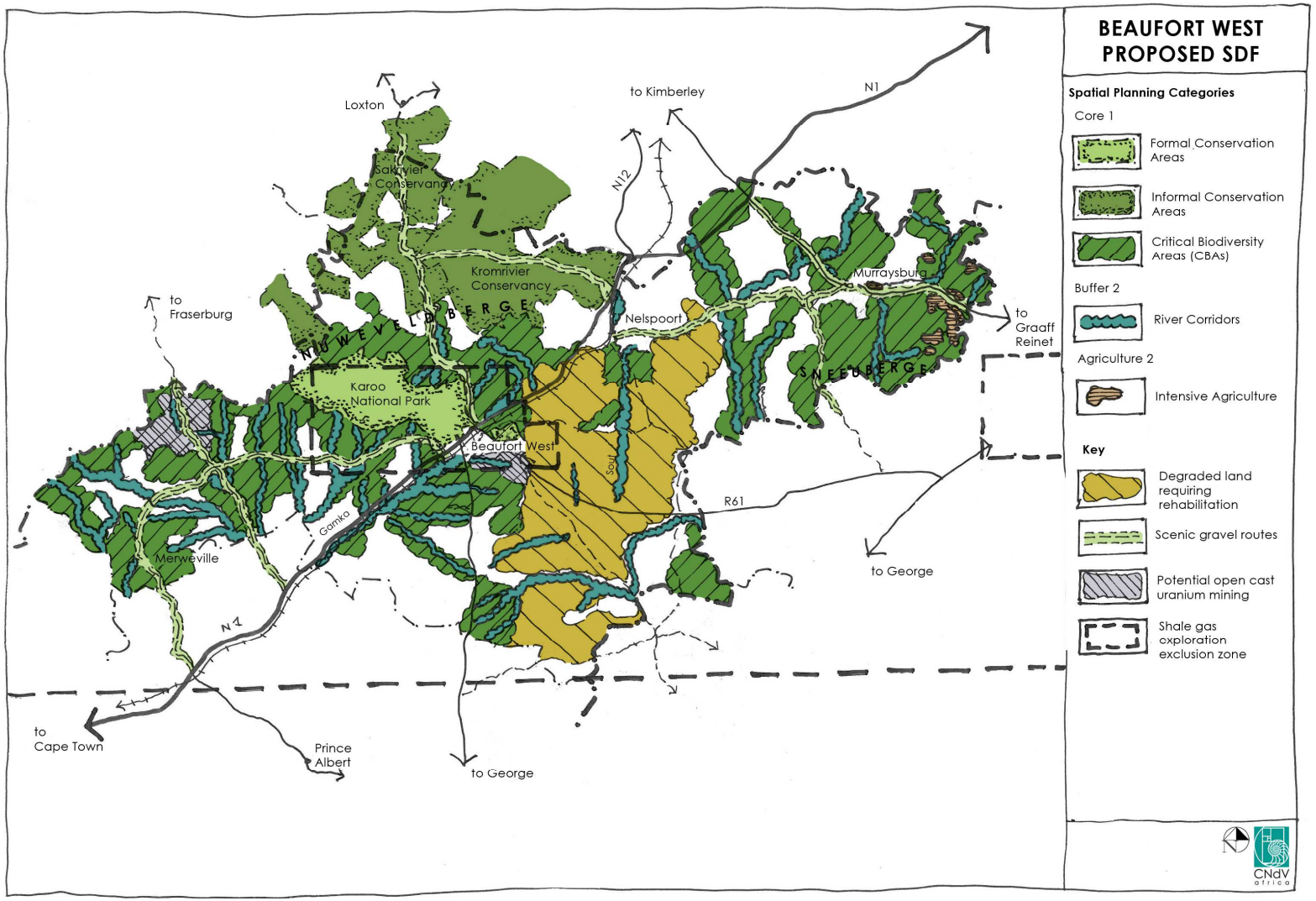


# BEAUFORT WEST MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORK

## CONCEPTUAL DEVELOPMENT FRAMEWORK

**May 2013**

# BEAUFORT WEST MUNICIPAL

## SPATIAL DEVELOPMENT FRAMEWORK

## CONCEPTUAL DEVELOPMENT FRAMEWORK

draft 1

prepared for


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# CONTENTS

## LIST OF FIGURES



## LIST OF TABLES



## LIST OF GRAPHS



## GLOSSARY

| | |
|---|---|
| B&Bs | Bed and Breakfast establishments |
| BEE | Black Economic Empowerment |
| BNG | Breaking New Ground |
| CBD | Central Business District |
| CARA | Conservation of Agricultural Resources Act |
| CBAs | Critical Biodiversity Areas |
| DFA | Development Facilitation Act |
| DWAF | Department of Water Affairs and Forestry |
| EPWP | Extended Public Works Program |
| GAP housing | The term that describes the shortfall, or 'gap' in the market between residential units supplied by the state and houses delivered by the private sector |
| GVA | Gross Value Added |
| Ha | Hectare |
| IDP | Integrated Development Plan |
| LED | Local Economic Development |
| MTB | Mountain Bike routes / trails |
| NPDG | Neighbourhood Development Program Grant |
| NDAs | New Development Areas |
| SANBI | South African National Biodiversity Institute |
| SDF | Spatial Development Framework |
| SDP | Site Development Plan |
| TB | Tuberculosis |
| WWTW | Waste Water Treatment Works |

# 5. CONCEPTUAL DEVELOPMENT FRAMEWORK

## 5.1 SPATIAL VISION

This section sets out the Vision for the SDF.

### 5.1.1 SPATIAL VISION AND CORE IDEAS

The Vision for the Municipality is as follows:

- "***Wilderness tourism and transport gateway to the people, mountains and plains of the Central Karoo"***

  The implications of this vision are as follows:

- Beaufort West town has a responsibility to present itself as a welcoming and convenient centre for catering for the needs of through travelers as well as to attract visitors to spend time in the sub-region;
- An important aspect of improving the presentation of the town is constructing the proposed bypass to remove heavy truck traffic from the main street;
- Promoting urban tourism opportunities in the municipality's settlements will require upgrading their main streets, the creation and management of heritage precincts where appropriate and considerable effort into creating a town and township tourism culture based on B&Bs, restaurants and cultural activities such as the music for which the region has become well known (Karoo Kitaar Blues);
- The main rural economic resource outside of eco-tourism is extensive agriculture. The growth of this resource depends on improving the carrying capacity of the land through good veld management practices;
- Intensive engagement should continue with the shale gas exploration open cast uranium mining proponents to successfully resolve the following issues to protect the long term interests of the municipality and its residents:
  - Maximizing job opportunities for locals and identify what skills training will be required to that they, and not outsiders, get job benefits;
  - Ensuring that the nature and location of any infrastructure maximizes long term benefits – e.g. staff housing should be located in existing settlements;
  - Rehabilitation plans, including proper top soil stock piling, are prepared and implemented on a phased basis as extraction proceeds and not left until all extraction is completed. Mines should be prevented from starting further production phases until rehabilitation milestones of open cast pits or well head pads have been achieved;
  - Key areas such as CBAs, conservancies and stewardship areas and visually sensitive landscapes contributing to long term heritage and tourism opportunities should be off limits to mining and shale gas exploration;
  - As can be seen from Figures 5.1.1 (Wyoming) and 5.1.2 (New Mexico) the visual impact on the Karoo landscapes could be severe considerably diminishing their long term tourism appeal unless they are properly rehabilitated;
  - One of the potential impacts of shale gas exploration is the anthropogenic contamination of underground water aquifers;
  - It should be noted that both Beaufort West and Nelspoort are in a state of potential and, from time to time, actual crisis regarding their water supplies. These are increasingly dependent on groundwater as surface water sources have been inadequate for a number of years in spite of wide ranging water demand management efforts although there is not much evidence of rainwater harvesting, especially in new low income housing areas;
  - However, in recent years water demand has increased while recharge has decreased due in part to below average rainfall (<250mm p.a.) Beaufort West's boreholes have experienced a one metre per annum drop in the water table; (Water Services Development Plan 2011/2012, p 28);
  - Nelspoort is reliant on the Sout River aquifer whose recharge is considerably weakened by the highly degraded soil and vegetation conditions in the basin above. This is an important motivating factor for the biodiversity restoration of this bio-region;
  - Beaufort West is exploring aquifers such as Rytkuil to the south of the town. However, this also underlies a potential open cast uranium mine;
  - Clearly if the water supplies of these settlements is undermined or compromised their future will be in question; and,
  - Short term impacts of shale gas extraction will include transport and traffic and issues around accommodating mining crews (roughnecks), physically (housing) and socially (employment, recreation, entertainment. schooling, health– HIV, alcohol, drugs; crime and prostitution).

**Figure 5.1.1 Fracking in Pinedale, Wyoming** (www.empowernetwork.com)

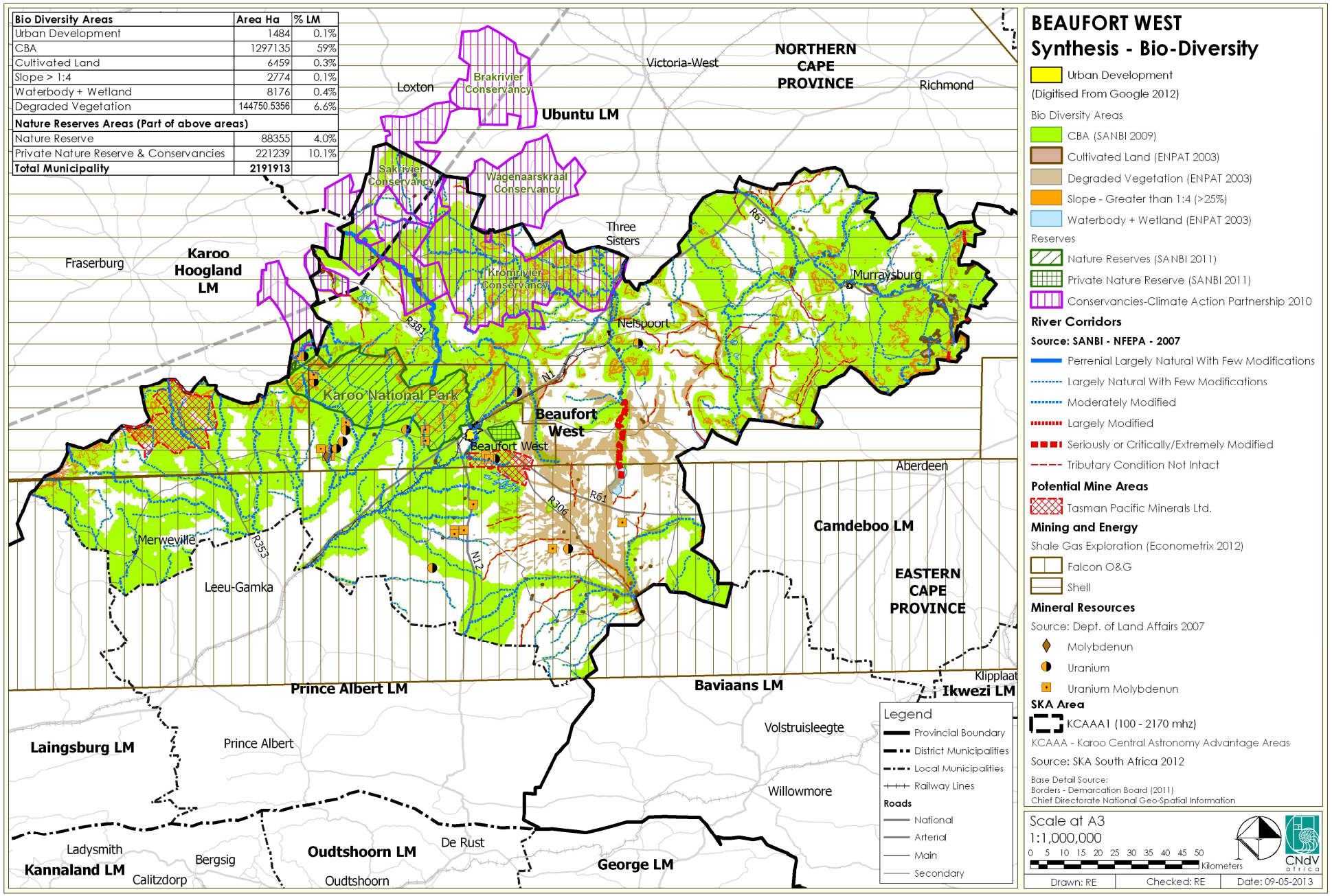
**Figure 5.1.2 Fracking near Aztec Ruins and Mesa Verde, New Mexico**
(Google Earth, 2009)

## 5.2 MACRO-CONCEPTUAL FRAMEWORK

### 5.2.1 NATURAL SYSTEMS SYNTHESIS, see Figure 5.2.1.1

Figure 5.2.1.1 indicates four distinct natural systems arising out of the synthesis of the natural systems found in the municipality. Issues identified include:

- Relatively dry with rainfall in the south approx. 100 – 200mm, Nuweveld mountains to the north approx. 200 – 300mm and highest rainfall in the east near Murraysburg in the Sneeuberg mountains, 300 – 600mm;
- Geologically part of the Karoo Basin which has been identified as having shale gas potential and entire municipality falls under either the Shell (north of Beaufort West) or Falcon O&G (south of Beaufort West) exploration areas , with the exception of an area that appears to exclude the Karoo National Park;
- Two large areas in the municipality under investigation for open cast uranium mining potential; around the R353 between Leeu Gamka and Fraserburg and just south of Beaufort West near the R61 to Aberdeen;
- Annual Horizontal Solar Radiation is fairly high – 2000 – 2100 KWh/$m^2$ increasing towards the north. Similarly wind speeds of 6 – 8m/s are also fairly high. Both these sources could be potential energy generators;
- The landscape comprises a backdrop of the Nuweveld mountains fringing the northern border of the municipality at which Beaufort West is located at the southern tip and a large flat plain containing the Gamka and Sout River valleys. The topography around Murraysburg is distinctly different containing foothills rising to the Sneeuberg range in the south;
- The rivers are almost all non-perennial and are generally classified as largely to moderately modified, i.e. their quality and quantity in relation to their original status is largely satisfactory. However, the rivers in the Sout River catchment are in a highly modified and poor state, in keeping with the generally highly degraded state of this area;
- Most of the vegetation falls under the Nama Karoo biome comprising Upper and Lower Karoo vegetation types with some Dry Highveld Grassland west of Beaufort West;
- Critical Biodiversity Areas (CBAs) comprise mainly the Upper and Lower Karoo vegetation types;
- The highly degraded Sout River basin comprises almost all this Grassland as well as large expanses Lower Karoo Vegetation.
- However, because there is so much of these vegetation types elsewhere, presumably because of their highly degraded state in this area and their prevalence elsewhere the Grassland areas are not considered CBAs nor Critically Endangered nor Endangered;
- In the instance of the highly degraded Sout River basin these classifications are considered problematic as they do not highlight the serious need for veld rehabilitation in this area which could become a dustbowl;
- The CBAs in the northern areas already enjoy significant protection with 88 000 ha (4% of municipality) in the Karoo National Park and 221 000 ha (10%) under private conservation;
- This contribution by the private sector to bio-diversity conservation goals can be considered a significant success of the stewardship and conservancy policies as it has saved considerable public resources;
- As well as a bio-diversity resource extending the conservation of these CBAs will also contribute to increasing opportunities in the eco-tourism sector;
- Not surprisingly, in view of its geology and climate, agriculture comprises mainly extensive stock farming with some R50m p.a. derived from mainly from sheep and some cattle farming and R7m p.a. from crop farming, mainly maize; and,
- There is only approx. 6 500 ha of cultivated land of which only 1 000 ha is irrigated, mostly around Murraysburg.




| Bio Diversity Areas | Area Ha | % LM |
|---|---|---|
| Urban Development | 1484 | 0.1% |
| CBA | 1297135 | 59% |
| Cultivated Land | 6459 | 0.3% |
| Slope > 1:4 | 2774 | 0.1% |
| Waterbody + Wetland | 8176 | 0.4% |
| Degraded Vegetation | 144750.5356 | 6.6% |
| **Nature Reserves Areas (Part of above areas)** | | |
| Nature Reserve | 88355 | 4.0% |
| Private Nature Reserve & Conservancies | 221239 | 10.1% |
| **Total Municipality** | **2191913** | |

**Figure 5.2.1.1 Beaufort West Municipality: Natural Systems Synthesis**

### 5.2.2 SOCIO-ECONOMY AND BUILT ENVIRONMENT SYNTHESIS, see Figure 5.2.2.1

- The municipal population seems to have seen significant growth from 2001 (±43 000) to 2011 (±50 000);
- Although the detailed breakdown of population growth per settlement is not yet available it is likely that most growth occurred in Beaufort West town with declines in the other centres and the rural areas;
- For instance, agricultural employment appears to have declined from ±1 400 in 2001 to ± 700 in 2011. This decline is likely to resulted in migration from the rural areas to Beaufort West town;
- The likely share of population is thus:
  - Rural areas 2 500
  - Merweville 1 200
  - Murraysburg 4 500
  - Nelspoort 1 300
  - Beaufort West 40 500
- Beaufort West town is by far the most important settlement in the municipality. It also plays a sub-regional role serving other small towns beyond its boundaries, particularly to the west, e.g. Victoria West, Fraserburg, and Loxton. People living in settlements to the east, e.g. Willowmore, Prince Albert, are more likely to use Oudtshoorn and George.
- It is also a major refueling and service stop on the N1 highway for trucks and is an important station on the national rail route between Cape Town and Gauteng;
- The municipality is well served by hospitals with one in Beaufort West, Murraysburg and Nelspoort (district TB and psychiatric hospital);
- There are also clinic facilities in these centres as well as in Merweville and there is a rural clinic on the N12 towards De Rust;
- Beaufort West and Murraysburg have high schools and there are intermediate schools in Merweville and Nelspoort. There appear to be no farm schools in the municipality;
- The municipal employment structure is undergoing structural change mainly as a result of changes in its historical main economic resource, agriculture, and the rise in importance of Beaufort West town as a regional economic service centre.
- Agriculture, previously (2001 2nd highest employer has now slipped to 5th place, and manufacturing, financial services and households (domestic work) have overtaken it. Government services, already previously the most important employer. has increased even more;
- These employment changes have mainly occurred in Beaufort West and reflect its increasing importance as a wholesale and retail centre; two shopping centres have been constructed and it serves as a tourism gateway to the sub-region and a government services centre;
- There is also increasing manufacturing employment, also largely reflecting the demand for repairs and maintenance of surrounding tourism enterprises and, most significantly, the N1 road and rail traffic;
- Although there are significant pockets of poverty particularly in Beaufort West Town and, to a much smaller extent in the other settlements, and unemployment levels remain high, (25.5%) they appear to have declined from an all time high of 39% in 2001;
- There are 14 land reform projects in the area. However, they are almost all situated in the degraded land to the south of the R61, an area identified in the previous section as requiring extensive rehabilitation of its rivers and bio-diversity. Overcoming this extreme degradation imposes an additional burden on emergent farmers;
- One area of potential opportunity is that both urban and rural properties are reasonably priced compared to other parts of South Africa although this does also reflect low demand;
- Beaufort West town and Murraysburg, to a lesser extent, have significant concentrations of potentially heritage worthy buildings which, if conserved and their surrounding precincts properly managed, can create the basis of a tourism industry based on this resource. There are also a number of historic homesteads in the municipality whose use for tourism purposes should be encouraged. Merweville also has a few heritage worthy buildings including the church and some residential dwellings. The older buildings in Nelspoort were built in the 1920s and there are a large number older than 60 years;
- Beaufort West town has a small airport which received scheduled air services from the 1940s to the 1960s at which point land based transport services improved to the extent that this level of service was no longer viable. However, the airport remains an important resource to serve both the business and tourism should these two sectors develop. The mining industry, particularly with regards to shale gas extraction, and uranium mining, if their various challenges regarding visual impact, bio-diversity rehabilitation, water resource protection and social impact can be resolved, may also become an important user of air travel; and,
- Major infrastructure passes through or near Beaufort West town including:
  - N1 highway between Gauteng and Cape Town, a major national freight route;
  - Cape Town – Gauteng freight and passenger rail link which has been losing traffic to road;
  - 132kv electricity power lines transmitting electricity from the north to the Cape; and,
  - Cape Town – Gauteng fibre optic cable currently under construction.

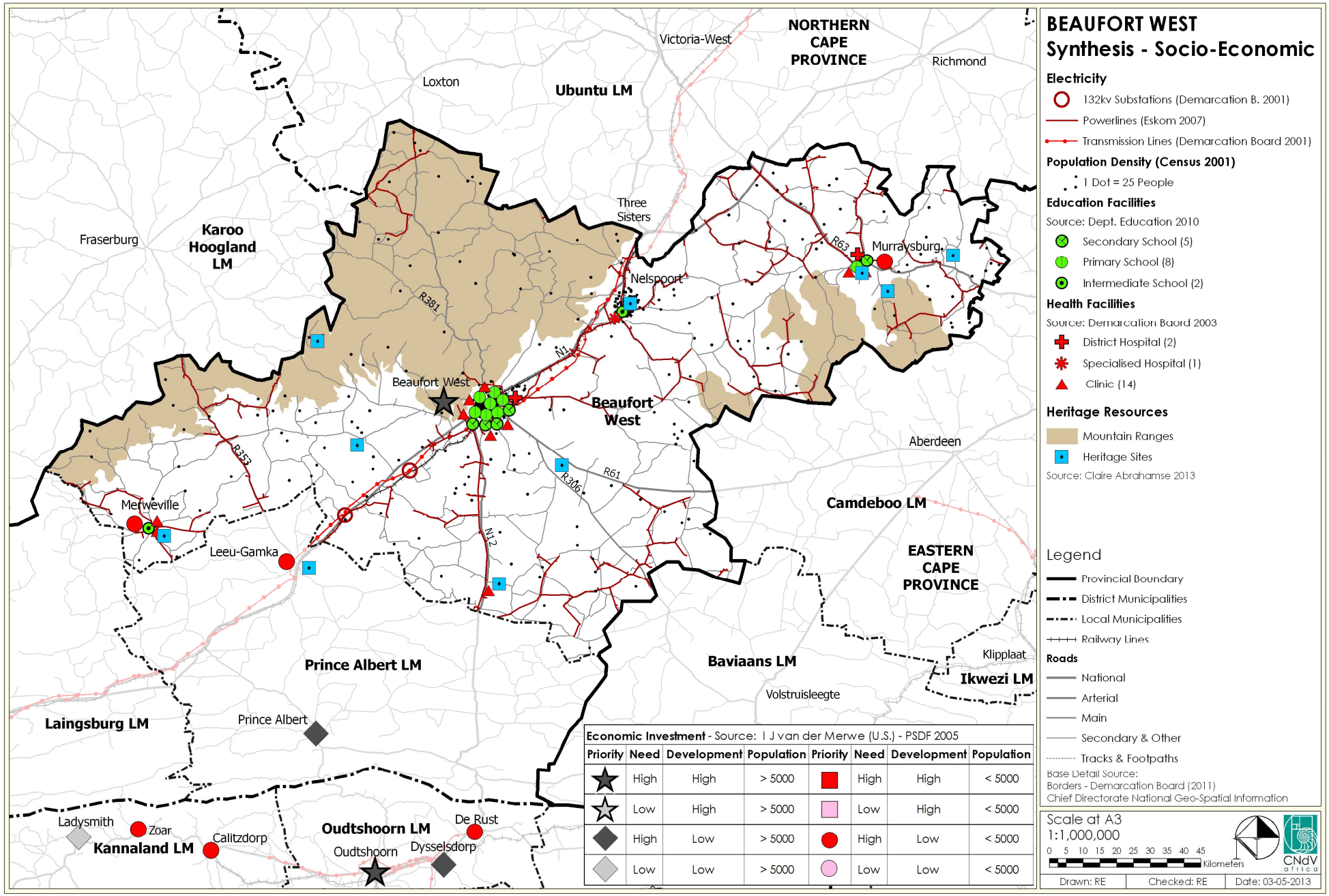
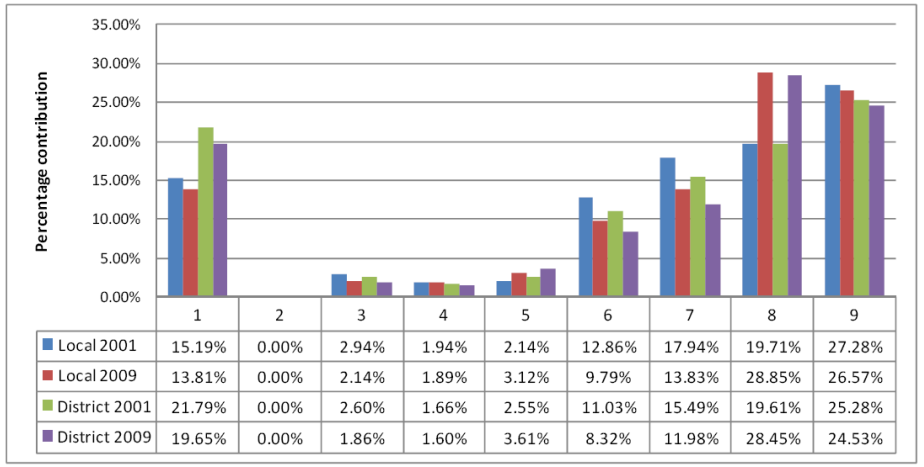



**Figure 5.2.2.1 Beaufort West Municipality: Socio-economic Synthesis**

### 5.2.3 SECTOR GVA CONTRIBUTIONS, Graph 5.2.3.1

- This information, taken from Western Cape Provincial Treasury data (2010) indicates a decline in most economic sectors with the exception of financial services;
- A slight increase is also indicated in construction but this is likely to be related to the boom of 2002 – 2007. As construction's demand is derived from activities in other sectors it is likely to have subsequently declined as well;
- It can be seen that there is no mining at present. However, this could change significantly in the time period of the SDF, namely 5 to 10 years, if current investigations into shale gas extraction and uranium mining prove successful. It will be important to keep a close watch on developments in this sector;
- There should be a focus on improving opportunities in the wholesale and retail, transport, storage and communication and financial services sectors. Mining may or may not provide a silver bullet to give significant impetus to the development of these sectors. This possibility should not distract from the need to continuously make improvements to existing operation in these sectors. for instance;
  - Enhancing eco, agri and heritage tourism opportunities by increasing the land under conservancies, creating well managed and maintained heritage precincts in the settlements that attract visitors and even permanent residents, and improving human resource skills to serve this industry;
  - Improving veld carrying capacity and therefore the numbers of stock that can be carried in the farming areas through veld management practices such as rotational grazing;
  - The possibility of attracting middle and upper income permanent residents either as retirees or as business entrepreneurs wanting to escape from the city should also be pursued. For instance Murraysburg's hospital, if properly staffed and managed and if the town was well maintained, could attract such residents wishing to retreat from the cities.
- Opportunities for improving urban quality should also be explored in Beaufort West town particularly along the main street. Building the long awaited truck by-pass could create important opportunities in this regard.




| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Local 2001 | 15.19% | 0.00% | 2.94% | 1.94% | 2.14% | 12.86% | 17.94% | 19.71% | 27.28% |
| Local 2009 | 13.81% | 0.00% | 2.14% | 1.89% | 3.12% | 9.79% | 13.83% | 28.85% | 26.57% |
| District 2001 | 21.79% | 0.00% | 2.60% | 1.66% | 2.55% | 11.03% | 15.49% | 19.61% | 25.28% |
| District 2009 | 19.65% | 0.00% | 1.86% | 1.60% | 3.61% | 8.32% | 11.98% | 28.45% | 24.53% |

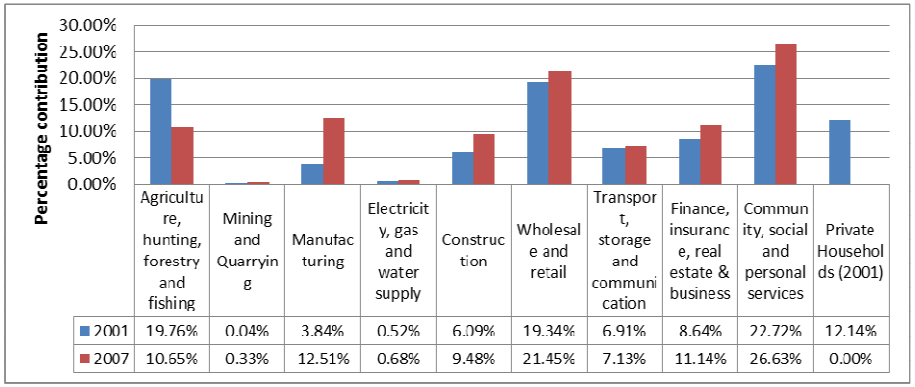
**Legend:**
1 Agriculture, hunting, forestry and fishing
2 Mining and quarrying
3 Manufacturing
4 Electricity, gas and water supply
5 Construction
6 Wholesale and retail
7 Transport, storage and communication
8 Finance, insurance, real estate and business services
9 Community, social and personal services
**Note**: Mining and quarrying at the local level registered no activity in 2001 and 2009
**Source**: Adapted from Western Cape Provincial Treasury (2010)

**Graph 5.2.3.1 Sector contributions to GVA for the local and district municipal areas in 2001 and 2009** (MPBS, 2012)

### 5.2.4 SECTOR EMPLOYMENT CONTRIBUTIONS, Graph 5.2.4.1

- It is interesting to note there are more sectors where employment is increasing than GVA;
- While there is concern that this pattern suggests declining incomes, because the social cohesion of a municipality lies with the extent to which its population has access to economic opportunities and therefore employment, this pattern should generally be regarded as good news. This is because it would seem that there is a greater propensity to employment than GVA contribution in all sectors except agriculture;

- This is not to say that all is well and good as it is seen that unemployment is still around 25% although some of the negative impacts of this are likely to be alleviated by social grants;
- However, this also means that particularly Beaufort West town is likely to attract a significant amount of in-migration attracted by the greater **possibility** of finding work, not necessarily because there are actual jobs available. As this in-migration is likely to happen at a faster rate than the infrastructure of the town can develop informal settlements are likely to increase and grow;
- Notwithstanding this concern, the following areas of focus can be identified in which the municipality has significant advantages:
  - Manufacturing – repairs and maintenance to the agriculture, transport and tourism industries;
  - Construction – derived from growth in the other sectors;
  - Wholesale and retail – servicing mainly N1 road traffic and the needs of surrounding rural settlements and communities, particularly in the tourism industry;
  - Transport, storage and communication – taking advantage of Beaufort West town's strategic location on national road and rail transport, fibre optics and electricity transmission line routes;
  - Finance, insurance and real estate – as the secondary sectors grow and become more sophisticated they will require increasing support from this sector;
  - This sector also contains much of the tourism industry which has significant resources in the municipality which can be increased over time;
  - Community services – due to Beaufort West town's central location on the N1 and in the region, demand for these services is likely to grow over time.




| | Agriculture, hunting, forestry and fishing | Mining and Quarrying | Manufacturing | Electricity, gas and water supply | Construction | Wholesale and retail | Transport, storage and communication | Finance, insurance, real estate & business | Community, social and personal services | Private Households (2001) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2001 | 19.76% | 0.04% | 3.84% | 0.52% | 6.09% | 19.34% | 6.91% | 8.64% | 22.72% | 12.14% |
| 2007 | 10.65% | 0.33% | 12.51% | 0.68% | 9.48% | 21.45% | 7.13% | 11.14% | 26.63% | 0.00% |

**Graph 5.2.4.1** **Sector contribution to Employment** (MPBS, 2012)

### 5.2.5 BROAD SPATIAL CONCEPT

Figure 5.2.5.1 shows the broad Conceptual Spatial Development Framework for the Municipality.

There are five main structuring elements:

- The N1 road and adjacent rail route is the main transport and socio-economic artery through the municipality, significantly increasing its opportunities compared to other similar sized municipalities not enjoying such access;

- The Nuweveld mountains to the north form an impressive scenic backdrop to the municipality. They contain large areas of significant CBAs and most of the formal and informal conservation areas – 14% of the total area are found here;

- The Gamka river basin contains the settlements of Beaufort West town and Merweville and is mostly used for extensive farming – small stock grazing;

- South of Beaufort West is a large area of significantly degraded land in the Sout River basin with extremely low stock carrying capacity and low concentrations of people. It can be clearly seen on Figure 5.3.1.2. This area requires extensive rehabilitation if it is not to become a dustbowl;

- To the west Murraysburg forms an almost separate eco and social system. It is not directly linked to Beaufort West but is accessed off the R63 between Graaff Reinet and Victoria West. It is the highest, wettest and most fertile part of the municipality where most of the small areas of intensive farming are found, particularly in the west. In the south the landscape rises up to the Sneeuberg. It is 91kms from Graaff Reinet in the Eastern Cape and 158kms from Beaufort West. This remote location creates a significant challenge as it depends on services delivered from Beaufort West.

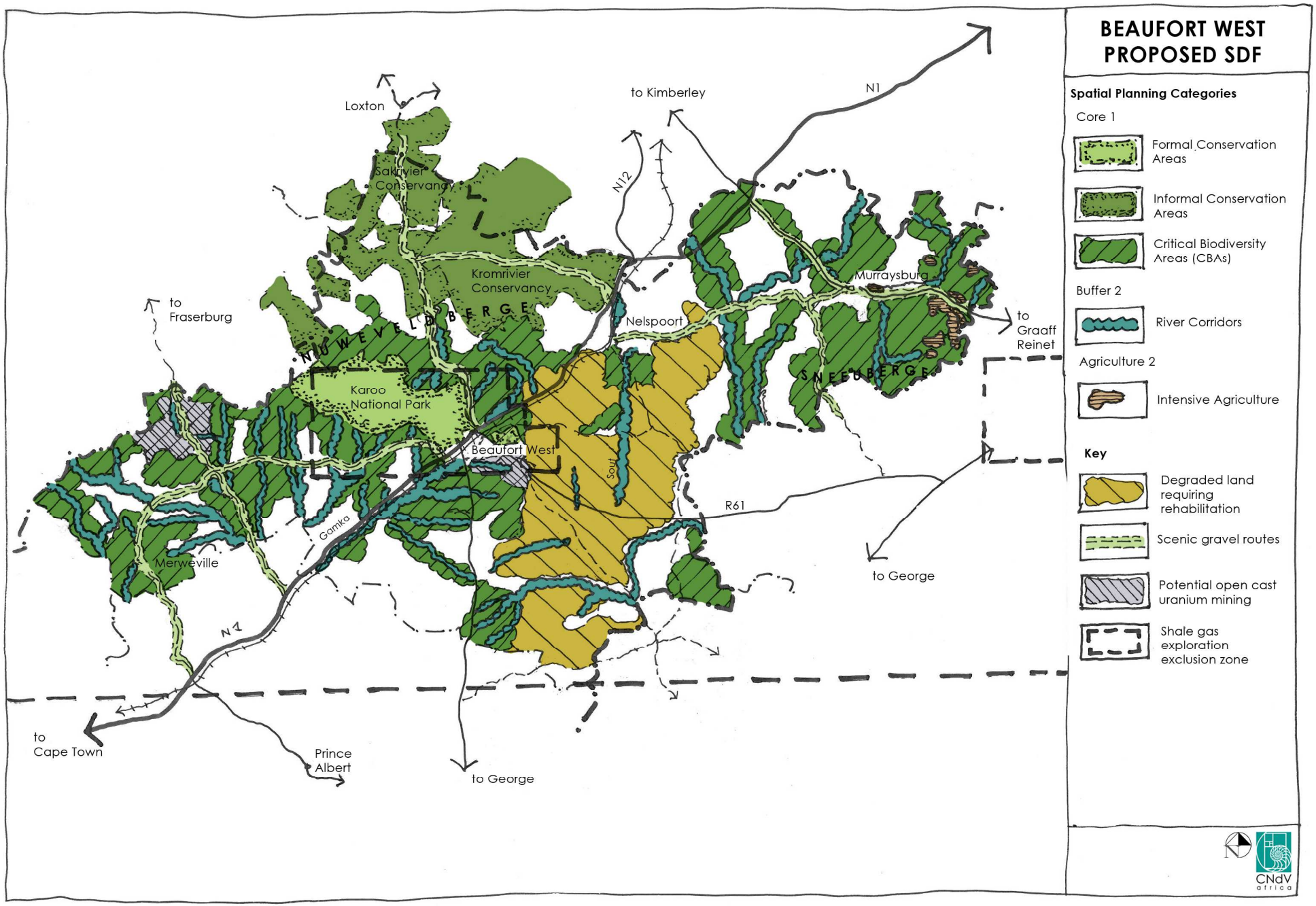



**Figure 5.2.5.1 Beaufort West Municipality: Broad SDF Concept**

## 5.3 MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORK

The spatial development framework for the municipality comprises the following elements:

- Bio-regions;
- Spatial Planning Categories (SPCs);
- Sustaining the Economy
- Major Infrastructure Projects;
- Major Tourism Destinations;
- Land Reform;
- Urban Related Development;
- Urban Design Guidelines;
- Potential Rural Nodes and Periodic Rural Markets; and,
- Settlement Hierarchy;

### 5.3.1 BIO-REGIONS

Section 5.2.1 identified four bio-regions that can be distinguished in terms of the natural environment and economy as shown in Table 5.3.1.1. They are shown on Figure 5.3.1.1.

The bio- regions are:

- Nuweveld Highlands
- Gamka River Basin
- Sout River Badlands
- Sneeuwberg Foothills

Table 5.3.1.1, below shows the characteristics of the four bio-regions.

**General: Investigate the removal of conservancies and stewardship areas as well as formally protected land like National Parks from the shale gas exploration areas.**

#### 5.3.1.1 Nuweveld Highlands

**NH1** **Promote this area as a bio-diversity and eco-tourism sub-region and encourage the extension of the Karoo National Park and the existing conservancies including accommodation opportunities focusing on Critical Biodiversity Areas (CBAs);**

**NH2** **In extensive farming areas outside of formal and informal conservation areas and including CBAs improve the overall bio-diversity through good veld management practices and rotational grazing methods such as Acocks or Savoury;**

**NH3** **Focus on the rehabilitation of river corridors as the first step in this process;**

**NH4** **Encourage use of rural roads as scenic self-drive and MTB routes;**

**NH5** **Ensure proper mine rehabilitation plans including top soil stockpiling are in place before mining commences and that mines are prevented from future phases of mining until agreed rehabilitation milestones are achieved.**

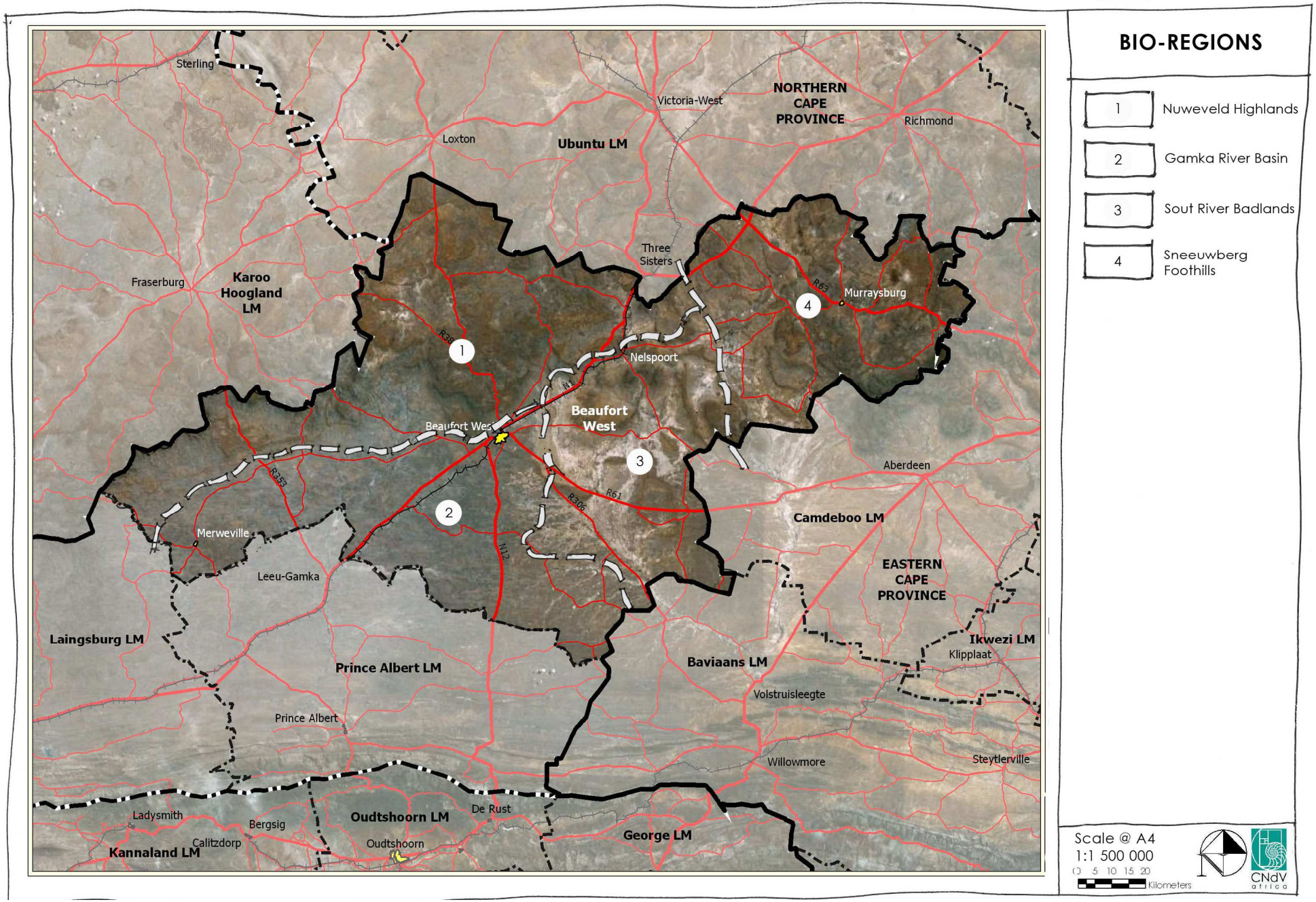



**Figure 5.3.1.2 Beaufort West Bio-regions**

### 5.3.1.2 Gamka River Basin

**GR1** **Promote bio-diversity conservation of CBAs and river corridors well as land to be retained for extensive agriculture through the creation of conservancies and good veld management practices and rotational grazing methods such as Acocks or Savoury.**

### 5.3.1.3 Sout River "Badlands"

**SRB1** **Implement extensive veld rehabilitation programs to restore the Nama Karoo and Dry Karoo Grasslands and water courses as a matter of urgency.**

### 5.3.1.3 Sneeuwberg Foothills

**SF1** **Protect all potential and existing arable land (intensive agriculture) as the most important economic rural land from other uses;**

**SF2** **Promote bio-diversity conservation of CBAs and river corridors well as land to be retained for extensive agriculture through the creation of conservancies and good veld management practices and rotational grazing methods such as Acocks or Savoury;**

**SF3** **Encourage use of rural roads as scenic self-drive and MTB routes.**

| | Nuweveld Highlands | Gamka River Basin | Sout River Badlands | Sneeuwberg Foothills |
|---|---|---|---|---|
| **Altitude (m)** | 1250-1750 | 750 - 1250 | 750 – 1250 | 1250 - 2000 |
| **Population distribution** | Very few rural - few – isolated farmsteads and conservation areas | Beaufort W. 40 500<br>Merweville 1200 | Nelspoort 1300 | Murraysburg 4500<br>Rural areas – ± 1 000 |
| **Agriculture** | Stock farming | Stock farming – better quality veld | Stock farming – low carrying capacity | Mainly extensive, some dryland crops– 5 000 ha<br>Irrigation 1000 ha |
| **Mining** | Potential open cast uranium mine on R353<br>Shale gas exploration except Karoo National Park | Potential open cast uranium mine on R61<br>Shale gas exploration | Shale gas exploration | Shale gas exploration |
| **Bio-diversity** | Extensive CBAs Nama Karoo | Some CBAs Nama Karoo | Excessive degradation Nama Karoo and Dry Karoo Grassland | Extensive CBAs Nama Karoo |
| **Tertiary** | Eco and agri-tourism - hunting | Eco and agri – tourism – hunting, Transport, wholesale, retail and services – Beaufort West town | Possibly some eco-tourism - hunting | Eco and agri-tourism - hunting |
| **Renewable energy potential** | Fairly good solar<br>Fairly good wind | Fairly good solar<br>Fairly good wind | Fairly good solar<br>Fairly good wind | Fairly good solar<br>Fairly good wind |
| **Hydrology** | Source of numerous non-perennial in relatively undisturbed state | Gamka river basin with rivers in relatively undisturbed to disturbed state | Sout River in extremely disturbed state needing significant rehabilitation including many other non-perennial rivers in bio-region | Numerous perennial and non-perennial rivers in good condition |
| **Landscape character** | Classical steep mountain ranges forming impressive backdrop to whole municipality westwards from N1 | Flat cosmic plains flowing to the south framed by Nuweberg to the north | Flat desert-like cosmic plain inclining to the south | Romantic landscape of rolling hills rising to the Sneeuwberg in south |

**Table 5.3.1.1 Sub-regions and characteristics**

### 5.3.2 SPATIAL PLANNING CATEGORIES FOR LAND USE MANAGEMENT

The Spatial Planning Categories provide the basis for managing rural land uses. The general conditions guiding what activities may occur within each category are generally in accordance with those set out in Table 5.3.2.1.

| SPC | Description | Policies | Notes | Responsibility |
|---|---|---|---|---|
| Core 1a | Formally protected conservation areas | Formally protected areas, including those under SANParks and CapeNature control, should continue to enjoy the highest levels of protection.<br><br>Further continuous corridors between the mountain and the sea should be promoted.<br><br>The municipality should engage with the conservation authorities to ensure that economic growth and employment opportunities from these areas are maximized. | | Municipality<br>SANParks<br>CapeNature<br>Tourism organisations |
| Core 1b | Critical Biodiversity Areas (CBAs) outside of formally protected conservation areas | Conservation of endangered vegetation areas shall be encouraged through the promotion of conservancies and stewardship projects with limited eco-tourism development rights and/or donations to formal conservation agencies.<br><br>All CBAs should be ground-truthed before they are finalized. Conservation of CBAs should be incentivized through the granting of limited development rights as per the rural Land Use Planning and Management Guidelines for Holiday Accommodation, low density rural housing, low impact tourist and recreational facilities (CapeNature 2010). | | Municipality<br>Dept of Nature Conservation<br>Dept of Tourism<br>SANBI |
| Core 2 | River corridors and wetlands | River corridors and wetlands, including ephemeral pans, must be protected from urban, agricultural and mining activities to a distance of at least 30 metres from their banks unless closer setback lines have been determined by a geohydrologist and freshwater ecologist. | | Municipality,<br>DWAF, Dept of Agriculture,<br>SANBI |
| Buffer | Extensive agriculture / grazing | Rotational grazing and other veld management best practices shall be promoted livestock grazing so as to improve biodiversity and stocking rates | | Municipality<br>Dept of Agric |
| Intensive Agriculture | Irrigation and dry land crop and pasture farming | All existing and potential land suitable for intensive agriculture shall be protected from conversion to other uses including conservation. Agriculture water demand management must be practiced and intensive agriculture water supplies shall be protected and not diverted to other uses.<br><br>Investigate methods to bring the agricultural land currently lying fallow back into production if possible. | | Municipality<br>Dept of Agric<br>Consultant |
| Urban Settlement | All land used for urban purposes in towns, villages and hamlets. | Urban development shall be promoted within urban settlements according to the settlement planning principles, see Section 5.4. | | Municipality |
| Urban Edge | Outer boundary of urban settlement aligned to protect natural and agricultural resources and to promote more compact settlements | No urban development shall be permitted outside of Urban Edges. | | Municipality<br>Dept of Agric |

**Table 5.3.2.1 Spatial Planning Categories**

### 5.3.3 SUSTAINING THE ECONOMY

- Beaufort West town's strategic location on the N1 means that it is central to a number of strategies to sustain the economy. They include:
  - i. **Servicing road and rail transport, mainly freight and some passenger along the N1** - This is likely to increase as international trade increases after when the recession ends and local eco, agricultural (farm stay) and heritage tourism markets increase;
  - ii. **Presenting itself as the tourism gateway to the Central Karoo** - It already occupies a strategic position at the intersection of a number of sub-regional routes from surrounding towns;
    - It is also well placed to service these sub-regional tourism operations as well as self-drive and coach visitors to the SKA as this develops over the next decade;
    - However, it will be important that Beaufort West town significantly improves its appearance and deals with grime and petty crime issues;
  - iii. **Building a truck by-pass and proclaiming and managing the centre of town as a heritage area** – These will be key local strategies to unlock this potential;
- Improving agricultural carrying capacity throughout the municipality using rotational grazing and other strategies will be key to maintaining and increasing GVA and employment as well as upstream agri-industries;
- Implementing these strategies will create a virtuous overlap with achieving bio-diversity conservation goals as improving veld carrying capacity means increasing climax vegetation species;
- An important focus of improved veld management will be addressing the rehabilitation of the Sout River "Badlands" in order to prevent this area turning into a dustbowl with negative agricultural and bio-diversity consequences; and,
- Maintaining and enhancing the bio-diversity of the river corridors is seen as a key first action in this process. This can be achieved by declaring river set back lines of at least 32 m in which alien vegetation should be eradicated, there should be no ploughing or urban development and where practicable stock grazing should be prevented so as to allow indigenous riparian vegetation to recover and erosion of water courses to be slowed and managed.

### 5.3.4 MAJOR INFRASTRUCTURE PROJECTS

Figure 5.3.4.1 shows the infrastructure projects per town as listed in the IDP.

The following major projects are included in the budget:

1. Provision of a new administration office in Beaufort West (R200m);
2. Provision of a new 132kV substations (R12m);
3. The upgrading of the 11kV switchgears at Mandlenkhosi, Rustdene and Beaufort West (R50m);
4. The upgrading of the WWTWs for Nelspoort, Beaufort West, Murraysburg and Nelspoort (R15,5m);
5. New Community halls at Prince Valley and Merweville (R20m);
6. New One-Stop-Youth Centre at Kwa-Mandlenkhosi (R15m);
7. Upgrading of sportfield and courts at Rustdene, Voortrekker Street, Kwa-Mandlenkhosi, Merweville and Nelspoort (R13,85m);
8. New housing developments (R143m)

Table 5.3.4.1 sets out the various IDP Infrastructure Projects.

| IDP PROJECTS | | | |
|---|---|---|---|
| **Water and Sewerage Distribution** | | | |
| **No** | **Town** | **Project** | **Cost** |
| 1 | Municipal | Pressure release valves | 600,000 |
| | | Pressure release valves | 1,400,000 |
| | | New Water Reservoir | 1,000,000 |
| | | **Sub-Total** | **3,000,000** |
| 2 | Beaufort-West | Upgrading existing WWTW – Beaufort West | 8,000,000 |
| | | Upgrading existing WWTW – Beaufort West | 5,000,000 |
| | | New prepaid water meters Phase 1 – Prince Valley | 1,000,000 |
| | | Realign bulk water – Rustdene | 636,690 |
| | | New Sewerage Pipeline next to Buitekant Street | 500,000 |
| | | **Sub-Total** | **15,136,690** |
| 3 | Murraysburg | Investigation of Murraysburg WWTW | 500,000 |
| | | Upgrading of Murraysburg WWTW | 6,000,000 |
| | | Upgrade Water Supply – Murraysburg | 1,400,000 |
| | | **Sub-Total** | **7,900,000** |
| 4 | Nelspoort | Bulk water supply – Nelspoort | 2,602,038 |
| | | Upgrading of Nelspoort WWTW | 2,000,000 |
| | | Bulk Water supply – Nelspoort | 1,314,512 |
| | | **Sub-Total** | **5,916,550** |
| | | **TOTAL** | **31,953,240** |

**Table 5.3.4.1** **IDP Budget 2012-2017** (source: IDP 2012-2017)

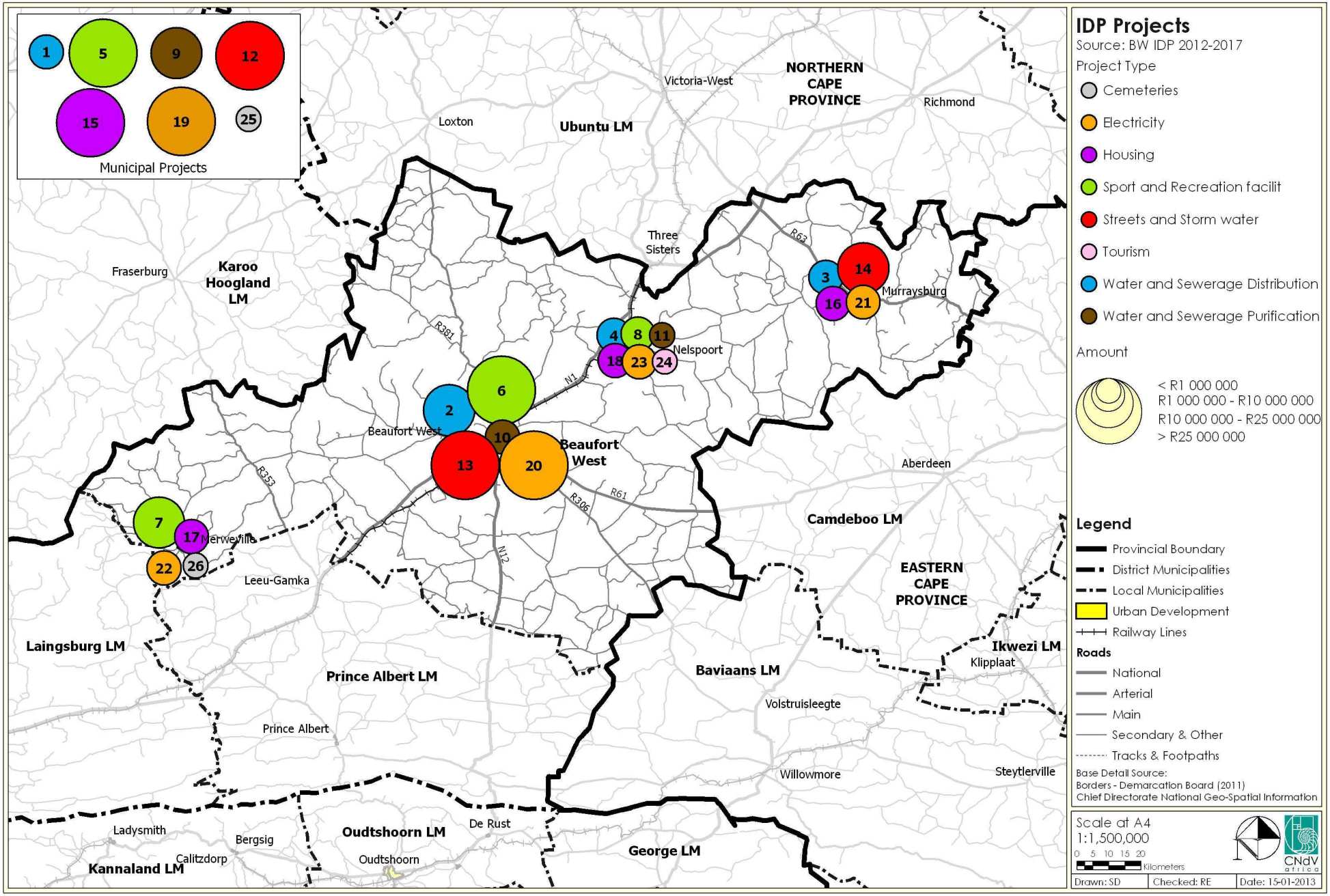



**Figure 5.3.4.1 Major Infrastructure Projects**

| Sport and Recreation Facilities | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 5 | Municipal | Develop 7 parks | 4,500,000 |
| | | Maintenance of buildings and community facilities | 6,000,000 |
| | | Maintenance of buildings and community facilities | 7,000,000 |
| | | Maintenance of buildings and community facilities | 8,000,000 |
| | | Maintenance of buildings and community facilities | 9,000,000 |
| | | Maintenance of buildings and community facilities | 10,000,000 |
| | | **Sub-Total** | **44,500,000** |
| 6 | Beaufort-West | Upgrading of Rustdene sport facilities | 350,000 |
| | | Upgrading Rustdene sport field | 1,000,000 |
| | | Upgrading of Voortrekker Street tennis courts | 500,000 |
| | | Upgrading of Kwa-Mandlenkosi sport field | 3,000,000 |
| | | Upgrading town rugby field | 3,000,000 |
| | | Kwa-Mandlenkosi – neighborhood development | 5,500,000 |
| | | Prince Valley: Community Hall | 10,000,000 |
| | | Hillside II: Community Hall | 10,000,000 |
| | | One administration office B/West | 200,000,000 |
| | | One Stop Youth Centre: Kwa-Mandlenkosi | 15,000,000 |
| | | **Sub-Total** | **248,350,000** |
| 7 | Merweville | Upgrading of Merweville sport field | 3,000,000 |
| | | Merweville: Community Hall | 10,000,000 |
| | | **Sub-Total** | **13,000,000** |

| Sport and Recreation Facilities | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 8 | Nelspoort | Ugrading Nelspoort sport field | 3,000,000 |
| | | **Sub-Total** | **3,000,000** |
| | | **TOTAL** | **308,850,000** |

| Water and Sewerage Purification | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 9 | Municipal | Development of Aquifers | 5,000,000 |
| | | Development of Aquifers | 5,000,000 |
| | | Upgrading of existing pump stations | 4,500,000 |
| | | Upgrade a water network: all towns | 2,000,000 |
| | | **Sub-Total** | **16,500,000** |
| 10 | Beaufort-West | Installation of Archimedean Screw Pump | 500,000 |
| | | Upgrading of existing chlorination room | 100,000 |
| | | Upgrading of existing Telemetry System | 400,000 |
| | | Upgrade of fencing at Beaufort West WWTW | 250,000 |
| | | Repair of existing Aeration Basin | 350,000 |
| | | **Sub-Total** | **1,600,000** |
| 11 | Nelspoort | Investigation of Nelspoort WWTW, capacity | 100,000 |
| | | **Sub-Total** | **100,000** |
| | | **TOTAL** | **18,200,000** |

| Street and Storm Water | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 12 | Municipal | Retention dam | 9,160,000 |
| | | Retention dam | 9,000,000 |
| | | Gravel roads | 5,000,000 |
| | | Gravel roads | 9,000,000 |
| | | Storm Water N1 | 5,000,000 |
| | | Rehabilitate gravel roads – Phase II | 1,258,509 |
| | | **Sub-Total** | **38,418,509** |
| 13 | Beaufort-West | Roads Kwa-Mandlenkosi | 843,396 |
| | | Rehabilitate gravel roads Kwa-Mandlenkosi | 2,494,916 |
| | | Storm water retention dam – Hillside II | 4,426,294 |
| | | New storm water channel – Hillside II | 77,265 |
| | | Rehabilitate gravel roads - Rustdene | 360,000 |
| | | Rehabilitate gravel roads – Hillside II | 6,176,482 |
| | | Upgrade gravel roads – Beaufort West | 2,463,406 |
| | | Rehabilitate gravel roads – Beaufort West | 9,000,000 |
| | | **Sub-Total** | **25,841,759** |
| 14 | Murraysburg | Rehab roads and storm water–Murraysburg | 3,400,000 |
| | | Rehabilitate gravel roads – Murraysburg | 6,170,195 |
| | | Storm water – Murraysburg | 1,620,000 |
| | | Upgrade gravel roads – Murraysburg | 3,972,545 |
| | | **Sub-Total** | **15,162,740** |
| | | **TOTAL** | **79,423,008** |

| Housing | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 15 | Municipal | Consolidation project: 95 units Kwa-Mandlenkosi | 7,403,170 |
| | | Emergency housing: Upgrade 10 houses damaged by fire or other natural causes | 750,000 |
| | | Greening Project | 3,500,000 |
| | | Material Recovery Facility (Waste Recycling) | 800,000 |
| | | XHOXHA – 65 units | 6,500,000 |
| | | Planned: New Housing Development | 40,000,000 |
| | | GAP Housing +/- 200 Units | 90,000,000 |
| | | **Sub-Total** | **148,953,170** |
| 16 | Murraysburg | RDP Housing 100 units | 6,800,000 |
| | | **Sub-Total** | **6,800,000** |
| 17 | Merweville | RDP Housing 50 units | 3,400,000 |
| | | **Sub-Total** | **3,400,000** |
| 18 | Nelspoort | RDP Housing 50 units | 3,400,000 |
| | | **Sub-Total** | **3,400,000** |
| | | **TOTAL** | **162,553,170** |

**Table 5.3.4.1** **IDP Budget 2012-2017 cont.** (source: IDP 2012-2017)

| Electricity | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 19 | Municipal | 132kV Substation | 8,000,000 |
| | | 132kV Substation | 1,400,000 |
| | | Electrification Central Karoo | 12,000,000 |
| | | 132kV Substation | 12,000,000 |
| | | Housing electrification 367 erven | 3,000,000 |
| | | Housing electrification 367 houses | 1,500,000 |
| | | Upgrading main substation 22/11kV | 5,000,000 |
| | | Load control 132/22kV Substation | 5,000,000 |
| | | 11kV Network new Industrial area | 2,000,000 |
| | | Auto Recloser 11kV Plotte | 250,000 |
| | | Isolator and Switchgear 22kV lines | 250,000 |
| | | Telemetrie 11kV Substations | 1,000,000 |
| | | **Sub-Total** | **51,400,000** |
| 20 | Beaufort-West | High mast lighting Hooyvlakte | 501,600 |
| | | Upgrading 11kV Switchgear Beaufort West | 15,000,000 |
| | | Upgrading 11kV Switchgear Rustdene | 30,000,000 |
| | | Upgrading 11kV Switchgear Kwa-Mandlenkosi | 5,000,000 |
| | | Upgrading overhead lines Rustdene | 1,000,000 |
| | | Upgrading overhead lines Hillside | 3,000,000 |
| | | Upgrading overhead lines Beaufort West | 1,000,000 |
| | | Upgrading mini substation Bastiaanse school | 650,000 |
| | | Upgrading mini substation Botha Street | 650,000 |
| | | Upgrading transformer Truter substation | 350,000 |
| | | Flood lighting sport ground Rustdene | 1,200,000 |
| | | Flood lighting sport ground Rugby field | 1,200,000 |
| | | High mast lighting Rustdene | 1,381,862 |
| | | High mast lighting Hillside I | 552,745 |
| | | High mast lighting Hillside II | 276,372 |
| | | **Sub-Total** | **61,762,579** |

| Electricity | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 21 | Murraysburg | High mast lighting Murraysburg | 552,745 |
| | | Upgrading electrical network Murrasyburg | 700,000 |
| | | **Sub-Total** | **1,252,745** |
| 22 | Merweville | High mast lighting Merweville | 829,117 |
| | | Flood lighting sport ground Merweville | 1,200,000 |
| | | High mast lighting Merweville | 250,800 |
| | | **Sub-Total** | **2,279,917** |
| 23 | Nelspoort | Flood lighting sport ground Nelspoort | 1,200,000 |
| | | **Sub-Total** | **1,200,000** |
| | | **TOTAL** | **66,495,241** |

| Tourism | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 24 | Nelspoort | Nelspoort Rock Art Site Development | 289,000 |
| | | **Sub-Total** | 289,000 |
| | | **TOTAL** | **289,000** |

| Cemeteries | | | |
|---|---|---|---|
| **No** | **Town** | **Project** | **Cost** |
| 25 | Municipal | Upgrading of Cemeteries – Municipal wide | 500,000 |
| | | **Sub-Total** | **500,000** |
| 26 | Merweville | Upgrading of Merweville morgue | 250,000 |
| | | **Sub-Total** | **250,000** |
| | | **TOTAL** | **750,000** |
| | | **GRAND TOTAL** | **R 668,513,659** |

**Table 5.3.4.1** **IDP Budget 2012-2017 (cont.)** (source: IDP 2012-2017)

### 5.3.5 MAJOR TOURISM DESTINATIONS

The following main tourism destinations with major related attractions are identified, see Figure 5.3.5.1:

- Karoo National Park and existing and future Nuweberg conservancies open to the public;
- Urban heritage precincts in the main settlements and associated overnight and refreshment facilities; and,
- Karoo farm stays throughout the municipality, particularly heritage properties.

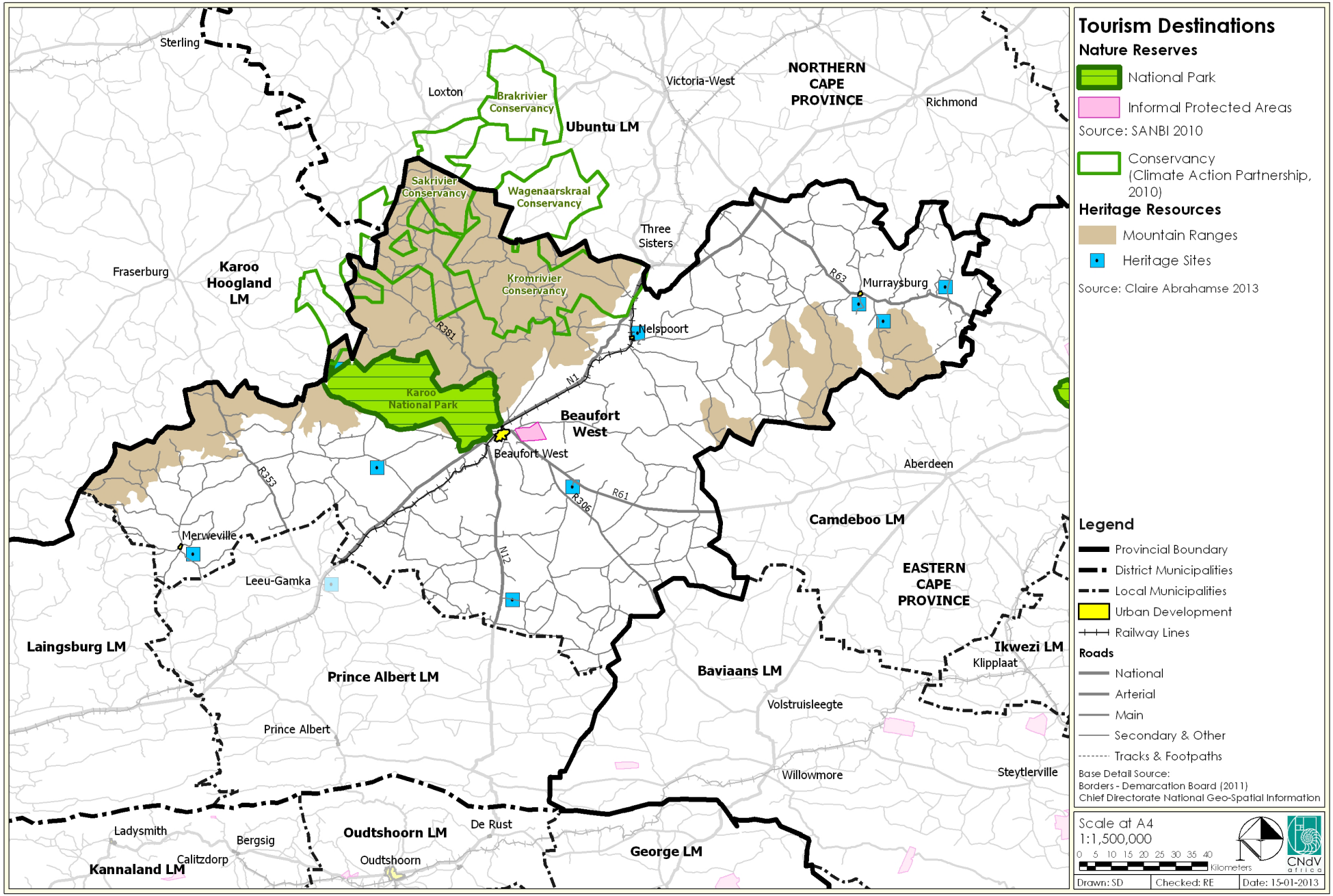



**Figure 5.3.5.1 Major Tourism Destinations**

### 5.3.6 LAND REFORM

- Land reform opportunities should not be targeted only at agricultural operations although this will always be the major activity;

- Bio-diversity conservation and eco and agri-tourism operations should also be considered;

- Thus, land reform projects located in the Nuweberg, for instance, between the Karoo National Park and the Krom and Sak Rivier conservancies should also explore eco-tourism and bio-diversity conservation opportunities;

- The majority of the land reform projects are located on the degraded soils of the Sout River "badlands" where intensive conservation measures will be required to improve the stock and therefore livelihood carrying capacity of this region; and,

- Future land reform projects should carefully considered the context in which they are located and then seek to take advantage of that area's opportunities, not only in agriculture.

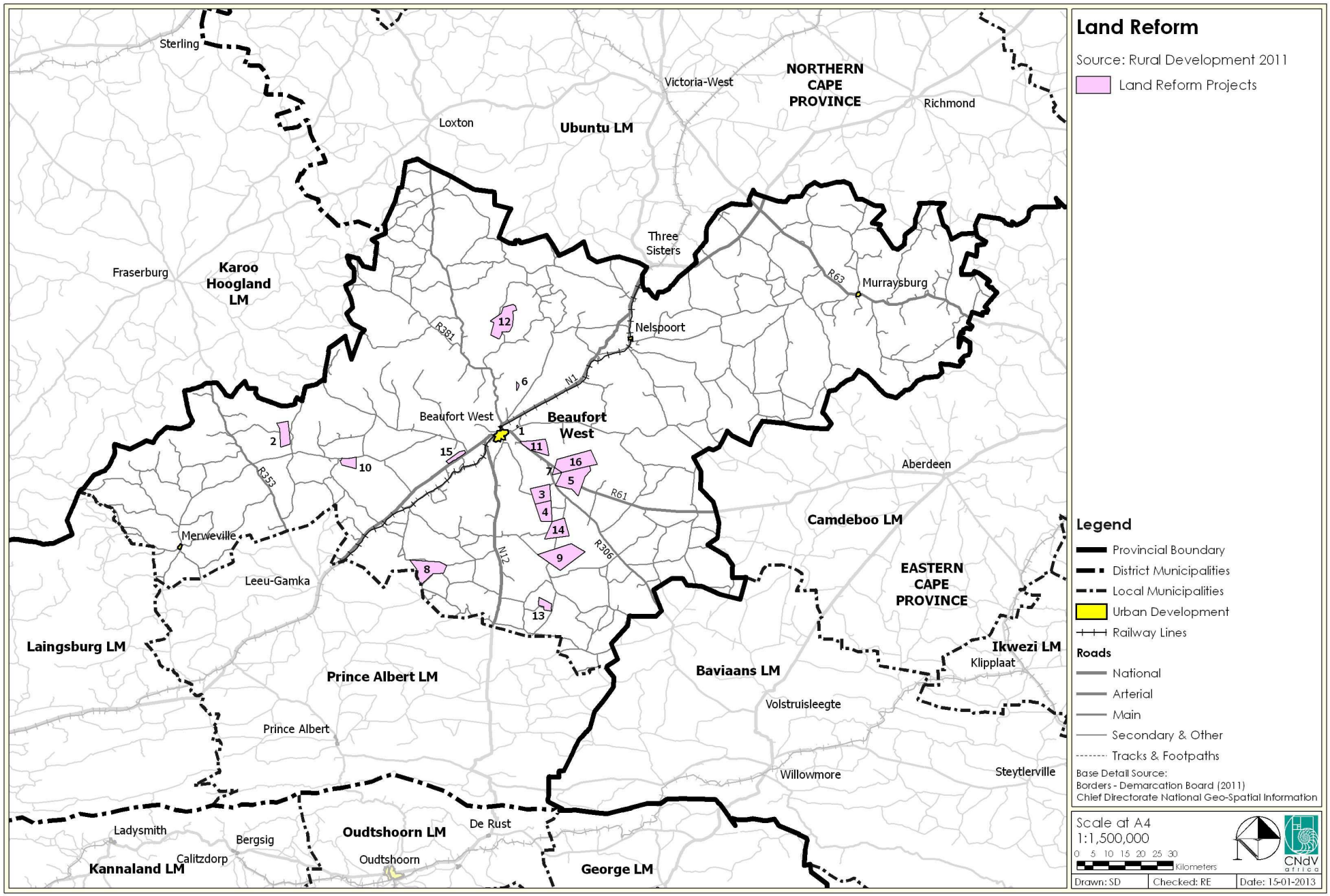



**Figure 5.3.6.1 Land Reform Projects** (Rural Development, 2011)

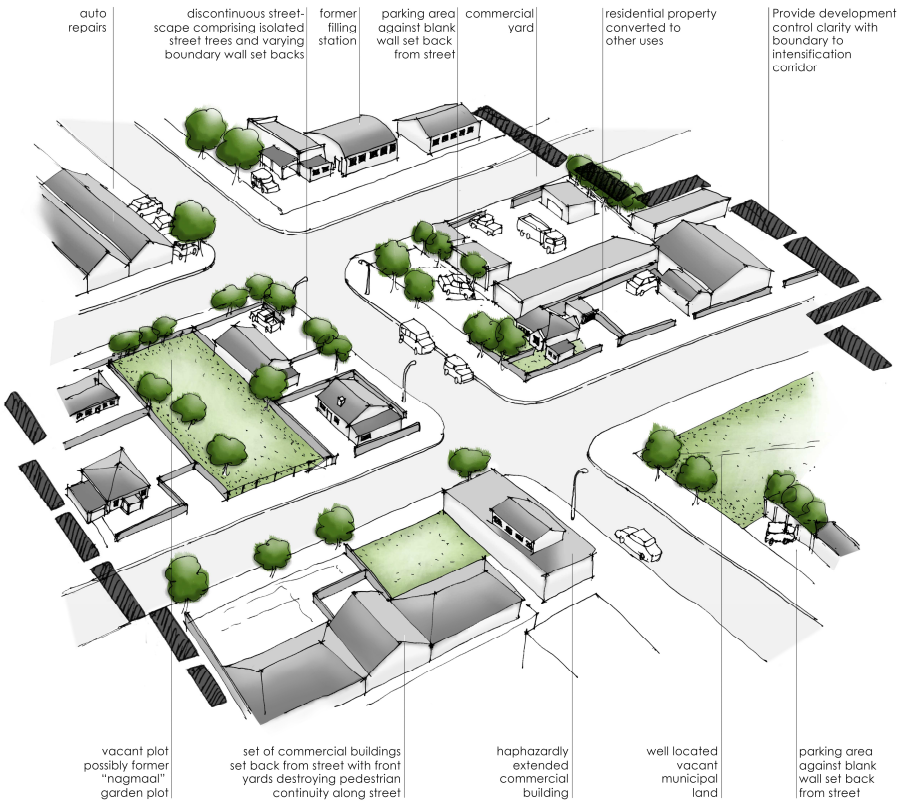
# 5.4 URBAN RELATED DEVELOPMENT

## 5.4.1 SETTLEMENT GUIDELINES

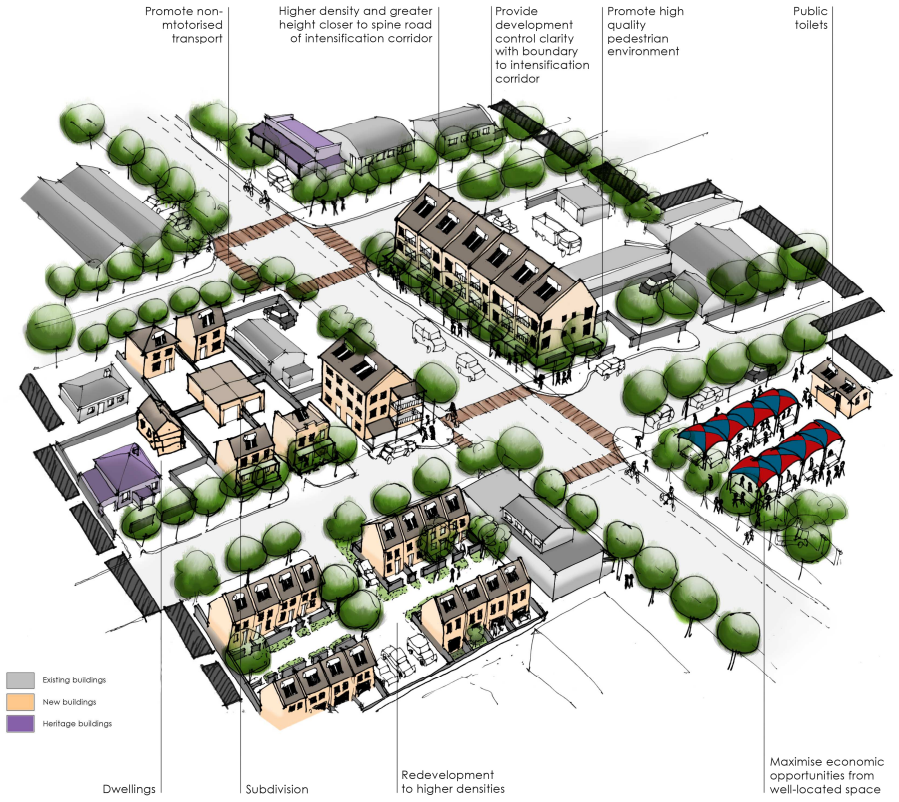
### *5.4.1.1 Intensification Corridors and Linkages, see Figure 5.4.1.1*

Principles:

- **Sensitive infill and redevelopment of major arterial axis in clearly defined precincts;**
- **Corridors to concentrate activities and support its speedy initiation especially in more rural areas, should be delineated to include one erf on either side of the identified street, otherwise called the spine of the corridor;**
- **Show sensitivity towards existing heritage buildings;**
- **Enhancing the street experience through landscaping and guiding the architecture of new developments;**
- **Encourage a multiple level of entry into the economic market and enhance job creation, the intensification corridors should be limited to residential, office and retail uses and only compatible light industrial uses, e.g. non-nuisance manufacturing or craft activities that may require a retail outlet on the same premises;**
- **Define a single uniting structure of intensification corridors, nodes and linkages between town and township; and,**
- **Encourage supporting densification pattern and infrastructure provision.**




**Before Development**




**After Development**

**Figure 5.4.1.1** **Intensification Corridors**

### *5.4.1.2 Nodes*

This will be shown at town level.

Three levels of hierarchy of urban nodes containing business and community facilities shall be clustered together as far as possible to provide satisfactory access and clustering of activities, see Figure 5.4.1.2:

- Tertiary: technikons, hospitals, courts, multi-purpose centres, regional or metropolitan transport interchanges, museums, art galleries, indoor sports complexes, regional shopping centres;

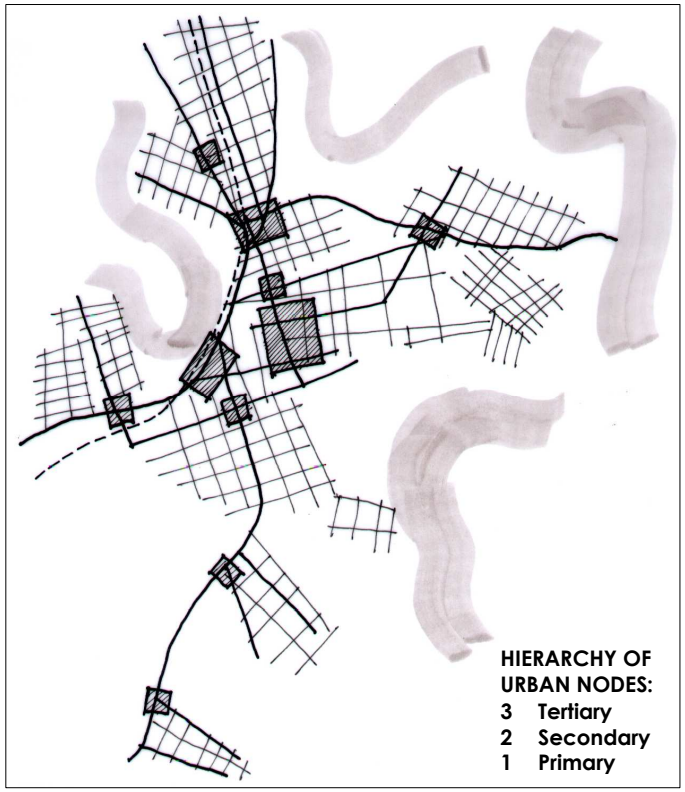
- Secondary: high schools, day care centres, hospitals, libraries, sports and community halls, sportsfields;

- Primary: primary schools, crèches, clinics, bus and mini-bus taxi stops; and

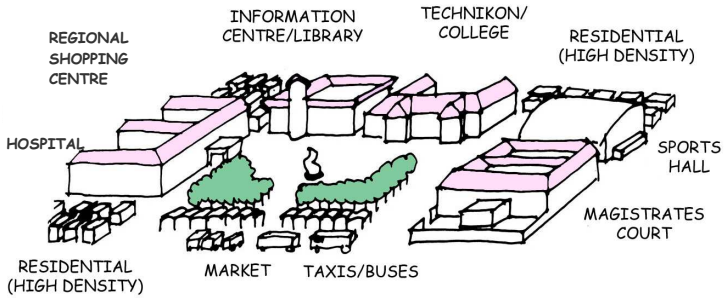
- Nodes should be managed to concentrate the business therein and where growth is required, the node should be encouraged to grow along the corridor towards each other. This is to manage and prioritise in a strategic manner, the implementation of needed infrastructure and to provide the greatest opportunity of success of these business.

***Principles***

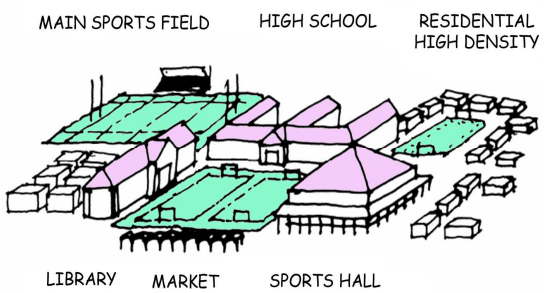
- ***Implement projects on a focused, strategic and hierarchical basis with the largest investments for higher order facilities that will be enjoyed by the greatest number of people.***



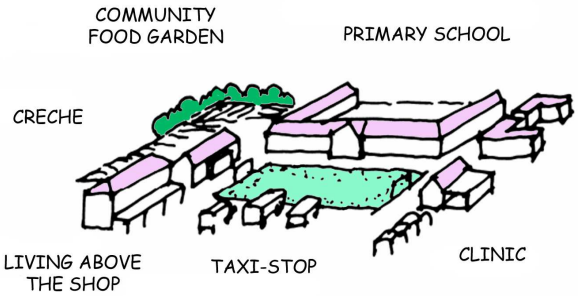

Clustering Civic, Commercial and Residential Activities




Tertiary Cluster of Facilities




Secondary Cluster of Facilities




Primary Cluster of Facilities

**Figure 5.4.1.2 Sub-Centre Nodes**

### *5.4.1.3 Land use integration and interface*

The intensification areas are seen as the prime instruments for promoting integration between the towns and townships of the urban settlements.

Principles:

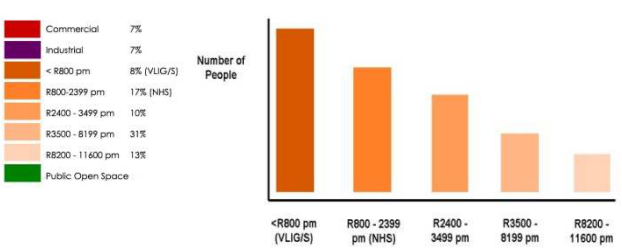
- **Locate activities (residential, transport, work, recreation, etc.) so that at least 50% of them are in walking distance;**
- **Sensitively locate the income groups within the 1km radius : e.g. very low not right next to the very high income;**
- **Locate most frequented activities in the most central / accessible localities, e.g. industrial and commercial;**
- **As a general rule Human Settlement schemes should not be targeted at a single income group exclusively, usually subsidy or Site and Service, but should always include at least a GAP housing and top structure subsidy component even if only comprising 10% or 20% of the units;**
- **The arrangement of the housing for the various income groups should be according to the principle of the socio-economic gradient with the higher end of the market closest to the main thoroughfare, see Figure 5.4.1.3;**
- **Use all well located vacant land, i.e. within 1 to 2kms of urban centres; and,**
- **Locate all future residential areas within walking distance of urban centres where space permits; and,**
- **Locate all future subsidy housing within walking distance of nodal centre where space permits.**

Interface principles:

- **The change between different schemes must happen along the midblock and not across the street;**
- **Residents must be given freehold tenure, i.e. title deeds immediately so that shack upgrading will commence as soon as possible; and**
- **The more formal the units the closer they should be to the main public thoroughfare or adjacent upmarket housing.**

•

*Well-located BNG housing project in Langebaan surrounded by up-market housing*





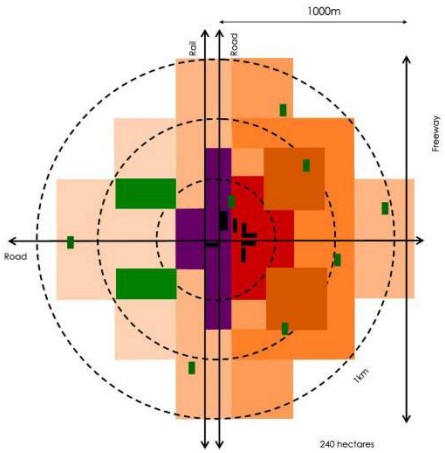



**Figure 5.4.1.3 Socio-economic integration and Interface Treatment**

#### *5.4.1.4 Urban Edge*

These should be reviewed to ensure that:

- Sufficient protection is given to land requiring protection, inter alia, the agricultural land currently under cultivation;
- That compaction rather than expansion of urban settlements is encouraged to promote non-motorised transport modes where appropriate;
- Furthermore, it should be noted that all of the low income settlements are located in one side or "slice" of the settlement only and their extensions all move outwards along this axis;
- Urban Edges which provide sufficient land for the development of the needs of the area for about 20 years, given the current growth rate, is proposed around the exiting urban footprint; and,
- It is proposed that these urban edge only be realigned based on actual need and once all the existing under or unutilized vacant land has been developed.

#### *5.4.1.5 Infill, Densification and the Suburbs*

It is clear that significant infill and densification is required in order to restructure the settlements in the Municipality.

Well located land has been identified to contribute to this important goal.

Guidelines for the settlements will be given.

#### *5.4.1.6 Wind and Solar Farm Siting Principles*

The following wind farm siting principles are proposed to be used as a first set of questions to guide potential developers of wind and solar farms. Terrain suitability need to be investigated and should include the following typical aspects in the design process:

- Slopes by gradient classes
- Rocky areas
- Soil type and permeability
- Natural watercourses and areas with high water table, Rainfall data; and,
- Vegetation.

- **Slope**
  - Wind Potential – slopes up to a certain gradient orientated towards prevailing wind directions tend to augment average wind speed;
  - Visibility – wind farms on slopes have increased visibility;
  - Road layout and design – slopes to be considered in road layout to reduce erosion potential of road run-off, rock-fall and landslide potential;
  - Tower foundation design – need to consider falls across the platforms; and,
  - Re-vegetation – steep road verges and cuts require re-vegetation to reduce sedimentation from run-off.

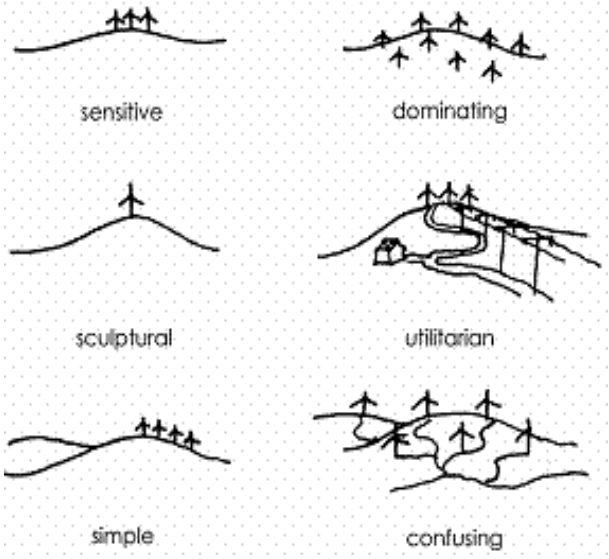



**Figure 5.4.1.6a Location options for wind turbines**

- **Geology**
  - Need highly stable underlying geology for heavy wind turbines; and,
  - Investigate existence of bedrock, subterranean voids and possible seismic activity
- **Soils**
  - Potential for erosion; and,
  - Soil types influence road construction and re-vegetation.

- **Surface Hydrology & Groundwater**
  - Design of roads and treatment of runoff from roads and disturbed surfaces to reduce sedimentation and eliminate erosion.

**Figure 5.4.1.6b Wind farm near Klipheuwel outside Durbanville, Western Cape**

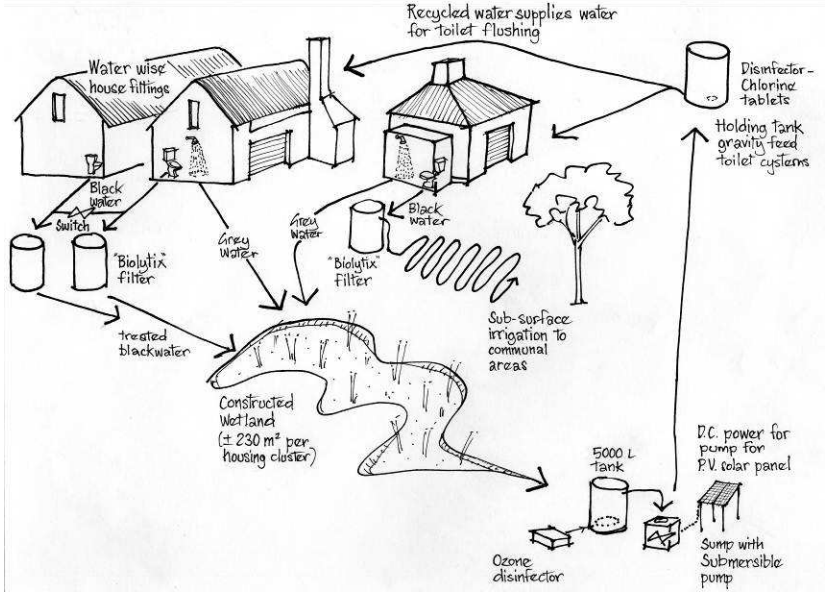
**Figure 5.4.1.6c Visual simulation of wind turbines, Western Cape**

- **Vegetation**
  - Detailed vegetation assessment if the proposal is not in an agriculturally disturbed area;
  - Assessment should include location and condition of:
    - Extent of disturbed or alien vegetation;
    - Extent of any natural vegetation;
    - Indigenous and endemic species; and,
    - Rare and threatened species.

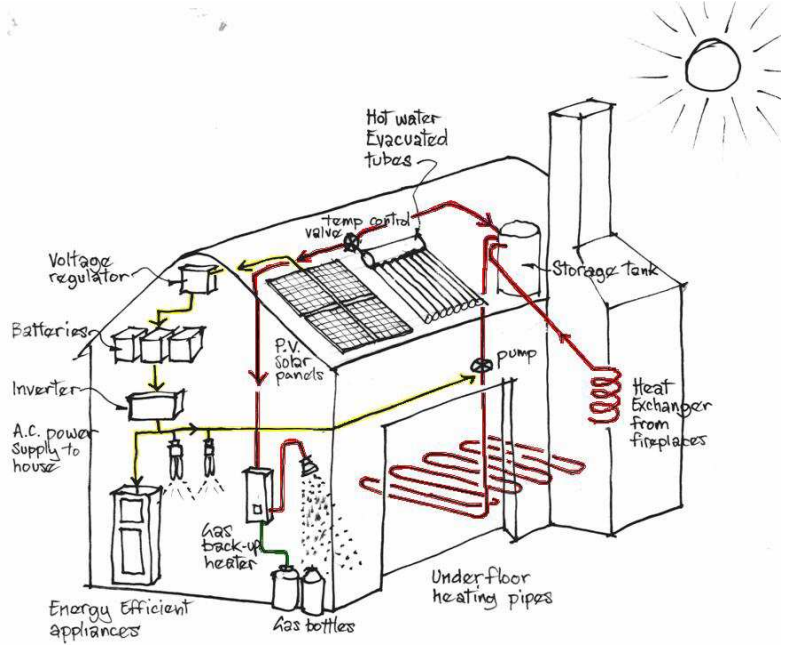
### 5.4.1.7 *Infrastructure*

The following principles shall apply:

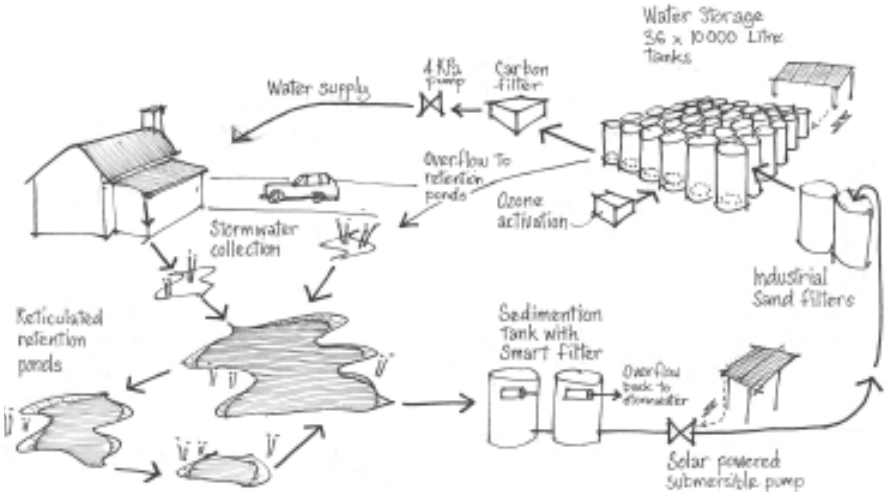
- Ensure a base level of services only is available for all residents in the Municipality including those households qualifying for indigent grants;
- Where possible implement GAP housing schemes as part of subsidy projects so as to help cross-subsidise required infrastructure projects;
- For low density settlements, where the high cost of conventional grid services are prohibited and not preferred and to promote sustainable use of natural resources reduce dependency on conventional grid services, the following are proposed:
  - Promote the use of solar hot water projects so as to help cross-subsidise infrastructure costs;
  - Promote use of solar of water heaters, PV panels, grey-water recycling, waste separation at source, and passive building design to as to minimize energy, solid waste and water demand, see Figures (a) and (b); and,
  - Encourage rainwater harvesting and grey water (water from hand basins and kitchen sinks) recycling, see Figure (c).




**(a) Sanitation System based on sustainable principles**




**(b) Solar Energy Generation for off-grid energy generation**




**(c) Rainwater harvesting for sustainable use of water**

**Figure 5.4.1.7 Off-grid infrastructure options**

## 5.5 URBAN DESIGN GUIDELINES

UD1 Create open space systems that integrate the elements of a settlement to contribute to a meaningful urban structure. This can be done by:

- Providing connectivity between open spaces;
- Establishing linkages between open spaces;
- Aligning the open space system with public buildings; and
- Ensuring an improved quality of linkages through the continuation of special activities or functions along major routes.

UD2 Link symbolic elements (statues) or public facilities (library, clinic, etc.) to open spaces in relation to their importance and character.

UD3 Ensure the definition of the public spaces through the effective design of an interface between public and private domains.

UD4 Create visual recognition and surveillance along open spaces and public routes. This can be achieved through:

- Locating buildings around open spaces and streets so that sufficient enclosure is created;
- The appropriate height of buildings; and
- Locating the highest buildings to the southern side of the open space, with lower buildings or trees on the northern side.

UD5 Markets should be permitted at highly accessible locations in terms of the movement network and urban structure to ensure the greatest viability possible. These locations could be modal interchanges and intersections.

UD6 As a general rule the erection of shopping centres on the periphery of settlements should be discouraged. This should only be permitted if the intention is to initiate a new urban node at the specific location and the proposed shopping centre development is in line with the growth direction of the settlement.

UD7 Accommodate a variety of users in and uses along the streets by doing the following:

- Concentrate intensive activities along major vehicular and public-transport routes;
- Locate majority of public buildings and increase densities along these routes; and
- Locate buildings closer rather than further from the streets to increase pedestrian activity, a sense of enclosure and surveillance.

UD8 Create appropriate road cross-section widths that can provide for vehicle traffic, parking, pedestrian movement, cycling and landscaping.

UD9 Urban block length should promote access (penetration) and encourage economic activity by orientating the short side of blocks to major streets wherever possible.

UD10 Space buildings from each other to provide adequate solar access to buildings. In this regard the roof pitch of buildings should be orientated so that roof solar panels have a maximum continuous direct access to the sun.

UD11 Any proposals for the redevelopment of existing buildings should consider their heritage value, elements of the vernacular architecture and, where possible, retain these important elements. Similarly, the historical characteristics of existing buildings should be considered to draw from their elements that could be integrated into the design and construction of new buildings close by.

UD12 The use of local materials should be encouraged in the construction of new buildings.

UD13 Encourage appropriate water-wise landscaping.

UD14 Ensure that the main streets of the urban areas are appropriately landscaped to encourage a pleasant gateway treatment into the settlements.

## 5.6 POTENTIAL RURAL NODES AND PERIODIC RURAL MARKETS

The potential of rural nodes is derived from the rural economic opportunities that are generated by their location and "attracting force". However, in some nodes these forces are so small that permanent infrastructure or services cannot justify permanent buildings or staff.

Initially, these nodes, can be supported through periodic markets at which mobile services, for instance, home affairs, pension pay outs, clinics, libraries can be dispensed.

This approach could be applied at settlements with low threshold populations to ensure that the necessary services can be provided.


**Library bus**

Where such facilities do not exist, periodic service centres should be established for co-ordinated use by a wide variety of government, non-government and private organisations.

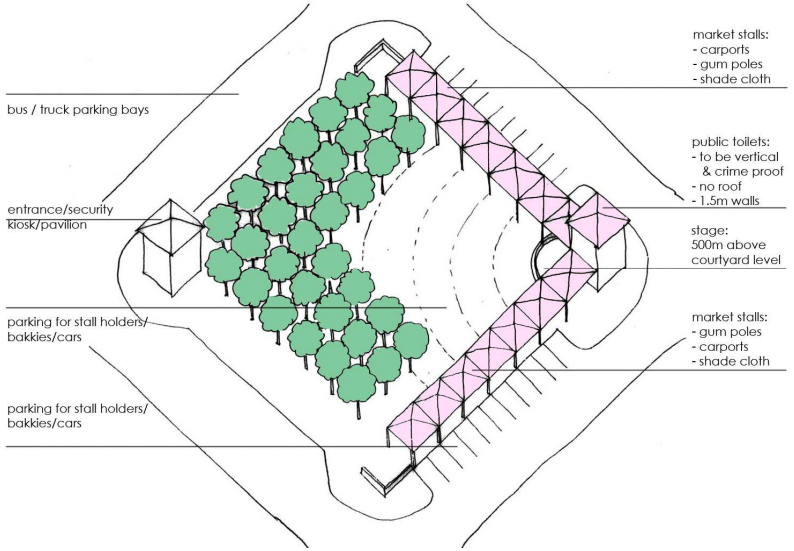
These periodic service centres should be located at points of highest access according to the same principles.


**Home Affairs bus**

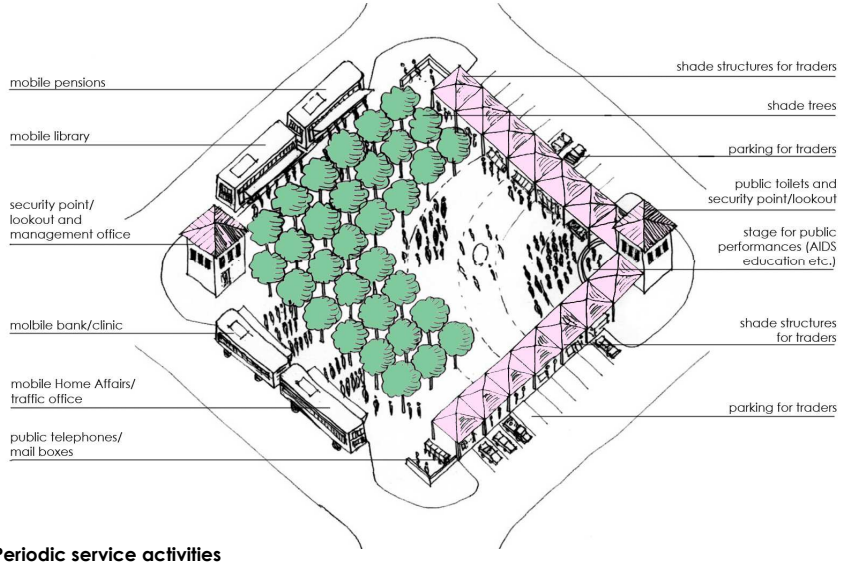
The services of various government departments and private sector organisations should be co-ordinated into a mobile caravan of dedicated buses and vans which travels from periodic service centre to periodic service centre stopping for morning or afternoon sessions as appropriate.

Local arts and crafts people and business people should be encouraged to trade in the stop-over periods of the mobile service caravans at the periodic service centre. The location of shops and abattoirs should also be encouraged here.


**Mobile clinic**




**Periodic service concept**




**Periodic service activities**

## 5.7 SETTLEMENT HIERARCHY AND STRUCTURE

Beaufort West Municipality's settlement hierarchy and structure comprises the following system:

- N1 corridor – comprises Beaufort West town as the primary settlement in the municipality;
- It has the highest priority in terms of infrastructure investment ranking in the Growth Potential Study as being a settlement with high social needs and high economic development potential with a population of over 5 000 people;
- The primacy of Beaufort West town is likely to increase over time as the various economic sectors it currently serves continue to grow at whatever rate, even if only because of its strategic location. If the settlement's maintenance and management improves it is likely to improve even faster;
- If the various potential mining activities take off in the next decade Beaufort West town's growth could rapidly accelerate. In this case it will be extremely important to ensure that the correct planning and management policies and activities are in place to avoid the unplanned and unmanaged growth currently being experienced by towns under this kind of pressure in the northern cape and elsewhere;
- Merweville and Murraysburg are two remote outlying settlements in the municipal periphery off the N1. They are both ranked much lower in terms of their settlement growth potential as having high social need but low economic development potential;
- Murraysburg, owing to its more fertile agricultural hinterland and its strategic location on the minor link road R63 between Victoria West and N1 and Graaff Reinet sustains a greater urban and rural population than Merweville;
- Merweville is located on a gravel link road to the N1 and is not really on the route to anywhere else. There is a potential scenic gravel route leading directly to Beaufort West town but this would not be used by business traffic wishing to get there as quickly as possible;
- Nelspoort used to be located on the N1 when it followed the rail line but this section has now been bypassed. This has left the village on a crescent route that functions as more of a backwater; and,
- It was not rated in the Growth Potential Study.

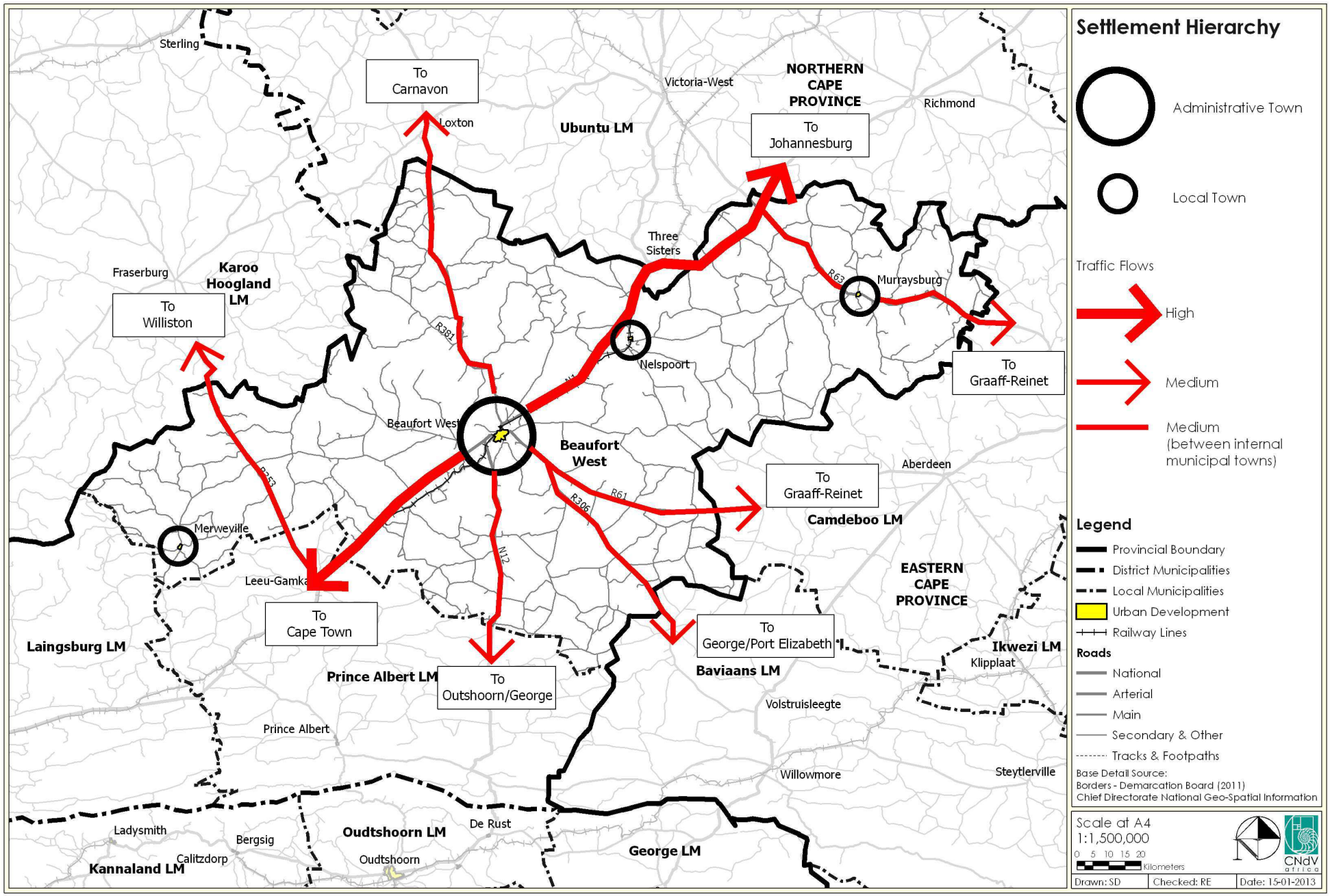



**Figure 5.7.1** **Settlement Hierarchy**

## 5.9 BEAUFORT WEST TOWN (population: ± 40 500)

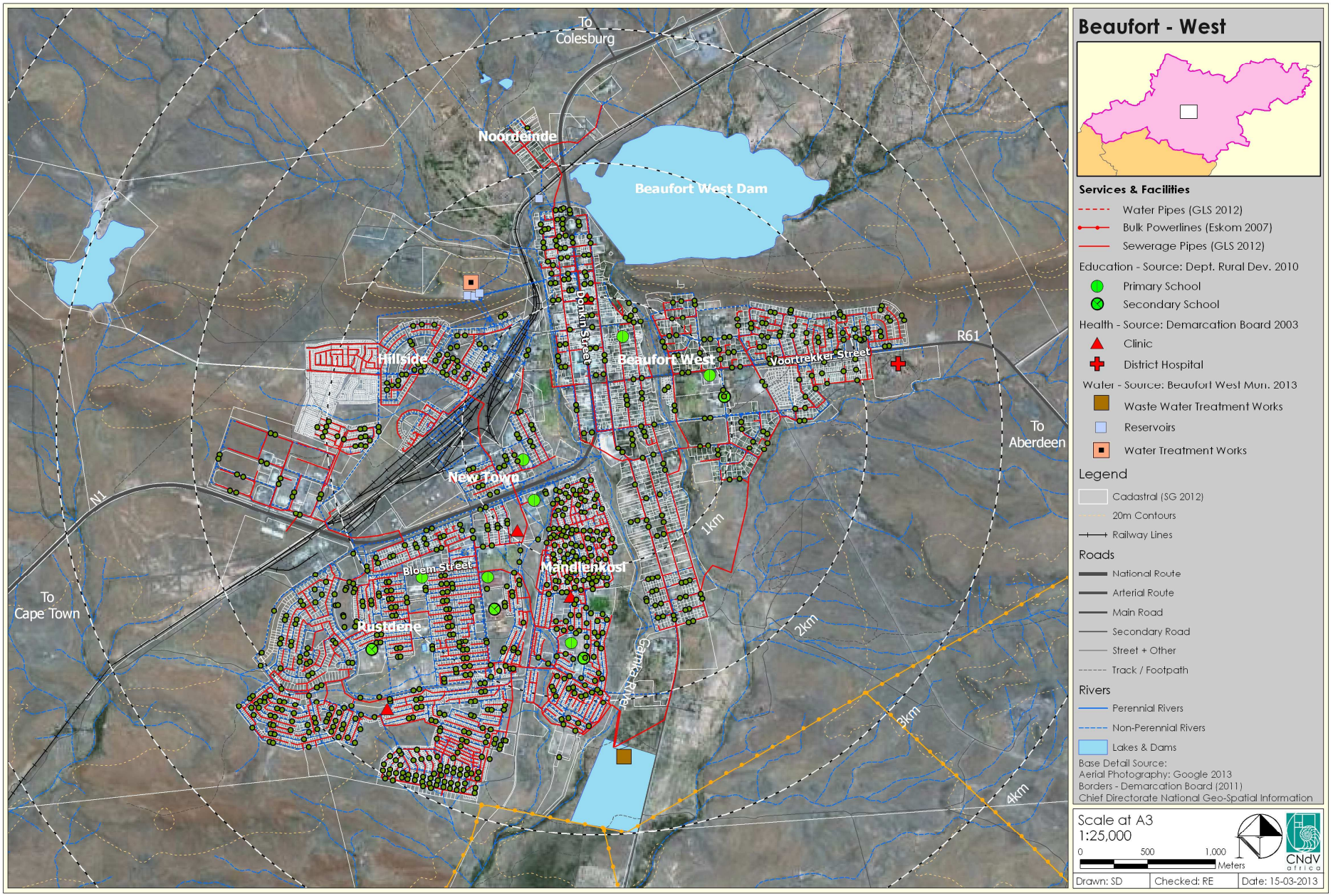



**Figure 5.9.1.1 Beaufort West: Aerial photograph**

### 5.9.1 SPATIAL ANALYSIS, see Figures 5.9.1.2

**General:** Beaufort West town faces severe challenges. Its water resources are stretched to the limit with the current population and ground water abstraction is one of its only solutions. Although the town has successfully implemented a number of water demand strategies would seem that domestic rainwater harvesting, grey water recycling and waterless toilet systems still required attention. Therefore, protection of ground water resources from shale gas extraction is of paramount importance. Water resources will be brought under further pressure if; 1st supply of the current and future housing need of 6 700 units does not use alternative water supply technologies; and, 2nd, if the town does become a centre for shale gas extraction and uranium mining in the future.

**Sub-regional location**

- On N1 approximately midway between Cape Town (462km) and Bloemfontein (541km);
- Visible location from over 50kms away where the Nuweberg meets the Gamka River plain;
- Nuweberg forms a beacon from the R61 from Aberdeen and N12 from De Rust which appears as though historically it led straight into Beaufort West along Blyth street but then for some reason was diverted 7kms away to its current intersection on the N1; and,
- Situated next to a large pan, typical of many other Karoo and Kalahari towns, at a break in a long ridge where both the rail and road could pass through.

**Layout pattern**

- The original settlement comprised a Voortrekker rydorp with long streets laid perpendicularly to the contours along which water was led from the Gamka dam;
- There is a slight turn in this grid near the cemetery and shopping centre as it orientates itself parallel to slight bends in the two rivers abutting its west and east boundaries;
- The arrival of the rail way which had to approach from the west due to alignment requirements led to a loose wedge of development containing ad-hoc pockets of residential (New Town) railway shunting yards and some small industries. A railway village was established across the rail line along Kerk Street, Hillside.
- Large areas of vacant land separate the original railway town from new BNG housing extensions which link southwards to the partially developed industrial area;
- There are also large tracts of vacant land particularly on the west and south sides of the town;
- North facing land north of the long ridge around the golf course could have potential for upmarket housing;
- Some of the peripheral extensions of Rustdene are over 3kms from the centre of town;
- However, Mandlenkosi is only 250m from the centre of town at its closest point;
- The settlement's layout and dispersed pattern requires public transport and there is a proposed NMT network;
- Some of the vacant land identified for future housing is on the periphery and should be avoided;
- In order for more people to access better located land current densities will need to increase; and,
- In any event the 176 ha required for ± 6 700 units (draft HSP 2013) at ± 35 du/ha gross exceeds the land identified by the municipality (106 ha – BWM 2013?). In this SDF 229.51ha are identified.

**Urban quality**

- The town's southern entrance, through a partially developed industrial area, and from the north, past a very large weighbridge facility do little to enhance the sense of arrival in the town;
- There are an unexpected number of intact heritage buildings within the historic core among the increasingly dominant strip mall type shop frontages lining Donkin Street which diminish its heritage quality;
- Urban quality decreases in suburbs further from the CBD with street frontages comprising long rows of small buildings with wide side spaces and few trees, interspersed with large tracts of vacant land.
- Currently urban quality is further severely compromised by the large volumes of large freight trucks trundling through the heart of town and insufficient attention paid to the quality of new shop fronts and the intermittent nature of tree planting;
- The historic part of the town is relatively compact and has potential attraction for pedestrians, especially if the sidewalks are well maintained. There have been a number of pedestrian and cycle facilities installed; and,
- As one travels further from the historic core densities decline, houses become more isolated in the centre of their plots and tree planning and landscaping decline. Houses become smaller, there are fewer trees and public open spaces less landscaped. This is probably due not so much to neglect but as a result of the huge resources that necessary to keep such far flung areas green and well maintained.

**Potential urban quality along Donkin Street**

**New Housing in Hillside**

**Supermarket in Bloem Street, Rustdene**

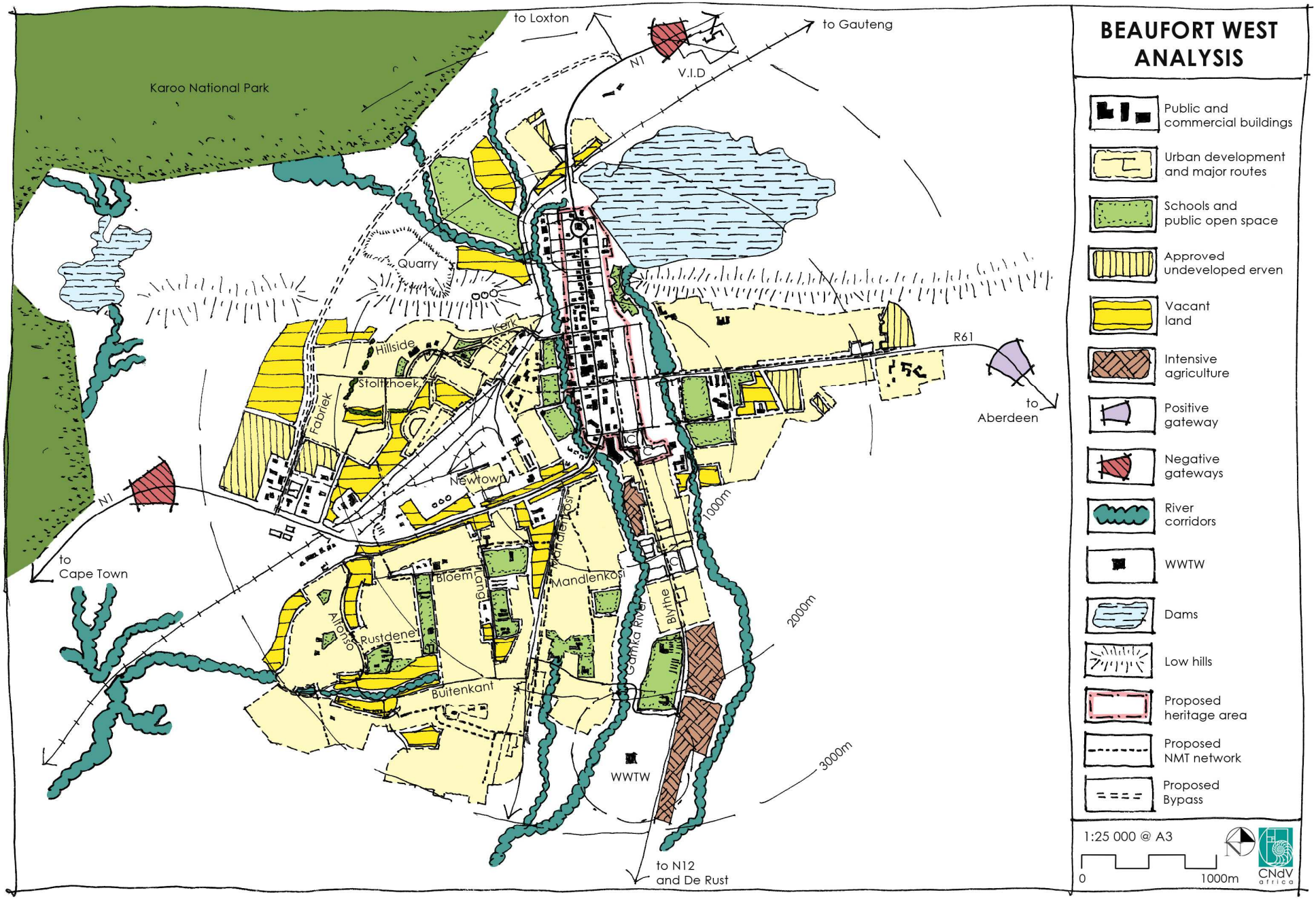



**Figure 5.9.1.2 Beaufort West: Analysis**

### 5.9.2 BEAUFORT WEST TOWN: DRAFT SPATIAL DEVELOPMENT FRAMEWORK, see Figure 5.9.2.1

**General:** In the normal run of events Beaufort West town is unlikely to see much growth other than from its rural hinterland which is already sparsely populated. Formal urban development will occur from housing the 6 500 households on the waiting list but they are already mostly present. However, should it become a uranium mining and shale gas extraction centre the population could increase considerably as miners and roughnecks (drill riggers) will require accommodation in the nearest large centre that offers a wide range of social and economic facilities.

#### 5.9.2.1 Core landscape and agricultural areas

- A continuous boulevarded network of activity streets planted with water wise shade trees should integrate the town, see section 5.9.2.4 below;
- Trees are the cheapest way to make the biggest visual improvements on an urban settlement and lend themselves to EPWP programs. These can include in-situ brick paving where necessary a material also suitable for labour based construction;
- River corridors should be protected by setback lines at a standard 32 m from the banks or as determined by a fresh water ecologist must be defined in which there should be no plowing or urban development and the riparian vegetation restored;
- There is little intensive agriculture around the town and production on existing lands to the south must be encouraged and where possible fallow land brought back into production;
- The existing golf course should be retained as an important amenity to existing and future residents but water wise fairway and green management techniques should be employed; and,
- In view of the prevailing water supply issues no further green areas are proposed and existing ones should be managed according to water wise management principles.

#### 5.9.2.2 Urban Development

- A 100 m noise buffer is strongly recommended along the eastern boundary of the proposed bypass in which only industrial activity, warehousing or tree planting and open space activities should occur. There should be no residential activities within;
- As far as possible new development areas should not extend beyond the current urban development periphery and or beyond a 2km radius from the centre of town;
- North facing land around the golf course could be suitable for upmarket residents but there are already a number of undeveloped plots here and the reasons for this should be understood;
- Large areas of infill are proposed in Hillside and Rusdene; and,
- Rather than extending westwards of the proposed N1 bypass a new development area in the eastern quadrant should be investigated bounded approximately by a 2km radius from the town centre.

#### 5.9.2.3 Heritage Areas

- The historic CBD should be declared a heritage area and land uses and building appearance on old and new buildings managed accordingly.

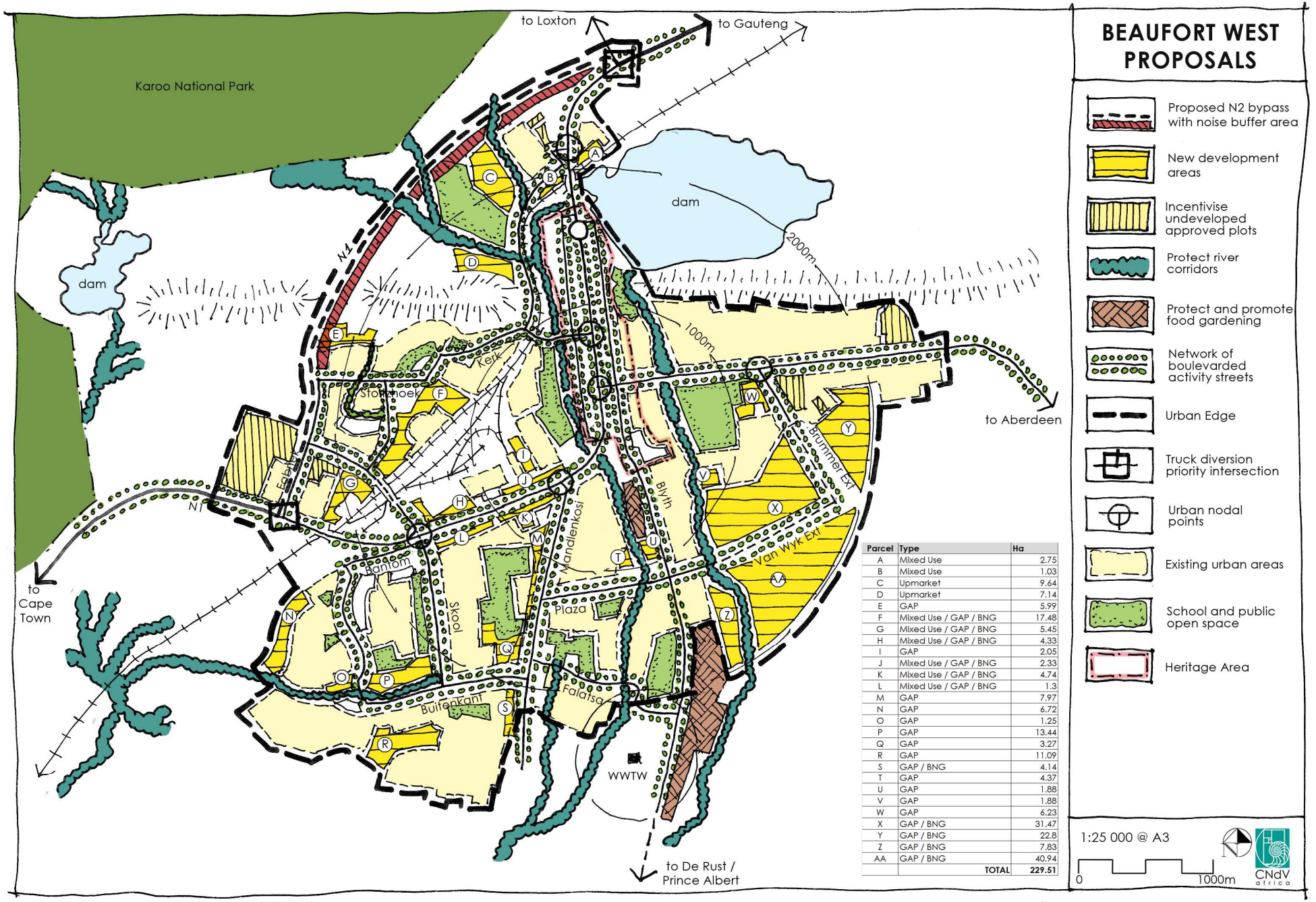
#### 5.9.2.4 Urban Restructuring

- Rerouting the N1 around the town for road freight traffic only is seen as the most important action to enable development of other sustainable sectors in the town including retail, tourism and accommodation;

**Vacant land and underused service road along southern boundary of N1 by Rustedene**

**Well located vacant land between industrial area and railway yard**

**Southern section of Donkin street requiring up grading**




| Parcel | Type | Ha |
|---|---|---|
| A | Mixed Use | 2.75 |
| B | Mixed Use | 1.03 |
| C | Upmarket | 9.64 |
| D | Upmarket | 7.14 |
| E | GAP | 5.99 |
| F | Mixed Use / GAP / BNG | 17.48 |
| G | Mixed Use / GAP / BNG | 5.45 |
| H | Mixed Use / GAP / BNG | 4.33 |
| I | GAP | 2.05 |
| J | Mixed Use / GAP / BNG | 2.33 |
| K | Mixed Use / GAP / BNG | 4.74 |
| L | Mixed Use / GAP / BNG | 1.3 |
| M | GAP | 7.97 |
| N | GAP | 6.72 |
| O | GAP | 1.25 |
| P | GAP | 13.44 |
| Q | GAP | 3.27 |
| R | GAP | 11.09 |
| S | GAP / BNG | 4.14 |
| T | GAP | 4.37 |
| U | GAP | 1.88 |
| V | GAP | 1.88 |
| W | GAP | 6.23 |
| X | GAP / BNG | 31.47 |
| Y | GAP / BNG | 22.8 |
| Z | GAP / BNG | 7.83 |
| AA | GAP / BNG | 40.94 |
| | TOTAL | 229.51 |

**Figure 5.9.2.1 Beaufort West: Spatial Development Framework**

- It is important that as far as possible only freight traffic use this route. Careful signposting of the two intersections as well as significantly upgrading the landscape and urban quality of Donkin Street between the two proposed access points in contrast to the freight bypass route, which should remain "unlandscaped", will help facilitate this priority;
- The currently separate sectors of the town should be integrated through a continuous network of activity streets that reinforce the NMT network and link suburbs across buffer strips and vacant ground as well as the large new development area proposed in the south eastern quadrant.
- This network should comprise the following routes:
  - **Hillside**: service road next to proposed N1 bypass along Faktor, Street; Ondermeyer Ext across rail yard to intersect with Oppeld Street (Rustdene) on Donkin Street (former N1 now bypassed), design continuity of Stolzhoek/7th Ave/Plein/Kerk/ link to Donkin Street;
  - **Rustdene**: Alfonso; Bantom; Skool; linking to N1 opposite proposed Ondermeyer Ext N1 intersection; Buitenkant linking to Mandlenkosi Street;
  - **Mandlenkosi**: Plaza Street to link across Gamka river to van Wyk Street (currently informal link to Du Toit Street); Falatsa Street to link across river to Blyth Street (existing);
  - **South west quadrant**: van Wyk Street Ext to intersect with Brummer Street; and,
  - **Town north**: extend golf course access road to Kerk Street.

## 5.10 MERWEVILLE (population: ± 1 200)

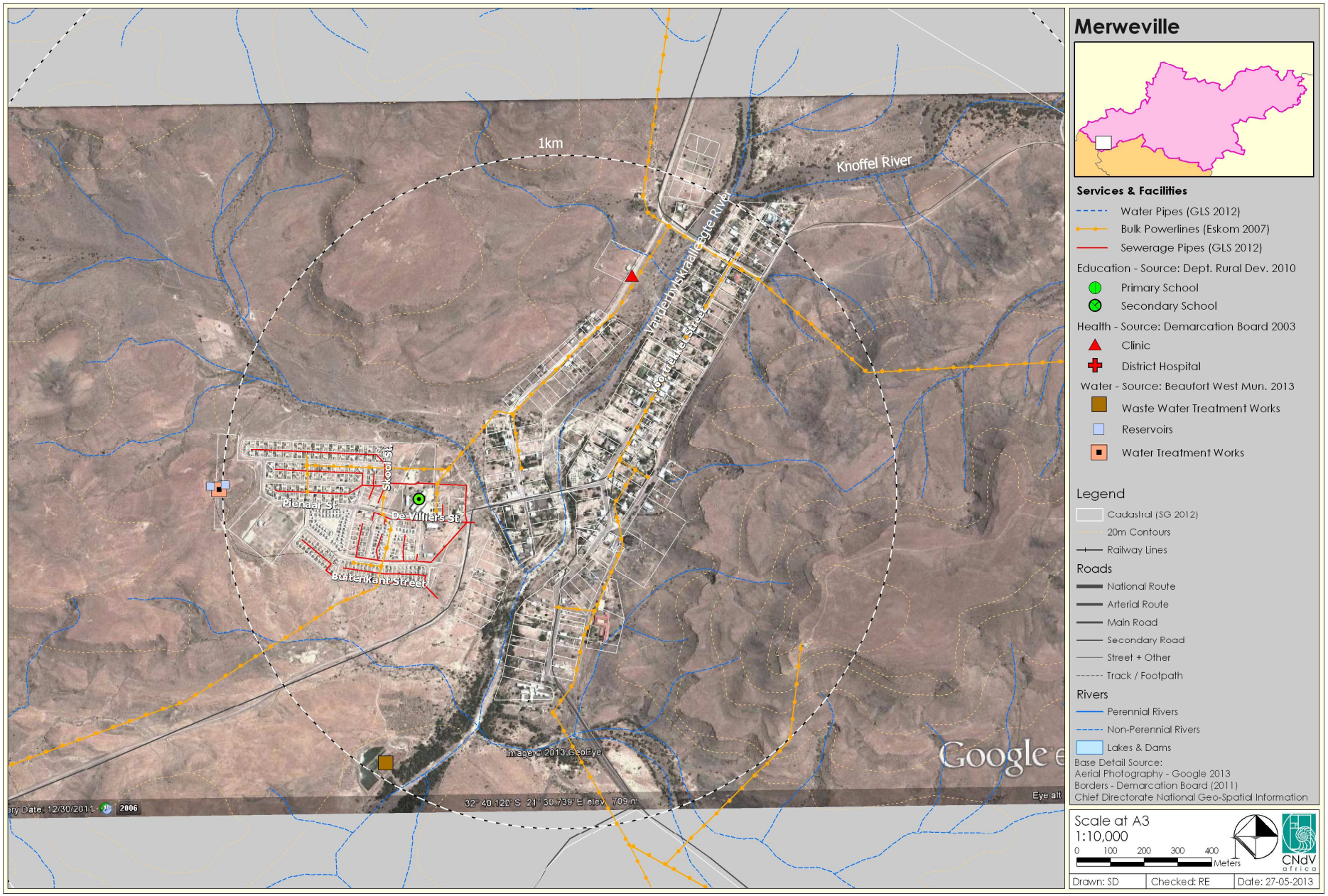



**Figure 5.10.1.1 Merweville: Aerial photograph**

### 5.10.1 SPATIAL ANALYSIS, see Figures 5.10.1.2

**Sub-regional location**

- Situated 46kms north of the N1 (Prince Albert Road) on a tar/gravel road in an arid sub-region known as the Koup;
- "Koup" refers to the fat and blood pattern around a sheep's liver which the vegetation resembles in winter;
- Prince Albert road is another 116kms from Beaufort west so Merweville is isolated from its nearest large town;
- Originally developed as a local agriculture (livestock grazing) service and religious centre as Beaufort West was too far to provide adequate services;
- Merweville continues to fulfill this role although the economic base of the sub-region has declined; and,
- Probably one of the most isolated locations of a small village of this size in the Cape. Most others are on at least a completely tarred regional road.

**Layout pattern**

- The majority of the old town is laid out along the southern bank of the Vanderbylskraalleegte River below its confluence with the Knoffel River;
- It comprised roughly six large blocks whose long streets are parallel to the rive and along which water is led;
- There were also some blocks laid out along the northern bank but these are much less developed and there are a large number of approved but undeveloped erven here;
- The large plots in these blocks accommodated market gardening which still occurs, particularly on the lower plots nearest the river; and,
- West of the town, resulting from the Group Areas Act, are some newer extensions containing most of the settlement's poorer residents; The plots here are too small and not designed to be irrigated for food gardening.

**Urban quality**

- The main part of the settlement comprises old Victorian and Edwardian bungalows and cottages overlooked by a large grey/black stone church. Many of these properties are in original condition and some have been well maintained;
- There are few street trees although there are mature stands of trees on some of the older properties;
- The new extensions have few trees, although residential streets are tarred. Buildings comprise mainly larger subsidy houses from the 1960s and 1970s and more recent smaller BNG houses; and,
- Paved footpaths have been constructed between the newer and older parts of town.

**Challenges and potential**

- Some challenges are due to the long term decline in the hinterland's major local natural resources, namely extensive agriculture and its carrying capacity, and will be difficult to turn around. However there does seem to be some demand for agriculture from residents, e.g. requests for more space for pig farming;
- Development of the proposed uranium mine along the R353 to Fraserburg is likely to be too far away to benefit the village;
- The town's challenges could also be its potential. For instance, its remote location along gravel roads makes it expensive to travel to but also creates a strong sense of "getting away". This could be extended to the potential to create a self-sufficient settlement for both rich and poor; and,
- Its desert like landscape is apparently similar to that of Nevada and Arizona and it has been used as a film shoot location.

**Restored Victorian residence with stoep overlooking paved pedestrian foot path**

**Trees and shop along DS de Villiers Street east**

**Market/food gardening on plots near river**

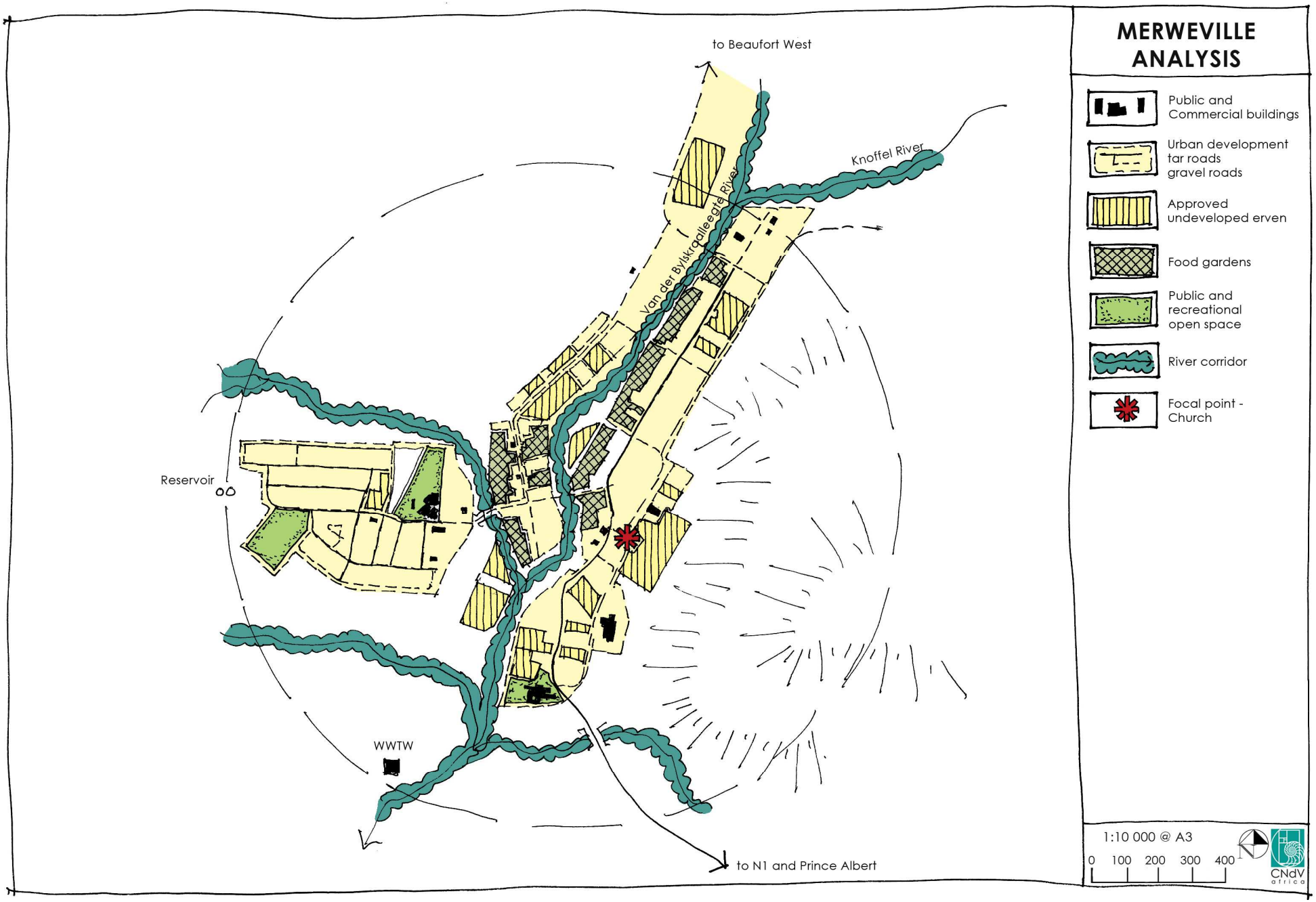



**Figure 5.10.1.2 Merweville: Analysis**

## 5.10.2 MERWEVILLE: DRAFT SPATIAL DEVELOPMENT FRAMEWORK, see Figure 5.10.2.1

### General

Merweville probably epitomizes the challenge faced by an isolated small settlement with a declining natural resource base as to what its development future should be. Its low economic growth potential and social needs relative to places like Beaufort West means that it is likely to have far more chance of success if it can develop on its local attributes; e.g. it is likely to be difficult motivating completing tarring the road to Prince Albert Road given other higher priority road tarring project elsewhere in the province. Therefore, attributes to be built on include some land for grazing and food gardening, isolation and wilderness environments and historic very small town atmosphere.

### 5.10.2.1 Core landscape areas

- Proclaim river corridors, where possible at least 32 m from banks in which no intensive agriculture nor urban development is permitted;
- Support and encourage continued use of current market gardening plots;
- Investigate use of open land or undeveloped areas closest to river corridors for market gardening and livestock farming, (e.g. pigs); and,
- Plant trees along Pienaar and DS de Villers Streets to create an integrating main street network between all parts of the town, including paving the eastern extremity of these networks.

### 5.10.2.2 Urban Development

- Incentivise development of existing undeveloped plots furthest from the rivers. Those close to the rivers should be considered for market gardening or stock farming; and,
- Land for further BNG housing should consolidate existing settlement (portions (A), (B) and (D) and for GAP or upmarket should be considered behind the church (C).

### 5.10.2.3 Heritage Conservation and Frontage Urban Design Control Areas

- One of Merveville's strongest and few selling points is the historic and original state of many of the buildings;
- The eastern side of the settlement should be declared a heritage precinct with guidelines to which renovations to existing and extensions and new buildings should comply so as to strengthen and not erode this important asset; and,
- Note: there is a comprehensive history of Merweville produced by the Cape Town Heritage Trust which provides a useful resource.

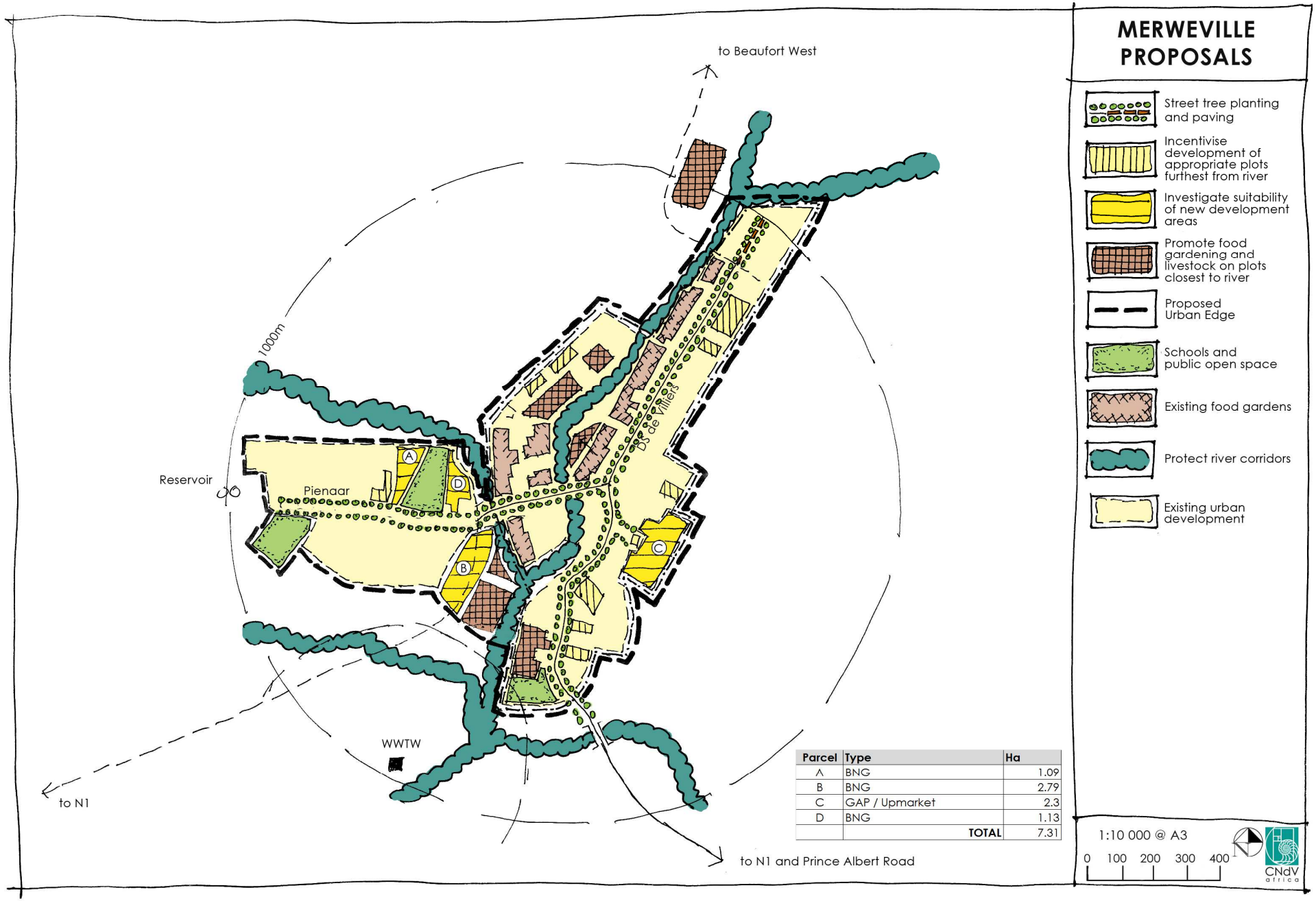
### 5.10.2.4 Urban Restructuring

- Symbolically integrate the settlement by ensuring a uniform tree planting and road pavement treatment on the main route network linking all the urban areas comprising Pienaar, DS de Villiers west and DS de Villiers east streets; and,
- Land for any new urban development, for instance, BNG housing should be located on the land parcels identified that will consolidate rather than disperse the settlement.

**Well located serviced undeveloped land corner of Pienaar and Skool Street**

**Upgraded sidewalk along DS de Villiers required tree planting**

**Heritage and tourism resources: water furrow, original Victorian/Edwardian style house, stone church**




| Parcel | Type | Ha |
|---|---|---|
| A | BNG | 1.09 |
| B | BNG | 2.79 |
| C | GAP / Upmarket | 2.3 |
| D | BNG | 1.13 |
| | TOTAL | 7.31 |

**Figure 5.10.2.1 Merweville: Spatial Development Framework**

## 5.11 MURRAYSBURG (population: ± 4 500)


**Figure 5.11.1.1 Murraysburg: Aerial photograph**

### 5.11.1 SPATIAL ANALYSIS, see Figures 5.11.1.2

**Sub-regional location**

- Enjoys good tar road access on the R 63 between Victoria West (90kms) and Graaff Reinet (92kms), Cape Town (650kms) and Johannesburg (860kms), are the nearest large towns and the N1 is 43kms away. The municipal headquarters are at Beaufort West (158kms);
- Similar to Merweville, although much older, (± 1850), Murraysburg, was established because it was too far to either Richmond (± 90kms) or Graaff Reinet to attend church services and register births and deaths;
- It is located in the wettest and most fertile part of the municipality and has performed relatively well compared especially to Laingsburg and Prince Albert municipalities with regards to agricultural GVA and employment, i.e. it has performed less badly (MERO, Provincial Dept of Treasury 2012, p25);
- There have been significant declines in agricultural employment although there has been less of an impact in Murraysburg, and the town is serving as a refuge for ex farmworkers; and,
- There seems to have been an increase in manufacturing but the exact nature of this is not known.

**Layout pattern**

- In general the town is fairly compact with most people living with in a 1km radius from the town centre;
- From its layout Murraysburg appears much larger than it actually is because the northern part of the town, comprising agricultural allotments on the same grid as the three rows of urban blocks between Sir George Grey and Location Street, remain hardly developed to this day. Thus, in actual fact, its original built up area is not much larger than Merweville;
- However, the low income section of the town is substantially bigger than that of Merweville;
- There are large amounts of vacant land between Angelier and Location Streets;
- The new township extension comprises ever decreasing smaller blocks with the smallest in the extreme west. Units in this extension have all been built on the back boundaries leaving very little private space; and,
- As happens with many Karoo towns, the various sports codes' facilities, instead of being concentrated in a single complex where some level of viable threshold facility can be achieved, especially for social activities, are scattered across the northern part of the town.

**Urban quality**

- The original part of Murraysburg present a contradictory quality of a number of vacant but neat shop fronts with a small core of operating shops and attractive, restored historic buildings set within shady treed avenues; and,
- Moving southwards the denser residential areas, largely devoid of trees, are cut off from the CBD area by a range of wind swept open spaces including the cemeteries at the entrance to the town, and vacant and undeveloped land around the schools and institutions between Location and Angelier Streets.

**Challenges and potential**

- The town is dependent on ground water and any potential threats to this, such as fracking, are of concern;
- There is a small but vibrant tourism industry and the town is located midway between Victoria West and Graaff Reinet, both tourism and heritage hubs;
- The future of the town's low income and low skilled unemployed would seem to lie more in the agri and eco-tourism industries; and,
- ± 570 (352 backlog – 220 future need) households on waiting list. 64% BNG, 31% GAP and 4% market.

**Empty shop fronts along Sir George Grey Street**

**Residential cottages along Beaufort Street**

**New Houses in Murraysburg south near Hope Street**

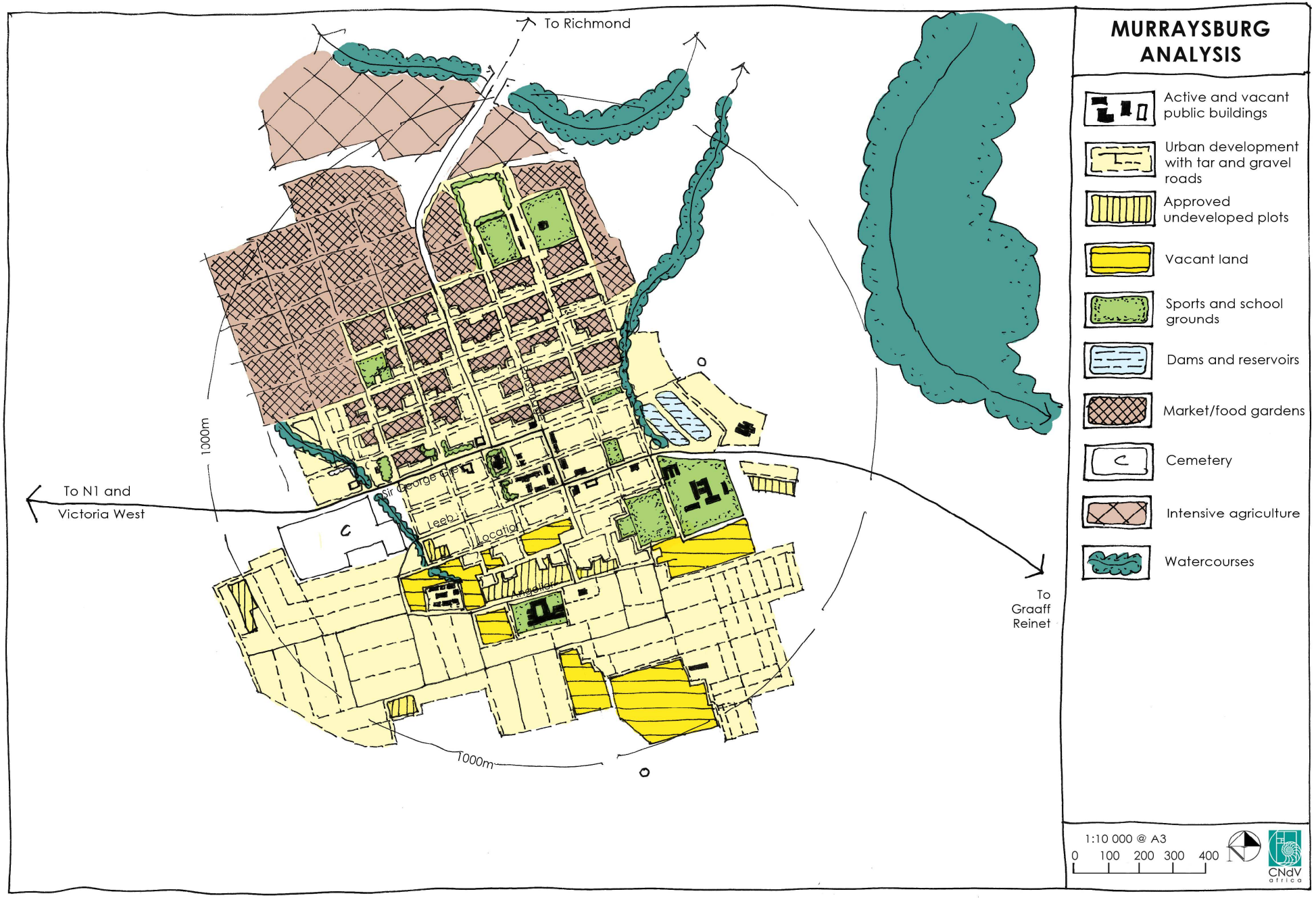



**Figure 5.11.1.2 Murraysburg: Analysis**

## 5.11.2 MURRAYSBURG: DRAFT SPATIAL DEVELOPMENT FRAMEWORK, see Figure 5.11.2.1

### 5.11.2.1 Core landscape areas

- Encourage market and food gardening on the large blocks to the north of the town generally north of Hoffmeyer Street. Depending on their ownership they should be available to all who wish to use them for food or market gardening;
- Determine river corridor set back lines from which intensive agriculture (plowing) and urban development are prohibited. In the interim they should be set back 32 m from the banks; and,
- Plant or infill a tree lined street network linking Sir George Grey and Leeb Street including Parsonage and Church streets to create a pinwheel around the church that also integrates the southern part of the town along a new road, Church street extension linking to the school on Angelier Street.

### 5.11.2.2 Urban Development

- Incentivise development of approved vacant plots for GAP housing, particularly those closest to Church Street Extension;
- Encourage all new BNG (to be appropriately designed) and GAP housing to be located on vacant land with the centre of the town first so as to promote integration before using peripherally located land

### 5.11.2.3 Heritage Areas

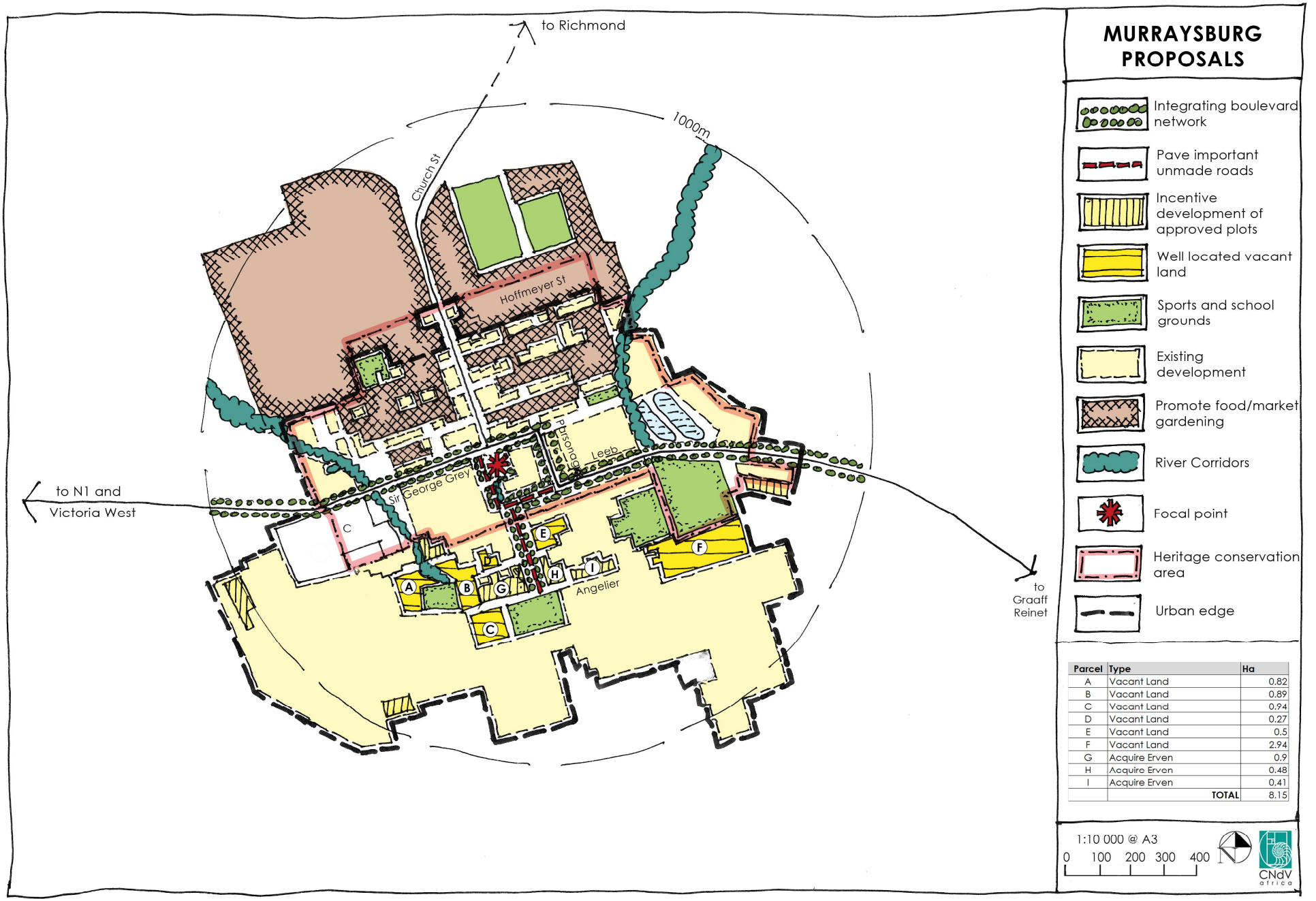
- Investigate declaring the centre of the town from midblock between Location and Leeb Streets to the south to midblock above Hoffmeyer Street in the north as a heritage conservation area with guidelines to assist the renovation and restoration of existing buildings and the design of new buildings within this precinct;

### 5.11.2.4 Urban Restructuring

- Upgrade the road pavement and plant trees along the street network as described in section 5.11.2.1 above, focusing around the church as a focal point to integrate and link the northern and southern parts of the town;
- Extending Church street southwards to the school on Angelier Street is critical to successfully achieving this link;
- This will entail paving the unmade section of Church street south between Leeb and St Andrew's Streets and then creating a new road, Church Street Extension, through the undeveloped plots between St Andrews and Angelier Streets; and,
- Concentrating all new housing development on the vacant or undeveloped land in this vicinity rather than constructing large new townships on the periphery will also assist urban restructuring. However, this implies projects of a much smaller number of units in each phase. Although this may not be as financially viable for housing developers in the short term, it will contribute to a more sustainable and better integrated urban fabric in the long term.

**View from school on Angelier Street across undeveloped plots along axis of proposed Church street extension showing visual link to church and well located land to be used for GAP and BNG housing according to the principle of the socio-economic gradient**

**Former building on corner Parsonage and Sir George Grey Streets previously in poor condition when used as a shop (Google Street view 2010). Now restored and used for its original purpose**




| Parcel | Type | Ha |
|---|---|---|
| A | Vacant Land | 0.82 |
| B | Vacant Land | 0.89 |
| C | Vacant Land | 0.94 |
| D | Vacant Land | 0.27 |
| E | Vacant Land | 0.5 |
| F | Vacant Land | 2.94 |
| G | Acquire Erven | 0.9 |
| H | Acquire Erven | 0.48 |
| I | Acquire Erven | 0.41 |
| | TOTAL | 8.15 |

**Figure 5.11.2.1 Murraysburg: Spatial Development Framework**

## 5.12 NELSPOORT (population: ± 1 300)

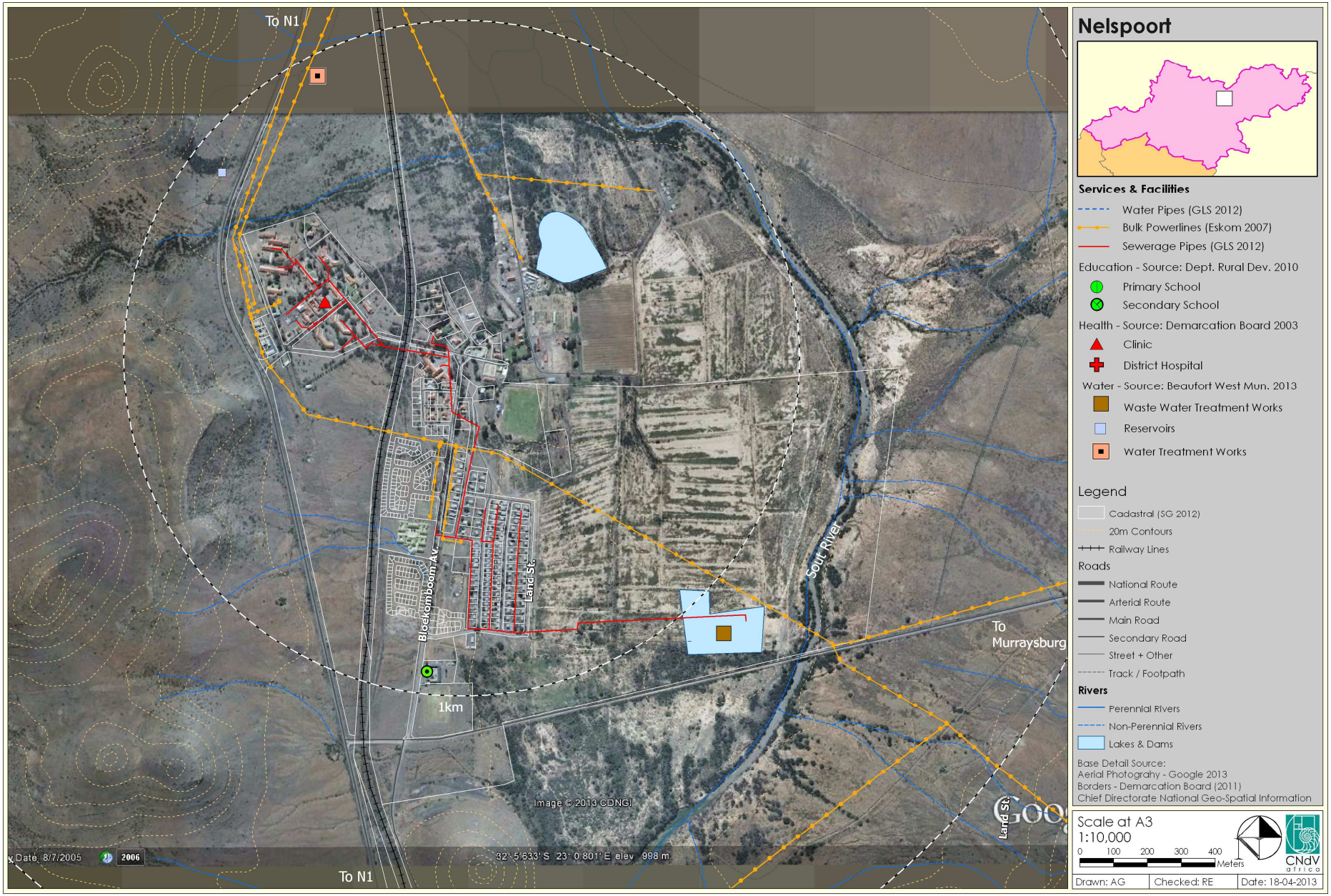



**Figure 5.12.1.1 Nelspoort: Aerial photograph**

### 5.12.1 SPATIAL ANALYSIS, see Figures 5.12.1.2

**Sub-regional location**

- Located on the old N1 that deviates from the current route following the Cape Town- Gauteng rail line;
- 50kms from Beaufort West, 520kms from Cape Town and 880kms from Johannesburg;
- Original locational determinants included the very clean air in this region (tuberculosis convalescence centre before cure was discovered in late 1950s) and presence of road and rail station (2kms south) on mainline;
- Although the attributes of the site were identified in 1880 the centre only opened in 1924 after a large donation from the Garlick family; and,
- It was also very good farming country with the area being less drought prone than areas further to the south. The Sout River and surrounding veld is certainly in much better conditions here than it is to the south.

**Layout pattern**

- Comprises four components:
  - Original sanatorium complex between rail line and road linked to remainder of settlement by a road underpass taking direct access off old N1 ;
  - Recreation, management housing and community facility node around a T junction;
  - Farm buildings and agricultural lands to the east;
  - Residential areas and schools abutting a long avenue comprising mature blue gum trees. It comprises the original settlement plus two recently completely BNG housing schemes. This area also takes access off the old N1 via a level crossing; and,
- There is also a small community living in houses around the station some 2kms to the south.

**Urban quality**

- The original institutional buildings were constructed on a grand scale facing north/north east in the Edwardian colonial style with large wrap around verandahs well suited to the Karoo heat in summer and prominent chimneys arising out of large double pitched roofs;
- The older parts of the settlement are well treed and the main spine avenue creates a strong sense of place with its boulevard of mature gum trees;
- Original staff housing takes the form of small cottages with chimneys; and,
- Recently built BNG housing lack tree planting and detracts from the architectural integrity of the rest of the buildings.

**Challenges and potential**

- With the scaling down of the heath and farming activities the population is likely to be mainly economically sustained by social grants;
- Although the many Blue Gum trees in the settlement give it an oasis like sense of place these damage infrastructure and soak up large volumes of water;
- Nelspoort is becoming a settlement refuge for farmworkers displaced from surrounding farms;
- There are many large buildings, increasingly falling into disrepair, which could be used for institutional purposes. (Originally facilities for ± 500 patients plus staff) There is a great need for training and rehabilitation facilities in the province to address various social issues which require candidates to spend some time out of their current context, for example, like the Chrysalis Academy in Cape Town. Nelspoort would appear to be best suited for such a role as it already has the necessary facilities for this including buildings and facilities and agricultural land – although many of these are currently little used and/or are in disrepair; and,
- There are a large number of developed agricultural lands currently lying fallow which should be brought into production.

**Main Entrance to Nelspoort off old N1**


**Example of numerous well built but little used institutional buildings on site requiring maintenance**


**Recently constructed BNG housing**

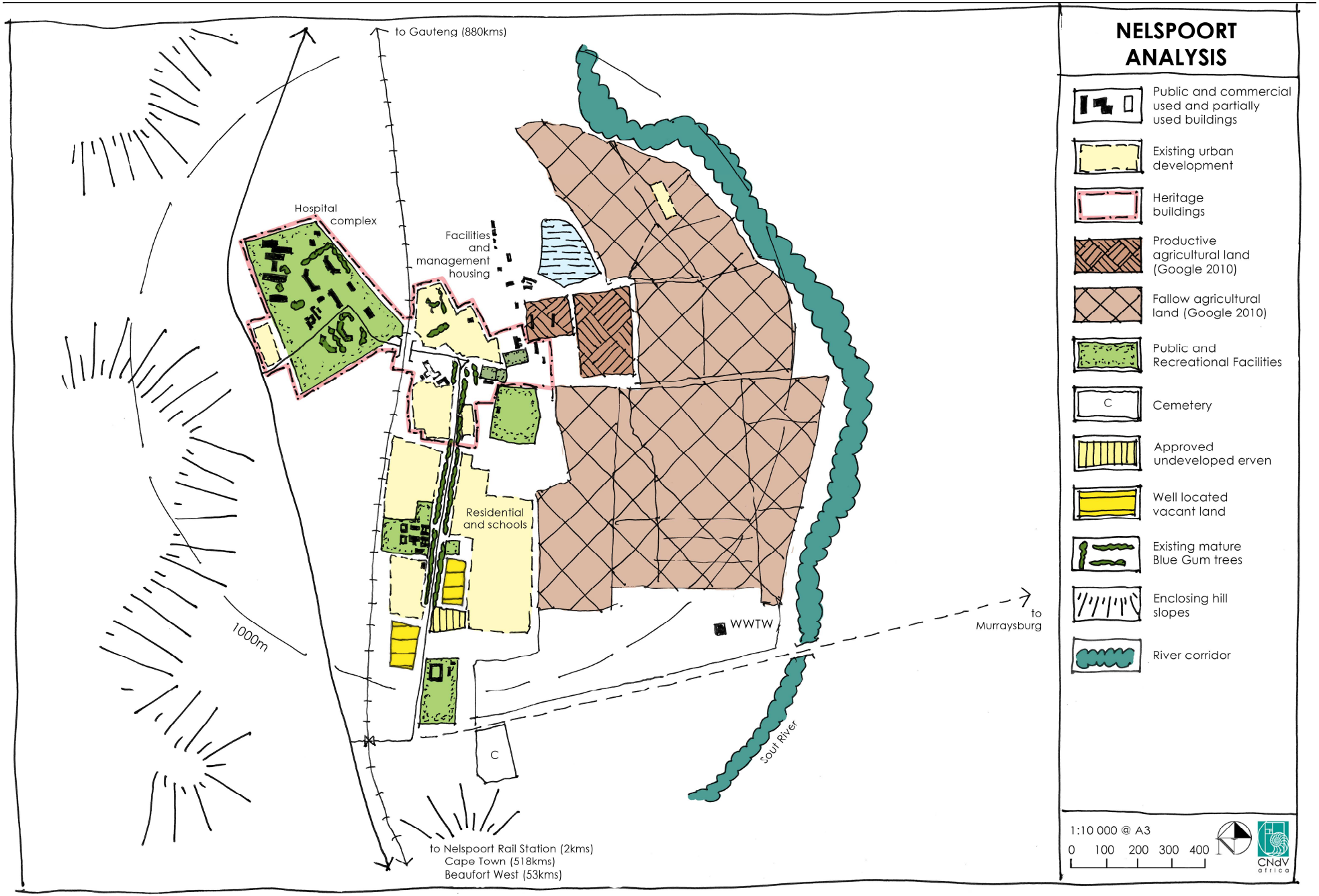



**Figure 5.12.1.2 Nelspoort: Analysis**

### 5.12.2 NELSPOORT: DRAFT SPATIAL DEVELOPMENT FRAMEWORK, see Figure 5.12.2.1

**General:** Although the hospital was once a national facility currently it only serves the Central Karoo District for TB inpatients and psychiatry patients and is managed by a Matron.

Nelspoort has four assets to build on:

- The health facilities and institutional buildings ,although many are in a poor state of repair and under used, have potential as a large heritage precinct;
- Excellent climate;
- Relatively good agricultural land which is also currently underutilized; and,
- Remote location which nevertheless is served by good road and rail infrastructure not too far from the N1;

This suggests that, in addition to the proposed hospital extension program underway (noted in IDP 2007-2012) it would be a good location for a large leadership academy/rehabilitation centre that could address the various social problems increasingly affecting communities in the large cities as well as the platteland. The sub-regional location makes the settlement suitable for offering tourist opportunities that could include the Khoi and Bushman history of the area (rock bells, paintings and engravings) Anglo Boer War as well as the sanatorium's history. The farming operations should be restored and this could also form the basis of a local value chain via an on-site farmerrs' market and supplying Beaufort West.

#### 5.12.2.1 Core landscape areas

- Nelspoort should retain its heavily treed character which forms a strong part of its sense of place but begin to replace the current Blue Gum trees with suitable indigenous water wise species; and,
- Restore farming to the large area of prepared lands currently lying fallow.

#### 5.12.2.2 Urban Development

- The settlement is exceptionally well endowed with various education and community facilities and all that is generally required is their restoration rather than the construction of new facilities; and,
- In general no new housing should be provided for as a large number of units have been recently built, there is suitable land if needed along the main entrance road and the short to medium term focus should be on promoting economic activity and job creation rather than more residential opportunities.

#### 5.12.2.3 Heritage Areas

- The northern part of the settlement should be restored as a heritage precinct. This could be coupled with history tours through the hospital grounds and farming area and a coffee shop and B&B facilities operating somewhere out of the large stock of currently underused buildings.

#### 5.12.2.4 Urban Restructuring

- Create continuous link avenue between the two main entrances to the settlement including the hospital, facilities and residential areas.

**Replace existing blue gums with indigenous trees on a phased basis so as to retain visual quality**

**Restore heritage buildings to their original use as well as to serve as tourism attraction (walking tours)**


**Bring agricultural land to full production**


**Figure 5.12.2.1 Nelspoort: Spatial Development Framework**

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