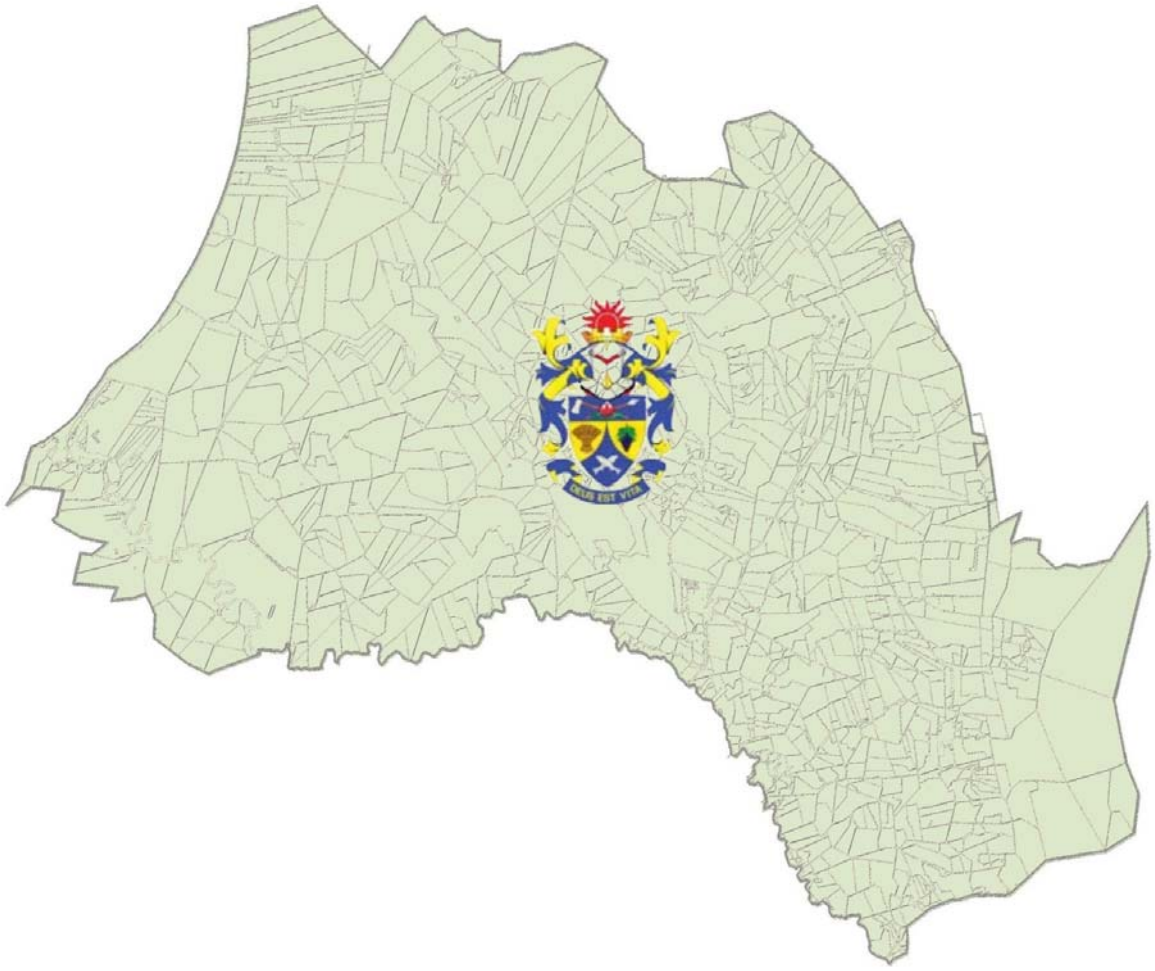
Bergrivier Spatial Development Framework
2012-2017

Strategies and Proposals
Volume II



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Contents

List of Tables:

List of Maps

Acronyms

ABP - Area based plan
AR - Asset register
BEE - Black economic empowerment
BESP - Built Environment Support Programme
BNG - Breaking New Ground
BSDF.2002 – Bergrivier Spatial Development Framework, 2002
BSDF.2008 - Bergrivier Spatial Development Framework, 2008
CAPEX - Capital expenditure
CBA - Critical Biodiversity Area
CBPWP – Community Based Public Works Programme
CNC – Cape Nature Conservation
CPU - Conservation Planning Unit
CRDP - Comprehensive Rural Development Programme
CSIR - Council for Scientific and Industrial Research
DoHS - Department of Human Settlements
DWAF - Department of Water Affairs and Forestry
EIA - Environmental Impact Assessment
EMF - Environmental Management Framework
EMP - Environmental Management Plan
EMPR - Environmental Management Program Report
ENPAT - Environmental Potential Atlas
ESA - Ecological Support Area
ESTA - Extension of Security of Tenure Act, 1997 (Act 62 of 1997)
FSBP - Fine Scale Biodiversity Plan
GAP - Households with income between R3500 – R7 000
GDP - Gross domestic product
GDS - Growth and development Strategy
GIS - Geographical Information System
GVA - Gross Value Added
HAD - Housing Development Agency
HWC - Heritage Western Cape
HIA - Heritage Impact Assessment
HSP - Human Settlement Plan
ICDP - Integrated Conservation Development Plan
IDP - Integrated Development Plan
IGR - Integrated Governmental Relations
IHSS - Integrated Human Settlement Strategy
ITP - Integrated Transport Plan
LASS - Land Acquisition for Sustainable Settlement
LED - Local Economic Development
LRAD - Land Redistribution for Agricultural Development Programme
LUM - Land Use management
LUMS - Land Use Management System
LUPO - Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985)
MHI - Major hazardous installations
MIG - Municipal Infrastructure Grant
MOSS - Metropolitan Open Space System
MRF - Materials Recovery Facility

MSA - Municipal Systems Act, 2000 (Act 32 of 2000)
NEMA - National Environmental Management Act, 1998 (Act 107 of 1998)
NGO - Non-governmental Organisation
NHRA - National Heritage Resources Act
NMT - Non motorized transportation
NSBA - National Spatial Biodiversity Assessment
NSDP - National Spatial Development Perspective
PAWC - Provincial Administration Western Cape
PGWC - Provincial Government Western Cape
PDA - Planning and Development Act, 1999 (Act 7 of 1999)
PPP - Private Public Partnership
PSDF - Provincial Spatial Development Framework
PWD - Public Works Department
SAHRA - South African Heritage Resource Agency
SANBI - South African National Biodiversity Institute
SD link - Sustainable development link
SDF - Spatial Development Framework
SDP - Spatial Development Plan
SEA - Strategic Environmental Assessment
SG - Spatial guideline
SLAG - Settlement Land Acquisition Grant
SMA - Special Management Area
SMME - Small, micro and medium enterprises
SoER - State of the Environment Report
SPC - Spatial Planning Category
SPLAG - Settlement Production Land Acquisition Grant
Stats SA - Statistics South Africa
UNESCO - United Nations Educational, Scientific and Cultural Organization
WC/DM - Water conservation and demand management
WCSHSS - Western Cape Sustainable Human Settlement Strategy
WCNCB - Western Cape Nature Conservation Board
WHS - World Heritage Site
WMA - Water management areas
WSDP - Water Service Development Plan
WWTW - Waste Water Treatment Works

Definitions:

Spatial Development Framework
Indicates the spatial implications of the Integrated Development Plan (IDP) and spatially reflects the integration of the various strategies of the IDP. Formulation of the strategies is based on identified needs. Furthermore, it reflects the vision of how the area should develop spatially, so as to ensure sustainability.

Spatial Development Plan
A Spatial Development Plan (SDP) is not the same as the SDF. Where the SDF is the spatial component of an IDP, the SDP indicates spatial implications of the IDP as well as other relevant plans, frameworks, strategies and policies for the area concerned, in more detail than an SDF. An SDP addresses spatial planning needs in a specific location in the area(s) of jurisdiction of one or more municipalities.

Spatial Plan
This is a generic term used for any plan that is portrayed spatially.

Sectoral Plan
Is a written and / or mapped strategy that relates to any function of Council (except spatial planning) e.g. the provision of housing, water, or a transport plan. It is normally part of the IDP, but can stand on its own.

Strategic Environment Assessment (SEA)
A useful tool which is aimed at ensuring that environmental issues are addressed from an early stage. A SEA is aimed at a particular context or situation, evaluating constraints and possible development options.

State of the Environment Report (SOE)
A collection of existing information on the environment as a whole (including physical, social, ecological and political/institutional factors). The compilation of a SOE is not yet obligatory, but is likely to be so for District Municipalities.

Sustainability
The sustainable management and use of the resources making up the natural and built environment in a manner that ensures that the needs of the present generation are met without compromising the ability of future generations to meet their respective needs.

Efficiency
That the desired spatial order as a result of land-use and land development should be achieved with the minimum expenditure of resources.

Integration
That the separate and diverse components of spatial planning, land-use management and land development be aligned and combined to achieve a unified entity.

Consistency
That there is uniformity in the relations between spatial development frameworks and plans in the hierarchy of spatial development frameworks and plans, but within consideration of local circumstances.

Equity (vertical)
Vertical equity assumes that the disadvantaged should be favored above more advantaged people and refers to the distribution of impacts (who receives benefits or bares costs) and the degree to which a specific policy or program achieves equity objectives.

Densification
The process whereby the density of the urban development, i.e. the number of dwelling units per hectare, increases in a planned manner by means of subdivision, creation of smaller erven, multi storey developments, sectional title, second dwellings on erven and urban renewal.

Corridor
Specified area, i.e. natural area, or area adjacent to a mobility/ activity route where more intensive and specified land uses are allowed.

Node
A point of higher intensity development or a gathering point within a specific area.

Biosphere Reserve
A model that can be used to protect environmentally significant areas i.e. core conservation areas where there are important ecosystems. The Biosphere Reserve Model involves the delineation of interrelated areas, namely the Core Area, the Buffer Area and Transition Area 1-3, covering the entire area of the Biosphere Reserve. Appropriate levels of conservation status and land use(s) are assigned to each area. The Core Area is a state protected area, while the Buffer Area which surrounds or abuts the Core, protects the latter. Within the Buffer Area, those activities that enhance the sustainability of the Core are permitted. The Transition Area is the most flexible of the areas in terms of the land uses that are allowed.

Spatial Planning Categories – SPCs
SPC's have been developed to provide guidelines for all local land uses. These SPC's are consistent with bioregional planning methodologies and all zoning that is included under existing Zoning Scheme Regulations must be amended accordingly. SPC's should be applied for land-use classification at all levels of planning in the Western Cape, including Sectoral Plans, Spatial Development Plans and SDF's.

It is expected from District Municipalities to use the six broad planning categories in their SDF's, and that the SDF's of Local Municipalities should reflect the 32 more detailed planning categories, where applicable. The SPC's should be included both in the Analysis Phase, reflecting the status quo, and the Strategy Phase reflecting a desired pattern of land use.

Special Management Areas – SMA's
SMA's serve as useful tools at the level of the Local Municipality to create "areas of excellence and good practice" thereby ensuring that the ethos of environmental sustainability is maintained. The declaration of an SMA has benefits both for the municipality and the landowner(s), as the landowner(s) is/are contractually obliged to implement an environmental management system that conforms to the International Standards Organisation (ISO) 14001 standards, while the municipality grants the landowner additional land-use rights.

Neighbourhood Areas appears as a useful tool applicable at the local level, for it is a way to promote enthusiastic and effective public participation, through the creation of a sense of place and community pride. .

Strategy: Carefully devised spatial intervention(s) to achieve an objective in the context of a particular theme and component;

Action: Key element(s) of spatial intervention(s) including, but not limited to, implementing agents and priority

Spatial Indicator: A measurement to give information about the spatial change of something over time and expresses a large quantity of data or complex information in a simple way

Spatial link: The space to which the strategy (positively) relates reducing the cross-cutting nature of before-mentioned subjects

Chapter 11: Spatial Planning Principles, Objectives and Strategies for Urban and Rural areas

11. Spatial Planning Principles; Objectives and Strategies

11.1 Introduction

This section describes the desired spatial pattern that should be worked towards in the urban and rural areas of Bergrivier. The desired patterns, spatial objectives and strategies are formulated based on the preceding Spatial Perspective and Status Quo report for Bergrivier, as included in Volume I of the Bergrivier Spatial Development Framework. The objectives and strategies are also informed by the IDP challenges and priorities. Therefore the objectives are not set out according to the three spatial environments (biophysical, socio-economic and built), but according to sectors and subsectors whereby the sector plans of the IDP are drafted. The following table highlights the relationship between the objectives and sectors:

Environment	Objective	Sector (Spatial element)
Built Biophysical	Protect and strengthen the natural and built environment	Protection and renewal: (Core urban areas) (Densification) (Restructuring) Conservation: (Urban conservation and Open space networks)
Socio- economic: Social	Provide and maintain an effective social environment	Housing: Infrastructure: (Bulk & services) (Social)
Socio- economic: Economic	Increase economic opportunities	Transport (Movement networks, Connectivity and mobility) Economic development (Local - overhead) Tourism (multi-sector)

11.2 Bergrivier Urban Spatial Objectives and Strategies

The current Bergrivier region's identity is a composition of its landscapes, agricultural heritage, inhabitants, institutions and history. The establishment of the settlements within the rural area and the on-going growth of the areas have put increasing pressure on the environment. Future growth of the urban areas will be supported to take place within the proposed urban edges with increased focus on the corridors and the core areas by means of densification, re-development and restructuring of the areas.

In order to ensure that the future development takes place in suitable areas urban spread must be restricted to the demarcated urban areas. It is also of great importance that the sensitive natural areas and productive agricultural land is protected from future development. All these aspects can be handled through appropriate management. The spatial demarcation of the urban edges, settlement patterns and the identification of agricultural areas and conservation areas pave the way for spatial control and the unlocking of opportunities. The myriad of land uses experienced means that different impact will occur and sometimes these impacts can clash. Therefore overhead spatial objectives should help with the effective management of land uses within the urban and rural areas of the Bergrivier, as follows:

- Protect and strengthen the natural environment by protecting high potential agriculture land to secure food production;
- Protect and strengthen the natural environment through the identification and protection of indigenous biodiversity and sensitive ecosystems within and outside the urban areas as identified in the *Bergrivier Critical Biodiversity Areas Map & Report*;
- Protect and strengthen the built environment through delineating definite urban edges;
- Promote and support of local economic development (specifically Tourism, Agriculture and Industry): *Grow the economy of the Bergrivier*;
- Provide an effective social environment through planning, supplying and maintaining bulk infrastructure;
- Provide an effective social environment through allowing equal access to all facilities enhancing integration and sustainable settlements.

The following section provides detailed policy guidelines and strategies to ensure that all the objectives are met.

11.3. Urban Areas

The policy guidelines and strategies below focus on the urban areas of the Bergrivier Municipal Area.

11.3.1 Urban Edges

Acknowledging the spatial importance afforded to urban edges to guide and control orderly development of the built environment with the existing edge approved in the Bergriver Spatial Development Framework of 2008 which were revised according to the growth potential and requirements of each town. These proposed urban edges for the 2012 Bergriver Spatial Development Framework provide the demarcated urban areas for the next five (5) years. Urban development for the next five (5) years should therefore be contained within these demarcated areas.

An Urban Edge is defined in the Western Cape Provincial Spatial Development Framework of 2009 as "*a line drawn around an urban area as a growth boundary, i.e. the outer limit of urban areas. The urban edge marks the transition between rural and urban land use, i.e. generally between urban areas where full municipal services are provided to land uses other than agriculture and the rural, predominantly agricultural, conservation and nature areas. Urban edges are intended to include an adequate supply of land that can be efficiently provided with urban services (roads, sewers, water, storm water systems and streetlights) to accommodate the expected growth of the urban area for a defined period. By providing land for urban uses within the urban edge (growth boundary), the rural area can be protected from urban sprawl. It is therefore a demarcated line to manage, direct and control the outer limits of development*." *(South Africa. Department of Environmental Affairs and Development Planning, 2005: 8)*

The Western Cape Provincial Spatial Development Framework's (WCPSDF) policy RC7 on the delineation of urban edges states the following:

WCPSDF RC: Between Urban Development and Core, Buffer and Intensive Agriculture areas an Interim Urban Edge shall be considered to be in place around all villages, towns and cities in the Province along the edge of actual urban (i.e. not urban fringe) development – to mediate the relationship between these provincial broad spatial planning categories, until a Medium Term Urban Edge has been approved.

The Urban Edge has two functions:

i. To contain the outward growth of urban settlements so as to promote their restructuring to address apartheid spatial patterns and urban functional inefficiencies. These inefficiencies relate to insufficient thresholds to support viable businesses and informal (2nd economy) activity, public transport and community facilities, and sub-optimal use of well located land, especially for subsidy and social housing. Thus, the Urban Edge must restrict the outward growth of urban settlements until such time as average gross densities of 25 dwelling units, or 100 people per hectare, are achieved.

ii. To protect land designated Core, Buffer and Intensive Agriculture from urban development where required. (Western Cape Provincial Spatial Development Framework: Settlement Restructuring: An Explanatory Manual, March 2009: p 6-7)

The Urban edges within the Bergrivier Municipal area needs to function *" as a means of restructuring the urban areas and integrating the currently segregated social groups and urban areas; It is a growth management tool, used to limit sprawl and the outward growth of urban areas, in favour of densification and infill development, to ensure the more efficient use of resources and land within the urban area; and It is a conservation tool, used to exclude certain elements of the environment from the urban area, in order to protect or preserve it, or to discourage its development in the short and medium term, while the long term implications are uncertain" (South Africa. Department of Environmental Affairs and Development Planning, 2005: 19)*

This revision of the urban edges was conducted within the framework of national, provincial and relevant Bergrivier Municipal guidelines. The revision took into account economic and social development as well as the environmental sustainability of the Bergrivier region. The following table provides an overview of the growth model used in the determination of additional land required in each of the Bergrivier towns.

Town	Projected Growth in Population 2012-2017 (Average growth rate: 2.4% p.a.[1])	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Porterville	1013	253	959	1212	69	54	1167	29ha	47ha
Eendekuil	128	32	205	237	65	35	202	5ha	8ha
Piketberg	1526	382	1928	2310	105	314	1996	50ha	80ha
Goedverwacht	60	15	13	28	-	0	28	0.7ha	1.9ha (15du/ha)
Wittewater	-	-	11	11	-	0	11	-	0.7ha (15du/ha)
Aurora	18	5	60	65	-	80	62	1.6ha	2.5ha
Dwarskersbos	212	53	0	53	53	410	0	0	0
Redelinghuys	35	9	140	149	2	153	147	4ha	6ha
Velddrif	2949	737	826	1563	202	1502	1361	34ha	54ha

Table 11.3.1(a): Additional land required in Bergrivier urban area

This growth model only provides a guide for future land required based on existing housing backlogs and the past population growth experienced in the towns. It does not however determine the potential demand and growth for housing especially in the holiday sector in the coastal towns. In order to stimulate economic

[1] As per Bergrivier SDF, 2008, Table 9, p28

growth in these towns additional land for development expansion needs to be identified. The land required for the development of future subsidised erven is given as an average density of 40du/ha and 25du/ha.

The Bergriver Municipal area is divided into seven (7) wards with different urban areas that fall within the specific wards. The urban areas within the Bergrivier municipal area are as follows: Piketberg, Porterville, Velddrif/Laaiplek, Eendekuil, Dwarskersbos, Aurora, Redelinghuys, Goedverwacht and Wittewater.

Because of certain cultural, historical, socio-economic and economic factors each of the areas developed unique characteristics that are reflected in the land uses as well as the development form of each town. The towns can be classified as follows according to the different inputs of policy documents, e.g. the *"Growth Potential of towns in the Western Cape".*

Town	Economic base	Place identity	Investment Priorities	Bergrivier SDF Classification
Piketberg	Commercial and Service centre	Administrative seat	Major infrastructure	High order main centre
Porterville	Residential Town with supporting social infrastructure	Rural town	Major infrastructure	Medium order agricultural service centre
Velddrif/ Laaiplek	Service based tourism, fishing and salt industries with supporting services and social infrastructure. A town with two central business districts	Coastal fishing towns combined with sensitive natural areas along the river and coast	Major Infrastructure	High order service centre
Eendekuil	Residential Town with supporting social infrastructure	Rural town	Major social infrastructure	Low order rural settlement
Dwarskersbos	Residential holiday destination	Coastal town	Low – minor infrastructure	Low order coastal settlement
Aurora	Residential Town with supporting social infrastructure	Sandveld town	Low – minor social infrastructure	Low order rural settlement
Redelinghuys	Residential Town with supporting social infrastructure	Rural town	Major social infrastructure	Low order rural settlement
Goedverwacht	Residential rural settlement	Mission station village	Low – minor infrastructure	Low Order - Rural settlement
Wittewater	Residential rural settlement	Mission station village	Low – minor infrastructure	Rural settlement

Table 11.3.1(b): Classification of Bergrivier Urban Areas.

To ensure that each one of the core urban areas is developed to their full potential in considering their character and what they have to offer. The following guidelines and strategies are being proposed.

Urban Areas: Objectives & Strategies			
Objective (O)		Strategies (S)	
O1	Formally guide and coordinate spatial development in the towns over the next five (5) years by the creation of integrated and effective settlements.	S1	Demarcation of urban edges within all the towns as well as the identification of future areas for urban growth taking into account the conservation of the natural and built environment.
		S2	Piketberg, Porterville and Velddrif/Laaiplek are the towns accommodating the future growth in Bergrivier.
		S3	The scale and character of new developments must correspond with the proposed growth potential of each town to support sustainable development.
		S4	Determine expansion directions for land uses within a five (5) year time frame.
O2	Promote the effective use of all resources within the urban areas.	S5	Identify vacant and underutilized areas within the urban areas together with their possible development potential.
		S6	Categorise Bergrivier according to Critical Biodiversity Areas Mapping.
O3	Development in the urban edge must take place with consideration of existing sensitive areas and must drive towards the optimal usage of the existing resources.	S7	Identify sensitive nature areas within urban areas.
		S8	Prohibit development on sensitive natural areas, flood plains, steep gradients, marshes and dunes.
		S9	Identify the 1:50 year flood line within all urban areas adjacent to rivers. Maintain 32 meter setback lines adjacent to rivers/streams.
O4	Promote densification within urban areas.	S10	Identify areas for densification/infill development within all towns and draft a densification policy for Bergrivier to ensure that the characters of the towns is not jeopardised.
O5	Promote integration of urban areas.	S11	Identify areas where integrated development can take place.

11.3.2 Densification

In order to limit uncontrolled urban expansion, ensure the optimal use of land and promote effective delivery of infrastructure and services within the urban context, the densification of urban areas within Bergrivier is being proposed. Densification is strongly recommended in the Western Cape Provincial Spatial Framework (WCPSDF) to promote future sustainable settlements.

It should however also be noted that most of the urban areas within Bergrivier are small rural towns with a specific rural character. Although the densities in these towns are relatively low in terms of the provincial guidelines it should be noted that the towns are small with limited growth potential and with most of the services and infrastructure already within walking distance of all the neighbourhoods.

The Bergrivier SDF does however acknowledge the fact that densification with the larger towns should be supported and encouraged. The Western Cape Provincial Spatial Development Framework's (WCPSDF) policy UR2 on densification states the following:

> *WCPSDF UR 2: The average gross residential density in urban settlements experiencing urban growth shall be encouraged to increase to 25du/ha before further extension of the urban edge is considered. The term "average" implies that densities may be as low as 3-6 du/ha on the urban periphery but should increase to 0-60du/ha at or near the centre of other highly accessible nodal points or identified nodal centres in the*

urban areas. The general pattern is that the densities should be higher towards the core and lower towards the periphery after heritage, environment and other constraints such as service capacities have been taken into account. Densification should only occur in strategic parts of urban settlements such as long major routes, around open spaces, on well located pieces of land or in underdeveloped areas within good locations that warrant increased development. Heritage resources should be taken into account so that they are not destroyed. (Western Cape Provincial Spatial Development Framework: Settlement Restructuring: An Explanatory Manual, March 2009: p 6)

This acknowledges that the transformation through densification should be achieved through an alignment with market forces that naturally support concentration and agglomeration. It further recognizes that to achieve an average of twenty-five dwelling units per hectare (25du/ha) some areas will need to have higher densities and others lower densities. It is proposed that the desired densification can be obtained in different ways which include different layouts, densification and infill development in different parts of the urban areas according to higher and lower order access streets, different building styles and the massing of form.

The WCPSDF proposes a mean density of 25 residential units per hectare in urban areas with the highest density in the urban core and a lower density on the edges of the towns. This urban form is known as the "cupcake". Although 25 units per hectare is the proposed norm it cannot be reached in most rural towns, because of smaller historic settlements where space forms part of the town's character. Excluding the character of the town that has to be preserved, long term shortcomings such as heritage buildings, environmental restrictions and the need for open space systems, prevent reaching the proposed norm.

According to the WCPSDF the average density for the Cape Town metropolis is between nine dwelling units per hectare (9du/ha) to twelve dwelling units per hectare (12du/ha) (Chittenden, Nicks and De Villiers, 2005: 4-67). Seen against the high-density developments (apartment blocks and skyscrapers) prevalent in the Metropolis, it is only natural that the density in the rural towns will be lower and the rate of densification slower. It is important to acknowledge the 'sense of place' or cultural landscape that is provided by many of these rural towns and the reasons why many of the people settle in these towns. Kevin Lynch defines the 'Sense of Place' as " *the degree to which the settlement can be clearly perceived and mentally differentiated and structured in time and space by its residents and the degree to which that mental structure connects with their values and concepts."*

The densification target set for future densification in the Bergrivier area needs to consider the character of the towns within the Bergriver Municipal area, especially the smaller rural towns where the existing radius of the town is between 1 and 2 kilometres. These maximum densities need to be adopted to protect the following features of the towns:

- The rural setting of all the towns in the Bergrivier area: Historically the towns were developed to a very low density in a grid pattern, with dwellings placed in the middle of large allotments. These low densities within rural towns provide an open feel to the townscape that contributes to the ambience of these towns;
- Against the cost of densification of certain areas where there is a shortage of bulk infrastructure;
- The historical setting of dwellings: most of the towns in the Bergriver region are blessed with unique historical buildings. The historical value of these buildings is in many cases due to their setting within the townscape;

- Town Planning Schemes: The Bergrivier Scheme Regulations determine minimum erf sizes in different land use zones and therefore guide the existing densities in the towns.

In summary, the factors that will determine the rate of densification are:

- the ownership of the vacant areas and these owners' desire to develop;
- the preservation of the rural character of the Bergrivier towns;
- people's perception of densification;
- the urban form created by past planning legislation, and
- existing planning guideline documents.

The Bergrivier Municipality will have to adopt a densification strategy for the next twenty (20) years to achieve their proposed densification targets. To achieve these objectives responsible infill development will have to take place with high-density developments encouraged along activity streets and integrated developments consisting of a combination of densities developed on available vacant land within the urban edge. Densification within Bergrivier can, according to applicability of the urban structure, be reached through:

- Infill of erven and development of existing vacant areas – identification of the areas can be done as part of strategic planning of the areas;
- Support double storey as well as semi-detached units that is the densification of existing uses and buildings;
- Subdivision of erven, second dwelling units and sectional title developments – the development can especially take place in specific residential areas where large erven alongside wide streets were created and the area itself lends to densification – several methods to promote densification can then be applied here;
- Urban renewals (demolishes buildings and develop high densities or use existing old buildings or factories for alternative uses) – the form of densification includes the extension of town houses, flats and security areas. It is important that, where possible, existing infrastructure such as roads and service infrastructure be utilized;
- Integrated development on new "Greenfield" development areas – because these areas are usually situated on the borders or edges of towns, densification must take place with due care in regard to the adjacent rural/ agricultural environment.

The proposed densification targets as identified for each of the towns within the Bergrivier municipal area are as follows:

Densification targets for Bergrivier towns		
Town	Existing density in town	Average density targets
Porterville	5.6du/ha	15du/ha
Eendekuil	4.8du/ha	10du/ha
Piketberg	5.9du/ha	15du/ha
Aurora	4du/ha	10du/ha
Dwarskersbos	5.8du/ha	15du/ha
Redelinghuys	4.3du/ha	10du/ha
Velddrif	5.1du/ha	15du/ha

Table 11.3.2: Proposed densification targets for the Bergrivier towns.

It is therefore clear that densification and the planning of higher density areas requires an innovative approach with regard to the amendment or adjustment of certain acceptable standards e.g. road widths, road reserves to accommodate services, views, building lines and other regulations that can form part of the zoning scheme and other regulations. The advantages of higher built densities within the urban areas that promotes sustainable settlements, includes:

- Better social integration;
- Increase the viability and access to social facilities;
- Increase the viability of businesses;
- Increase the viability of public transport.

Further benefits of densification in terms of sustainable use of resources include the following:

- Cost saving of land prices – e.g. per unit price decrease;
- Economy of infrastructure;
- Decrease the pressure associated with use of land for development;
- Increase effective use of energy and other resources;
- Conservation of the rural landscape and picturesque vistas.

Densification must be supported, specifically in the following areas:

- In areas with a high economic growth potential;
- Along main transport routes for purpose of public transport support;
- On the edge of open spaces for purpose of increasing the level of observation of the areas to ensure security;
- Within the areas where investment of public funds are focussed;
- In areas of high private investment e.g. in and around commercial nodes.

The following table supplies the objectives and strategies to ensure densification in the Bergrivier municipal area:

Densification Objectives and Strategies			
Objective (O)		Strategies (S)	
O6	Support densification as depicted in the WCPSDF to develop sustainable and viable urban areas.	S12	Support the amendment of restrictive zoning scheme regulations to promote densification within urban areas.
		S13	Support the following methods to promote densification in Bergrivier: • Infill of erven; • Development of existing vacant ("Brownfields") areas in urban areas; • Double storey and semi-detached dwelling units; • Subdivision of erven, second dwellings and Sectional title developments; • Renewal of existing areas (demolish buildings for higher density developments or re-develop existing buildings); • Support integrated development on new "Greenfields" areas.
O7	Densification within the Bergrivier urban areas must be sensitive to the existing character, natural and historic environment of towns.	S14	Support a densification target for each town that is sensitive to the existing character of the town.

11.3.3 Restructuring of Towns

The planning of towns within the urban areas should focus on the restructuring of the urban form and the patterns of settlement in order to change the segregated towns created by apartheid planning. The Bergriver Municipality is fortunate in that most of the towns are small with no distinct segregated pattern where large buffer areas are located between different neighbourhoods. Social services within the Bergriver towns have also been more evenly distributed between the different neighbourhoods with most of the commercial and social infrastructure within walking distance of most of the residents. Care does however need to be taken to ensure that future residential areas for the poorer communities are located closer to the existing amenities as well as job opportunities to improve the accessibility to these services.

This principle also supports the "*Built Environment Support Program*" as a combined initiative by the Western Cape Department of Human Settlement and Department of Environmental Affairs and Development Planning, which proposes the amendment of the urban form and structure of the old apartheid towns with the principle of restructuring. The Western Cape Provincial Spatial Development Framework's (WCPSDF) policies relevant to integration and restructuring of towns are as follows:

WCPSDF UR1: Urban settlements shall be restructured so as to break down the spatial barriers created by apartheid and make them more convenient and pleasant to live in while creating economic opportunities close (within walking distance) to where people live.

WCPSDF UR5: The complete range of socio-economic groupings within an urban settlement shall be located within walking distance according to the Principle of a Socio-Economic Gradient.

WCPSDF UR6 a: All residential developments undertaken by the private sector (irrespective of it being on public or private land) above a certain threshold shall provide 20% or more inclusionary housing opportunities, whether on or not on a rental basis, as determined by the WC WCPSDF Explanatory Manual and Policy on Inclusionary Housing. The above mentioned threshold may be revised from time to time.

WCPSDF UR6 b: All private sector non-residential development, approved in terms of applicable planning legislation, shall include opportunities for inclusionary housing, as determined by the WC WCPSDF Explanatory Manual and Policy on Inclusionary Housing.

WCPSDF UR7: Large scale urban development projects on public land should provide for mixed use and socio-economically integrated communities in a similar ratio of income distribution to that pertaining in the municipality as a whole.

WCPSDF UR8: Investment by government departments in all three spheres, by parastatals and by the private sector should be coordinated to achieve integrated urban nodes.

WCPSDF UR19: In each case high density residential accommodation and business opportunities, from informal street trading to formal shops, offices and factories at the appropriate scale should be located around clusters of community facilities grouped at the appropriate scale.

WCPSDF UR10: Public land shall be made available to assist with achieving urban restructuring.

WCPSDF UR11: 50% of the five major urban activities (public transport, access points, residence, recreation, shopping and employment) should be accessible within walking distance (1000m/1km) of residential dwellings.

(Western Cape Provincial Spatial Development Framework: Settlement Restructuring: An Explanatory Manual, March 2009: p 8-9)

There is a need to start thinking in innovative ways and identify different areas where the transformation of the towns and cities needs to happen in order to improve the integration of the towns to provide better access to available opportunities and services. In time more effective land use planning will assist in the transformation of the urban structure with well integrated residential areas where there is a better distribution of social and commercial infrastructure and a better connectivity exists between the different areas in town. There are no quick solutions, but by actively planning towards the integration and restructuring of towns through the implementation of objectives and guidelines the urban form and structure of towns will change for the better.

The current issues that hinder the restructuring of urban areas are as follows:

- Infrastructure barriers for example main roads, railway lines and bulk service infrastructure. It should be noted that very few if any of the towns within Bergriver Municipality have infrastructure barriers that separate the town and specifically the residential areas within the towns;
- Price of land;
- The availability of land - with many of the open areas that are in private ownership;
- Limited funds available to fund GAP housing options.

The restructuring of towns can be achieved by applying the following principles:

- *Functional Integration:*
  The implementation of the "walking distance" principle to promote greater access to different opportunities for all people in the urban areas will promote the functional integration of towns. At least 50% of all urban related facilities should be within walking distance of where the people live in the urban areas. The planning and placement of these functions should therefore be done accordingly.
- *Integration of infrastructure:*
  The provision of equal services and infrastructure in all the neighbourhoods of the Bergrivier towns is a goal to be reached. This goal also incorporates the proactive planning for more community facilities closer to the poorer communities by allowing provision of these facilities in areas perceived as adequate. This can also be done through the creation of more community services in established areas through rezoning of existing erven within these communities. The use of the principle of pedestrian accessibility of services – with proposed 20 minutes/1 kilometre walking distance to services should be used in the placement of these services. The provision of secondary business nodes in the previously disadvantaged communities is a definite priority.
  Care should be taken not to duplicate services if they are already available within walking distance of communities. If existing infrastructure and services do already exist in communities, future development around those existing nodes should be supported in order to ensure more effective utilisation of the existing services.
- *Social Integration:*
  Social infrastructure should be achieved through the provision of social services in central positions that are shared by various communities, for example sport fields, market squares, within the open space network, picnic areas along prominent open space networks such as rivers and natural areas.

- *The provision for a larger variety of housing types:*
  The provision for a larger variety of housing types in all areas of town, but especially around the centre of town in order to provide more opportunities and access to housing for all income groups. This will assist in better integration and use of central areas where most of the services and infrastructure already exist. Care should however be taken to address the upgrading of current infrastructure in these areas as they might have been planned in accordance with a much lower density that is proposed in the future. In order to promote the socio-economic integration of communities and to assist in the restructuring of urban areas, planning should allow for a relatively small difference in income and property value between adjacent areas. In using a social-economic gradient it is more viable to introduce integration within the areas. Lower income groups should also be placed closer to existing nodes, preferably within 20 minutes/1kilometre walking distance of these nodes, to ensure better access for these communities to services and infrastructure.
  Once again it should be noted that most of the towns within the Bergriver has a small radius with most of the communities located within a 20 minute walking distance of most of the commercial and social infrastructure.
- *Spatial Integration:*
  Supporting spatial integration with development along main activity routes is necessary. The development of mixed uses should be supported along these routes and this includes a combination of commercial, residential and low impact service industries. The development along these routes will not only support the traffic and pedestrians making use of these routes but also allow for better connection between different areas and nodes.

The following table provides an overview of integration proposed within the different urban areas of the Bergrivier Municipal areas.

Wards		Functional Integration	Social Integration	Provision of a bigger variety of housing types	Spatial Integration
Wards 1 & 2	Porterville	Provide more social and commercial services in Monte Bertha along activity street as proposed.	Provide an integrated and active open space network for improved use by the whole community.	Promote the development of different types and densities of housing as related to existing surrounding area.	Promote the development of mixed uses along Voortrekker and the western section of Park Street and infill residential development, which includes various housing types on the western periphery of town.
Ward 3	Eendekuil	Provide a safe pedestrian and cycling route along the main road through town. Provide for commercial uses in the southern part of town along the activity street (Maas Street).	Negotiate for the use of the old school as a multi purpose centre.	Promote the development of different types and densities of housing as related to existing surrounding area.	Promote the development of mixed uses along main street and infill residential, which includes various housing types.
Ward 4	Piketberg	Provide more commercial services in previously disadvantaged neighbourhoods. Plan for social services in new	Support the central location of the Thusong centre to serve the whole of Piketberg.	Promote the development of different types and densities of housing as related to existing surrounding	Promote the development of mixed uses along activity streets. Curb immediate northern expansion and divert

		extensions that are easily accessible to pedestrians.		area. Support the development of higher density apartments east of Voortrekker street, close to the central business district.	future housing development to the north eastern periphery. Promote infill development in areas where erven are only developed along one side of the road.
Ward 5	Goedverwacht	Construction of formal pedestrian paths on one side of main road to allow improved access to services.	Promote the establishment of a skills training centre to allow better access to job opportunities.	Support individual ownership of properties to provide tenant security to community.	Promote infill development in existing vacant areas to support a more effective urban form.
	Wittewater	Construction of formal pedestrian paths along main activity street to allow improved pedestrian access to services.	Support the central location of a proposed multi purpose centre.	Support individual ownership of properties to provide tenant security to community.	Promote infill development in existing vacant areas to support a more effective urban form.
Ward 6	Aurora	Construction of formal pedestrian paths along main activity street to allow improved pedestrian access to services.	Promote the establishment of a skills training centre in the old school building to allow better access to job opportunities.	Make erven available to farm workers.	Promote infill development in existing vacant areas to support a more effective urban form.
	Dwarskersbos		Support the development of more social infrastructure.	Provide for a larger variety of housing types in this coastal town.	Promote infill development in the existing urban area to support a more effective urban form.
	Redelinghuys	Provide safe pedestrian and cycling routes along the main road through town.	Provide an integrated and active open space network for improved use by the whole community.	Promote the development of serviced erven.	Promote infill residential development together with the Oeloff Bergh activity street link.
Ward 7	Veldrif/Laaiplek	Provide more social and commercial services in Noordhoek along activity street as proposed. Investigate and promote the development of existing vacant services erven in town, possibly for the GAP market.	Provide an integrated and active open space network for improved use by the whole community.	Promote the development of different types and densities of housing as related to the existing surrounding area.	Promote the development of mixed uses along Noordhoek Road with integrated residential dwellings, which include various housing types, on the north-eastern side of Noordhoek.

Table 11.3.3: Integration in the Bergrivier towns

The following table supplies the objectives and strategies to ensure Integration in the Bergrivier municipal area overall:

Urban Restructuring Objectives and Strategies			
Objective (O)		Strategies (S)	
O8	Encourage integrated settlement patterns in the urban areas.	S15	Support applications which promote a greater mix of land uses and densities.
		S16	Ensure that residential areas are supported by adequate supporting social, commercial and recreational and public land uses to contribute to a well functioning and sustainable living environment.
		S17	Encourage the multi-functional use of social facilities, institutional facilities and recreational spaces.

O9	Improve the accessibility of all services and infrastructure through the implementation of appropriate contextual urban design criteria establishing a good relationship between the people, built environment and natural spaces within the towns.	S18	Encourage appropriate design principles in the design of all developments to encourage, promote and protect the desired sense of place of Bergrivier towns.
		S19	New developments to provide for adequate distribution of supporting land uses.

11.4 Urban and Rural Areas

The policy guidelines and strategies to follow focus on the urban and rural areas of the Bergrivier Municipal Area.
The strategies and objectives related to urban areas are indicated as O (objectives) & S (strategies) whilst those related to the rural areas are indicated as RO (rural objectives) and RS (rural strategies).

11.4.1 Housing

The greatest demand for housing in the Bergrivier Municipal area is for subsidized housing as well as for more affordable GAP housing with a lower demand for holiday housing opportunities. Holiday housing forms an important part of economic growth and tourism within the Bergrivier area and should be acknowledged as a definite demand and economic activity. The coastal towns of Velddrif and Dwarskersbos provide the opportunities for medium and higher income housing options with many of the houses bought by retirees moving to the coast as well as those who from elsewhere visiting their holiday homes. The rural villages of Redelinghuys and Aurora have also become more popular in the last ten years providing alternative housing for retirees or people looking for a quality lifestyle who are either permanent residents or use their property as a weekend retreat. The larger towns of Velddrif, Piketberg and Porterville are pinpointed as potential growth towns within the Bergrivier Municipal area and also as the towns where the majority of subsidized erven will be provided.

The Housing Master Plan (2008) proposes that a target of 550 houses per annum should be set, where after it can be re-evaluated. Housing in Piketberg, Porterville and Velddrif are priority in the Bergrivier municipal area. Considering the growth potential of these three towns highlighted in the 2004 & 2010 Growth Potential Study and as per the IDP, the municipality will give priority to address the housing needs in the larger centres of Piketberg, Porterville and Velddrif.

Constraints identified that prohibit or delay housing projects in Bergrivier Municipal area are as follows:

- Lack of funding;
- Environmental Assessment Authorizations;
- Availability of land, and
- Scarce water resources (Porterville).

The existing Bergriver Housing Master Plan needs to be revised in order to provide detail for future projects. The Department of Human Settlements is in the process of meeting with the Municipality to provide financial assistance to enable them to revise their Housing Plan. The Department of Human

Settlements provided the following guidelines for the revised Bergrivier Human Settlement Plan (HSP) and the future provision of subsidised erven and housing in the Bergriver Municipal area:

- need to start packaging new projects for the future – identify land and priority areas, services and infrastructure required and identify problems with provision, and
- need to complete current projects – allow for the title deeds to be registered and transfers to individual beneficiaries;
- provision of projects must focus on larger towns of:
    - Piketberg;
    - Porterville.

  The SDF will identify areas for potential future projects;
- most of the future housing projects will be for initial serviced sites only with the potential to develop the housing units as part of future projects. Municipalities were informed of the change in the housing policy where future projects will include serviced erven with no initial top structure provided – the municipalities have the option to put in a request for a slab (additional R8000) on the site where beneficiaries can construct their own structure. All older projects which have already been submitted under N4 will still proceed with construction of top structure;
- update the Bergriver HSP and align with SDF;
- ensure Bulk Infrastructure upgrades to enable delivery of projects;
- BESP objectives to be included in HSP – also be incorporated into SDF.

For future projects the Department of Human Settlement is striving for a 70/30 split between serviced sites and top structures over the next 5 years in all housing projects throughout the province. The identification of areas for housing development in the Bergrivier SDF will therefore inform the Human Settlement Plan and insure continuity in the provision of serviced erven and housing.

The housing backlog concerning the past and present situation as per the Bergrivier waiting lists is as follows:

WARD	TOWN	Number of households on waiting list 2010	Number of households on waiting list 2012
Ward 1 & 2	Porterville	800	959
Ward 3 & 4	Eendekuil	90	205
	Piketberg	1 500	1928
Ward 5	Goedverwacht	0	13
	Wittewater	0	11
Ward 6	Aurora	70	60
	Dwarskersbos	0	0
	Redelinghuys	120	140
Ward 7	Velddrif	500	826
	TOTAL	3 780	4 142

Table 11.4.1: Households listed on the Bergrivier housing waiting list.

According to the above table the estimated housing backlog in the Bergrivier Municipal area for 2012 is calculated at 4 142 with a more concentrated backlog in the towns of Piketberg and Porterville.

In order to provide for sustainable and integrated development in the urban areas the following needs to be considered:

- Support sustainable private development within the Bergrivier municipal area through adequate services contributions to support the management, development and maintenance of adequate bulk service infrastructure;
- The future provision of subsidised erven should be awarded in the larger towns of Piketberg, Porterville and Velddrif;
- Support effective urban areas through the provision of improved services within future housing projects;
- Support the development of new industrial areas within walking distance to subsidised erven in order to improve the access to job opportunities;
- Develop more opportunities for affordable housing developments for lower and middle income groups;
- Investigate the provision of rental options as alternative to subsidised and GAP housing;
- Support the provision of a variety of housing options within the urban structure.

The following objectives and strategies will ensure adequate provision of housing in the Bergrivier municipal area:

Housing Objectives and Strategies

Objectives (O)		Strategies (S)	
O10	Private development of housing within the urban area must be encouraged, but must be in line with guidelines and policies of the SDF and other relevant legislation.	S20	Private development within the urban area must be in line with the SDF guidelines as well as being environmentally sustainable and integrated.
		S21	Public spending on infrastructure must be followed through in a strategic manner in order to support future sustainable developments.
O11	Future development of subsidised erven/housing will only be done in towns with growth potential. Current backlogs will however need to be addressed where possible in existing towns.	S22	Future development of subsidised erven/housing will focus on the towns of Porterville, Piketberg and Velddrif.
		S23	Identify land for the development of future subsidized projects to alleviate the existing backlog in Bergrivier towns.
O12	The development of GAP housing and erven within private developments must be encouraged.	S24	Private developments must contribute to all forms of housing types by providing for a variety of housing types for all income groups within integrated areas.
		S25	Amend zoning schemes in order to allow for the development of integrated housing developments with mixed densities and adapted building lines within the development areas.
O13	Provide housing options for farm workers in towns.	S26 (RS11)	At least 25% of the subsidised erf/unit developments are earmarked for farm workers in order to enable them access to property rights within all urban areas of the Bergrivier Municipal Area.
O14	Support the continued improvement of farm workers' housing on the farms.	S28	Support the initiative to apply for funding from the District Municipality for the upgrading of bathrooms in order to improve the provision of services in the rural areas.
		(RS11)	Provide directives for agri-villages i.e. only in intensive farming areas i.e. Bo Piketberg & Porterville area.
O15	Create sustainable integrated living environments for all Bergrivier residents.	S29	Provide integrated developments which include social, economic, institutional services.

	S30	Support the intensification of land uses.
	S31	Contribute to the restructuring of towns to correct the historical urban patterns created by past policies of segregation.
	S32	Provide living and working areas in close proximity to each other.
	S33	Support more compact urban forms to ensure more effective urban areas.
	S34	Support the planting of trees by residents.

11.4.2 Bulk Infrastructure and services provision

The bulk infrastructure and services provision within the municipal area form an important strategic resource that needs to be managed, upgraded and maintained in the manner appropriate to support sustainable development. The availability of bulk infrastructure and services provide an important contribution to the economy and future development in these towns. It is clear from information included in the Status Quo report that the provision of bulk infrastructure in the Bergrivier Municipal area is generally adequate, with limited areas that need further upgrading and development. The Bergrivier Municipality's *Integrated Waste Management Plan* of *June 2011* and *Water Services Development Plan* of *August 2010* provide the necessary background and programmes for the continued upgrading and management of these services. With the increase in usage of all services as well as the potential impact that new development will have on existing capacities as described in the status quo report, bulk services need to be constantly managed and planned.

The following objectives and strategies shall ensure adequate planning and provision of bulk infrastructure in the Bergrivier municipal area:

Bulk Infrastructure and Services			
Objectives (O)		Strategies (S)	
O16	Provision and planning of bulk infrastructure must be in line with the future spatial growth and planning of the towns.	S35	Determine the need for bulk infrastructure in Bergrivier as required for the proposed growth potential and planned projects.
		S36	Identify the proposed best location for the expansion and the infrastructure planned in the different towns.
		S37	Provision of service to the community in an effective and sustainable way by prioritising spending on infrastructure in areas with an economic growth potential.
		S38	Provision of environmentally friendly infrastructure and services in rural areas to not only improve the quality of life of people living in the rural areas but also to ensure continued environmental management and protection.
RO3	Provide and support an effective social environment	RS13	Provide and deliver rural infrastructure and services for water harvesting infrastructure, sufficient storage capacity for drinking water, expanded distribution networks where necessary;
		RS13	Provide and deliver rural infrastructure and services for sanitation i.e. individual sewerage works (not connected to existing networks) to small rural settlements, grade sewerage works, promote and implement West Coast District Municipal Rural Bath Room subsidies;
		RS13	Provide and deliver rural infrastructure and services for electricity i.e. support the installation of sufficient transformers to provide electricity to households, the generation of alternative energy;
		RS13	Provide and deliver rural infrastructure and services for waste i.e. establish transfer stations at appropriate locations in rural areas and in rural towns

			and provide sewerage services as per national norms in all rural towns.
		RS13	Develop and provide services that require minimal operational support i.e. sun and wind energy, storing of rain water, boreholes and environmental friendly sanitation services;
		RS13	Registration of servitudes for bulk services infrastructure and right of way to maintain services.
O17	Provide social infrastructure to ensure improved health and education service, to ensure improved quality of life and an active community lifestyle for all residents in Bergrivier.	S39	Provide social facilities in accordance with planning norms.
		S40	Provide accessible education facilities for all age groups.
		RS13	*Provide and support multipurpose community services and infrastructure* i.e. periodic service centres, (similar to multi-purpose service centres in urban areas) preferably in existing infrastructure, specialist services in mobile units, encourage local artists and entrepreneurs to use service centres, offer adult Education & Training & family literacy, access Further Education and Training, placed at points having the highest access to surrounding farm & rural areas.
		RS13	Locate cemeteries in rural area subject to environmental impact - and geo technical assessments; proximity to access roads and churches; adherence to buffer distance from existing water streams; provision of public facilities i.e. public toilets; the return of the land use to agriculture should the cemetery not be established.
		RS13	*Provision, expansion and support of public transport infrastructure and transport modalities:* • i.e. determine viability of a regular and affordable public transport system along main transport routes amongst densely populated farms and settlements, integrating urban and rural areas by means of transport corridors, compile integrated transport plans to unlock economic opportunities, determine viability of public transport using existing railways connecting to stations in Bergrivier, improving and developing additional bus and taxi shelters and train stations, directions and signage at stops and promote supportive infrastructure i.e. farm stalls and service stations.

11.4.3 Connectivity and Mobility

Connectivity in the town relates to the movement network in and outside a town and includes all transport, cycling and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and these are important in terms of accessibility to business uses and for the tourism industry. The connectivity in a region affects the accessibility of the region and its urban areas and therefore also directly influences the economic viability and the investment interest in the towns.

The movement networks in towns need to be planned in accordance with the future developments. The possibility of alternative routes needs to be spatially accommodated and existing routes need to be strengthened to accommodate growth. The pro-active planning of the movement networks not only creates opportunities for further development and investment but also supports the increased accessibility of areas and provides opportunities for integrated urban form in order to create sustainable urban areas.

The activity routes in a town constitute the major route in a town where the activity is most concentrated. The area abutting these routes on both sides forms the activity corridors. These routes are also instrumental in the improvement of integration between different areas together with the development of more services along these routes. The land uses that will be supported in these corridors include the following:

- Commercial (shops, cafes);
- Service industries;
- Professional services (offices and medical practitioners);
- High density residential (apartments);
- Mixed use areas (mixed land uses refer to the horizontal and vertical integration of suitable and compatible residential and non-residential land uses within the same area or on the same parcel of land);
- Community facilities where applicable, and
- Public transport stops.

The following objectives and strategies ensure improved connectivity and mobility in the Bergrivier municipal area:

Movement Network Objectives and Strategies

Objectives (O)		Strategies (S)	
O18	Support affordable public transport.	S41	Develop an affordable public transport service between the urban areas in Bergrivier to improve mobility of all residents.
O19	Reinforce and enhance the activity routes as development corridors.	S42	Encourage the intensification of land uses along activity routes and in corridors along these routes. Allow for mixed uses along activity routes to enhance these routes as important links in town.
		S43	Encourage the development of medium and higher density residential developments along activity routes.
O20	Support the provision of pedestrian friendly environments in the urban areas as part of effective land use planning.	S44	Provision of formal safe pedestrian/cycling routes along main activity routes.
		S45	Strive to provide pedestrian routes that are accessible to disabled people in the communities.
		S46	Plan the location of new residential areas close to potential areas of work in order to limit vehicle movement in the urban areas.
O21	Upgrading and continuous maintenance of roads in rural and urban areas.	S47	Incorporate the continuous upgrading and maintenance of the urban road network in the annual budget.
		S48	Keep the dirt roads in rural towns where they form part of the character of the town. It is however important to design and maintain dirt roads in the appropriate manner to limit stormwater impact on roads.
		S49	Prioritise maintenance and development of identified activity streets in towns.
RO1	Grow the economy	RS4	*Strengthen Regional routes* and mobility between urban agricultural service centres including development of transport nodes along the N7 blending with the agricultural landscape focussing on agriculture and tourism;
		RS4	*Strengthen economic access and links i.e. mai*ntain existing road, promote links between surrounding municipalities and region and lobby for new and planned regional networks through Bergrivier Municipal Area (i.e. Ceres Karoo/ Nuwekloof connection);

	RS4	*Strengthen railways and services i.e.* to transport agricultural freight and to promote tourism between Bergrivier towns;
	RS4	*Strengthen Communication networks and p*romote the establishment of information centres.

11.4.4 Natural, Cultural, Visual and Built Heritage Conservation

Natural Biodiversity

The Bergriver is located within one of the richest biodiversity areas of South Africa and forms part of the Cape Flora Region and one of 34 globally identified biodiversity hotspots. Some of the biodiversity areas in the Bergriver Municipality are of global conservation significance with the Groot Winterhoek Wilderness area as a Cape Floristic Region World Heritage Site. The municipality is covered with Coastal Renosterveld (or West Coast Renosterveld), Coastal Fynbos (or Salt Plain fynbos), Mountain Fynbos, Strandveld vegetation (or Strandveld succulent Karoo Fynbos) and Dune Thicket.

The ecologically sensitive areas within and immediately around the urban areas have been identified and are included in the open space networks of each of the towns. This will assist informed future decision making regarding the urban edge. It should however be noted that these assumptions were made via fine scale planning and will need further investigation to provide more detail for more accurate decision making. It is also recommended that where sensitive areas are identified in urban areas during the development phase that these areas should be rezoned to Open Space III to ensure the future conservation of these areas.

The rivers, streams and river banks form a strong basis for a continued open space network within the towns as well as in rural areas.

The biggest challenge in the Bergrivier Municipal area will be the continuous conservation of existing critically endangered areas to avoid the loss of natural habitat as identified in Critical Biodiversity Areas (CBA) and prevent the degradation of these areas, while encouraging sustainable development in other natural areas. The broad objective is to ensure appropriate land-use for the best possible sustainable benefits to society, and to promote integrated use and management of natural resources.

The following objectives and strategies ensure the conservation of Natural and Cultural Heritage Resources in the Bergrivier municipal area:

Natural Heritage Conservation Objectives and Strategies

Objective (O)		Strategies (S)	
O22	Identify the natural environments in the urban areas that need to be protected and conserved.	S50	Support the conservation of natural areas within the urban areas.
		S51	Support the public access and use of these natural areas through proper management and the provision of infrastructure in order to utilise these areas in an effective and sustainable way that will not damage the environment. For example provide hiking trails, boardwalks, formalised picnic areas, botanical gardens and educational faculties.
		S52	The continued removal of alien vegetation and rehabilitation of conservation areas.
O23	Reduce the effect of development impacts on river	S53	Allow the land use development decisions to be guided by the sensitivity of catchment areas and to allow continued protection of

	systems, wetlands, and aquifers.		water quality, maintain the natural hydrological behaviour of catchments, minimize sewerage discharge into the natural environment and maintain the required 32 meter setback along all rivers.
O24	Effective management of development along the coastline in a sustainable and precautionary manner.	S54	Support nodal rather than strip development along the coastline.
		S55	Consider potential effects of climate change when assessing applications along the coastline.
		S56	Consider the guidelines provided by the Coastal Management documentation compiled by the West Coast District Municipality.
RO2	Protect and strengthen the natural environment (landscape).	RS7	Establish climate change corridors and formal Conservation areas;
RO2	Protect and strengthen the natural (and built) environment	RS6:	Regulate rural development according to bioregional planning initiatives.
		RS6	Revise as per required intervals the Bergrivier Bioregional Plan 2010;
		RS6	Implement effective overlay zones in rural and urban areas to identify conservation areas.
		RS6	Develop incentives and organizational capacity to promote conservation: • Incentivise land owners to manage natural veldt as an asset for the environment and for the owner; • Focus conservation priorities primarily on the benefit for landowners to ensure sustainable conservation projects; • Promote conservation stewardships in the Bergrivier municipal area; • Encourage a change in legislation to incentivise land owners to continue conservation of fynbos; • Develop and implement environmental management plans that can be managed on the lowest level; • Support conservation organizations, initiatives and programmes such as the Cape Environmental Action Plan (CAPE) of Cape Nature, South African National Biodiversity Institute, Stewards of Rare and Endangered Veldt flowers and the Critical Ecosystem partnership fund to promote unique ecosystems of the Cape Floral Kingdom; • Promote conservation & agriculture i.e. Biodiversity & Wine initiative (Western Cape Wine industry); • The hydrological-, plant-, management- and economic value of fynbos (high economic value) should be reflected in policies and directives.
		RS6	Manage conservation: • Remove alien vegetation and increase water volumes and biodiversity; • Prohibit potential veldt fires and promote the appearance of the mountain landscape; • Manage the necessarily veldt fires to ensure seeds germinate; • Promote animal health through the conservation of fynbos providing for a rich mixture of micro-nutrients for neighbouring fields and land associated with grazing (Kemper, 1999).

To regulate development according to bioregional planning directives the following areas or zones have to be determined:

Core Areas (See Map 11.4.4 for proposals):

- Classify mountains and hills as core 1 & 2 areas;
- Determine development line on mountain slopes to protect visual integrity of the natural landscape;
- Limited fencing between different cadastral units to be managed as a conservation area;
- Determine a 30m development setback line along identified rivers;
- Any renosterveld should be classified as Core 1 & 2 Areas;
- The following vegetation types should be classified as core areas:

Ward	Type	Ward	Type
7	Cape Estuarine Saltmarsh	1 & 2	Northern Inland Shale Band Vegetation
6	Cape Seashore Vegetation	3 & 4, 1 & 2	Olifant sandstone Fynbos
6	Cape Inland Saltpans	3 & 4	Swartland Silcrete Renosterveld
1&2	Cederberg Sandstone Fynbos	1 & 2	Swartland Shale Renosterveld
		1 & 2	Winterhoek Sandstone Fynbos

- Support existing reserves and conservation areas i.e. (Wintershoek Nature reserves, Rocher Pan and Op-Boberg Piketberg);
- Development should consider steep slopes and habitats;

Buffer Areas (See Map 11.4.4 for proposals):

- Initiate a climate change corridor between mountain ranges and loose standing peaks;
- Identify a Conservancy of at least 300 hectares amongst mountain ranges in the municipal area to enable the Cape flora species to maintain viable populations;
- The following vegetation types should be classified as buffers:

Ward	Type	Ward	Type
6	Bergrivier Flats Strandveld Sand Fynbos Mosaic	6 & 5	Sand Fynbos Hillslope Seeps
6 & 5, 1& 2	Leipoldtville Sandfyngos	5	Sandstone Fynbos Depressions
1& 2	Renosterveld Depressions	5, 3 & 4, 1 & 2	Sandstone Fynbos Seeps
5	Renosterveld Hillslope Seeps	6	Sandveld basin Seeps
6 & 5	Sand Fynbos Basin Seepts	6	Strandveld Depressions
7 & 6	Sandfynbos Depressions	6 & 5	Sandveld floodplain wetlands

Other Natural Areas (See Map 11.4.4 for proposals):

- The following vegetation types should be classified as found within *other* natural areas:

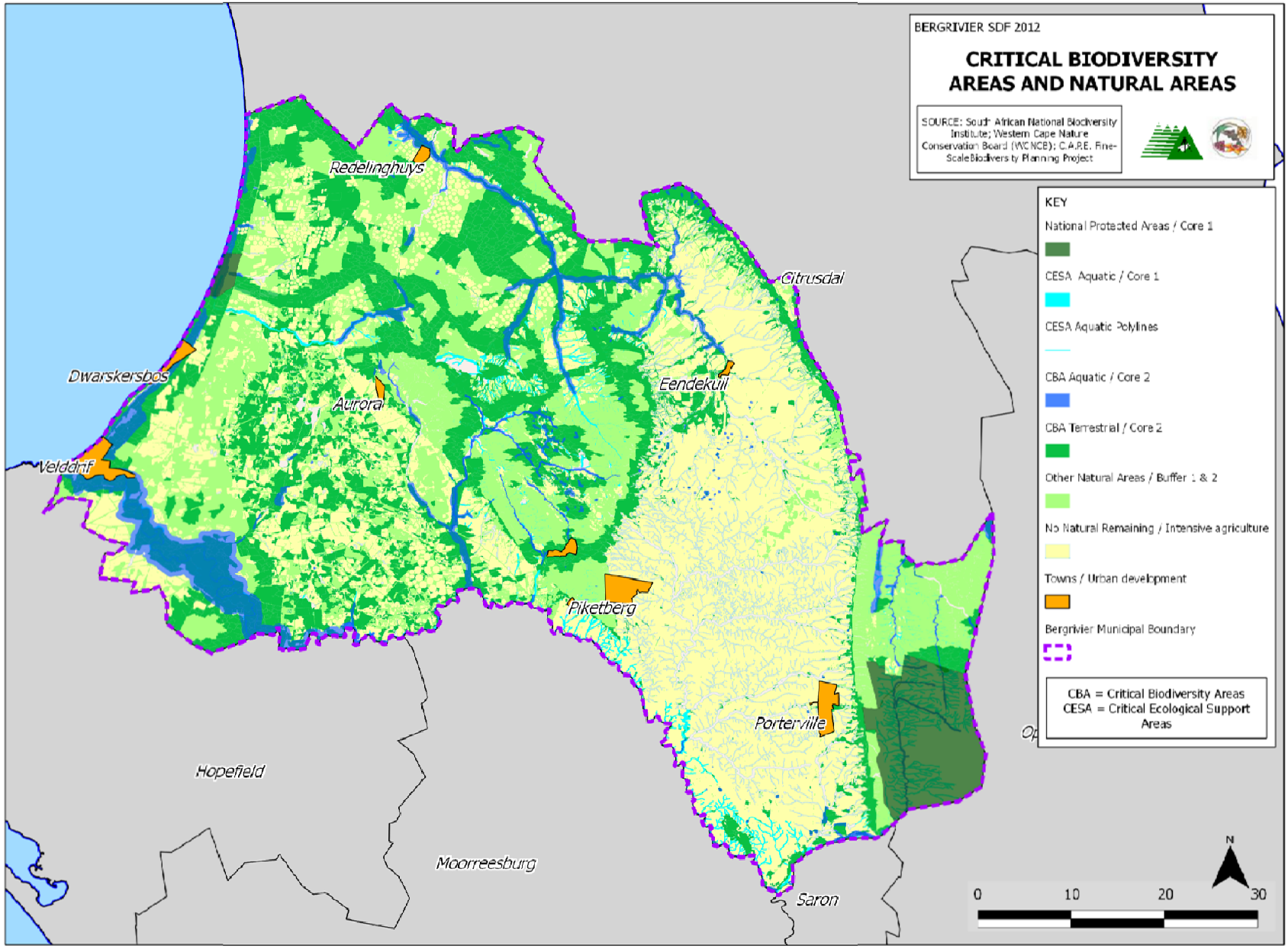
Ward	Type	Ward	Type
7& 6	Langebaan Dune Strandveld	5, 3&4	Piketberg Sandstone Fynbos
6	Hopefield Sandfynbos	3&4	Piketberg Quartz Succulent Shrubland
5, 3&4	Graafwater Sandstone Fynbos		

Intensive Agricultural Areas:

- Identify intensive and extensive agricultural areas;
- Support rezoning and consent uses forming part of the rural economic development strategy and blending in with the rural environment.

Location and scope of rural settlements:

- Classify each rural settlement in each ward;
- Settlement patterns around mountains should be guided by a design and development guidelines.



Map 11.4.4: Proposed Bioregional Planning Categoreis

Cultural and Visual and Built Heritage Resources

The conservation of cultural and heritage resources is important because they not only provide an insight into the past but also a sense of social and individual identity to the residents of an area. These resources are unique to each region forming an important connection to the people's history within the region and therefore need to be respected and protected in order to support different cultural backgrounds in the area. These resources play an important role in supporting and explaining the diverse cultures found in the region and therefore contribute to a better understanding of these different cultures.

The following objectives and strategies ensure the conservation of Natural and Cultural Heritage Resources in the Bergrivier municipal area:

Cultural, Visual and Built Heritage Conservation Objectives and Strategies			
O25	Strive to identify, conserve and manage landscapes, significant and built heritage resources of the region.	S57	Compile a Heritage inventory of the Bergrivier Municipal area in terms of Section 30 of the National Heritage Resources Act (Grading according to Significance), including historical structures and landscapes of cultural significance and areas of archaeological and paleontological sensitivity in urban & rural areas.
		S58	Conservation of the built environment through the identification of conservation worthy buildings and precincts.
		S59	Conservation of historical buildings and structures as well as archaeological and paleontological sources on all land.
O26	Improve access to and provide information on the cultural and heritage resources in the Bergrivier Region.	S60	Promote formal access and viewing of heritage sites and improve the marketing of these sites to inform more people of its significance.
O27	Allow the effective and sensitive regeneration of buildings and sites of historical and architectural significance in the Bergriver region.	S61	Encourage the sensitive renewal of historical areas, buildings and sites for the effective reuse of these areas for economic regeneration in towns.
		RS7	Support the restoration of historic non-residential buildings;
		S62	Discourage the demolition or inappropriate alteration of historical buildings and sites.
O28	Carefully manage land uses and buildings along identified scenic routes and important scenic landscapes in the Bergrivier municipal area.	S63	Ensure the protection and enhancement of the visual quality along scenic routes and landscapes during decision making. Consider the implementation of land use management guidelines for development along scenic routes in order to ensure appropriate design of buildings, infrastructure (power lines, telecommunication lines and towers/masts) and signage along these routes and in the landscapes.
RO2	Protect and strengthen the cultural, visual and built environment.	RS7	*Protect the cultural landscape i.e. p*romote festivals, celebrations and open days and expand limited accommodation and restaurant facilities to promote the local produce and hospitality people in the Bergrivier area show;
		RS7	*Protect and promote the heritage landscape i.e. recognise t*he following heritage landscapes: *natural, traditional hunting and grazing area; Colonial- Indigenous trade and contact; historic routes; agricultural production; religious/faith, Water; displacement and separation (due to apartheid); scenery and attractions; historic towns;*
		RS7	Develop a tourism train route, establish and promote routes i.e. farming, grain (including towns with mills and silos), sacraments and fountains;

11.4.5 Tourism

Due to the importance of the tourism industry in the Bergrivier region there is a need to support and expand it.. The tourism industry does not only provide socio-economic advantages but also advantages for the conservation of natural and cultural heritage structures. In order to provide strong guidelines for the potential role that tourism can play in this region, a Bergrivier tourism development strategy needs to be adopted. The Bergrivier SDF needs to identify the spatial needs of the management and implementation of a tourism strategy.

There is a definite need to provide tourism infrastructure in the rural areas in order to develop this sector further. The potential environmental impact of proposed tourism facilities also needs to be considered and properly managed in order to support sustainable development of this sector. The tourism development in the Bergrivier needs to focus on urban and rural areas with co-ordinated initiatives in order to ensure that the development of the sector has the necessary support.

Important aspects that need to be considered in the further development and expansion of the tourism sector in the Bergrivier, are as follows:

- Co-ordinate the different tourism sectors;
- Continued effective management and maintenance of existing tourism attractions in the region;
- Investigate and develop new tourism opportunities in the different towns and region;
- Investment in tourism infrastructure (roads and existing services) to continuously support tourism;
- Provide opportunities where the local community, especially the unemployed and disadvantaged people can get access to local opportunities (arts and crafts, local guides, local food);
- Acknowledge the tourism opportunities provided by the coastline, Bergrivier, Verlorenvlei River and mountains in the Bergrivier region and allow for the sustainable development of these opportunities to add to the economic development of the region;
- The conservation of the pristine coastline in the coastal towns as well as rural areas, provide formal public access to these areas to limit the impact on the environment;
- Strengthen the existing tourism routes in the region as well as existing festivals (for example, “Snoek en Patat fees”) and events (for example, Bergrivier Canoe Marathon) and investigate further opportunities that these events can provide;
- Support the development of the agri-tourism opportunities on farms in the region especially in the mountain areas, along the Bergrivier and Verlorenvlei River and the Sandveld. Develop opportunities for guest farms and resorts in areas with unique locations;
- Support and develop existing resources in the region such as wild flowers, unique natural vegetation and existing parks, the landscapes, historical and cultural heritage, coastline, rivers mountain areas and agricultural products.
- Map the farms in the Bergrivier Municipal area offering tourism opportunities and link them as part of tourism routes. These routes in turn should link Bergrivier Municipality and neighbouring municipalities.

The following table supplies the objectives and strategies to ensure the continued support and development of the tourism industry in the Bergrivier municipal area:

Tourism Objectives and Strategies			
Objectives (O)		Strategies (S)	
O29	Support the development of sustainable tourism resources in the Bergrivier region.	S64	Acknowledge the existing resources in the Bergrivier region and support their development and conservation to the advantage of the tourism industry.
		S65	Effective management of tourism in the different towns and rural areas. Ensure that development does not negatively affect the tourism potential of the region.
		S66	Provide opportunities in tourism where local communities can get access to this industry.
		S67	Support agri-tourism in the rural areas through guest farms, recreational opportunities and resorts next to resources such as rivers, mountains and the coastline.
		S68	Pro-actively stimulate the local economy taking into account the character of the region, local rural towns and the natural resources.
		S69	Conservation of the primary and operational requirements of dams, other water resources, water quality (Berg River water quality) and water safety (flood control guidelines, lifeguards).
O30	Investment in infrastructure to support the tourism industry.	S70	Upgrading of roads and services to support the tourism industry.
O31	Support tourism development that is environmentally friendly.	S71	All applications for tourism development should be assessed on their individual merits considering their economic attributes as well as impact on the environment.
RO1	Grow the Bergrivier Economy	RS5	*Strengthen and develop various existing and new Tourism destinations.* o *Agri-tourism destinations i.e.* accommodation on functioning grain and fruit farms, festivals, Agri-tourism routes, farm stalls, participation of disadvantaged and poor households in tourism; o *Heritage destinations i.e.* heritage tourism destinations; o *Water sport and recreation i.e. e*nhance opportunities for fishing and water sport, matches and sport events, resorts, short term tourism accommodation along rivers, dams and the sea to promote water sport and recreation; o *Endurance sport and recreation i.e.* encourage endurance sport routes and events i.e. mountain biking, hiking, walking trails, *Horse riding trail, pony rides, 4x4 routes, quad-biking* o *a Bergrivier Restaurant guide showing local delicacies and good spots to eat on the west Coast, distribute in ops as a free guide to eating out in the area*
		RS5	*Grow Bergrivier as part of the West Coast tourism strategy i.e. develop* infrastructure that can support tourism and uniform tourism signage and information points.
		RS5	Map tourism routes to include farms and neighbouring municipalities.

11.4.6 Land & Agricultural Reform/ Urban Agriculture

Although the Bergrivier Municipality is not the responsible agent for land reform, the municipality has an obligation to support the process as far as possible. In the spirit of the national government's commitment

to the land redistribution and reform the Bergrivier Municipality wishes to assist in facilitating the process within the Bergrivier towns. The Bergrivier SDF has therefore taken a pro-active role in identifying potential areas for low income residential development, the location of community gardens and the settlement of small farmers in and around the urban areas. This will not only support the land reform initiative but will also assist in supporting food security in the urban areas. The identification of land for community gardens or crop production should consider the following guidelines:

- availability and affordability of land;
- availability and affordability of water resources;
- relatively flat topography;
- good soil conditions, and
- the location in close proximity of the community.

In order to limit land use conflicts between animal husbandry and residential areas, animal husbandry should not be located in close proximity to the residential areas.

The following table supplies the objectives and strategies to ensure the support of land reform in urban and rural areas in the Bergrivier municipal area:

Land and Agriculture Reform Objectives and Strategies			
Objectives (O)		Strategies (S)	
O32	Identify land suitable for land reform and publicly led housing delivery projects.	S72	Identify vacant and underutilised land within the urban areas and incorporate it into a database for undeveloped land.
		S73	Identify land that should be further investigated for potential subsidized erven/housing projects.
		S74	Indentify land that should be acquired or pooled for future subsidized erven/housing projects.
		S75	Encourage securing land ownership for residents in Goedverwacht and Wittewater in accordance with the Genadendal Accord.
O33	Identify areas for urban agriculture.	S76	Identify areas within the commonage and additional land suited for a range of farming activities as a means of supporting agricultural related land reform and food security in urban areas. Identification of these areas should consider the necessary guidelines for effective farming (availability and affordability of water and land, flat topography, soil conditions, location in terms of community and potential conflicts between residential areas and agricultural use).
RO3	Provide and support an effective social environment	RS12	Identify and develop viable land reform opportunities

The following guidelines are important for the identification of land reform projects (The Department of Rural Development and Land Reform developed Area Based Plans in 2009 to identify areas for land reform that could be compared with areas identified by Bergrivier Municipality):

- Land reform projects, restitution, redistribution and security of tenure should be carried out in accordance with the spatial development framework and should be needs based, flexible, economically viable and environmentally sustainable. It should also promote social justice and alleviate poverty ; i.e. areas that are identified for small scale farming should be complementary to existing and future urban structure; provide sufficient infrastructure and related infrastructure that promote the economy, sport, culture, education and training;

- Promote opportunities aligned with the agricultural potential of the area: Focus on commercial opportunities rather than existing farming, as agriculture is one of the main economic activities in Bergrivier and a primary staple food (i.e. grain) producer;
- The extent of agricultural units should correlate with the soil potential and the availability of water; simultaneously the type of farming (crop or livestock production) and the intensity (livelihood or commercial farming) should be considered.
- Promote training and skills development: i.e. the development of management skills should be an integral part of land reform projects specifically in the lower rainfall areas with a lower carrying capacity.
- Ensure support programmes; Access to agricultural support programmes should be promoted;
- Ensure access to markets; Identify agricultural units close to towns where development and expansion of agricultural markets and liaison can take place;
- The development of land should ensure security of tenure and the promotion of individual and communal rights and ownership;
- Investigate possibilities for land reform in intensive irrigation areas with high soil values;
- Promote out stream aquaculture along the Bergrivier and in farm dams;
- Identify suitable land under government ownership for gardens and small scale farming;
- Support the use of treated grey water for irrigation on communal land close to residential areas;
- Support the provision of housing for farm workers in existing urban area close to job opportunities;
- Support the use of alternative energy on all farms, including sun, wind and biogas energy sources;
- Investigate the possibility for the development of business opportunities for the generation of wind and sun energy to connect to the energy provider;
- Promote tourism project that can promote land reform i.e. sales of products;
- Support agricultural processing in main settlement and town;
- Farms where mainly extensive dry land farming practices are applied, that have high soil values as well as high input costs, are dependent on extensive mechanisation and these aspects need to be kept in mind and provided for in land reform projects;
- The production of small scale farming products are influenced by shortages in summer surface water and the following should be considered:
  - o Groundwater sources are affected by the treatment of sewerage discharge in the vicinity of settlements and intensive farming is dependent on clean underground water sources;
  - o Non soil based production (tunnel and hydroponics) should be promoted;
  - o Intensive feed farming or free range poultry;
  - o Projects should focus on urban agriculture, local consumption and domestic food production;
  - o Green & alternative energy generation.
- *Small or medium intensive irrigation* farming should consider the following:
  - o Limited opportunities in wards with high soil costs and with irrigation water rights;
  - o Limited opportunities in wine industry due to existing number of cellars and over supply of wine;
  - o High level of technical and management of skills are needed for the limited irrigation resources and the effective management of such resources in the Bergrivier.

11.5 Rural Areas

The spatial development objectives and supportive strategies for the rural areas of the Bergrivier Municipality area are outlined in the table below:

Objective 1: Grow the rural economy of the Bergrivier Municipality	Objective 2: Protect and strengthen the Natural and Built environment	Objective 3: Provide and support an effective social environment
Strategy 1: Support growth in areas with economic potential. Strategy 2: Grow and diversify agricultural markets and products. Strategy 3: Support sustainable mining development. Strategy 4: Strengthen mobility and economic links. Strategy 5: Strengthen and develop rural tourism.	Strategy 6: Regulate rural development according to biodiversity initiatives. Strategy 7: Protect and strengthen the cultural and heritage landscape. Strategy 8: Protect and strengthen the visual landscape.	Strategy 9: Protect water sources and catchment areas. Strategy 10: Ensure food security. Strategy 11: Provide housing. Strategy 12: Identify and develop viable land reform opportunities. Strategy 13: Provide and sustain sustainable rural infrastructure and services.

Table 11.5: Rural Objectives and Strategies

Some of these detailed strategies and objectives have been included in the objectives and strategies for urban and rural areas and were indicated as RO (rural objectives) and RS (rural strategies). The detail of the strategies specific for the rural areas is outlined below:

11.5.1 Rural Economy

Objective 1: Grow the rural economy of Bergrivier Municipality

Strategy 1: Support Growth in areas with economic potential.

- Develop opportunities and promote growth in rural areas with economic potential i.e. regional and local agricultural service centres and agricultural industries;
- Strengthen transport corridors and modes of transport at regional and district level supported by associated infrastructure to enhance the benefits of the municipal area as a connector between the Cape Metropolis, the north of the country and the West Coast. At the same time, protect and conserve the agricultural landscape through development guidelines for such infrastructure and renew existing infrastructure according to these guidelines;
- Promote communication corridors and zones;
- Promote and determine appropriate alternative energy development zones.

Strategy 2: Grow and diversify agricultural markets and products.

- By means of market penetration (Current products and current markets i.e. labelling, niche products, strengthening supply chains, job creation);
- By means of product development (New products i.e. niche products: bio fuel, mechanics – repair services);
- By means of market development (New markets i.e. youth, government, regional and international level, commercial farmers, small farmers);

- By means of diversification (New products and new markets i.e. tourism and Mediterranean climate, alternative energy, landscape - Bergrivier has excellent natural light conditions for filming).

Strategy 3: Support sustainable mining developments.

- Identify all mineral and geological sources with mining potential and determine which of these sources are suitable based on the extent of environmental degrading they will cause and the ability to prohibit such degrading;
- Assign land use parameters to suitable resources and support the land use changes required for excavating natural resources, applying *Sustainability Norms, Mitigate existing impacts, Rehabilitation and Alternative Transport to dispatch produce.*

11.5.2 Rural Landscape

Objective 2: Protect and strengthen the Natural and Built environment

Strategy 8: Protect and strengthen the visual agricultural landscape.

- Protect the agricultural landscape when developing transport corridors i.e. infrastructure or facilities blend in with the environment. Develop design guidelines;
- Protect and promote the agricultural landscape by growing appropriate crops according to the seasons, promoting independence from mainstream crops and livestock production through smaller farm units, alternative land uses promoting conservation of natural and endangered vegetation and alternative income for farmers i.e. resorts and agri-tourism;
- Limit water erosion through protective preparation methods and the planting of perennial crops, i.e. legumes and establish and maintain contours;
- Protecting critical biodiversity by promoting alternative but supportive uses in critical biodiversity areas that can promote conservation of the natural areas. Create appropriate development guidelines.

11.5.3 Water Catchments and Food Security

Objective 3: Provide and support an effective social environment

Strategy 9: Protect water sources and catchment areas.

Address the lack of water (Western Cape population reached 3.5 million in 1986, the saturation point for water sources) through protecting water sources, maintaining water catchment areas, and maintaining water source quality:

- Promote transport networks on water sources and rivers particularly within towns;
- Protect aquatic and associated ecosystem and biological diversity: Berg, Papkuils and Verlorenvlei rivers to be classified as water zones to protect aquatic and associated ecosystems and biological diversity;
- Save water through water harvesting, effective sustainable and beneficial use of water, building storage dams for winter water, reuse water and storm water (industrial use, irrigating golf courses and vineyards, in community gardens), establishing water tanks at houses and monitoring irrigation schemes;

- Protect and maintain water sources i.e. boreholes against pollution, prohibit solved salts and minerals in river due to leakages or releasing sewerage into river;
- Maintaining water catchment areas i.e. manage floods and droughts by removing alien vegetation to prohibit destructive floods.

Strategy 10: Promote food security.

- Implement a strategy to ensure that locally produced agricultural products (mass or small scale) receive preference when selling and buying produce;
- Conserve and protect agricultural resources i.e.:
  - No virgin land will be prepared without the written consent of the Minister of Agriculture;
  - No land with a slope of more than 20% will be cultivated without consent of Minister of Agriculture;
  - Cultivated land should be effectively protected against water- and wind erosion;
  - The vegetation in a vlei, marsh or water sponge or within a floodplain will not be used should the use cause harm to agricultural resources;
  - Keep productive agricultural land for agricultural purposes;
- Identify areas with low, medium and high potential agricultural soil and promote agricultural units of different sizes (small agricultural units (20-50 ha), small holdings (5-20 ha) and extensive residential holdings (<5ha)) based on soil potential, keeping the rural character, increase in variety of agricultural related land uses including tourism, promoting tourism facilities and consent uses on land zoned Agricultural Zone I, node development at existing main road intersections, enhancing diversification, revised and improved policy frameworks; Develop a strategy so that grain farms that are smaller than 500ha are not dependent on grain as their only crop;
- Strengthen associations to promote community participation when it comes to local development issues and to determine land use-/ zoning guidelines. The associations should monitor conflicting land uses and coordinating renewal and upgrading projects.

All strategies together with the necessary proposals for the rural areas in each Ward will follow after the urban proposals.

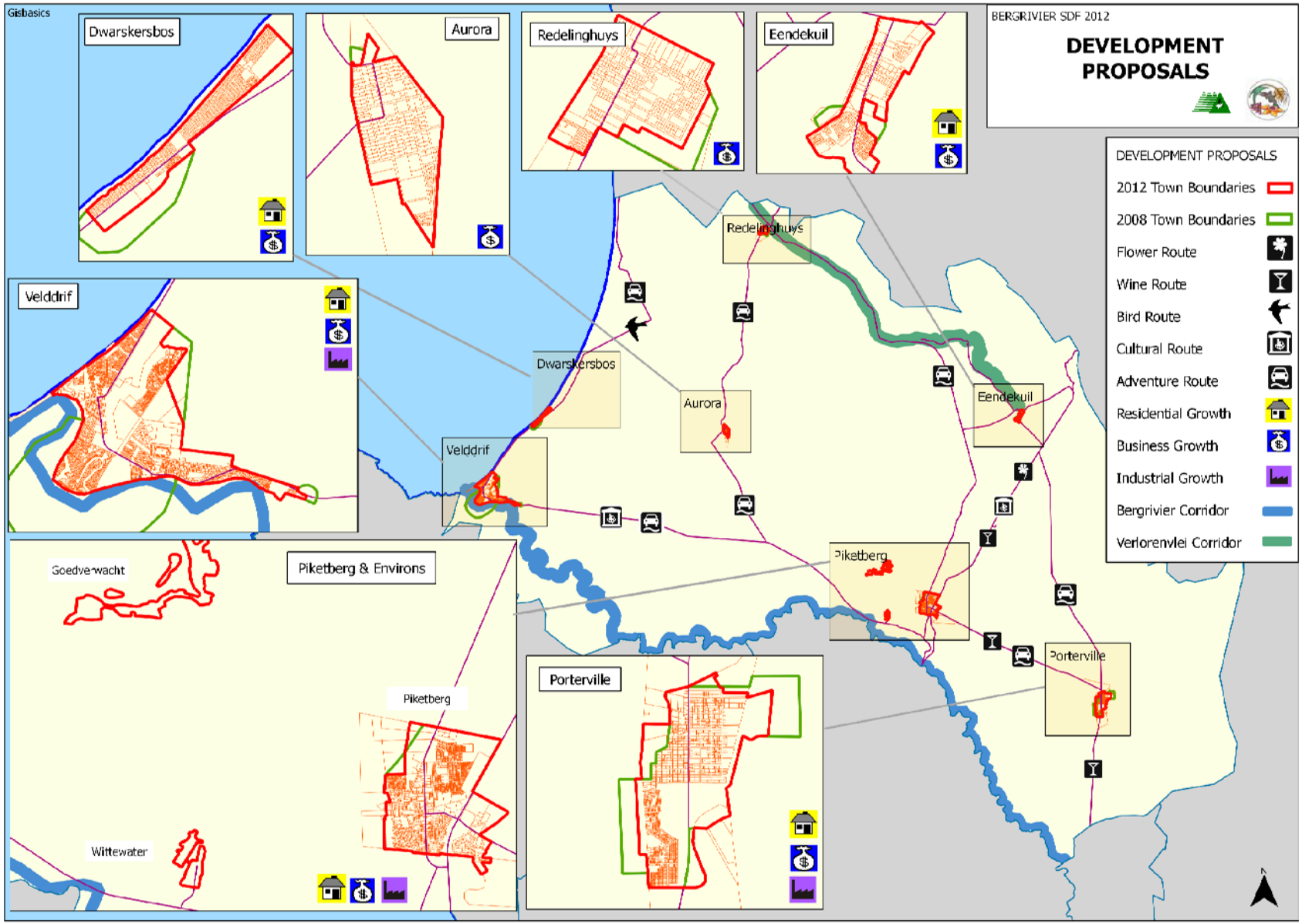
Chapter 12: Spatial Proposals for Urban and Rural areas

This section focuses on the proposals for the urban and rural areas. Proposals are made per ward. The proposals map below provides and overview of the most important development and conservation proposals contained in the Bergrivier Spatial Development framework.

The Bergriver municipality identified economic development as the biggest challenge likely to impact the financial viability of the municipality and the social well-being of communities. The proposals map address the opportunities as identified in Volume I, Spatial Perspective and Status Quo as tabulated below:

1.	Enhance increased regional economic growth and development spill-over effect in Bergrivier municipal area;	Industrial and commercial development in towns;
2.	Enhance unique and exceptional natural conservation areas that offer a variety of economic development opportunities;	Tourism routes and tourism amenity development on route; Berg River & Verlorenvlei corridors;
3.	Enhance tourism and more specifically sports tourism;;	Specific tourism routes; Commercial development in towns;
4.	Strengthen mining potential;	Support sustainable mining opportunities (conservation and mining are balanced, long term – individually mapped as part of rural strategies)
5.	Enhance the possible extraction of natural gas along the West Coast, and	Support sustainable mining or extraction opportunities (conservation and mining are balanced, long term – individually mapped as part of rural strategies)
6.	Provide for limited demand regarding informal settlements.	Residential development in towns.

The development proposal considered the IDP's directive i.e. "It is critical that these economic opportunities be pursued and explored in an attempt to establish a diversified economy not dominated by agriculture. In the case of tourism it is also critical to ensure that the current tourism sector becomes appropriately organized and is developed into one that can relatively independently take responsibility for growth, increased revenue and job creation. Cooperation with other municipalities and more specifically those on the West Coast seems to be critical in order to ensure that Bergrivier secures a share of the expected returns from developments that are being anticipated".



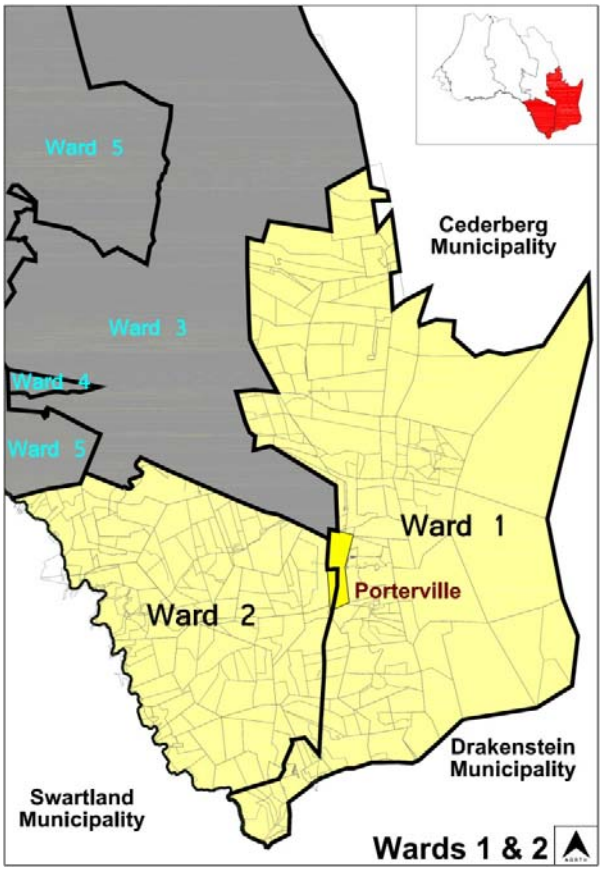
Map 12.1 Development Proposals, Bergrivier Municipal Area, 2012

WARDS 1 & 2
PORTERVILLE

12.1 PORTERVILLE Proposals

12.1.1 Porterville IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the *Bergrivier Local Economic Development Plan (LED)* and the *Bergrivier Integrated Development Plan (IDP)* for Porterville were integrated with the spatial planning proposals for Porterville. The list of priorities and needs as identified in the IDP and LED is attached in an addendum to the Bergrivier SDF.



12.1.2 Demarcation of Porterville Urban Edge

Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning were taken into consideration in the demarcation of the urban edges of all the towns in the Bergrivier Municipal area. The table identifying the informants of the demarcation of the urban edge of Porterville is included as an Addendum.

The following table describes the sections of the urban edge for Porterville in terms of the above criteria as stipulated by the Provincial Urban Edge Guidelines. The different segments of the urban edge are also clearly marked on the map.

Delineation of the Urban Edge of Porterville	
Edge Segment	Criteria of segment
1	Service infrastructure barrier combined with cadastral northern boundary to accommodate infill development. Access road to Waterfall Resort
2	New cadastral boundary of infill erven on northern side of town
3	Existing cadastral boundary north of dam
4	Existing cadastral boundary east of dam
5	Existing cadastral boundary northeast of town
6	Service infrastructure boundary combined with cadastral boundary of railway station on eastern edge of town
7	Cadastral boundary on southern edge of town to accommodate infill development
8	Service infrastructure boundary. Railway line on eastern side of town

9	Existing cadastral boundary on southern edge of town
10	Existing cadastral boundary on western edge of town
11	Service infrastructure boundary combined with new cadastral boundary on eastern edge of town to utilize existing infrastructure optimally and accommodate infill development
12	Cadastral boundary on eastern edge of town to accommodate infill development
13	Cadastral boundary on eastern edge of town to accommodate infill development

The urban edge of Porterville was forged as tightly as possible around the existing edge as in the Bergrivier SDF of 2008 with minimal extensions to accommodate additional land required to accomplish integrated housing. Porterville has a well developed service and social infrastructure which should be maintained and further developed to cement the town's role as support town to the surrounding agriculture. The town also provide aspects for further development of the tourism industry as pointed out.

12.1.3 Porterville Spatial Planning Proposals

The following spatial planning proposals were combined with inputs from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the towns of Porterville. The proposal needs to be read together with the Porterville Spatial Proposals map. The following table provides an overview of the growth model used in the determination of additional land required in Porterville to accommodate the proposed growth.

Town	Projected Growth in Population 2012-2017 (Growth rate: 2.2% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Porterville	1013	253	959	1212	69	54	1167	29ha	47ha

Table 12.1.3(a): Additional land required in Porterville

The proposed densification targets as identified for Porterville are as follows:

Densification targets for Porterville		
Town	Existing density in town	Average density targets
Porterville	5.6du/ha	15du/ha

Table 12.1.3(b): Proposed Densification targets for Porterville.

PORTERVILLE Spatial proposals Refer to Porterville Spatial Proposal Map	
Connectivity Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of accessibility to business uses and for the tourism industry.	
Proposals	Action Plans
Roads: • Improve roads/ upgrade Lang and Krans Streets; • Improve condition of pavements and provide kerb stones; • Gravel entrance road at cemetery. Fence new section. Activity routes (Spatial Integration): • Support development of mixed and commercial uses along identified activity streets, i.e. Voortrekker Street. Pedestrian routes: • Provide accessible and safe pedestrian and bicycle routes along traffic routes, especially the main road to accommodate, promote and improve the wellbeing of safe pedestrians and cyclists and also to boost connectivity.	As per IDP and municipal budget.
Public Areas Public areas represent the areas in the towns where people gather informally and where there is interaction between people. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sport grounds.	
Proposals	Action Plans
Public Nodes: • Relocate taxi rank to more suitable position; • Upgrade dam as recreation area and provide ablution facilities; • Public toilets were identified in the IDP; • Community hall upgrade; • Beautification of town entrances;	As per IDP and municipal budget.

• New play park in Boom Street. Community Facilities: • Upgrade of community hall identified in IDP – building and facilities; • Porterville will qualify for 3 more crèches/nursery schools (that can be combined with a Primary School/Community centre and also another 3 churches according to predicted expansion growth ; • Expand available government services – SASSA/Labour/Home Affairs - Thusong Centre/ programme. Cemeteries: • The current cemetery contains land available for future expansion, as well as to the south beyond the 5 year timeframe of the SDF. Heritage Conservation: • A survey of Heritage assets is being proposed for further action to be taken, regarding this.	Thursong Service Centre. Burglar proof fencing, curtains, tables, chairs, floor tiling, paving and fencing at community hall. Extension of cemetery, gravel of entrance roads and fencing together with toilets.
Service Infrastructure	
Proposals	Action Plans
• Water supply moratorium. There is enough quality water available sprouting from a spring and boreholes from where it is stored in the dam northeast of the town, but the problem lies with the split between the municipality and the farmers. Positive negotiations are currently underway to rectify the situation and have all the water stored in the dam available for municipal use. One reservoir (3250kl) is supplying Porterville and 2 reservoirs (735kl combined) is supplying Monte Bertha; • New fire station; • Stormwater management; • Improve roads/upgrade Lang and Krans Streets; • Improve condition of pavements and provide kerb stones; • Upgrade electrical network; • Close and rehabilitate solid waste disposal site;	As per bulk service Master Plan. Upgrade of electrical network. Additional shed for black bags and tools.

• Relocate taxi rank to more suitable position; • Low water bridge in Park Street; • New weigh bridge; • Gravel entrance road at cemetery. Fence new section; • New play park in Boom Street; • Investigate and support the use of sustainable energy sources such as water tanks, sun panels and other alternative sources to promote water/ energy saving amongst residents; • Control excess stray animals in Monte Bertha; • Law enforcement to ensure traffic safety.	
Tourism development	
Proposals	Action Plans
• Mountain bike route; • Agriculture, eco and adventure tourism points; • Groot Winterhoek Wilderness area.	Tourism Bureaux.
Land Reform	
Proposals	Action Plans
• Commonage land available.	Council to make land available.
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Land needed for low cost and self built housing; • Support the inclusion of different densities and types of residential development in Porterville. Allow for medium density and higher residential development (group housing) along activity streets and on larger properties; • Opportunities for infill residential development exists in town and should be supported through subdivision and introduction of a broader spectrum of housing types; • Infill residential development proposed on eastern side of town (behind show grounds and south of railway line), on western edge of Monte Bertha to utilize existing bulk and social infrastructure, Erf	Housing Strategy as linked to IDP and municipal budget; External and internal services for RDP homes.

1179 to the west of town as integration of development and lastly land directly south of access road to Waterfall Resort in the north; • Keep housing waiting list up to date; • Old age home for retired farm workers; • Safe haven for victims of violence (domestic); • Drug rehabilitation centre.	
Densification: • Densification in Porterville must be promoted via: o Infill development; o Subdivision of larger plots in town (sectional title). Maintain the *"cupcake"* principle by means of infill as well as urban renewal and the creation of an integrated centre of town.	
Commercial	
Proposals	Action Plans
Commercial Node: • Trading area under roof at informal stalls; • Central business node by properties adjoining Voortrekker Street on both sides as indicated on map.	Upgrade Central Business area.
Industrial	
Proposals	Action Plans
• Vacant land available for expansion on eastern side of Monte Bertha town up to railway line (allowing for small stream to pass through); • Vacant Industrial erven also available on western edge of town directly north of Monte Bertha where a mixed use area is being proposed along the activity street linking Monte Bertha with the central business district.	As per municipal budget.
Education	
Proposals	Action Plans
• Monte Bertha environmental awareness campaigns: • Porterville will qualify for 1 more Primary School according to expansion growth as predicted.	Schools in collaboration with the Department of Education.
Sport Facilities	
Proposals	Action Plans

• Upgrade tennis courts; • Improve sport facilities – soccer/ cricket; • Lack of recreation facilities.	As per IDP priority list.
Open Space Network	
Proposals	Action Plans
• Small stream on south eastern side of Monte Bertha creates opportunity for open space river corridor as indicated on map. This corridor links to the river corridor passing behind the show grounds and hospital; • Link Cemeteries with open space system; • A large open space was left in the south western corner of Monte Bertha that cannot be developed, because of being too wet; • Provide continuous open space system throughout the urban area and also along activity streets if no formal parks exist; • Sports grounds and existing golf course forms part of open space system on north eastern side of town together with dam area.	As per municipal budget.

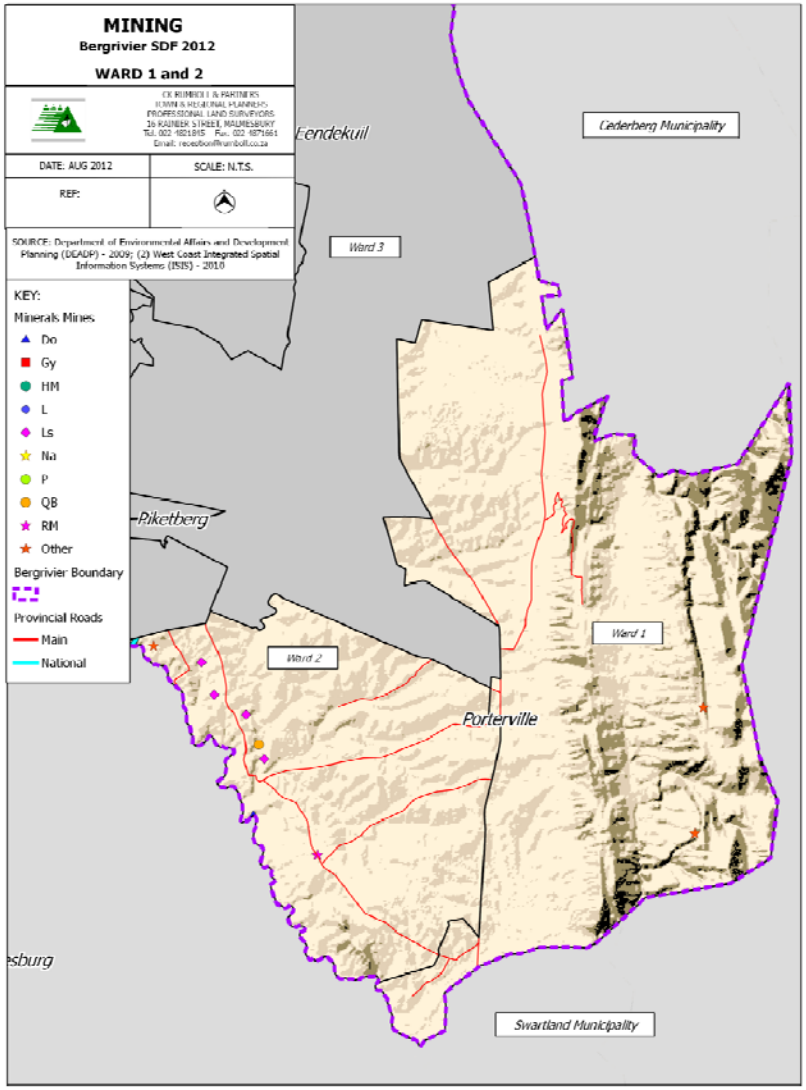
12.2 **Rural Development Proposals for Wards 1 and 2**

Strategy 1: Support Growth in areas with economic potential		
Management Guidelines	Ward Elements	Proposals
Develop opportunities and promote growth in rural areas with economic potential.	Porterville.	• Porterville to serve as agricultural service centre; • Provide sufficient land to promote the agricultural Industry in and around Porterville.
Strengthen transport corridors.	Railway line from Paarl to Riebeek Valley to Porterville.	• Strengthen R44 (trunk road) and MR526 (main road) and Dasklip pass up the Winterhoek Mountains by encouraging supporting transport infrastructure; • Protect and conserve the agricultural landscape along the R44 and MR526; • Promote the use of railway transport for freight and passengers from Paarl to Porterville.
Promote communication corridors and – zones.	Communication infrastructure on Winterhoek mountains.	• Provide the library at Porterville with access to the internet; • Identify a location for access to the internet for communities in the Groot Winterhoek Mountains.
Promote and determine alternative energy development zones.	None.	• None

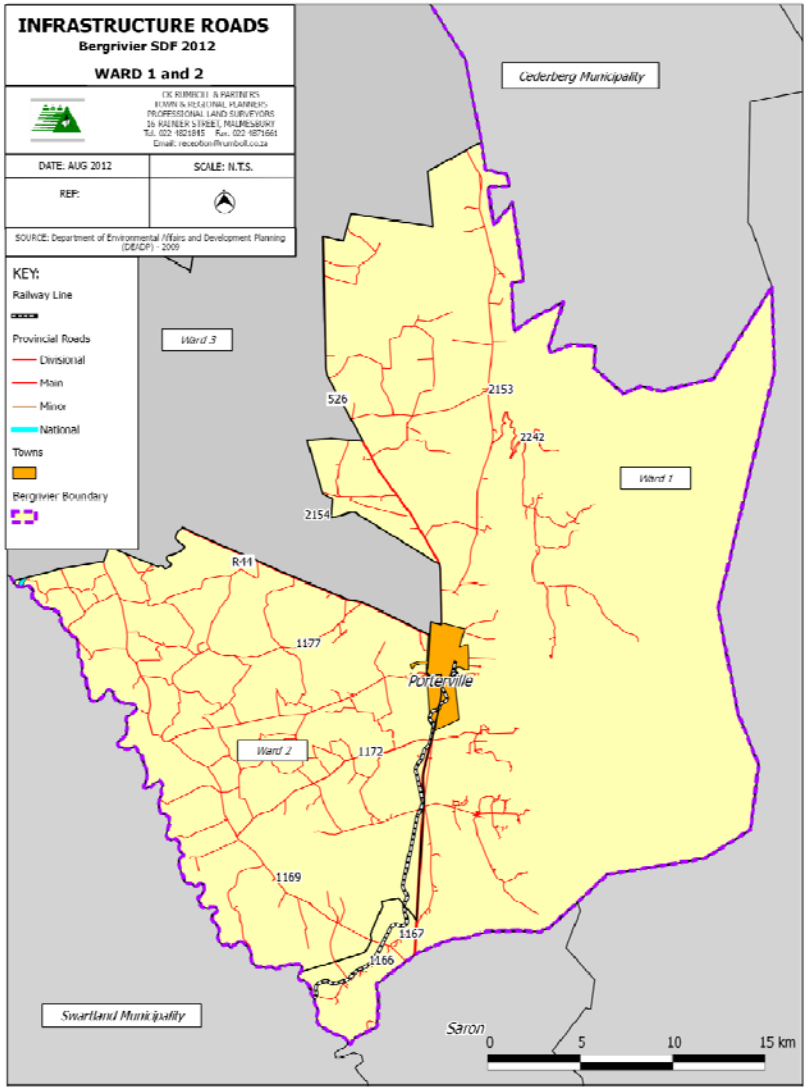
Strategy 2: Grow and diversify agricultural markets and products		
Management Guidelines	Ward Elements	Proposals
By means of market penetration (current products and current markets).	Bag silos; Wineries; Natural veldt flowers and buchu.	• Label products with a Berg River corporate label to ensure identification and quality control; • Promote development of niche products such as jams, sweets, confectionary and bread; • Strengthen the primary agricultural products' supply chain to main markets through adding value to agricultural products and supporting the appropriate zoning; • Promote the production of produce creating work in the Bergrivier rural areas i.e. harvesting veldt flowers (Proteas) and making furniture from wood or fruit trees.
By means of product development (New	Conferencing facilities in rural areas.	• Promote niche products complimenting commercial agriculture and tourism

products and services).		i.e. conferencing and agri-tourism i.e. fruit, grain and olives.
By means of market development (New markets).	Groot Winterhoek Nature Reserve; Beaverlac Natural Reserve; Winterhoek Nature Reserve; Waterval Private Nature Reserve; Die Eiland Private Reserve.	• Develop new markets for new target groups i.e. locally for the youth, government etc. at a regional, national and international level (i.e. camps exploring farming and conservation combined, conferencing); • Encourage small farmers i.e. provide smaller agricultural units, commercial farmer mentorships and encourage agri-tourism; • Promote maintenance and cleaning services that create work i.e. clearing alien vegetation in river corridors.
By means of diversification (new products and new markets).	- Solar farms; - Outdoor holidays including hiking and water sport.	• Promote generation of alternative energy. • Promote the Mediterranean climate with warm, dry summers and wet winters (May to August) as a tourism attraction; • Promote tourism industries in rural areas as additional economic source.

Strategy 3: Support sustainable mining developments		
Management Guidelines	Ward Elements	Proposals
Identify all mineral and geological sources with mining potential and determine which of these sources are suitable based on the extent of environmental degrading it will cause and the ability to prohibit such degrading.	Dolomite and Limestone mainly.	• Assign appropriate zoning to suitable resources and support the land use changes required for extracting natural resources.
Support sustainable mining by means of Sustainability Norms to balance economic, environmental and social impacts.	No current mining applications.	• Determine sustainable and environmental friendly norms for mining in Bergrivier municipal area over and above the norms prescribed by the Department of Minerals and Energy Affairs.
Mitigate existing impact.	Bridgetown Dolomite Quarry.	• Require landscaping during mining operation.
Rehabilitation.	Bridgetown Dolomite Quarry.	• In case mining proceeds, insist on rehabilitation programmes that are approved by the Department of Minerals and Energy; • Control rehabilitation activities and keep licence holders responsible; • Rehabilitate redundant mine sites.
Alternative Transport.	Bridgetown Dolomite Quarry.	• Encourage the use of rail transport (Porterville to Paarl).



Map 12.2 (a): Mining, Ward 1 & 2



Map 12.2 (b): Infrastructure, Roads, Ward 1 & 2

Strategy 4: Strengthen mobility and economic links		
Management Guidelines	Ward Elements	Proposals
Strengthen Regional routes.	R44 & MR 526.	R44: Connect the greater West Coast Region and municipalities of Witzenberg and Drakenstein; MR 526: Strengthen mobility between urban and rural areas.
Strengthen economic access and links.		Ensure maintenance of existing road networks to keep up the road condition; Negotiate new and planned regional network through Bergrivier Municipal Area (i.e. Ceres Karoo/ Nuwekloof connection).
Strengthen railways and services.	Freight railway between Paarl and Porterville.	Upgrade and maintain railway lines to transport agricultural and mining freight; Encourage private operators to promote tourism and to provide public transport between Riebeek Valley and Porterville.
Strengthen Communication networks.	See infrastructure.	Create access to information for farm and rural dwellers; Promote information centres at community centres and on individual farms to improve communication including telephone, internet, TV, newspapers and library books.

Strategy 5: Strengthen and develop rural tourism		
Management Guidelines	Ward Elements	Proposals

Strengthen Tourism destinations.	Olifants- and Winterhoek Mountains and Wilderness areas;
	Beaverlac nature reserve;
	Heuningberg;
	Berg- and Krom Rivers.
		• *Agri-tourism destinations:*
		  • Provide support to tourism accommodation areas on functioning grain and fruit farms;
		  • Strengthen paragliding in Olifants Mountains;
		  • Strengthen festivals marketing agricultural products, i.e. Voorberg carnival (weekend), Kersliggiefees (1 day) and Porterville agricultural Show;
		  • Connect prominent agri-tourism areas and farm accommodation with tourism routes i.e. wine route;
		  • Support farm stalls within the area to promote rural agriculture and handiwork of the area;
		  • Facilitate the participation of disadvantaged and poor

		households in tourism i.e. producing hand work and agricultural products at farms stalls and local shops.
		• *Heritage destinations:*
		  • Promote heritage tourism destinations.
		• *Water sport and recreation:*
		  • Enhance opportunities for fishing and water sport;
		  • Support hiking, mountain biking, paragliding (events in October, December and February) and skiing;
		  • Enhance resorts and short term tourism accommodation along Berg River and dams around Porterville to promote recreation;
		  • Prohibit development within the 1:100 year flood line of rivers and dams.
		• *Endurance sport and recreation:*
		  • Encourage endurance sport routes and events i.e. mountain biking;
		  • Encourage hiking and walking trails.

Develop Tourism Destinations.	Existing wine route.	• Develop new opportunities i.e. Wheat route, deciduous fruits and berries route.
Grow Bergrivier as part of the West Coast tourism strategy.	New tourism information brochures per town.	• Develop infrastructure that can support tourism i.e. the upgrading of roads, street lighting in particular on minor roads; • Promote uniform tourism signage, clear information points highlighting the uniqueness of each town and its surrounding rural area; • Map the farms in the Bergrivier Municipal area offering tourism opportunities and link them as part of tourism routes. These routes in turn link Bergrivier Municipality and neighbouring municipalities.

Strategy 6: Regulate rural development according to bioregional planning initiatives.		
Management Guidelines	Ward Elements	Proposals
Determine Core Areas.	Groot Winterhoek reserve and Winterhoek mountain range.	• Classify mountains and hills as core 1 & 2 areas; • Determine development line on mountain slopes and hills to

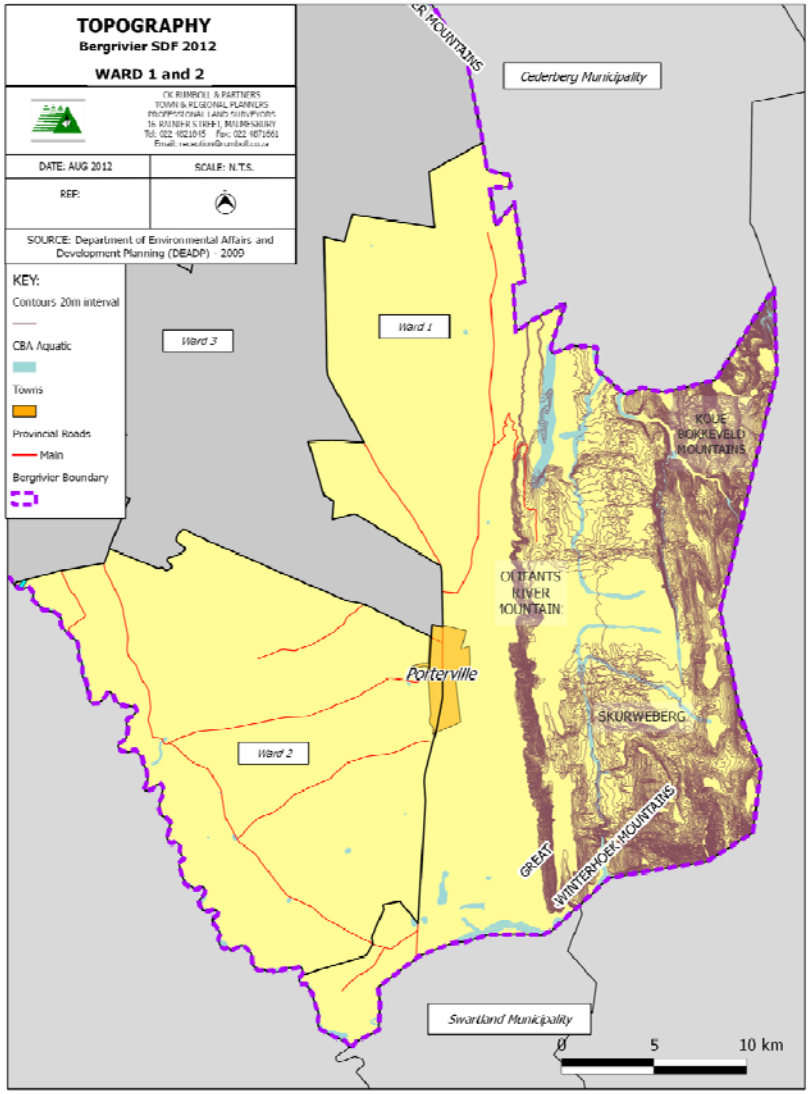
		promote conservation of remnants of natural vegetation and to ensure the visual integrity of the natural landscape is protected; • Limited fencing between different cadastral units to be managed as a conservation area; • Determine a 32m development setback line along identified rivers; • Any renosterveld should be classified as Core 1 & 2 Areas • Support existing reserves and conservation areas i.e. Wintershoek Nature reserves.
	Swartland Shale Renosterveld, a fire-driven and lowland habitat vegetation type, is present along the base of the Piketberg, in the north western Swartland, and in isolated patches where shale is present at the surface, often along riverbanks and at the base of hills. Vegetation structure: Low, relatively open shrub land, with many deciduous elements and high species diversity. Succulents and annuals may be common, and geophytes are a particular feature within this unit, especially after fire. Trees are usually rare, except along streams. Restos may be present, but are never dominant. It is often very grassy in the first few years after a fire (especially *Ehrharta, Tribolium*, and *Pentaschistis* spp.). Rare and threatened species are a plenty and are not well known	• Classify all Renosterveld areas that are conservation priorities, as Core 1 and particularly the slopes around the base of the Piketberg, which has produced a number of new species in the last few years. Include special areas that are known to be important such as the Weltevrede Kleigat area north of Engelsman se Baken (home to 2 new species), and some of the shale northwest of Aurora; • Prohibit alien invasive grasses (such as *Lolium* and *Avena* spp.) by locating stock feeding points (which contain alien grass seeds) at least 300m away from Renosterveld areas. (p27).
	Northern Inland Shale Band Vegetation not unique to Bergrivier Municipal area and extends far to south, into Ceres district. The shale band is a narrow feature (50 to 300m wide) running along the slopes of the Groot Winterhoek. Vegetation structure: Low to medium shrub land, becoming less dense in arid areas and at higher altitudes. May include waboomveld (*Protea nitida*) and substantial grassy elements, especially after fire.)	• Maintain the well conserved vegetation within the Cederberg Wilderness Area and Groot Winterhoek Wilderness Area which has hardly changed due to montane nature present within formal conservation areas. Small portions (<5%) have been impacted by roads, gravel quarrying, protea farming, and pine plantations; • Allow for fire once every 20 years.
	Cederberg Sandstone Fynbos located on rugged rocky outcrops with gullies and flats of deep sand. Occurs in	• Maintain the degree of conservation in the statutory conservation area of the Cederberg Wilderness Area (small percentage of the

	a small northern section of Groot-Winterhoek Mountains. Damp sands are dominated by restio, which gives way to shrubby growth as aridity increases. (Climate: The rainfall varies between 180-600mm per annum, with hot dry summers and sometimes freezing cold winters (3 to 30 days of frost per year)). Vegetation structure: Predominantly asteraceous (daisy like), restioid and proteoid fynbos. Characterized by a high number of endemic species (a fire-driven system).	vegetation type has been transformed to agricultural production, primarily rooibos and vineyards); • Eradicate *Pinus radiata*, an alien invasive species.
	Olifantsandstone Fynbos located on the lower slopes of the Voorberg Mountain from Saron northwards to the Oliphant's River Mountains. It occurs on an altitude between 200 and 1200m on gentle to steep slopes as well as along the broad valley bottoms. Vegetation structure: The vegetation type is characterized by a combination of vegetation communities that tend to occur on the rocky west-facing slopes of the Cederberg. The rock provides fire protection and is dominated by asteraceous fynbos and Cape Thicket interspersed with low trees and tall shrubs. Proteoid fynbos is most prominent on the lower slopes and sandy plateaus, while the deeper sands and shallower soils support restioid fynbos.	• Maintain conservation within the Cederberg Wilderness Area, with an additional 44% conserved privately; • Prioritize the eradication of *Pinus radiate* (p32-33).
	Winterhoek Sandstone Fynbos: Occurs from Dasklip Pass in the north to Saronsberg on a moderately undulating high plain in the west with rugged peaks in the south and south east of the Groot Winterhoek. Vegetation structure: consists of restio dominated moister sands that becomes richer in shrubs as aridity increases. Proteoid and ericaceous fynbos are found at higher altitudes which grades into an asteraceous fynbos at lower altitudes. Cape Thicket is prominent on the lower slopes. Numerous endemic taxa, including several species each of *Aspalathus* and *Phylica*, as well as some Proteaceae, succulents and the orchid *Disa*	• Maintain conservation within Groot-Winterhoek Nature Reserve and wilderness area (regarded as least threatened); • Prioritized eradication of *Pinus radiata*, an alien invasive plant; • Promote outdoor sport, such as hiking which is well established, as the Groot Winterhoek Wilderness, situated in the Groot-Winterhoek mountain range, has extraordinary rock formations and lies about 120 km north of Cape Town.

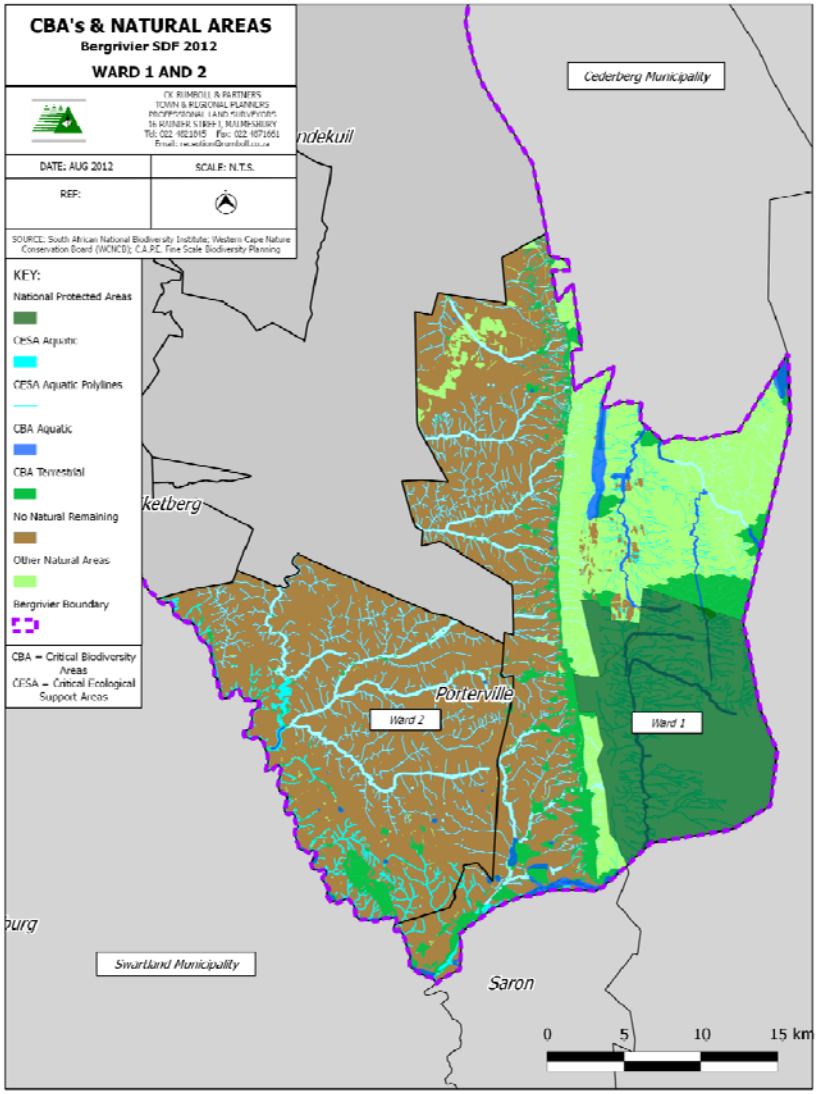
	introrsa such as the rare *Ixianthes retzioides,* which is limited to mountain stream banks in the area, are found here. (Mucina & Rutherford 2006).	
Determine Buffer Areas.	Olifants- and Winterhoek Mountain Range; Berg River. Winterhoek Mountain range; Berg River.	• Initiated a climate change corridor along Winterhoek mountain ranges; • Expand conservation area along Winterhoek mountain range; • Promote conservation stewardships in the Bergrivier municipal area; • Implement effective overlay zones in rural and urban areas to identify conservation areas; • Support rezoning and consent uses forming part of the rural economic development strategy and blending in with the rural environment. • Determine a development line along Winterhoek Mountain range; • Development should be accommodate steep slopes and habitats; • Develop and implement environmental management plans that can be managed on the lowest level.
	Leipoldtville Sandfynbos, a fire driven system, growing on well-drained sandy coastal plains with a low rainfall, hot, dry summers, mild winters and a limited number of days with morning coastal fog. Vegetation structure: Medium to tall shrub land, with prominent Restionaceae, Proteaceae, Fabaceae (*Aspalathus*), Polygalaceae (*Nylandtia*), relatively few succulents or deciduous species, and many annuals. Geophytes are fairly diverse, but not abundant. Exceptionally rich in rare, threatened and localized special species (p25-26).	• Classify the particularly important areas for conservation of endemic species around Aurora, between Redelinghuys and the Engelsman se Baken (Driefonteinberg and areas to south) and the area from Redelinghuys to Paleisheuwel (including Ratelrug) as *Buffer 1*; • Strengthen the Greater Cederberg Biodiversity Corridor (GCBC) project, as it seeks to involve private landowners in conserving key portions of natural habitat in this area. (This vegetation type gets removed for strip cultivation of cereals, potatoes and, to a lesser extent, rooibos); • Prohibit associated effects such as a drop in the water table, which may result in the death of entire groundwater-dependent ecosystems; • No authorization of further transformation of this vegetation type

		unless offset by significant conservation gains, in accordance with regional guidelines for biodiversity offsets (Department of Environmental Affairs and Development Planning 2007: for every 1ha of intact habitat lost, at least 15ha of the same quality should be conserved); • Prohibit overgrazing; • Prohibit alien invasive plants (primarily *Acacia*), especially in wetlands.
	Sandstone fynbos seeps occurs in mountainous areas such as Groot Winterhoek and Piketberg; both being permanent and non-permanent; being drier in summer and inundated in winter. The seeps are fairly densely vegetated, and tend to be dominated by restioid (where sands are deeper) and proteoid fynbos and indigenous grasses. The vegetation type surrounding these seeps is all sandstone fynbos types, primarily Groot Winterhoek Sandstone Fynbos and Piketberg Sandstone Fynbos (p44).	• Classify as Buffer Area; • Prohibit further clearing of dry and wet areas in sandstone fynbos for the cultivation of rooibos. These fields are often placed in wetter, seep areas. This leads to the almost total loss of wetland vegetation in and around these seeps, and so a radical deterioration in the quality of wetland habitat; • Associated with rooibos cultivation, and other crops, is the use of chemicals and fertilizers which tend to alter the water chemistry in wetlands these acid seeps are particularly vulnerable to a change in pH; • Hill slope and basin seeps are threatened by fragmentation, as a result of roads crossing wetlands, rural development and draining of wetlands; • Protect the fire regime of Sandstone fynbos as alterations thereto would lead to loss of species diversity.
	Renosterveld Depression: lies in the Swartland Shale Renosterveld. Characterized by being isolated, shallow systems that are rainfall dependent; occurrence on alkaline shale-derived soils.	• Classify as Buffer Area; • Protect these depressions as part of a corridor where possible (to be classified as Core); Wetlands lying within Swartland Shale Renosterveld vegetation has been affected largely by cultivation and livestock grazing.
Determine Intensive Agricultural Areas.	Extensive small grain farming areas; Intensive deciduous fruit farming areas.	• Identify extensive and intensive agricultural areas; • Promote conservation and agriculture i.e. the Biodiversity and Wine initiative promoted by the Western Cape Wine industry; • Incentivise land owners to manage natural veld as an asset for the environment and for the owner;

		• Focus conservation priorities primarily on the benefits reaped for landowners in order to ensure sustainable conservation projects; • Encourage a change in legislation to incentivise land owners for the ensured conservation of fynbos; • The hydrological-, plant-, management- and economic value of fynbos (high economic value) should be reflected in policies and directives; • Remove alien vegetation and increase water volumes and biodiversity; • Prohibit potential veldt fires and promote the appearance of the mountain landscape; • Manage the necessary veldt fires to ensure seeds germinate; • Promote animal health through the conservation of fynbos providing for a rich mixture of micro-nutrients for neighbouring fields and land associated with grazing (Kemper, 1999).



Map 12.2 (c): Topography, Ward 1 & 2

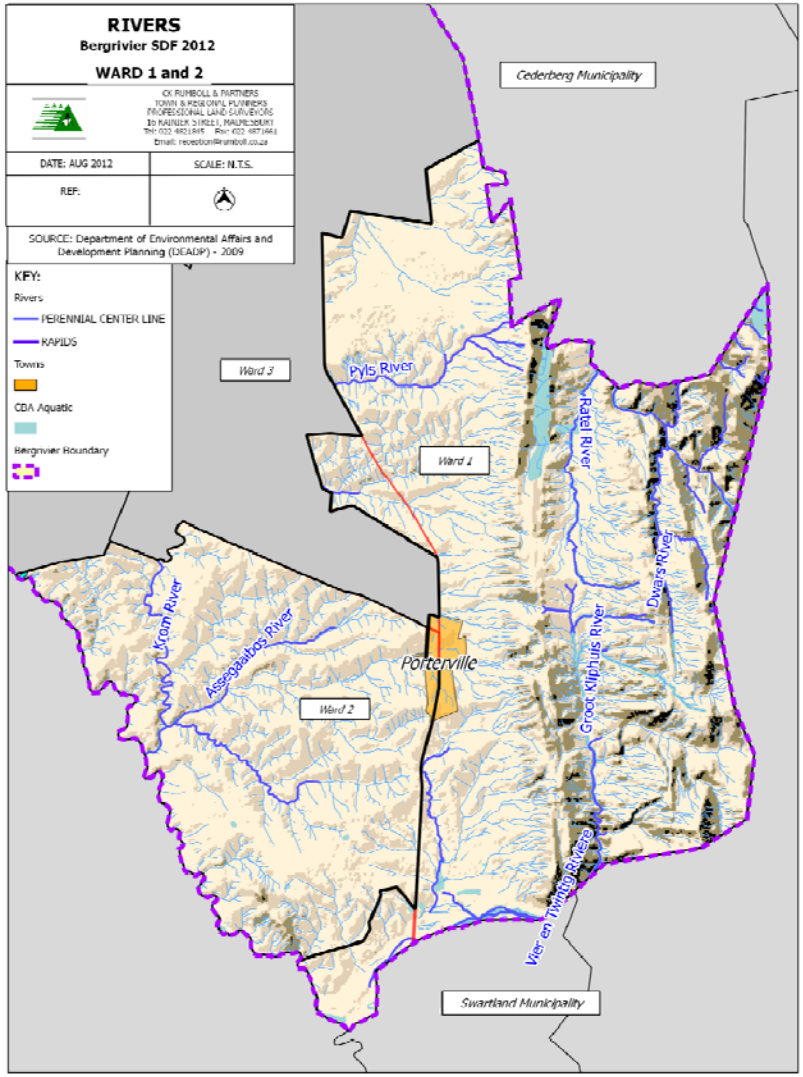


Map 12.2(d): CBAs & Natural Areas, Ward 1& 2

Strategy 7: Conserve and strengthen the cultural and heritage landscape		
Management Guidelines	Ward Elements	Proposals
Protect the cultural landscape.		• Promote festivals and celebrations providing opportunities to promote the local produce and hospitality of the locals in Bergrivier to attract tourism; • Promote open days; • Expand accommodation base which is currently limited as well as restaurant facilities.
Protect and promote the heritage landscape.		• Recognize the following heritage landscapes: o Preserved natural landscape; o Traditional hunting and grazing area; o Landscape of Colonial- Indigenous trade and contact; o The agricultural production landscape; o Water landscape; o Landscape of scenery and Attractions; o Historic town landscape.
Establish climate change corridors and conservancies.	Olifants- and Winterhoek Mountains.	• Use existing reserves as basis of corridor; • Corridor to extent along the complete mountain range.
Develop a tourism train route that includes dilapidated railway stations.		• Establish and promote routes linking historical farms and grain production infrastructure i.e. mills and silos; • Rejuvenate Porterville station and other smaller stations on route; • Promote archaeological routes in Winterhoek Mountain.

Strategy 8: Protect and strengthen the visual agricultural landscape		
Management Guidelines	Ward Elements	Proposals
The strengthening of the transport corridor should support the agricultural landscape.	R44 and MR526.	• Any infrastructure or facilities should blend in with the environment (not contrast with the environment) and the feeling of untouched agricultural landscape should be created.
Enhance food production whilst protecting the natural veldt.	Wine, deciduous fruit, small grain production.	• Promote alternative uses on critical conservation areas that can promote conservation of the natural areas.
Protect and promote the agricultural landscape by growing appropriate crops, winter crops under dry land conditions and summer crops under irrigation where available.	Wheat fields.	• Limit water erosion through protective preparation methods and the planting of perennial crops and establish and maintain contours; • Promote independence from mainstream crops and livestock production through smaller farm units, alternative land uses promoting conservation of natural and endangered vegetation and alternative income for farmers i.e. resorts and agri-tourism.

Strategy 9: Protect water sources and catchment areas		
Management Guidelines	Ward Elements	Proposals
Protect water resources i.e. Berg River and Krom River and boreholes.	Berg-, Krom-, Olifants-, Vier-en-twintig- and Kliphuis Rivers.	• Implement development setback for Oliphant's, Vier en twintig Riviere, Kliphuis Rivers (Groot & Klein), Berg River and Krom River; • Remove alien vegetation to prohibit destructive floods; • To protect boreholes against pollution implementing an agricultural development set back line; • Declare Berg River as a water zone (in conjunction with Swartland Municipality); • Protect aquatic and associated ecosystem and biological diversity.
Promote re-use and saving of water.		• Support the establishment of water tanks at houses to collect water from roofs and the use of this water; • Monitor irrigation schemes for sustainable water use.



Map 12.2 (e): Rivers, Ward 1 & 2

Strategy 10: Promote food security		
Management Guidelines	Ward Elements	Proposals
Develop a strategy for grain farms that are smaller than 500ha to not rely on grain as their only crop.	Extensive small grain farming areas; Intensive deciduous fruit farming areas; Intensive livestock feed farming areas.	• Diversify crop and livestock production; • Encourage alternative farming methods i.e. sprouting; • Promote agricultural units of different sizes: units (20-50 ha), small holdings (5-20 ha) and extensive residential holdings (<5ha); • Identify areas with low potential agricultural soil for alternative supportive uses to agriculture i.e. small holdings and tourism facilities; • Support the development of facilities such as tourism facilities and farm stalls as consent uses on land zoned Agricultural Zone I.
Strengthen associations to promote community participation in local development issues and to determine land use-/ zoning guidelines.		• Associations to monitor conflicting land uses and coordinate renewal and upgrading projects; • Associations to promote production of food and access appropriate distribution networks.

Strategy 11: Provide housing		
Management Guidelines	Ward Elements	Proposals
Provide subsidised housing of which at least 25% is earmarked for farmworkers.		• Support the provision of own housing for farm workers in existing urban area close to work opportunities to ensure ownership and to limit the commute from home to work; • Support provision of housing for farm workers on farm at Groot Winterhoek and Heuningberg;

Strategy 12: Identify and develop viable land reform opportunities		
Management Guidelines	Ward Elements	Proposals
Focus on commercial opportunities rather than existence farming, as agriculture is one of the main economic activities in Bergrivier and a primary staple food (i.e. grain) producer.	Farm Gelukwaarts – irrigation component decreased and intensive feed farming of livestock increased.	• Promote out stream aquaculture along the Bergrivier and in farm dams; • Encourage: o Keeping underground water sources clean; o Non soil based production (tunnel and hydroponics); o Intensive feed farming or free range poultry; o Urban agriculture, local consumption and domestic food production for own use; o Green and alternative energy generation.

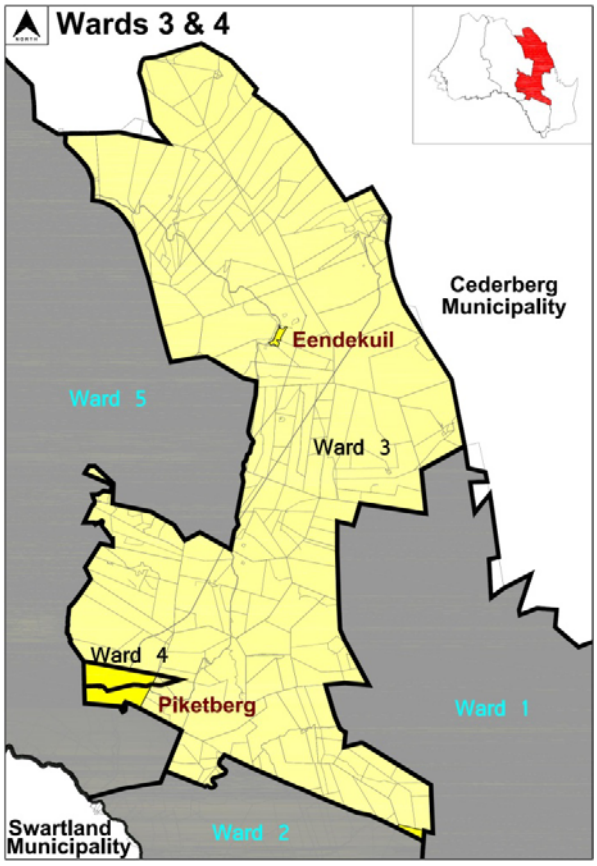
Strategy 13: Provide and support sustainable rural infrastructure and services		
Management Guidelines	Ward Elements	Proposals
Provide and deliver rural infrastructure and services.	Water scarcity of potable water; Need for transfer stations at densely populated areas (Heuningberg and Groot Winterhoek).	Water: • Promote the harvesting and collection of water; • Provide sufficient storage capacity for drinking water in Porterville and expand the distribution network where necessary. Sanitation: • Investigate the provision of individual sewerage works (not connected to existing networks) to small rural settlements or densely populated farms i.e. at Heuningberg and on the Groot Winterhoek Mountains; • Promote and implement the West Coast District Municipal Rural Bathroom subsidies through liaison with relevant land owners; • Provide sewerage services as per national norms in all rural towns. Electricity; • Support the installation of sufficient transformers to provide electricity to households or settlements that have not access to electricity in rural areas; • Promote use of alternative energy generation techniques i.e. solar water heating etc. Waste • Establish transfer stations at the appropriate location within the Winterhoek Mountain farming area and in Porterville.

Provide and support multipurpose community services and infrastructure.	Community centres at Heuningberg and Groot Winterhoek.	• Interspersed community service centres, should deliver services at Heuningberg and on Groot Winterhoek; • Local artists and entrepreneurs should be encouraged during visits to exhibit their goods at the multipurpose centres and particularly during service days; • Adult Education and Training and family literacy should be promoted at multipurpose centres and should be incorporated into existing infrastructure; • Make Further Education and Training accessible by public transport or make venues available for part time classes.
Provide for cemeteries.	Private farm cemeteries.	• Maintain cemeteries, public and private, as part of open space systems and hiking trails.
Provision, expansion and support of public transport infrastructure and transport modalities.	Private taxis; Railway between Paarl and Porterville.	• Determine viability of affordable public transport system along routes on Groot Winterhoek Mountains and at Heuningberg; • Investigate the proposed Newkloof road to unlock economic opportunities; • Determine the viability of public transport on existing railways connecting Porterville to Paarl; • Improve and develop additional bus and taxi shelters; • Improve the directions and signage at transport pick up points.

12.3 EENDEKUIL Proposals

12.3.1 Eendekuil IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the *Bergrivier Local Economic Development Plan (LED)* and the *Bergrivier Integrated Development Plan (IDP)* for Eendekuil were integrated with the spatial planning proposals for Eendekuil. The list of priorities and needs as identified in the IDP and LED is attached as an addendum to the Bergrivier SDF.



12.3.2 Demarcation of the Eendekuil Urban Edge

Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning were taken into consideration in the demarcation of the urban edges of all the towns in the Bergrivier Municipal area. The table identifying the informants of the demarcation of the urban edge of Eendekuil is included as an Addendum.

The following table describes the sections of the urban edge for Porterville in terms of the above criteria as stipulated by the Provincial Urban Edge Guidelines. The different segments of the urban edge are also clearly marked on the map.

Delineation of the Urban Edge of Eendekuil

Edge Segment	Criteria of segment
1	Infrastructure barrier. Access road to bigger towns/ region on northern side of town
2	New cadastral boundary as growth requirement. Eastern boundary of erven
3	Cadastral boundary of existing erven on eastern side of town to also accommodate infill integrated development
4	Partial cadastral boundary combined with growth requirement. Boundary on high water mark north of small stream is suitable for development
5	Infrastructure barrier & prominent landform. Side of main road where it crosses the eastern streamlet
6	Cadastral & prominent landform. Eastern boundary of neighbourhood on edge of streamlet
7	Growth requirement and prominent landform. Contour boundary of erven on southern side of town
8	Infrastructure barrier. Servitude line on southern side of town
9	Infrastructure barrier & prominent landform. Railway line and river on western side of town

The urban edge of Eendekuil was extended with close links to the existing edge as in the Bergrivier SDF of 2008 and only on developable land. Motivation for the southern extension is that this section of town has a waterborne sewage system and the northern section does not. Due to the low growth rate and low development potential of Eendekuil there is no need to provide for subsidised housing in Eendekuil and this housing should be accommodated in the larger towns of Piketberg, and Porterville to ensure sustainable development of all towns. However, due to Eendekuil's role of supplying housing to farm workers of the region there is a need for land to supply serviced erven for self built housing. Eendekuil has a well developed social infrastructure which should be maintained and furthered to support social development. The town also provides aspects for further development of the tourism industry with the projects as proposed.

12.3.3 Eendekuil Spatial Planning Proposals

The following spatial planning proposals were combined with inputs from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the town of Eendekuil. The proposals need to be read together with the Eendekuil Spatial Proposals map.

The following table provides an overview of the growth model used in determining how much land is required in Eendekuil to accommodate the proposed growth.

Town	Projected Growth in Population 2012-2017 (growth rate: 2.2% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Eendekuil	128	32	205	237	65	35	202	5ha	8ha

Table 12.3.3(a): Additional land required in Eendekuil

The proposed densification targets as identified for Eendekuil is as follows:

Densification targets for Eendekuil		
Town	Existing density in town	Average density targets
Eendekuil	4.8du/ha	10du/ha

Table 12.3.3(b): Proposed Densification targets for Eendekuil.

Eendekuil has a need for land where houses can be built by owners (self built housing) because of the movement of subsidized housing to the larger towns of Porterville and Piketberg.

<table>
<tr><td colspan="2">EENDEKUIL
Spatial proposals
Refer to Eendekuil Spatial Proposal</td></tr>
<tr><td colspan="2">Connectivity
Connectivity in this town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of access to business forms and for the tourism industry.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Roads:
• Tarred roads in Hopland;
• Upgrade and widening of main road to ensure safety to scholars/pedestrians.

Activity routes (Spatial Integration):
• Support development of mixed and commercial uses along identified activity streets, i.e. Main road.

Pedestrian routes:
• Provide accessible and safe pedestrian and bicycle routes along traffic routes, especially the main road to accommodate, promote and improve safety of pedestrians and cyclists.</td><td>As per IDP and municipal budget.</td></tr>
<tr><td colspan="2">Public Areas
Public areas represent the areas in the towns where people gather informally and where there is interaction between people. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sport grounds.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Public Nodes:
• Public toilets has been identified as a need in the IDP;
• Aalwyn project.

Community Facilities:
• Upgrade of community hall identified in IDP. Old school used for multi-purposes centre.</td><td>As per IDP and municipal budget.</td></tr>
</table>

Cemeteries: • The two (2) cemeteries in Eendekuil (one on southern side and other northeast of town on eastern side of gymkhana track) have enough land available for future expansion. Conservation Areas: • No formal or potential conservation areas. Heritage Conservation: • No heritage conservation.	
Service Infrastructure	
Proposals	Action Plans
• Water quality and supply. Water is gravitated from Piketberg Mountain to a reservoir northeast of town with a capacity of 450kl where it is treated to be distributed in the town. There is enough water is available; • Borehole sunk on Transnet property to be made available to community gardens; • Tarred roads in Hopland; • Upgrade and widening of Main Street to accommodate safe pedestrian/ scholar movement; • Phase 2 sewerage installation; • Investigate and support the use of sustainable energy sources such as water tanks, sun panels and other alternative sources to promote water/ energy saving amongst residents.	As per bulk service Master Plan. Kat River pipe line. Collection point. Fence reservoir site. Public ablution.
Tourism development	
Proposals	Action Plans
• Eendekuil as final destination for Hang gliders; • Eendekuil tourism route (bicycle trail); • Gymkhana track (horse endurance rides).	Tourism Bureaux.

Land Reform	
Proposals	Action Plans
• Community gardens.	Negotiate with TRANSNET for availability of land and borehole.
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Land needed for subsidised and self built housing; • Future subsidised housing backlogs will have to be provided in either Piketberg or Porterville; • Development of erven must occur in conjunction with availability of bulk services; • New residential extensions must be sustainable and integrated.	Housing Strategy as linked to IDP and municipal budget. Negotiate for land to be set aside for housing.
Densification: • Densification in Eendekuil must be promoted via: o Infill development – Land has been earmarked in the central area of Eendekuil to the northeast of the streamlet. Land has also been set aside to the south of the town, because of developable land being available together with existing infrastructure e.g. engineering services, social infrastructure. Further land has been earmarked on the eastern side of the old cheese factory where serviced erven can be made available; o Subdivision of larger erven (sectional title). Maintain the *"cupcake*" principle by means of infill as well as urban renewal and the creation of an integrated centre of town.	
Commercial	
Proposals	Action Plans
Commercial Node: • Trading area with stalls; • Central business node with properties adjoining the main street on both sides.	As per IDP.

Industrial	
Proposals	Action Plans
• Enough vacant land available for expansion on northern side of town. Old cheese factory was abandoned and can be revamped; • Industries can develop on both sides of' the access road on the northern side of town if there is a need for job creation in generating an opportunity to support the local economy.	As per IDP.
Education	
Proposals	Action Plans
• Premises for Pre-school facility identified in IDP. Such facility can be combined with Primary School or Community facility. More qualified personnel needed.	Council to finalize negotiations for acquisition of old school.
Sport Facilities	
Proposals	Action Plans
• A need for the upgrade of facilities was identified in the IDP introducing a pavilion, proper fencing and lights as priorities.	As per IDP priority list.
Open Space Network	
Proposals	Action Plans
• Create an open space corridor along the river; • Link south eastern streamlet open space with river corridor; • Make cemeteries part of the open space system; • Provide continuous open space system throughout the urban area also along activity streets if no formal parks exist.	As per municipal budget.

12.4 PIKETBERG

12.4.1 Piketberg IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the ***Bergrivier Local Economic Development Plan (LED)*** and the ***Bergrivier Integrated Development Plan (IDP)*** for Piketberg were integrated with the spatial planning proposals for Piketberg. The list of priorities and needs as identified in the IDP and LED is attached as an addendum to the Bergrivier SDF.

12.4.2 Demarcation of Piketberg Urban Edge

Various Issues, Criteria and Factors, as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning, were taken into consideration in the demarcation of the urban edges of all the towns in the Bergrivier Municipal area. The table identifying the informants of the demarcation of the urban edge of Piketberg is included as an Addendum.

The following table describes the sections of the urban edge for Piketberg in terms of the above criteria as stipulated by the Provincial Urban Edge Guidelines. The different segments of the urban edge are also clearly marked on the map.

Delineation of the Urban Edge of Piketberg	
Edge Segment	Criteria of segment
1	Cadastral boundary of existing erven on northern side of town
2	Service infrastructure. N7 on eastern boundary of town
3	Service infrastructure combined with cadastral boundary to accommodate WWTW buffer
4	Infrastructure boundary. Railway line forms eastern edge
5	Cadastral boundary of registered erven on existing eastern urban edge
6	Cadastral boundary on southern boundary
7	New cadastral boundary of the infill erven is found on southern side of town
8	Prominent landform combined with Infrastructure barrier. Servitude lines on slopes of mountain
9	Prominent landform combined with cadastral boundary on slopes of mountain
10	New cadastral boundary of infill erven on western side of town

The urban edge of Piketberg was maintained as is the case with the existing edge as in the Bergrivier SDF of 2008 with minimal changes, because of infill development being contained within this edge. Piketberg has a well developed commercial and social infrastructure which should be maintained and further developed to support its role as main seat of the municipality. The town also provide aspects for further development of the tourism industry with the interesting projects proposed.

12.4.3 Piketberg Spatial Planning Proposals

The following spatial planning proposals were combined with inputs from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the town of Piketberg. The proposals need to be read together with the Piketberg Spatial Proposals map.

The following table provides an overview of the growth model used in determining how much additional land is required in Piketberg to accommodate the proposed growth.

Town	Projected Growth in Population 2012-2017 (growth rate: 2.2% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Piketberg	1526	382	1928	2310	105	314	1996	50ha	80ha

Table 12.4.3(a): Additional land required in Piketberg

The proposed densification targets as identified for Piketberg is as follows:

Densification targets for Bergrivier towns		
Town	Existing density in town	Average density targets
Piketberg	5.9du/ha	15du/ha

Table 12.4.3(b): Proposed Densification targets for Piketberg.

PIKETBERG Spatial proposals Refer to Piketberg Spatial Proposal Map 12.4	
Connectivity Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of access to business forms and for the tourism industry.	
Proposals	Action Plans
Roads/ Rail: • Upgrade train station – Piketberg/ Cape Town route; • No pedestrian link between residential & industrial area. Pedestrian bridge over N7; • Public transport; • Main road through town to be upgraded to cater for safe pedestrian movement; • Cemetery entrance road and parking. Activity routes (Spatial Integration): • Support development of mixed and commercial uses along identified activity streets as per map. Pedestrian routes: • Provide accessible and safe pedestrian and bicycle routes along traffic routes, especially the main road to accommodate, promote and improve safe pedestrians and cyclists.	TRANSNET/ PRASA As per IDP and municipal budget.
Public Areas Public areas represent the areas in the towns where people gather informally and where there is interaction between people. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sport grounds.	
Proposals	Action Plans
Public Nodes: • Beautify open spaces and town entrances. Community Facilities: • Piketberg will qualify for 5 more crèches/nursery schools (that can be combined with a Primary School/Community centre and also another	As per municipal budget.

4 churches according to expansion growth as predicted; • Thusong centre (with community facilities); • Training centre; • Street children haven. Cemeteries: • Expansion of cemeteries. The current cemeteries are almost fully developed and have little land available for future expansion therefore a new cemetery has to be identified to cater for needs also beyond the 5 year time frame of the SDF. Land earmarked within WWTW buffer area. Conservation Areas: • Piketberg Mountain. Heritage Conservation: • A survey of Heritage assets are being proposed for further action to be taken on this.	Finalize Thusong centre together with budget for construction. Repair swimming pool in Akasie Street. Municipal land to be made available as per SDF proposal. Council/ Cape Nature to finalize status. Budget for heritage survey. Stormwater upgrade at Museum. Parking at Museum.
Service Infrastructure	
Proposals	Action Plans
• New Fire Station; • Water supply. Build a new 2ML reservoir to cater for future growth. Purification works as well as WWTW recently being upgraded. WWTW upgraded from 1,8ML to 2,15ML and can be doubled in future; • Fencing of cemetery 2/ entrance road/ parking/ toilets; • Gravel storage area; • WWTW odour. WWTW just being upgraded; • Indoor toilets; • Upgrade central business area electrical network; • Solar street lights; • Storm water management is a problem as identified in IDP and by Municipality, but Storm water Plan is in place to relay stormwater to north-eastern corner of town; • Close and rehabilitate solid waste disposal site; • Improve maintenance of play parks; • Investigate and support the use of sustainable energy sources such	As per bulk service Master Plan/ capital budget. Upgrade purification works. Parking.

as water tanks, sun panels and other alternative sources to promote water/ energy saving amongst residents; • Law enforcement: Traffic; • Law enforcement: Noise; • Testing grounds to be moved to Traffic Department in Industrial area.	
Tourism development	
Proposals	Action Plans
• Caravan park; • Guided tour between Piketberg/ Cape Town (fun bus); • Cable car facility; • Botanical garden; • Piketberg/ Goedverwacht hiking trail; • High art route on public open spaces; • Development of handmade crafts and ornaments to be sold by local entrepreneurs; • Picnic and braai facilities.	Municipality/ Tourism Bureaux.
Land Reform	
Proposals	Action Plans
• Commonage land required for Piketberg small farmers.	Council finalize and make commonage land available
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Land needed for low cost housing; • Support the inclusion of different densities and types of residential development in Piketberg. Allow for medium density and higher residential development (group housing) along activity streets and on larger properties; • Opportunities for infill residential development exists in town and should be supported through subdivision and introduction of a broader spectrum of housing types; • Infill residential development proposed on southern edge of town to utilize existing infrastructure, on western side on foothill of mountain with approved layout, on north-western side within existing urban	Housing Strategy as linked to IDP and municipal budget. Negotiate with private owners for acquisition of land for housing. Fence RDP homes.

edge, on part of golf course on eastern side next to N7; • Keep housing waiting list up to date; • Rural – Farm evictions to be accommodated.	
Densification: • Densification in Piketberg must be promoted via: o Infill development ; o Subdivision of larger plots in town (sectional title). Maintain the *"cupcake"* principle by means of infill as well as urban renewal and the creation of an integrated centre of town.	
Commercial	
Proposals	Action Plans
Commercial Node: • Private sector partnership for marketing and product development for film crews; • Law enforcement: Regulation of businesses; • Provide facilities for local traders; • Central business node by properties adjoining Main Street on both sides.	Council/ Private sector.
Industrial	
Proposals	Action Plans
• Enough vacant land available for expansion on east side of N7; • Industries can grow towards WWTW.	As per SDF proposals.
Education	
Proposals	Action Plans
• Expansion of Steynville Primary/ new primary school. Piketberg will qualify for 3 more Primary Schools according to expansion growth as predicted, but plans underway for upgrade; • School feeding schemes to be expanded to include secondary school children.	Department of Education.
Sport Facilities	
Proposals	Action Plans
• More provision for recreation; • Indoor sports centre; • Watsonia sports grounds: Drainage/ soccer facilities/ safer pavilion/	As per IDP priority list.

Clubhouse/ Ablution facilities/ Lights.	
Open Space Network	
Proposals	Action Plans
• Open space buffer to be maintained next to N7; • Open space created by streamlet on northern side of town to accommodate stormwater runoff; • Link Cemeteries with open space system; • Provide continuous open space system throughout the urban area also along activity streets if no formal parks exists; • Incorporate mountain foothills as part of open space network.	As per municipal budget.
Planning	
Proposals	Action Plans
• Uniform pro development zoning scheme; • Land for churches; • Commonage land required for Piketberg small farmers; • Farm evictions. Need for accommodation and housing.	Prioritize and budget for new integrated zoning scheme for municipal area.

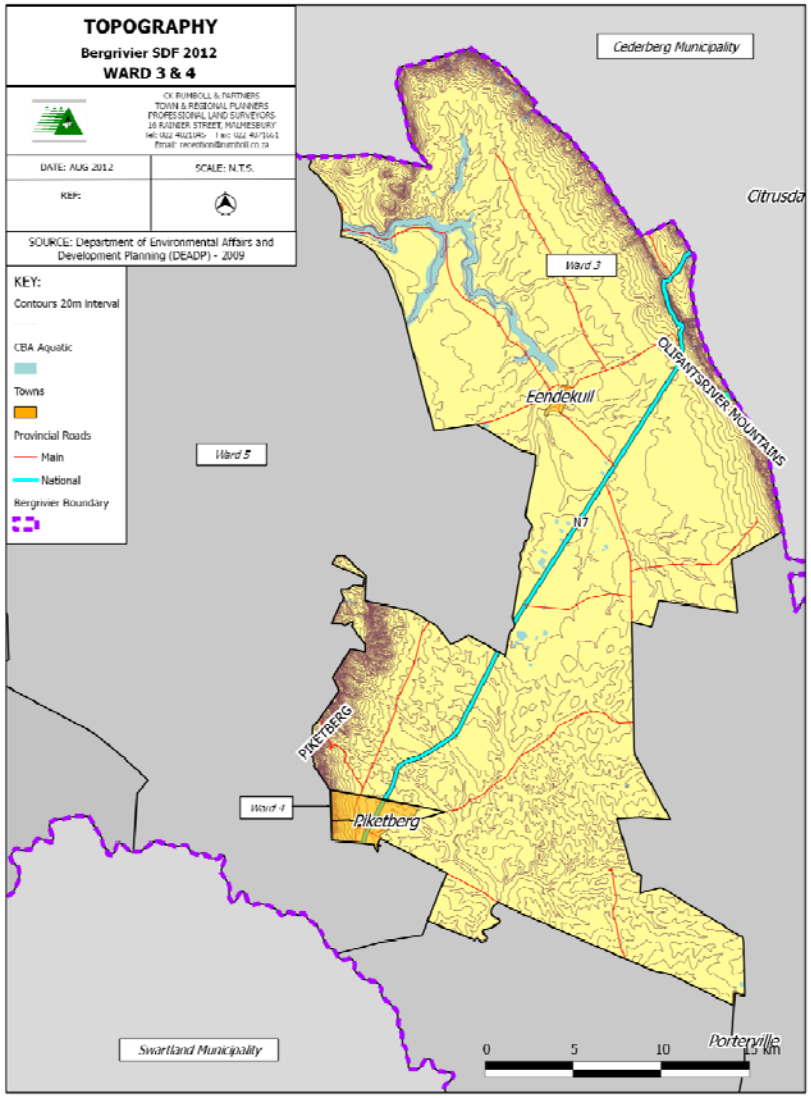
12.5 Rural Development Proposals for Wards 3 & 4

Strategy 1: Support Growth in areas with economic potential		
Management Guidelines	Ward Elements	Proposals
Develop opportunities and promote growth in rural areas with economic potential.	Piketberg.	• Piketberg to serve as main agricultural service centre; • Provide sufficient land to promote agricultural industry in and around Piketberg.
Strengthen transport corridors.	Railway line from Paarl to Riebeek Valley to Porterville.	• Strengthen N7 (national road) and MR526 (main road) by encouraging supporting transport infrastructure; • Protect and conserve the agricultural landscape along the N7 and MR526; • Promote the use of railway for freight and passengers from Bellville to Piketberg and beyond; and in particular between Morawia & Piketberg.
Promote communication corridors and zones.	Communication infrastructure on Piketberg mountains.	• Provide Piketberg and Eendekuil community centre with access to internet.
Promote and determine alternative energy development zones.	None.	• None.

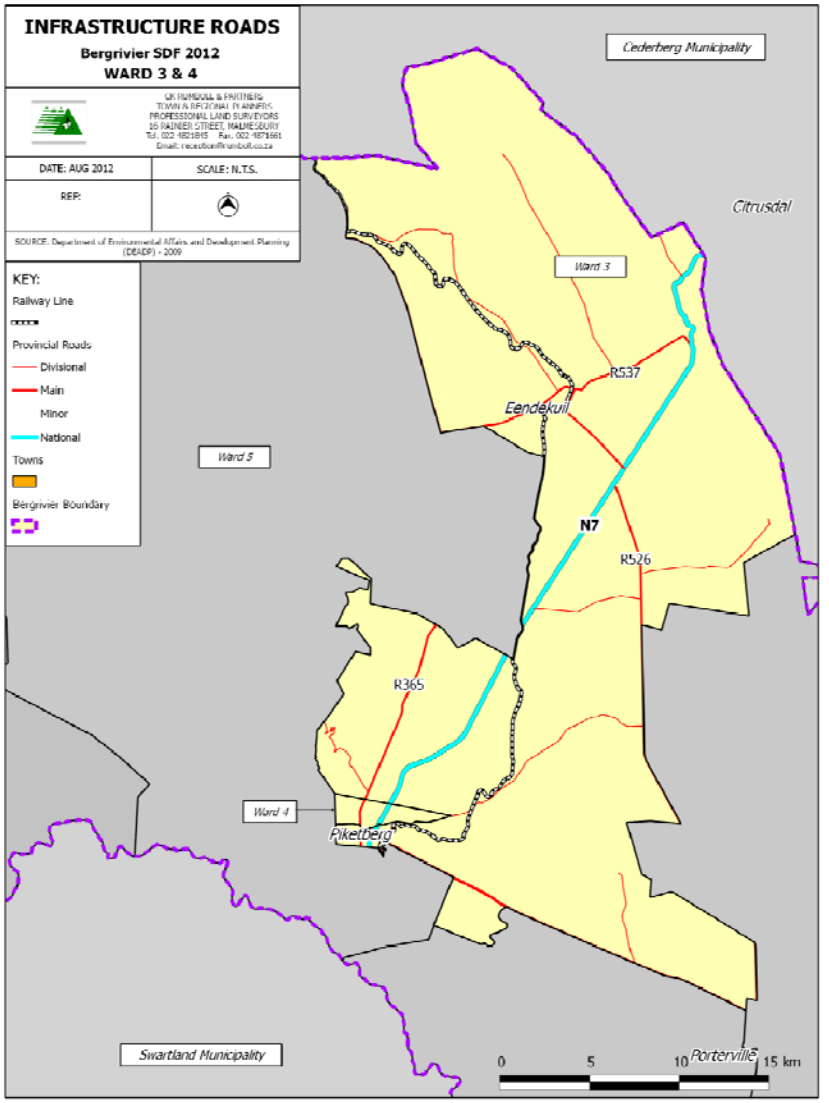
Strategy 2: Grow and diversify agricultural markets and products		
Management Guidelines	Ward Elements	Proposals
By means of market penetration (Current products and current markets).	Bag silos; Wineries; Fruit and vegetables packaging.	• Label products with a Bergrivier corporate label to ensure identification and quality control; • Promote development of niche products such as jams, dried fruit, sweets, confectionary and bread; • Strengthen the primary agricultural products' supply chain to main markets through adding value to agricultural products and to support the appropriate zoning; • Promote the production of produce creating work in the Bergrivier rural areas i.e. product from fruit, vegetables and grain.
By means of product development (New products and services).	Conferencing facilities in rural areas.	• Promote niche products complimenting commercial agriculture and tourism i.e. conferencing and agri-tourism.

By means of market development (New markets).	Film Industry.	• Develop new markets for new target groups i.e. locally for the youth, government etc. at a regional, national and international level (i.e. film industry in rural setting – best light, conferencing and camps exploring how farming and conservation can be combined); • Encourage small farmers i.e. provide smaller agricultural units, commercial farmer mentorships and encourage agri-tourism; • Promote maintenance and cleaning services that create work i.e. clearing alien vegetation in river corridors and in storm water runoff.
By means of diversification (New products and new markets).	Fruit & vegetable types & products thereof; Other grains; Olives; Film Industry; Conferencing.	• Promote the Mediterranean climate with warm, dry summers and wet winters (May to August) as a tourism attraction; • Promote the tourism industry in the rural areas as additional economic source.

Strategy 3: Support sustainable mining developments		
Management Guidelines	Ward Elements	Proposals
Identify all mineral and geological sources with mining potential and determine which of these sources are suitable based on the extent of environmental degrading it will cause and the ability to prohibit such degrading.	None.	• Assign appropriate zoning to suitable resources and support the land use changes required for extracting natural resources; • Determine sustainable and environmentally friendly norms for mining in Bergrivier over and above the norms prescribed by the Department of Minerals and Energy Affairs; • Require landscaping during mining operation and rehabilitation when mining has ceased.
Rehabilitation.	Dolomite or sand quarries.	



Map 12.5 (a): Mining, Ward 3 & 4



Map 12.5 (b): Infrastructure, Roads, Ward 3 & 4

Strategy 4: Strengthen mobility and economic links		
Management Guidelines	Ward Elements	Proposals
Strengthen Regional routes.	N7 & MR526.	N7: Connect the Cape Metropolis and the North (Namibia). MR 526: Strengthen mobility between urban and rural areas.
Strengthen economic access and links.		Ensure maintenance of existing road networks to keep up the road condition.
Strengthen railways and services.	Freight railway between Bellville and Piketberg.	Upgrade and maintain railway lines to transport agricultural and mining freight. Encourage private operators to promote tourism and to provide public transport between Piketberg, Malmesbury and Cape Town.
Strengthen Communication networks.	See infrastructure strategy.	Create access to information for farm and rural dwellers i.e. in Eendekuil (including telephone, internet, TV, newspapers and library books).

Strategy 5: Strengthen and develop rural tourism		
Management Guidelines	Ward Elements	Proposals

Strengthen Tourism destinations.	Piekenierskloof Resort.	• *Agri-tourism destinations:*
		  • Support tourist accommodation on functioning farms;
		  • Strengthen hiking, mountain biking, horse riding;
		  • Strengthen festivals marketing agricultural products, i.e. Eendekuil Show;
		  • Connect prominent agri-tourism areas and farm accommodation with tourism routes i.e. wine route;
		  • Support farm stalls within the area to promote rural agriculture and handiwork of the area;
		  • Facilitate the participation of disadvantaged and poor households in tourism i.e. producing handiwork and agricultural products at farms stalls and local shops.
		• *Heritage destinations:*
		  • Promote heritage tourism destinations.
		• *Endurance sport and recreation:*
		  • Enhance resorts and short term tourism accommodation;
		  • Encourage endurance sport routes and events i.e. mountain

		biking and horse riding; • Encourage hiking and walking trails.
Develop Tourism Destinations.	Existing wine route.	• Develop new opportunities i.e. Wheat route.
Grow Berg River as part of the West Coast tourism strategy.	New tourism information brochures per town.	• Develop infrastructure that can support tourism i.e. the upgrading of roads, street lighting in particular on minor roads; • Promote uniform tourism signage, clear information points highlighting the uniqueness of each town and its surrounding rural area; • Map the farms in the Bergrivier Municipal area offering tourism opportunities and link them as part of tourism routes. These routes in turn link Bergrivier Municipality and neighbouring municipalities.

Strategy 6: Regulate rural development according to bioregional planning initiatives.		
Management Guidelines	Ward Elements	Proposals
Determine Core Areas.	Olifants Rivier Mountains.	• Classify mountains and hills as core 1 & 2 areas; • Determine development line on mountain slopes and hills to promote conservation of remnants of natural vegetation and to ensure the visual integrity of the natural landscape is protected; • Determine a 30m development setback line along identified rivers; • Any renosterveld should be classified as Core 1&2 Areas;
	Swartland Silcrete Renosterveld characterized by a stony substrate. Usually occurs within Swartland Shale Renosterveld areas. Rocky nature means that it is often found on highpoints and breaks of slope (e.g. upper convex slopes of river banks). Usually less densely vegetated than typical Shale Renosterveld, and thus often heavily eroded. Although it may appear degraded at first glance, this is its natural state. Vegetation structure: Usually a fairly sparse vegetation cover, with large bare areas of exposed silcrete or ferricrete. Low succulent shrubs dominate, with various bulbs and annuals.	• Formal conservation of this habitat type is essential. All remaining examples of this habitat should receive the highest conservation priority rating, due to its very limited extent, and large number of rare, localized, or unknown species. (Often a sparsely vegetated rocky habitat is perceived as wasted ground ("afvalgrond") and is very vulnerable to transformation and damage i.e. quarrying for road gravel, road construction, dumping, and recreational use by off-road vehicles, including trampling and crushing by stock, especially cattle.), Classify as Core. .

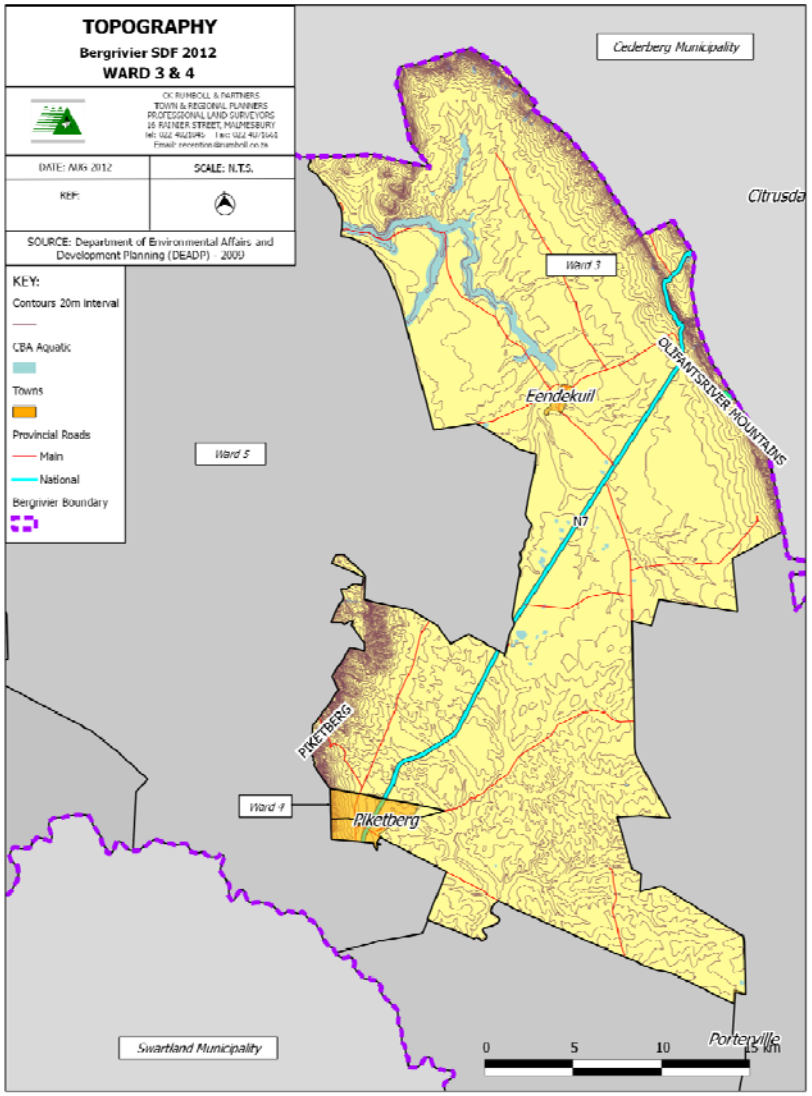
	Floristically not very distinct from Shale Renosterveld, but structurally tends to be shorter and sparser, with a greater concentration of special species.). A number of species are regarded as being of conservation concern. A number of rare bulb species may be present.	
	Olifantsandstone Fynbos located on the lower slopes of the Voorberg Mountain from Saron northwards to the Oliphant's River Mountains. Occurs on an altitude of between 200 and 1200m on gentle to steep slopes as well as along the broad valley bottoms. Vegetation structure: The vegetation type is characterized by a combination of vegetation communities that tend to occur on rocky west-facing slopes of the Cederberg. The rock provides fire protection and is dominated by asteraceous fynbos and Cape Thicket interspersed with low trees and tall shrubs. Proteoid fynbos is most prominent on the lower slopes and sandy plateaus, while the deeper sands and shallower soils support restioid fynbos.	• Maintain conservation within the Cederberg Wilderness Area, with an additional 44% conserved privately; • Prioritize the eradication of *Pinus radiate* (p32-33).
Determine Buffer Areas.	Olifants River Mountain Range; Piketberg Mountain Range.	• A climate change corridor along Oliphant's River mountain range has been initiated; • Expand conservation area along Olifants River mountain range; • Promote conservation stewardships in the Bergrivier municipal area; • Implement effective overlay zones in rural and urban areas to identify conservation areas; • Support rezoning and consent uses forming part of the rural economic development strategy and blending in with the rural environment.
	Olifants River Mountain range; Piketberg Mountains.	• Determine a development line along Olifants and Piketberg Mountain range;

		• Development should be sensitive to steep slopes and habitats; • Develop and implement environmental management plans that can be managed at the lowest level.
	Sandstone fynbos seeps occurs in mountainous areas such as Groot Winterhoek and Piketberg; with both being permanent and non-permanent; being drier in summer and inundated in winter. The seeps are fairly densely vegetated, and tend to be dominated by restioid (where sands are deeper) and proteoid fynbos and indigenous grasses. The vegetation type surrounding these seeps is all sandstone fynbos types, primarily Groot Winterhoek Sandstone Fynbos and Piketberg Sandstone Fynbos (p44).	• Classify as Buffer Area; • Prohibit further clearing of dry and wet areas in sandstone fynbos for the cultivation of rooibos. These fields are often placed in wetter, seep areas. This leads to the almost total loss of wetland vegetation in and around these seeps, and so a radical deterioration in the quality of wetland habitat; • Associated with rooibos cultivation, and other crops, is the use of chemicals and fertilizers which tend to alter the water chemistry in wetlands these acid seeps are particularly vulnerable to a change in pH; • Hill slope and basin seeps are threatened by fragmentation, as a result of roads crossing wetlands, rural development and draining of wetlands; • Protect the fire regime of Sandstone fynbos as alterations thereto would lead to loss of species diversity.

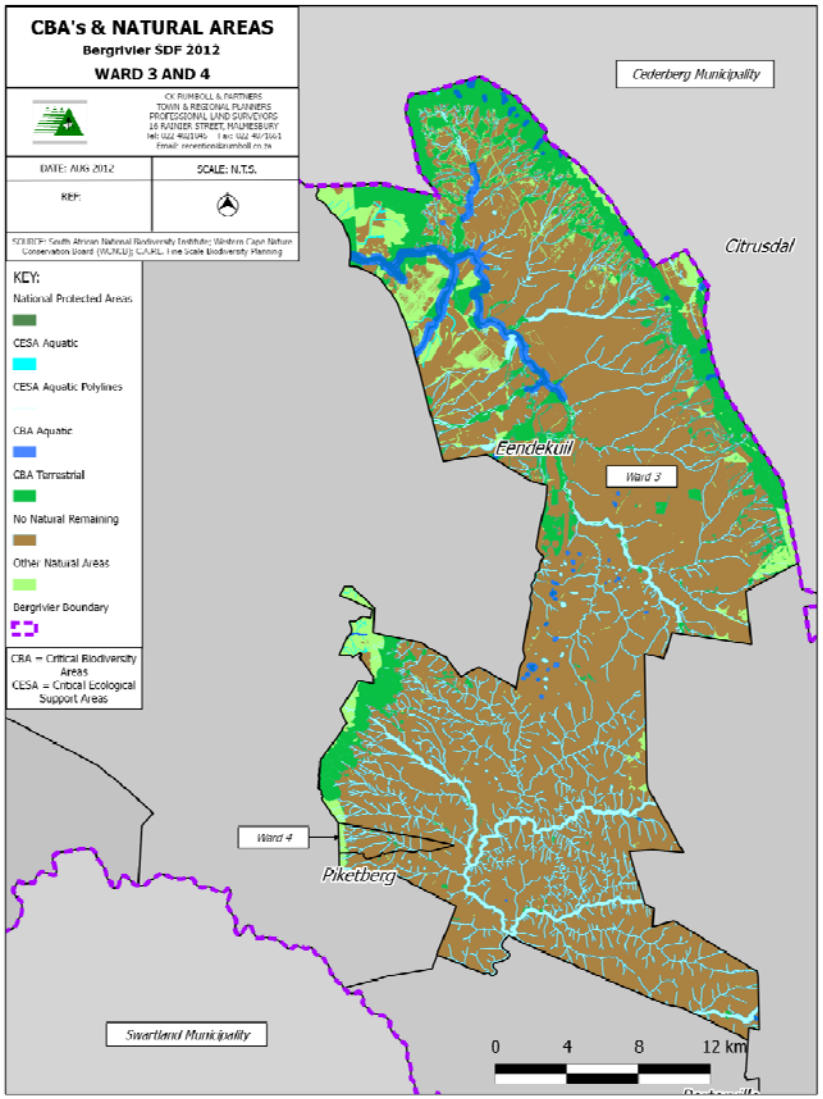
Other Natural Areas.	Graafwater Sandstone Fynbos: widespread and common within this area, wherever there are semi-arid sandstone habitats. Occurs west of the Cederberg and all the way to the coast near Elands Bay. Forms distinct island surrounded by Leipoldtville Sand Fynbos on the deeper sands. Vegetation structure: Typically a medium to tall shrubland, with extensive thicket elements in more fire protected areas. Deeper sands dominated by Restionaceae, often with prominent Proteaceae. Prominent displays of annuals, especially in burnt areas. Moderate diversity of bulbs. Succulents may be common, especially on rocky outcrops, where dwarf succulents and bulbs (in very shallow soils) may be a feature). This unit supports a large number of rare, threatened, or localized plant species, some of which are shared with Leipoldtville Sand Fynbos. Most of the Proteaceae listed under typical species are currently Red Data listed.	• Landowners should be encouraged to burn most areas once every 15-20 years. This is a fire driven system, and as many fragments are in close proximity to agricultural fields, fires are strongly resisted by landowners. Thus the natural vegetation is becoming senescent (or inactive), with possible species loss in the near future. Further fragmentation of this habitat should be avoided, especially where natural habitat borders on Leipoldtville Sand Fynbos and upland areas; • Remove alien invasive vegetation; • Rooibos tea farming should ideally be conducted within the natural veldt, on an organic basis, without wholesale ploughing. At the very least strips of natural vegetation (minimum of 15m wide) should be left between ploughed strips (to reduce soil erosion and wind damage to young rooibos plants, and to maintain ecological connectivity), and ideally rooibos should be inter planted in amongst existing vegetation and hand harvested, without spraying harmful chemicals. (p29-30); • All wetland areas within this unit are high priority conservation areas, as are all known point localities for special species, classify as Core.
	Piketberg Sandstone Fynbos occurs mainly on the Piketberg Mountains in a triangle from the town of Aurora to Het Kruis, and grows in Piketberg. The vegetation type occurs from 100 to 1458m on Piketberg's Sebrakop. The landscape is characterized by steep slopes with small plateaus and peaks. The soils are acidic and derived from Table Mountain Sandstone. Vegetation structure: Consists of restio dominated moister sands that become shrubbier as aridity increases. Proteoid and asteraceous fynbos dominate in the rocky areas. Cape Thicket is prominent as well.	• Classify as *Other Natural Vegetation.* This vegetation type has no formal conservation areas protecting it. It is the most transformed (agriculturally for fruit production) mountain fynbos vegetation type in the biome, yet regarded as a Least Threatened vegetation type; • Priorities eradication *Acacia saligna*, an alien invasive plant, is scattered over wide areas.(p32-33).
	Piketberg Quartz Succulent Shrubland: the largest patch of this vegetation type occurs on the farm Draaihoek between Piketberg and Eendekuil, also in the vicinity of Het Kruis and Redelinghuys and at	• Classify as *Other Natural Vegetation.* No formal conservation of this vegetation type as it occurs entirely on private land; Draaihoek in particular is very important for the conservation of this vegetation type.

	Sauer on the South Western foot of the Piketberg. It occurs at altitudes that vary between 120-160m. The vegetation is unique to the Porterville formation and linked to the vegetation of the Knersvlakte. It is a low shrubland dominated by sturdy succulent *Sarcocornia* sp. accompanied by leaf succulents, such as contracted "vygies", especially in the shallow trenches and depressions. The elevated sites with deeper soils support denser shrubland. Numerous endemic taxa exist (Mucina & Rutherford 2006).	
Determine Intensive Agricultural Areas.	Extensive small grain farming areas; Intensive deciduous fruit farming areas.	• Identify extensive and intensive agricultural areas; • Promote conservation and agriculture i.e. the Biodiversity and Wine initiative promoted by the Western Cape Wine industry; • Incentivise land owners to manage natural veld as an asset for the environment and for the owner; • Focus conservation priorities primarily on the benefit for landowners to ensure sustainable conservation projects; • Encourage a change in legislation to incentivise land owners' conservation of fynbos; • Policies should reflect the hydrological-, plant-, management- and high economic value of fynbos; • Remove alien vegetation to increase water volumes and biodiversity; • Prohibit potential veld fires and promote the appearance of the mountain landscape; • Manage the necessary veldt fires to ensure seeds germinate; • Promote animal health through conservation of fynbos providing for a rich mixture of micro-nutrients for neighbouring fields and land associated with grazing (Kemper, 1999).

Strategy 7: Conserve and strengthen the cultural and heritage landscape		
Management Guidelines	Ward Elements	Proposals
Protect the cultural landscape.		• Promote festivals and celebrations providing opportunities to promote the local produce and hospitality of the Bergrivier to attract tourism; • Promote open days; • Expand limited accommodation and restaurant facilities.
Protect and promote the heritage landscape.		• Recognize the following heritage landscapes: o Preserved natural landscape; o Traditional hunting and grazing area; o Landscape of Colonial- Indigenous trade and contact; o The agricultural production landscape; o Water landscape; o Landscape of scenery and Attractions; o Historic town landscape.
Establish climate change corridors and informal conservancy.	Olifants, Winterhoek and Piketberg Mountains; Piketberg mountain is a geological "island" of Table Mountain Sandstone in the sea of shale and acid sands leading to a high number (more than 20) of endemic plant species (Maree & Vromans, 2010). (p19).	• Use existing conservation areas as basis of corridor; • Corridor to extend along the complete mountain range.
Develop a tourism train route that includes dilapidated railway stations.		• Establish and promote a route linking historical farms and grain production infrastructure i.e. mills and silo's; • Rejuvenate Piketberg and Eendekuil stations;



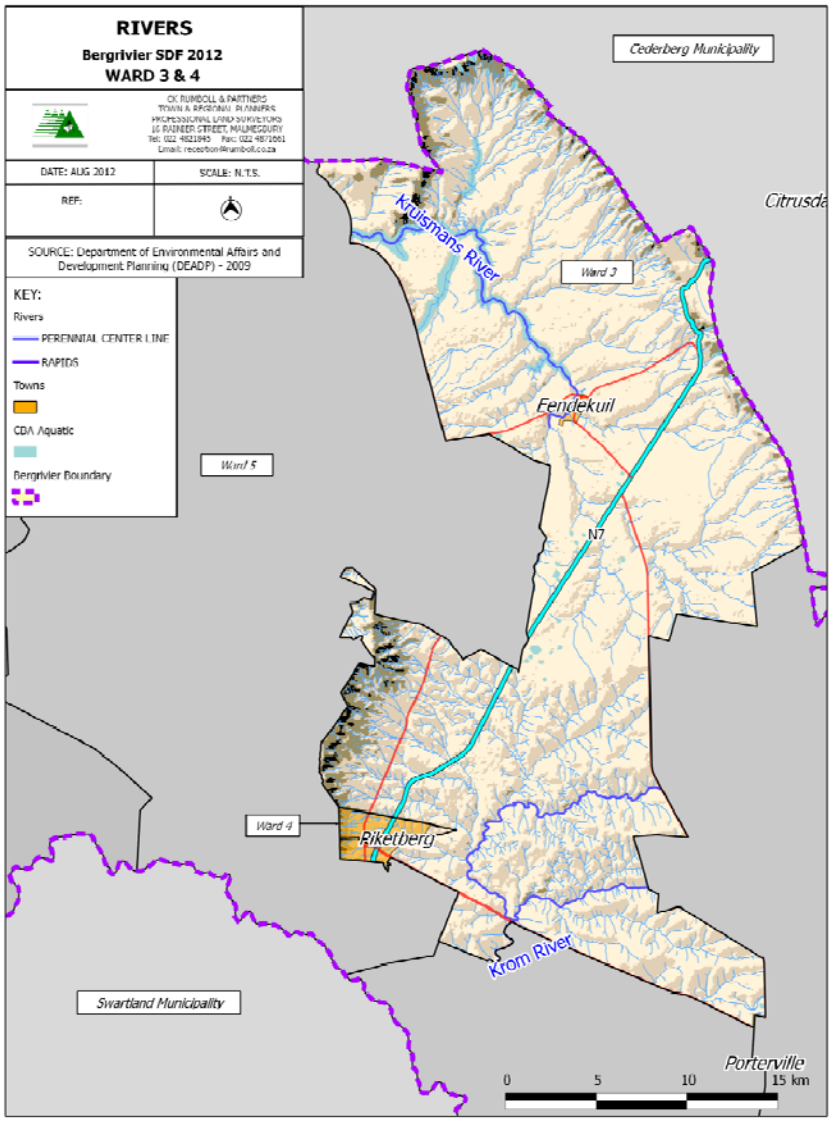
Map 12.5 (c): Topography, Ward 3 & 4



Map 12.5 (d): CBAs & Natural Areas, Ward 3 &4

Strategy 8: Protect and strengthen the visual agricultural landscape		
Management Guidelines	Ward Elements	Proposals
The strengthening of the transport corridor should support the agricultural landscape.	N7 and MR526.	• Any infrastructure or facilities should blend in with the environment (not contrast with the environment) and the feeling of untouched agricultural landscape should be created.
Enhance food production whilst protecting the natural veldt.	Wine, deciduous fruit, small grain production.	• Promote alternative uses on critical conservation areas that can promote conservation of the natural areas.
Protect and promote the agricultural landscape by growing appropriate crops, winter crops under dry land conditions and summer crops under irrigation where available.	Wheat fields.	• Limit water erosion through protective preparation methods and the planting of perennial crops and establish and maintain contours; • Promote independence from mainstream crops and livestock production through smaller farm units, alternative land uses promoting conservation of natural and endangered vegetation and alternative income for farmers i.e. resorts and agri-tourism.

Strategy 9: Protect water sources and catchment areas		
Management Guidelines	Ward Elements	Proposals
Protect water resources i.e. rivers and boreholes.	Verlorenvlei River.	• Implement development setback for Verlorenvlei River; • Remove alien vegetation to prohibit destructive floods; • To protect boreholes against pollution implementing an agricultural development set back line; • Declare Verlorenvlei River as a water zone (in conjunction with Cederberg Municipality); • Protect aquatic and associated ecosystem and biological diversity.
Promote re-use and saving of water.		• Support the establishment of water tanks at houses to collect water from roofs and to use this water; • Monitor irrigation schemes for sustainable water use.



Map 12.5 (e): Rivers, Ward 3 & 4

Strategy 10: Promote food security		
Management Guidelines	Ward Elements	Proposals
Develop a strategy for grain farms that are smaller than 500ha to not rely on grain as their only crop.	Extensive small grain farming areas; Intensive deciduous fruit farming areas; Intensive and extensive livestock feed farming areas.	• Diversify crop and livestock production; • Encourage alternative farming methods i.e. sprouting; • Promote agricultural units of different sizes: units (20-50 ha), small holdings (5-20 ha) and extensive residential holdings (<5ha); • Identify areas with low potential agricultural soil for alternative supportive uses to agriculture i.e. small holdings and tourism facilities; • Support the development of facilities such as tourism facilities and farm stalls as consent uses on land zoned Agricultural Zone I.
Strengthen associations to promote community participation in local development issues and to determine land use-/ zoning guidelines.		• Associations to monitor conflicting land uses and coordinate renewal and upgrading projects; • Associations to promote production of food and access appropriate distribution networks.

Strategy 11: Provide housing		
Management Guidelines	Ward Elements	Proposals
Provide subsidised housing of which at least 25% is earmarked for farmworkers.	Piketberg and Eendekuil.	• Support the provision of own housing for farm workers in existing urban areas close to work opportunities to ensure ownership and to limit commuting between home and work; • Support limited provision of housing for farm workers in Eendekuil;

Strategy 12: Identify and develop viable land reform opportunities		
Management Guidelines	Ward Elements	Proposals
Focus on commercial opportunities rather than existence farming, as agriculture is one of the main economic activities in Bergrivier and a primary staple diet (i.e. grain) producer.		• Encourage: o Keeping underground water sources clean; o Non soil based production (tunnel and hidroponica); o Intensive feed farming or free range poultry; o Urban agriculture, local consumption and domestic food production for own use; o Green & alternative energy generation.

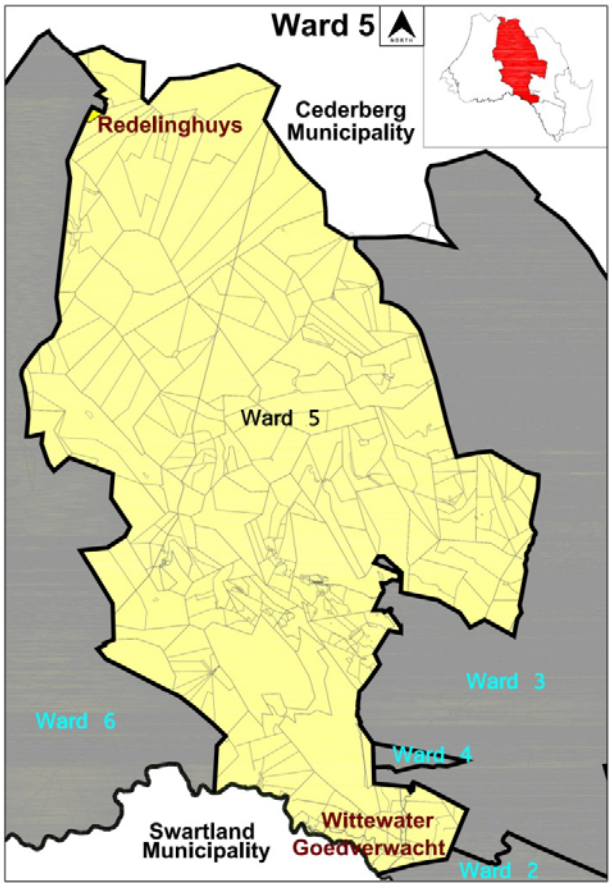
Strategy 13: Provide and support sustainable rural infrastructure and services		
Management Guidelines	Ward Elements	Proposals
Provide and deliver rural infrastructure and services.	Water scarcity of potable water; Need for transfer stations in densely populated areas.	Water: • Promote the harvesting and collection of water; • Provide sufficient storage capacity for drinking water in Piketberg and Eendekuil. Sanitation: • Promote and implement the West Coast District Municipal Rural Bathroom subsidies through liaison with relevant land owners; • Provide sewerage services as per national norms in all rural towns. Electricity: • Promote use of alternative energy generation techniques i.e. solar water heating etc. Waste: • Establish transfer stations at appropriate location in Piketberg and Eendekuil.
Provide and support multipurpose community services and infrastructure.	Community centres at Eendekuil and Piketberg.	• Local artists and entrepreneurs should be encouraged during visits to exhibit their goods at the multipurpose centres and particularly during service days; • Adult Education and Training and family literacy should be promote at multipurpose centres and at existing infrastructure; • Make Further Education and Training accessible by public transport or make venues available for part time classes.
Provide for cemeteries.	Private Farm cemeteries.	• Maintain cemeteries, public and privates as part of open space systems and hiking trails.
Provision, expansion and support of public transport infrastructure and transport modalities.	Private taxis or busses.	• Determine viability of affordable public transport system along N7 and MR526; • Improve and develop additional bus and taxi shelters; • Improve the directions and signage at transport pick up points.

WARD 5
GOEDVERWACHT and WITTEWATER

12.6 GOEDVERWACHT Proposals

12.6.1 Goedverwacht IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the *Bergrivier Local Economic Development Plan (LED)* and the *Bergrivier Integrated Development Plan (IDP)* for Goedverwacht were integrated with the spatial planning proposals for Goedverwacht. The list of priorities and needs as identified in the IDP and LED is attached as an addendum the Bergrivier SDF.



12.6.2 Demarcation of the Goedverwacht Village Edge

The villages of Goedverwacht and Wittewater are not formal established towns with any individual ownership of land; therefore no formal urban edge can be demarcated. The need does however exist to determine a proposed village edge to limit uncontrolled growth of these towns and to support sustainable development and a functional urban form.

Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning were taken into consideration in the demarcation of the village edges of Goedverwacht. The village edge is proposed to be a contained edge to limit linear expansion along the river and also against the steep slopes of the valley. Vacant areas within the existing village footprint should be considered for internal infill development to limit uncontrolled expansion of the village area and to limit cost to the provision of service infrastructure.

The focus of development in Goedverwacht should be on the maintenance and support of infrastructure services as well as provision of social supporting services for the residence (youth to the pensioners).

12.6.3 Goedverwacht Spatial Planning Proposals

The following spatial planning proposals were combined with inputs from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the village area of Goedverwacht. The proposal needs to be read together with the Goedverwacht Spatial Proposals map.

The following table provides an overview of the growth model used in the determination of additional land required in Goedverwacht to accommodate the proposed growth.

Town	Projected Growth in Population 2012-2017 (growth rate: 0.45% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Goedverwacht	60	15	13	28	-	0	28	0.7ha	1.9ha (15du/ha)

Table 12.6.3 Additional land required in Goedverwacht

<table>
<tr><th colspan="2">Goedverwacht
Spatial proposals
Refer to Goedverwacht Spatial Proposal Map 12.6</th></tr>
<tr><td colspan="2">Connectivity and Mobility
Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of accessibility to business uses and for the tourism industry.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Roads:
• Improve the design of internal roads to accommodated stormwater runoff and limit damage to road network;
• Continued maintenance of road network in the village especially Church Street;
• Investigate provision of public transport system to rural towns in the Bergrivier area to improve the mobility of the communities and their access to economic opportunities.
Pedestrian routes:
• Provide formal marked pedestrian paths through town as part of a tourism drive – “Goedverwacht on foot”;
• Support safe pedestrian routes along activity streets to improve connectivity in town. Improve shoulders along main activity road for the development of formal pedestrian paths;
• Further support of existing hiking trails on the Goedverwacht farm.</td><td>Church Council in collaboration with municipality.</td></tr>
<tr><td colspan="2">Public Areas
Public areas represent the areas in the towns where people gather informally and where there is interaction between peoples. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sport grounds.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Public Nodes:
• Strengthen the public areas around the central sports field and area next to the river to the north of the Church.
Conservation Areas:
• Potential for conservation area on parts of the larger farm in line with the spatial planning categories as proposed in the proposals for the rural areas;</td><td>Church Council/ Opsienersraad in collaboration with municipality.</td></tr>
</table>

• Support the removal of alien vegetation along the banks of rivers; • Support the 32 meter setback lines for development along river banks; • Protect areas surrounding the Riet River (limit intensive livestock farming in community gardens and along river banks) to ensure the protection of water quality in river to protect the residents' livelihoods since they are dependent on the water for drinking and farming. Heritage Conservation: • The church buildings, parsonage, mission store and some of the older houses provide for a rich source of cultural heritage resources within the Goedverwacht Moravian Mission Station.	
Service Infrastructure	
Proposals	Action Plans
Water: • Improve the quality and supply of water resources in the village; • Continued maintenance and expansion of water provision system to allow water provision to all homes, also homes located on steeper slopes; • Support the harvesting of rainwater from roofs; • Protection of river system to ensure quality of water used for farming and drinking. Sewerage: • Consider the future installation of contained sewerage systems at houses to limit potential impact on groundwater and river system. Electricity: • Improve the electricity provision to all homes in Goedverwacht through agreement with Eskom to take over electricity supply in the town by April 2013; • Ensure that Eskom provides the necessary pensioners support and compassionate funding as they do in other urban areas to alleviate the service costs in the community. Refuse: • Stop the dumping of household waste on the refuse dumping site. Consider the establishment of a transfer station in Goedverwacht or the direct transport of refuse to another transfer station or a licensed refuse	Church Council ("Opsienersraad") in collaboration with municipality.

facility; • Close and rehabilitate the old refuse site to limit the potential health risk to local community and the river system (fenced off in the interim).	
Tourism	
Proposals	Action Plans
• Support the development of a small scale holiday resort on the northern periphery of the village to provide economical opportunities and job creation in the village of Goedverwacht; • Support the development of eco tourism facilities such as bird watching facilities along the river; • Support the development of an Arts and Crafts centre (as an extension of the coffee shop or at the community hall) to support tourism as well as skills development and job creation in the village; • The development of formal footpaths in the village to be used by local community as well as tourists as part of a local hiking trail through town exploring Goedverwacht on foot and stopping along the route to experience various local inhabitants' way of life and engage in activities of the town; • Identify specific projects that can form part of applications for funding by the registered Goedverwacht Tourism Development Forum.	Church Council ("Opsienersraad") / Tourism Bureaux.
Land Reform	
Proposals	Action Plans
• Support the provision of individual ownership to residents in Goedverwacht as well as improvised access to farm the land. Individual ownership to community supported by the Genadendal Accord that was signed by the Moravian Church; • Limit livestock farming in the village area and next to the river system to limit potential land use conflict and health risks to the community. Identify areas outside of the village for livestock farming.	Church Council ("Opsienersraad").
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Investigate the potential for provision of individual property rights to	Church Council/ Opsienersraad.

residents.	
Densification: • Support the contained growth of the village within the proposed village edge.	
Commercial	
Proposals	Action Plans
• Support development of mixed and commercial uses along identified activity street (Church Street precinct); • Develop tourist related commercial facilities along Church Street (Arts and Craft facilities for local residents).	Church Council/ Opsienersraad.
Social Facilities	
Proposals	Action Plans
• Provide a skills development centre for arts and crafts to support economic growth of community; • Support the development of a multipurpose centre within a central public node that will provide programmes for the children, the youth as well as pensioners (can also accommodate Pre-school facility).	Church Council/ Opsienersraad.
Open Space Network	
Proposals	Action Plans
• Maintain an open space network along the river with no offensive development or use as well as the removal of alien vegetation in and along the banks of the river; • Support the maintenance and further development of existing hiking trails on the Goedverwacht farm as an extension of the open space network in the village and as part of the tourism activities in town to support job creation (local community to provide guides).	Church Council/ Opsienersraad.

12.7 WITTEWATER Proposals

12.7.1 Wittewater IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the ***Bergrivier Local Economic Development Plan (LED)*** and the ***Bergrivier Integrated Development Plan (IDP)*** for Wittewater were integrated with the spatial planning proposals for Wittewater. The list of priorities and needs as identified in the IDP and LED is attached as an addendum to the Bergrivier SDF.

12.7.2 Demarcation of the Wittewater Village Edge

The villages of Wittewater and Goedverwacht are not formal towns with any individual ownership of land; therefore no formal urban edge can be demarcated. The need does however exist to determine a proposed village edge to limit uncontrolled growth of these towns and to support sustainable development and a functional urban form.
Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge", compiled by the Department of Environmental Planning, were taken into consideration in the demarcation of the village edge of Wittewater. The village edge is proposed to be a contained edge to limit expansion against the steeper slopes away from existing services and infrastructure. Vacant areas within the existing village footprint should be considered for internal infill development to limit uncontrolled expansion of the village area and to limit cost to the provision of service infrastructure. Expansion around the entrance to town should be considered for future housing development. The focus of development in Wittewater should be on the maintenance and support of infrastructure services as well as provision of social supporting services (multi purpose sport facilities) for residents in order to provide alternative forms of recreation especially for the youth.

12.7.3 Wittewater Spatial Planning Proposals

The following spatial planning proposals were combined with inputs from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the village area of Wittewater. The proposal needs to be read together with the Wittewater Spatial Proposals map. The following table provides an overview of the growth model used in the determination of additional land required to accommodate the proposed growth in Wittewater.

Town	Projected Growth in Population 2012-2017	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Wittewater	-	-	11	11	-	0	11	-	0.7ha (15du/ha)

Table 12.7.3: Additional land required in Wittewater

Wittewater Spatial proposals Refer to Wittewater Spatial Proposal Map	
Connectivity and Mobility Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of accessibility to business uses and for the tourism industry.	
Proposals	Action Plans
Roads: • Improve the design of internal roads to accommodate storm water runoff and limit damage to road network; • Continued maintenance of road network in the village. Pedestrian routes: • Support safe pedestrian routes along activity streets to improve connectivity in town. Improve shoulders along main activity road for the development of formal pedestrian paths; • Provide a formal pedestrian route through the older sections of town (where the houses have been renovated) as part of a historical tourism route. Mobility: • Make better use of the established formal bus stop in Wittewater by supporting the improvement of public transport between Wittewater and larger centres in the Bergrivier area. This will improve the mobility of local residents and enable them to access job opportunities in larger centres.	Church Council/ Opsienersraad in collaboration with municipality.
Public Areas Public areas represent the areas in the towns where people gather informally and where there is interaction between peoples. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sports grounds.	
Proposals	Action Plans
Public Nodes: • Strengthen the public area around the formalised bus stop and parking area in the centre of town. This area provides the ideal opportunity for a market square next to the river where various activities can take place;	Church Council/ Opsienersraad in collaboration with municipality.

• Support the development of an active open space area to the north of the existing bus stop next tot he river. Conservation Areas: • Potential for conservation area on parts of the larger farm in line with the spatial planning categories as proposed in the proposals for the rural areas; • Support the removal of alien vegetation along the banks of rivers; • Support the 32 meter setback lines for development along river banks. Heritage Conservation: • The church precinct at the entrance to town and the older precinct of restored houses provide for rich cultural heritage resources within the Wittewater Moravian Mission Station.	
Service Infrastructure	
Proposals	Action Plans
Water: • Improve the quality and supply of water resources in the village; • Support the harvesting of rainwater from roofs. Sewerage: • Consider the future installation of contained sewerage systems at houses to limit potential impact on groundwater and river system. Electricity: • Improve the electricity provision to all homes in Wittewater.	Church Council/ Opsienersraad in collaboration with municipality.
Tourism	
Proposals	Action Plans
• Support the development of a formal walking trail in Wittewater as part of a historic pedestrian route with the potential to employ local people as guides on the route.	Church Council ("Opsienersraad") / Tourism Bureaux.
Land Reform	
Proposals	Action Plans
• Support the provision of individual ownership to residents in Wittewater as well as improvised access to farm. Individual ownership to community supported by the Genadendal Accord that was signed by the Moravian Church;	Church Council/ Opsienersraad.

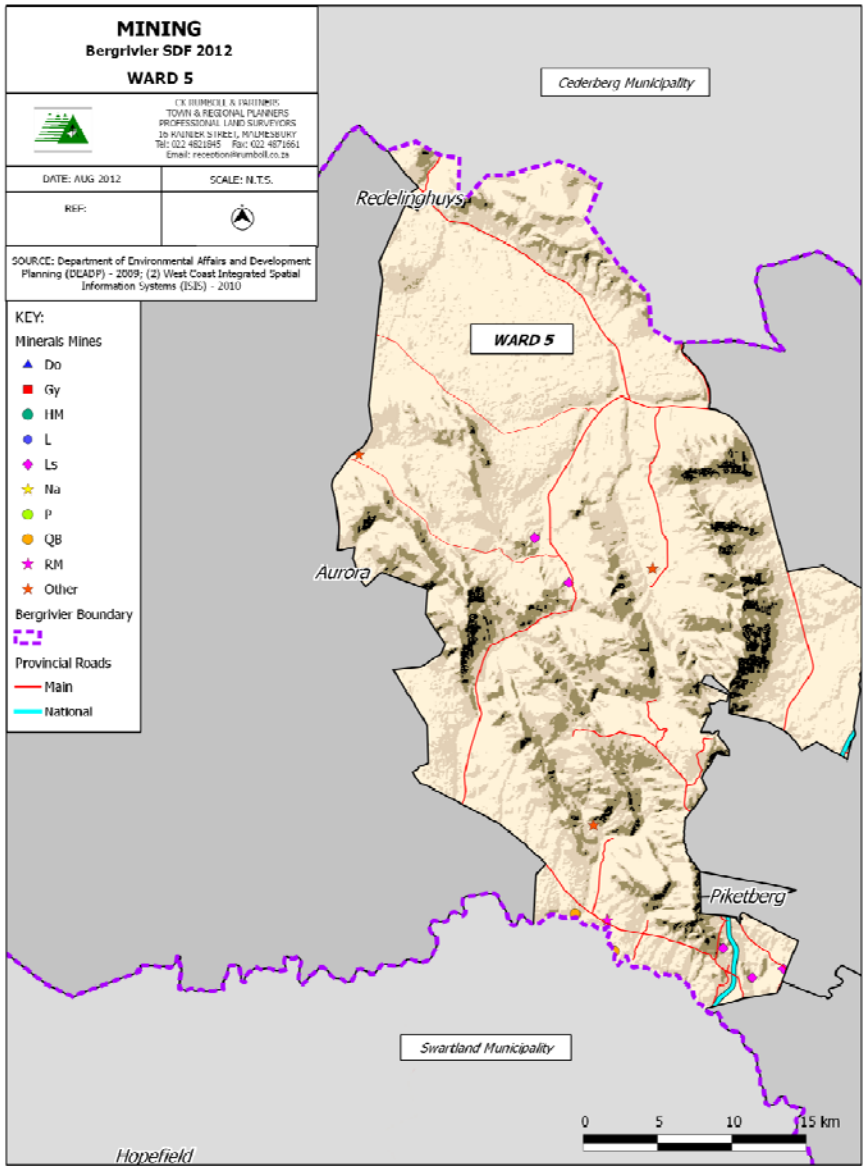
• Limit livestock farming in the village area and next to the river system to limit land use conflict and health risks to the community. Relocate the existing pig sties close to the town to areas outside of the village boundaries.	
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Investigate the potential for provision of individual property rights to residents in accordance with the Genadendal Accord.	Church Council/ Opsienersraad.
Densification: • Support the contained growth of the village within the proposed village edge.	
Commercial	
Proposals	Action Plans
• Support development of mixed and commercial uses along identified activity street.	Church Council/ Opsienersraad.
Social Facilities	
Proposals	Action Plans
• Require multi-purpose centre for community activities; • Development of a new sports field for the community.	Church Council/ Opsienersraad.
Open Space Network	
Proposals	Action Plans
• Maintain an open space network along the river; • Make use of tree planting next to the activity route to act as links between open space areas and for identification of footpaths.	Church Council/ Opsienersraad.

12.8 Rural Development Proposals for Ward 5

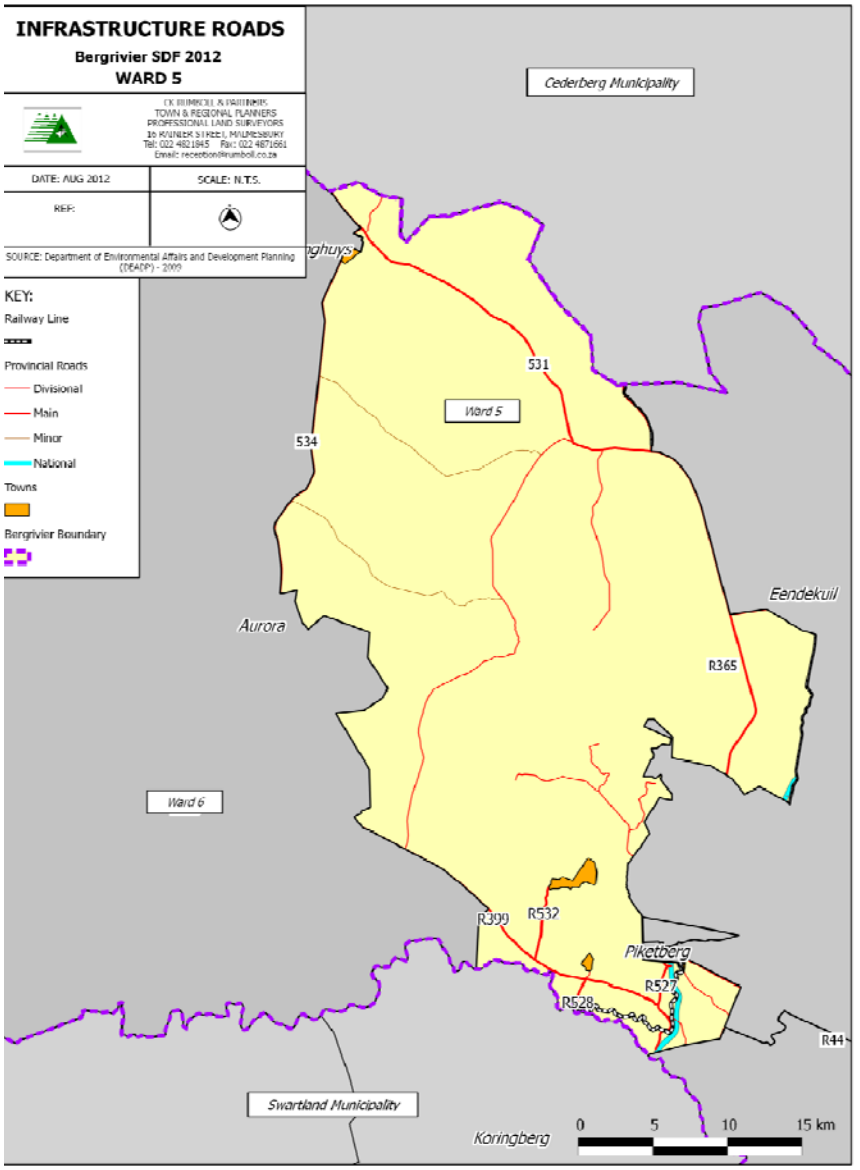
Strategy 1: Support Growth in areas with economic potential		
Management Guidelines	Ward Elements	Proposals
Develop opportunities and promote growth in rural areas with economic potential.	Wittewater, Goedverwacht, De Hoek and Piket Bo-Berg.	• Wittewater and Goedverwacht to serve as tourism service centre. • Development of agricultural potential on the farms of Goedverwacht in accordance with recommendations in the "Geintegreerde Landbouontwikkelingsplan vir Goedverwacht" that was compiled by BKS on behalf of the Western Cape Department of Agriculture in March 2006. The report contains a comprehensive study of the agricultural potential of all the farms which constitute Goedverwacht and also provide various recommendations as to how and where agricultural development should take place on the farm.
Strengthen transport corridors.	N7, R399 & R531; Railway line from Koringberg to De Hoek.	• Strengthen R399 and MR531by encouraging supporting transport infrastructure; • Protect and conserve the agricultural landscape along the N7, R399 and R531; • Promote the use of railway for freight and passengers from Bellville to Piketberg and in particular between Morawia & Piketberg.
Promote communication corridors and zones.	Communication infrastructure on Piketberg Mountains.	• Provide Wittewater, Goedverwacht and Piket Bo-Berg community centres with access to internet.
Promote and allocate alternative energy development zones.	None.	• None.

Strategy 2: Grow and diversify agricultural markets and products		
Management Guidelines	Ward Elements	Proposals
By means of market penetration (Current products and current markets).	Potatoes; Small Grain; Natural veldt flowers and buchu.	• Label products with a Bergrivier corporate label to ensure identification and quality control; • Promote development of niche products such as jams, fruit, sweets and juices, confectionary, bread and chips; • Strengthen the primary agricultural products' supply chain to main markets through adding value to agricultural products and supporting the appropriate zoning; • Promote the production of produce creating work in the Bergrivier rural areas i.e. harvesting veldt flowers (Proteas) and making furniture from the wood of fruit trees.
By means of product development (New products and services).	Conference facilities in rural areas i.e. Dunn Castle, Noupoort, Goedverwacht.	• Promote niche products complimenting commercial agriculture and tourism i.e. conferencing and agri-tourism. • Development of agricultural potential on the farms of Goedverwacht in accordance with recommendations in the "Geintegreerde Landbouontwikkelingsplan vir Goedverwacht" that was compiled by BKS on behalf of the Western Cape Department of Agriculture in March 2006.
By means of market development (New markets).	Film industry – best dusk light for shooting of films.	• Develop new markets for new target groups i.e. locally for the youth, government etc. at a regional, national and international level (i.e. camps exploring farming and conservation combined, conferencing); • Encourage small scale farming i.e. provide smaller agricultural units, commercial farmer mentorships and encourage agri-tourism; • Promote maintenance and cleaning services that create work i.e. clearing alien vegetation in river corridors.
By means of diversification (New products and new markets).	Fruit, potato & grain varieties; Olives; Rooibos tea.	• Promote the Mediterranean climate with warm, dry summers and wet winters (May to August) as a tourism attraction; • Promote the tourism industry within the rural areas as an additional economic source.

Strategy 3: Support sustainable mining developments		
Management Guidelines	Ward Elements	Proposals
Identify all mineral and geological sources with mining potential and determine which of these sources are suitable based on the extent of environmental degrading it will cause and the ability to prohibit such degrading.	Limestone & Gypsum.	• Assign appropriate zoning to suitable resources and support the land use changes required for extracting natural resources.
Support sustainable mining by means of Sustainability Norms to balance economic, environmental and social impacts.	Pretoria Portland Cement, De Hoek.	• Determine sustainable and environmental friendly norms for mining in Bergrivier over and above the norms prescribed by the Department of Mineral Resources.
Mitigate existing impact.	PPC, De Hoek.	• Require landscaping during mining operation.
Rehabilitation.	PPC, De Hoek.	• In case mining proceeds, insist on rehabilitation programmes that are approved by the Department of Mineral Resources; • Control rehabilitation activities and keep licence holders responsible; • Rehabilitate redundant mine sites.
Alternative Transport.	PPC, De Hoek.	• Encourage the use of rail transport (Bellville to Piketberg).



Map 12.8 (a): Mining, Ward 5



Map 12.8 (c): Infrastructure, Roads, Ward 5

Strategy 4: Strengthen mobility and economic links		
Management Guidelines	Ward Elements	Proposals
Strengthen Regional routes.	N7, R399 & R531.	N7: Connect the Cape Metropolis and the North (Namibia); MR399 and R531: Strengthen mobility between urban and rural areas.
Strengthen economic access and links.		Ensure maintenance of existing road networks to keep up the road condition.
Strengthen railways and services.	Railway line from Belville over De Hoek, Piketberg to Bitterfontein.	Upgrade and maintain railway lines to transport agricultural and mining freight; Encourage private operators to promote tourism and to provide public transport between Bellville and Piketberg i.e. combining sports events with rail transport.
Strengthen Communication networks.	See infrastructure strategy.	Create access to information for farm and rural dwellers in Wittewater, Goedgedacht, Piket bo-Berg (including telephone, internet, TV, newspapers and library books).

Strategy 5: Strengthen and develop rural tourism		
Management Guidelines	Ward Elements	Proposals

Strengthen appeal of Tourism destinations.	Banhoek and Stalkranz Private Nature Reserve, Dunns Castle and Noupoort resorts.	• *Agri-tourism destinations:*
		  • Support of tourism accommodation on functioning grain, potatoes and fruit farms;
		  • Strengthen festivals marketing agricultural products;
		  • Connect prominent agri-tourism areas and farm accommodation with tourism routes i.e. wine route;
		  • Support farm stalls within the area to promote rural agriculture and handiwork in the area;
		  • Facilitate the participation of disadvantaged and poor households in tourism i.e. producing handiwork and agricultural products at farms stalls and local shops.
		• *Heritage destinations:*
		  • Promote heritage tourism destinations i.e. Dunns Castle.
		• *Water sport and recreation:*
		  • Enhance opportunities hiking, mountain-biking, canoeing and

		fishing; • Enhance resorts and short term tourism accommodation along Berg River and dams in Ward Five (5) to promote recreation; • Prohibit development within the 1:100 year flood line of rivers and dams. • *Endurance sport and recreation:* • Encourage endurance sport routes and events i.e. mountain-biking and horse riding; • Encourage hiking and walking trails.
Develop Tourism Destinations.	Existing wine and veldt flower route.	• Develop new opportunities i.e. Wheat and potato route, deciduous fruits and rooibos tea and olive route.
Grow Bergrivier as part of the West Coast tourism strategy.	New tourism information brochures per town.	• Develop infrastructure that can support tourism i.e. the upgrading of roads, street lighting in particular on minor roads; • Promote uniform tourism signage, clear information points highlighting the uniqueness of each town and its surrounding rural area; • Map the farms in the Bergrivier Municipal area offering tourism opportunities and link them as part of tourism routes. These routes in turn link Bergrivier Municipality and neighbouring municipalities.

Strategy 6: Regulate rural development according to bioregional planning initiatives.		
Management Guidelines	Ward Elements	Proposals
Determine Core Areas.	Piketberg mountain range, Verlorenvlei and Berg River	• Classify mountains and hills as core 1 & 2 areas; • Determine development line on mountain slopes and hills to promote conservation of remnants of natural vegetation and to ensure the visual integrity of the natural landscape is protected; • Limited fencing between different cadastral units to be managed as a conservation area; • Determine a 30m development setback line along identified rivers; • Any renosterveld should be classified as Core 1 & 2 Areas; • Support existing reserves and conservation areas i.e. Banhoek and Stalkranz private reserves.

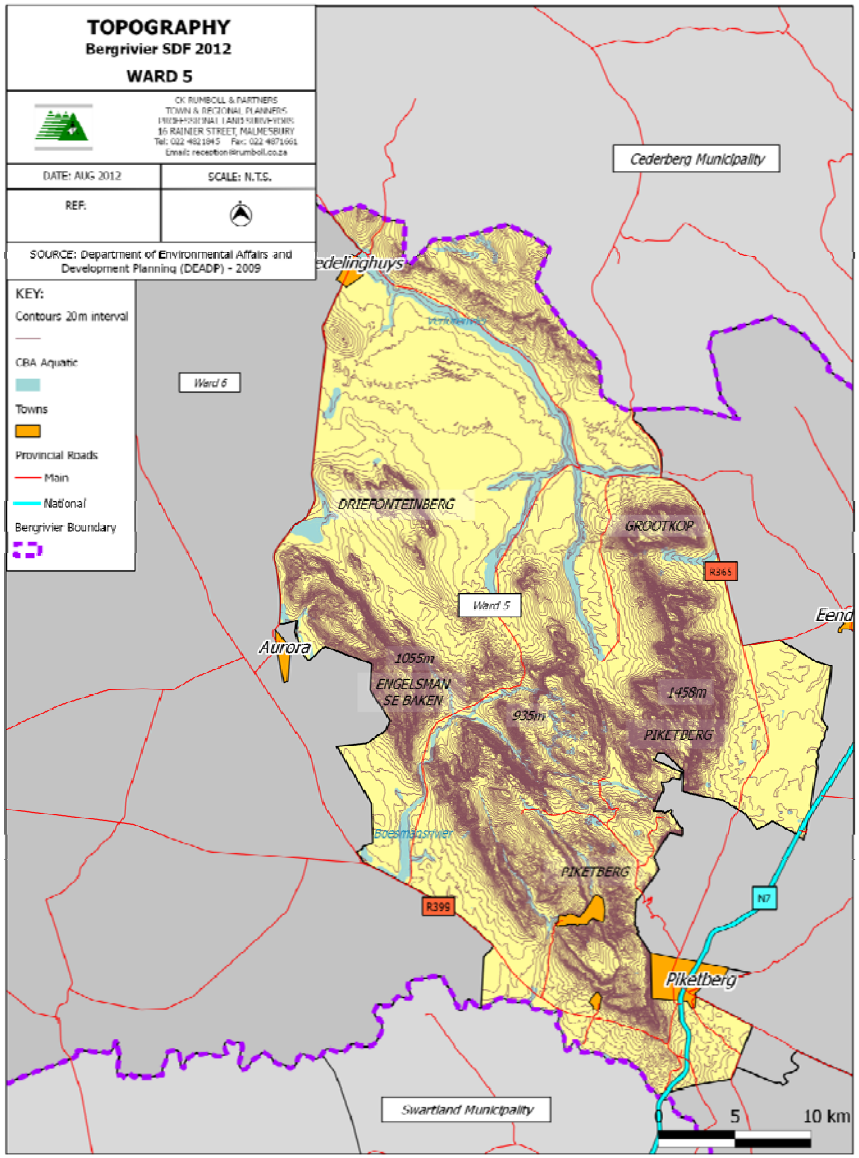
Determine Buffer Areas.	Piketberg mountain range. Verlorenvlei and Berg River.	• Have already initiated a climate change corridor on and around Piketberg mountain range; • Expand conservation area on Piketberg mountain range; • Promote conservation stewardships in the Bergrivier municipal area; • Implement effective overlay zones in rural and urban areas to identify conservation areas; • Support rezoning and consent uses forming part of the rural economic development strategy and blending in with the rural environment.
	Piketberg mountain range, Verlorenvlei, Berg River.	• Determine a development line along Piketberg mountain range; • Development should be sensitive to steep slopes and habitats; • Develop and implement environmental management plans that can be managed at the lowest level.
	Leipoldtville Sandfynbos growing op well-drained sandy coastal plains: low rainfall with hot, dry summers, and mild winters. Experience a limited number of days with morning coastal fog. (Vegetation structure: Medium to tall shrubland, with prominent Restionaceae, Proteaceae, Fabaceae (*Aspalathus*), Polygalaceae (*Nylandtia*), relatively few succulents or deciduous species, and many annuals. Geophytes are fairly diverse, but not abundant. Exceptionally rich in rare, threatened and localized special species) Leipoldtville Sandfynbos is a fire-driven system (once every 15 to 25yrs) (p25-26)	• Classify the most important areas for conservation of endemic species around Aurora, between Redelinghuys and the Engelsman se Baken (Driefonteinberg and areas to south) and the area from Redelinghuys to Paleisheuwel (including Ratelrug) as *Buffer area (buffer 1)*; • Strengthen the Greater Cederberg Biodiversity Corridor (GCBC) project, as it seeks to involve private landowners in conserving key portions of natural habitat in this area. (This vegetation type gets removed for strip cultivation of cereals, potatoes and, to a lesser extent, rooibos); • Prohibit associated effects such as a drop in the water table, which may result in the death of entire groundwater-dependent ecosystems; • No authorization of further transformation of this vegetation type unless offset by significant conservation gains, in accordance with regional guidelines for biodiversity offsets (Department of Environmental Affairs and Development Planning 2007: for every 1ha of intact habitat lost, at least 15ha of the same quality should be conserved); • Prohibit overgrazing; • Prohibit alien invasive plants (primarily *Acacia*), especially in wetlands;
	Sandveld floodplain wetlands occur along the following river systems: • Verlorenvlei; • Sout River (tributary to the south of the Berg River); • Rocher Pan system.	• Classify as Buffer area; • Like the other floodplain types, sandveld floodplains are threatened by infilling, in order to reclaim land for agriculture, development and roads. Salt mining is a major threat, due to the natural salinity of these systems. Water abstraction especially groundwater is predominant in these catchments, and could lead to the drying out of these floodplain wetlands. In particular the presence of boreholes within the floodplains themselves. (p43).

	The rainfall in this area is less than 300mm, which occurs in winter. With the exception of Verlorenvlei, all of these rivers are seasonal in nature. Sandveld floodplains are characterized by: • occurrence on alkaline to neutral silts and sands of varying depth; • presence of subsurface calcretes and clays (water tends to be more permanent in these areas); • saline systems that have a high dependence on groundwater; • much of the flow being subsurface; • wide, sandy systems with braided channels within an even wider floodplain. The wetland type occurring on sandveld floodplains is classified as Cape Inland Salt Pans / Marsh as described above.	
	Sandstone Fynbos Seeps occurs in mountainous areas such as Groot Winterhoek and Piketberg; being both permanent and non-permanent; being drier in summer and inundated in winter. The seeps are fairly densely vegetated, and tend to be dominated by restioid (where sands are deeper) and proteoid fynbos and indigenous grasses. The vegetation type surrounding these seeps is all sandstone fynbos types, primarily Groot Winterhoek Sandstone Fynbos and Piketberg Sandstone Fynbos (p44).	• Classify as Buffer Area; • Prohibit further clearing of dry and wet areas in sandstone fynbos for the cultivation of rooibos. These fields are often placed in wetter, seep areas. This leads to the almost total loss of wetland vegetation in and around these seeps, and so a radical deterioration in the quality of wetland habitat; • Associated with rooibos cultivation, and other crops, is the use of chemicals and fertilizers which tend to alter the water chemistry in wetlands these acid seeps are particularly vulnerable to a change in pH; • Hill slope and basin seeps are threatened by fragmentation, as a result of roads crossing through wetlands, rural development and draining of wetlands; • Protect the fire regime of Sandstone fynbos as alterations thereto would lead to loss of species diversity.

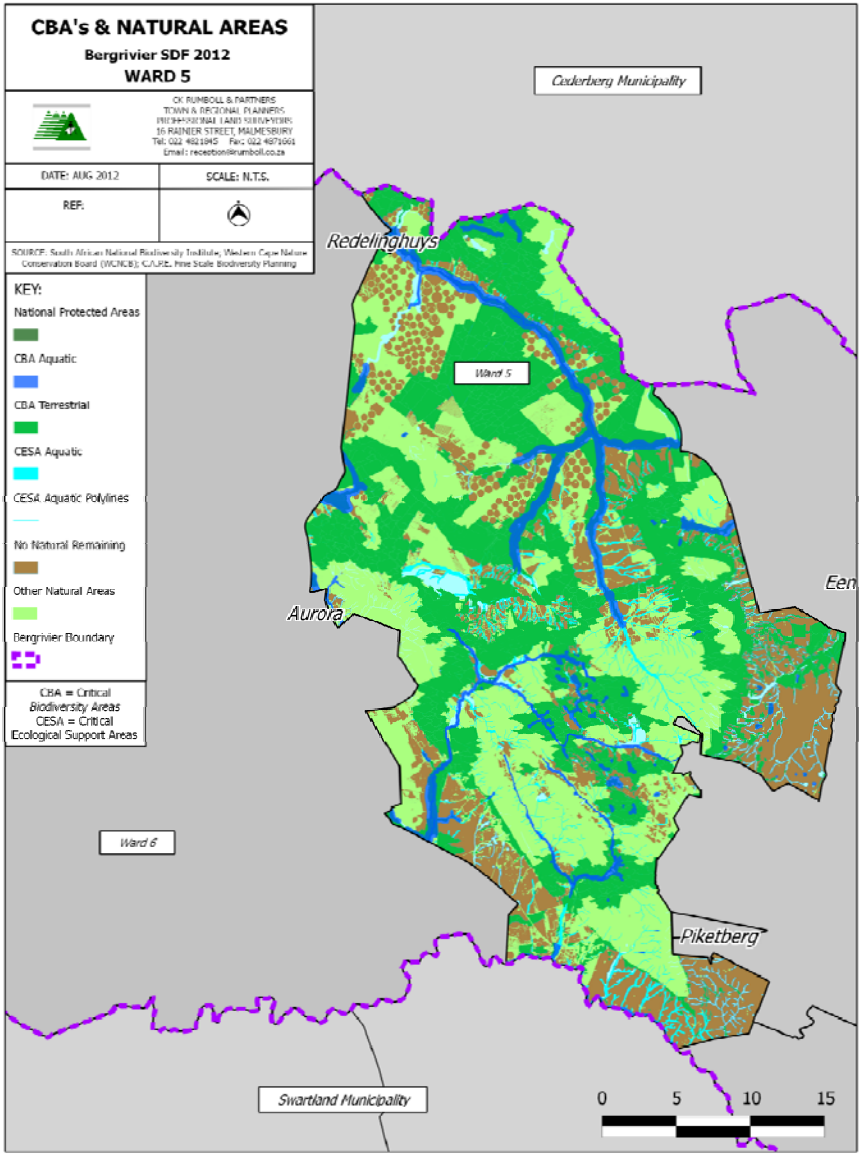
	Sand Fynbos Seep • Sand Fynbos Basin Seeps are characterized by: occurrence on fairly low-lying, flat ground, predominantly around the southern Sout River (tributary of the Bergrivier) and inland of the Rocher Pan system; • occurrence in the vegetation type classified as Hopefield Sand Fynbos; • occurrence on acid sands at altitudes lower than 150m. (p45)	• Classify as Buffer Area;
	Sand Fynbos Hillslope Seeps • The hill slope seeps are located on slightly higher ground, also in the upper catchments of the Verlorenvlei rivers in Leipoldtville Sand Fynbos; • occurrence on acid sands at altitudes lower than 150m.The seeps essentially occupy coastal sand flats. In Leipoldtville Sand Fynbos and Hopefield Sand Fynbos the vegetation is characterized by patches of medium to tall shrubs, which are separated by fairly dense restio lands. The seeps are generally vegetated, dominated by restios and the rush, *Juncus kraussii*, but may be invaded by reeds, such as *Phragmites australis*, and the bulrush, *Typha capensis*, when disturbed. *Sarcocornia natalensis*, which required seasonal freshwater flooding, can occur in sand fynbos seeps.	• Classify as Buffer Area; • Same as sandstone fynbos seeps. Potato and rooibos farming in the north, and wheat in the south, have a significant impact on both wet and dry habitats in the sand fynbos vegetation types. Wetlands, in particular seeps, are being drained and filled in to provide fields for cultivation. This represents large-scale loss of wetland habitat. Where non-isolated seeps are destroyed, the consequences for the downstream catchments will be severe, leading to a loss of surface water in an area where irrigation resources are poor. Groundwater abstraction is having a serious impact on seeps. (p45).
	Renosterveld Hillslope Seep: These seeps are all non-isolated, and mostly located in the southern half of the domain, around the middle Berg River, the Boesmans River (major tributary of the Berg River) and the upper reaches of tributaries of Verlorenvlei. Renosterveld Hill slope Seeps are characterized by: • occurrence in groundwater discharge areas; • location on clays meaning they are probably perched wetlands; • occurrence at fairly low altitudes, on gentle slopes. Most of them lie in the south of the domain in Swartland Shale Renosterveld. These seeps are dominated by sedges and grasses, but are often impacted and so are invaded by kikuyu grass, *Typha capensis* and *Phragmites australis*.	Swartland Shale Renosterveld has been severely transformed, 90% has been totally transformed and the remaining 10% lies in fragments across the landscape. The wetlands lying within this vegetation type have similarly been affected, largely by cultivation and livestock grazing. Many of these renosterveld hill slope seeps lie on the lowlands, which are ideal for agriculture, and so these habitats are highly threatened.
	A mix of isolated and non-isolated sandstone fynbos depressions occur in the Boesmans River (tributary of the Berg River) catchment. When vegetated they tend to be dominated by restioid and proteoid fynbos. The vegetation type surrounding the majority of these depressions is Piketberg	The sandstone fynbos depressions are mostly impacted by the cultivation of crops mostly wheat in the Piketberg area. These seasonal systems are vulnerable to changes in hydrology such as the result of ground- or surface water abstraction. They are vulnerable to invasion by

	Sandstone Fynbos, and the remainders are within Graafwater, Olifants and Cederberg Sandstone Fynbos. Sandstone Fynbos Depressions are characterized by: • being seasonal, shallow systems and dependent on annual rainfall; • occurrence at altitudes above 200m in gently sloping terrain; • occurrence on acids sands, • situated in groundwater recharge areas.	reeds, such as *Phragmites australis*, and bulrush, *Typha capensis*, where disturbed or where water is more permanent.
Determine other Natural Areas.	Graafwater Sandstone Fynbos: Widespread and common within this area, wherever there are semi-arid sandstone habitats. Occurs west of the Cederberg and all the way to the coast near Elands Bay. Forms distinct islands surrounded by Leipoldtville Sand Fynbos on the deeper sands. Typically at moderate to low elevation, and is replaced by Olifants, Piketberg and Cederberg Sandstone Fynbos in wetter positions. Typical formation is a heavily weathered sandstone cap, sandy slopes with scattered rocks, and small sandy plateaus. Small Afrotemperate forest patches often associated with sheltered positions in this unit, especially on south and southeast aspects, but these are usually small. (Quite variable, but basically hot and dry in summer and mild in winter. The more coastal areas (such as Baboon Point) are exposed to extensive sea fogs, which undoubtedly supplement the available moisture.) Vegetation structure: Typically a medium to tall shrubland, with extensive thicket elements in more fire protected areas. Deeper sands dominated by Restionaceae, often with prominent Proteaceae. Prominent displays of annuals, especially in burnt areas. Moderate diversity of bulbs. Succulents may be common, especially on rocky outcrops, where dwarf succulents and bulbs (in very shallow soils) may be a feature). This unit supports a large number of rare, threatened, or localized plant species, some of which are shared with Leipoldtville Sand Fynbos. Most of the Proteaceae listed under typical species are currently Red Data listed.	• Classify as *Other Natural Areas;* • Landowners should be encouraged to burn most areas once every 15-20 years. This is a fire driven system, and as many fragments are in close proximity of agricultural fields, fires are strongly resisted by landowners. Thus the natural vegetation is becoming senescent, with species loss possible in the near future; • Further fragmentation of this habitat should be avoided, especially where natural habitat borders on Leipoldtville Sand Fynbos and upland areas; • Remove alien invasive vegetation; • Rooibos tea farming should ideally be conducted within the natural veldt, on an organic basis, without wholesale ploughing. At the very least strips of natural vegetation (minimum of 15m wide) should be left between ploughed strips (to reduce soil erosion and wind damage to young rooibos, and to maintain ecological connectivity), and ideally rooibos should be interplanted in extant vegetation and hand harvested, without spraying of harmful chemicals. (p29-30); • All wetland areas within this unit are high priority conservation areas, as are all known point localities for special species.

	Piketberg Sandstone Fynbos occurs mainly on the Piketberg Mountains in a triangle from the town of Aurora to Het Kruis, and on to the town of Piketberg. The vegetation type occurs from 100 to 1458m on Piketberg's Sebrakop. The landscape is characterized by steep slopes with small plateaus and peaks. The soils are acidic and derived from Table Mountain Sandstone. Vegetation structure: Consists of restio dominated moister sands that become shrubbier as aridity increases. Proteoid and asteraceous fynbos dominate in the rocky areas. Cape Thicket is prominent as well.	• Classify as *Other Natural Vegetation.* This vegetation type has no formal conservation areas protecting it. It is the most transformed (agriculturally for fruit production) mountain fynbos vegetation type in the biome, yet regarded as the Least Threatened vegetation type; • Priorities eradication *Acacia saligna*, an alien invasive plant, is scattered over wide areas. (p32-33).
Determine Intensive Agricultural Areas.	Extensive small grain farming areas; Intensive deciduous fruit farming areas; Intensive potato farming areas; Extensive rooibos tea farming areas.	• Identify extensive and intensive agricultural areas; • Promote conservation and agriculture i.e. the Biodiversity and Wine initiative promoted by the Western Cape Wine industry; • Incentivise land owners to manage natural veldt as an asset for the environment and for the owner; • Focus conservation priorities primarily on the benefit for landowners to ensure sustainable conservation projects; • Encourage a change in legislation to incentivise land owners in the conservation of fynbos; • Reflect the hydrological-, plant-, management- and economic value of fynbos (high economic value) in policies and directives; • Remove alien vegetation and increase water volumes and biodiversity; • Prohibit potential veld fires and promote the appearance of the mountain landscape; • Manage the necessary veldt fires to ensure seeds germinate; • Promote animal health through conservation of fynbos providing for a rich mixture of micro-nutrients for neighbouring fields and land associated with grazing (Kemper, 1999).



Map 12.8 (c): Topography, Ward 5

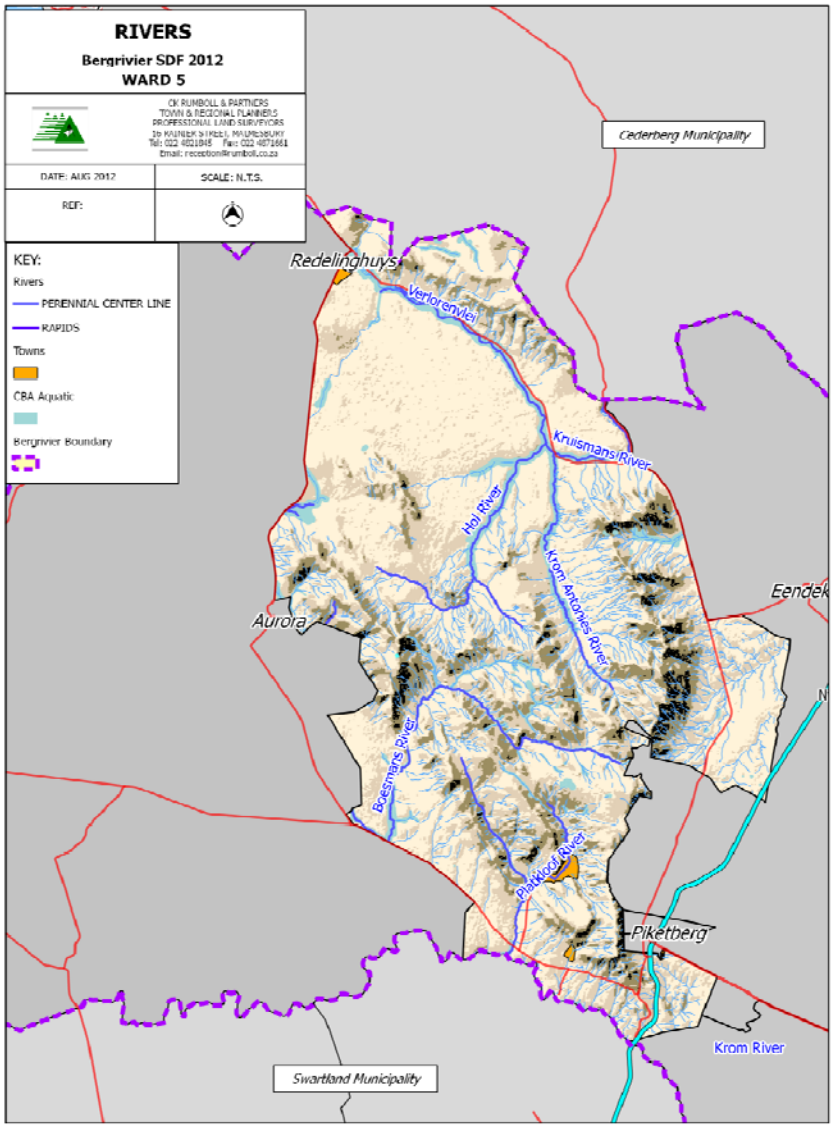


Map 12.8 (d): CBAs & Natural Areas, Ward 5

Strategy 7: Conserve and strengthen the cultural and heritage landscape		
Management Guidelines	Ward Elements	Proposals
Protect the cultural landscape.	Goedverwacht, Wittewater Noupoort, Dunns Castle resorts Banhoek & Stalkranz private reserves.	• Promote festivals and celebrations providing opportunities to promote the local produce and hospitality of the Bergrivier to attract tourism; • Promote open days; • Expand limited accommodation and restaurant facilities.
Protect and promote the heritage landscape.	Goedverwacht, Wittewater, Genadeberg Noupoort, Dunns Castle resort, Banhoek & Stalkranz private reserves.	• Recognize the following heritage landscapes: o Preserved natural landscape; o Traditional hunting and grazining area; o Landscape of Colonial- Indigenous trade and contact; o The agricultural production landscape; o Water landscape; o Landscape of scenery and Attractions; o Historic town landscape.
Establish climate change corridors and conservancies.	Piketberg Mountains; Piketberg mountain is a geological island of Table Mountain Sandstone in the sea of shale and acid sands leading to a high number (more than 20) of endemic plant species. (p19). Verlorenvlei and Berg Rivers.	• Use existing reserves as basis of corridor; • Corridor to extend along the complete mountain range.
Develop a tourism train route that includes dilapidated railway stations.	Wittewater.	• Establish and promote a route linking historical farms and grain production infrastructure i.e. mills and silos across municipal boundaries; • Rejuvenate Wittewater station; • Promote archaeological routes in Piketberg mountain.

Strategy 8: Protect and strengthen the visual agricultural landscape		
Management Guidelines	Ward Elements	Proposals
The strengthening of the transport corridor should support the agricultural landscape.	N7, R399 & R531.	• Any infrastructure or facilities should blend in with the environment (not contrast with the environment too much) and the feeling of untouched agricultural landscape should be created.
Enhance food production whilst protecting the natural veldt.	Wine, deciduous fruit, small grain production, potatoes, rooibos and buchu.	• Promote alternative uses on critical conservation areas that can promote conservation of the natural areas.
Protect and promote the agricultural landscape by growing appropriate crops, winter crops under dry land conditions and summer crops under irrigation where available.	Intensive fruit, wine and potato farming; Extensive grain and buchu farming.	• Limit water erosion through protective preparation methods and the planting of perennial crops and establish and maintain contours; • Promote independence from mainstream crops and livestock production through smaller farm units, alternative land uses promoting conservation of natural and endangered vegetation and alternative income for farmers i.e. resorts and agri-tourism.

Strategy 9: Protect water sources and catchment areas		
Management Guidelines	Ward Elements	Proposals
Protect water resources i.e. rivers and boreholes.	Verlorenvlei and Berg Rivers.	• Implement development setback for Verlorenvlei and Berg rivers; • Remove alien vegetation to prohibit destructive floods; • To protect boreholes against pollution implementing an agricultural development set back line; • Declare Verlorenvlei and Berg River as a water zone (in conjunction with Cederberg and Swartland Municipality); • Protect aquatic and associated ecosystem and biological diversity.
Promote reuse and saving of water.		• Support the establishment of water tanks at houses to collect water from roofs and to use water; • Monitor irrigation schemes for sustainable water use.



Map 12.8 (e): Rivers, Ward 5

Strategy 10: Promote food security		
Management Guidelines	Ward Elements	Proposals
Develop a strategy for grain farms that are smaller than 500ha to not be reliant on grain as their only crop.	Extensive small grain and buchu farming areas; Intensive deciduous fruit and potato farming areas.	• Diversify crop and live stock production; • Encourage alternative farming methods i.e. sprouting; • Promote agricultural units of different sizes: units (20-50 ha), small holdings (5-20 ha) and extensive residential holdings (<5ha); • Identify areas with low potential agricultural soil for alternative supportive uses to agriculture i.e. small holdings and tourism facilities; • Support the development of facilities such as tourism facilities and farm stalls as consent uses on land zoned Agricultural Zone I.
Strengthen associations to promote community participation in local development issues and to determine land use-/ zoning guidelines.		• Associations to monitor conflicting land uses, coordinate renewal and upgrading projects; • Associations to promote production of food and to access appropriate distribution networks.

Strategy 11: Provide housing		
Management Guidelines	Ward Elements	Proposals
Provide subsidised housing of which at least 25% is earmarked for farmworkers.		• Support the provision of own housing for farm workers in existing urban area i.e. Piketberg close to work opportunities to ensure ownership and to limit commuting between home and work ; • Support provision of housing for farm workers on farms in Piket Bo-Berg.

Strategy 12: Identify and develop viable land reform opportunities		
Management Guidelines	Ward Elements	Proposals
Focus on commercial opportunities rather than existence farming, as agriculture is one of the main economic activities in Bergrivier and a primary staple diet (i.e. grain) producer.		• Promote out of stream aquaculture along the Verlorenvlei and Bergrivier and in farm dams; • Encourage: o Keeping underground water sources clean; o Non soil based production (tunnel and hidroponica); o Intensive feed farming or free range poultry; o Urban agriculture, local consumption and domestic food production for own use; o Green & alternative energy generation.

Strategy 13: Provide and support sustainable rural infrastructure and services		
Management Guidelines	Ward Elements	Proposals
Provide and deliver rural infrastructure and services.	Water scarcity of potable water; Need for transfer stations in densely populated areas (Heuningberg and Groote Winterhoek).	Water: • Promote the harvesting and collection of water; • Provide sufficient storage capacity for drinking water. Sanitation: • Investigate the provision of individual sewerage works (not connected to existing networks) to small rural settlements or densely populated farms; • Promote and implement the West Coast District Municipal Rural Bathroom subsidies through liaison with relevant land owners; • Provide sewerage services as per national norms in all rural towns. Electricity: • Support the installation of sufficient transformers to provide electricity to households or settlements that have not access to electricity in rural areas; • Promote use of alternative energy generation techniques i.e. solar water heating etc. Waste: • Establish transfer stations at appropriate location at Piket Bo-Berg mountain farming area and in Goedverwacht and Wittewater.

Provide and support multipurpose community services and infrastructure.	Community centres at Piket Bo-Berg.	• Interspersed community service centres, should deliver services at Piket Bo-Berg; • Local artists and entrepreneurs should be encouraged during visits to exhibit their goods at the multipurpose centres and particularly during service days; • Adult Education and Training and family literacy should be promoted at multipurpose centres and within the existing infrastructure; • Make Further Education and Training accessible by public transport or make venues available for part time classes.
Provide for cemeteries.	Private on Farm cemeteries	• Maintain cemeteries, public and private as part of open space systems and hiking trails.
Provision, expansion and support of public transport infrastructure and transport modalities.	Private taxis; Railway between Koringberg and Piketberg over Wittewater.	• Determine viability of affordable public transport system along routes on Piket Bo-Berg; • Determine the viability of public transport on existing railways connecting Wittewater and Piketberg; • Improve and develop additional bus and taxi shelters; • Improve the directions and signage at transport pick up points.

WARD 6
AURORA, DWARSKERSBOS and REDELINGHUYS

12. 9 AURORA

12.9.1 Aurora IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the *Bergrivier Local Economic Development Plan (LED)* and the *Bergrivier Integrated Development Plan (IDP)* for Aurora were integrated with the spatial planning proposals for Aurora. The list of priorities and needs as identified in the IDP and LED is attached as an addendum to the Bergrivier SDF.

12.9.2 Demarcation of Aurora Urban Edge

Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning were taken into consideration in the demarcation of the urban edges of all the towns in the Bergrivier Municipal area. The table identifying the informants for the demarcation of the urban edge of Aurora is included as an Addendum.

The following table describes the sections of the urban edge for Aurora in terms of the above criteria as stipulated by the Provincial Urban Edge Guidelines. The different segments of the urban edge are also clearly marked on the map.

Delineation of Aurora Urban Edge		
Edge Segment	Criteria of segment	Description of edge
1	Cadastral boundary	Northern boundary of town along slopes
2	Prominent landform – Aurora Mountain	North eastern boundary found along foot slopes of Aurora Mountain
3	Agricultural land	South eastern boundary of town
4	Bulk Service Infrastructure Barrier – Transfer station and rehabilitation of old landfill site	South western boundary Expansion of cemetery to south of transfer station Limited future expansion potential for light industrial uses

5	Cadastral boundary of Airstrip	Provide area for future expansion of town for residential development
6	Cadastral boundary	Western boundary of town. Allow for future expansion of town

The urban edge of Aurora was maintained as a tight edge similar to the edge proposed in the Bergrivier SDF of 2008. Due to the low growth rate, low development potential of Aurora and the existing vacant erven in town there is no immediate need to provide for additional land for expansion. Any existing waiting list for subsidised housing should be accommodated in the larger towns of Piketberg, Velddrif and Porterville to ensure sustainable development of all towns. The focus of development in Aurora should be on the maintenance and support of infrastructure services and the development of a stronger business node in town. Aurora has a well developed social infrastructure which should be maintained and further developed to support the social development of especially the youth. The town also provide aspects for further development of the tourism industry together with the rural character of town, the beautiful setting against the backdrop of the Aurora Mountain and the Mc Clear beacon to the north of town.

12.9.3 Aurora Spatial Planning Proposals

The following spatial planning proposals were combined with inputs from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the urban area of Aurora. The proposal needs to be read together with the Aurora Spatial Proposals map.

The following table provides an overview of the growth model used in the determination of additional land required in Aurora:

Town	Projected Growth in Population 2012-2017 (Growth rate: 0.5% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Aurora	18	5	60	65	-	80	62	1.6ha	2.5ha

Table 12.9.3(a): Additional land required in Aurora

The proposed densification target as identified for Aurora is included in the table below:

Densification targets for Aurora		
Town	Existing density in town	Average density targets
Aurora	4du/ha	10du/ha

Table 12.9.3(b): Proposed Densification targets for Aurora.

Aurora Spatial proposals Refer to Aurora Spatial Proposal Map	
Connectivity and Mobility Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of accessibility to business uses and for the tourism industry.	
Proposals	Action Plans
Roads: • Support development of mixed and commercial uses along identified activity streets in Aurora; • Plan for the tarring of Hof Street; • Provide street names for better identification of streets in town; • Maintain streets in town, improve stormwater flow on roads to limit damage to roads from runoff from Aurora Mountain to the east; • Provision of adequate parking around market square; • Upgrading of provincial roads in surrounding area to improve accessibility of Aurora in terms of surrounding towns – Piketberg/ Velddrif road, Aurora/Redelinghuys road and Redelinghuys/Elands Bay road. Pedestrian routes: • Provide street lights along Hof Street to improve safety of pedestrians; • Support formal pedestrian routes along activity streets to improve connectivity in town; • Develop formal pedestrian route along Hof Street to improve safety of children using the route; • Investigate hiking trails in Aurora Mountain. Airstrip: • Proposed upgrade of the Airfield.	As per IDP and municipal budget.

Public Transport: • Improve mobility of local residents through the provision of public transport to surrounding larger centres.	
Public Areas Public areas represent the areas in the towns where people gather informally and where there is interaction between peoples. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sports grounds.	
Proposals	Action Plans
Public Nodes: • Support the renewal of the central market square as an important local public node to support high quality public areas to support it as an important social node as well as area for open air market; • Improve existing public park in southern neighbourhood. Cemeteries: • Limited area available in cemetery – allow for future expansion of cemetery to the east (south of Transfer Station). Conservation Areas: • Potential for conservation area in Aurora Mountain. Heritage Conservation: • Dutch Reformed Church and church residence provide important cultural Heritage features in Aurora.	As per IDP and municipal budget.
Service Infrastructure	
Proposals	Action Plans
Water: • Improve Water quality and supply; • Support rain water harvesting through tanks on urban erven (apply for subsidies). Sewerage: • Investigate the provision for Oxidation ponds and identify site for location of these ponds; • Future development of water borne sewer system for Aurora. Stormwater:	Master Plan for the provision and maintenance of bulk infrastructure provision for Aurora to inform the infrastructure budget.

• Improve stormwater management – provide cement gutters to formalize stormwater runoff from Aurora Mountain; Refuse Removal: • Close and rehabilitate solid waste disposal site/ Implement recycling through the provision of facilities for different recycled materials.	
Tourism	
Proposals	Action Plans
• Support Bed & Breakfast opportunities in town; • Support development of facilities to support tourism, for example Restaurant/coffee shop; • Agri-tourism on surrounding farms; • Development of botanical garden; • Funding to improve and market De la Caille (Mc Clear beacon) in support of tourism industry in Aurora.	Tourism Bureaux.
Land Reform	
Proposals	Action Plans
• Identify areas for community gardens and livestock farming on commonage to improve the local community's access to food security; • Support the development of erven to allow farm workers ownership and to ensure security of tenure for them.	Council to make identified land available.
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Support the inclusion of different densities and type of residential development in Aurora – allow for medium density residential development (group housing) along activity streets and on larger properties; • Opportunities for infill residential development exist in town and should be supported through subdivision and introduction of a broader spectrum of housing types; • Support the development of the existing vacant low cost residential	Housing Strategy as linked to IDP and municipal budget.

erven in Aurora; • Allow farm workers access to erven in town to support security of land tenure; • Any future subsidised housing demand in Aurora should be accommodated in larger centres such as Piketberg, Velddrif, Eendekuil and Porterville to support sustainable development in the towns; • Keep housing waiting list up to date.	
Densification: • Densification in Aurora should consider the rural character of the town and the immediate surrounding area. Densification can be achieved through: o Subdivision of larger erven, and o Infill development on larger erven; • Higher density residential development along activity streets; • Maintain the *"cupcake"* urban form, with infill development and a renewal of town centre to support an integrated urban centre. This principle supports the densification of the centre of town.	
Commercial	
Proposals	Action Plans
• Support commercial development around the public market square and along Hoof Street as an activity street; • Support the development of potential smaller business node in neighbourhood on the south eastern section of town; • Support the development of Small, Medium and Macro Enterprise to improve job opportunities in town through potential self-employment. • Support house shops and professional services along activity routes.	As per IDP.
Industrial	
Proposals	Action Plans
• Limited opportunity for light industrial development on south western boundary (existing vacant warehouse south of show grounds) with potential for future expansion to the west.	As per SDF.
Education	

Proposals	Action Plans
• Potential redevelopment of old school site (corner of Buitekant Street and Hof Street) for crèche site and/or infill residential.	School/ Department of Education.
Sport Facilities	
Proposals	Action Plans
• Upgrading of the kiosk on the sport grounds to further support this well developed facility; • Sports grounds to act as a functional open space area; • Support development of youth sport programmes.	As per IDP priority list.
Social Facilities	
Proposals	Action Plans
• Need for a permanent police station in town; • Need for a skills development centre to improve the local community's access to economic opportunities.	SAP budget. Municipal budget/ partnership.
Open Space Network	
Proposals	Action Plans
• Improve the development of the Market Square as a functional open space area in Aurora; • Link Market Square with sports grounds along Main Street. Provide tree planting along the link to act as a link/extension between the two prominent open space areas; • Make use of tree planting next to the activity route to act as links between open space areas, example Market Square and the sport grounds; • Aurora Mountain backdrop provides opportunity for an active open space area that can link with the town; • Support the development of hiking trails on Aurora Mountain that link with the open space system in town.	As per municipal budget.

12.10 DWARSKERSBOS Proposals

12.10.1 Dwarskersbos IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the ***Bergrivier Local Economic Development Plan (LED)*** and the ***Bergrivier Integrated Development Plan (IDP)*** for Dwarskersbos were integrated with the spatial planning proposals for Dwarskersbos. The list of priorities and needs as identified in the IDP and LED is attached as an addendum to the Bergrivier SDF.

12.10.2 Demarcation of Dwarskersbos Urban Edge

Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning were taken into consideration in the demarcation of the urban edges of all the towns in the Bergrivier Municipal area. The table identifying the informants of the demarcation of the urban edge of Dwarskersbos is included as an Addendum.

The following table describes the sections of the urban edge for Dwarskersbos in terms of the above criteria as stipulated by the Provincial Urban Edge Guidelines. The different segments of the urban edge are also clearly marked on the map.

Delineation of the Urban Edge of Dwarskersbos		
Edge Segment	Criteria of segment	Description of edge
1	Beach/Primary dune/Atlantic Ocean	Western boundary of town along the beach.
2	Boundary of urban development/ Natural Vegetation	Northern boundary of Kersbosstrand
3	Natural vegetation / Infrastructure barriers (Velddrif/Elands Bay road)	North eastern boundary of town
4	Allow expansion of edge to accommodate additional land	Allow for limited expansion adjoining existing medium density residential development and community facility and resort To strengthen the central community/business node
5	Cadastral boundary of Slakkepas development and limited expansion behind current business node	Provide additional land around existing business and school to strengthen the central business/community node.
6	Allow for additional developable land	Allow for expansion on eastern side of Velddrif/Elands Bay road at southern entrance to town to accommodate future development and to support a more contained urban structure.
7	Natural Vegetation	No future expansion along beach/natural vegetation.

The urban edge of Dwarskersbos was maintained as a tight edge with limited area allowed for expansion. The area for expansion was identified around existing developments east of the entrance road to create a more functional urban form. The area for residential infill development immediately east of the southern entry road to Dwarskersbos will counteract linear development along the beachfront. This area of expansion is still within walking distance from the beach and will strengthen a more compact urban form. There is ample vacant erven available in Kersbosstrand.
The focus of development in Dwarskersbos should be on the maintenance and support of infrastructure services to support the influx of holiday makers over the holiday periods and to development a stronger central business/community node in town. The conservation of the area located between the beach and the road, between Laaiplek and Dwarskersbos should be investigated. A fossil bank has also been identified in this area.

12.10.3 Dwarskersbos Spatial Planning Proposals

The following spatial planning proposals were combined with input from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the urban area of Dwarskersbos. The proposal needs to be read together with the Dwarskersbos Spatial Proposals map.
The following table provides an overview of the growth model used in the determination of additional land required in Dwarskersbos:

Town	Projected Growth in Population 2012-2017 Growth rate: 4.15% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Dwarskersbos	212	53	0	53	53	410	0	0	0

Table 12.10.3(a): Additional land required in Dwarskersbos

It should be noted that the above growth model was determined by using a predicted population growth percentage. It is always very difficult to predict the demand for holiday houses in coastal towns. In order to stimulate economic growth in Dwarskersbos and to normalise the urban structure of the town am small area of additional land for expansion was identified to the immediate east of the southern entry road.
The proposed densification targets as identified for Dwarskersbos are as follows:

Densification targets for Dwarskersbos		
Town	Existing density in town	Average density targets
Dwarskersbos	5.8du/ha	15du/ha

Table 12.10.3(b): Proposed Densification targets for Dwarskersbos.

<table>
<tr><th colspan="2">Dwarskersbos
Spatial proposals
Refer to Dwarskersbos Spatial Proposal Map</th></tr>
<tr><td colspan="2">Connectivity and Mobility
Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of accessibility to business uses and for the tourism industry.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Roads:
• Support development of mixed and commercial uses along identified activity street;
• Provision of adequate public parking at beachfront.

Pedestrian routes:
• Provide boardwalk access from public parking areas to beach across primary dune, to limit impact on dunes;
• Support safe pedestrian routes along activity streets to improve connectivity in town;
• Investigate hiking trails along beach between Velddrif and Dwarskersbos.</td><td>As per IDP and municipal budget.</td></tr>
<tr><td colspan="2">Public Areas
Public areas represent the areas in the towns where people gather informally and where there is interaction between peoples. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sports grounds.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Public Nodes:
• Support the development of a public picnic area next to the beach along the southern periphery of town to formalise day-long camping in this area and to limit uncontrolled access to this area;
• Provide for Public toilets at beachfront – at public parking area;
• Strengthen the existing public node at the caravan park and community hall.
Conservation Areas:
• Potential for conservation areas to the north and south of town next to the beach.</td><td>As per IDP and municipal budget.
Upgrade ablution blocks at Resort.</td></tr>
</table>

Heritage Conservation: • Farmstead to the east of town provides a potential important cultural heritage area.	
Service Infrastructure	
Proposals	Action Plans
Sewerage: • Fence the Waste Water Treatment Plant located to the north to town.	As per capital budget of municipality.
Tourism	
Proposals	Action Plans
• Development of hiking trail between Velddrif and Dwarskersbos along beach; • Support application for Blue Flag[2] status of Dwarskersbos Beach; • Investigate the development of a picnic area immediately south of the town boundary to limit uncontrolled pedestrian/vehicular access to the beach in the area between Laaiplek and Dwarskersbos.	Tourism Bureaux. Upgrade ablution blocks at Resort.
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Support the inclusion of different densities and type of private residential development in Dwarskersbos – allow for medium density residential development (group housing) along activity streets; • Opportunities for infill private residential development exist to the east of the southern entrance to town; • Introduction of a broader spectrum of housing types (private) to allow for a more sustainable town that provides for various housing options.	Housing Strategy as linked to IDP and municipal budget.

[2] *Blue Flag status is an international grading system that declares a beach as a Blue Flag beach after having met certain international standards. Blue Flag beaches are sought after and add appeal in terms of tourist attraction to a certain area, sepcifically for tforeigners who are aware of the grading systemand itsassurities. "FEE's (Foundation for Environmental Education) Blue Flag criteria include standards for water quality, safety, environmental education and information, the provision of services and general environmental management criteria*

Densification: • Allow for higher density residential development along activity streets – consider the existing west coast character of the town in future higher density developments; • Allow greater mix of densities in new developments to the east of entrance road to provide for more housing types.	
Commercial	
Proposals	Action Plans
• Support commercial development along activity streets east of community hall and at existing business sites immediately north of school as well as in identified Business nodes in Kersbosstrand; • Develop tourist related commercial facilities in business node in Kersbosstrand - as the only business premises in Dwarskersbos with direct access and views of the beach.	As per IDP.
Education	
Proposals	Action Plans
• Maintain existing school as part of the central node of town.	As per SDF.
Open Space Network	
Proposals	Action Plans
• Maintain the open space networks along the primary dunes, and within Kersbosstrand between the surrounding natural areas and the beach; • Make use of tree planting next to the activity route to act as links between open space areas; • Support the development of hiking trails along the beach to provide open space links between Dwarskersbos and Laaiplek; • Support the conservation of the beach corridor between Laaiplek and Dwarskersbos – link to primary dune in Dwarskersbos.	As per IDP priority list.

12.11 REDELINGHUYS

12.11.1 Redelinghuys IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the ***Bergrivier Local Economic Development Plan (LED)*** and the ***Bergrivier Integrated Development Plan (IDP)*** for Redelinghuys were integrated with the spatial planning proposals for Redelinghuys. The list of priorities and needs as identified in the IDP and LED is attached as an addendum to the Bergrivier SDF.

12.11.2 Demarcation of Redelinghuys Urban Edge

Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning were taken into consideration in the demarcation of the urban edges of all the towns in the Bergrivier Municipal area. The table identifying the informants for the demarcation of the urban edge of Redelinghuys is included as an Addendum.

The following table describes the sections of the urban edge for Redelinghuys in terms of the above criteria as stipulated by the Provincial Urban Edge Guidelines. The different segments of the urban edge are also clearly marked on the map.

Delineation of the Urban Edge of Redelinghuys	
Edge Segment	Criteria of segment
1	Verlorenvlei River on northern side of town
2	Existing cadastral boundary on eastern border of town
3	Newly created cadastral boundary on eastern border of town
4	Newly created cadastral boundary on southern border of town
5	Existing cadastral boundary to the south
6	Existing cadastral boundary to the south
7	Existing cadastral boundary on the western side of town

The urban edge of Redelinghuys was drawn tighter than the existing edge as in the Bergrivier SDF of 2008. Due to the low growth rate and low development potential of the town there is no need to provide for subsidised housing in Redelinghuys and this housing should be accommodated in the larger towns of Piketberg and Velddrif/ Laaiplek to ensure sustainable development of all towns. Redelinghuys has a well developed social infrastructure which should be maintained and further developed to support social development. The town also provides aspects for further development of the tourism industry according to the proposed projects.

12.11.3 Redelinghuys Spatial Planning Proposals

The following spatial planning proposals was combined with inputs from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the town of Redelinghuys. The proposal needs to be read together with the Redelinghuys Spatial Proposals map.

The following table provides an overview of the growth model used in the determination of additional land required in Redelinghuys.

Town	Projected Growth in Population 2012-2017 (growth rate: 0.4% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Redelinghuys	35	9	140	149	2	153	147	4ha	6ha

Table 12.11.3(a): Additional land required in Redelinghuys

The proposed densification targets as identified for each of the towns within the Bergrivier municipal area are as follows:

Densification targets for Redelinghuys		
Town	Existing density in town	Average density targets
Redelinghuys	4.3du/ha	10du/h

Table 12.11.3(b): Proposed Densification targets for Redelinghuys.

Although enough vacant erven are available to accommodate the required extension as stated above these erven are all privately owned, therefore infill is being proposed on municipal land (see proposals map).

REDELINGHUYS Spatial proposals Refer to Redelinghuys Spatial Proposal Map	
Connectivity Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of accessibility to business uses and for the tourism industry.	
Proposals	Action Plans
Roads: • Provincial roads in poor condition. Piketberg/ Elands Bay and Redelinghuys/ Aurora provincial roads to be upgraded; • Improve roads in poor condition and in need of maintenance e.g. Smit Street; • Public transport. Activity routes (Spatial Integration): • 2 Main roads in Redelinghuys, Oeloff Bergh and Voortrekker, to be developed with commercial uses in place alongside road. Pedestrian routes: • Support easy pedestrian access (condition of pavements with proper paving) along activity streets to improve connectivity in town; • Investigate hiking trails in surrounding region.	As per IDP and municipal budget.
Public Areas Public areas represent the areas in the towns where people gather informally and where there is interaction between peoples. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sports grounds.	
Proposals	Action Plans
Public Nodes: • Support development of corner of Oloeff Bergh and Voortrekker Streets (Erf 71) by way of public node becoming a social node where people can convene. Cemeteries:	As per IDP and municipal budget.

• Two (2) Cemeteries contain enough vacant land available for future expansion. Cemetery to west of town's access road and parking to be upgraded where wet sections seen at this cemetery are to be avoided. Sport Facilities: • Upgrade of facilities proposed in IDP with proper fencing and lights at sports grounds; • Youth sports facilities & programmes also prioritised in IDP. Open Space Systems and Corridors: • Make cemeteries part of the open space system; • Provide continuous open space system throughout the urban area. Conservation Areas: • No formal conservation areas exists in the immediate vicinity of Redelinghuys, but there is potential that the natural veldt in the area can qualify to be formally preserved; • To the west of Redelinghuys lies the proposed Verlorenvlei RAMSAR site with a lot of potential regarding eco-tourism Historical Conservation: • A survey has to be done on historical assets and action be taken accordingly e.g. old gold mine, archaeological findings. Tourism: • Game parks; • Opening of old Gold Mine; • Fynbos/ flora attractions; • Hiking trails; • Archaeological finding exhibitions; • Flea market; • Camping site in town is a draw card for the town.	
Bulk Service Infrastructure	

Proposals	Action Plans
Infrastructure: • Water quality and supply. Redelinghuys is receiving water from a nearby spring as well as one (1) borehole from where it is brought to two (2) reservoirs (250kl plus 190kl totalling 440kl) and then pumped to consumers. There is enough water available also for expansion as proposed; • Improve sanitation system. Install septic tanks at low cost houses. Current system: French drains; • Improve roads in poor condition/ maintenance; • Improve condition of pavements & provide kerb stones; • Fence solid waste disposal site; • Investigate and support the use of sustainable energy sources such as water tanks, solar panels and other alternative sources to promote water/ energy saving amongst residents.	As per bulk service master plan.
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Land needed for subsidised and self built housing. Subsidised housing to be accommodated in Porterville or Velddrif/ Laaiplek.	Housing Strategy as linked to IDP and municipal budget.
Densification: • Densification in Redelinghuys must be promoted via: o Infill development – Land has been earmarked directly to the north of the higher density housing development; o Subdivision of larger erven in town (sectional title). • Maintain the "*cupcake*" principle by means of infill as well as urban renewal and the creation of an integrated centre of town.	
Commercial	
Proposals	Action Plans

Commercial node: • Small, medium and macro enterprises; • Brick making project.	As per IDP.
Industrial	
Proposals	Action Plans
• Enough vacant industrial erven are available on the western side of town to accommodate future growth.	As per SDF.
Education	
Proposals	Action Plans
• Two (2) Primary schools in Redelinghuys to be amalgamated. Enough land available as well as existing hostel facility.	Two (2) Principals and the Department of Education.
Sport Facilities	
Proposals	Action Plans
• Upgrading of facilities, fencing and lights; • Youth-centred sport facilities and programmes.	As per IDP priority list.
Open Space Network	
Proposals	Action Plans
• Link Cemeteries with open space system; • Provide continuous open space system throughout the urban area and also along activity streets if no formal parks exist; • Investigate conservation of natural veldt south of Redelinghuys and negotiate making it part of open space network.	As per municipal budget.

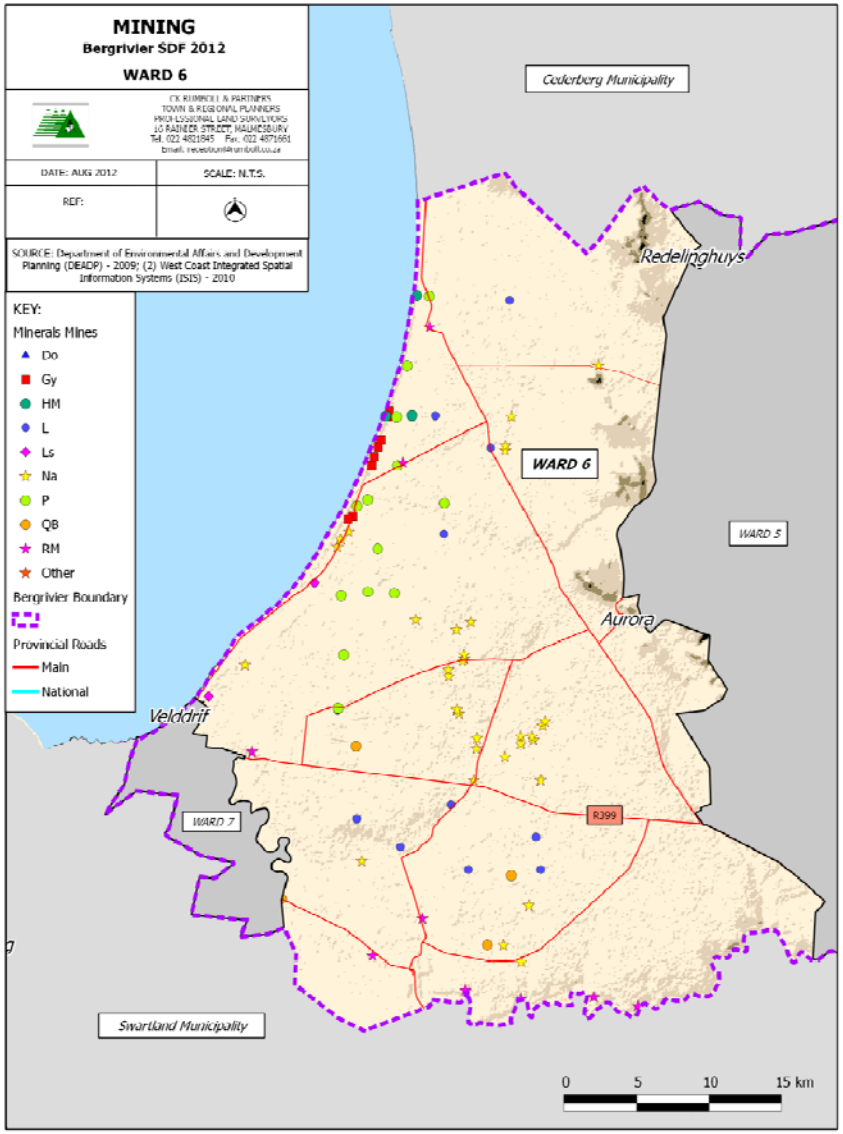
12.12 Rural Development Proposals for Ward 6

Strategy 1: Support Growth in areas with economic potential		
Management Guidelines	Ward Elements	Proposals
Develop opportunities and promote growth in rural areas with economic potential.	Aurora, Dwarskersbos and Redelinghuys.	• Aurora, Dwarskersbos and Redelinghuys to serve as tourism centre.
Strengthen transport corridors.	R27, R399.	• Encourage supporting transport infrastructure to strengthen R27 and M399; • Protect and conserve the agricultural and natural veldt landscape along the R27 and M399.
Promote communication corridors and – zones.	Communication infrastructure along Berg River.	• Provide Aurora and Redelinghuys with libraries and Dwarskerbos community hall with access to internet.
Promote and determine alternative energy development zones.	Wind and sun.	• From Aurora in a southerly direction i.e. Berg River.

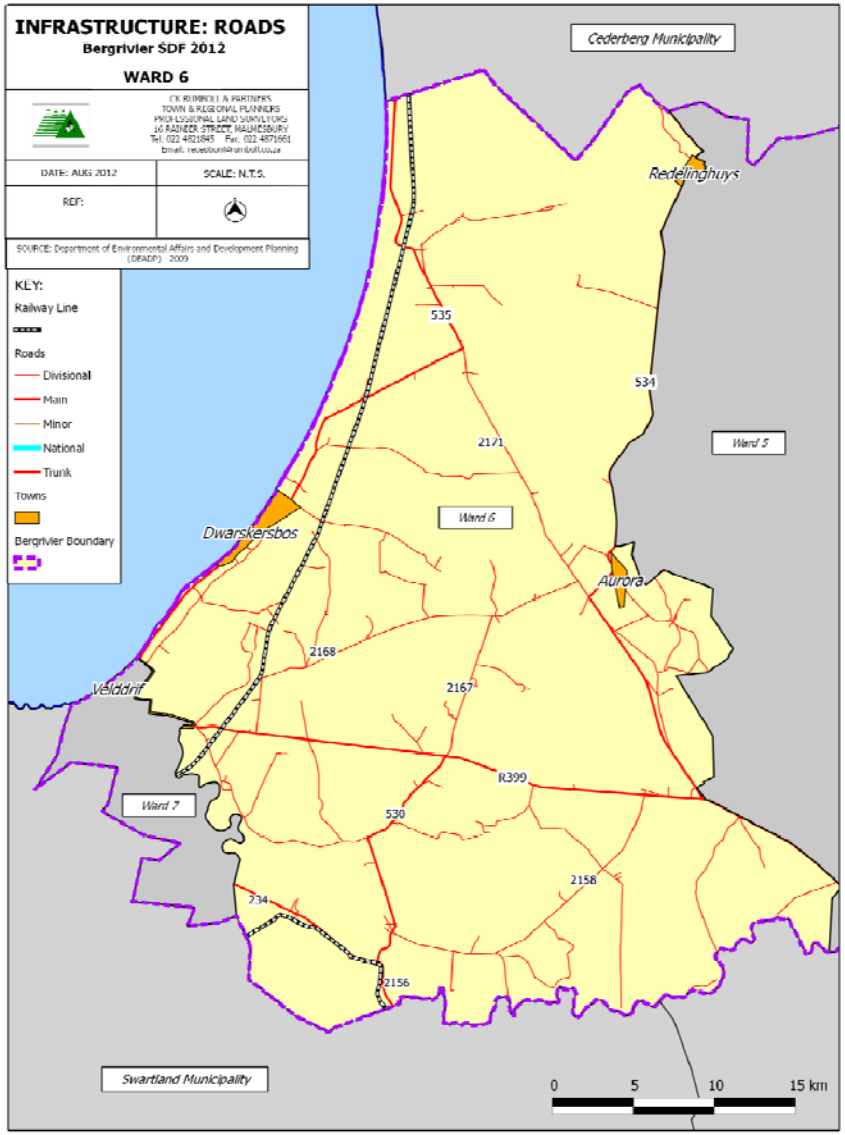
Strategy 2: Grow and diversify agricultural markets and products		
Management Guidelines	Ward Elements	Proposals
By means of mark penetration (Current products and current markets).	Potatoes; Fish; Honey.	• Label products with a Berg River corporate label to ensure identification and quality control; • Promote development of niche products such as potato chips; • Strengthen the primary agricultural products supply chain to reach main markets through adding value to agricultural products and supporting the appropriate zoning; • Promote the production of produce creating work in the Berg River rural areas i.e. harvesting kelp and honey.
By means of product development (New products and services).	Conferencing facilities in rural areas; Bird watching; 4x4 trails.	• Promote niche products complimenting commercial agriculture or fishing and tourism i.e. conferencing and Agri-tourism; aquaculture, products derived from honey and potatoes.
By means of market development (New markets).	Coastline.	• Develop new markets for new target groups i.e. locally for the youth, government etc. at a regional, national and international level (i.e. camps exploring conservation and conferencing); • Encourage small farmers i.e. provide smaller agricultural units, commercial farmer mentorships and encourage agri-tourism; • Promote maintenance and cleaning services that create work i.e. clearing alien vegetation in river corridors i.e. Papkuils River.

By means of diversification (New products and new markets).	Vineyards; Olives.	• Promote the Mediterranean climate with warm, dry summers and wet winters (May to August) as a tourism attraction; • Promote the tourism industry in the rural areas as additional economic revenue generating source.

Strategy 3: Support sustainable mining developments		
Management Guidelines	Ward Elements	Proposals
Identify all mineral and geological sources with mining potential and determine which of these sources are suitable based on the extent of environmental degrading it will cause and the ability to prohibit such degrading.	Gypsum Phosphate, Sand.	• Assign appropriate zoning to suitable resources and support the land use changes required for extracting natural resources.
Support sustainable mining by means of Sustainability Norms to balance economic, environmental and social impacts.	No current mining applications.	• Determine sustainable and environmental friendly norms for mining in Bergrivier over and above the norms prescribed by the Department of Minerals and Energy Affairs.
Mitigate existing impact.	Velddrif, Grootpan, La Rochelle, Skaapkraal and Klein Tafelberg Saltworks	• Require maintenance of scenic views during mining operation; • Require landscaping at processing plants.
Rehabilitation.	Velddrif, Grootpan, La Rochelle, Skaapkraal and Klein Tafelberg Saltworks.	• If mining were to proceed, insist on rehabilitation programmes that are approved by the Department of Minerals and Energy; • Control rehabilitation activities and keep licence holders responsible; • Rehabilitate redundant mine sites, if required.
Alternative Transport.	Sishen Saldanha railway line.	None.



Map 12.12 (a): Mining, Ward 6



Map 12.12 (b): Infrastructure, Roads, Ward 6

Strategy 4: Strengthen mobility and economic links		
Management Guidelines	Ward Elements	Proposals
Strengthen Regional routes.	R27& R399.	R27: Connects the greater West Coast Region and municipalities of Saldanha and Cederberg; R399: Strengthen mobility between urban and rural areas and connect West Coast Region with N7.
Strengthen economic access and links.		Ensure maintenance of existing road networks (R534 and R535) to keep up the road condition.
Strengthen railways and services.	Sishen Saldanha railway line.	None.
Strengthen Communication networks.	Community hall in Dwarkersbos and libraries in Aurora and Redelinghuys.	Create access to information for farm and rural dwellers i.e. at community hall (Dwarskerbos) and libraries (Aurora and Redelinghuys (including telephone, internet, TV, newspapers and library books).

Strategy 5: Strengthen and develop rural tourism		
Management Guidelines	Ward Elements	Proposals

Increase appeal of Tourism destinations.	Rocher Pan, Vredelust & Rust Roes contract Reserve, Redelinghuys contract nature reserve, Gys se Kraal contract nature reserve.	• *Agri-tourism destinations:*
		  • Support tourism accommodation on functioning grain farms;
		  • Strengthen motorised and non-motorised water sport at Dwarskerbos;
		  • Broaden appeal of festivals marketing agricultural products, i.e. Aurora Bazaar;
		  • Connect prominent agri-tourism areas and farm accommodation with tourism routes i.e. bird watching and veldt flower route;
		  • Facilitate the participation of disadvantaged and poor households in tourism i.e. producing handiwork and agricultural products at local shops.
		• *Heritage destinations:*
		• Promote heritage tourism destinations;
		• *Water sport and recreation:*
		  • Enhance opportunities for fishing and water sport (canoeing, skiing).

		• Enhance resorts and short term tourism accommodation along coast and areas earmarked for conservation to promote recreation and conservation; • Prohibit development within the 1:100 year flood line; • Prohibit development within 1km from the sea. • *Endurance sport and recreation:* • Encourage endurance sport routes and events i.e. mountain biking and horse trails; • Encourage hiking and walking trails.
Develop Tourism Destinations.	Existing flower and bird watching route.	• Strengthen existing opportunities i.e. bird watching and flower route.
Grow Berg River as part of the West Coast tourism strategy.	New tourism information brochures for each town.	• Develop infrastructure that can support tourism i.e. the upgrading of roads, street lighting in particular on minor roads; • Promote uniform tourism signage, clear information points highlighting the uniqueness of each town and its surrounding rural area; • Map the farms in the Bergrivier Municipal area offering tourism opportunities and link them as part of tourism routes. These routes in turn link Bergrivier Municipality and neighbouring municipalities.

Strategy 6: Regulate rural development according to bioregional planning initiatives.		
Management Guidelines	Ward Elements	Proposals
Determine Core Areas.	Berg River Estuary.	• Classify riverbanks and coast as core 1 & 2 areas; • Determine a 30m development setback line along the rivers; • Any critical biodiversity areas to be classified as Core 1 & 2 Areas; • Support existing conservation areas i.e. Rocher pan and private contract nature reserves; • Zone area between cost and R27 from Laaiplek to Dwarkersbos to Open Space or Core 1.

Cape Seashore Vegetation Cape Estuarine Saltmarsh.	In the BRM saltmarshes are typically found on relatively young, white, alkaline, fine grained dune sands, and thus mostly confined to a narrow coastal strip of stabilized, semi-mobile or mobile dunes between Velddrif and Elandsbaai. This vegetation is absent from rocky shorelines, and as it occurs on well-drained soils, it is not associated with wetlands. Plant community variation reflects the age of the substrate (often related to distance from the sea), natural disturbance regime (dune stability), distance from the high water mark, and the exposure of dune slopes (leeward versus seaward; Mucina & Rutherford 2006). Vegetation structure: Grasses dominate the vegetation type together with low shrubs (<0.4m) high. There are no trees or large shrubs. Fairly high degree of succulence, as seen in species that span various vegetation types and which are not as succulent in other vegetation types (e.g. *Senecio littoreus; Cineraria geifolia*), and a number of genera whose only succulent species occur in this coastal habitat (e.g. *Hebenstreitia, Dischisma*). Annuals are common. Many species adapted to being covered by moving sand dunes (e.g. *Psoralea repens*), and thus able to root at nodes. Few geophytes species, but those that there are may be prominent (e.g. *Trachyandra divaricata*).	• Classify as Core; • Within the BRM this vegetation type is conserved in the Rocher Pan Nature Reserve. The habitat is well conserved and varies minutely across the area in which it is found. The location of conservation areas to conserve Cape Seashore Vegetation is therefore not especially important; • As a pioneer plant community, Cape seashore vegetation is relatively resilient to disturbance. The habitat is sensitive to disturbance from off-road vehicles and occasionally trampling and construction, in particular the area around Dwarskersbos and Laaiplek. No vehicles should be allowed, and access by the public should be along raised boardwalks to minimize impacts. Fortunately this vegetation type can be easily rehabilitated. (p21).
Cape Inland Saltpans.	These are natural depressions in the landscape that accumulate water. In sandy areas where they occur, their presence can usually be ascribed to an impenetrable clay or calcrete layer below the sand. These seasonal wetlands are extremely arid in summer. All are saline; some are in the extreme, to the extent that they support vegetation along their verges only. Cape inland salt pans are common between Velddrif and Rocher Pan. There are no large trees, and small succulent shrubs and true succulents dominate. There is a relatively low botanical diversity in this biologically harsh environment. Four "vygie" species are specialists of this habitat.	• Classify as Core Areas; • If one were to select areas especially in need of conservation, these would be the extensive salt marshes north of the Berg River and along the Sout River (tributary of the Berg River), with a number of rare and threatened plant species, as well as the Rocher Pan area. Many of the most important patches are small, and occur along the outer edges of seasonal wetlands; • These habitats have no agricultural potential and are often treated as waste ground. As a result, these areas are often used as dumpsites or as recreational areas, for off-road vehicles such as quad bikes; • No vehicles should be allowed into these areas and stock should be fenced out. Alien invasive plants – in particular rooikrans (*Acacia cyclops*) and Port Jackson *(Acacia saligna)* are a problem in areas

		where these salt pans are less saline; • The management of the underground water resource in the area is of paramount importance, as overuse of this resource will negatively impact this vegetation type.
Determine Buffer Areas.	Berg River.	• Initiated a climate change corridor along West Coast; • Expand conservation area along West Coast; • Promote conservation stewardships along West Coast; • Implement effective overlay zones in rural and urban areas to identify conservation areas; • Support rezoning and consent uses forming part of the rural economic development strategy and blending in with the rural environment; • Develop and implement environmental management plans that can be managed at the lowest level.
Leipoldtville Sandfynbos.	Leipoldtville Sandfynbos grows on well-drained sandy coastal plains: low rainfall with hot, dry summers, and mild winters. Experience a short lifespan with morning coastal fog. (Vegetation structure: Medium to tall shrubland, with prominent Restionaceae, Proteaceae, Fabaceae (*Aspalathus*), Polygalaceae (*Nylandtia*), relatively few succulents or deciduous species, and many annuals. Geophytes are fairly diverse, but not abundant. (Exceptionally rich in rare, threatened and localized special species) Leipoldtville Sandfynbos is a fire-driven system (once every 15 to 25 yrs) (p25-26).	• Classify the particularly important areas for conservation of endemic species around Aurora, between Redelinghuys and the Engelsman se Baken (Driefonteinberg and areas to south) and the area from Redelinghuys to Paleisheuwel (including Ratelrug) as *Buffer Area*; • Strengthen the Greater Cederberg Biodiversity Corridor (GCBC) project, as it seeks to involve private landowners in conserving key portions of natural habitat in this area. (This vegetation type gets removed for strip cultivation of cereals, potatoes and, to a lesser extent, rooibos); • Prohibit associated effects such as a drop in the water table, which may result in the death of entire groundwater-dependent ecosystems; • No authorization of further transformation of this vegetation type unless offset by significant conservation gains, in accordance with regional guidelines for biodiversity offsets (Department of Environmental Affairs and Development Planning 2007: for every 1ha of intact habitat lost, at least 15ha of the same quality should be conserved); • Prohibit overgrazing; • Prohibit alien invasive plants (primarily *Acacia*), especially in wetlands.

	Bergriver Flats Strandveld Sand Fynbos Mosaic: is a new vegetation type, previously mapped as Hopefield Sand Fynbos by Mucina & Rutherford (2006). It is essentially an extremely diffuse mosaic ecotone between Saldanha Flats Strandveld (which is itself something of an ecotone) and Hopefield/Leipoldtville Sand Fynbos. The unit is found primarily north of the Berg River, extending up to the Aurora area, and then in a thin band reaching almost as far as Elands Bay. The landscape is a generally flat to gently rolling plain either side of the Berg River. A mosaic of loamy sands (Flats Strandveld) and acid sands (Sand Fynbos) have produced the observed vegetation patterns. Underlying clays are evident in places, especially where the sands are thin or absent, and seasonal pans have formed in the depressions. Some significant linear seasonal wetlands occur in the area, such as the Sout River, and due to the slightly saline clays in these areas they tend to support Salt Pan type vegetation. (Climate: Hot, dry and windy summers, with a fairly high incidence of morning mist in the Berg River Valley. It can be expected that rainfall is slightly higher towards the mountainous area behind Aurora. Vegetation structure: Characterized by elements of both Flat Strandveld and Sand Fynbos, with a high percentage of restios, some succulents and patches of Proteaceae. As befits the mosaic nature of the vegetation type, the plant communities can be very patchy, with up to 50% community changeover in less than 100m. Due to the mapping scale it was not possible to distinguish these as discrete units, and hence the choice of designating a mosaic vegetation type. Special species from both parent vegetation types occur in the area and some very rare species are found only in these vegetation types north of the Berg River.	• Classify as Buffer Area; • It is very clear both on the satellite imagery and on the ground as a discrete unit, due to the patchy soil patterns that have produced a patchy agricultural pattern. Landowners have typically ploughed the Flats Strandveld areas and left the patches of purer Sand Fynbos, reflecting former agricultural trends of planting wheat. With a shift to rooibos and potato cultivation this may change, with the remaining Sand Fynbos areas under pressure; • This vegetation type is extremely fragmented by agriculture, and it is suggested that conservation priorities be guided by the largest contiguous patches and known occurrences of Red Data Book listed species. It is also important to include as many seasonal pans and wetlands (including the Sout River) as possible, as these provide important habitat variation; • Main pressures are agriculture (wheat, rooibos, and potatoes), and alien plant invasion. Establishment of further large centre pivot operations, and new rooibos fields should be restricted to existing lands, and should not be allowed in areas with known Red Data Book species. Rooibos cultivation should incorporate windrow strips of natural vegetation, as this provides windbreaks for the young plants, prevents erosion, and provide a valuable source of natural plant material for rehabilitation, in addition to being a habitat for animals and plants. Control of alien invasive plants (mainly *Acacia cyclops* & *A. saligna*) is a priority in many areas.
	Sandveld floodplain wetlands occur along the Verlorenvlei; Sout River (tributary to the south of the Berg River) and the Rocher Pan system.	Classify as Buffer Area; Like the other floodplain types, sandveld floodplains are threatened by infilling, in order to reclaim land for agriculture, development and roads.

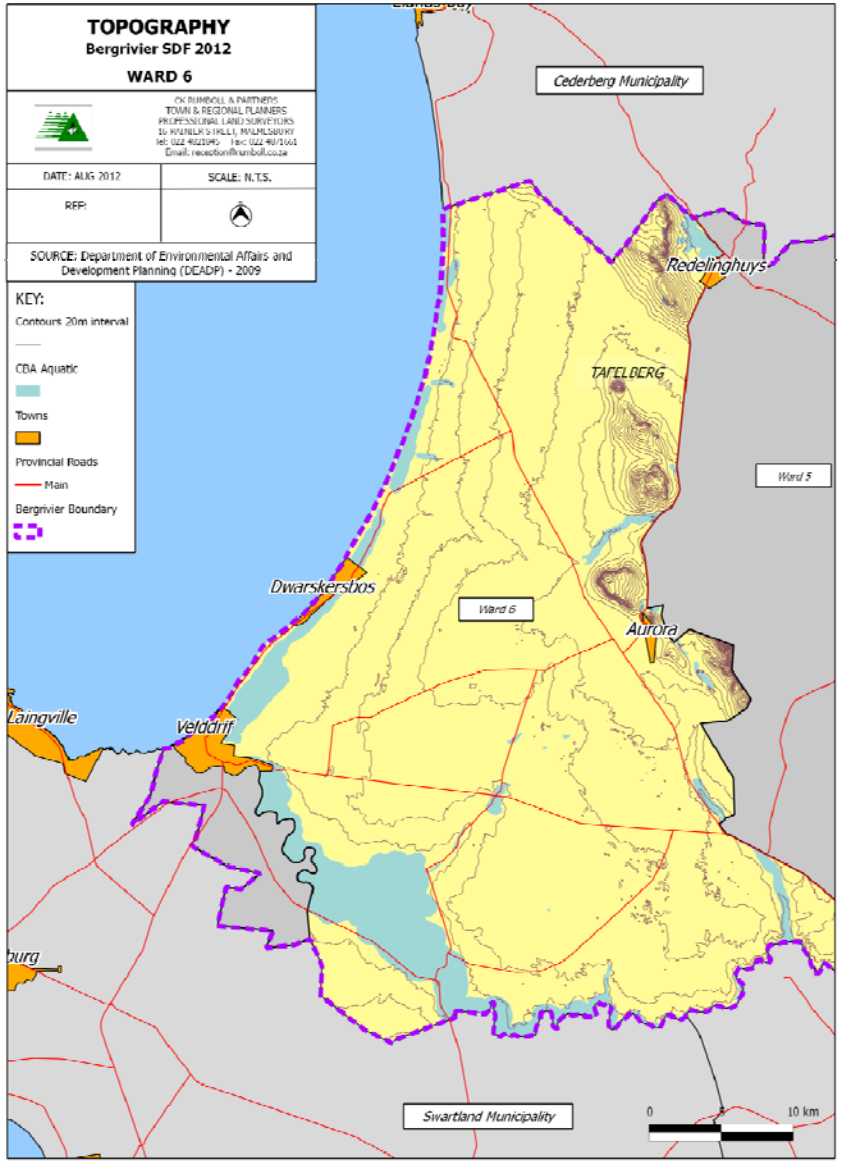
	With the exception of Verlorenvlei, all of these rivers are seasonal in nature. Sandveld floodplains are characterized by: • occurrence on alkaline to neutral silts and sands of • varying depth; • presence of subsurface calcretes and clays (water • tends to be more permanent in these areas); • saline systems that have a high dependence on • groundwater; • much of the flow being subsurface; • wide, sandy systems with braided channels within an even wider floodplain. The wetland type occurring on sandveld floodplains is classified as Cape Inland Salt Pans / Marsh described above.	Salt mining is a major threat, due to the natural salinity of these systems. Water abstraction especially groundwater is predominant in these catchments, and could lead to the drying out of these floodplain wetlands. In particular pressure is exerted on the wetlands from the presence of boreholes within the floodplains themselves. (p43).
	Sand Fynbos Basin Seeps are characterized by: occurrence on fairly low-lying, flat ground, predominantly around the southern Sout River (tributary of the Bergrivier) and inland of the Rocher Pan system; occurrence in the vegetation type classified as Hopefield Sand Fynbos; occurrence on acid sands at altitudes lower than 150m, p45	Classify as Buffer Area.
	Sand Fynbos hill slope seeps are located on slightly higher ground, also in the upper catchments of the Verlorenvlei rivers in Leipoldtville Sand Fynbos and occurrence on acid sands at altitudes lower than 150m. The seeps essentially occupy coastal sand flats. In Leipoldtville Sand Fynbos and Hopefield Sand Fynbos the vegetation is characterized by patches of medium to tall shrubs, which are separated by fairly dense restio lands. The seeps are generally vegetated, dominated by restios and the rush, *Juncus kraussii*, but may be invaded by reeds, such as *Phragmites australis*, and the bulrush, *Typha capensis*, where disturbed. *Sarcocornia natalensis*, which required seasonal freshwater flooding, can occur in sand fynbos seeps.	Classify as Buffer Area; Same as for the case of sandstone fynbos seeps. Potato and rooibos farming in the north, and wheat in the south, are having a significant impact on both wet and dry habitats in the sand fynbos vegetation types. Wetlands, in particular seeps, are being drained and filled in to provide fields for cultivation. This represents large-scale loss of wetland habitat. Where non-isolated seeps are destroyed, the consequences for the downstream catchments will be severe, leading to a loss of surface water in an area where irrigation resources are poor. Groundwater abstraction is having a serious impact on seeps. (p45).
	Strandveld basin seeps are all coastal systems. They occur on the coast just north of Rocher Pan. These seeps are situated in Langebaan Dune Strandveld, and are essentially dune slack wetlands dominated by *Juncus kraussi*. They are	These seeps are severely impacted by agriculture. Many have been ploughed and/or drained and can be heavily impacted by stock grazing on them. As a coastal system these wetlands are threatened by coastal urban development. Additionally roads and rail lines running parallel with

	seasonal wetlands that are fed by annual rainfall. These are usually saline systems and in the BRM occur on deep, neutral to alkaline sands. None appear to be important from a groundwater recharge perspective and are not situated in groundwater discharge areas either. These seeps are characterized by: seasonal wetlands dependent on rainfall; occurrence in the lowlands in areas with low rainfall (250-350mm); saline systems on neutral to alkaline sands.	the coast split and fragment these seep areas. Alien trees, in particular *Acacia saligna* and *A. Cyclops,* are a significant threat.
	Many of the sand fynbos depressions lie on either side of the lower Berg River and are surrounded by Flats Strandveld Mosaic and Hopefield Sand Fynbos. The remaining sand fynbos depressions lie inland, in the Verlorenvlei rivers surrounded by Leipoldtville Sand Fynbos. Sand Fynbos Depressions are characterized by: occurrence on deep acid sands with a silt or mud substratum; dependence on the availability of underground water; being mostly isolated systems that are seasonally inundated; usually with no vegetation growing, but in instances where vegetation does occur it is dominated by restios and therush *Juncus kraussi.*	Sand fynbos depressions are highly threatened by agricultural cultivation of crops such as wheat. Livestock graze and trample the depressions. These wetlands are also frequently fragmented by road and rail networks.
	Strandveld Depression: There are numerous strandveld depressions, located immediately north of the lower Berg River. They are a mixture of vegetated and non-vegetated wetland systems. Those that are vegetated are dominated by grasses (such as *Cynodon dactylon*), *Sarcocornia* spp., and various restios, rushed and sedges. These depressions are characterized by: being isolated and reliant on rainfall (that north of the Berg River probably also filled as water levels rise in this water discharge area); occurrence on neutral sands or granite derived soils; being predominantly saline systems.	Although there are some protected areas within the strandveld, the strandveld depressions have been severely impacted by agricultural activities near the coast. Salt-mining, on a small or large scale has led to physical modification of digressional wetlands. Due to their location near the coast, these systems are also particularly threatened by resort, housing, and urban development, especially in the southern portion of the domain.

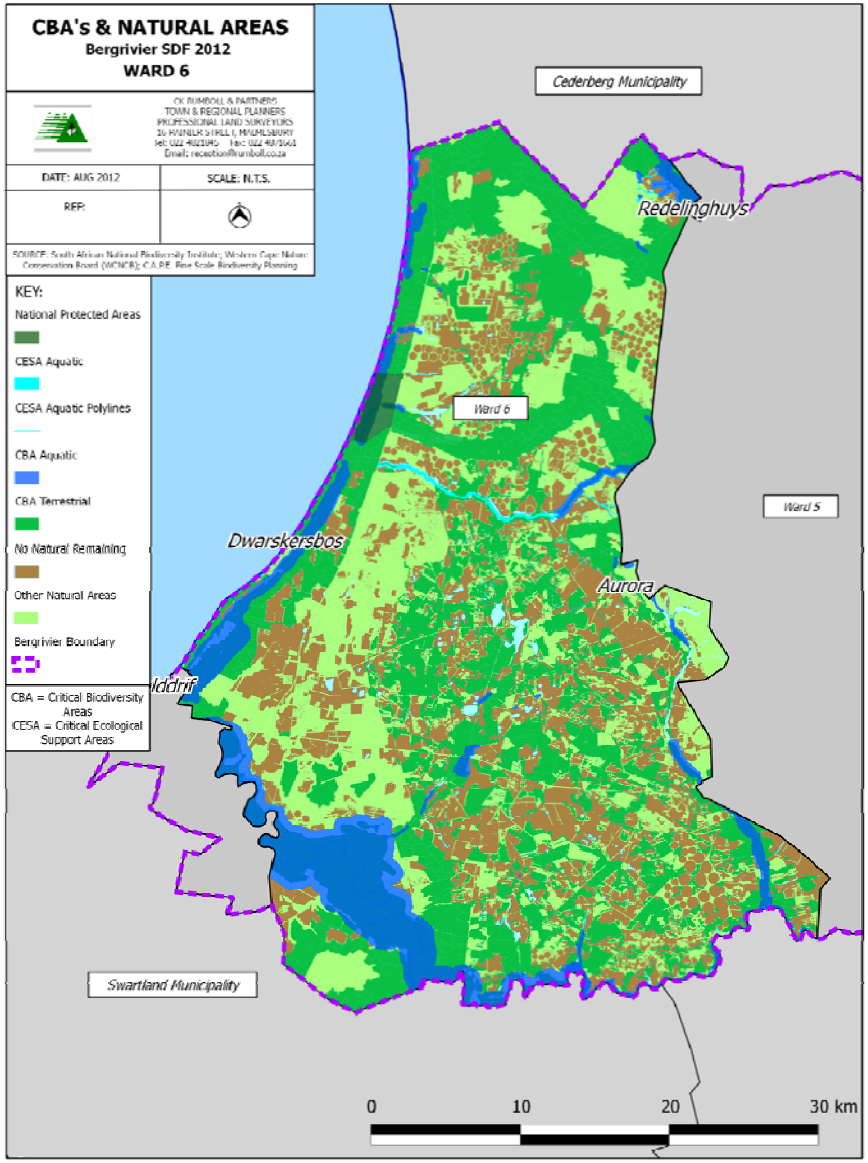
Determine Other Natural Areas.	Langebaan Dune Strandveld: Widely distributed, ranging from the south (Bokbaai) to Rocher Pan and Dwarskersbos in the north. Surprisingly large areas on its inland fringes were ploughed many decades ago, often making the boundary between this and Saldanha Flats Strandveld difficult to pinpoint. Found on calcareous (alkaline) dune sands and poorly developed calcretes mixed with sand. Vegetation structure: Usually a mixed shrubland of 0.5 to 2m tall, with Thicket elements especially common where there are shallow sands over calcretes. Fire not a major driver of dynamics total period of stability and substrate type is more important. Younger areas with much less Thicket component, and may be dominated by low shrubs and grasses. Relatively low succulent diversity, but these species may be common. Geophytes not a major feature, but spring annuals can be spectacular on the sandy soils. North of the Berg River this vegetation type becomes less species rich, with a notable drop in the number of special species. Species of conservation concern that may be found north of the Berg River include *Caesia* sp. nov., *Limonium acuminatum,* and *Otholobiumvenustum. Babiana petiolata* is a fairly common endemic of the northern parts of this unit and adjacent Lambert's Bay Strandveld.	Classify as Other Natural Veldt.

	Hopefield Sandfynbos: Occurs on flat plains with deep acid sands and no outcropping bedrock. Underlain by shale that is visible in places, notably along riverbanks. The very few rivers cutting through this landscape thus tend to support a thin band of Renosterveld type vegetation where shale is exposed as a result of erosion. It reaches its northernmost extent around Aurora, where the composition of Proteaceae, Geraniaceae and certain Asteraceae changes to reflect transition to more arid Leipoldtville Sand Fynbos. North of the Berg River it forms a mosaic with Flats Strandveld, which can be regarded as a diffuse and extensive ecotone (transition area) between the two main types. Vegetation structure: Medium to tall fire-prone shrubland. Restios and ericoid shrubs of various families predominant, but Proteaceae may be co-dominant in places. Scattered thicket (strandveld) elements, notably *Gymnosporia buxifolia* and *Euclea tomentosa*. Annuals abundant, especially after fire. Geophytes may be common, but most species shared with other Sand Fynbos systems. Red Data listed Proteaceae in this area (north of the Berg River).	• This vegetation type is very poorly conserved, with large areas transformed by agriculture and invaded by aliens. Large intact areas still remain and these should be the focus of conservation efforts, especially where these include ecotonal elements (such as clay lenses and Renosterveld contact zones, and upland elements such as those found near Aurora), and where they border existing public or private conservation areas; • Major pressure sources are agriculture (potatoes, rooibos, and wheat) and alien invasive plants (mainly *Acacia saligna* and *A. cyclops*). The removal of alien invaders should be regarded as a priority for this vegetation type. The carrying capacity of this vegetation type is low, and the stocking of game reserves should be well controlled and closely monitored to prevent the degradation of this habitat. No further transformation of good quality examples of this vegetation type should be authorized, unless offset by significant conservation gains in accordance with the latest regional guidelines for biodiversity offsets (Department of Environmental Affairs and Development Planning 2007). These guidelines suggest that for every 1ha of intact habitat lost; at least 15ha of the same quality should be conserved.

Determine Intensive Agricultural Areas.	Extensive grain farming area.	• Identify extensive and intensive agricultural areas; • Promote conservation and agriculture i.e. the Biodiversity and Wine initiative promoted by the Western Cape Wine industry; • Incentivise land owners to manage natural veldt as an asset within the environment and for the owner; • Focus conservation priorities primarily on the benefit for landowners to ensure sustainable conservation projects; • Encourage a change in legislation to incentivise land owners to conserve fynbos; • The hydrological-, plant-, management- and economic value of fynbos (high economic value) should be reflected in policies and directives; • Remove alien vegetation and increase water volumes and biodiversity; • Prohibit potential veldt fires and promote the appearance of the river landscape; • Promote animal health through conservation of fynbos providing for a rich mixture of micro-nutrients for neighbouring fields and land associated with grazing (Kemper, 1999).



Map 12.12 (c): Topography, Ward 6



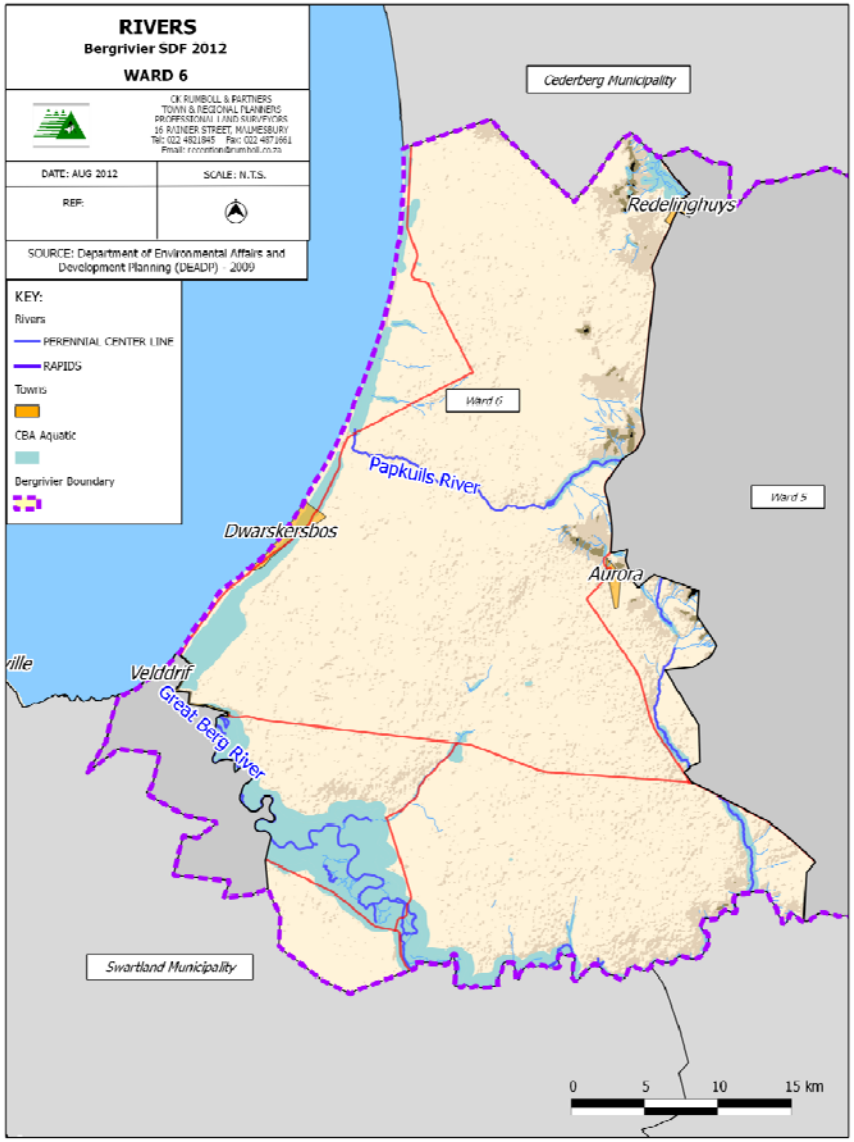
Map 12.12 (d): CBAs & Natural Areas, Ward 6

Strategy 7: Conserve and strengthen the cultural and heritage landscape		
Management Guidelines	Ward Elements	Proposals
Protect the cultural landscape.	Berg River canoe marathon.	• Promote festivals and celebrations providing opportunities to promote the local produce and hospitality of local Bergrivier people to attract tourists; • Promote open days; • Expand limited accommodation availability and restaurant facilities.
Protect and promote the heritage landscape.	Kersefontein, Olifantskop.	• Recognize the following heritage landscapes: o Preserved natural landscape; o Traditional hunting and grazing area; o Landscape of Colonial- Indigenous trade and contact; o The agricultural production landscape; o Water landscape; o Landscape of scenery and Attractions; o Historic town landscape.
Establish climate change corridors and conservancies.	Berg river Estuary.	• Use coast and Papkuils River as core element of corridor; • Corridor to extend along the complete river segment of Ward.
Strengthen tourism route.	R27, R534 and R535.	• Establish and promote a routes linking historical farms and coast; • Promote archaeological route along coast.

Strategy 8: Protect and strengthen the visual agricultural landscape		
Management Guidelines	Ward Elements	Proposals
The strengthening of the transport corridor should support the agricultural landscape.	R27, R399, R534 and R535.	• Any infrastructure or facilities should blend in with the environment (not contrast with the environment) and the feeling of an untouched agricultural landscape should be created.
Enhance food production whilst protecting the natural veldt.	Small grain production, potato production.	• Promote alternative farming uses on critical conservation areas that can promote conservation of the natural areas.
Protect and promote the agricultural landscape by growing appropriate crops, winter and summer crops under dry land conditions and summer crops under limited irrigation, where available.	Wheat and potatoes fields.	• Decrease water erosion through protective preparation methods and the planting of annual crops; • Promote independence from mainstream crops and livestock through alternative land uses promoting conservation of natural and endangered vegetation and alternative income for a farmer i.e. resorts and Agri-tourism.

Strategy 9: Protect water sources and catchment areas		
Management Guidelines	Ward Elements	Proposals
Protect water resources.	Papkuils River.	• Implement development setback from Papkuils river; • Remove alien vegetation to prohibit destructive floods; • To protect boreholes against pollution implement an agricultural development set back line; • Declare Papkuils River as a water zone; • Protect aquatic and associated ecosystem and biological diversity.
Promote reuse and saving of water.		• Support the establishment of water tanks at houses to collect water from roofs and to use this water; • Monitor irrigation schemes for sustainable water use.

Strategy 10: Promote food security		
Management Guidelines	Ward Elements	Proposals
Develop a strategy for grain farms that are smaller than 500ha to not be reliant on grain as their only crop.	Extensive small grain and potato farming areas; Extensive livestock farming areas.	• Diversify crop and livestock production; • Encourage alternative farming methods; • Identify areas with low potential agricultural soil for alternative supportive uses to agriculture i.e. small holdings and tourism facilities; • Support the development of facilities such as tourism facilities and farm stalls as consent uses on land zoned Agricultural Zone I.
Strengthen associations to promote community participation in local development issues and to develop land use-/ zoning guidelines.		• Associations to monitor conflicting land uses, diversification and co-ordinate renewal and upgrading projects; • Associations to promote food production to access appropriate distribution networks.



Map 12.12 (e): Rivers, Ward 6

Strategy 11: Provide housing		
Management Guidelines	Ward Elements	Proposals
Provide subsidised housing of which at least 25% is earmarked for farmworkers.		• Support the provision of private-owned housing for farm workers in existing urban area (Velddrif and Piketberg) close to work opportunities to ensure ownership and to limit commuting from home to work.

Strategy 12: Identify and develop viable land reform opportunities		
Management Guidelines	Ward Elements	Proposals
Focus on commercial opportunities rather than existence farming, as agriculture is one of the main economic activities in Bergrivier and a primary staple diet (i.e. grain) producer.		• Promote out stream aquaculture along the coast and in farm dams; • Encourage: o Keeping underground water sources clean; o Non soil based production (tunnel and hydroponics); o Intensive feed farming or free range poultry; o Urban agriculture, local consumption and domestic food production for own use; o Green and alternative energy generation.

Strategy 13: Provide and support sustainable rural infrastructure and services		
Management Guidelines	Ward Elements	Proposals
Provide and deliver rural infrastructure and services.	Voelvlei water scheme provides potable water; Transfer stations at Velddrif.	Water: • Promote the harvesting and collection of water; • Provide sufficient storage capacity for drinking water. Sanitation: • Promote and implement the West Coast District Municipal Rural Bathroom subsidies through liaison with relevant land owners; • Provide sewerage services as per national norms in all rural towns. Electricity: • Promote use of alternative energy generation techniques i.e. solar water heating etc. Waste: • Establish transfer stations at Dwarkersbos, Aurora, Redelinghuys and along R27 station;

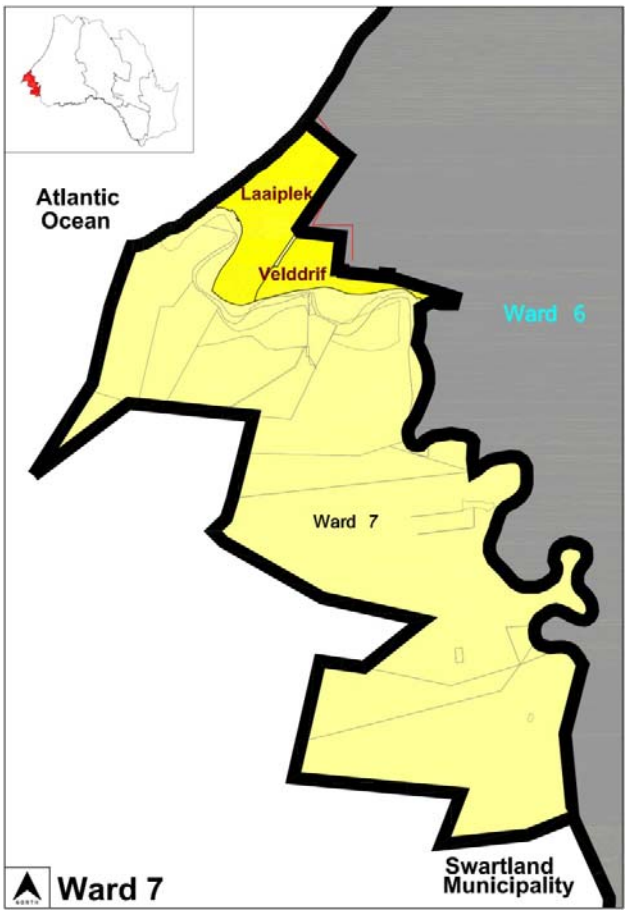
Provide and support multipurpose community services and infrastructure.	Community centres at Bergrivier Farm Cooperation.	• Interspersed community service centres, should deliver services at Aurora and Redelinghuys; • Local artists and entrepreneurs should be encouraged during visits to exhibit their goods at the multipurpose centres and particularly during service days; • Adult Education and Training and family literacy should be promote at multipurpose centres and within existing infrastructure; • Make Further Education and Training accessible through by public transport or make venues available for part time classes.
Provide for cemeteries.	Private Farm cemeteries.	• Maintain cemeteries, public and private as part of open space systems and hiking trails.
Provision, expansion and support of public transport infrastructure and transport modalities.	Private taxis.	• Determine viability of affordable public transport system along R27, R534 and R535; • Improve and develop bus and taxi shelters; • Improve the directions and signage at transport pick up points.

WARD 7
VELDDRIF/ LAAIPLEK

12.13 VELDDRIF/ LAAIPLEK Proposals

12.13.1 Velddrif/Laaiplek IDP Spatial Priorities and Needs

The spatial priorities and needs as identified by the *Bergrivier Local Economic Development Plan (LED)* and the *Bergrivier Integrated Development Plan (IDP)* for Velddrif/Laaiplek were integrated with the spatial planning proposals for Velddrif/Laaiplek. The list of priorities and needs as identified in the IDP and LED is attached as an addendum to the Bergrivier SDF.



12.13.2 Demarcation of Urban Edge

Various Issues, Criteria and Factors as identified in the "Guidelines for the Demarcation of an Urban Edge" compiled by the Department of Environmental Planning were taken into consideration in the demarcation of the urban edges of all the towns in the Bergrivier Municipal area. The table identifying the informants of the demarcation of the urban edge of Velddrif/Laaiplek is included as an Addendum.

The following table describes the sections of the urban edge for Velddrif/Laaiplek in terms of the above criteria as stipulated by the Provincial Urban Edge Guidelines. The different segments of the urban edge are also clearly marked on the map.

Delineation of Urban Edge	
Edge Segment	Criteria of segment
1	Prominent landform barrier. Atlantic Ocean as western edge
2	Cadastral boundary. Northern boundary of Laaiplek
3	Cadastral boundary of erven on eastern side of town (municipal land) to accommodate infill integrated development
4	New cadastral boundary that will form new north-eastern urban edge on municipal land
5	New cadastral boundary that will form new northern urban edge on private land
6	Existing cadastral boundary of old town of Velddrif.
7	Existing cadastral boundary of approved erven in Velddrif
8	Prominent landform. Berg River on southern side of town

The urban edge for Velddrif/Laaiplek was forged as tightly as possible around the existing edge as in the Bergrivier SDF of 2008 except for two changes on the north and north-eastern sides. Velddrif/ Laaiplek has a well developed bulk and social infrastructure which should be maintained and further developed to support the town's function in the region. The town also provide aspects for further development of the tourism industry with the proposed projects.

12.13.3 Velddrif/Laaiplek Spatial Planning Proposals

The following spatial planning proposals were combined with input from all the other Bergrivier Sector Plans in order to fully develop and utilise all the opportunities provided within the urban context and also to address any shortcomings and restrictions in the towns of Velddrif/Laaiplek. The proposal needs to be read together with the Velddrif/Laaiplek Spatial Proposals map.

The following table provides an overview of the growth model used in the determination of additional land required in Velddrif/Laaiplek:

Town	Projected Growth in Population 2012-2017 (growth rate: 4.15% p.a.)	Growth in number of households 2012-2017	Existing waiting list 2012	Total demand for erven	Growth in middle and high income households that can be accommodated by existing vacant erven. (±27.5%)	Vacant erven available (medium and high income)	Additional erven required for lower income groups	Additional land required 40du/ha	Additional land required 25du/ha
Velddrif	2949	737	826	1563	202	1502	1361	34ha	54ha

Table 12.13.3(a): Additional land required in Velddrif/Laaiplek

The proposed densification targets as identified for each of the towns within the Bergrivier municipal area are as follows:

Densification targets for Velddrif/ Laaiplek		
Town	Existing density in town	Average density targets
Velddrif	5.1du/ha	15du/ha

Table 12.13.3(b): Proposed Densification targets for Velddrif/Laaiplek.

<table>
<tr><th colspan="2">VELDDRIF/ LAAIPLEK
Spatial proposals
Refer to Velddrif/ Laaiplek Spatial Proposal Map 12.13</th></tr>
<tr><td colspan="2">Connectivity
Connectivity in the town relates to the movement network in a town and includes all transport and pedestrian routes. This represents an important planning tool as it determines the accessibility of the different areas within a town and can also support and improve the spatial integration between areas. The primary routes serve as links to surrounding areas and towns and are important in terms of accessibility to business uses and for the tourism industry.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Roads:
• Pedestrian path – Laaiplek. Funds set aside for street lights;
• Main road through town to be upgraded to cater for safe pedestrian movement.
Activity routes (Spatial Integration):
• Support development of mixed and commercial uses along identified activity streets, i.e. Main road.
Pedestrian routes:
• Provide accessible and safe pedestrian and bicycle routes along traffic routes, especially on the main road, to accommodate, promote and improve safe pedestrians and cyclists.</td><td>As per IDP and municipal budget.</td></tr>
<tr><td colspan="2">Public Areas
Public areas represent the areas in the towns where people gather informally and where there is interaction between people. The locality of these areas is related to the internal movement network in a town and is integrated with these networks. Public areas include market squares, public parking areas, parks and the open area surrounding buildings associated with community uses as well as sports grounds.</td></tr>
<tr><td>Proposals</td><td>Action Plans</td></tr>
<tr><td>Public Nodes:
• River mouth area on northern side has sound potential for future development and link with Laaiplek CBD;
• Bokkom Laan and riverfront development west of entrance bridge;
• Picnic area on Erf 483.
Community Facilities:
• South African Police site earmarked on north-eastern corner opposite golf course;
• Private hospital to be developed north of old landfill site;
• Community based multipurpose centre. Can be combined with school facility as planned in Noordhoek Road next to SAP site;</td><td>As per IDP and municipal budget.</td></tr>
</table>

• Velddrif/Laaiplek will qualify for three (3) more crèches/nursery schools (that can be combined with a Primary School/Community centre and also another three (3) churches according to expansion growth as predicted; • Toilet and waiting room at clinic; • Shelter for hospital transport commuters in Noordhoek Park. Cemeteries: • The two (2) existing cemeteries have enough land available for future expansion – also beyond the five (5) year timeframe of the SDF although no more burials are currently taking place at the Noordhoek cemetery. Conservation Areas: • Lower Berg River RAMSAR site. Site to be formally proclaimed; • Beach and coastal area on western boundary. Heritage Conservation: • A survey of Heritage assets is being proposed for further action to be taken on this.	
Service Infrastructure	
Proposals	Action Plans
• Upgrade of waste water treatment works. Capacity not large enough to cater for developed erven although large numbers have not been developed. Upgrade of WWTW is planned from 0,97ML per day to 1,95ML per day. An additional reservoir for 13ML also planned with first phase of 6ML; • Street lights for pedestrian path – Laaiplek; • Close and rehabilitate solid waste disposal site. New Transfer Station in place from where refuge is taken to dump site in Malmesbury; • Indoor toilets; • Public toilets; • New fire station; • New premises for South African Police station; • Noordhoek cemetery: store and toilet • Investigate and support the use of sustainable energy sources such	As per bulk service Master Plan: • Extension/rebuilding of wastewater treatment works (WWTW) for total amount of R12 109 166 over the next 3 financial years; • Construction of new reservoir; • Stormwater upgrade; • Upgrade of footpath between Noordhoek and Laaiplek already budgeted and can be implemented; • Municipal land as earmarked for SAP station to be made available for building of station.

as water tanks, solar panels and other alternative sources to promote water/energy saving amongst residents.	
Tourism development	
Proposals	Action Plans
• Entrepreneurs in whale and bird watching; • Holiday resort development; • Marina and waterfront development; • Arboretum (Botanical tree garden); • Bokkom Laan to be conserved as cultural asset in tourist precinct; • De Plaat area up to railway line in the east holds potential as cultural conservation zone to become tourist precinct.	Tourism Bureaux.
Land Reform	
Proposals	Action Plans
Commonage land made available for emerging farmers. Enough municipal land is available to the north, subject to soil analysis for best suited areas.	Council to make commonage land available.
Land use Proposals	
Residential	
Proposals	Action Plans
Residential: • Land for housing; • Noordhoek housing/ Velddrif housing; • Support the inclusion of different densities and types of residential development in Velddrif/ Laaiplek. Allow for medium density and higher residential development (group housing) along activity streets and on larger properties; • Opportunities for infill residential development exist in town and should be supported through subdivision and introduction of a broader spectrum of housing types; • Infill, integrated residential development proposed on western, north-eastern, northern and eastern sides of town to utilize existing infrastructure; • Pelican Resort to be partially developed for GAP housing; • Keep housing waiting list up to date.	Housing Strategy as linked to IDP and municipal budget amounting to a total of R15 640 000 over the next 3 financial years.

Densification: • Densification in Velddrif/Laaiplek must be promoted via: o Infill development; o Subdivision of larger plots in town (sectional title); o Renewal. Maintain the *"cupcake"* principle by means of infill as well as urban renewal and the creation of an integrated centre of town.	
Commercial	
Proposals	Action Plans
Commercial Node: • Provide facilities for traders; • Saldanha Bay IDZ; • Central business node created by properties adjoining main activity streets on both sides especially Noordhoek Road as link; • Laaiplek CBD/River mouth link very important for creating new opportunities via Urban renewal.	As per IDP.
Industrial	
Proposals	Action Plans
• Enough vacant land is available for expansion on northern side of town next to Transfer Station for heavy industries; • Light and service Industries along Noordhoek Road.	As per SDF.
Education	
Proposals	Action Plans
• Noordhoek School to be expanded and education to provide teaching in more languages. Velddrif/Laaiplek will qualify for two (2) more Primary Schools according to expansion growth as predicted; • More schools; • Multi-purpose facility being proposed on Noordhoek Road on north-eastern corner opposite golf course.	Department of Education.
Sport Facilities	
Proposals	Action Plans
• Smit sport grounds – complete building. Lighting; • Eric Goldsmith – lighting; • Picnic area Erf 483.	As per IDP priority list.

Open Space Network	
Proposals	Action Plans
• Bergrivier estuary management (by BEMF – Berg Estuary Management Forum); • Link river and ocean with open space corridors; • Link Cemeteries with open space system; • Provide continuous open space system throughout the urban area also along activity streets if no formal parks exist.	As per municipal budget.
Planning	
Proposals	Action Plans
• Plan for development of open areas. Infill housing and integration high on agenda to adhere to planning principles; • Land for police station. Land has been set aside along Noordhoek Road for this purpose; • Commonage land made available for emerging farmers. Enough land available subject to soil analysis for best suited areas. • Drafting of Precinct Plan for Velddrif/Laaiplek.	Council make land available to South African Police. Finalized/demarcated land to be made available by Council to small farmers. Precinct Plan to be commissioned/ drafted.

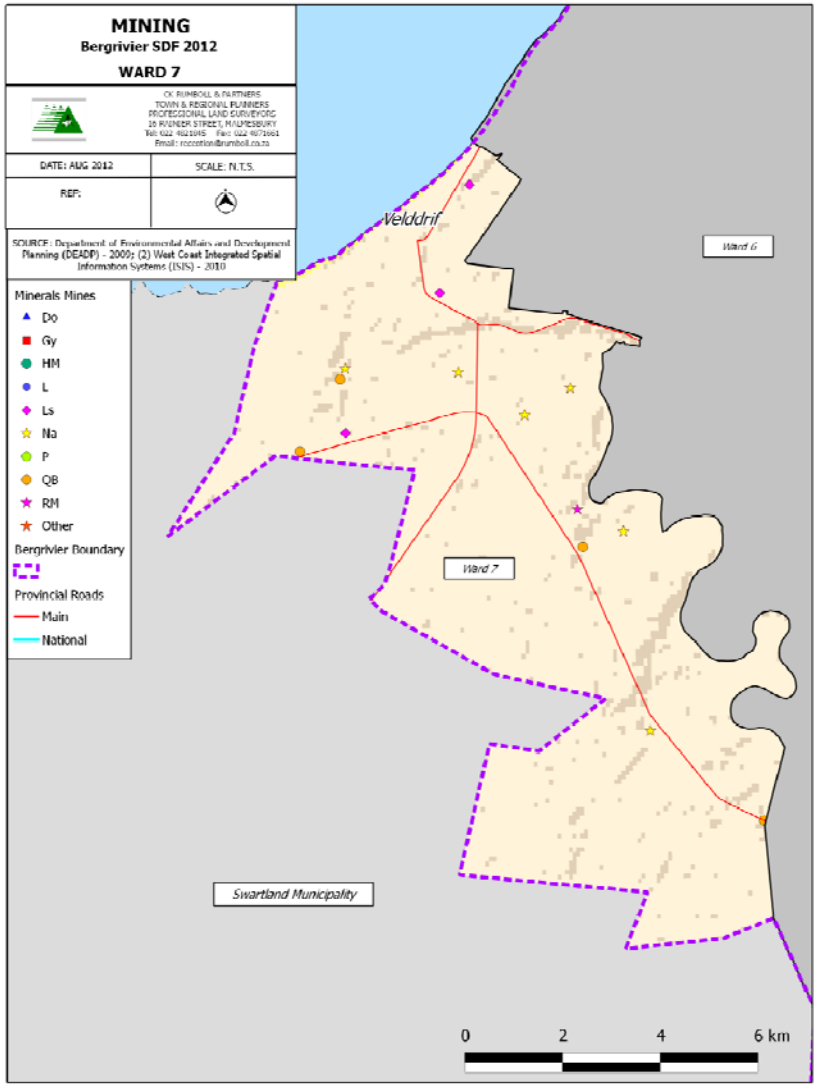
12.14 Rural Development Proposals for Ward 7

Strategy 1: Support Growth in areas with economic potential		
Management Guidelines	Ward Elements	Proposals
Develop opportunities and promote growth in rural areas with economic potential.	Velddrif, Bergrivier Silos.	• Velddrif to serve as fishing service centre; • Bergrivier Silos to serve as agricultural service station; • Provide sufficient land to promote the agricultural and fishing industry in and around Velddrif.
Strengthen transport corridors.	R27, R399 (connecting road to Hopefield, to Vredenburg and to Piketberg).	• Encourage supporting transport infrastructure to strengthen R27 and M399; • Protect and conserve the agricultural and natural veldt landscape along the R27 and M399; • Encourage rail transport in particular between Bergrivier Station and Hopefield.
Promote communication corridors and zones.	Communication infrastructure along Bergrivier.	• Provide Velddrif and Noordhoek libraries with access to internet.
Promote and determine alternative energy development zones.	Wind and sun.	• None

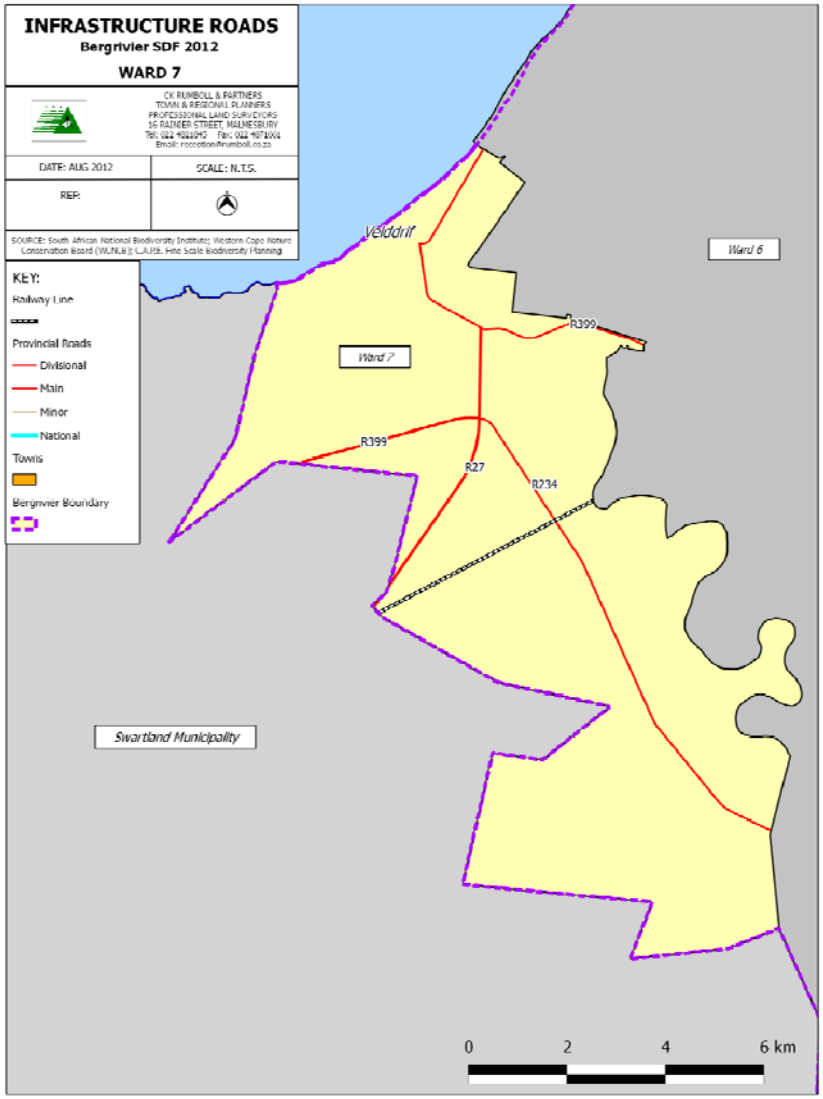
Strategy 2: Grow and diversify agricultural markets and products		
Management Guidelines	Ward Elements	Proposals
By means of market penetration (Current products and current markets).	Fish; Small Grains; Venison; Honey; Salt.	• Label products with a Bergrivier corporate label to ensure identification and quality control; • Promote development of niche products from honey, fish i.e. pickles, bokkoms etc.; • Strengthen the primary agricultural products' supply chain to main markets through adding value to agricultural products and supporting the appropriate zoning to add value; • Promote the production of produce creating work opportunities in the Bergrivier rural areas i.e. harvesting honey and venison products i.e. pies, biltong.
By means of product development (New products and services).	Conferencing, Birding, Reed products, Hunting, Harvesting of natural timber, wax	• Promote niche products complimenting commercial agriculture or fishing and tourism i.e. conferencing and Agri-tourism; aquaculture,

	products, fruits, nuts, fuel wood and extracts that are important for the manufacture of insecticides, colorants, flavourants, dyes, tannins. (p17).	products derived from honey, fish and venison.
By means of market development (New markets).	Berg river; Freshwater fishing industry; freshwater angling industry.	• Develop new markets for new target groups i.e. locally for the youth, government etc. at a regional, national and international level (i.e. camps exploring conservation, agriculture or conferencing); • Encourage small-scale farming i.e. provide smaller agricultural units, commercial farmer mentorships and encourage agri-tourism; • Promote maintenance and cleaning services that create work i.e. clearing alien vegetation in river corridors i.e. Berg River.
By means of diversification (New products and new markets).	Existing infrastructure i.e. railway from Hopefield to Vredenburg over Bergrivier station; Acquaculuture.	• Promote the Mediterranean climate with warm, dry summers and wet winters (May to August) as a tourism attraction; • Promote the tourism industry in the rural areas as additional economic source.

Strategy 3: Support sustainable mining developments		
Management Guidelines	Ward Elements	Proposals
Identify all mineral and geological sources with mining potential and determine which of these sources are suitable based on the extent of environmental degrading it will cause and the ability to prohibit such degrading.	Salt mines.	• Assign appropriate zoning to suitable resources and support the land use changes required for extracting natural resources.
Support sustainable mining by means of Sustainability Norms to balance economic, environmental and social impacts.	No current mining applications.	• Determine sustainable and environmental friendly norms for mining in Bergrivier over and above the norms prescribed by the Department of Minerals and Energy Affairs.
Mitigate existing impact.	Bergrivier, Kliphoek, Swatjiesbaai and Flaminkevlei Saltworks.	• Require maintenance of scenic views during mining operation; • Require landscaping at processing plants i.e. Bergrivier Salt works.
Rehabilitation.	Bergrivier, Kliphoek, Swatjiesbaai and Flaminkevlei Saltworks.	• In case mining proceeds, insist on rehabilitation programmes that are approved by the Department of Minerals and Energy; • Control rehabilitation activities and keep licence holders responsible; • Rehabilitate redundant mine sites, if required.
Alternative Transport.	Shisen Saldanha railway line.	None.



Map 12.14 (a): Mining, Ward 7



Map 12.14 (b): Infrastructure, Roads, Ward 7

Strategy 4: Strengthen mobility and economic links		
Management Guidelines	Ward Elements	Proposals
Strengthen Regional routes.	R27& R399.	R27: Connect the greater West Coast Region and municipalities of Saldanha and Cederberg; R399: Strengthen mobility between urban and rural areas and connect West Coast Region with N7 (towards Piketberg) and R44 (towards the Swartland).
Strengthen economic access and links.		Ensure maintenance of existing road networks, R399 in particular needs upgrading.
Strengthen railways and services.	Darling-Vredenburg railway line over Bergrivier Station.	Upgrade and maintain railway lines to transport agricultural and mining (salt) freight; Encourage private operators to promote tourism and public transport between Darling and Vredenburg.
Strengthen Communication networks.	Libraries in Velddrif and Noordhoek.	Create access to information for farm and rural dwellers i.e. at libraries in Noordhoek and Velddrif (including telephone, internet, TV, newspapers and library books).

Strategy 5: Strengthen and develop rural tourism		
Management Guidelines	Ward Elements	Proposals
Broaden appeal of Tourism destinations.	Benede Bergrivier Conservancy; Existing flower and bird watching route.	• *Agri-tourism destinations:* Support tourism accommodation on functioning grain farms; Broaden appeal non-motorised water sport on Berg River; Broaden appeal of festivals marketing agricultural products, i.e. Bergrivier Winter Carnival; Connect prominent agri-tourism areas and farm accommodation with tourism routes i.e. bird watching and veldt flower route; Facilitate the participation of disadvantaged and poor households in tourism i.e. producing handiwork and agricultural products at local shops; Strengthen existing opportunities i.e. bird watching and flower route. • *Heritage destinations:* Promote heritage tourism destinations i.e. Langrietvlei and

		Kersefontein. • *Water sport and recreation:* Enhance opportunities for fishing and water sport (canoeing); Enhance resorts and short term tourism accommodation along coast and areas earmarked for conservation to promote recreation and conservation; Prohibit development within the 1:100 year flood line. • *Endurance sport and recreation:* Encourage endurance sport routes and events i.e. mountain biking and horse trails; Encourage hiking and walking trails.
Develop Tourism Destinations.	Existing flower and bird watching route.	• None.
Grow Bergrivier as part of the West Coast tourism strategy.	New tourism information brochures per town.	• Develop infrastructure that can support tourism i.e. the upgrading of roads, street lighting in particular on minor roads; • Promote uniform tourism signage, clear information points highlighting the uniqueness of each town and its surrounding rural area; • Map the farms in the Bergrivier Municipal area offering tourism opportunities and link them as part of tourism routes. These routes in turn link Bergrivier Municipality and neighbouring municipalities.

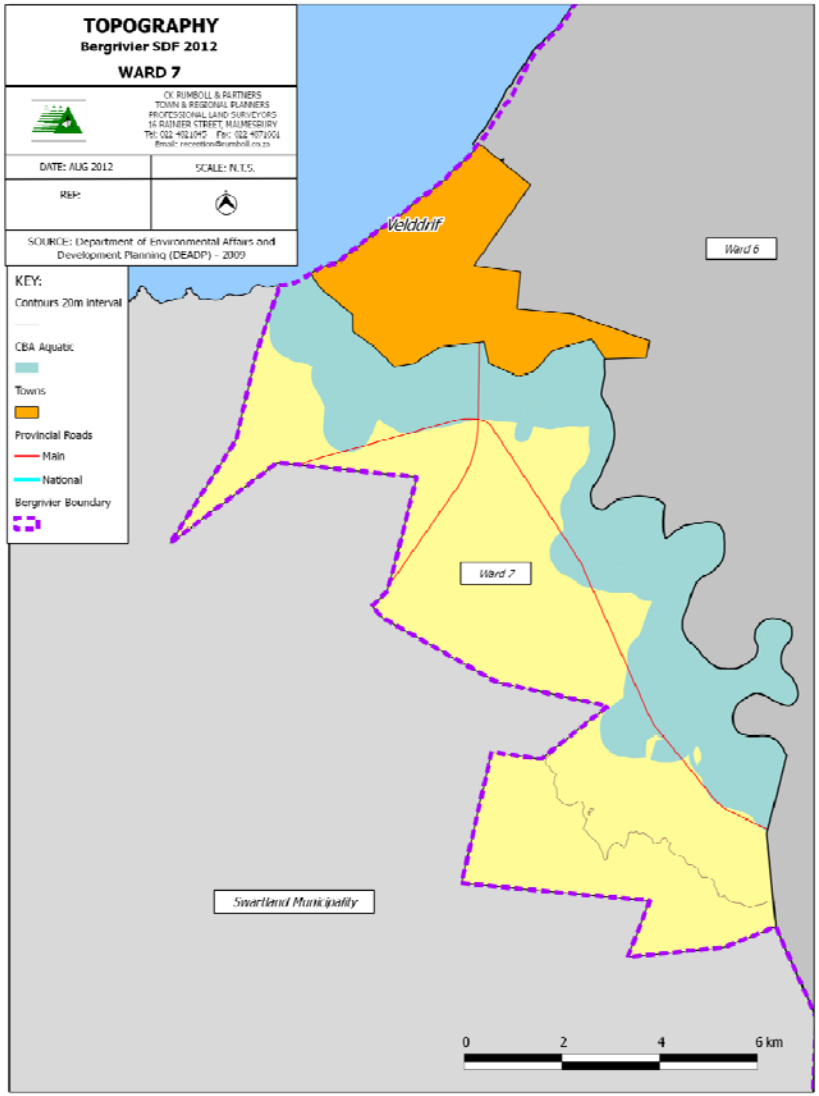
Strategy 6: Regulate rural development according to bioregional planning initiatives.		
Management Guidelines	Ward Elements	Proposals
Determine Core Areas.	Bergriver Estuary; Benede Bergrivier Conservancy.	• Classify riverbanks and coast as core 1 & 2 areas; • Determine a 32m development setback line along the rivers; • Any critical biodiversity areas to be classified as Core 1 & 2 Areas; • Support existing conservation areas i.e. Benede Bergriver Conservancy; • Extend conservancy westwards to the Berg River mouth.
Cape Estuarine Saltmarsh.	Within the municipality this vegetation community is only found at the Berg River Mouth. This permanent wetland is found on very shallow, silted alluvial terraces within the tidal zone and is defined by presence of seawater and high salinity.	• Classify as Core Area; • The Berg River Estuary is under severe pressure and urgently requires formal conservation status, as it is extremely important from an ecological perspective. The Berg River Estuary is very vulnerable to industrialization and urban development both within the estuary

	Vegetation structure: A Cape estuarine salt marsh looks like a meadow and is dominated by herbs and grasses. All the vegetation is short and shrubby and most species are succulent (e.g. *Sarcocornia species) and Salicornia meyeriana*, *Triglochin spp., Plantago crassifolia*). Relatively low botanical diversity when compared to other terrestrial systems. These estuarine salt marshes are particularly important to migratory waders (birds) that visit our shores during summer.	and along the shoreline. Estuarine salt marshes are characterized by very high levels of productivity, which explains their importance in providing food to migratory birds and as a spawning ground for inshore fish species. This area should be formally conserved due to its regional, national and international importance.
Determine Buffer Areas.	Berg River.	• Initiated a climate change corridor along Berg River; • Expand conservation area along Berg River, westwards; • Promote conservation stewardships along Berg River; • Implement effective overlay zones in rural and urban areas to identify conservation areas; • Support rezoning and consent uses forming part of the rural economic development strategy and blending in with the rural environment; • Develop and implement environmental management plans that can be managed at the lowest level.
Sand Fynbos Depression.	Sand Fynbos Depression: Many of the sand fynbos depressions lie on either side of the lower Berg River and are surrounded by Flats Strandveld Mosaic and Hopefield Sand Fynbos. The remaining sand fynbos depressions lie inland, in the Verlorenvlei rivers surrounded by Leipoldtville Sand Fynbos. Sand Fynbos Depressions are characterized by: • occurrence on deep acid sands with a silt or mud substratum; • dependence on the availability of underground water; • being mostly isolated systems that are seasonally inundated; • Usually being unknown vegetation, but in instances where vegetation does occur it is dominated by restios and the rush *Juncus kraussi.*	• Classify as Buffer Area; • Sand fynbos depressions are highly threatened by agricultural cultivation of crops, such as wheat. Livestock graze and trample the depressions. These wetlands are also frequently fragmented by road and rail networks.

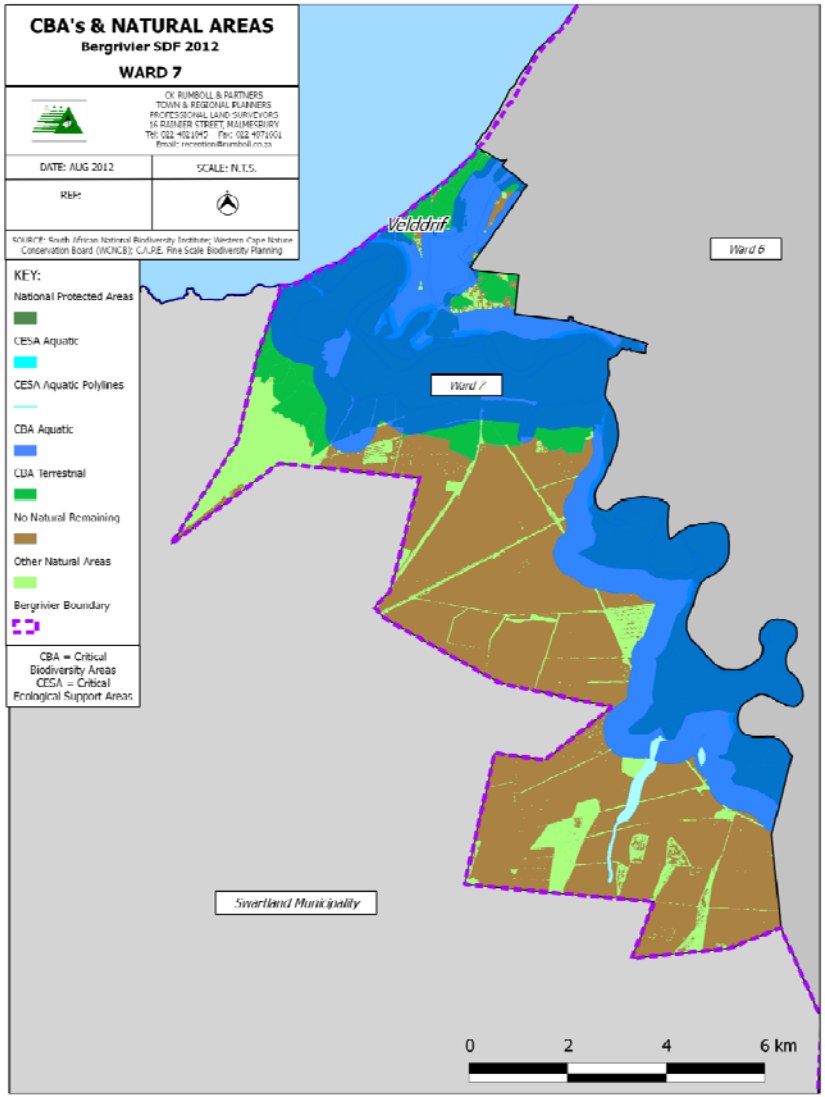
Determine Other Natural Areas.	Langebaan Dune Strandveld: Widely distributed, ranging from the south (Bokbaai) to Rocher Pan and Dwarskersbos in the north. Surprisingly large areas on its inland fringes were ploughed many decades ago, often making the boundary between this and Saldanha Flats Strandveld difficult to pinpoint. Found on calcareous (alkaline) dune sands and poorly developed calcretes mixed with sand. Vegetation structure: Usually a mixed shrub land of 0.5 to 2m tall, with Thicket elements especially common where there are shallow sands atop calcretes. Fire not a major driver of dynamics; total period of stability and substrate type are more important. Younger areas with much less Thicket component, and may be dominated by low shrubs and grasses. Relatively low succulent diversity, but these species may be common. Geophytes are not a major feature, but spring annuals can be spectacular on the sandy soils. North of the Berg River this vegetation type becomes less species rich, with a notable drop in the number of special species. Species of conservation concern that may be found north of the Berg River include *Caesia* sp. nov., *Limonium acuminatum,* and *Otholobiumvenustum. Babiana petiolata* is a fairly common endemic of the northern parts of this unit and adjacent to Lambert's Bay Strandveld.	• Classify as Other Natural Areas.
Determine Intensive Agricultural Areas.	Extensive grain farming area; Extensive livestock farming area.	• Identify extensive and intensive agricultural areas; • Promote conservation and agriculture i.e. best practises for producing potatoes and the Biodiversity and Wine initiative promoted by the Western Cape Wine industry; o Incentivise land owners to manage natural veld as an asset for the environment and for the owner; o Focus conservation priorities primarily to the benefit for landowners in order to ensure sustainable conservation projects; • Encourage a change in legislation to incentivise land owners to conserve fynbos; • The hydrological-, plant-, management- and economic value of

		fynbos (high economic value) should be reflected in policies and directives; • Remove alien vegetation and increase water volumes and biodiversity; • Prohibit potential veldt fires and promote the appearance of the river landscape; • Promote animal health through conservation of fynbos providing for a rich mixture of micro-nutrients for neighbouring fields and land associated with grazing (Kemper, 1999).

Strategy 7: Conserve and strengthen the cultural and heritage landscape		
Management Guidelines	Ward Elements	Proposals
Protect the cultural landscape.	Berg River canoe marathon; Berg River Winter Carnival.	• Promote festivals and celebrations providing opportunities to promote the local produce and hospitality of the Bergrivier locals to attract tourists; • Promote open days; • Expand limited accommodation and restaurant facilities.
Protect and promote the heritage landscape.	Kersefontein, Olifantskop.	• Recognize the following heritage landscapes: o Preserved natural landscape; o Traditional hunting and grazing area; o Landscape of Colonial- Indigenous trade and contact; o The agricultural production landscape; o Water landscape; o Landscape of scenery and Attractions; o Historic town landscape.
Establish climate change corridors and conservancies	Berg river Estuary.	• Use coast and Berg River as core element of corridor; • Corridor to extend along the complete river segment of Ward.
Strengthen tourism route.	R27, R399.	• Establish and promote a route linking historical farms and Berg river; • Promote archaeological route along Berg river.



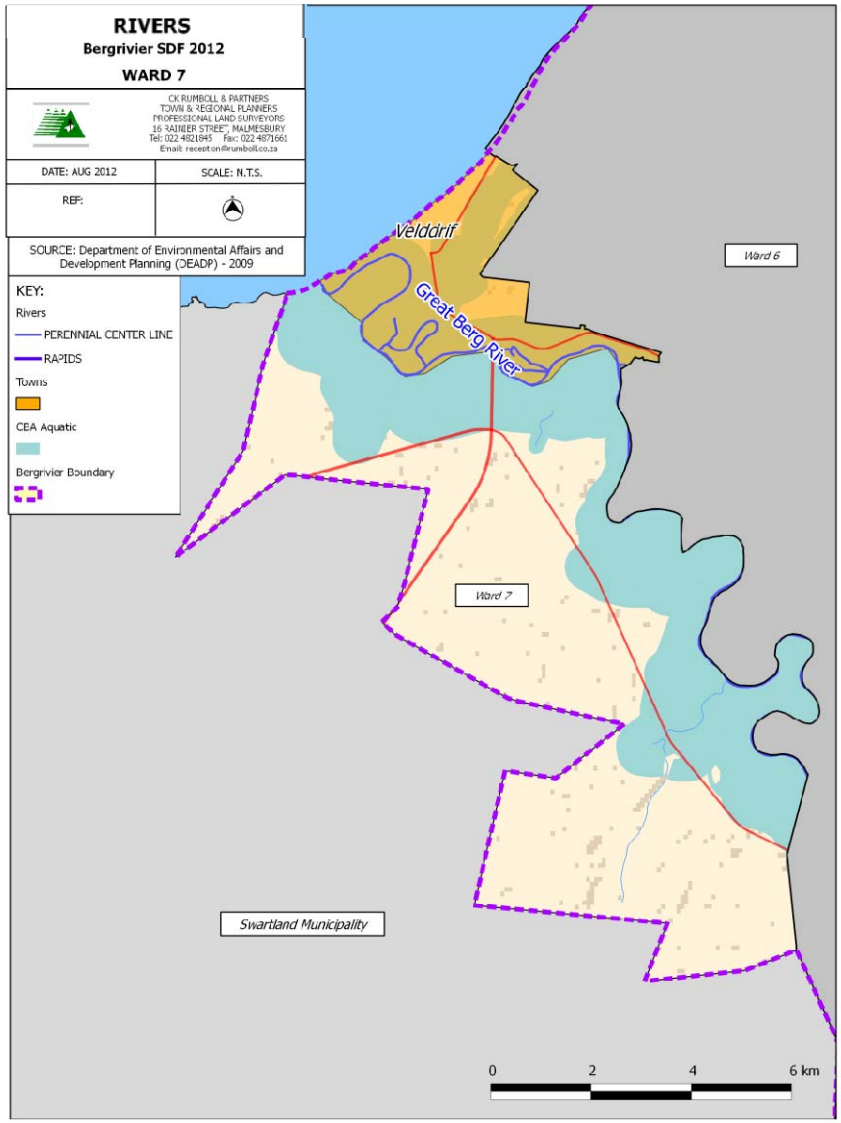
Map 12.14 (c): Topography, Ward 7



Map 12.14 (d): CBAs & Natural Areas, Ward 7

Strategy 8: Protect and strengthen the visual agricultural landscape		
Management Guidelines	Ward Elements	Proposals
The strengthening of the transport corridor should support the agricultural landscape.	R27, R399.	• Any infrastructure or facility should blend in with the environment (not contrast with the environment) and should create the feeling of an "untouched agricultural landscape".
Enhance food production whilst protecting the natural veldt.	Small grain production.	• Promote alternative farming uses on critical conservation areas that can promote conservation of the natural areas.
Protect and promote the agricultural landscape by growing appropriate crops, winter and summer crops are produced under dry land conditions and summer crops are produced under limited irrigation where available.	Wheat fields.	• Limit water erosion through protective preparation methods and the planting of annual crops; • Promote independence from mainstream crops and livestock production through alternative land uses promoting conservation of natural and endangered vegetation and alternative income for a farmer i.e. resorts and Agri-tourism.

Strategy 9: Protect water sources and catchment areas		
Management Guidelines	Ward Elements	Proposals
Protect water resources.	Berg River.	• Implement development setback from Berg river; • Remove alien vegetation to prohibit destructive floods; • To protect boreholes against pollution implementing an agricultural development set back line; • Declare Berg River as a water zone (in conjunction with Swartland Municipality); • Protect aquatic and associated ecosystem and biological diversity.
Promote reuse and saving of water.	Voëlvlei Waterscheme.	• Support the establishment of water tanks at houses to collect water from roofs and to use this water; • Monitor irrigation schemes for sustainable water use.



Map 12.14 (e): Rivers, Ward 7

Strategy 10: Promote food security		
Management Guidelines	Ward Elements	Proposals
Develop a strategy for grain farms that are smaller than 500ha to not be reliant on grain as their only crop.	Extensive small grain farming areas; Extensive livestock farming areas.	• Diversify crop and livestock production; • Encourage alternative farming methods; • Identify areas with low potential agricultural soil for alternative supportive uses to agriculture i.e. small holdings and tourism facilities; • Support the development of facilities such as tourism facilities and farm stalls as consent uses on land zoned Agricultural Zone I.
Strengthen associations to promote community participation in local development issues and to develop land use-/ zoning guidelines.		• Associations to monitor conflicting land uses, diversification and co-ordinate renewal projects; • Associations to promote food production to access appropriate distribution networks.

Strategy 11: Provide housing		
Management Guidelines	Ward Elements	Proposals
Provide subsidised housing of which at least 25% is earmarked for farmworkers.	Velddrif earmarked for subsidized housing.	• Support the provision of privately-owned housing for farm workers in existing urban area (Velddrif and Piketberg) close to work opportunities to ensure ownership and to limit commuting between home and work.

Strategy 12: Identify and develop viable land reform opportunities		
Management Guidelines	Ward Elements	Proposals
Focus on commercial opportunities rather than existence farming, as agriculture is one of the main economic activities in Bergrivier and a primary staple food (i.e. grain) producer.	Small grain growing area; Livestock farming area.	• Promote out stream aquaculture along Berg river and in farm dams; • Encourage: Keeping underground water sources clean; Non soil based production (tunnel and hydroponics) Intensive feed farming or free range poultry; Urban agriculture, local consumption and domestic food production for own use; Green and alternative energy generation.

Strategy 13: Provide and support sustainable rural infrastructure and services		
Management Guidelines	Ward Elements	Proposals
Provide and deliver rural infrastructure and services.	Voelvlei water scheme provides potable water; Transfer stations at Velddrif.	Water: • Promote the harvesting and collection of water; • Provide sufficient storage capacity for drinking water. Sanitation: • Promote and implement the West Coast District Municipal Rural Bathroom subsidies through liaison with relevant land owners; • Provide sewerage services as per national norms in all rural towns. Electricity: • Promote use of alternative energy generation techniques i.e. solar water heating etc. Waste: • Establish transfer stations at Velddrif and Berg Rivier farmers' cooperation.
Provide and support multipurpose community services and infrastructure.	Community centres at Bergrivier Farmers Cooperation.	• Interspersed community service centres, should deliver services at Bergrivier Farmers cooperation; • Local artists and entrepreneurs should be encouraged during visits to exhibit their goods at the multipurpose centres and particularly during service days; • Adult Education and Training and family literacy should be promoted at multipurpose centres and within existing infrastructure; • Make Further Education and Training accessible by public transport or make venues available for part time classes.
Provide for cemeteries.	Private Farm cemeteries.	• Maintain cemeteries, public and private as part of open space systems and hiking trails.
Provision, expansion and support of public transport infrastructure and transport modalities.	Private taxis.	• Determine viability of affordable public transport system along R27, R399; • Improve and develop bus and taxi shelters; • Improve the directions and signage at transport pick up points.

Chapter 13: Spatial Development Framework Budget link/ Priorities

The following priority projects have been identified by Bergrivier Municipality to be carried out:

TOWN PLANNING
(1) Integrated Zoning Scheme for area of jurisdiction;
(2) Velddrif Precinct Plan;
(3) Purchase of GIS software.

TECHNICAL SERVICES
(1) Velddrif sewerage works;
(2) Velddrif reservoir.

The intention is to complete the projects as mentioned within the next three (3) financial years. However, money for the Integrated Zoning Scheme has to be sourced from outside the municipality or else the zoning scheme has to be drafted internally by the municipal town planners.

Department	TOWN	DESCRIPTION	Budget 2012/13	Adjustment Budget 2012/13	Budget 2013/14	Budget 2014/15	Budget 2015/16
CEMETERY	Porterville	Gravel access roads in cemetery	-			35,000	-
CEMETERY	Porterville	Extension of cemetery	100,000	50,000	-	200,000	200,000
CEMETERY	Porterville	Extension of cemetery (Investigation)	35,000	-	-	-	
CEMETERY	Porterville	Fencing of cemetery New: Porterville	-		-	150,000	150,000
CEMETERY	Porterville	Fencing of cemetery 2 : Piketberg	100,000	100,000	-	-	
CEMETERY	Porterville	Improve access and parking of cemetery	-		-		70,000
CEMETERY	Porterville	Toilets at Cemetery 2	-		-		60,000
CEMETERY	Porterville	Toilet and shed at cemetery	-		-		50,000
HOUSING	Velddrif	Housing	2,636,288	-	7,363,000	15,640,000	15,640,000
PLANNING & DEVELOPMENT	Berg River	GIS Software	-		25,000		
ELECTRICITY	Porterville	RDP Homes Internal Services	-		-	-	1,680,000
ELECTRICITY	Porterville	RDP Homes External Services			-		500,000
ELECTRICITY	Porterville	Upgrade Central Business area	60,000	-	50,000	50,000	50,000
ELECTRICITY	Porterville	Install Mini-sub for increased demand in Industrial Area	-		-	320,000	
ELECTRICITY	Porterville	Repair existing Mini-sub and install additional one in Aster Avenue to cater for increased demand	100,000	-	-		
ELECTRICITY	Porterville	Replace Midblock lines- Last sections of Stephaan/ Fabriek streets	-		-	180,000	180,000
BUILDINGS & GROUNDS	Porterville	Thusong Service Centre	2,000,000	-	-		
BUILDINGS & GROUNDS		Burglar-proof fencing at Libraries PB, VD,BJ, LBW	-		80,000	50,000	

BUILDINGS & GROUNDS	Porterville	Community Hall curtains	-		75,000	75,000	75,000
BUILDINGS & GROUNDS	Porterville	Community Hall tables and chairs	-		25,000	-	
BUILDINGS & GROUNDS	Porterville	Community Hall tables and chairs	-		-	30,000	
BUILDINGS & GROUNDS	Porterville	Community Hall tiling of floor	-		-	220,000	
BUILDINGS & GROUNDS	Porterville	Replace fencing commonage	-		-	50,000	50,000
BUILDINGS & GROUNDS	Porterville	Paving for Community Hall	-		-	25,000	
BUILDINGS & GROUNDS	Porterville	Paving for parking at museum	-		-	85,000	
BUILDINGS & GROUNDS	Porterville	Tables for Community Hall	-		-	10,000	
BUILDINGS & GROUNDS	Porterville	Chairs for Community Hall	-		-	10,000	
BUILDINGS & GROUNDS	Porterville	Additional Shed (Black bags & tools)	-		-	-	240,000
BUILDINGS & GROUNDS	Piketberg	Replace floor tiles (Allan Boesak)	-		-	120,000	120,000
BUILDINGS & GROUNDS	Berg River	Tables and chairs (Dining hall)	5,000	5,000	-	-	
BUILDINGS & GROUNDS	Berg River	Stove for Community Hall (Industrial)	20,000	20,000	-	-	
BUILDINGS & GROUNDS	Berg River	Shelter at Community Hall	-		-	50,000	
BUILDINGS & GROUNDS	Berg River	Ablution and shelter at Noordhoek	-		-		450,000
BUILDINGS & GROUNDS	Berg River	Ablution at Aurora	-		-	-	250,000
BUILDINGS & GROUNDS	Berg River	Toilets at the sea	-		-	400,000	
RECREATION FACILITIES	Berg River	Repair swimming pool at Akasia street	-		-		
RECREATION FACILITIES	Berg River	Repair pavilion at Smitpark	70,000	70,000	-	-	
RECREATION FACILITIES	Berg River	Mobile pavilions	-		-	50,000	
RECREATION FACILITIES	Berg River	Upgrade of ablution facilities at EHB Goldschmidt	-		-	200,000	
RECREATION FACILITIES	Berg River	Tennis courts and fencing at EHB Goldschmidt	-		-	200,000	

RECREATION FACILITIES	Berg River	Parking Boom street (Pella Park)	-		-	55,000	
RECREATION FACILITIES	Berg River	Upgrade net-ball courts (Boland Standard)	-		-	250,000	
RECREATION FACILITIES	Berg River	Pave surface around tennis courts	-		-	45,000	
RECREATION FACILITIES	Berg River	Lighting at sports fields	300,000	300,000	-	-	
RECREATION FACILITIES	Berg River	Create new play park in Boom street (Fencing)	35,000	27,000	-	-	
RECREATION FACILITIES	Berg River	Children's pool at Loop street swimming pool	-		-	240,000	
PUBLIC WORKS	Berg River	Concrete furrows in Aurora	40,000	42,000	-	40,000	40,000
PUBLIC WORKS	Berg River	Street name on pavement corners	42,000	42,000	30,000	50,000	50,000
PUBLIC WORKS	Berg River	Speed bumps: Crime prevention	40,000	30,000	30,000	60,000	60,000
PUBLIC WORKS	Berg River	Harden pavements	-		-	200,000	200,000
PUBLIC WORKS	Berg River	Paving on pavements	-		-	300,000	300,000
PUBLIC WORKS	Berg River	Construction of Park street between Wes and Porter streets	-		-	-	300,000
PUBLIC WORKS	Berg River	Construction of Kelly street	-		-	-	100,000
PUBLIC WORKS	Berg River	Survey and design of streets in Eendekuil	-		-	26,000	50,000
PUBLIC WORKS	Berg River	Pavements: Voortrekker street	-		-	30,000	
PUBLIC WORKS	Berg River	Construction of De Hoek Street	250,000	-	-	140,000	
PUBLIC WORKS	Berg River	Repaint traffic lines on Main Road 529 (Municipal contribution)	100,000	100,000	-		
PUBLIC WORKS	Berg River	Construction of streets at RDP homes	-		-	300,000	300,000
PUBLIC WORKS	Berg River	Construction of streets in Aurora			-	500,000	500,000
PARKS & OPEN SPACES	Berg River	Concrete benches within Open Spaces	25,000	22,000	-	25,000	25,000
PARKS & OPEN SPACES	Berg River	Fence & upgrade Parks	60,000	-	-		

PARKS & OPEN SPACES	Berg River	Furniture for Clubhouse	20,000	20,000	-		
PARKS & OPEN SPACES	Berg River	Recreation areas	-		100,000	100,000	100,000
PARKS & OPEN SPACES	Berg River	Irrigation at parks	-		-	20,000	20,000
SEWERAGE	Berg River	Septic tanks at low cost houses	150,000	150,000	-	-	
SEWERAGE	Berg River	Fence for Wastewater Treatment Works	-		-	60,000	60,000
SEWERAGE	Porterville	Sewerage line 300mm & Supply line Disa street (Monte Bertha)	-		850,000	466,000	
SEWERAGE	Velddrif	Extension of WWTW	10,050,000	10,050,000	10,585,833	11,475,834	12,109,166
SEWERAGE	Berg River	Fence WWTW	-		-	150,000	150,000
SEWERAGE	Berg River	Sewerage for Oos street: Laaiplek	-		-	300,000	450,000
STORMWATER DRAINAGE	Berg River	Upgrade storm water according to Master Plan (V&V report)	500,000	350,000	-	1,000,000	4,000,000
STORMWATER DRAINAGE	Velddrif	Stormwater trench at Noordhoek Verdiep Dam	80,000	80,000	60,000		
STORMWATER DRAINAGE	Berg River	Stormwater Voortrekker street Phase 1 (V & V Report)	-		-	200,000	200,000
STORMWATER DRAINAGE	Berg River	Low water bridge in Park street			-	10,000	10,000
STORMWATER DRAINAGE	Porterville	Stabilize Winter furrow (Flood prevention)	35,000	36,000	35,000	35,000	35,000
STORMWATER DRAINAGE	Berg River	Repair road and storm water channeling Edam street	75,000	40,000	-	-	
STORMWATER DRAINAGE	Berg River	Side furrows in Lang street (Phase 3)	-		-	100,000	100,000
STORMWATER DRAINAGE	Berg River	Cilliers street	-		-	-	
STORMWATER DRAINAGE	Piketberg	Museum	-		40,000	-	
STORMWATER DRAINAGE	Berg River	Construction of storm water channels in low cost housing areas	75,000	40,000	-	75,000	75,000
BEACH RESORTS	Berg River	Furniture & equipment	50,000	50,000	100,000	80,000	50,000
REFUSE REMOVAL	Berg River	Fencing at dumping site	500,000	30,000	-		
REFUSE REMOVAL	Berg River	Recycling plant	500,000	500,000	-		

REFUSE REMOVAL	Eendekuil	Collection point	-		-	-	
WATER WORKS	Eendekuil	Kat river pipe line	600,000	1,000,000	-	-	
WATER WORKS	Piketberg	Upgrade purification works	500,000	400,000	-	-	
WATER WORKS	Porterville	Partitioning of Source	400,000	100,000	-	-	
WATER WORKS	Eendekuil	Fence reservoirs site	-		55,000	-	
WATER WORKS	Velddrif	Construct new reservoir	-		-	6,500,000	
HOUSING	Piketberg	Fence RDP homes		340,000	-		
BUILDINGS & GROUNDS	Piketberg	Parking		200,000	-		
PLANNING & DEVELOPMENT	Berg River	Integrated Zoning Scheme			-		
BEACH RESORTS	Dwarskersbos	Upgrading of ablution blocks at Resorts			-	150,000	100,000
MUSEUM	Piketberg	Alarm System for Piketberg Museum and Tourism Offices			-	20,000	-
RECREATION FACILITIES	Berg River	Upgrading of Sport Facilities			557,149	603,991	637,325
LIBRARY	Berg River	Shelves for libraries			50,000	20,000	20,000
LIBRARY	Berg River	Container Library for Wittewater				450,000	500,000
LIBRARY	Berg River	Cameras for Libraries				10,000	15,000
BUILDINGS & GROUNDS	Berg River	Community Hall crockery & cutlery			-	10,000	10,000
BUILDINGS & GROUNDS	Porterville	Tile Community Hall floor				120,000	120,000
BUILDINGS & GROUNDS	Berg River	Community Hall tables and chairs			-	30,000	30,000
BUILDINGS & GROUNDS	Piketberg	Parking at Museum			-		
BUILDINGS & GROUNDS	Redelinghuys	Public ablution					250,000
BUILDINGS & GROUNDS	Eendekuil	Public ablution					250,000
BUILDINGS & GROUNDS	Velddrif	Air conditioning for town hall					350,000
RECREATION FACILITIES	Piketberg	Repair swimming pool in Akasia street			-		

RECREATION FACILITIES	Porterville	Upgrade access road to Pella Park					
RECREATION FACILITIES	Piketberg	Furniture for Clubhouses					
PUBLIC WORKS	Velddrif	Gravel on pavements (Noordhoek)					
PUBLIC WORKS	Piketberg	Entrance to Store/ Security gates					
PUBLIC WORKS	Porterville	Construct Park					
PUBLIC WORKS	Porterville	Construct Vlok street					
PUBLIC WORKS	Porterville	Construct Basson street/ Rose street to Church street					
PUBLIC WORKS	Porterville	Construct golf course road Phase 2					
PUBLIC WORKS	Porterville	Construct Theron street (Waterkant street)					
PUBLIC WORKS	Porterville	Construct entrance - Show grounds					
PUBLIC WORKS	Porterville	Construct Smit street					
PUBLIC WORKS	Porterville	Pavement in streets					
PUBLIC WORKS	Porterville	Tarring of parking areas (Trader stalls)					
PARKS & OPEN SPACES	Piketberg	Botanical garden development					
SEWERAGE	Eendekuil	Sewerage network Eendekuil Phase 2					
STORMWATER DRAINAGE	Piketberg	Loop street (Drainage channels)					
STORMWATER DRAINAGE	Porterville	Cleaning of Winter furrows					
REFUSE REMOVAL	Berg River	Recycling shed					
REFUSE REMOVAL	Redelinghuys	Collection point					2,300,000
REFUSE REMOVAL	Berg River	Weigh bridge			-	500,000	500,000
WATER WORKS	Piketberg	External services for 1400 Low cost houses					
WATER WORKS	Piketberg	Replace 50mm asbestos line: Tuin street (950m)					
WATER WORKS	Berg River	Water management (WCDM)			1,800,000		
WATER WORKS	Porterville	Upgrade WTW			2,500,000		2,800,000