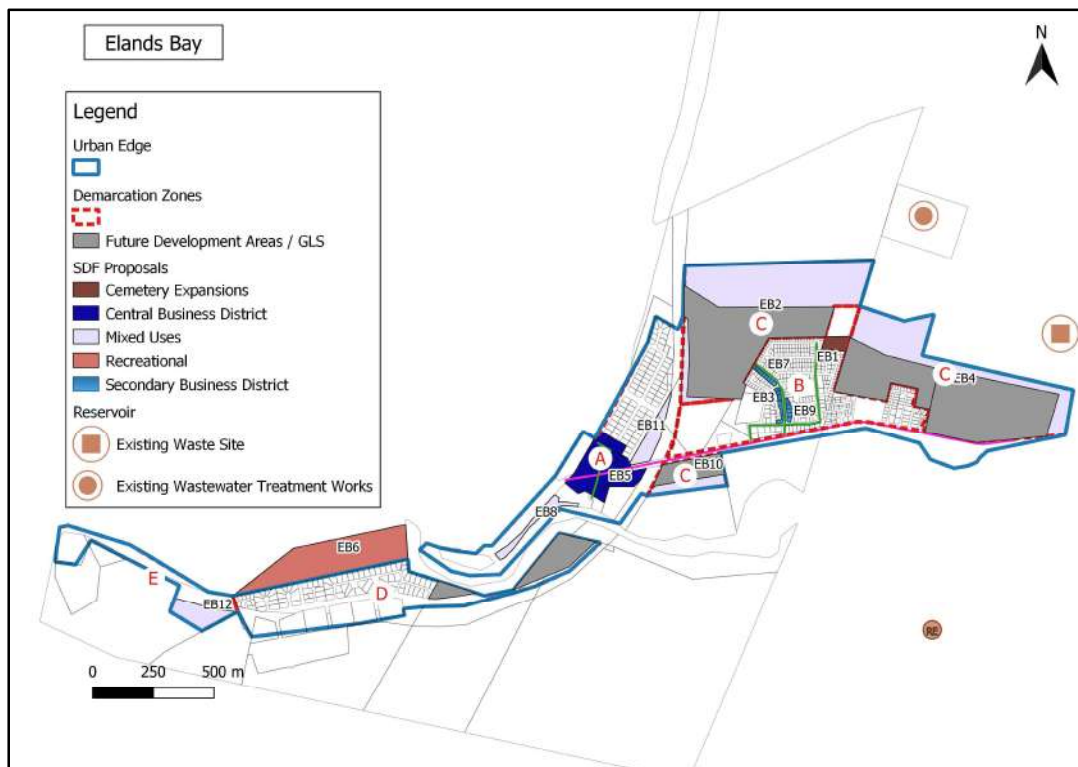
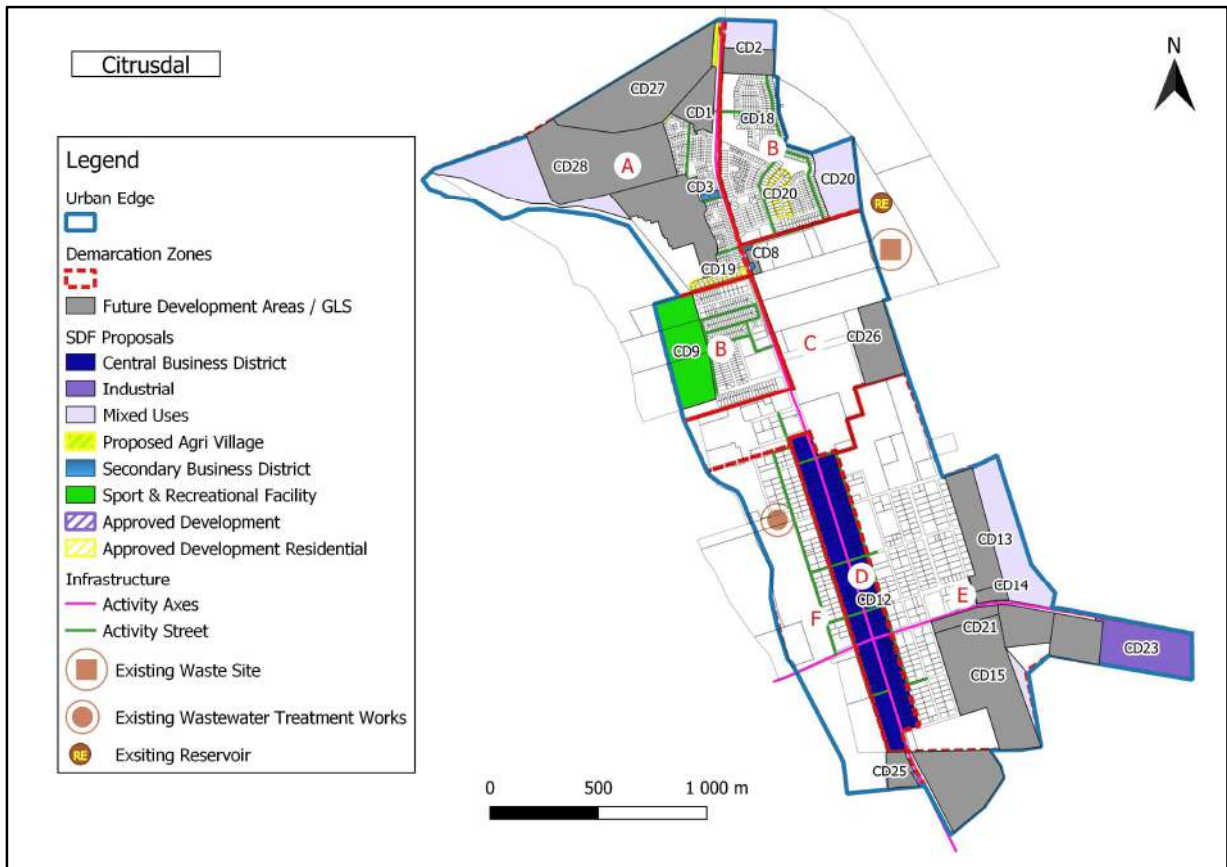
- Citrusdal and Elands Bay.

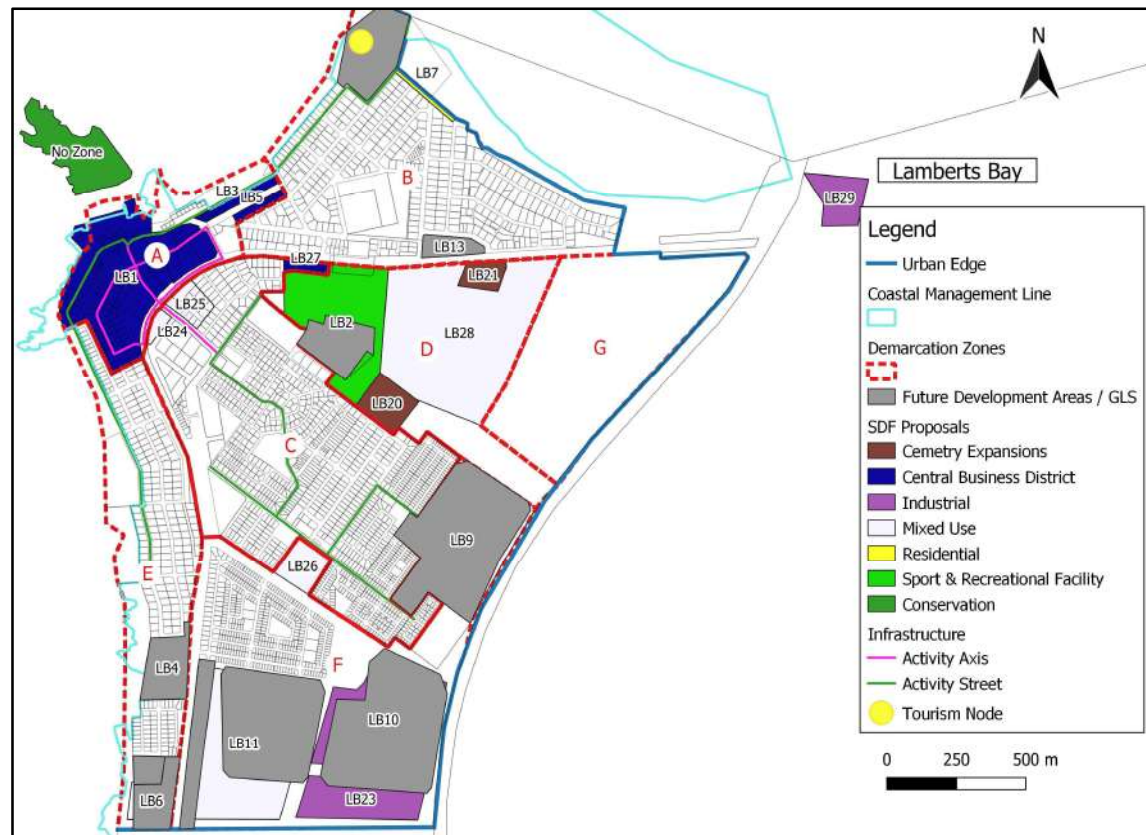
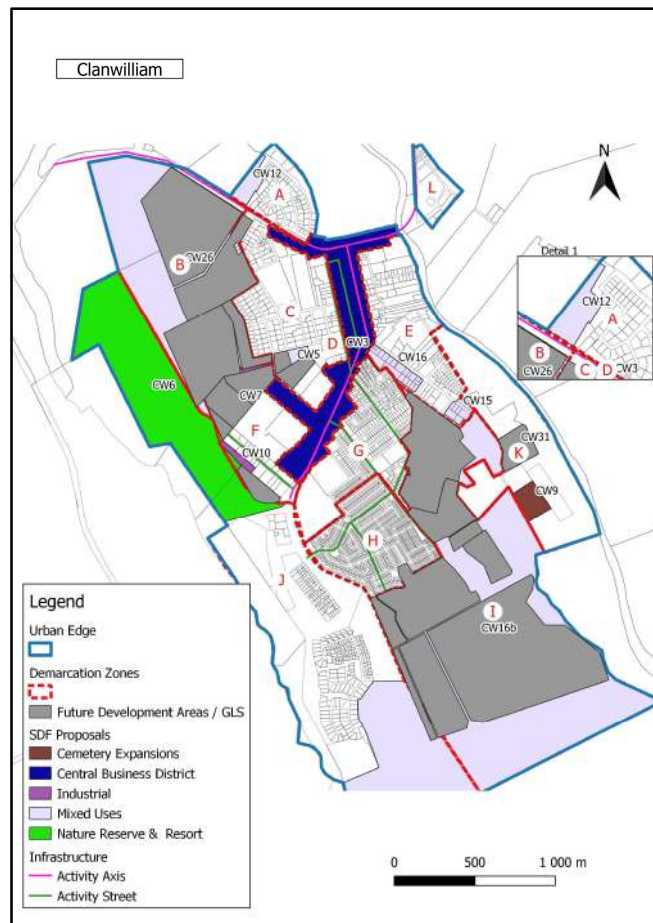
There is non-alignment between the costing and the SDF Cycle 2023 – 2027 proposal as the need for infrastructure was costed but may require revision.

- Clanwillim and Lamberts Bay

The need for infrastructure was not costed in the Master Plans for the settlements of Algeria, Paleisheuvel, Sandberg and Wuppertal and thus no alignment with the SDF Cycle 2023 – 2027 proposals.







The table below summarize the alignment of the Master plan budgets and the SDF proposals.

Figure 12: Master Plan projects vs SDF proposals

Settlement Costing similar to Master Plans (Water & Sewer)	SDF 5-year cycle			SDF long term cycle
	Alignment	Under	Non	
Algeria			X	X
Citrusdal		X		X
Clanwilliam			X	X
Elands Bay		X		
Elandskloof			X	
Graafwater	X			
Lamberts Bay			X	
Leipoldtville	X			X
Paleisheuwel			X	X
Sandberg			X	X
Wupperthal			X	X

Master plan allocation per infrastructure type:

The graphs to follow illustrates the master plan budget for the SDF cycle and beyond.

Figure 13: Master Plan budget for period 2023 – 2027+

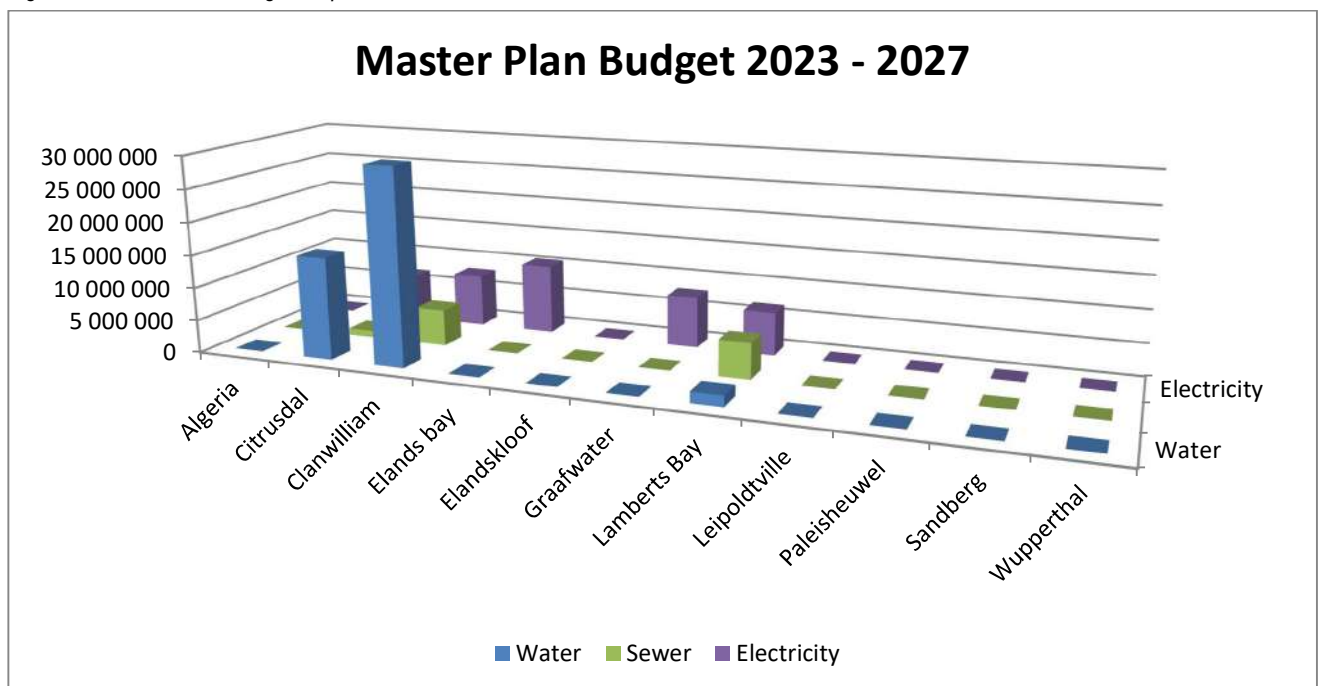


Figure 14: Master Plan budget for period 2028 - 2032

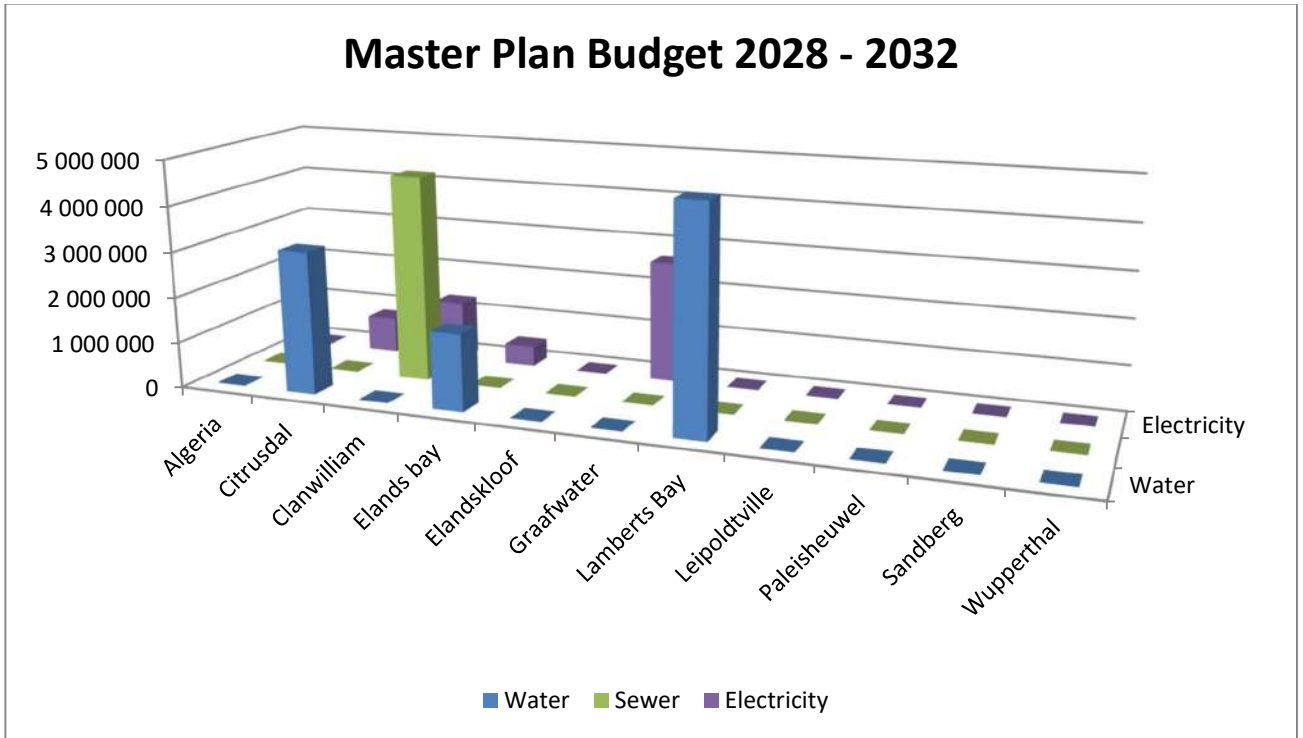
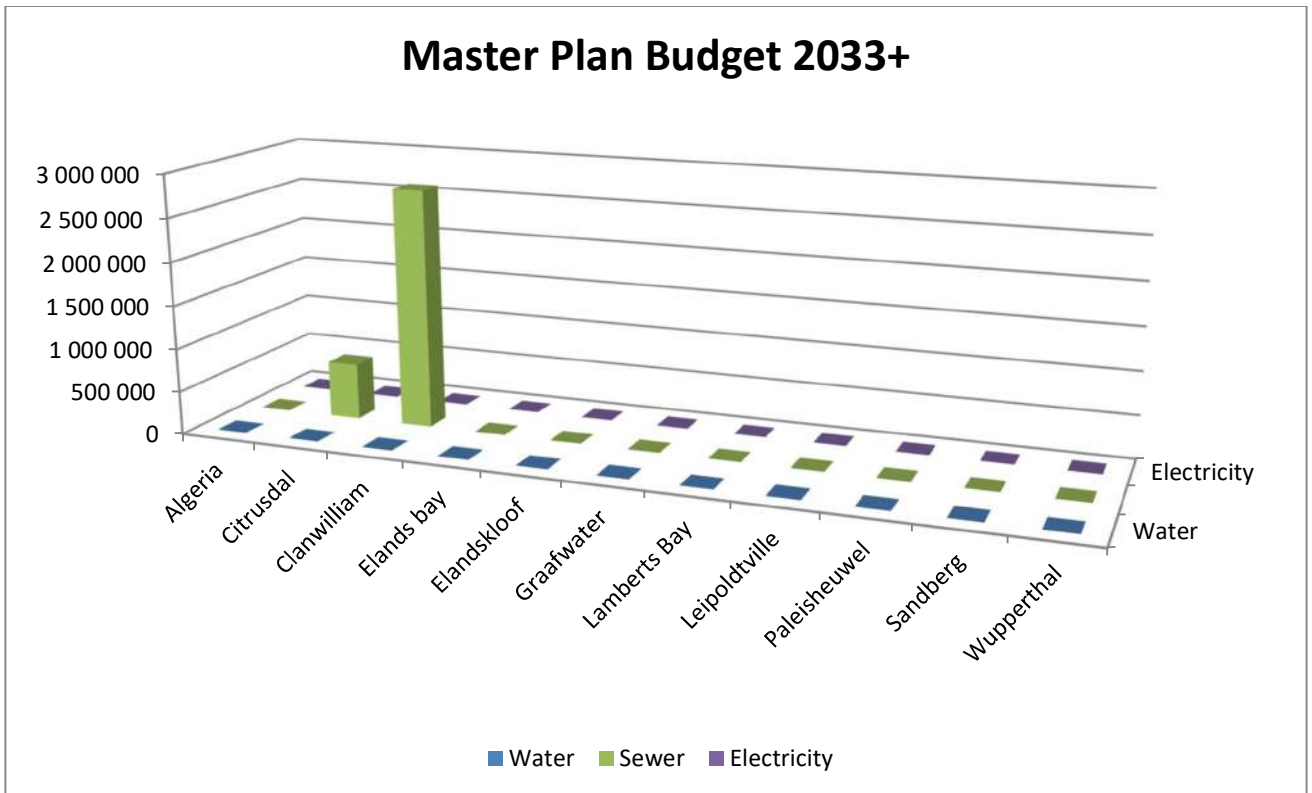


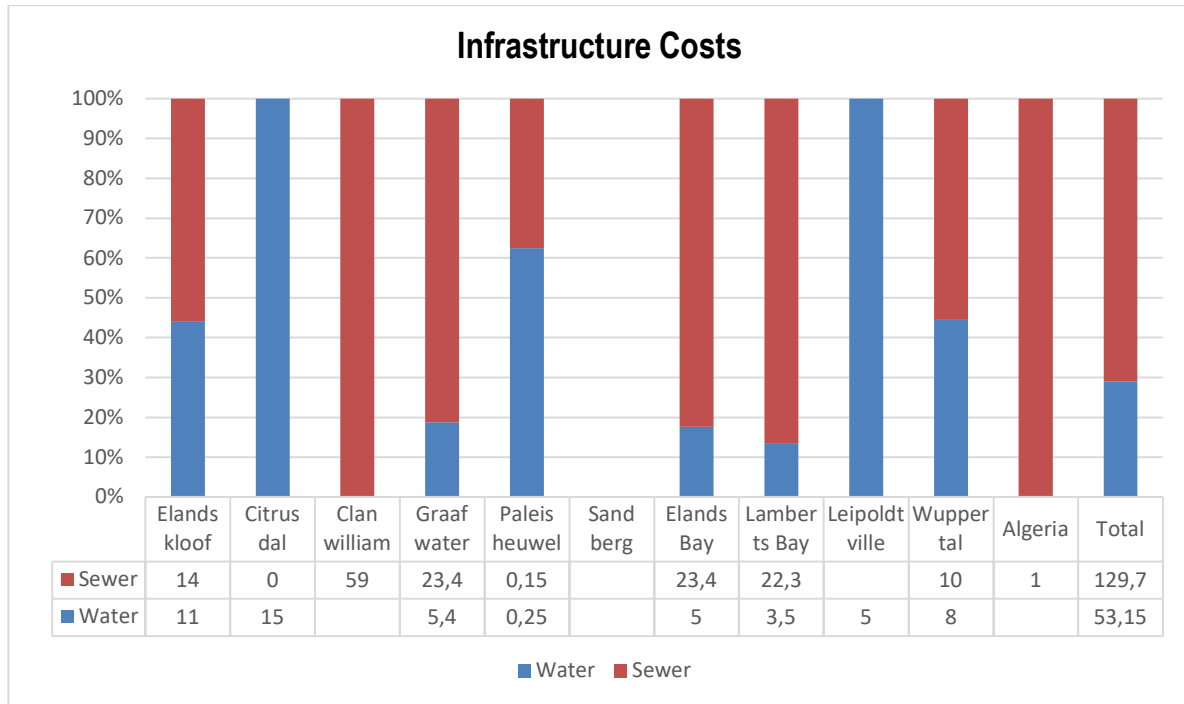
Figure 15: Master Plan budget for period 2033+



Approved Capital Expenditure Budget allocation per infrastructure type and settlement

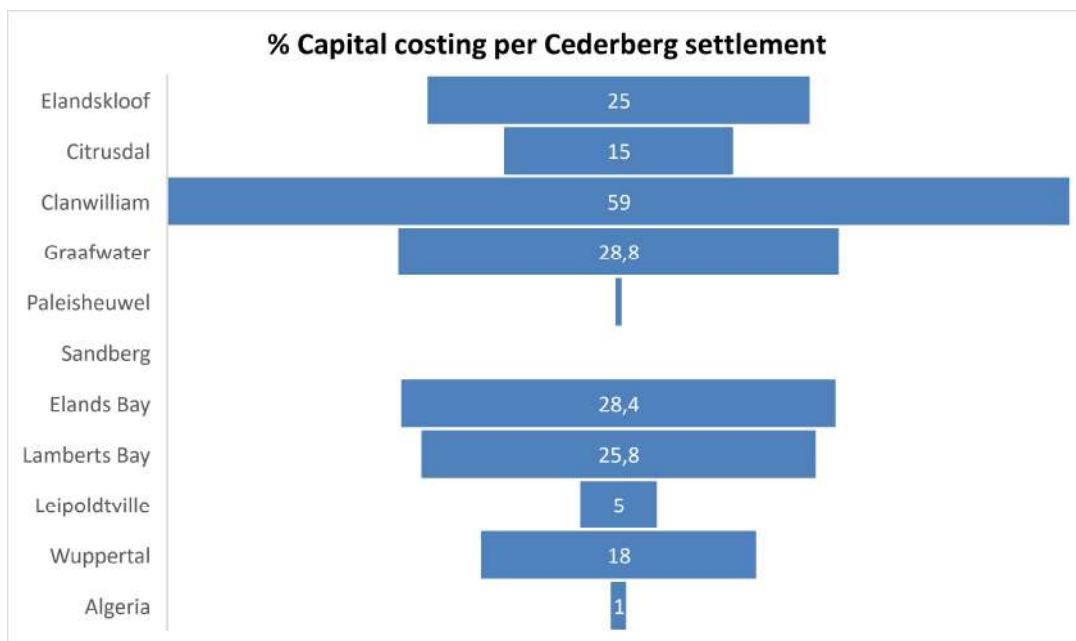
The 5-year (2023 – 2027) Capital Expenditure Budget per settlement per infrastructure type is illustrated by the graph below. From the figure sewer has a 70% budget share whilst water infrastructure has a 30% share.

Figure 16: Cederberg Infrastructure (Water & Sewer) Costs, 2022 – 2027



The figure below provides an illustration of the capital amount to be spend per settlement:

Figure 17: Cederberg Infrastructure budget, 2022 – 2027



Matching Capital Expenditure Budget (2023 -2027) with SDF proposals:

In summary, the proposed SDF developments are near aligned with the combined Master Plan and organizational(municipal) knowledge budget and alignment is limited with the 5-year Capital Expenditure budget.

Figure 18: Proposed Development Extent per Category: 2023 - 2027

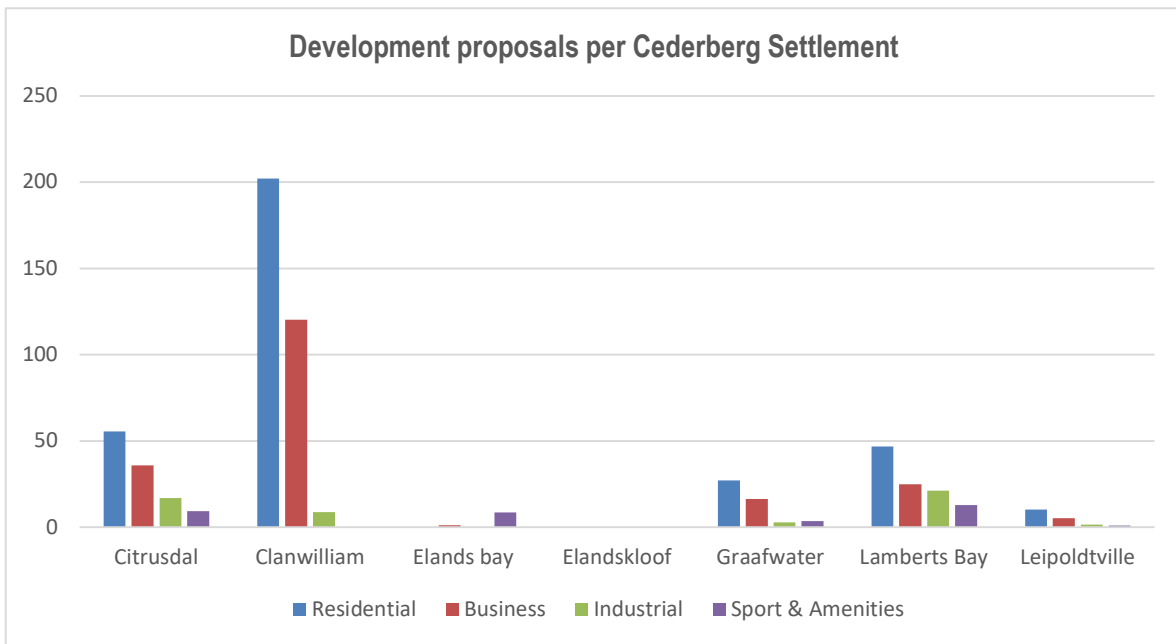
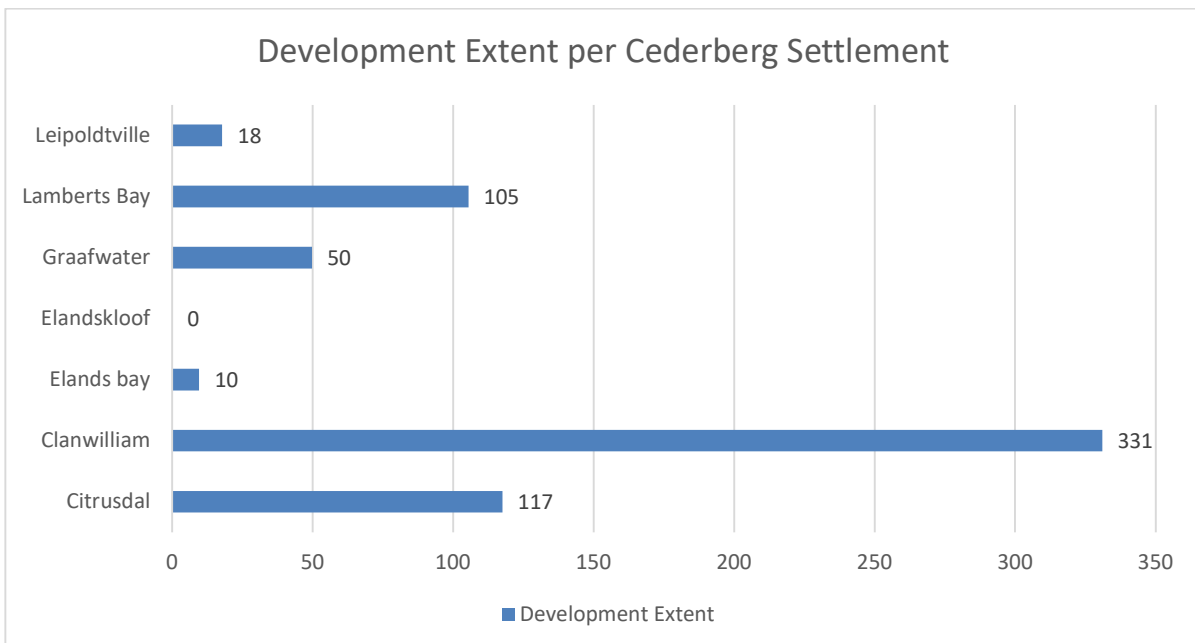
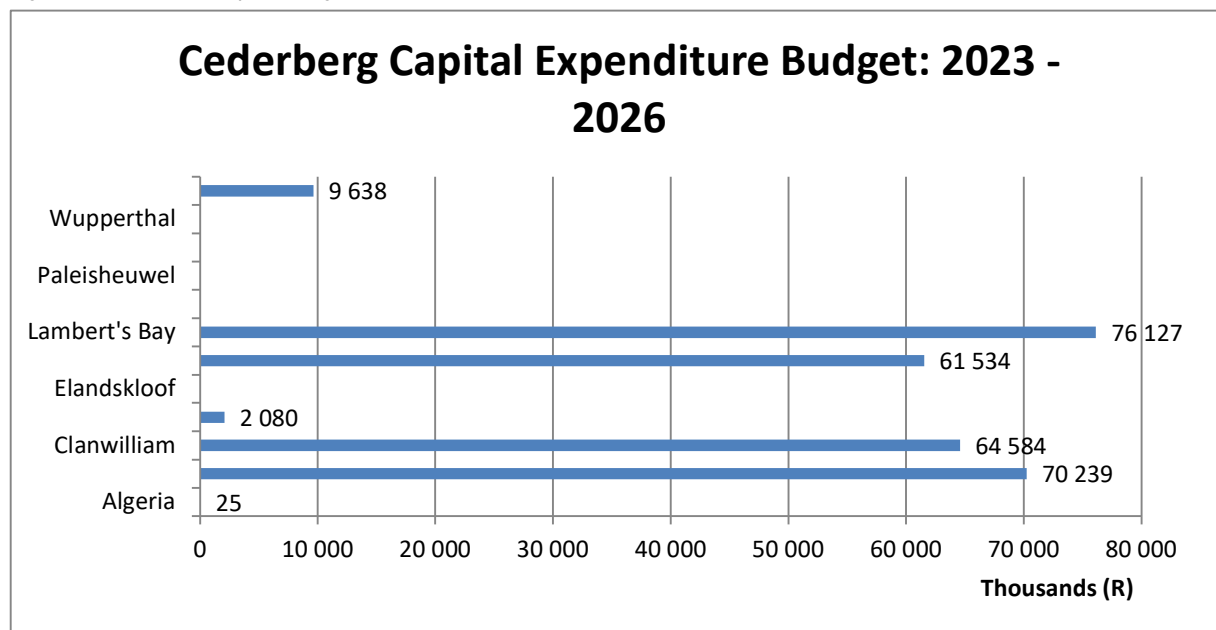


Figure 19: Proposed Total Development Extent per Settlement: 2023 - 2027



A spatial representation of the 5-year Capital Expenditure budget per settlement are illustrated in the figure below:

Figure 20: Swartland Capital Budget: 2023 - 2026



For the five years ahead, Lamberts Bay, Citrusdal, Clanwilliam and Graafwater benefits the most. Elands Bay and Algeria benefits the least over the SDF cycle.

A comparison between the SDF proposals and the 2023 – 2026 approved Capital Expenditure budget concludes that for Water and Sanitation and Electricity there is alignment whilst for electricity and waste the alignment is not known.

Bulk Water Capacity: Sufficient Bulk Water Capacity inland, insufficient capacity along the coast (Lamberts Bay).

Water Infrastructure: The information provided reflects that reservoir upgrades are required in Citrusdal (no reserves) and Graafwater. New reservoirs are required in Elandskloof, Elands Bay and Leipoldville, Reticulation capacity and pressure management need to be improved in Citrusdal, Clanwilliam, Paleisheuwel, Lamberts Bay and Wuppertal. At Lamberts Bay the desalination plant was built, but its operations need refinement and require a budget allocation.

The 5-year Capital Expenditure Budget provides for Water projects in Citrusdal and Lamberts Bay and some reticulation and maintenance in Clanwilliam, Elands Bay and Graafwater.

Electricity Infrastructure: Upgrades required in Clanwilliam (Line from Graafwater near completion) and Lamberts Bay (2.7MVA to 3.5MVA) and Graafwater (0.75MVA to 1MVA).

The 5-year Capital Expenditure Budget provides for Energy projects in Clanwilliam and Graafwater and some maintenance and reticulation in Citrusdal and Lamberts Bay.

Sewer Infrastructure: Waste Water Treatment Works are required in Elandskloof, Graafwater and Leipoldville. Upgrades and improvements are required in Clanwilliam, Paleisheuwel, Sandberg, Elands Bay, Lamberts Bay and Algeria.

Citrusdal has adequate WWTW capacity as does Wuppertal.

The 5-year Capital Expenditure Budget provides for Waste Water Projects in Citrusdal (decommissioning) and some maintenance in Algeria, Clanwilliam, Graafwater and Lamberts Bay.

The 5-year Capital Expenditure Budget provides for:

- Community and Sport facilities in Graafwater and some maintenance in Citrusdal and the Whole of Municipality. The SDP proposals for the SDF cycle include Citrusdal, Graaf Water (an upgrade), Leipoldville.
- Housing in Clanwilliam and Graafwater and smaller projects in Elands Bay and Lamberts Bay. The SDF proposals for the SDF cycle include Clanwilliam, Citrusdal and a smaller project in Elands Bay and for the longer-term Lamberts Bay, Leipoldville, Graafwater, and Elands Bay.
- Public Safety in Citrusdal and Clanwilliam.
- Roads maintenance in Citrusdal, Clanwilliam, Graafwater, Whole of Municipality.
- Waste for the Whole of Municipality. The SDF acknowledge the overall strategy for waste in the Cederberg.

From the comparison of the Capital Budget allocation and the SDF proposals, the settlement development priorities should be adjusted.

1. First level: Clanwilliam, Citrusdal, Lamberts Bay, Graafwater
2. Second level: Elands Bay
3. Third level: Leipoldville, Algeria, Elandskloof, Paleisheuwel, Sandberg

Whilst Clanwilliam, Citrusdal, Lamberts Bay and Graafwater benefit the most from the capital budget over the SDF cycle the development proposals for Elands Bay and Leipolditville requires partnerships to be implemented and hence have moved to lower levels.

8.2.5 Funding

The municipal funding sources were not confirmed listed below:

Municipal Own Funding (CRR)				
External Loans				
Donations				
Dept. Human Settlements				
Dept. Cultural Affairs and Sport				
Dept. Community Safety				
Dept. Local Government				
Municipal Infrastructure Grant (MIG)				
RSEP				
Integrated National Electrification Programme (INEP)				

8.3 Proposed priorities/ Affordability

The alignment of the SDF priorities with the 5-year Capital Budget Allocations reflects what proposals can become implementable according to what the municipality can afford.

	SDF Proposals	Capital Budget Allocations
First level	Clanwilliam and Elands Bay	Clanwilliam, Citrusdal, Lamberts Bay, Graafwater
Second level	Citrusdal, Lamberts Bay, Graafwater	Elands Bay
Third level	Leipoldtville, Algeria, Elandskloof, Paleisheuwel, Sandberg.	Leipoldtville, Algeria, Elandskloof, Paleisheuwel, Sandberg

8.3.1 Spatial Priority Areas

Spatial priority areas were determined by ranking settlement according to percentage budget allocation:

First Level:>R10 million	Clanwilliam, Citrusdal, Lamberts Bay, Graafwater
Second Level: R5 to R10 million	None
Third Level: <R5 million	Elands Bay, Citrusdal, Lamberts Bay, Graafwater

8.3.2 Precinct Plans

Greenfields urban settlement proposals usually go hand in hand with urban design frameworks and services plans. However precinct or development plans are required for the following rural proposals.

No	Rural Proposals	Infrastructure Implications	Precinct Plans
3.	Promote infrastructure for water sports and recreation on freshwater bodies (Clanwilliam and Bulshoek dams).	Upgrade and expand municipal facilities at Clanwilliam Dam.	Develop an along the dam precinct plan.
7.	Support the development of an Intensive Rural Development Corridor along the N7 between Citrusdal and Clanwilliam and along the R363 between Clanwilliam and Traval.	Develop a detailed plan to determine the level, scope and extend of services required.	Develop an area plan from Citrusdal to Clanwilliam and to the northern boarder of Cederberg.
9.	Establish new tourism routes and destinations combined with art, sport and food: <ul style="list-style-type: none"> o Citrus route from Clanwilliam to Citrusdal, Rooibos Tea route around Graafwater towards Calvinia; o Conservation and Heritage areas: Cederberg and Matjiesrivier Conservation Area, Verlorenvlei (R366) and Jakkalsvlei (R365); o Outdoor Sport and Recreation routes. 	Provide for related infrastructure and services.	Develop an area plan for the citrus, conservation and outdoor sport and recreation routes.
11.	Promote renewal/ upgrading existing railway station and siding buildings and particular at Graafwater.	Existing services should be able to accommodate proposal.	Develop a precinct plan for Graafwater Station.
12.	Implement the Elands Bay Slipway and Parking area and maintenance of existing and related fishing infrastructure to keep sense of place.	Establish firm partnerships to provide the required infrastructure.	Develop an infrastructure plan for the existing precinct plan.
15.	Invest in ecological infrastructure.	Joint venture with Cape Nature.	Develop an infrastructure plan for Cederberg Conservation Corridor.

8.3.3 Comprehensive List of projects

Capital Settlement Development projects for a 10-year period are listed in Annexure 5.

8.4 Implementation Requirements

To implement the SDF proposals, Cederberg municipality required partnerships with the private and government sector. A municipal committee has to be established to monitor the alignment between budgets, proposal, priorities and expenditure.

a) Institutional Structure

The municipal committee should have representatives from Municipal Finance, Civil and Electrical Services and Community Development (Both Spatial and IDP) serve on the committee.

b) Private Sector Participation

Investors prefer to develop in Citrusdal and Clanwilliam should sufficient bulk services be in place and maintained. Such development will contribute capital resources that should help to secure the development of infrastructure in these settlements.

c) Review and Monitoring of the SDF

The Capital Expenditure Committee should review and monitor the implementation of the SDF aligned with the IDP review (annually).

d) Amendment of SDF

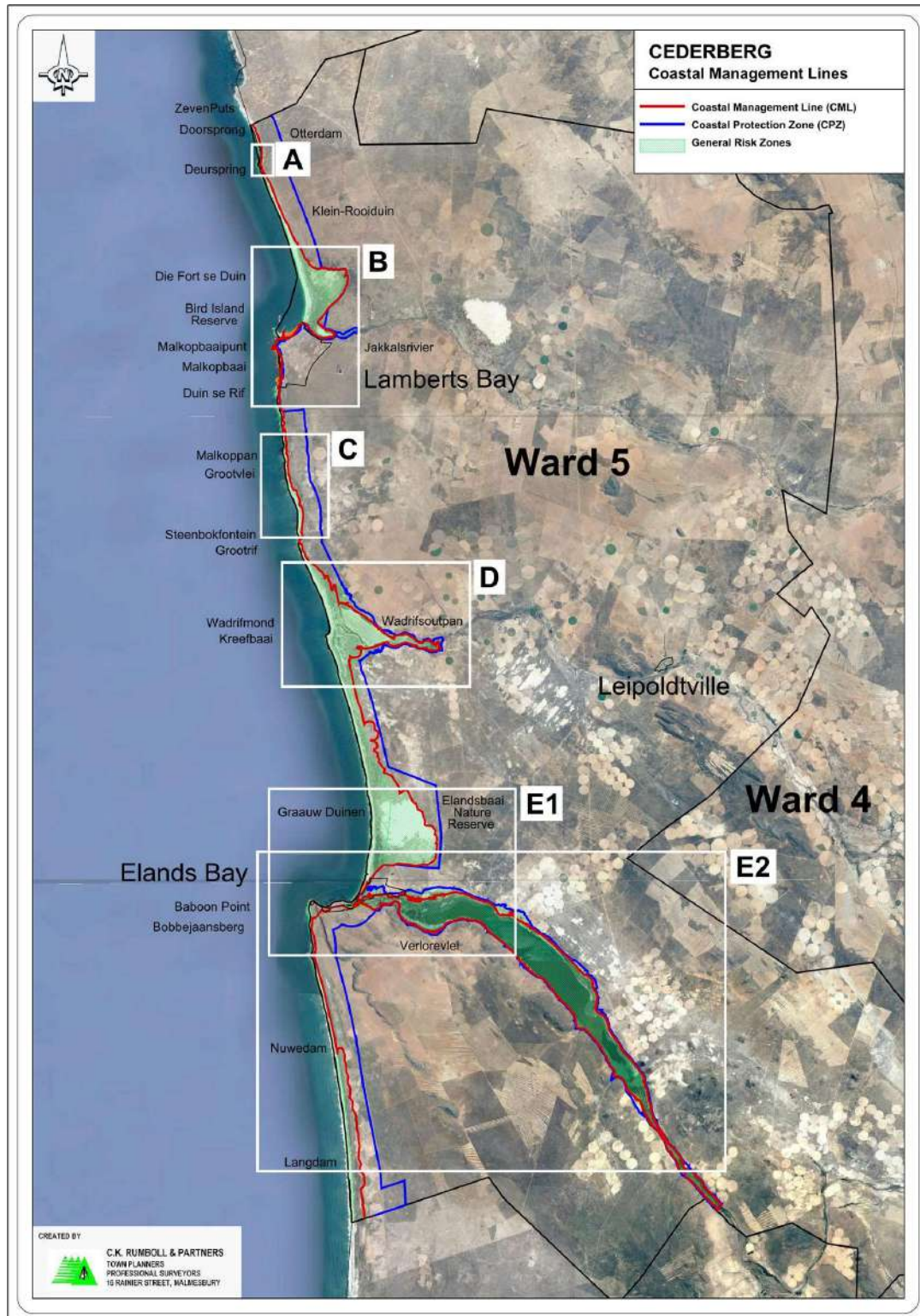
SDF amendments within the 5-year cycle is unlikely. Exceptions are derived from the annual IDP review resulting in:

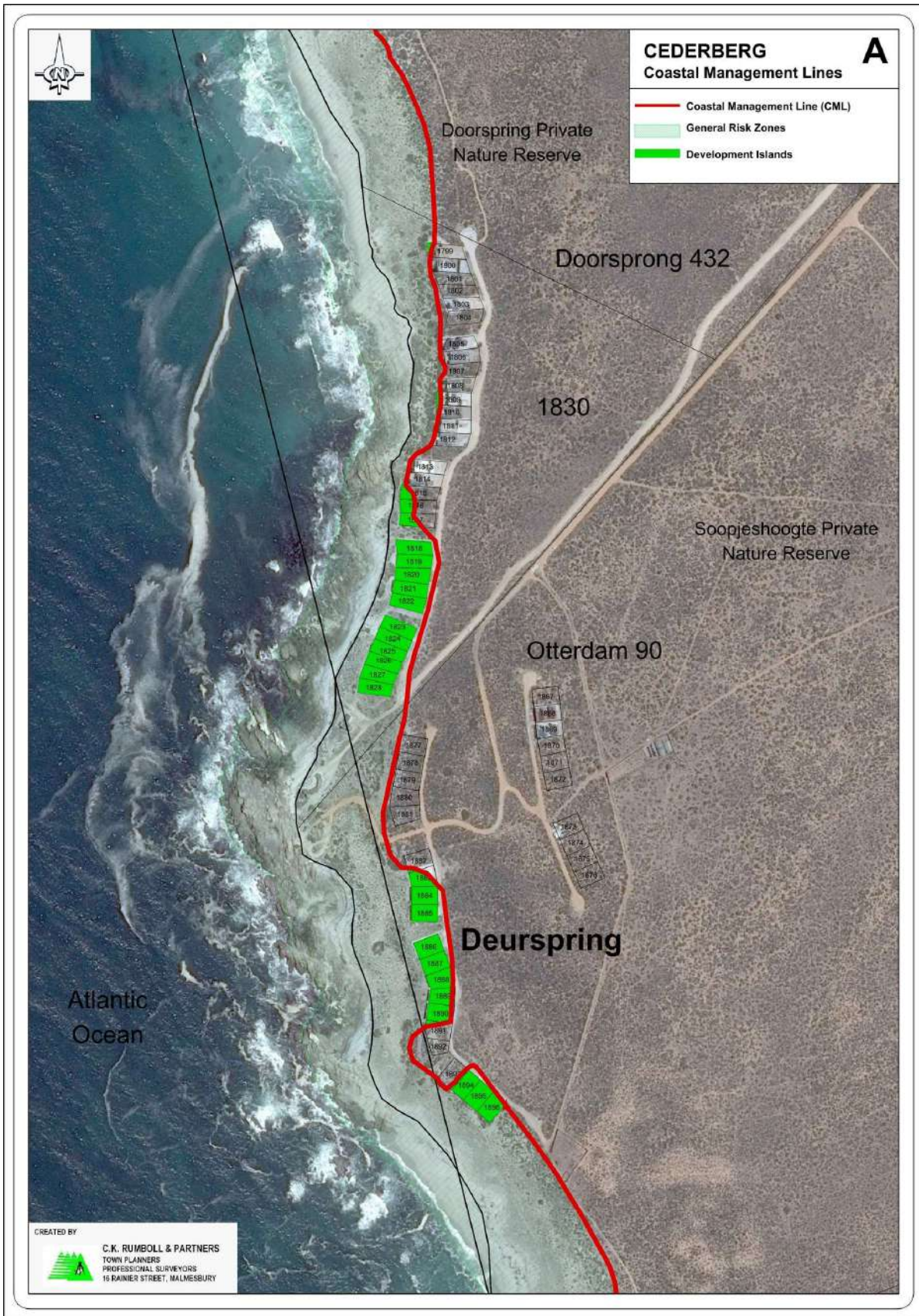
- Aims and objectives of the IDP are changed;
- IDP changes that require sector plan changes;
- Budget realignment requirements (as Expenditure is not aligned);
- Circumstances out of control of the Municipality.

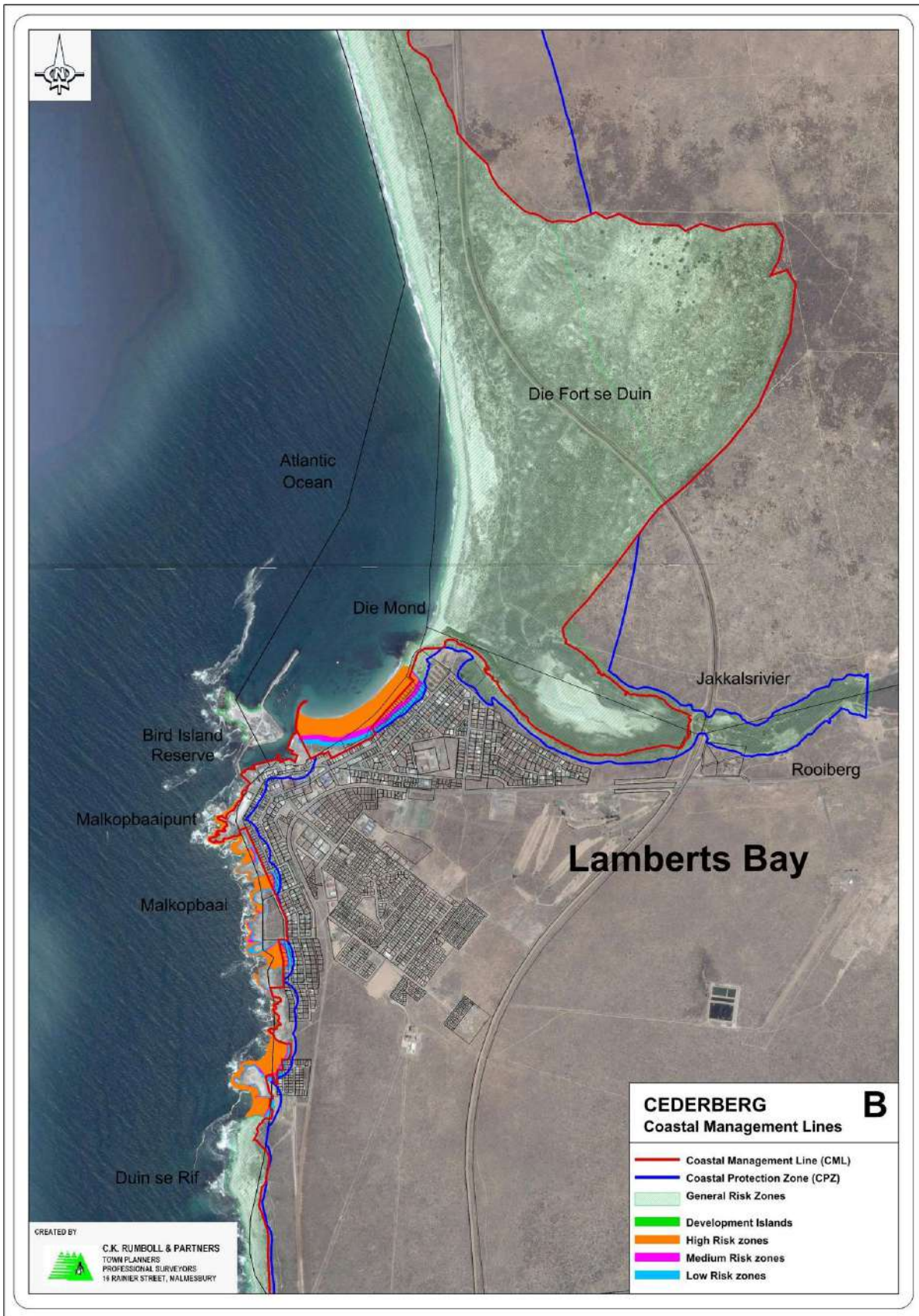
If no such exceptions demand an amendment, the SDF will be rewritten at the end of the 5-year cycle.

Annexures

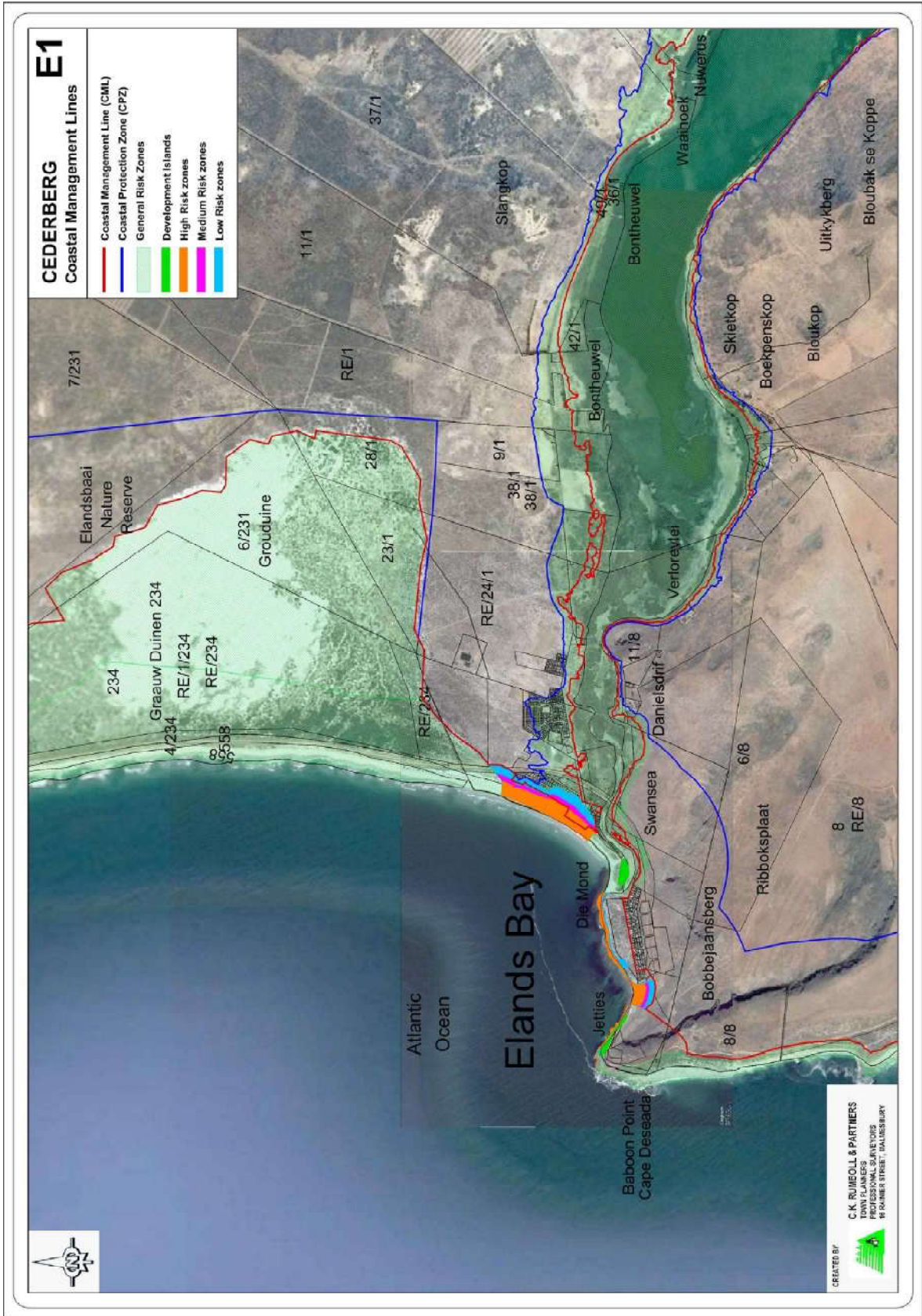
Annexure 1: Coastal Setback Lines

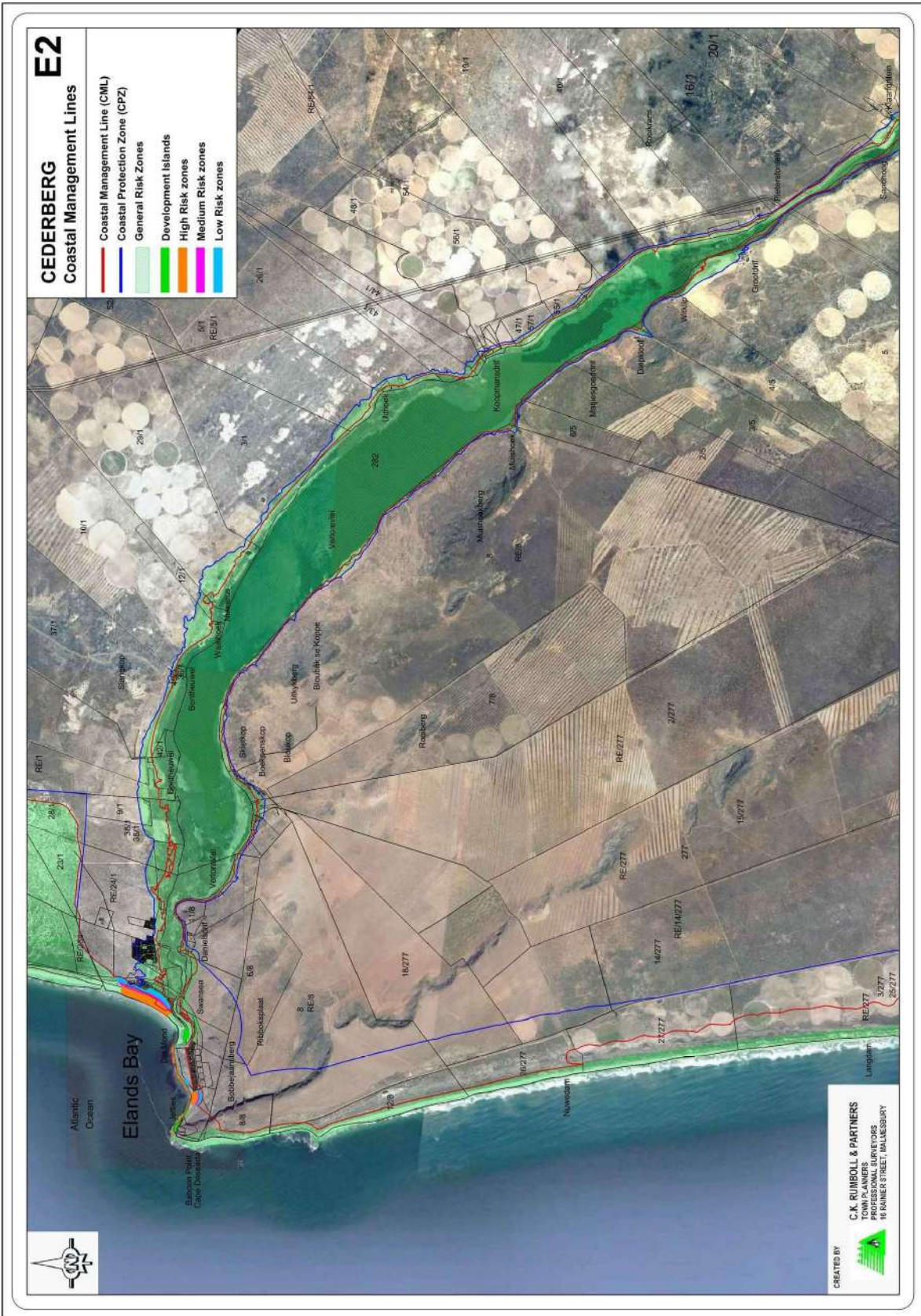












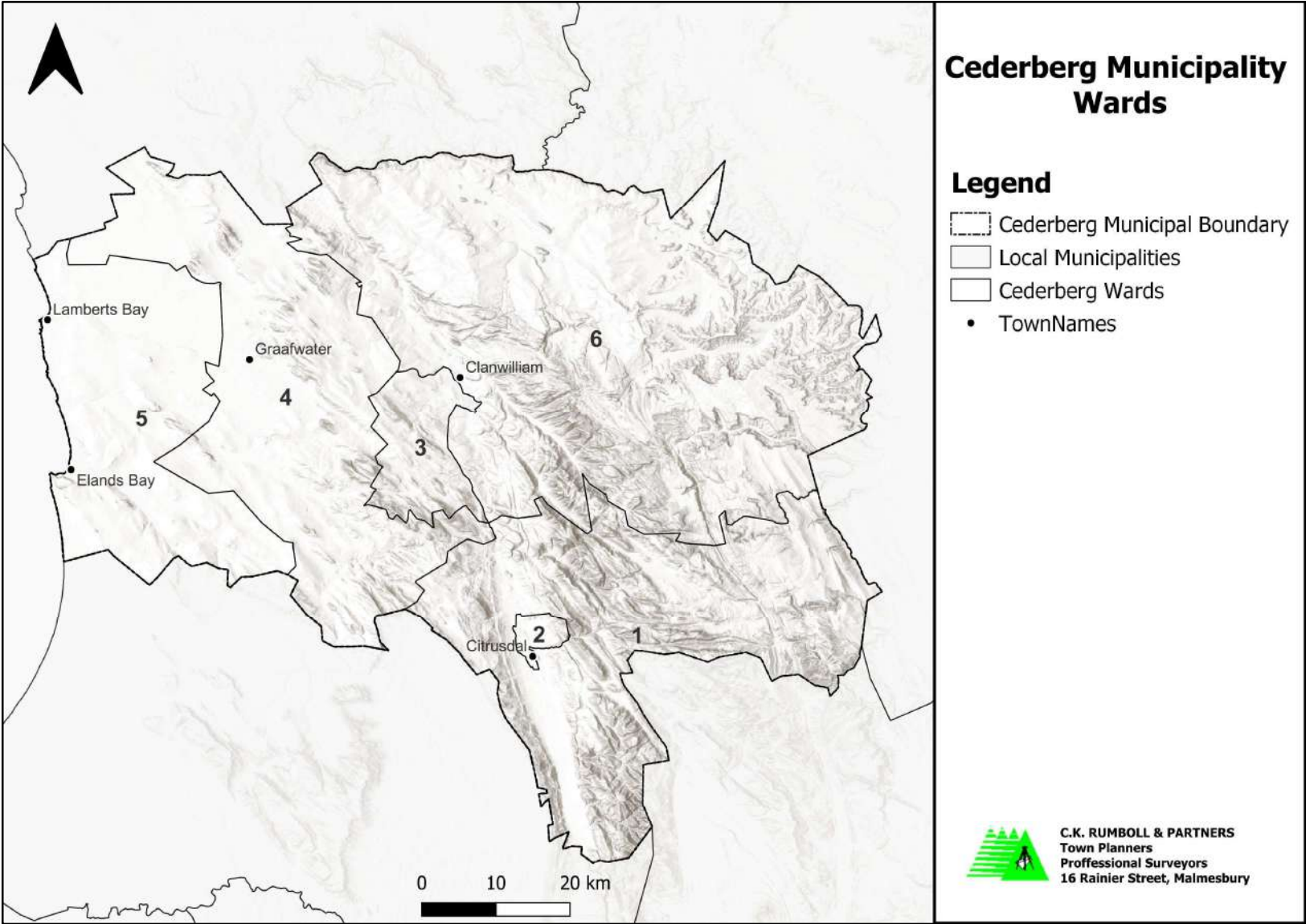
Annexure 2: West Coast Vegetation Types

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%		
Swartuggens Quartzite Fynbos			31.07%	
Swartuggens Quartzite Karoo			26.26%	
Tanqua Karoo			3.56%	
Tanqua Wash Riviere			0.18%	
Vanrhysdorp 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%	

Annexure 3: Ward Map



Annexure 4: Comprehensive List of Infrastructure Master Plan Projects

Electricity

Priority/	Masterplan Reference Number	Project Description as per Masterplan	Budget 2022/23	Budget 2023/24	Budget 2024/25	Budget 2025/26	Budget 2026/27	Budget 2027/28	Project Total
Citrusdal									
2	6.1.10	11kV Equipment upgrading (ongoing)		R450 000,00		R500 000,00		R500 000,00	R1 450 000,00
3	6.2.11	Low voltage upgrading (ongoing)	R800 000,00		R300 000,00		R600 000,00		R900 000,00
10	6.1.6	Replace RMU Voortrekker	R600 000,00						R0,00
11	6.1.12	Insulator replacement on overhead lines (ongoing)	R150 000,00		R150 000,00		R150 000,00		R300 000,00
12	6.2.3	New SCADA system for switching station		R300 000,00					R300 000,00
13	6.1.3	Install new 11kV cable between RMU Voortrekker and MS Droogbane		R650 000,00					R650 000,00
14	6.1.9	Install new 11kV cable between main switching station and Berg Street			R1 200 000,00	R300 000,00			R1 500 000,00
15	6.1.14	Install new 11kV link between MS River 3 and MS M3				R650 000,00			R650 000,00
16	6.1.8	Install new 11kV cable between MS Paul de Villiers and MS Hospital					R100 000,00	R200 000,00	R300 000,00
18	6.2.2	Power factor correction and PV plant installation investigation						R80 000,00	R80 000,00
			R1 550 000,00	R1 400 000,00	R1 650 000,00	R1 450 000,00	R850 000,00	R780 000,00	R6 130 000,00
Clanwilliam									

2	6.1.5	11kV Equipment upgrading (ongoing)	R800 000,00		R800 000,00		R600 000,00		R2 200 000,00
3	6.1.6 & 6.1.9	Low voltage upgrading and overhead to underground (ongoing)		R600 000,00		R600 000,00		R600 000,00	R1 800 000,00
6	6.1.4	Install new miniature substations and split LV networks (4x)	R1 000 000,00	R1 000 000,00	R600 000,00				R2 600 000,00
7	6.1.8	Install earth fault indicators on overhead lines		R200 000,00					R200 000,00
8	6.1.7	Insulator replacement on overhead lines (ongoing)		R200 000,00		R200 000,00		R200 000,00	R600 000,00
9	6.2.3	New SCADA system for switching station			R300 000,00				R300 000,00
10	6.2.2	Power factor correction and PV plant installation investigation				R80 000,00			R80 000,00
11	6.1.3	Install new 11kV link line between TRF Purification and Coletta Cove line					R1 000 000,00	R500 000,00	R1 500 000,00
			R1 800 000,00	R2 000 000,00	R1 700 000,00	R880 000,00	R1 600 000,00	R1 300 000,00	R9 280 000,00
Elands Bay									
2	6.1.5	11kV Equipment upgrading (ongoing)	R450 000,00		R450 000,00	R450 000,00		R450 000,00	R1 800 000,00
4	6.1.6	Low voltage kiosk upgrading (ongoing)	R350 000,00		R3 500 000,00	R350 000,00			R4 200 000,00
7	6.1.7	Replace 11kV insulators on overhead lines	R100 000,00						R100 000,00
8	6.1.8	Replace overhead low voltage lines with underground networks		R2 200 000,00					R2 200 000,00
9	6.1.9	Installation of 11kV cable between MS Boom and MS Malgas			R1 200 000,00				R1 200 000,00
10	6.2.3	Power factor correction and PV plant installation investigation				R160 000,00			R160 000,00

11	6.1.1	Eskom NMD increase					R600 000,00		R600 000,00
12	6.1.2	Replace 800kVA step-down transformer with 1 600kVA					R800 000,00		R800 000,00
			R900 000,00	R2 200 000,00	R5 150 000,00	R960 000,00	R1 400 000,00	R450 000,00	R11 060 000,00
Graafwater									
6	6.1.7	22kV Equipment upgrading (ongoing)	R350 000,00		R350 000,00		R350 000,00		R1 050 000,00
7	6.1.8 & 6.1.11	Low voltage upgrading (ongoing)		R300 000,00		R1 500 000,00			R1 800 000,00
8	6.1.9	Insulator replacement on overhead lines (ongoing)	R250 000,00	R300 000,00	R250 000,00			R250 000,00	R1 050 000,00
9	6.1.5	Installation of 22kV cable between MS Compion and TRF Erasmus	R1 000 000,00	R500 000,00					R1 500 000,00
10	6.1.6	Install new MS Kaap Agri and new 22kV cables to Van der Stel Street		R500 000,00	R1 000 000,00				R1 500 000,00
11	6.2.2	Power factor correction and PV plant installation investigation					R160 000,00		R160 000,00
12	6.1.10	Install second 22kV feeder from Eskom substation					R1 000 000,00	R2 400 000,00	R3 400 000,00
			R1 600 000,00	R1 600 000,00	R1 600 000,00	R1 500 000,00	R1 510 000,00	R2 650 000,00	R10 460 000,00
Lamberts Bay									
6	6.1.7	11kV Equipment upgrading (ongoing)	R500 000,00	R350 000,00	R500 000,00		R500 000,00	R1 850 000,00	R3 700 000,00
7	6.1.8 & 6.1.11	Low voltage upgrading (ongoing)	R450 000,00		R300 000,00		R300 000,00	R1 050 000,00	R2 100 000,00
9	6.1.9	Insulator replacement on overhead lines (ongoing)	R200 000,00		R200 000,00			R400 000,00	R800 000,00
10	6.1.5	Install new 11kV cable between MS DF Malan and MS Sleep Helling		R500 000,00				R500 000,00	R1 000 000,00

11	6.1.6	Install new 11kV cables between MS Biblioteek and MS Karavaanpark + new MS Tollies and new RMU Paul Kruger		R500 000,00	R1 000 000,00	R1 000 000,00	R160 000,00	R2 660 000,00	R5 320 000,00
12	6.2.2	Power factor correction and PV plant installation investigation	R160 000,00					R160 000,00	R320 000,00
			R1 310 000,00	R1 350 000,00	R2 000 000,00	R1 000 000,00	R960 000,00	R6 620 000,00	R13 240 000,00
Total Cederberg			R7 160 000,00	R8 550 000,00	R12 100 000,00	R5 790 000,00	R6 320 000,00	R11 800 000,00	R50 170 000,00

Source: Citrusdal, Clanwilliam, Graafwater, Lamberts Bay and Elands Bay Electrical Master Plans 2018

Sewer

Sewer Project Ref	Master Plan Publication	Amount Estimated	Settlement	New/Upgrade	Sewer Project	Time Frame
PRJ-CCIS-001	2023	R5 516 000,00	Clanwilliam	Upgrade	Bulk sewer upgrade: Clanwilliam Gravity drainag area (Denne Str to Clanwilliam WWTP)	2026
PRJ-CCiS-003	2023	R652 000,00	Citrusdal		Decommission Heuwelsig PS	2022, 2036
PRJ-CCIS-008	2023	R4 529 000,00	Clanwilliam	New WWTW	Development related infrastructure: Clanwilliam	2031
PRJ-CLS-001	2023	R5 464 000,00	Lamberts Bay	Upgrade WWTW	Upgrade Nuweland PS and construct new rising main	2022, 2026
PRJ-CCIS-004	2023	R2 762 000,00	Clanwilliam	Upgrade WWTW	Upgrade existing capacity: Clanwilliam Gravity drainage area	2042
PRJ-CCiS-001	2023	R974 000,00	Citrusdal	Upgrade WWTW	Citrusdal gravity drainage area network upgrades (Bulk sewer to Citrusdal PS no. 1)	2026

Water

Priority	Project Ref	Master Plan Publication	Amount	Settlement	New/ Upgrade	Infrastructure	Time Frame
1	PRJ-CCiW-006	2023	R533 000,00	Citrusdal	Upgrade	Citrusdal Pressure Management investigation: Move water connections of higher lying consumers in HL PRV 1 zone to the HL reservoir zone	2023/24
2	PRJ-CCiW-003	2023	R111 000,00	Citrusdal	Upgrade	Citrusdal Pressure Management investigation: Required interventions for HL PRV zones 1 & 2	2023/24
3	PRJ-CLW-001	2023	R1 372 000,00	Lamberts Bay	Upgrade	Network alterations to adjust zone boundaries between the Lamberts Bay tower and booster networks (required to improve operation of existing system)	2023/24
4	PRJ-CCiW-001	2023	R3 858 000,00	Clanwilliam	Upgrade	Cederville reservoir zone network reinforcement required to accommodate housing development	2023/24
5	PRJ-CCiW-002	2023	R384 000,00	Clanwilliam	Upgrade	Cederville booster zone: Pump station upgrade	2023/24
6	PRJ-CEW-006	2023	R50 000,00	Elandsbaai	Upgrade	Elandsbaai: Bulk water meter replacement & telemetry	2023/24
7	PRJ-CCiW-008	2023	R15 279 000,00	Clanwilliam	Upgrade	Additional storage capacity for Cederville reservoir site	2024/25
8	PRJ-CCiW-010	2023	R914 000,00	Citrusdal	Upgrade	Citrusdal Pressure Management investigation: Implement Citrusdal HL PRV 3 zone	2025/26

9	PRJ-CCiW-015	2023	R500 000,00	Citrusdal	Upgrade	Citrusdal: Bulk water meters & telemetry	2025/26
10	PRJ-CLW-007	2023	R280 000,00	Lamberts Bay	Upgrade	Lamberts Bay: Bulk water meters & telemetry	2025/26
11	PRJ-CCiW-003	2023	R10 273 000,00	Clanwilliam	Upgrade	Clanwilliam dam bulk water supply upgrades	2025/26
12	PRJ-CCiW-005	2023	R13 442 000,00	Citrusdal	Upgrade	Additional reservoir storage capacity at Citrusdal high level reservoir site	2026/27
2023 - 2027	SUBTOTAL		R46 996 000,00				
13	PRJ-CCiW-002	2023	R2 790 000,00	Citrusdal	Upgrade	Citrusdal high level reservoir zone: Network reinforcement (phase 1)	2027/28
14	PRJ-CLW-002	2023	R4 808 000,00	Lamberts Bay	New	Construction of new Lamberts Bay booster PS	2027/28
15	PRJ-CEW-002	2023	R1 671 000,00	Elandsbaai	Upgrade	Elandsbaai reservoir zone: Network reinforcement (Phase 1) - R366 Main Road upgrade	2027/28
16	PRJ-CCiW-001	2023	R330 000,00	Citrusdal	Upgrade	Citrusdal low level reservoir zone: Network reinforcement (phase 1)	2027/28
17	PRJ-CCiW-005	2023	-	Clanwilliam	New	New Clanwilliam water treatment plant (cost not included; specialized study required)	2027/28
2027+	SUBTOTAL		R9 599 000,00				
TOTAL			R56 595 000,00				

Roads:

Note: Any proposals affecting the Proclaimed Provincial Road Network are subject to consultation, endorsement and the approval of the Department of Infrastructure (DOI) Transport Infrastructure Branch:

- Softening main roads and traffic calming
- Amendment of urban edge (impact on road authority boundaries).
- All proposal including land use change and developments adjacent to the Proclaimed Provincial Road Network and adjacent to or within the Proclaimed Provincial Road Network road reserve
- Non-motorised movement across streets and corridors (safety hazards and risks are inadvertently introduced).
- Provision of access to and from the Proclaimed Provincial Road network is to be assessed and provided in accordance with the WCG DTPW (now DOI) Access Management Guidelines (2020). Access includes farm stall accesses and tourism view or interest points. The provision of direct access and egress, must also consider the impact on the surrounding road network.
- Development of Tourism routes, scenic routes and destinations or Scenic Drive (or similar) Policy to be undertaken in collaboration with and to the approval of the Regional Tourism Liaison Committee (RTLCL).
- Corridors (include, but are not limited to scenic, tourism, freight etc) impacting (directly or indirectly) on the Proclaimed Provincial Road Network assets. Arterial Management Plans for these corridors should be given due consideration.
- Provision of any potential impact, both during construction or operation, on the Proclaimed Provincial Road Network assets
- Any proposal to expropriate sections of the Proclaimed Provincial Road Network Road Reserve to accommodate development
- Planning for key bulk infrastructure needs to ensure that appropriate space/provision is made.
- Maintenance, upgrade and new construction works
- During the process of providing the required infrastructure to support growth and development
- Development of a Municipal Roads Master Plan. where proposals impact (directly or indirectly) the Proclaimed Provincial Road Network.
- Preparation of Arterial Management Plans to be undertaken

Implementation timing and funding of DOI-led Projects is to be determined by the DOI Transport Infrastructure Branch in accordance with the relevant Provincial Budget, commonly referred to as Vote 10. The DOI is mandated to provide and protect the Proclaimed Provincial Road Network to ensure that the network provides the required mobility function and supports economic activity in the Western Cape. .Consideration of the Proclaimed Provincial Road Network is to be based on the Provincial Road Classification.

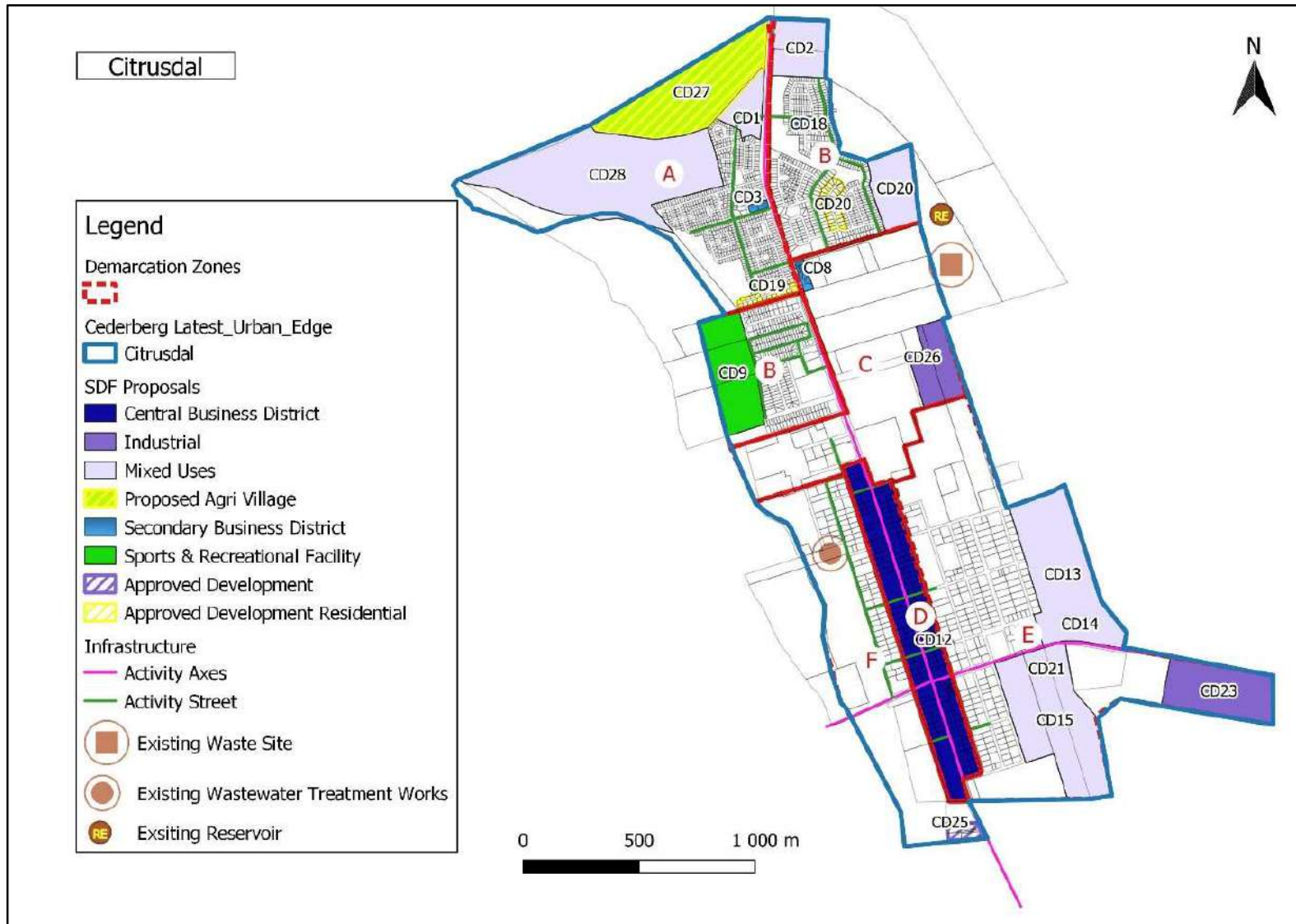
Annexure 5: Comprehensive List of Settlement Development Projects and Implementation Plan

Citrusdal									
Name	Proposed Use	Gross Area	Zone	Ownership	Implementation Target	Partnerships: Institutional & Sectoral Arrangements	SDF Timeframe	Funding Sources	Cost
CD12	Central Business District	24,8	D	Priv	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	0	Private	Staff
CD19	Approved Development	1	A	Mun	Implement (install services) granted rights for ±20 erven	Provincial Government	0	MIG	Pipeline
CD1	Mixed Uses	3,3	A	Mun	Establish a taxi rank	Provincial Government	<5	MIG	TBC
CD2	Mixed Uses	5,7	B	Priv	Create ±57 or more opportunities	Private Municipal	<5	Private	TBC
CD3	Secondary Business District	0,3	A	Priv	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	<5	Private	TBC
CD8	Secondary Business District	0,6	C	Mun & Priv	Create ±14 or more opportunities of 300m ²	Private Municipal	<5	Private	TBC
CD9	Sports & Recreational Facility	9,2	B	Mun	Establish two additional multi-purpose sportfields and dual parking area	Partnership with Provincial Government	<5	Provincial	TBC
CD15	Mixed Uses	18,9	E	Mun & Priv	Create ±441 or more opportunities of 300m ²	Partnership with Provincial Government	<5	Provincial	Pipeline

CD18	Secondary Business District	0,6	B	Priv	Intensification of use on 10% of number of erven.	Private. Municipal Support to intensification aligned to character of area.	<5	Private	TBC
CD21	Secondary Business District	1,9	E	Mun & Priv	Create ±44 or more opportunities of 300m ²	Private Municipal	<5	Private	TBC
CD25	Approved Development	1	F	Priv	Create ±5 or more opportunities	Private	<5	Private	TBC
CD27	Proposed Agri Village	16,3	A	Priv	Create ±380 or more opportunities of 300m ²	Private & Municipal	<5	Private & Provincial	TBC
CD28	Mixed Uses	29,6	A	Mun	Create ±1151 or more opportunities of 180m ²	Provincial Government & Municipal	<5	MIG	Pipeline
CD13	Mixed Uses	18,4	E	Priv	Create ±429 or more opportunities of 300m ²	Private	5 to 10	Private	TBC
CD14	Secondary Business District	1,1	E	Priv	Create ±26 or more opportunities of 300m ²	Private Municipal	5 to 10	Private & Provincial	TBC
CD20	Approved Development	1,6	B	Mun	Implement (install services) granted rights for ±30 erven of 450m ²	Municipal	5 to 10	Municipal	Pipeline
CD20	Mixed Uses	6	B	Mun	Create ±140 or more opportunities of 300m ²	Provincial & Municipal	5 to 10	Provincial	Pipeline
CD23	Industrial	10,1	E	Priv	Create ±71 or more opportunities of 1000m ²	Private	5 to 10	Private	TBC
CD26	Industrial	5,8	C	Mun	Create ±41 or more opportunities of 1000m ²	Private	5 to 10	Pirate	TBC

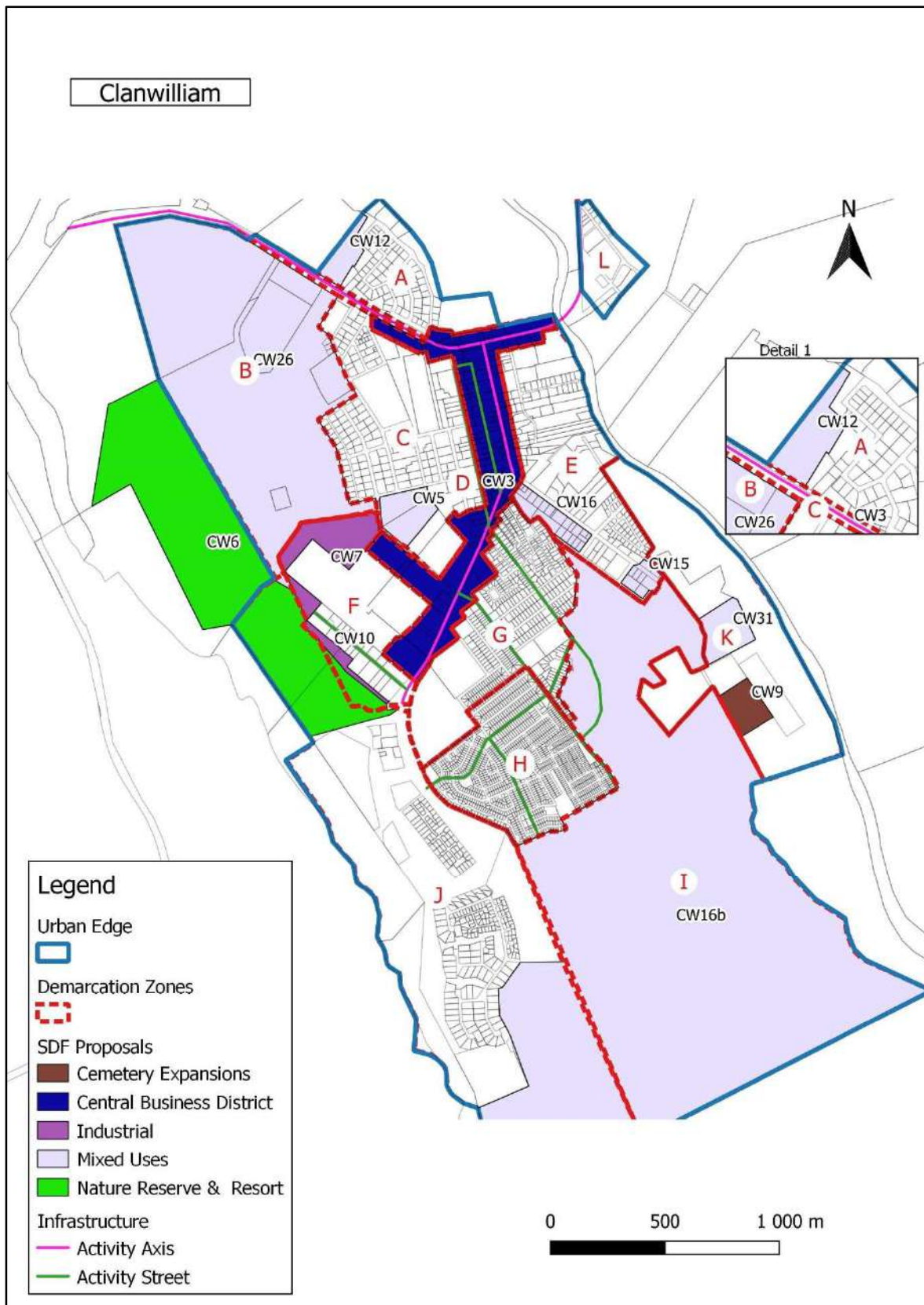
Intensification include expansion, renewal, improved use, additional use of facilities and land established by a land use and or building plan application. .

Aligned to character of area related to mass form and scale...



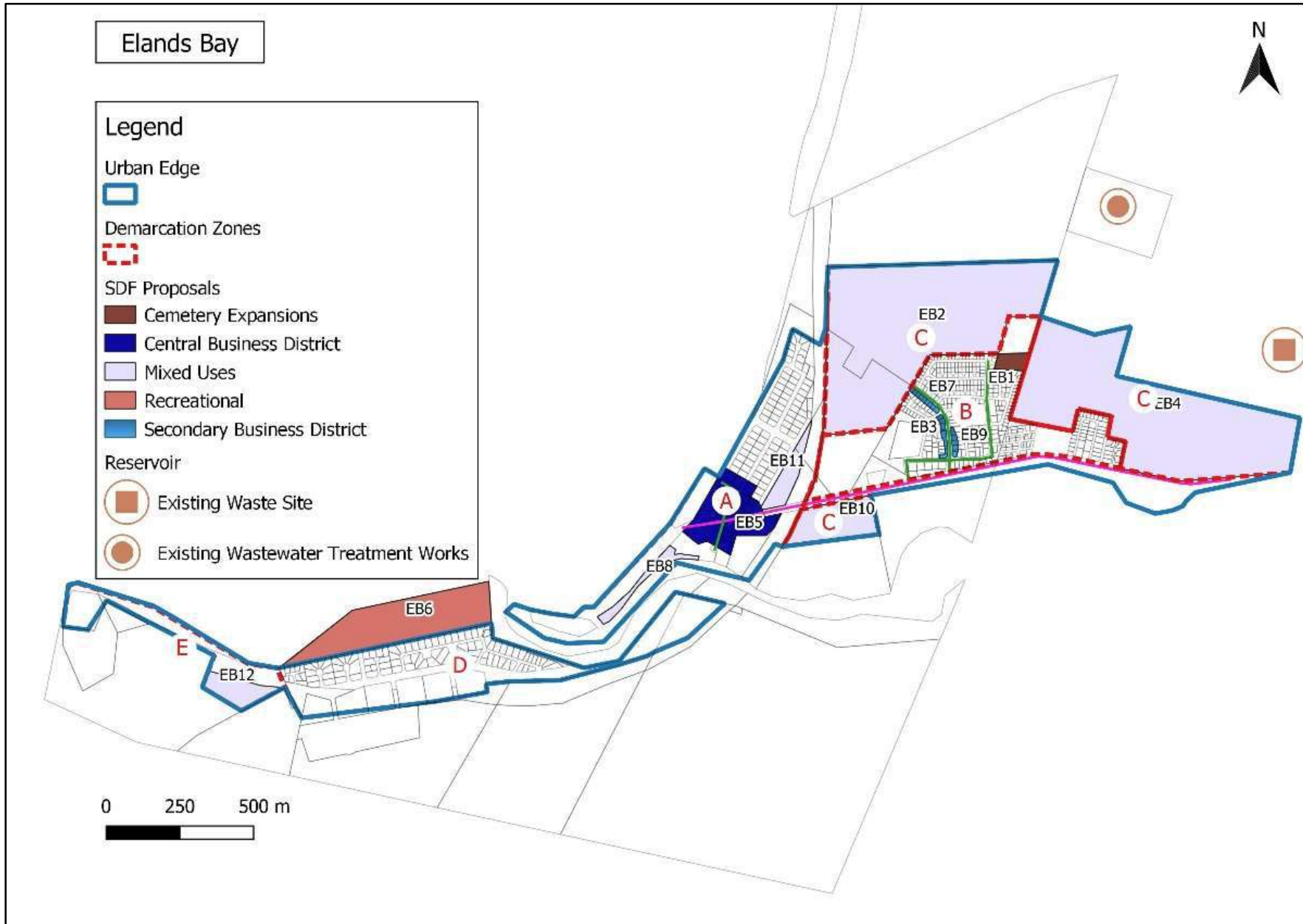
Clanwilliam									
Name	Proposed Use	Gross Area	Zone	Ownership	Implementation Target	Partnerships: Institutional & Sectoral Arrangements	SDF Timeframe	Funding Sources	Cost
CW3	Central Business District	36,5	D	Priv & Gov	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	0	Private	TBC
CW9	Cemetery Expansions	3,2	K	Mun	Extent of expansion to be determined	Municipal	0	Municipal	TBC
CW5	Mixed Uses	4,2	C	Mun	Create ±163 or more opportunities of 180m ²	Provincial Government & Municipal	<5	Provincial & Municipal	TBC
CW6	Nature Reserve & Resort	59,3	J & another outside	Mun	Rejuvenate and expand resort and decrease conservation area.	Municipality	<5	Municipal & Provincial	TBC
CW7	Industrial	7,2	F	Mun	Create ±50 or more opportunities of 1000m ²	Private Municipal	<5	Private & Provincial	TBC
CW10	Industrial	1,5	J	Mun	Create ±11 or more opportunities of 1000m ²	Private Municipal	<5	Private & Provincial	TBC
CW12	Mixed Uses	2,6	A	Priv	Create ±101 or more opportunities of 180m ²	Private Municipal	<5	Private & Provincial	TBC
CW15	Mixed Uses	1,7	E	Priv	Create ±6 or more opportunities	Private Municipal	<5	Private & Provincial	TBC
CW16	Mixed Uses	3,6	E	Priv	Create ±11 or more opportunities	Private Municipal	<5	Private & Provincial	TBC
CW16b	Mixed Uses	240,4	I	Mun	Create ±9 349 or more opportunities of 180m ²	Provincial Government & Municipal	<5	Municipal & Provincial	Pipeline

CW31	Mixed Uses	4,3	K	Mun	Create ±100 or more opportunities of 300m ²	Provincial Government & Municipal	<5	Municipal & Provincial	TBC
CW26	Mixed Uses	93,3	B	Priv & Mun	Create ±2 177 or more opportunities of 300m ²	Provincial Government & Municipal	50% 5 -10 50% 10>	Municipal & Provincial	TBC



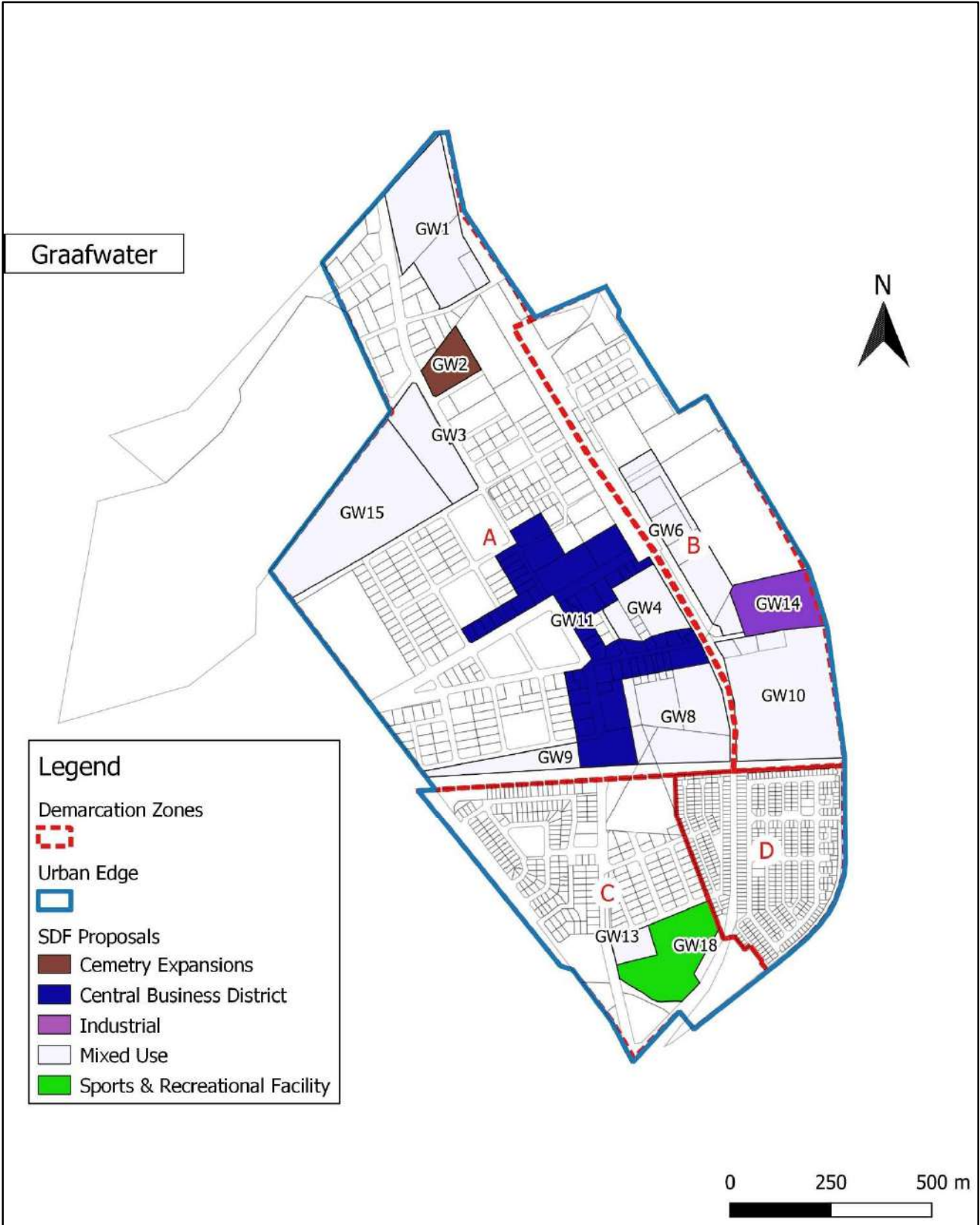
Elands Bay									
Name	Proposed Use	Gross Area	Zone	Ownership	Implementation Target	Partnerships: Institutional & Sectoral Arrangements	SDF Timeframe	Funding Sources	Cost
EB1	Cemetery Expansions	0,6	B	Priv	Extent of expansion to be determined	None	0	Municipal	TBC
EB5	Central Business District	4,8	A	Priv & Gov	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	0	Private	TBC
EB11	Mixed Uses	1,4	A	Priv	Create ±33 or more opportunities of 300m ²	Private Municipal	<5	Private & Provincial	TBC
EB3	Secondary Business District	0,2	B	Priv	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	<5	Private	TBC
EB7	Secondary Business District	0,2	B	Priv	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	<5	Private	TBC
EB8	Mixed Uses	1	A	Priv	Create ±23 or more opportunities of 300m ²	Private Municipal	<5	Private & Provincial	TBC
EB9	Secondary Business District	0,2	B	Priv	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	<5	Private	TBC
EB2	Mixed Uses	28,5	C	Priv & Dist Mun	Create ±1 108 or more opportunities of 180 m ²	Provincial Government & Municipal	50% <5 50% 5 to 10	Municipal & Provincial	Pipeline
EB4	Mixed Uses	26,7	C	Mun	Create ±1 038 or more opportunities of 180m ²	Provincial Government & Municipal	50% <5 50% 5 to 10	Municipal & Provincial	Pipeline
EB10	Mixed Uses	3,6	C	Priv	Create ±84 or more opportunities of 300m ²	Private Municipal	5 to 10	Private & Provincial	TBC

EB12	Mixed Uses	1,7	E	Priv	Create ±40 or more opportunities of 180m ²	Private Municipal	5 to 10	Private & Provincial	TBC
EB6	Recreational	8,5	Outside land use zoning	Mun	Compile a site development plan to confirm the no and type of opportunities	Private Municipal	5 to 10	Municipal & Provincial	TBC



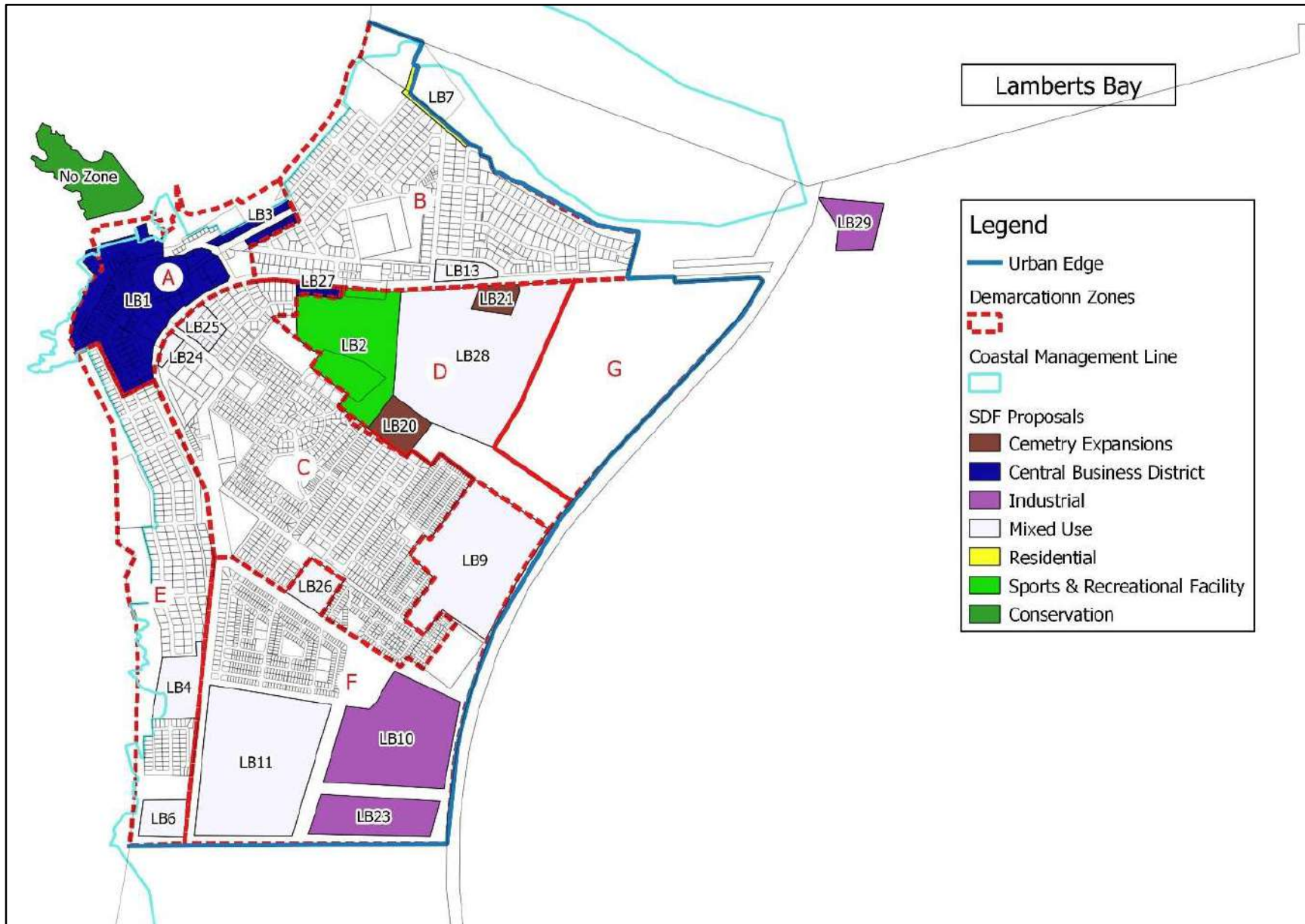
Graafwater									
Name	Proposed Use	Gross Area	Zone	Ownership	Implementation Target	Partnerships: Institutional & Sectoral Arrangements	SDF Timeframe	Funding Sources	Cost
GW11	Central Business District	12,2	A	Priv & Mun	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	0	Private	TBC
GW2	Cemetery Expansions	1,32	A	Mun	Cemetery Expanded	Municipal	0	Municipal	TBC
GW20	Community Facility	0,09	C	Mun	Establish multi-purpose facility and dual parking area	Partnership with Provincial Government	0	Municipal & Provincial	Tbc
GW13	Mixed Use	0,71	C	Mun	Create ±28 or more opportunities of 180m ²	Provincial Government & Municipal	<5	Municipal & Provincial	Pipeline
GW16	Secondary Business District	0,91	C	Priv	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	<5	Private	TBC
GW17	Secondary Business District	0,55	D	Priv	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	<5	Private	TBC
GW18	Sports & Recreational Facility	3,43	C	Mun	Establish multi-purpose sportfields and dual parking area	Partnership with Provincial Government	<5	Municipal & Provincial	TBC
GW4	Mixed Use	2,47	A	Priv	Create ±59 or more opportunities of 300m ²	Private Municipal	<5	Private & Provincial	
GW1	Mixed Use	5,66	A	Mun	Create ±132 or more opportunities of 300m ²	Provincial Government & Municipal	5 to 10	Private & Provincial	TBC
GW10	Mixed Use	8,2	B	Priv	Create ±191 or more opportunities of 180m ²	Private Municipal	5 to 10	Private & Provincial	TBC
GW12	Mixed Use	0,48	B	?	Create ± or more opportunities of 180m ²	Private Municipal	5 to 10		?
GW14	Industrial	2,79	B	Priv	Create ±20 or more opportunities of 1000m ²	Private Municipal	5 to 10	Private & Provincial	TBC

GW15	Mixed Use	8,21	A	Mun	Create ±319 or more opportunities of 180m ²	Provincial Government & Municipal	5 to 10	Private & Provincial	TBC
GW3	Mixed Use	2,62	A	Mun	Create ±102 or more opportunities of 180m ²	Provincial Government & Municipal	5 to 10	Private & Provincial	TBC
GW6	Mixed Use	4,3	B	Priv	Intensify use of ±6 or more opportunities	Private Municipal	5 to 10	Private & Provincial	TBC
GW8	Mixed Use	5,48	A	Priv & Mun	Create ± 128 or more opportunities of 300m ²	Provincial Government & Municipal	5 to 10	Private & Provincial	TBC
GW9	Mixed Use	2,64	A	Mun	Create ±103 or more opportunities of 180m ²	Provincial Government & Municipal	5 to 10	Municipal	TBC

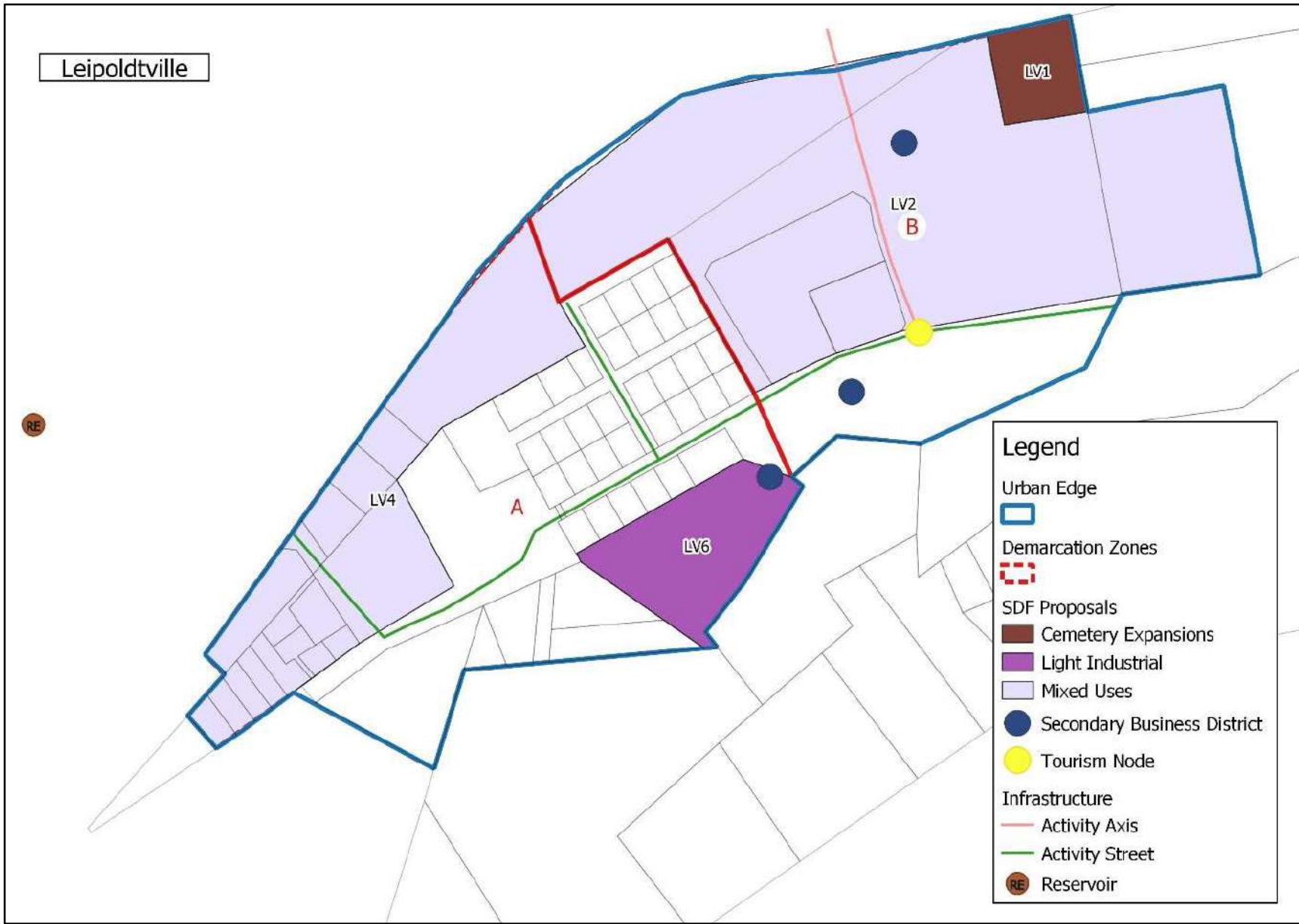


Lamberts Bay									
Name	Proposed Use	Gross Area	ZoneP	Ownership	Implementation Target	Partnerships: Institutional & Sectoral Arrangements	SDF Timeframe	Funding Sources	Cost
LB1	Central Business District	17,33	A	Priv & Mun	Intensification of use on 10% of number of erven	Private. Municipal Support to intensification aligned to character of area.	0	Private	TBC
LB20	Cemetery Expansions	2,54	D	Mun	Extent of expansion to be determined	Municipal	0	Municipal	TBC
LB21	Cemetery Expansions	1,43	D	Mun	Extent of expansion to be determined	Private	0	Municipal	TBDC
LB27	Central Business District	0,68	C	Mun	Create ±16 or more opportunities of 300m ²	Private & Municipal	0	Private	TBC
LB29	Industrial	2,9	Outside Urban Edge	?	Rehabilitated & options investigated	Municipality	0	Private & Provincial	TBC
LB3	Central Business District	0,99	A	Priv	Intensification of use on 10% of 13 of erven	Private. Municipal Support to intensification aligned to character of area.	0	Private	TBC
LB30 No Zone	Conservation	5,99	Outside Urban Edge	Gov	Keep conservation in tact	National Government	0	Nat Gov	TBC
LB5	Central Business District	0,63	A	Priv	Intensification of use on 10% of 8 of erven	Private. Municipal Support to intensification aligned to character of area.	0	Private	TBC
LB13	Mixed Use	1,42	B	Mun	Create ±17 or more opportunities of 180m ²	Provincial Government & Municipal	<5	Private & Provincial	TBC
LB24	Mixed Use	0,53	C	Mun	Create ±10 or more opportunities of 180m ²	Provincial Government & Municipal	<5	Municipal & Provincial	TBC
LB25	Mixed Use	1,57	C	Mun	Create ±61 or more opportunities of 180m ²	Provincial Government & Municipal	<5	Municipal & Provincial	TBC
LB26	Mixed Use	2,11	F	Mun	Create ±43 or more opportunities of 300m ²	Provincial Government & Municipal	<5	Municipal & Provincial	TBC











					(50%) & 180m ² (50%) m ²				
LB4	Mixed Use	3,46	E	Mun	Create ±81 or more opportunities of 300m ²	Provincial Government & Municipal	<5	Private & Provincial	TBC
LB7	Residential	0,74	B	Mun	Create ±17 or more opportunities of 300m ²	Provincial Government & Municipal	<5	Private & Provincial	TBC
LB10	Industrial	12,34	F	Mun	Create ±86 or more opportunities of 10000m ²	Provincial Government & Municipal	5 to 10	Private & Provincial	TBC
LB11	Mixed Use	18,01	F	Mun	Create ±560 or more opportunities of 300m ² (50%) & 180m ² (50%)	Provincial Government & Municipal	5 to 10	Municipal & Provincial	Pipeline
LB2	Sports & Recreational Facility	12,77	D	Mun	Establish multi-purpose sportsfields/ facilities and dual parking area	Partnership with Provincial Government	5 to 10	Municipal & Provincial	TBC
LB23	Industrial	5,93	F	Mun	Create ±4 opportunities of 100000m ²	Provincial Government & Municipal	5 to 10	Private & Provincial	TBC
LB28	Mixed Use	24,69	D	Mun	Create ±768 or more opportunities of 300m ² (50%) & 180m ² (50%)	Provincial Government & Municipal	5 to 10	Municipal & Provincial	Pipeline
LB6	Mixed Use	2,07	E	Mun	Create ±81 or more opportunities of 180m ²	Provincial Government & Municipal	5 to 10	Private & Provincial	TBC
LB9	Mixed Use	15,04	F	Mun	Create ±585 or more opportunities of 180m ²	Provincial Government & Municipal	5 to 10	Municipal & Provincial	Pipeline





















Leipoldtville									
Name	Proposed Use	Gross Area	Zone	Ownership	Implementation Target	Partnerships: Institutional & Sectoral Arrangements	SDF Timeframe	Funding Sources	Cost
LV1	Cemetery Expansions	0,6	B	Priv	Extent of expansion to be determined	Private	0	Private	TBC
LV2	Mixed Uses	11,2	B	Priv	Create ±261 or more opportunities of 300m ²	Private Municipal	5 to 10	Private & National	TBC
LV3	Sports & Recreational Facility	0,9	A	Priv	Establish multi-purpose sportsfields and dual parking area	Partnership with Provincial Government	5 to 10	Private & Provincial	TBC
LV4	Mixed Uses	4,2	A	Priv	Create ±98 or more opportunities of 300m ²	Private Municipal	5 to 10	Private & Provincial	TBC
	Light Industrial	1,5	A	Priv	Create ±11 or more opportunities of 1000m ²	Private Municipal	5 to 10	Private & Provincial	TBC


























Annexure 6: Comprehensive Proposal Maps Key














OVERALL			
	Existing Use		Proposed Use
F Facility	A single entity, complex or limited area accommodating a single or several activities.	N Node	Several entities accommodating several activities, highly accessible.
S, P Street / track /pathway	A continuous linear space enhancing mobility. When described, e.g. Activity Street, intensification of uses adjacent to the space is promoted.	C Corridor	An extended continuous linear space enhancing use intensification.
	Existing Infrastructure		Proposed Infrastructure.
PARAMETERS			
Map icon	Element	Description	
	Urban Edge	Means a line which may or may not follow cadastral boundaries, demarcating the outer limit of urban development according to interrelated policies, which serves to determine, manage, direct and control urban development.	
	Approved Development	Means an area within the urban edge where land use rights were granted in accordance with LUMS and civil and electrical services capacities were allocated. A colour notation refers to a specific use as per spatial proposals.	
	Floodline (i.e rivers, dams)	Is representing the highest elevation that would probably be reached during a storm with a return interval of 100 years and must be indicated on all plans for the establishment of townships in accordance with Section 144 of the National Water Act of 1998 (Act 36 of 1998).	
	River/ Drainage line	A river or water course, perennial or non-perennial, is a ribbon-like body of water within a natural channel that flows to the sea, a lake or another river. Rivers vary in width, depth and length. A drainage line means a channel down which surface water naturally concentrates and flows, conveying water only during, or immediately after periods of heavy rainfall. Drainage lines are limited in length.	
	Wetland	Indicates an area of land that is either covered or saturated with water for most of the year, such as a marsh or swamp. The water is often groundwater, seeping up from an aquifer or spring or a nearby river or lake or the sea. These areas have unique ecological characteristics and are important habitats for many species of plants and animals.	
	Coastal Management Line	A coastal management line is an established boundary that delineates the area of jurisdiction and responsibility for managing coastal resources. This line is established by coastal authorities to guide land use and development and to ensure the sustainable use of coastal resources.	














	Expansion	Refers to a land use to be extended, however limited or extensive, on the same or neighbouring land unit.
	Sterilisation Radius	Refers to a 300m buffer around waste water treatment works and a 500m buffer zone around Landfills and cemeteries, prohibiting the development of residential or other habitable structures within the buffer zone. The buffer for cemeteries is under reconsideration.
RESIDENTIAL		
Proposed	Element	Description
	Residential	Indicates an area earmarked for residential use, where permanent dwelling units form neighbourhoods with various densities. Residential use areas include amenities and secondary business nodes according to industry norms.
	Medium or High Density Residential	Indicates areas earmarked for residential densities of up to 20 or more units per hectare that can accommodate Residential 2 and 3 and General Residential 1 and 2 zonings
	Residential Estate	Means an area where larger erven are located or can be created with some guidelines to establish a particular character and to direct residential development and related and supportive land uses.
	Rural Residential	Means an area where larger erven are located or can be created for agricultural use with or without some guidelines to establish a particular character and to direct residential development and related and supportive land uses.
	Restricted Residential	Refers to a designated area that has certain limitations or restrictions identified by special assessments on how a land unit can be used or developed. It refers to the constraints that exist on the ability of a particular area or land unit(s) to intensify its use or expand, whether due to physical or regulatory limitations. Limitation may include zoning regulations, environmental protections, or physical factors like topography or geology.
	Restructuring Zone	Is an area designated for targeted investment establishing social housing to achieve social, spatial and economic restructuring. Security of tenure should be within walking distance form social amenities, business and employment opportunities.
	Residential Densification	Refers to the process of increasing the number of housing units in a built-up area, usually by subdivision and or rezoning, constructing multifamily buildings or adding additional floors to existing buildings.
	Transitional Zone	Means an area between extreme densities (very low and high), presenting a zone within the lower dense area to subdivide according to a minimum erf size.
	Infill Development	Infill development means an existing layout is cancelled and replaced with a layout with higher densities or vacant or underutilized land within an urban area is developed.
Grys honey comb	DoHS	A delineated area earmarked for subsidised housing that were included in the tenure (housing) pipeline, gazetted or not.











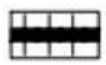

BUSINESS/COMMERCIAL		
Proposed	Element	Description
	Central Business District	Designated core area or primary business node of a settlement which concentrated commercial activity. Compatible non-business uses for example residential and services for example storage can be accommodated within the CBD.
	Secondary Business District/ Node	Designate a business area within a settlement where there is a CBD, that concentrate commercial activity and services with less intensity than the CBD or primary business node, and serves the immediate neighbourhood(s).
	Business Node	Business Nodes indicates an area with a higher concentration of business AND commercial activities but is not necessarily primarily zoned as such.
	Informal Market Area	A designated area where informal enterprises (not incorporated and not registered for taxation) trade goods and services in all economic sectors.
	Market Square / Node	A central location within a settlement that serves as a market place for local merchants and vendors, where local produce and goods and services are sold to consumers. Both formal and informal enterprises are accommodated.
INDUSTRIAL		
Proposed	Element	Description
	Light Industrial	Represent industrial uses and service trades that are exercised without being a nuisance to other land use or the general public. Such uses may be adjacent to business and residential areas, and do not present a potentially negative impact on the character or amenity value of such areas.
	Industrial	Represent factory uses where an article or part of such article is made, manufactured, produced, built, assembled, compiled, printed, ornamented, processed, treated, adapted, repaired, renovated, rebuilt, altered, painted(including spray painting), polished, finished, cleaned, dyed, washed, broken up, disassembled, sorted, packed, chilled, frozen or stored in cold storage or where a service or part of is rendered such as storage of perishables and non-perishables.
















	Service Industry	Represents primarily the rendering of services rather than producing goods to the local community and can be establish in an industrial or business area. Services rendered include but is not limited to the repair of household appliances or the supply of household services, a builder's yard and allied trades, a laundry, bakery, dairy depot, any other storage, and similar types of uses, but does not include an abattoir, a brick-making site, sewage works, a service station or a motor repair garage; is not likely to be a source of disturbance and not liable, in the event of fire, to cause excessive combustion, give rise to poisonous fumes or cause explosions.
COMBINED USE		
Proposed	Element	Description
	Mixed Uses	Mixed use development incorporates two or more land uses which are compatible either in the same area or precinct or building such as commercial and residential.
	Development Node	Means a specific location or area that is highly accessible and earmarked for development including collective and specialised economies, services, manufacturing, tourist attractions and social amenities. Such high-intensity land use activity is likely located along or at the start and end points of existing or emerging national or local corridors or zones and include areas of residence, industrial activity or trade that are either generators of transport and/or supporters of transport functions). (Along major national and major roads).
	Activity Node	Indicates a neighbourhood node where high-intensity land use activity such as collective & specialised business, services, manufacturing, tourism activities are located at a street intersection that are highly accessible. It includes areas of residence, industrial activity or trade that are either trip generators and/or supporters of transport functions.
AGRICULTURE		
Proposed	Element	Description
	Small Scale Agriculture	Means agricultural activities that include intensive, extensive, alternative and lifestyle agriculture on a small scale. The land unit on which such activities take place can be demarcated by agreement, lease area or subdivision or any other means. Should such a land unit include critical biodiversity or threatened and endangered vegetation, agricultural activities will be limited to grazing and conservation. Agricultural activities that can be exercised without becoming a nuisance to other land use or the general public and do not present a potentially negative impact on the character or amenity value of an area, are encouraged.







AMENITIES/FACILITIES			
Proposed	Existing	Element	Description
		Public Open Space	Means municipal land, with or without access control, landscaped or kept natural and used primarily as or a site for outdoor sports, play, rest or recreation and with or without access control, or as a park, garden, or conservation area with limited activities and likely access control or natural veld within a settlement being a conduit for services.
		Sports Facility	An in- or outdoor facility designed for athletic activities and events, such as stadiums, arenas, fields, gymnasiums, or swimming pools.
		Recreation Node/ Area/ Park	A designated area or park, public or private, within a neighbourhood that provides for recreational facilities such as outdoor sportsfields, playgrounds, outdoor gatherings and picnic areas.
		Private Open Space	Means land under private ownership, with or without access control, used primarily as a site for outdoor sports, play, rest or recreation, or play area or park or garden or for nature conservation and with likely access control.
		Golf Course	A private open spaces used for golfing and supporting uses.
		Show grounds	A large field with surrounding infrastructure where local agriculture, business and industry exhibits and celebrate their industry.
		Nature Reserve (*Local)	An area where the preservation of the fauna, flora, soil, water, mineral and fossil deposits and, in general, of the natural environment is of particular importance.*Local means Local Authority, instead of provincial or national.
		Critical Biodiversity Area / Conservation area	Indicates terrestrial (land) and aquatic (water) areas which must be safeguarded in their natural or near-natural state because they are critical for conserving biodiversity and maintaining ecosystem functioning, but have not been officially declared as a reserve.
		Cemetery	Means a place where the dead are buried and may include buildings that are necessary for the religious, administrative and clerical uses associated therewith, but does not include a crematorium.
		Gateway	A settlement entrance that is formalised.

		Resort node	Designated areas or points of interest to promote tourism and may include holiday facilities in areas with special environmental or recreational attributes, and to encourage access to these facilities by the general public.
		Caravan Park	A holiday facility for caravans, motor homes or similar recreational vehicles to encourage access to these facilities by the general public, being established within an open space or a resort.
		Tourism node/ area	Designated areas or points of interest that attract tourists or visitors to a particular location, city, or region.
		Institutional Facility	A social facility or amenity and may be public or private, operated for public purposes e.g. a court, school or church.
		Police Station	
		Elderly Centre	
		Place of Worship	
		Integrated Sport & community facility	A community facility, public or private, where sporting events and social amenities and services such as meeting places, fitness classes, and educational programs are combined for the benefit of the community.
		Sports & Educational Node	A node of sports and educational facilities and amenities, public or private, where programs that promote both physical activity and learning are combined.
		Community Centre	A community facility, public or private, that accommodates a range of services and activities for a local community, such as health, education and training, social services, domestic affairs, administration, sports, events and a gathering space.
		Community Node	A central accessible location, where a range of public and private facilities and amenities is home to health, education and training, social services, domestic affairs, administration, sports, events and gatherings.
		Educational Node	An accessible location, where institutions and amenities that offer education are located and formal and or less formal educational activities are offered.

		Primary School – No Fee	
		Primary School - Fee	
		Secondary School – No Fee	
		Secondary School - Fee	
		Pre-Primary School / Crèche	
		Skill Centre / Academy / College	Refers to, but is not limited to, further education and training colleges, skills academies, skills centres, youth centres with a strong training focus.
		Library	Public library.
		Museum	
		Medical Facility/ Clinic	A facility or clinic, where a range of medical and related services can be practiced or an accessible location, where a cluster of practices provides medical and related services and include a clinic, hospital, dentist and prosthetics.
		Hospital	
CORRIDORS AND BUFFERS			
Proposed	Element	Description	
	Rural Development Corridor	Includes intensification of agriculture, tourism, freight, transport, agri-industrial development activities supportive of agriculture in a zone or linear space along a major road and enhanced by related and supportive services and infrastructure.	
	Open Space / River Corridors	A dedicated track of land that is public or private within urban or rural areas that promotes conservation or recreational uses and connects destinations and or other natural areas. Rivers naturally have such tracks of land along their banks being labelled a river corridor.	

	Activity Corridors	Streets or roads that have generally a very high level of vehicular, non-motorised and pedestrian traffic due to intensification of land use parallel to and on both sides of the street or road, and includes any higher order transport routes such as railway lines and thoroughfares.	
	Activity Streets	Streets or roads that have a higher level of vehicular, non-motorised and pedestrian traffic due to adjacent land uses, such as residential, recreation, education or entertainment activities.	
	Landscape Buffer Zone	A natural or man-made area that separates two different types of land uses for aesthetic or functional reasons.	
ROADS/ROUTES			
Proposed	Existing	Element	Description
		External Connector	A road connecting one location or destination to another or two or more major roads or highways, beyond the municipal boundary. It is usually a shorter route that helps to ease traffic congestion and facilitate easy movement of people and goods.
		Internal Connector	A road connecting various locations or destinations to another or two or more major roads, within municipal boundary.
		Proposed Connector	A proposed road to improve connectivity and access between different locations within a region or municipal area or settlement.
		Alternative Road	Being an alternate path or road that can be taken in case the primary or regular road is not travelable due to natural or man-made events (traffic congestion, roadworks, accidents, or weather conditions).
		Tourism Route	Refer to a road within a beautiful landscape and or cluster of attractions, designated for tourists to visit or explore the natural attractions, such as forests, rivers, lakes, and wildlife within the area.
		NMT/ Pedestrian Route	Refers to a pathway, designed for pedestrians and or non-motorized modes of transport such as bicycles and skateboards, and related infrastructure such as sidewalks, pedestrian-only roads and bridges. NMT or pedestrian routes aim to create safe and convenient access for pedestrians, reduce reliance on cars, and create more walkable neighbourhoods.
		Bus Route	A predetermined path with or without designated stops along the way where passengers can board and disembark the bus, that a bus follows to transport passengers from one location to another. Transportation authorities consider factors such as demand, population density, and traffic flow to inform the route.
		Railway line	A physical link or line of movement that connects different railway stations or tracks with each other to facilitate the movement of trains.
		One-way Traffic	A proposal to restrict the movement of vehicles in one direction only on a particular road, street, or intersection.

		Traffic Circles	Proposed roundabouts or circular traffic intersections that are designed to improve traffic flow, reduce accidents, and improve safety.
		Underpass	Proposed underpass along a provincial or national road also serving as a conduit for services.
		Bridge/ Bridge widening	Proposed expansion of a bridge to accommodate additional vehicles or traffic flow over a river or other body of water.
	Circle tt	Taxi Terminal	An amenity where taxis or other ride-sharing services can pick up and drop off and park to wait for passengers.
	Circle p	Parking Area	A designated area designed for vehicles to park temporarily.
INFRASTRUCTURE			
Proposed	Existing	Element	Description
		Renewable Energy	Means any wind, solar, water or organic matter facility or grouping of facilities that captures and converts wind, radiation of the sun, water or organic matter into energy for commercial gain irrespective of whether it feeds into an electricity grid or not, and includes any appurtenant structure or any test facility or related uses.
		Supply Network Strengthening	The process of enhancing the reliability, and efficiency of a supply network of services, such as electricity and water.
		Retention Facility	A structure designed to retain or temporarily store water/sewage or other materials for future use or distribution.
		Reservoir	A large artificial or natural lake or structure created to store water that can be used for irrigation, drinking, or other purposes.
		Existing Substation	An electrical facility that transforms and distributes electrical energy from the power grid to dwellings, businesses and plants.

		Waste Management/ Landfill Site	A site designated for waste disposal with a 500m buffer zone, typically with regulations to prevent contamination and pollution of surrounding areas.
		Waste Transfer Site	A location where waste is temporarily stored and sorted before being transported to a permanent landfill site (Proposed and Existing).
		Waste Water Treatment facility	Indicates a facility for the treatment of sewerage.

Annexure 7: Description of proposed land uses for development zones

Description of proposed land uses in the identified Development Zones of the Cederberg towns	
Proposed land uses	Description
Low density Residential uses	Residential densities of up to 15 units per hectare within the Single Residential Zone I* zoning can be accommodated within these zones.
Medium density Residential uses	Residential densities of up to 20 to 50 units per hectare within the General Residential Zone I* can be accommodated within these zones.
High density Residential uses	Residential densities of above 50 units per hectare can be accommodated within these zones with proposed zoning General Residential Zone II* (preferably along activity streets and within business nodes).
Place of Education	Allow for educational facilities (crèches, day care facilities, after care facilities, schools, colleges, universities, research institutions, library, museums, art galleries, hostels etc.).
Professional Services	Means that kind of use which is normally and reasonably associated with professionals such as doctors, dentists, attorneys, architects, engineers and town planners, where services rendered, are separate from trading are one of the distinguishing factors.
Business Uses	Business uses that include business premises, restaurants, and service trade as included under Local Business Zone I (at nodes), Business Zone I (at nodes and in CBD) and Business Zone II (along activity streets and at nodes).
Secondary Business Uses	Allow for low intensity commercial and mixed uses to provide for the needs of the local neighbourhood in terms of consumer goods and personal services (including house shop, home occupation, small offices, house taverns, cafes, but not limited to these uses). House taverns only to be allowed along activity streets in residential areas. These types of uses should be limited and must be able to integrate with surrounding residential areas without negatively impacting these areas. As allowed for under Local Business Zone II.
Place of worship	Places of worship under Community Zone I and as consent uses under Community Zone II, Local Business Zones I and II, Business Zone I, Industrial Zones I and II and Community Zone I*.
Institution	Allow for Institutional uses (social, health and welfare facilities) with specific reference to hospital, clinic, home for the aged, indigent or handicapped that are allowed for under the Community Zone I* as well as consent under Local Business Zones I and II, Business Zone I and Community Zone II*.
Guest Houses/lodges	For the provision of guest accommodation as allowed for as a consent use under Single Residential Zone I, and guest lodges under General Residential Zone III and as consent use under General Residential Zone II*.
Authority	Uses that are related to national and provincial government departments and municipalities. The locality and alignment of authority uses should consider existing and planned future uses in the surrounding area. Uses as allowed under Authority and Utility Zone.
Sport/Recreational Facilities	Allow for sport facilities and other related recreational and tourism facilities like show grounds, picnic and camping areas.
Industrial/Service Trade and Industries	Allow for development of industries, service industries and service trade related uses, with the different types of industries considering the context and locality in the urban areas. Certain commercial uses including shops, restaurants, places of assembly, adult entertainment as well as funeral parlours and places of worship are allowed for under these zones in accordance with the zoning scheme.

* The proposed zoning is according to the Cederberg Integrated Zoning Scheme Regulations of 2020, or as may be amended in future. The proposed zonings only provide an indication of the zonings that can be allowed within the zones. Any land use application within the development zones area however will still be subject to other regulations that are applicable to the specific areas and within the zoning scheme.

Works Cited

- BNG. (2004). *Breaking New Ground: A Comprehensive Plan For The Intergrated Sustianable Human Settlements*. Retrieved February 2023, from http://www.dhs.gov.za/sites/default/files/documents/26082014_BNG2004.pdf
- CARA. (1983, April 27). Conservation of Agricultural Resources Act, No 43 of 1983. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- CSIR. (2019). *Langeberg Local Municipality Vulnerability Index*. Retrieved 10 11, 2022, from CSIR Greenbook-Risk Tool: <https://riskprofiles.greenbook.co.za/>
- CSIR. (2000). *Guidelines for human settlement planning and design: The red book*. . CSIR.
- Department of Agriculture, Forestry and Fisheries (DAFF). (2016). Land Capability-Raster Layer. Pretoria, Guateng, South Africa.
- EMA. (1998, Nomvember 27). Environmental Management Act, 1998 (Act 107 of 1998) . *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- FFASR. (1947, January 17). Fertilizer, Farm Feeds, Agricultural and Stock Remedies Act (Act 36 of 1947),. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- GPS. (2014). *Growth Potentital Study*. Cape Town: Western Cape Provincial Government : Department of Enviromental Affairs & Development Planning.
- Housing Code. (2009). *National Housing Code*. Retrieved February 2023, from Republic of South Africa: <http://www.dhs.gov.za/content/national-housing-code-2009>
- ICM. (2008, February 11). Integrated Coastal Management Act No, 24 of 2008. *Government Gazette*. 2009, Western Cape, Cape Town: REpublic of South Africa.
- ICM. (2008, February 11). National Environmental Management: Integrated Coastal Management Act 24 of 2008. *Governmtnt Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- IDP . (2022). *Intergrated Development t Plan 2022-2027*. Clanwilliam: Cederberg Municipality.
- IDP. (2017). *Integrated Developement Plan 4th Generation 2017-2022*. Clanwilliam: Cederberg Municipality.
- IUDF. (2016). *Integrated Urban Development Framework*. Pretoria: Department of Cooperate Governance and Traditional Affairs.
- IUDF. (n.d.). *Intergrated Urban Development Framework- Draft for Discussion*. Pretoria: Republic of South Africa;Cooperative Governance.
- Kirkwood, D., Pence, G., & von Hase, A. (2010). *Western Cape Biodiversity Framework: Critical Biodiversity Framework: A C.A.P.E. Land-use planning*. Cape Town: Western Cape Government.
- KRSDF. (2021). *Karoo Regional Spatial Development Framework*. SALGA.

- MCAA. (1970, October 7). Mountain Catchment Areas Act 63 of 1970. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic South Africa.
- MCEP. (2015). *NEMA Act 10, Monitoring, Control and Eradication Plans* . Pretoria: Department of Environment Affairs.
- MLR. (1998, May 27). Marine Living Resources Act (Act No.18 of 1998). *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- MSA. (2000, November 20). Municipal Systems Act, No 32 of 2000. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- NDP 2030. (2013). *The National Development Plan 2030*. Pretoria: National Planning Commission.
- NDP 2030 Summary. (2013). *The National Development Plan 2030: Executive Summary*. Pretoria: National Planning Commission.
- NEM: AA. (2003, February 18). National Environmental Management: Protected Areas Act 57 of 2003. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- NEM:BA. (2004, June 7). National Environmental Management: Biodiversity Act No 10 of 2004. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- NEMA. (1998, January 29). National Environmental Management Act 107 of 1998. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- NFA. (1998, December 12). National Forests Act 84 of 1998. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- NFEPA. (2011). *National Freshwater Ecosystem Priority Areas* . Pretoria: CSIR.
- NHRA. (1999, April 28). National Heritage Resources Act, Act 25 of 1999. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- NSBA. (2004). *National Spatial Biodiversity Assessment*. Pretoria: South African National Biodiversity Institute.
- NSDF . (2022). *National Spatial Development Framework for 2050- Summary*. Pretoria: Department of Rural Development and Land Reform; Department of Planning , Monitoring and Evaluation.
- NTMP. (2016). *National Transport Master Plan 2050*. Pretoria: Department of Transport, Republic of South Africa.
- NWA. (1998, August 26). National Water Act , No 36 of 1998. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- NWSMP. (2018). *National Water and Sanitation Master Plan: Volume 3: Ready for the Future, Ahead of the Curve*. Pretoria: Department of Water and Sanitation.
- Officials, C. M. (2017, 2022). Interview regarding : bulk Infrastructure Capacity. (C. R. Partners, Interviewer)

- PLTF. (2011). *Provincial Land Transport Framework (2011/12 – 2015/16)*. Cape Town: Western Cape Provincial Government.
- PLUPA. (2014, March 31). Western Cape Land Use Planning Act. *Provincial Government Gazette Extraordinary, 2014*. Cape Town, Western Cape, South Africa: Western Cape Provincial Government.
- PSDF. (2014, March). *Western Cape Provincial Spatial Development Framework*. Retrieved February 2023, from <https://cer.org.za/wp-content/uploads/2015/07/Western-Cape-Provincial-SDF-2014.pdf>
- SA Constitution. (1996). *The Constitution of the Republic of South Africa*. Cape Town, Western Cape, South Africa: Constitutional Assembly, Republic of South Africa.
- SALA. (1970, September 28). SUBDIVISION OF AGRICULTURAL LAND ACT 70 OF 1970. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- SDF. (2017). *Spatial Development Framework*. Clanwilliam: Cederberg Municipality, CK Rumboll & Partners.
- SEP. (2021). *Socio-Economic Profile*. Retrieved October 26, 2022, from Western Cape Government: <https://www.westerncape.gov.za/provincial-treasury/files/atoms/files/SEP-LG%202021%20-%20Langeberg%20Municipality.pdf>
- SmartAgri. (2016). *A Status Quo Review of Climate Change and the Agriculture Sector of the Western Cape Province*. Cape Town: Western Cape Government.
- SPLUMA. (2013). Spatial Planning and Land Use Management Act, No 16 of 2013. *Government Gazette*. Pretoria, Guateng, South Africa: Republic of South Africa.
- SPLUMA. (2013, August 5). Spatial Planning and Land Use Management Act, No 16 of 2013. *Government Gazette*. Cape Town, Western Cape, South Africa: Republic of South Africa.
- StatsSA. (2011). *Cederberg Municipality Census Data 2011*. Retrieved from <https://wazimap.co.za/profiles/municipality-WC012-cederberg/?release=2011>
- StatsSA. (2011). *Census Data 2011 : Cederberg Ward 4*. Retrieved from <https://wazimap.co.za/profiles/ward-10102004-cederberg-ward-4-10102004/>
- StatsSA. (2011). *Census Data : Cederberg Ward 3*. Retrieved from <https://wazimap.co.za/profiles/ward-10102003-cederberg-ward-3-10102003/>
- StatsSA. (2011). *Census Data 2011: Cederberg Ward 1*. Retrieved from <https://wazimap.co.za/profiles/ward-10102001-cederberg-ward-1-10102001/>
- StatsSA. (2011). *Census Data 2011: Cederberg Ward 2*. Retrieved from <https://wazimap.co.za/profiles/ward-10102002-cederberg-ward-2-10102002/>
- StatsSA. (2011). *Census Data 2011: Cederberg Ward 5*. Retrieved from <https://wazimap.co.za/profiles/ward-10102005-cederberg-ward-5-10102005/>
- StatsSA. (2011). *Census Data 2011: Cederberg Ward 6*. Retrieved from <https://wazimap.co.za/profiles/ward-10102006-cederberg-ward-6-10102006/>

StatsSA. (2016). *Cederberg Municipality Community Survey* . Retrieved from <https://wazimap.co.za/profiles/municipality-WC012-cederberg/>

STR. (2021). *Small Town Regeneration Strategy (STR)*. Cape Town: Department of Cooperative Governance.

WC Annual Performance Plan. (2022). *Western Cape Annual Performance Plan 2022/2023*. Cape Town: Western Cape Provincial Government.

WC IF. (2013). *Western Cape Infrastructure Framework*. Cape Town: Western Cape Provincial Government.

WCBA. (2021, December 14). Western Cape Biodiversity Act , No 6 of 2021. *Provincial Gazette Extraordinary* . Cape Town, Western Cape, South Africa: Republic of South Africa: Western Cape Province.

WCBSP. (2017). *Western Cape Biodiversity Spatial Plan*. Cape Town: Western Cape Provincial Government.

WCDMIDP. (2012). *West Coast District Municipality Integrated Development Plan 2012-2016*. West Coast District Municipality.