

# **RUSTENBURG SPATIAL DEVELOPMENT FRAMEWORK (2010 REVIEW)**



**February 2011**

**PREPARED FOR:**



**Rustenburg Local Municipality**  
P O Box 16  
Rustenburg  
0300

Tel: 014-590-3111  
Fax: 014-590-3003

**PREPARED BY:**



**K2M Technologies (Pty) Ltd**  
Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel: 014-533-1943/2362  
Fax: 014-533-1769  
Email: [gert@k2m.co.za](mailto:gert@k2m.co.za)

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION AND BACKGROUND .....</b>	<b>6</b>
1.1	BACKGROUND TO SPATIAL DEVELOPMENT FRAMEWORKS.....	6
1.2	METHODOLOGY .....	2
1.2.1	Spatial Interpretation of the 2009/10 IDP .....	2
1.2.2	Spatial Analysis of current reality .....	2
1.2.3	Desired Spatial Development Concept and spatial goals .....	2
1.2.4	Incorporate and align with Municipal Environmental Management Framework .....	2
1.2.5	Develop Spatial Development Framework and implementation strategy.....	3
1.3	PERSPECTIVES ON RECENT DEVELOPMENT OF SPATIAL DEVELOPMENT FRAMEWORKS .....	3
1.4	REQUIREMENTS OF SDF'S AS OUTLINED IN LOCAL GOVERNMENT MUNICIPAL PLANNING AND PERFORMANCE MANAGEMENT REGULATIONS	5
1.5	PURPOSE OF THE SDF AND ITS RELATIONSHIP WITH LAND USE MANAGEMENT SYSTEM .....	6
1.6	STRUCTURE OF DOCUMENT.....	7
<b>2</b>	<b>MUNICIPAL DEVELOPMENT PRIORITIES AND EXISTING POLICIES AND PLANS.....</b>	<b>8</b>
2.1	CONTEXTUAL SETTING .....	8
2.2	MUNICIPAL DEVELOPMENT VISION, PRIORITIES AND OBJECTIVES .....	9
2.3	RUSTENBURG WITHIN THE CONTEXT OF THE NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE .....	10
2.4	NORTH WEST SPATIAL DEVELOPMENT FRAMEWORK .....	12
<b>3</b>	<b>SOCIO-ECONOMIC PROFILE .....</b>	<b>15</b>

---

3.1	POPULATION SIZE AND DENSITIES .....	15
3.2	AGE STRUCTURE AND GENDER COMPOSITION .....	17
3.3	EDUCATION PROFILE .....	19
3.4	EMPLOYMENT, OCCUPATION AND ECONOMIC STRUCTURE .....	22
3.5	THE INFORMAL SECTOR .....	27
4	LAND USE .....	31
4.1	SETTLEMENT PATTERN .....	31
4.2	RESIDENTIAL .....	34
4.3	AGRICULTURE .....	38
4.4	MINING .....	42
4.5	OPEN SPACE AND PROTECTED AREAS .....	46
4.6	TOURISM .....	47
5	MUNICIPAL INFRASTRUCTURE .....	50
5.1	WATER SUPPLY AND SOURCES .....	50
5.1.1	Availability of basic infrastructure .....	50
5.1.2	Water sources .....	51
5.2	SANITATION .....	54
5.3	ELECTRICITY SUPPLY .....	56
5.3.1	Consumer Profile .....	56
5.3.2	Bulk Infrastructure .....	58
5.4	WASTE REMOVAL .....	59
5.5	TRANSPORTATION .....	62
5.5.1	Road Infrastructure and transport patterns .....	62

5.5.2	Modal split and travel characteristics .....	64
5.5.3	Rail Infrastructure .....	68
5.5.4	Air Transport .....	68
5.5.5	Public transport .....	68
<b>6</b>	<b>NATURAL FEATURES .....</b>	<b>74</b>
6.1	<b>LANDSCAPE CHARACTER AND TOPOGRAPHY.....</b>	<b>74</b>
6.2	<b>HYDROLOGY.....</b>	<b>74</b>
6.2.1	Rivers.....	74
6.2.2	Dams .....	78
6.2.3	Wetlands.....	79
6.3	<b>VEGETATION.....</b>	<b>79</b>
6.4	<b>CLIMATE.....</b>	<b>79</b>
6.5	<b>SENSITIVE AND PROTECTED AREAS .....</b>	<b>81</b>
6.6	<b>HERITAGE RESOURCES.....</b>	<b>81</b>
<b>7</b>	<b>GUIDING PRINCIPLES AND CONCEPTUAL FRAMEWORK .....</b>	<b>86</b>
7.1	<b>GUIDING PRINCIPLES .....</b>	<b>86</b>
7.1.1	General principles for land development .....	86
7.1.2	Principles of the National Spatial Development perspective .....	87
7.1.3	Medium Term Strategic Framework (2009 to 2014) .....	88
7.1.4	North West Spatial Development Principles .....	88
7.1.5	Natural Resource Management Strategy for the North West .....	89
7.2	<b>CONCEPTUAL FRAMEWORK TO GIVE AFFECT TO THE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK STRATEGIES .....</b>	<b>90</b>
7.2.1	Strategy 1: Accelerating Growth and Development through main economic growth areas for prioritized development spending .....	90
7.2.1.1	<i>Purpose and principles of Intervention Zone.....</i>	<i>90</i>
7.2.1.2	<i>Spatial Structuring Elements.....</i>	<i>91</i>
7.2.1.3	<i>Proposals to apply the spatial structuring elements in the Rustenburg LM .....</i>	<i>92</i>

7.2.2	Strategy 2: Sharing growth and development focusing on Social inclusion areas representing areas for investment in people rather than places .....	92
7.2.2.1	<i>Purpose and principles of Intervention Zone.....</i>	92
7.2.2.2	<i>Spatial Structuring Elements.....</i>	92
7.2.2.3	<i>Proposals to apply the spatial structuring elements to the local municipal context</i>	93
7.2.3	Strategy 3: Stimulating and kick starting new potential growth nodes .....	93
7.2.3.1	<i>Purpose and spatial structuring elements of this Intervention Zone.....</i>	93
7.2.3.2	<i>Proposals for applying these spatial structuring elements at local level in the Rustenburg LM.....</i>	94
7.2.4	Strategy 4: Sustainable growth and development through appropriate management of environmentally sensitive zones .....	94
7.2.4.1	<i>Planning principles applicable to this intervention zone .....</i>	94
7.2.4.2	<i>Spatial Structuring Elements.....</i>	94
<b>8</b>	<b>SPATIAL DEVELOPMENT PRIORTIES AND OBJECTIVES.....</b>	<b>96</b>
8.1	<b>PRIORITY 1: INTEGRATED SPATIAL DEVELOPMENT SUPPORTED BY THE REQUIRED BULK INFRASTRUCTURE DEVELOPMENT .....</b>	<b>96</b>
8.2	<b>PRIORITY 2: ACCELERATED AND SHARED ECONOMIC GROWTH SUPPORTED BY CREATION OF SPATIAL ECONOMIC OPPORTUNITIES .....</b>	<b>96</b>
8.3	<b>PRIORITY 3: SUSTAINABLE USE AND MANAGEMENT OF NATURAL RESOURCES .....</b>	<b>97</b>
8.4	<b>PRIORITY 4: INTEGRATION OF LAND USE AND TRANSPORT DEVELOPMENT.....</b>	<b>97</b>
8.5	<b>PRIORITY 5: CREATION OF SUSTAINABLE SETTLEMENTS THROUGH ACCESS TO APPROPRIATE HOUSING AND SOCIAL FACILITIES.....</b>	<b>97</b>
8.6	<b>PRIORITY 6: CREATION OF OPPORTUNITIES FOR SUSTAINABLE RURAL DEVELOPMENT.....</b>	<b>98</b>
<b>9.</b>	<b>SPATIAL DEVELOPMENT FRAMEWORK PROPOSALS.....</b>	<b>99</b>
9.1	<b>BIO-PHYSICAL .....</b>	<b>99</b>

<b>9.2</b>	<b>SETTLEMENT PATTERN AND URBAN DEVELOPMENT .....</b>	<b>102</b>
<b>9.2.1</b>	Nodes and settlement hierarchy .....	102
<b>9.2.2</b>	Development corridors .....	104
9.2.2.1	<i>N4 Corridor.....</i>	<i>104</i>
9.2.2.2	<i>Rustenburg-Kanana-Tlaseng corridor .....</i>	<i>105</i>
9.2.2.3	<i>Phokeng-Robega corridor .....</i>	<i>105</i>
<b>9.2.3</b>	Demarcating an Urban Edge .....	106
<b>9.2.4</b>	Housing Development .....	107
<b>9.3</b>	<b>SOCIAL INFRASTRUCTURE, FACILITIES AND SERVICES .....</b>	<b>110</b>
<b>9.4</b>	<b>SPATIAL ECONOMIC DEVELOPMENT .....</b>	<b>112</b>
<b>9.4.1</b>	Agriculture .....	112
<b>9.4.2</b>	Mining .....	114
<b>9.4.3</b>	Commercial and industrial .....	114
<b>9.4.4</b>	Tourism .....	118
<b>9.5</b>	<b>TRANSPORT SYSTEM .....</b>	<b>118</b>
<b>9.6</b>	<b>RUSTENBURG CORE AREA PROPOSALS .....</b>	<b>121</b>
<b>10</b>	<b>MANAGEMENT AND IMPLEMENTATION.....</b>	<b>123</b>
<b>10.1</b>	<b>MANAGEMENT AND COORDINATION.....</b>	<b>123</b>
<b>10.2</b>	<b>STRATEGIC LEVEL ASSESSMENT OF THE IMPACT OF THE SPATIAL DEVELOPMENT FRAMEWORK PROPOSALS.....</b>	<b>128</b>
<b>10.3</b>	<b>CAPITAL INVESTMENT FRAMEWORK.....</b>	<b>133</b>
<b>10.4</b>	<b>MANAGEMENT AND COORDINATION.....</b>	<b>133</b>
<b>10.4.1</b>	Alignment of Spatial Development Framework and Land Use Management System .....	133
<b>10.4.2</b>	Areas not sufficiently provided for in terms of the Land Use Management Scheme .....	134
<b>10.4.3</b>	Alignment with Rustenburg Environmental Management Framework .....	134
10.4.3.1	<i>Guidelines for Environmental Management Zones .....</i>	<i>134</i>
<b>10.4.4</b>	Alignment with Environmental Management Framework for Magaliesberg Protected Environment .....	137
<b>10.5</b>	<b>SHORT TERM PRIORITY PROJECTS.....</b>	<b>138</b>

# 1 INTRODUCTION AND BACKGROUND

## 1.1 BACKGROUND TO SPATIAL DEVELOPMENT FRAMEWORKS

According to the White Paper on Spatial Planning and Land Use Management (2001), each sphere of government must take responsibility for spatial planning in their areas of jurisdiction. In this regard, the local government being the sphere of government operating closest to the community will have directly role to play in spatial planning on which all decisions on land development should be based. The White Paper classifies the **role of local government** relating to spatial planning and Land Use Management into three categories:

- Spatial Development Frameworks, as an integral part of the municipal IDP;
- Decision making on land development applications made to local government; and
- Enforcement of the provisions of land use schemes.

To fulfil the role of spatial planning, the Municipal Systems Act requires every municipality to prepare and adopt a Spatial Development Framework (SDF) and align it with the framework of the IDP. The Spatial Development Framework is a core component of the IDP process and identifies spatial issues and trends for which spatial strategies are formulated. It also gives the localised spatial dimension to development principles, objectives and projects, and must form the basis for the local government's land use management system.

The Spatial Development Framework can be described as an indicative plan showing the desired patterns of land use, direction of growth, special development areas and conservation-worthy areas. The SDF needs to be informed by the vision of the municipal area, the development objectives, as well as the strategies and outputs identified in the IDP.

The last spatial development framework of the Rustenburg local municipality was prepared in 2005, and the municipality thus initiated a process to review the SDF during 2010. The purpose of this review process is to consider new information that became available since the finalisation of the 2005 version of the plan and to accommodate new economic and demographic trends, prevalent within the study area. The review process did not include the preparation of a completely new Spatial Development Framework, but is aimed at revising and updating the current framework taking into consideration new trends, information and policies.

## **1.2 METHODOLOGY**

The methodology employed for the preparation of the revised spatial development framework consisted of a logical sequence of activities, consisting of four phases and six discrete tasks. These phases and tasks are briefly summarised below.

### **1.2.1 Spatial Interpretation of the 2009/10 IDP**

The purpose of this task was to interpret the implications of the latest Integrated Development Plan of the Rustenburg LM (2009/10) in spatial terms. This component focuses on the mapping of IDP priorities and location of proposed IDP capital projects.

### **1.2.2 Spatial Analysis of current reality**

This component analyzed the various components of spatial development within the study area. It provides an updated current reality analysis of the SDF. It also includes a brief interpretation of these components and the relevance thereof in terms of opportunities and constraints for future spatial development.

### **1.2.3 Desired Spatial Development Concept and spatial goals**

The purpose of this component is to review and update the spatial development objectives, strategies, and development concepts of the Spatial Development Framework. It will be necessary to ensure that the preferred Spatial Development concept upon which the detailed proposals of the LSDF's are based take cognisance of the key components of the municipal SDF as described in the Provincial Spatial Development Framework.

### **1.2.4 Incorporate and align with Municipal Environmental Management Framework**

This component of the study ensures integration and alignment with the findings of the Rustenburg Environmental Management Framework, as well as the Critical Biodiversity Areas identified in the North West Spatial Development Framework.

### 1.2.5 Develop Spatial Development Framework and implementation strategy

This component provides an updated and revised overall municipal SDF, as well as more detailed LSDF's in terms of the preferred Spatial Development concept. It also outlines the required implementation strategies and policies that will have to be adopted to ensure successful implementation of the SDF.

## 1.3 PERSPECTIVES ON RECENT DEVELOPMENT OF SPATIAL DEVELOPMENT FRAMEWORKS

The unique elements of the structure and morphology of South African cities and towns are probably one of the most visible and lasting legacies of the planning ideology during the apartheid era in South Africa during which cities and towns have largely been planned and administered along racial divides. Not surprisingly, the spatial planning policy framework and associated implementing tools have undergone fundamental changes since the onset of the democratic era in 1994. The most prominent of these include the introduction of a system of Integrated Development Planning supported by a number of sectoral plans, most notably the Spatial Development Frameworks as an instrument for giving spatial expression to the development vision and priorities of the IDP process. Spatial Development Frameworks have thus become entrenched as the primary tool for guiding the spatial development patterns of South African cities and towns. The Spatial Development Framework concept largely replaced the more traditional structure plans which for many decades formed the backbone of the forward planning process. The purpose and required contents of Spatial Development Frameworks have also been entrenched in legislation through the requirements of Chapter 2 of the Local Government: Municipal Planning and Performance Management Regulations promulgated in 2001 (see section 1.4 below for details).

One of the most significant changes relating to the spatial planning landscape since the commencement of the new national government term of office in 2009, is a shift in focus to rural development which has been elevated to one of the national development priorities in the Medium Term Strategic Framework. In line with the above policy directive and shift towards investment in rural areas the **Comprehensive Rural Development Programme: the concept** (2009) was released by the Minister of Rural Development and Land Reform. Great emphasis is placed on rural development in three spheres, economic development, social development, and public

amenities and facilities. Among some of the challenges are the “revitalisation and revamping of old, and the creation of new economic, social and information communication infrastructure and public amenities and facilities in villages and small rural towns” (Ministry of Rural Development and Land Reform, 2009). In the same vein, the **White Paper on Agrarian Transformation, Rural Development and Land Reform (2009)** claims that land reform can make a major contribution towards addressing unemployment, particularly in rural areas and small towns.

Within the national context it is also important to reflect on the approach and arguments relating to the classification of towns and settlements in the national urban hierarchy, and to determine the position of Rustenburg within this overall national pattern. Van Huyssteen et al (2009:203) identified the following variables to develop a suitable settlement classification for South Africa:

- concentration or population density
- settlement size
- number and range of services or “urban functions”;
- relations between places, measured in terms of accessibility.

Through the application of these criteria, a settlement system consisting of six types of settlements have been identified:

- city regions
- cities
- regional service centres
- service towns
- local and niche settlements
- clustered and dispersed settlements

Within this settlement hierarchy, Rustenburg is classified as a regional service centre.

The effectiveness and impact of urban spatial planning in the post apartheid era and its impact on restructuring South African cities are however increasingly being questioned (eg. Watson, 2002; Robins, 2002; Todes et al, 2009; Rogerson, 2009). One of the main points of criticism against the spatial development frameworks produced in South Africa since the early 2000's is that these plans are in many instances so broad and open to interpretation that it failed to achieve their intentions. Other important points of criticism identified by Todes (Todes et al, 2009) include the following:

- Spatial Development Frameworks that do not engage with the spatial dynamics prevalent in cities

- insufficient linkages between spatial development frameworks on the one hand and infrastructure development on the other
- Spatial Development Frameworks contradicted by both public and private sector developments
- Spatial Development Frameworks that are too broad and remains open to interpretation in many different ways from the perspective of land-use decisions.

Some of the new protocols for spatial planning in response to these criticisms include (Farmer et al, 2006):

- a focus on sustainability
- integration between sectors and with budgets
- understanding markets and producing credible plans, backed by a public investment where appropriate
- recognition of the reality of informal settlements
- development of contextually appropriate, affordable, strategic and effective forms of planning and land use management
- pro- poor and inclusive planning, recognising diversity.

#### 1.4 REQUIREMENTS OF SDF'S AS OUTLINED IN LOCAL GOVERNMENT MUNICIPAL PLANNING AND PERFORMANCE MANAGEMENT REGULATIONS

**Section 4 of the Local Government: Municipal Planning and Performance Management Regulations** clearly describes the required contents of a municipal SDF. According to these regulations, a Spatial Development Framework reflected in a Municipality's Integrated Development Plan must:

- Give effect to the principles contained in Chapter 1 of the Development Facilitation Act, 1995 (Act No. 67 of 1995);
- Set out objectives that reflect the desired spatial form of the municipality;
- Contain strategies and policies regarding the manner in which to achieve the objectives referred to above, which strategies and policies must:
  - Indicate desired patterns of land use within the municipality;
  - Address the spatial reconstruction of the municipality; and

- Provide strategic guidance in respect of the location and nature of development within the municipality;
- Set out basic guidelines for a land use management system in the municipality;
- Set out a capital investment framework for the municipality's development programs;
- Contain a strategic assessment of the environmental impact of the spatial development framework;
- Identify programs and projects for the development of land within the municipality;
- Be aligned with the spatial development frameworks reflected in the Integrated Development Plans of neighbouring municipalities; and
- Provide a visual representation of the desired spatial form of the municipality, which representation:
  - Must indicate where public and private land development and infrastructure investment should take place;
  - Must indicate desired or undesired utilisation of space in a particular area;
  - May delineate the urban edge;
  - Must identify areas where strategic intervention is required; and
  - Must indicate areas where priority spending is required.

## **1.5 PURPOSE OF THE SDF AND ITS RELATIONSHIP WITH LAND USE MANAGEMENT SYSTEM**

The main purpose of the SDF is to guide the form and location of future physical development within a municipal area. The SDF should be flexible and be able to change to reflect changing priorities, whereas the Land Use Management System should be tighter and only amended where required for a particular development. The SDF should therefore inform the content of the LUMS, and does not act as a direct source of rights and control itself. In this regard the SDF should:

- Only be strategic, indicative and flexible forward planning tool to guide planning and decisions on land development;
- Develop a clear argument or approach for spatial development in the area of jurisdiction of the municipality;

- Develop a spatial logic which guides private sector investments;
- Ensure the social, economic and environmental sustainability of the area;
- Establish priorities for public sector development and investment; and
- Identify spatial development priorities and places.

The purpose of the SDF is not to infringe upon existing land rights but to guide future land uses, and the maps should be used as a systematic representation of the desired spatial form to be achieved by the municipality in the long term.

## 1.6 STRUCTURE OF DOCUMENT

This SDF document is structured as follows:

- **Section 2** provides an overview of the study area and summarizes the municipal development priorities and existing spatial guidelines and plans relevant to the municipal area.
- **Section 3** summarizes the overall population and socio-economic characteristics of the municipality.
- **Section 4** provides a summary overview of the spatial and land use development patterns of the study area.
- **Section 5** describes the availability of municipal infrastructure and land use patterns
- **Section 6** analyses the physical and natural aspects of the study area.
- The guiding principles and conceptual framework of the SDF is described in **Section 7**.
- The spatial development priorities and objectives of the SDF is outlined in **Section 8**.
- **Section 9** describes the municipal and local spatial development framework proposals
- The management and implementation of the plan is summarized in **Section 10**

## 2 MUNICIPAL DEVELOPMENT PRIORITIES AND EXISTING POLICIES AND PLANS

### 2.1 CONTEXTUAL SETTING

The Rustenburg Municipal Area is located in the North West Province of South Africa and it forms part of the Bojanala Platinum District Municipality. The Rustenburg Local Municipality is accessible to major South African urban centres such as Johannesburg and Tshwane, both of which are located approximately 120km from Rustenburg.

Rustenburg is linked to the above urban centres through an extensive regional road network. The most notable of these is the N4 freeway or Platinum Corridor, which links Rustenburg to Tshwane to the east and Swartruggens and Zeerust to the west. The R24 links Rustenburg to the N14 and Johannesburg to the south and the Pilanesberg to the north.

The Platinum Corridor forms a section of a planned road link, linking the west and east coasts of Africa, the only one of its kind in Africa. The Platinum Corridor will link to the Trans Kalahari Corridor at the Botswana border, and from there link the Platinum Corridor to Walvisbay. On the border with Gauteng, the Platinum Corridor will link to the Maputo Corridor through to Mozambique. The N4 Platinum Corridor thus ultimately links Namibia, Botswana, Gauteng and Mozambique to Rustenburg. This is an extensive international region, containing the Maputo and Walvisbay export/import harbours and the Gauteng industrial hartland.

Three administrative bodies operate and have jurisdiction within the Rustenburg Municipal Area or part thereof. These are the Bojanala Platinum District Municipality, the Rustenburg Local Municipality, and the Royal Bafokeng Administration.

- ***Bojanala Platinum District Municipality***  
The Rustenburg Local Municipality with the Local Municipalities of Madibeng, Kgetlengriver, Moses-Kotane and Moretele forms part of the Bojanala Platinum DM. The Bojanala Platinum District Municipality is responsible for the planning and administration of district-wide infrastructure provision and development matters.
- ***Rustenburg Local Municipality***

The Local Municipality of Rustenburg is responsible for the planning and administration of infrastructure and development located within the boundaries of the Municipality. This includes the preparation (or preparation on their behalf) of all legally required documents for the planning, provision and control of infrastructure and spatial development. These include a Spatial Development Framework, Integrated Development Plan, Integrated Transport Plan, Water Services Development Plan, Disaster Management Plan and others.

- **Royal Bafokeng Administration**

The Royal Bafokeng Administration remains a legal entity in its own right, capable of contracting, incurring debts and obligations and owning land. They also fulfill certain local government functions. The Bafokeng Council receives royalty payments from the platinum mines mining on their land. These resources are used to fulfill many local, provincial and national government functions, such as providing social infrastructure (schools and clinics), road infrastructure and municipal infrastructure (water and sewerage) in their area.

## 2.2 MUNICIPAL DEVELOPMENT VISION, PRIORITIES AND OBJECTIVES

The vision of the Rustenburg Local Municipality as described in the 2009/10 IDP is defined as “**A successful Rustenburg for the benefit of all**”. The IDP development priorities and objectives are outlined below.

**Table 2.1: Development priorities and objectives**

Priority issue	Objectives
<b>Ensuring good governance, financial viability and optimal institutional transformation and capacity building.</b>	To practice sound and sustainable financial management by strengthening internal control measures and compliance to relevant legislations and policies.
	To enhance and optimize all current and potential revenue resources by cultivating a culture of payment for services.
	To promote capacity building through skills development
	To ensure that transformation is reflected in all levels of the municipality through managing an organisational structure supportive of the Employment Equity.
	To promote partnerships, public and stakeholder participation by empowering and involving Magosi, communities and ward committees on matters of local government.
	To create an integrated information and communication technology for the municipality by establishing, implementing and monitoring a management information systems
	To promote a culture of accountability, transparency and performance excellence through proper implementation of performance management system, other compliance monitoring mechanisms and by ensuring effective internal audit services.
	To ensure functionality and sustainability of ward committees, Council committees and consultative forum by positively engaging on issues of common interest and oversight

Priority issue	Objectives
	To ensure investment of funds into projects or programmes that will yield good financial returns.
<b>Provision of quality basic service, infrastructure, housing and spatial restructuring</b>	To facilitate an accelerated housing development and promote integrated human settlement through spatial restructuring and integrated land-use management with special emphasis on curbing urban sprawl and promotion of densification.
	To ensure provision of quality basic services and investment of funds into infrastructure projects to benefit the community.
	To ensure provision of free basic services to all indigent households earning amount equal or lower than minimum threshold
	To maintain and upgrade the level of existing services to meet the required standards and ensure sustainability of projects.
<b>Build clean and green city, healthy and safe environment for all.</b>	Ensuring sustainable environment management and protection.
	To promote safety and security by adequately managing traffic, monitoring public transport; providing adequate disaster management and emergency services and by ensuring compliance to and enforcement of by-laws.
	To ensure good health of the community by providing a comprehensive Primary Health care and ensuring the implementation of HIV/AIDS programmes
<b>Stimulate shared economic growth, job creation and social development.</b>	To promote, attract and retain investors through maximizing private sector investment and facilitate forging of partnerships and creating conditions conducive to entrepreneurial activity and investment.
	To promote a diverse Economic development and job creation for local residents by the development of entrepreneurial skills in the management of SMME's, tourism and capital projects undertaken within the municipal area.
	To support BBBEE as part of economic development by properly implementing the policies.
	To ensure social development of communities by providing social and recreational amenities; lobbying programmes for women, youth, children and people with disabilities.
<b>Hosting of 2010 FIFA world cup</b>	To ensure effective stakeholder participation and proper planning and preparations related to the soccer tournament

The municipality also adopted a city development strategy known as Rustenburg 2020 which contains long term development vision statements aligned to the IDP Vision, mission, priorities and objectives.

## 2.3 RUSTENBURG WITHIN THE CONTEXT OF THE NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE

The National Spatial Development Perspective (NSDP) describes the national spatial development vision of government and the normative principles that underpin this vision. The vision and principles serve as a guide for meeting government's objectives of economic growth, employment creation, sustainable service delivery, poverty alleviation and the eradication of historic inequalities including spatial distortions.

The NSDP recognises that Provincial Growth and Development Strategies (PGDS's) and Integrated Development Plans (IDPs) will need to provide more rigorous assessments of potential by combining the NSDP's initial interpretation with local knowledge and research. In order to contribute to the broader growth and development policy objectives of government, the NSDP puts forward a set of **five normative principles**:

**Principle 1:** Rapid economic growth that is sustained and inclusive is a pre-requisite for the achievement of other policy objectives, amongst which poverty alleviation is key.

**Principle 2:** Government has a constitutional obligation to provide basic services to all citizens (e.g. water, energy, health and educational facilities) wherever they reside.

**Principle 3:** Beyond the constitutional obligation identified in Principle 2 above, government spending on fixed investment should be focused on localities of economic growth and/or economic potential in order to gear up private-sector investment, to stimulate sustainable economic activities, and to create long-term employment opportunities.

**Principle 4:** Efforts to address past and current social inequalities should focus on people, not places. In localities where there are both high levels of poverty and demonstrated economic potential, this could include fixed capital investment beyond basic services to exploit the potential of those localities. In localities with low demonstrated economic potential, government should, beyond the provision of basic services, concentrate primarily on human capital development by providing education and training, social transfers such as grants and poverty-relief programmes. It should also reduce migration costs by providing labour-market intelligence to give people better information, opportunities and capabilities, to enable them to gravitate – if they choose to – to localities that are more likely to provide sustainable employment and economic opportunities.

**Principle 5:** In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or that link the main growth centres. Infrastructure investment should primarily support localities that will become major growth nodes in South Africa and the SADC region to create regional gateways to the global economy.

The NSDP has found application in the NW Province in the form the Provincial Spatial Development Framework.

## **2.4 NORTH WEST SPATIAL DEVELOPMENT FRAMEWORK**

The North West Provincial Spatial Development Framework provides clear guidelines for the preparation of SDF's and it will thus be imperative for Rustenburg SDF to take cognizance of these guidelines as summarised in Table 2.2 below.

**Table 2.2: NW Guidelines for Municipal Spatial Development Frameworks**

SPATIAL STRUCTURING IMPLICATIONS	GUIDELINES FOR LOCAL AND SDF CONTENT
INTERVENTION ZONES	
<p><b>Intervention Zone One : Main Economic Growth Areas for prioritised development spending</b></p> <p><b>Purpose of Intervention Zone One:</b></p> <ul style="list-style-type: none"> <li>○ <b>Strengthening and consolidating a hierarchy of nodes in terms of :</b> <ul style="list-style-type: none"> <li>• Areas currently representing <b>existing</b> spatial concentrations of economic activity</li> <li>• Areas showing <b>future potential</b> for development expansion in terms of economic growth</li> <li>• Areas that play a <b>supportive</b> role to existing and future economic development areas.</li> </ul> </li> </ul> <p><b>Spatial Structuring Elements</b> At a District and Local Municipal level these areas indicate areas that will be prioritized in terms of development spending and investment.</p>	<p><b>Spatially indicate Intervention Zone One: Accelerating Growth and Development</b></p> <ul style="list-style-type: none"> <li>○ Areas of local significant economic activity</li> <li>○ How do these areas manifest spatially</li> <li>○ Economic growth vs. decline and spatial expansion</li> <li>○ How do these areas interact with markets</li> <li>○ Which areas need to be prioritised</li> </ul>
<p><b>Intervention Zone Two: Social Inclusion Areas representing areas for investment in people rather than in places:</b></p> <p><b>Purpose of Intervention Zone Two:</b> Zone Two is <b>Rural focused</b> and promotes the concept of social inclusion by promoting and strengthening overlaps in economic activity and poverty to address high levels of spatial fragmentation and exclusion.</p> <p><b>Spatial Structuring Elements</b> At a District and Local Municipal level these areas will be prioritized in terms of development spending and investment.</p>	<p><b>Sharing Growth and Development</b></p> <ul style="list-style-type: none"> <li>○ Areas of economically marginalised communities</li> <li>○ Accessibility between poor areas and economic activity areas</li> <li>○ Socio economic profiles and the response in terms of public spending</li> <li>○ How can economic inclusion be facilitated</li> </ul>
<p><b>Intervention Zone Three: Stimulating and kick starting New Potential Growth Nodes</b></p> <p><b>Purpose of Intervention Zone Three:</b> Zone Three will identify and focus on the emergence of potential new nodes where spatial <b>overlaps between areas of economic activity and areas of poverty occur</b>. This implies focused investment in poverty concentrations that show potential for economic development in their spatial and socio-economic context.</p> <p><b>Spatial Structuring Elements</b> At a District and Local Municipal level these areas indicate areas that will be prioritized in terms of development spending and investment.</p>	<p><b>Stimulating and kick starting New Potential Growth Nodes</b></p> <ul style="list-style-type: none"> <li>○ Areas with high levels of poverty and high development potential should receive investment beyond basic services to exploit this potential.</li> <li>○ Areas with high concentrations of people and high accessibility to markets and job opportunities</li> <li>○ Focusing future settlement and economic development opportunities into activity corridors and nodes adjacent to, or linked to main growth centres i.e.: <ul style="list-style-type: none"> <li>• Previously disadvantaged areas within existing urban areas</li> <li>• Agriculturally orientated villages in areas of high agricultural potential</li> <li>• Communities settled in potential game farming areas</li> <li>• Communities situated in Tourism Corridors and Eco Tourism areas</li> </ul> </li> </ul>
<p><b>Intervention Zone Four: Environmentally Sensitive Zone.</b></p>	<p><b>Sustainable Growth and Development</b></p> <ul style="list-style-type: none"> <li>○ What are the key environmental assets that need protection and promoted</li> </ul>

SPATIAL STRUCTURING IMPLICATIONS	GUIDELINES FOR LOCAL AND SDF CONTENT
<p><b>Purpose of Intervention Zone Four:</b> Development Zone Four will largely concentrate on future sustainable development approaches in terms of sustainable development spending. This will be achieved by focusing on rectifying development imbalances relating to equitable access to basic services, the protection of the natural and cultural resources and spatial form that promotes greater efficiencies in land-use and service provision. Important Spatial Structuring Elements include:</p> <ul style="list-style-type: none"> <li>○ Identify priority(critical) biodiversity areas in the Province</li> <li>○ Identify and prioritize areas for the creation of protected area networks that are representative of the Province and that are ecologically sustainable</li> <li>○ Spatial analysis of land use pressures in relation to biodiversity; and</li> <li>○ Identification of possible conflict zones(development vs. conservation and bio- diversity protection)</li> </ul>	<ul style="list-style-type: none"> <li>○ Development threats to quality of life (Where do potential conflict zones occur between future development, current settlements and environmentally sensitive areas) in terms of the following: <ul style="list-style-type: none"> <li>• Protected Areas</li> <li>• Terrestrial Critical Biodiversity Areas</li> <li>• Aquatic Critical Biodiversity Areas</li> <li>• Ecological support areas</li> <li>• Ecological corridors and nodes</li> </ul> </li> <li>○ Land use management guidelines that will apply</li> </ul>

### 3 SOCIO-ECONOMIC PROFILE

#### 3.1 POPULATION SIZE AND DENSITIES

The official population figures for the Rustenburg LM are depicted in Table 3.1 below. This information indicates that the total population have increased from 395 000 in 2001 to nearly 450 000 in 2007. This represents an increase of 13.6% over this period and thus implies an annual growth rate of approximately 2.3%. A notable feature is that the growth in the number of households (25,6%) was nearly double that of the population figures, translating into a household growth rate of 4.3% per annum. This figure may imply that many extended households who have possibly lived in single dwellings have established themselves as separate households over this period, hence the large growth in households. A further possible explanation may be that many of the single male population employed by the mining sector in the area may have been joined by their families over the analysis period.

**Table 3.1: Population figures**

YEAR	POPULATION	HOUSEHOLDS	HOUSEHOLD SIZE
2001	395761	116635	3.4
2007	449768	146542	3.1

*Source:* 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

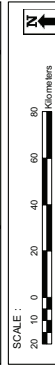
Approximately 84% of the Rustenburg Municipal Area population can be classified as urbanized, residing in either urban or rural settlements. Only 10% of the total population lives on farms.

The population characteristics and trends as referred to above also needs to take cognisance of migration to and from the district and its surrounding areas. The information depicted in Figures 3.1 and 3.2 and provide some indication of the characteristics and extent of population movements in the municipality. According to the 2001 census information, a total of 80 818 people have relocated in the period between 1996 and 2001. This represents approximately 20% of the 2001 population. These migration movements however also include movements within the provincial boundaries. Given the available data, it is not possible to further analyse these movements at spatially disaggregated level. There is also no official statistics available on the extent of people leaving the municipal area, thus making it difficult to establish a nett migration figure. The total number of people relocating between 2001 and 2007 was 107862 (representing approximately 24% of the 2007 population). There is thus a

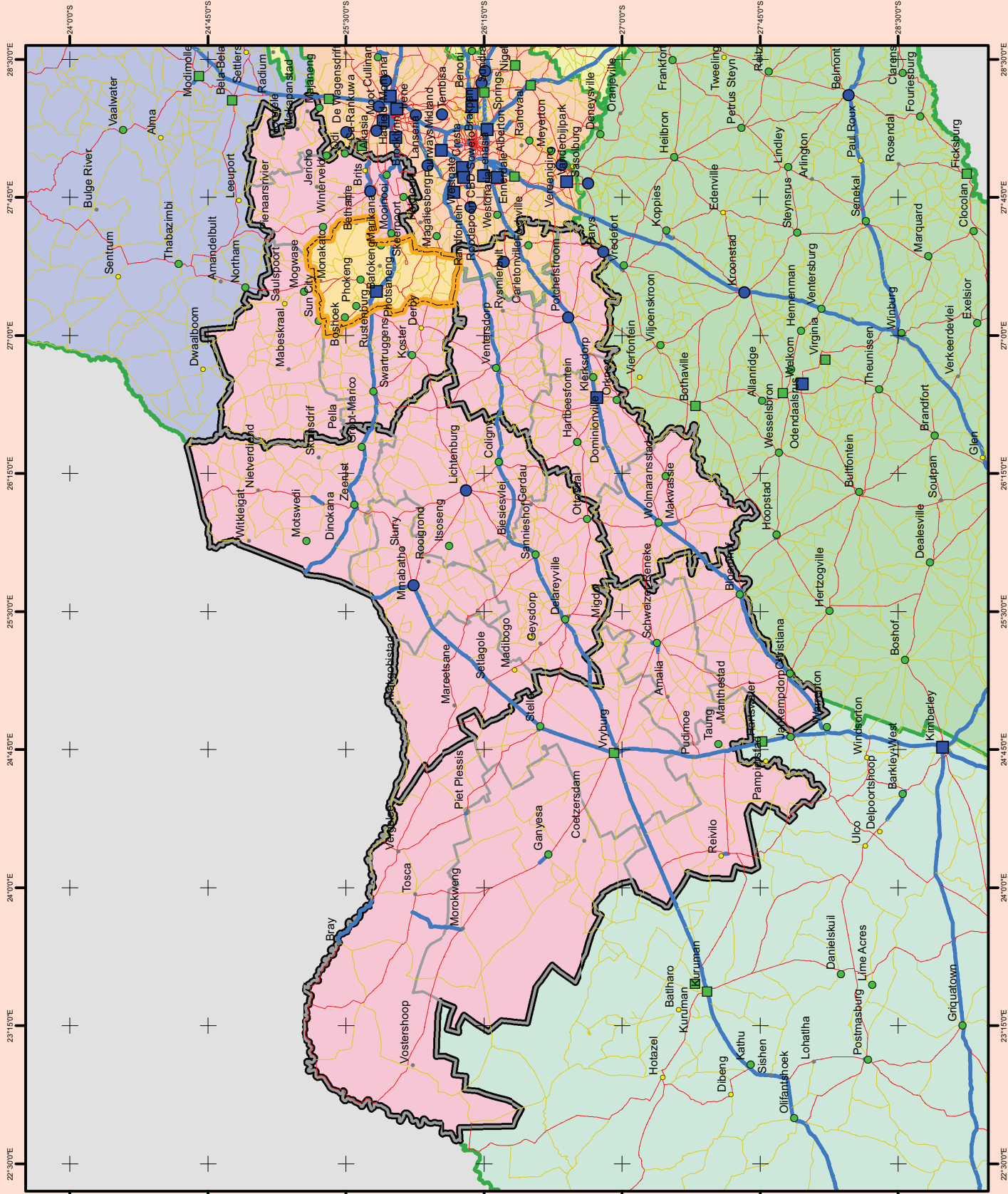
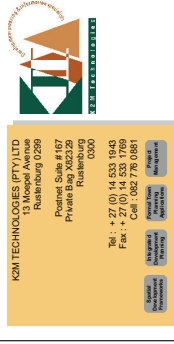
## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**LEGEND**

	Provincial Boundaries
	District Municipal Boundaries
	Local Municipal Boundaries
	Rustenburg Local Municipality
	Metropolitan core areas and major cities
	Higher order medium sized towns
	Lower order medium sized towns
	Higher order small towns
	Lower order small towns
	Very small hamlets/Villages
	Other
	Primary Road Network
	Secondary Road Network
	Tertiary Road Network



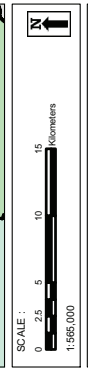
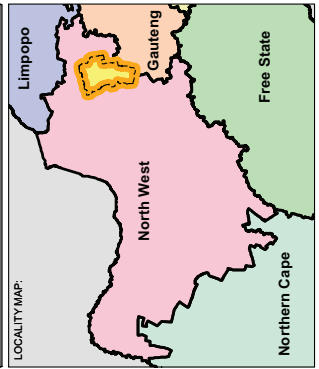
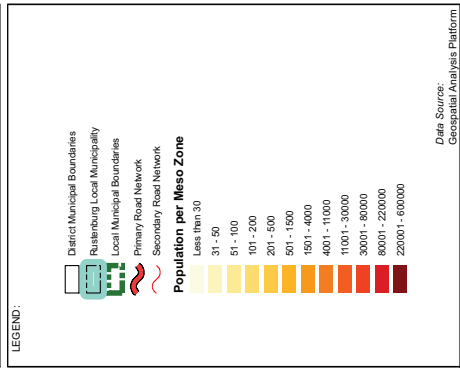
PREPARED BY:



**RUSTENBURG LOCAL  
MUNICIPALITY**

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

## POPULATION DISTRIBUTION

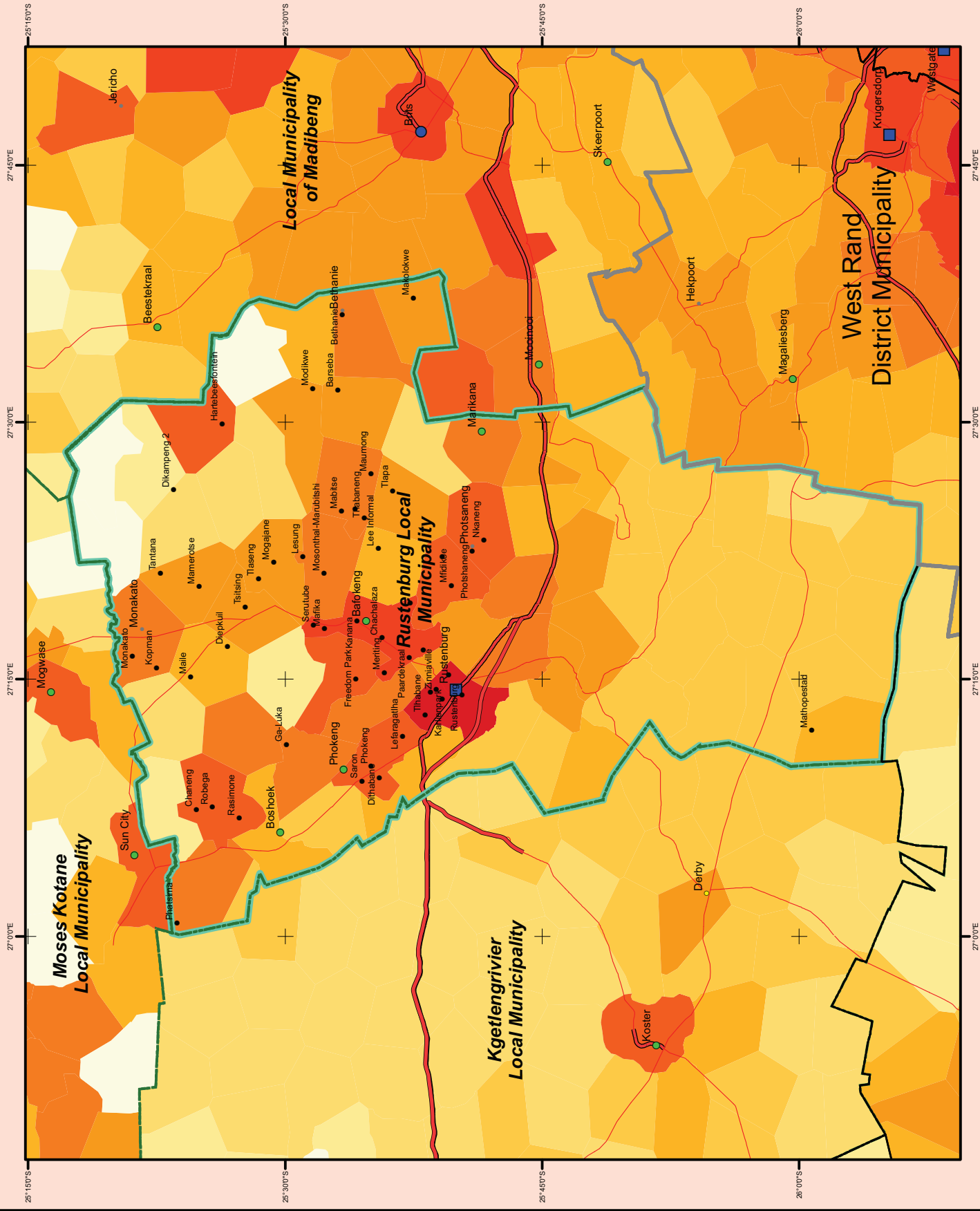
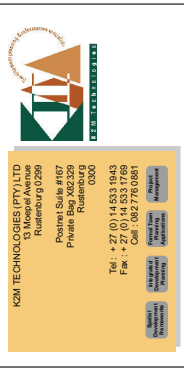


DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

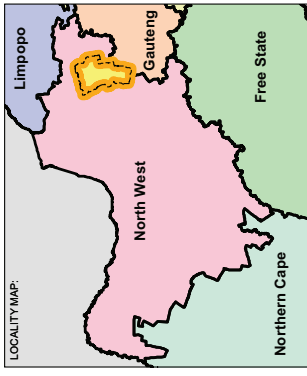
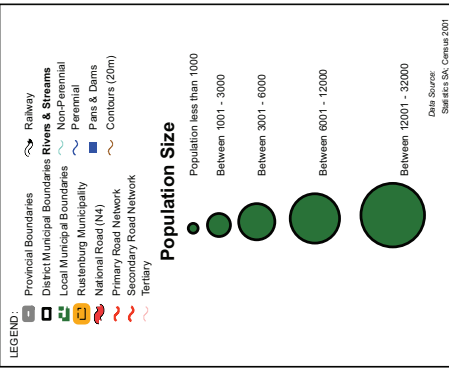
PREPARED BY:



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### POPULATION



DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

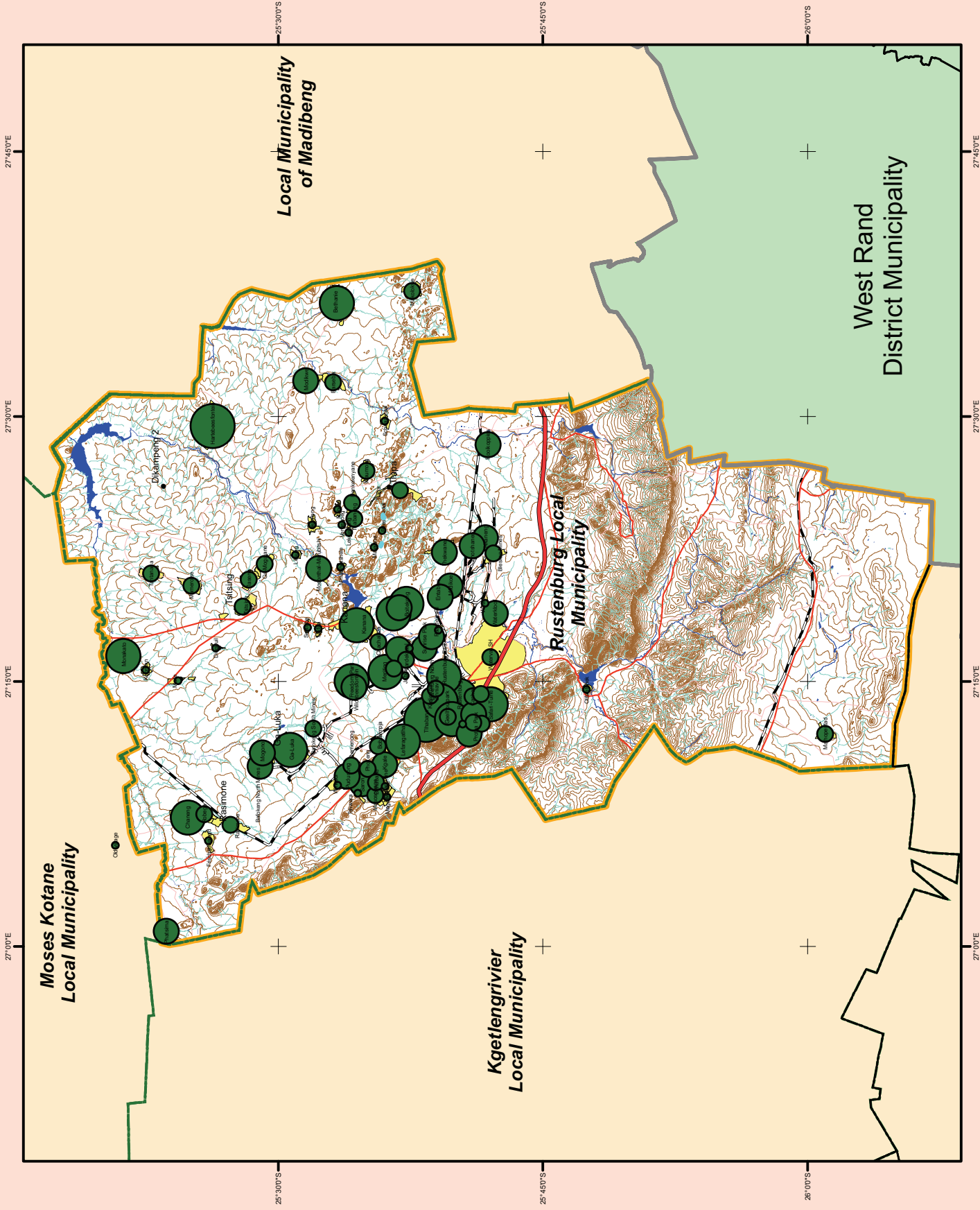
COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**K3M TECHNOLOGIES (PTY) LTD**  
13 Mosiel Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0000

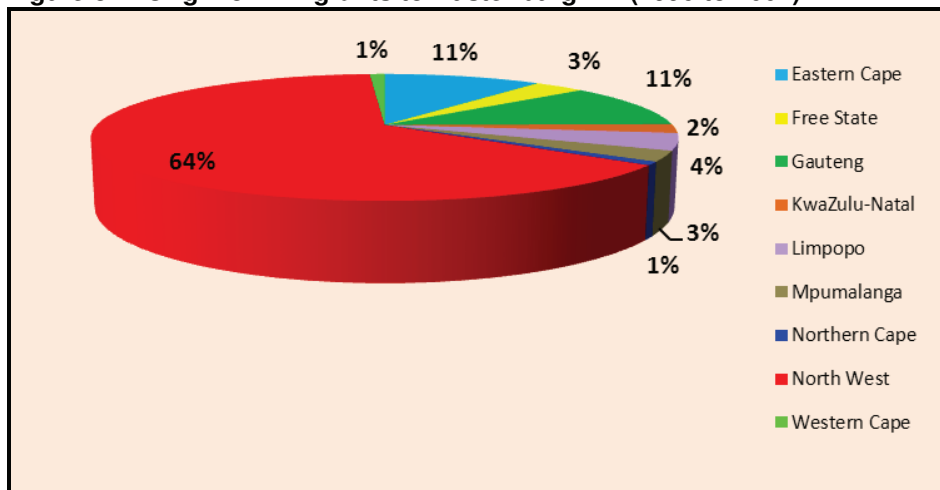
Tel : + 27 (0) 14 533 1843  
Fax : + 27 (0) 14 533 1789  
Cell : 082 776 0381

**Author**  
**Illustrator**  
**Designer**  
**Project Manager**  
**Client**



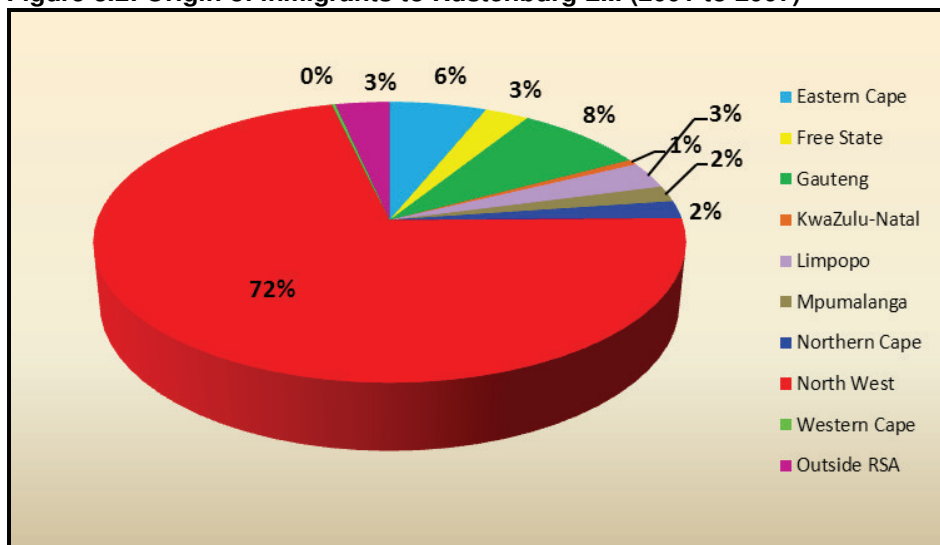
slightly higher propensity to relocate over the period 2001 to 2007 compared to the 1996 to 2001 period. These figures confirm that the majority of the population in Rustenburg LM who relocated, represents internal movements within the province. Internal relocations within the province accounted for 64% of all migration to Rustenburg in the period 1996 to 2001 and increased to 72% over the period 2001 to 2007. The main source of immigrants from outside the provincial boundaries over the period 1996 to 2001 was from the Eastern Cape and Gauteng, both representing 11% of immigrants to the Rustenburg area. These two provinces also remained the main source of immigrants over the period 2001 to 2007 during which 8% of immigrants originated from Gauteng and 6% from the Eastern Cape.

**Figure 3.1: Origin of immigrants to Rustenburg LM (1996 to 2001)**



*Source: Statistics SA, Census 2001*

**Figure 3.2: Origin of immigrants to Rustenburg LM (2001 to 2007)**

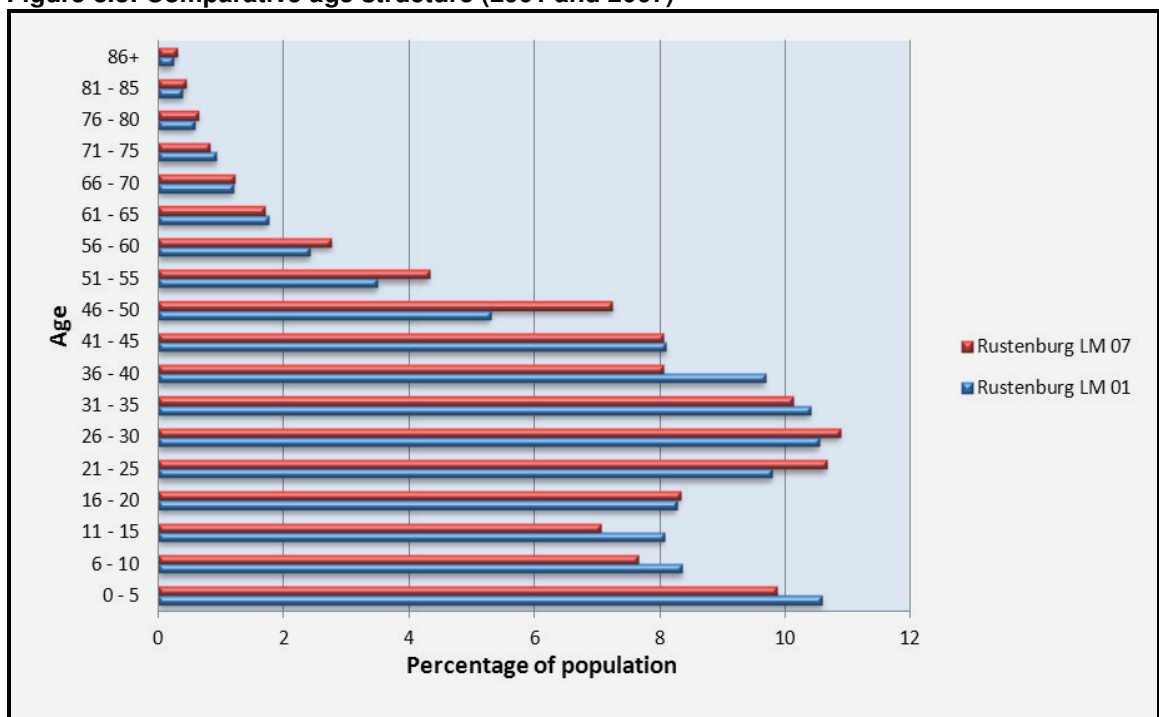


*Source: Statistics SA, Community Survey 2007*

### 3.2 AGE STRUCTURE AND GENDER COMPOSITION

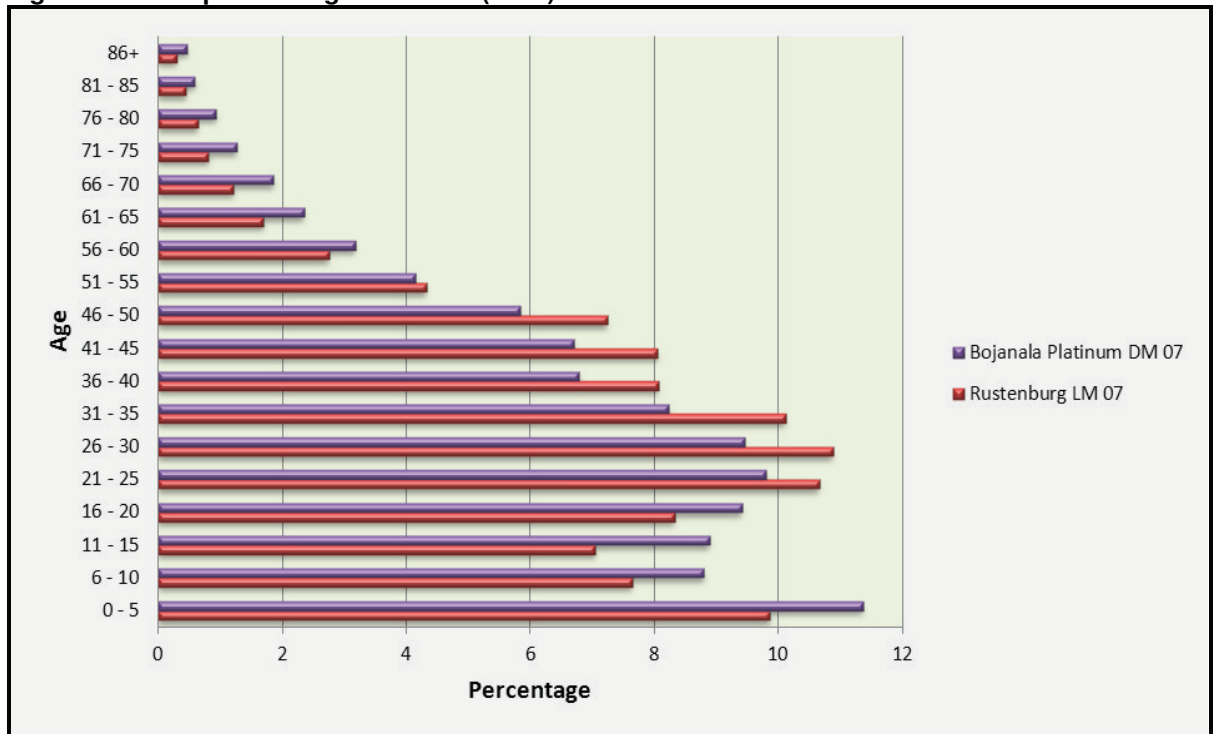
The age structure of the population depicted in Figure 3.3 indicates that the population profile is dominated by people in the young economically active age category from 21 to 35. Nearly 33% of the total population falls within this age category, a figure substantially higher than the comparative District figures. This pattern may be the result of the high concentration of economic activities and hence employment opportunities in the Rustenburg area, thus attracting a significant proportion of the population in the economically active age categories. The comparative figures for 2001 and 2007 also indicates that the proportion of the population in the age category between 21 and 35 has further increased. The proportion of the population between 41 and 55 years of age have also increased notably over the same period.

**Figure 3.3: Comparative age structure (2001 and 2007)**



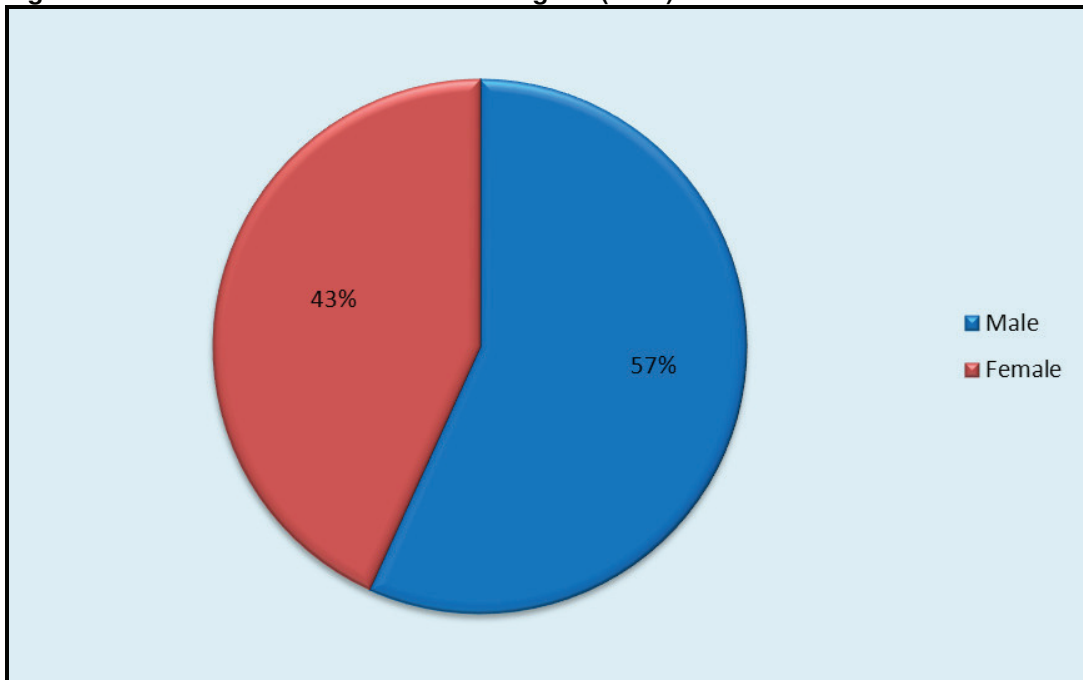
Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

**Figure 3.4: Comparative age structure (2007)**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

The gender structure is male dominated with approximately 57% of the total population represented by males. This is probably associated with the economic characteristics of the area which is dominated by the mining sector (see Section 3.4). The economic analysis clearly indicates that the vast majority of employment opportunities in the mining sector is occupied by male population, thus resulting in the gender structure as depicted in Figure 3.5.

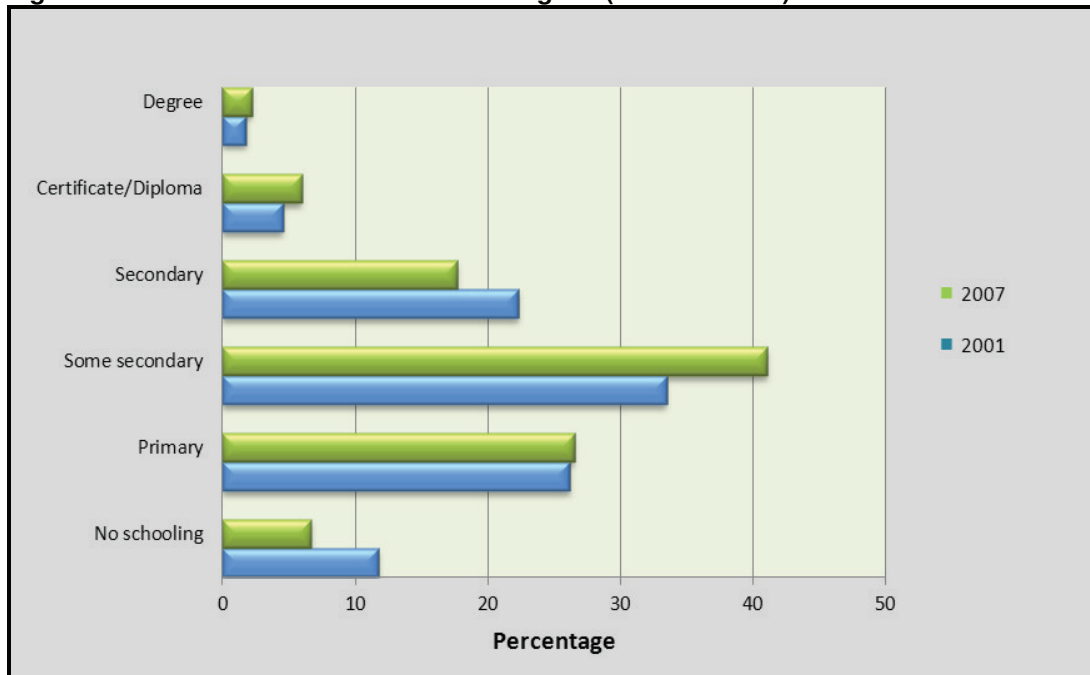
**Figure 3.5: Gender structure for Rustenburg LM (2007)**

*Source: Statistics SA, Community Survey 2007*

### 3.3 EDUCATION PROFILE

It is generally recognized that the skills profile of a particular area has a significant influence on the economic performance and growth of that region. The education profile of the Rustenburg population older than 20 years of age is depicted in Figure 3.6. This information indicates that, although significant progress has been made with the eradication of adult illiteracy (decreasing from approximately 12% to 6.7%), the majority of the adult population have only completed some form of secondary education as highest qualification (representing just over 40% of the total adult population). Although some progress has been made with the percentage of adults who have completed a certificate or diploma (6% by 2007) and those with degrees (2.2% of the 2007 population) this still represents a very low proportion of the adult municipal population.

**Figure 3.6: Education Profile for Rustenburg LM (2001 and 2007)**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

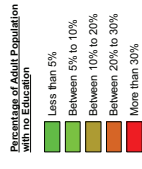
The gender breakdown of the education profile is reflected on Figures 3.7 and 3.8 respectively. This information indicates that there are no significant differences between the education profiles, although a slightly higher proportion of the male population has only completed primary education compared to the female population. In both categories, the percentage of the adult population with some form of tertiary qualification remains very low.

# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

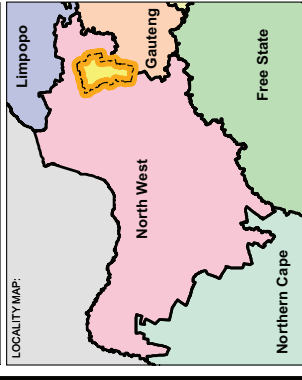
### EDUCATION: Percentage of Adult Population with No Education

LEGEND:



Data Source: Census 2001

LOCALITY MAP:



SCALE :  
0 2.5 5 10 15  
Kilometers  
1:566,000

DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**K2M TECHNOLOGIES (PTY) LTD**  
13 Mispel Avenue  
Rustenburg 0299  
Postnet Suite #107  
Private Bag X52329  
Rustenburg 0299  
Tel: +27 (0) 14 533 1843  
Fax: +27 (0) 14 533 1789  
Cell: 082 776 0881

Author: [Signature]  
Designed: [Signature]  
Produced: [Signature]  
Approved: [Signature]

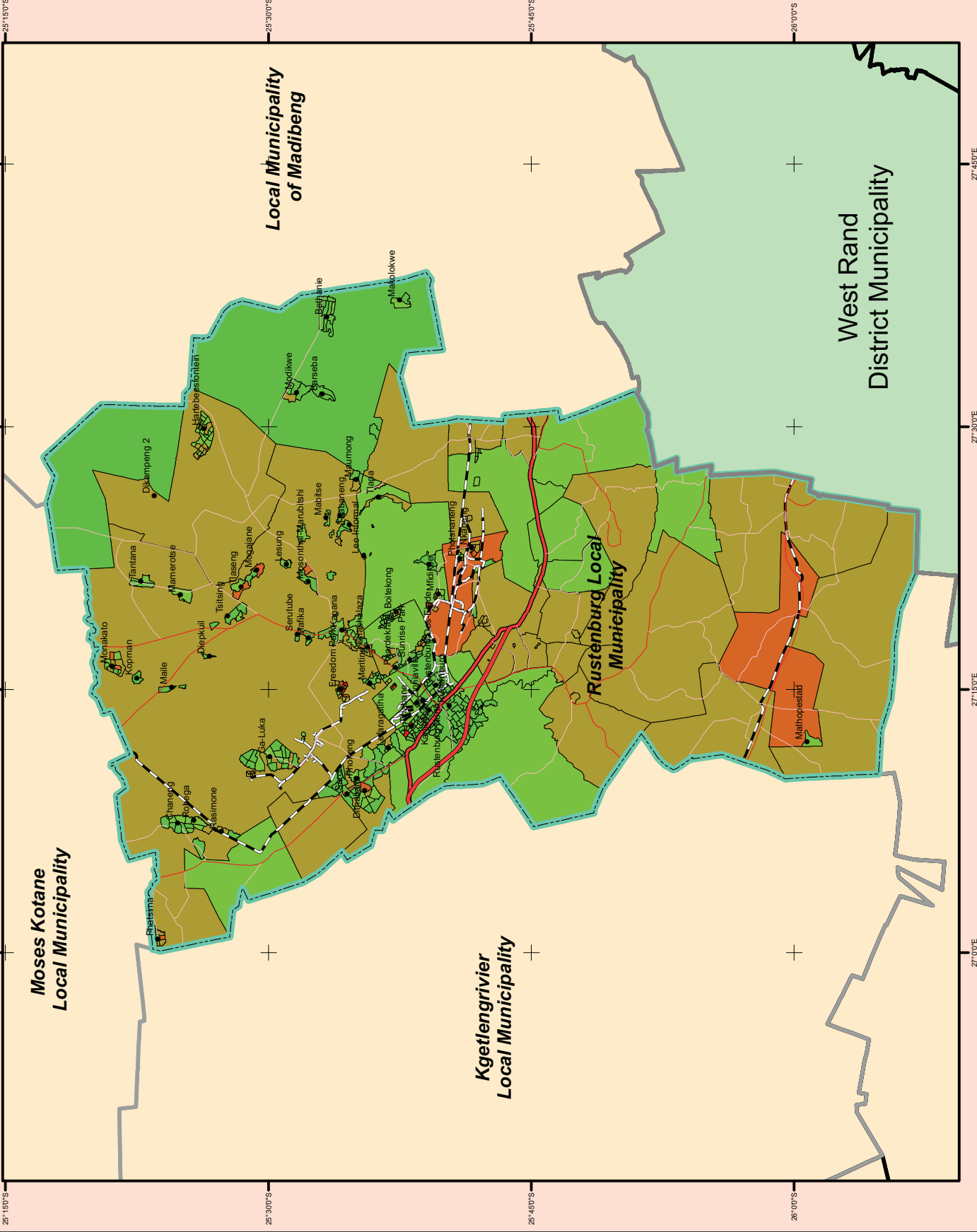
Local Municipality  
of Matibeng

West Rand  
District Municipality

Moses Kotane  
Local Municipality

Kgetlengrivier  
Local Municipality

Rustenburg Local  
Municipality

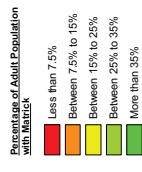
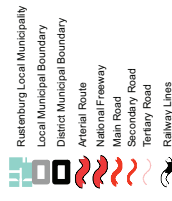


# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

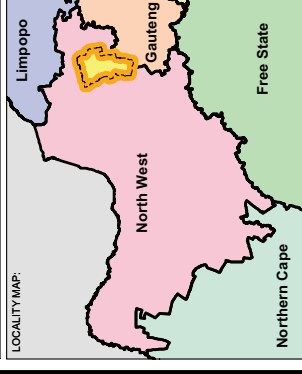
### EDUCATION: Percentage of Adult Population with Matric

LEGEND:



Data Source: Census 2001

LOCALITY MAP:



SCALE : 0 2.5 5 10 15 Kilometers  
1:566,000

DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**KSM TECHNOLOGIES (PTY) LTD**  
 13 Mispel Avenue  
 Rustenburg 0299  
 Postnet Suite #107  
 Private Bag X52329  
 Rustenburg 0299  
 Tel: +27 (0) 14 533 1843  
 Fax: +27 (0) 14 533 1789  
 Cell: 082 776 0881

Author: [ ]  
 Designer: [ ]  
 Project Manager: [ ]  
 Client: [ ]

Moses Kotane  
Local Municipality

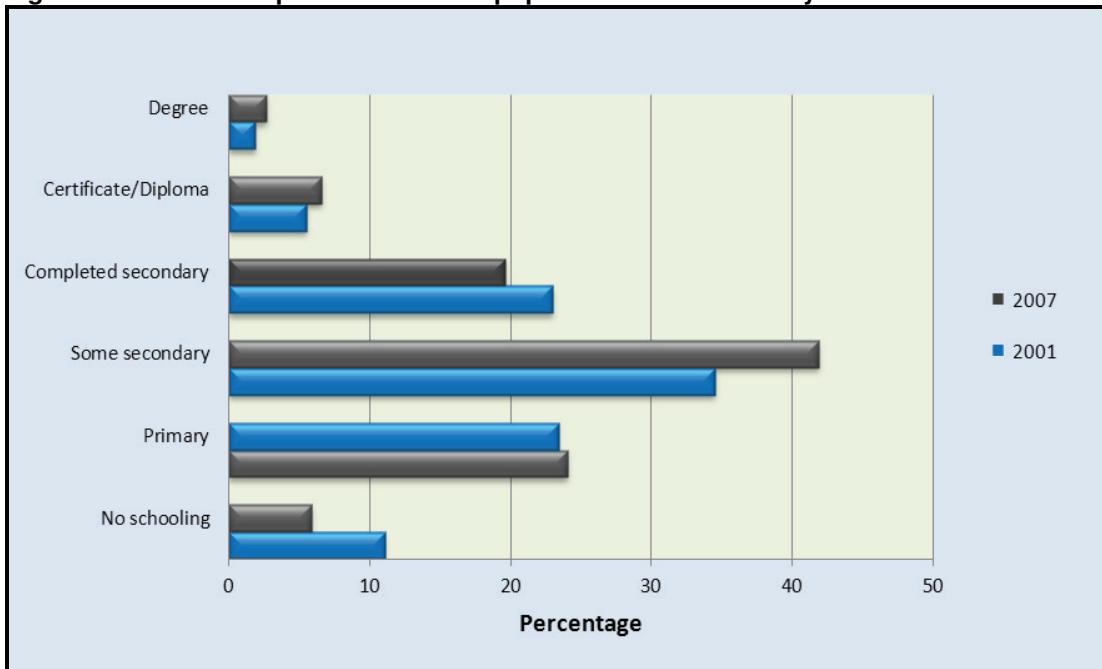
Local Municipality  
of Madibeng

Kgetlengrivier  
Local Municipality

Rustenburg Local  
Municipality

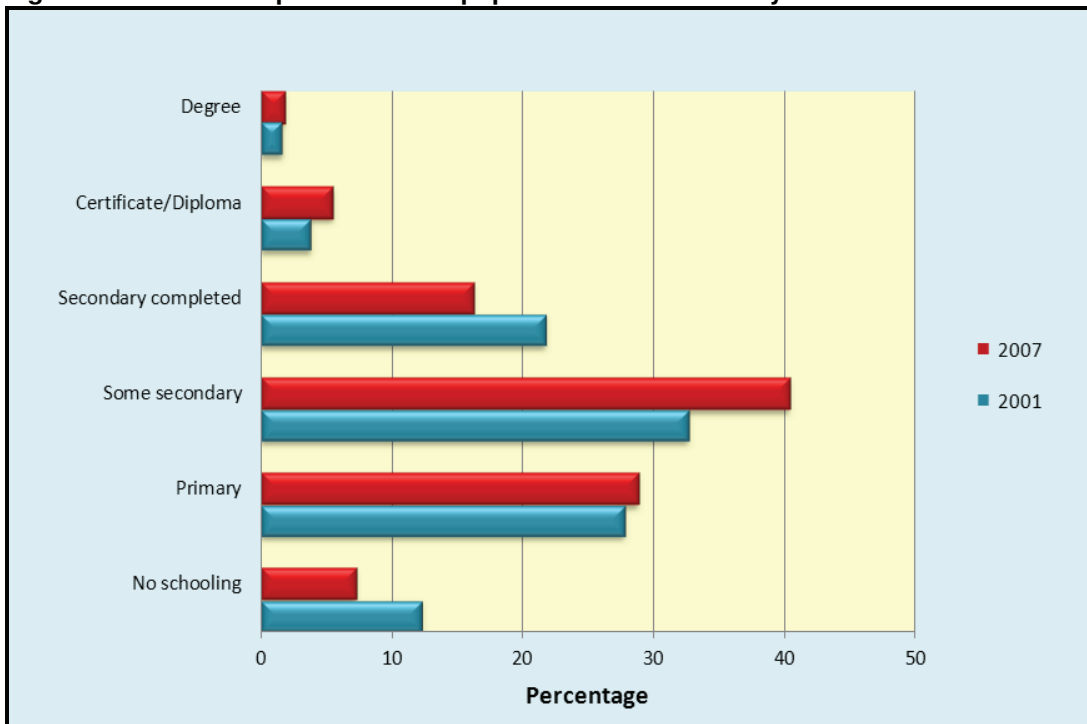
West Rand  
District Municipality

**Figure 3.7: Education profile for female population older than 20 years**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

**Figure 3.8: Education profile of male population older than 20 years**

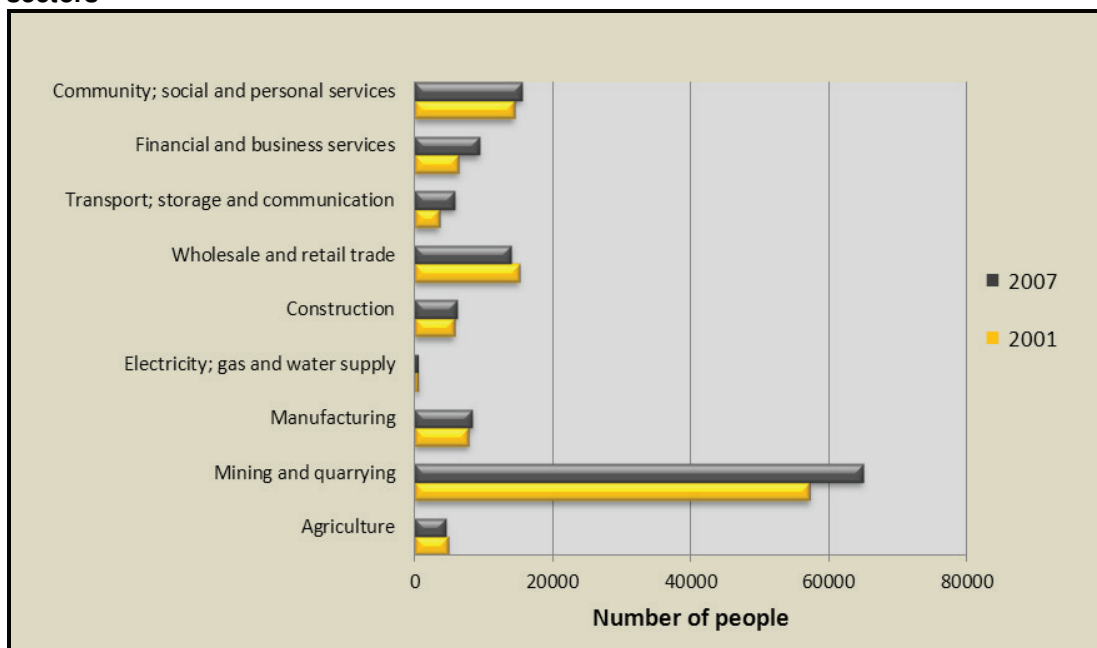


Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

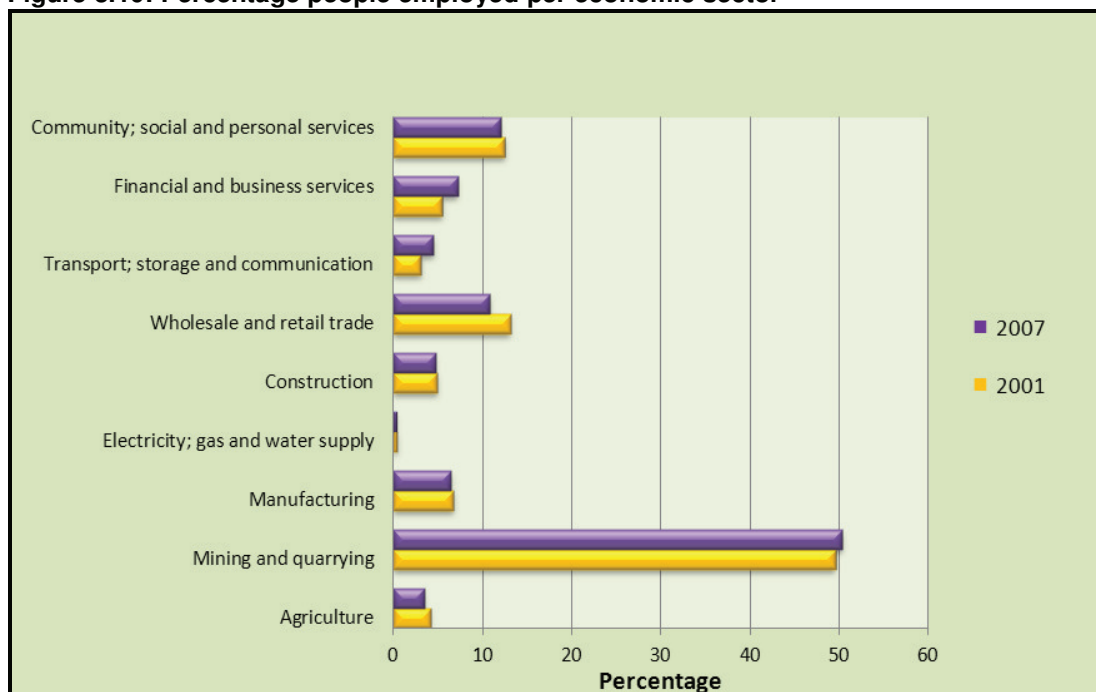
### 3.4 EMPLOYMENT, OCCUPATION AND ECONOMIC STRUCTURE

The dominance of the mining sector in the local economy of the Rustenburg LM is depicted in Figure 3.9 which indicates that more than 50% of the employed economically active population were involved in the mining sector by 2007. The total number of people employed in this sector have also increased from 57212 in 2001 to 64861 by 2007. The most notable other sectors is the wholesale and retail trade sector which by 2007 accounted for 10.8% of the employed population (13962 people) and the community, social and personal services sector representing 12% of the employed population (15490 people). This information also indicates that the proportional contribution of the various economic sectors to employment have not dramatically changed between 2001 and 2007. A further important aspect to note is that, despite the large rural areas in the Rustenburg LM, the agricultural sector only accounted for 3.4% of the employed population by 2007. It also slightly decreased from 4.1% in 2001.

**Figure 3.9: Number of people employed in the different economic sectors**



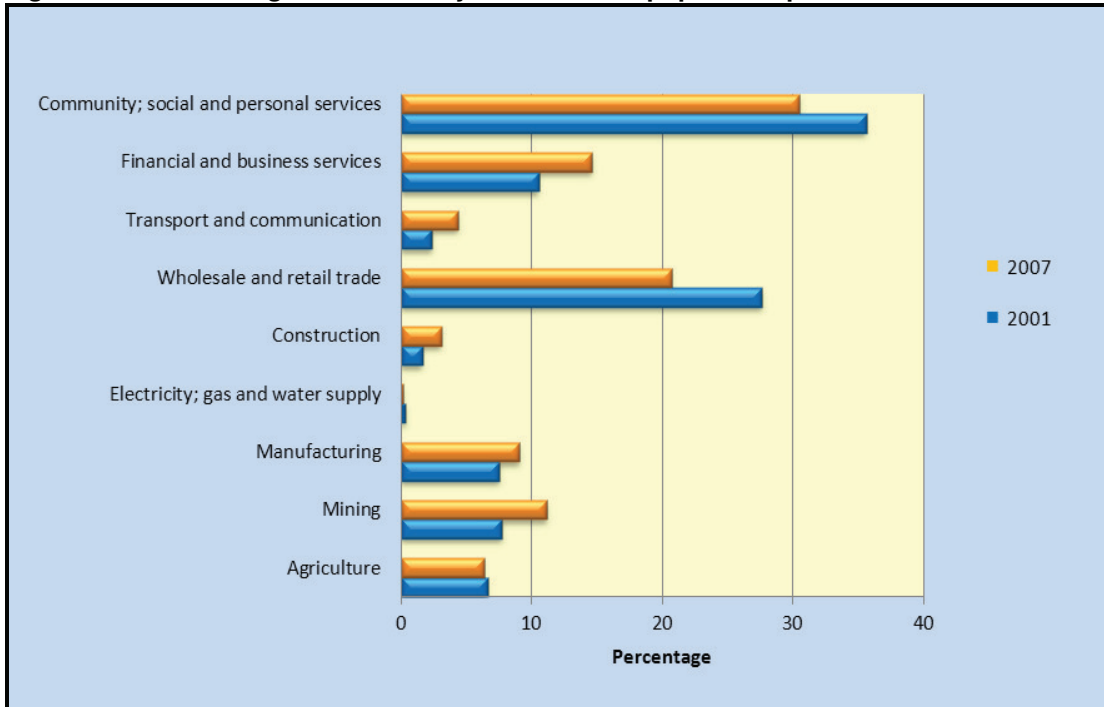
Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

**Figure 3.10: Percentage people employed per economic sector**

*Source:* 1. Statistics SA, Census 2001  
 2. Statistics SA, Community Survey 2007

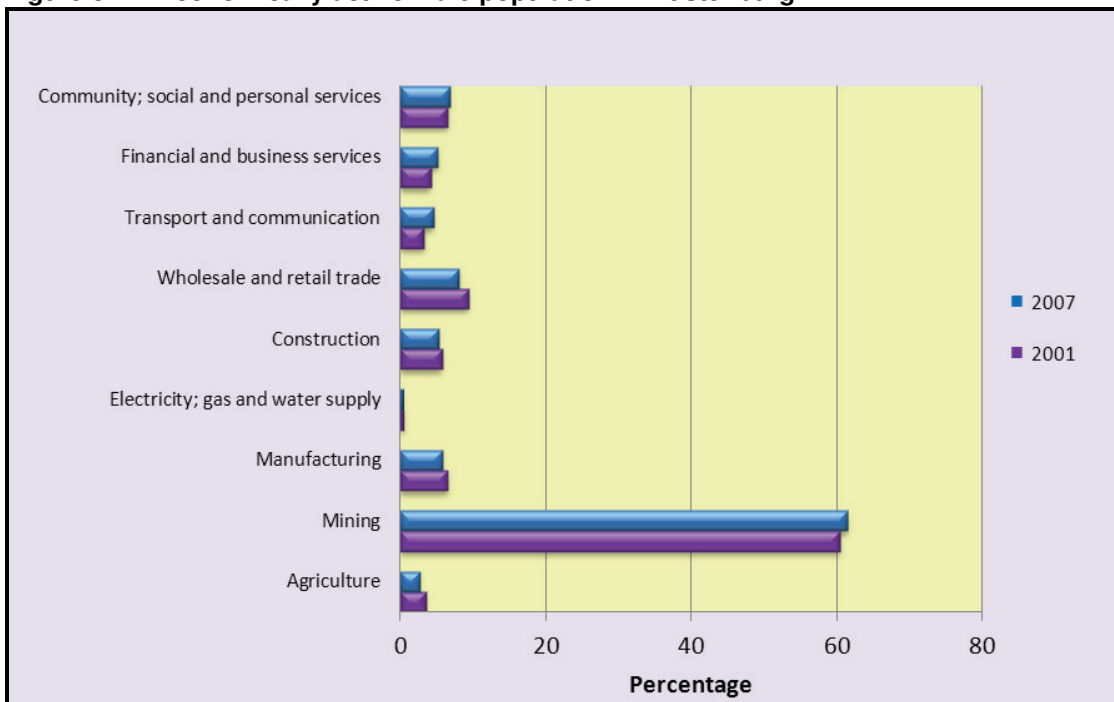
The economic structure relating to formal employment is hugely different between the male and female sector of the population (see Figures 3.11 and 3.12). Unlike its male counterparts, the mining sector only accounted for 11.1% of the employed female population by 2007. Although still a relatively low figure, it did however increase notably from the 7.7% in 2001. The main sources of employment for the employed economically active female population is the wholesale and retail trade sector (20.7% in 2007) and the community, social and personal services sector (30.5%). The total number of women employed in these two sectors respectively in 2001 and 2007 is 5925 and 8725. A total of 4180 women are employed in the financial and business services sector which represents a significant 14.6%. Conversely, the male population is substantially dominated by the mining sector with more than 61% of the employed male population involved within the mining sector (translating to a total of 61 672 males employed in this sector by 2007). The most notable other economic sector as source of employment for the male population is the wholesale and retail trade sector (8% of the male population). The low percentage (2.6%) of the male population involved in the agricultural sector is also notable.

**Figure 3.11: Percentage economically active female population per economic sector**



*Source:* 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

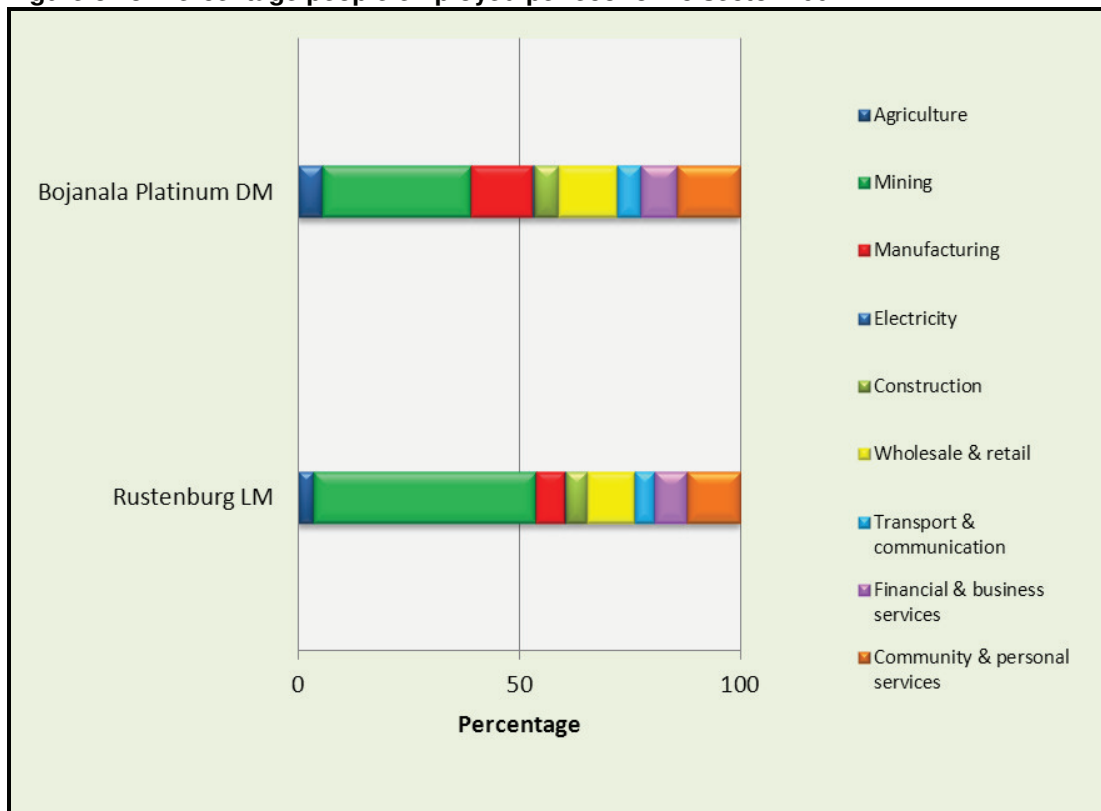
**Figure 3.12: Economically active male population in Rustenburg LM**



*Source:* 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

The comparative role of the various economic sectors as source of employment at the Rustenburg LM level, compared with the overall Bojanala Platinum DM figures are depicted on Figure 3.13. This information indicates that although the mining sector is also the dominant sector at district level (33.6% of employed population in 2007), its dominance is less pronounced than in the Rustenburg LM area. The contribution of the other economic sectors is roughly similar to that of the Rustenburg LM, albeit at somewhat higher proportional levels. The most notable difference in structure between the local and district profiles is the substantially higher proportion of the district population (13.9%) involved in the manufacturing sector, compared to only 6.5% in Rustenburg LM.

**Figure 3.13: Percentage people employed per economic sector 2007**



*Source:* Statistics SA, Community Survey 2007

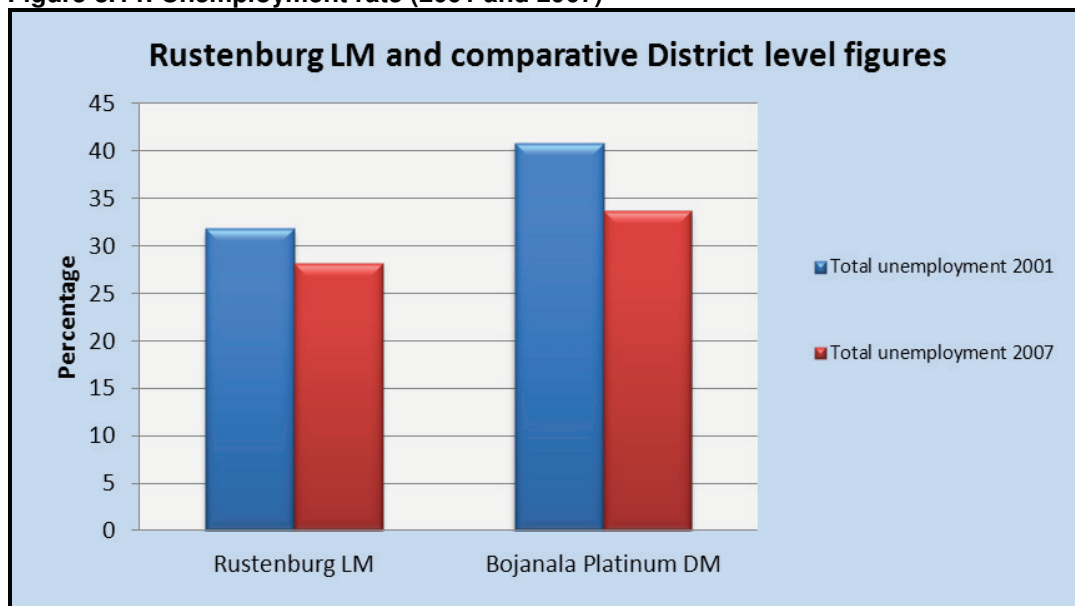
The spatial economic characteristics of the Rustenburg LM are depicted on the attached set of thematic maps which is based on the data contained in the Nation Geospatial analysis platform. The spatial concentration of economic activities are concentrated mainly along the mining belt stretching from Marikana in the east through Rustenburg up to the Boschoek area in the north western parts of the municipality. The levels of economic activity in the north eastern and southern parts of the municipality are very insignificant compared to the rest of the municipal area. This area also coincides

with the highest levels of accessibility to employment (in excess of 25 000 employment opportunities within a 30 minute driving time) in the central parts of the municipality. In contrast, the estimated number of employment opportunities within 30 minutes driving time in the north eastern and southern parts of the municipality is generally below 1000. This information implies that the economic strength of the municipality is not equally spread across the municipal area and is largely associated with the location of the mining activities in the central and northern parts of the municipal area. This aspect is further illustrated by the total estimated mining Gross Value Added distribution across the municipality.

The spatial distribution of Gross Value Added emanating from the manufacturing and the wholesale and retail trade sectors is largely concentrated in Rustenburg and its immediate surrounding areas, with limited contribution to production in other larger centers such as Phokeng and the Boitekong area. In most parts of the municipality the contribution of the agricultural sector to GVA is very limited. The largest contribution of the agricultural sector is in the extreme southern parts where the agricultural GVA exceeds R5 million per annum in certain locations.

The estimated unemployment rates in the Rustenburg LM have decreased from 31.8% in 2001 to 28.2% in 2007. These figures are substantially lower than the comparative district unemployment rate which decreased from 40.8% to 33.7% over the same period. A further notable feature is the significant differences between the levels of unemployment between the male and female population. The unemployment rate of the male population in 2007 was 18.1%, compared to the 46.3% of the female population (more than double the unemployment rate of the male population).

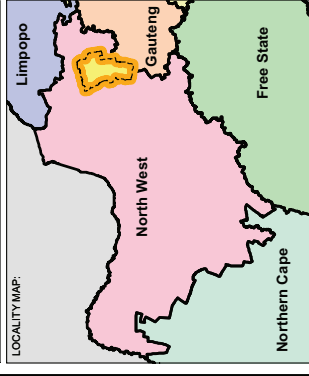
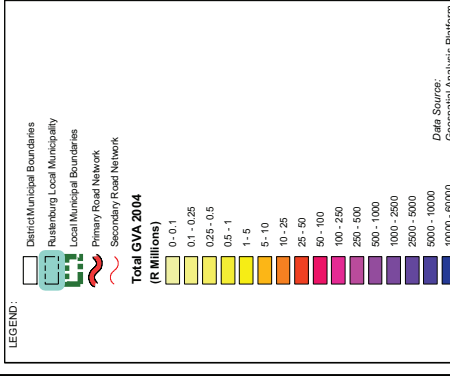
**Figure 3.14: Unemployment rate (2001 and 2007)**



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**TOTAL GVA:**  
Total 2004 GVA per Meso Zone



DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

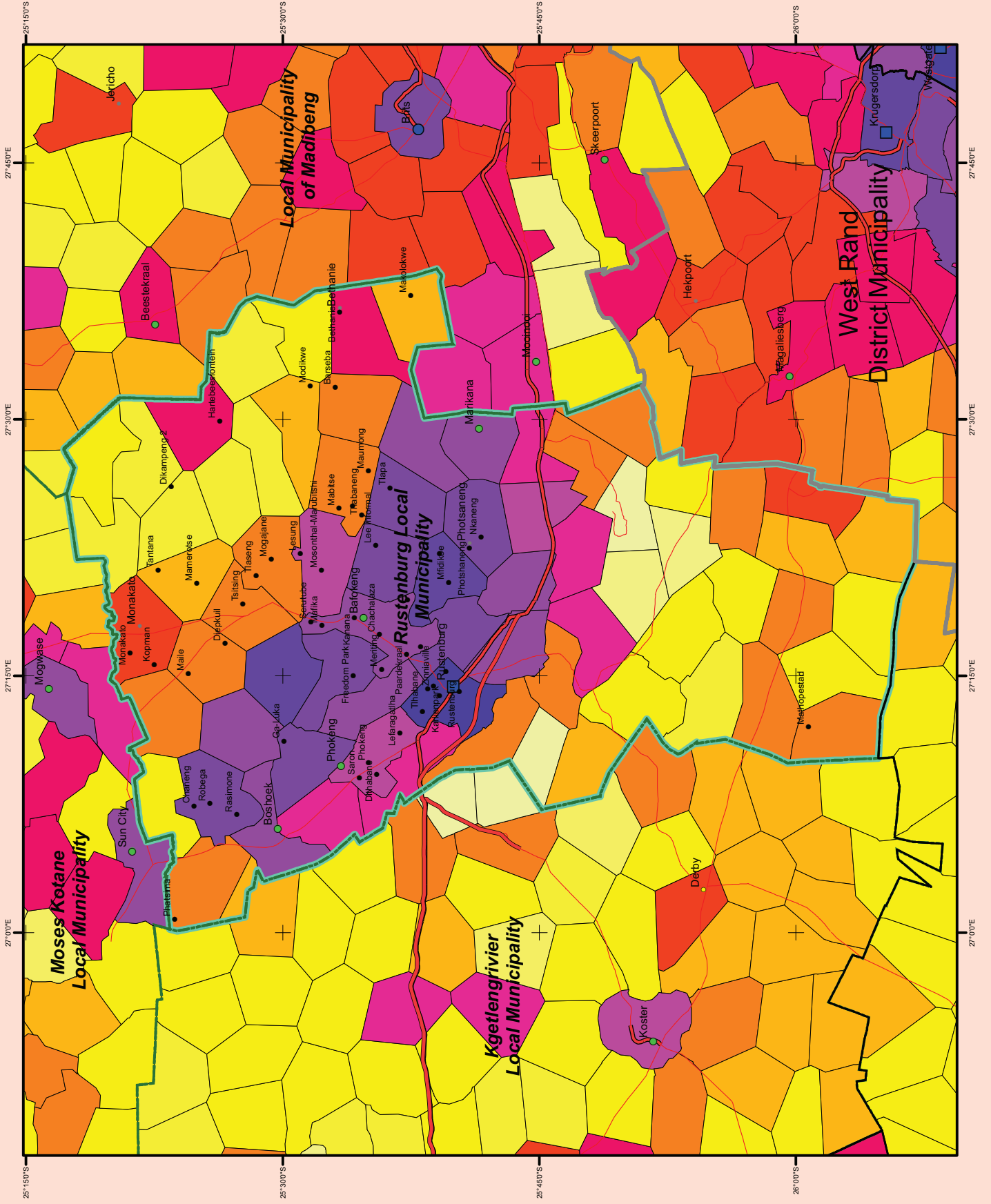
COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**K2M TECHNOLOGIES (PTY) LTD**  
13 Mosipol Avenue  
Rustenburg 0299  
Postnet Suite #167  
Private Bag X52329  
Rustenburg 0299

Tel: +27 (0) 14 533 1843  
Fax: +27 (0) 14 533 1789  
Cell: 082 776 0881

Author  
Designer  
Illustrator  
Project Manager  
Application Developer



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**TOTAL GVA:**  
Total 2004 GVA per Proximity Region

LEGEND:

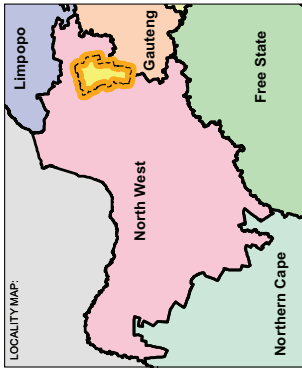
- District/Municipal Boundaries
- Rustenburg Local Municipality
- Local Municipal Boundaries
- Primary Road Network
- Secondary Road Network

GVA within 20 minutes driving time

- Less than R0.50n
- R0.50n - R 10n
- R 10n - R 50n
- R 50n - R 80n
- R 80n - R 150n

Date Source:  
Geospatial Analysis Platform

LOCALITY MAP:



SCALE :  
0 2.5 5 10 15  
Kilometers  
1:566,000

DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

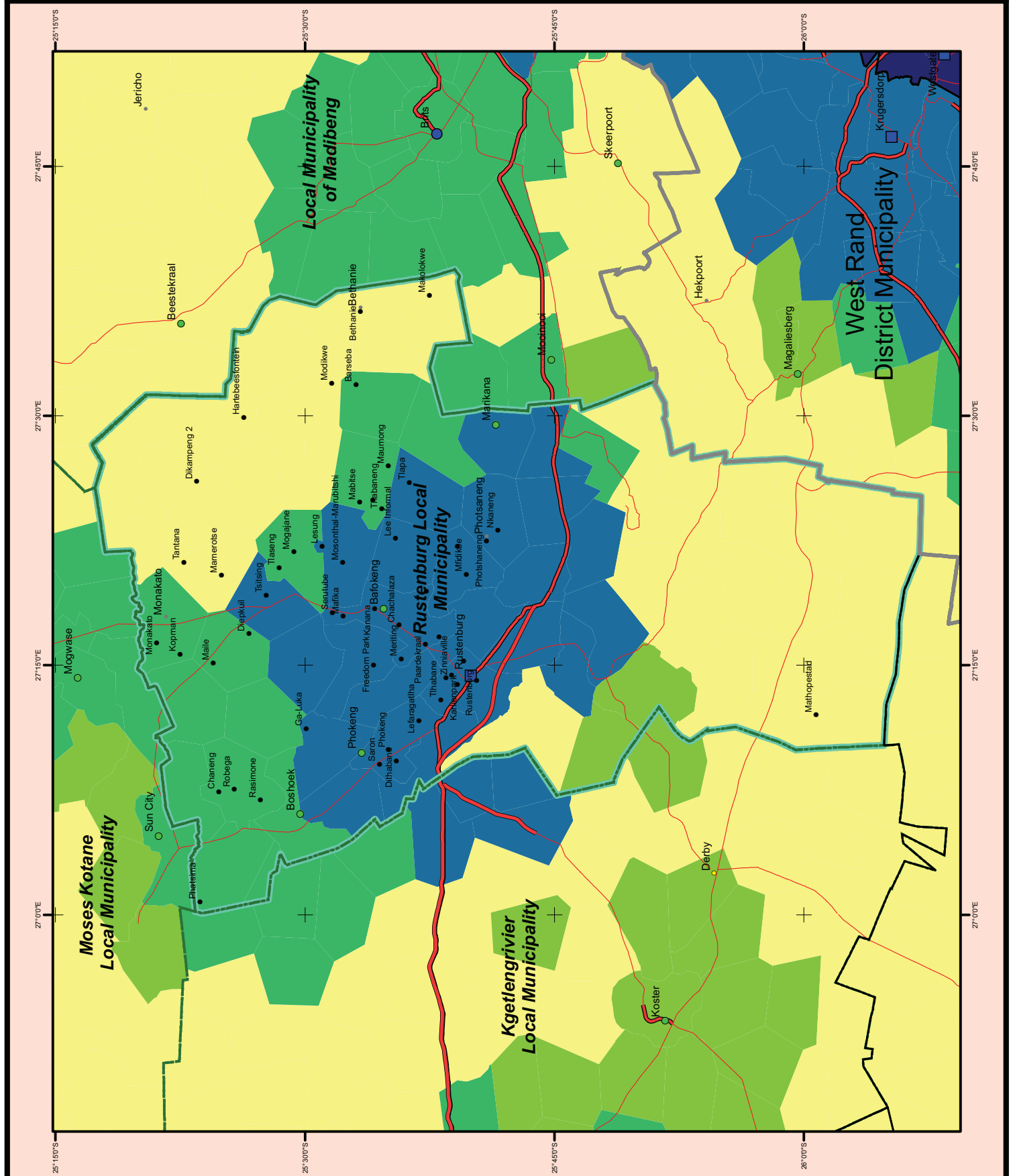
COORDINATE SYSTEM : Municipal WGS84 (Lco31)

PREPARED BY:

**K3M TECHNOLOGIES (PTY) LTD**  
13 Mispel Avenue  
Rustenburg 0299  
Postnet Suite #107  
Private Bag X52329  
Rustenburg 0000

Tel : +27 (0) 14 533 0843  
Fax : +27 (0) 14 533 1789  
Cell : 082 776 0881

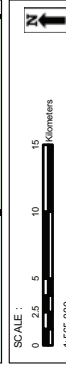
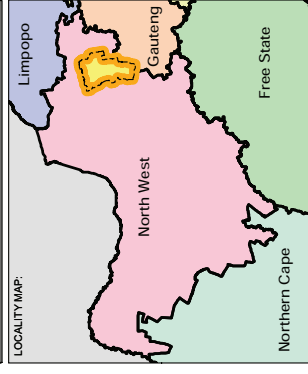
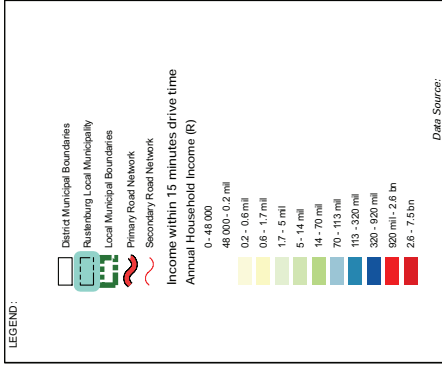
Author  
Designer  
Illustrator  
Project Manager  
Client Representative



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### TOTAL HOUSEHOLD INCOME (Proximity Count)



DATE: February 2010

MAP REFERENCE / VERSION NUMBER: Version 1

COORDINATE SYSTEM: Municipal WGS84 (L031)

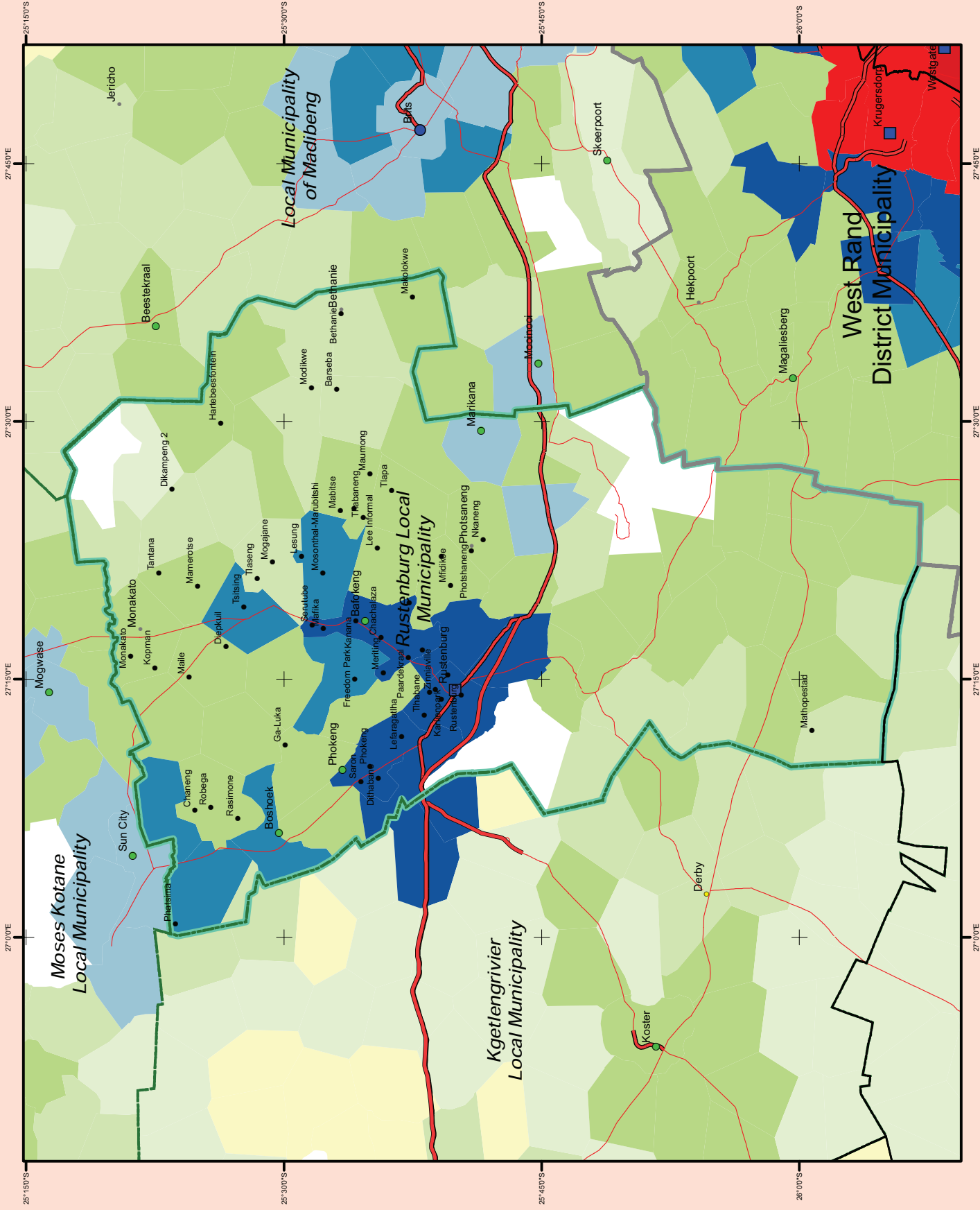
PREPARED BY:

KSM TECHNOLOGIES (PTY) LTD  
13 Mispel Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0000  
Tel: +27 (0) 14 533 1843  
Fax: +27 (0) 14 533 1789  
Cell: 082 776 0881

Approved for  
Use

Approved for  
Use

Approved for  
Use

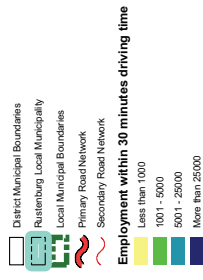


# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

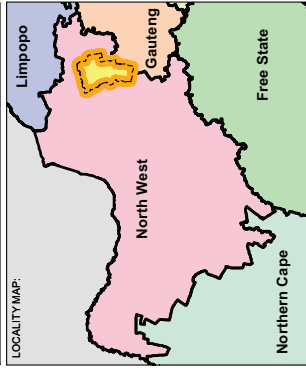
## EMPLOYMENT PROXIMITY

LEGEND:



Date Source:  
Geospatial Analysis Platform

LOCALITY MAP:



DATE: February 2010

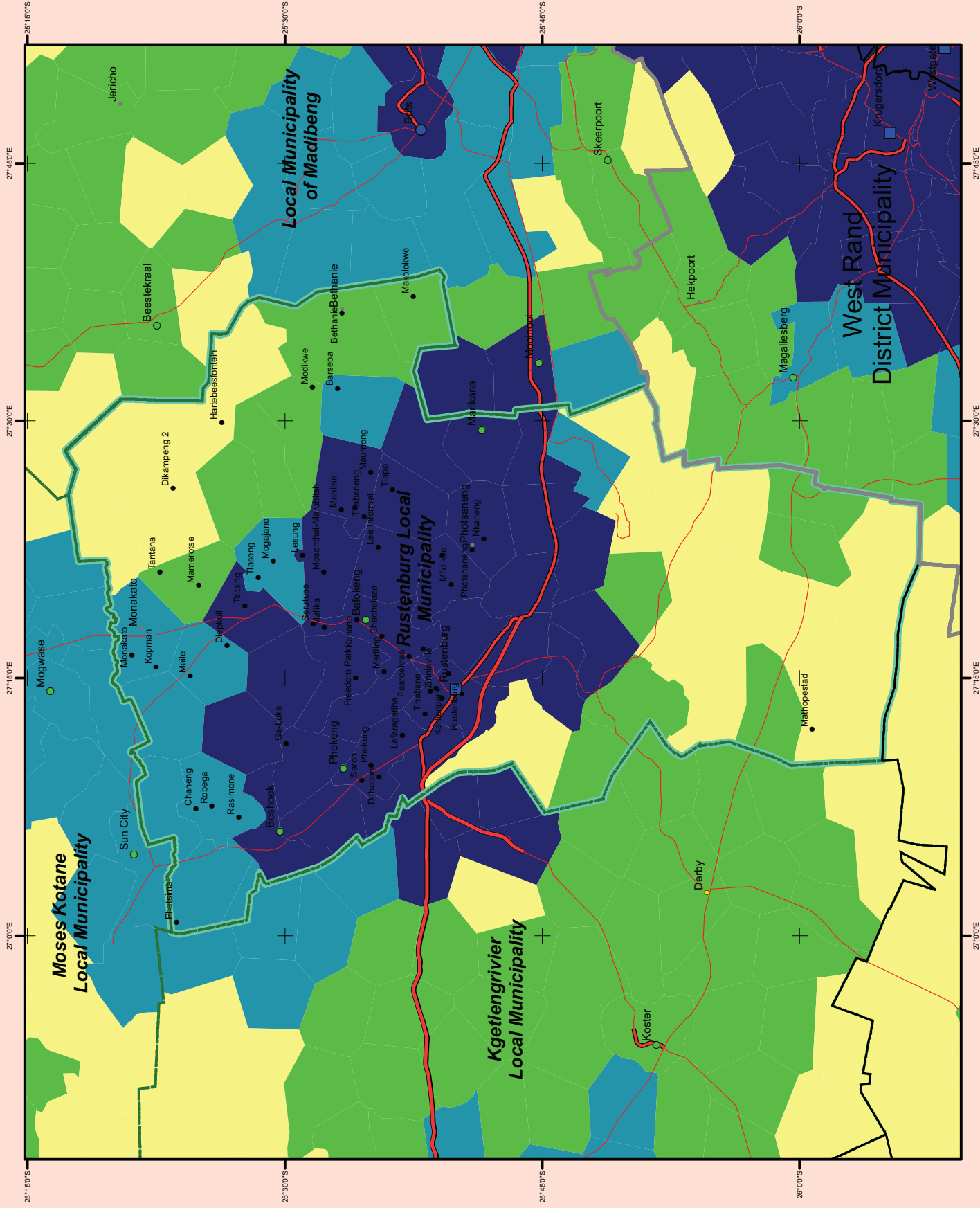
MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**K2M TECHNOLOGIES (PTY) LTD**  
13 Mosiel Avenue  
Rustenburg 0299  
Postnet Suite #107  
Private Bag X52329  
Rustenburg 0299  
Tel : +27 (0) 14 533 1843  
Fax : +27 (0) 14 533 1789  
Cell : 082 776 0881

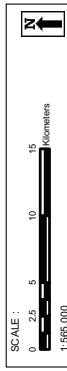
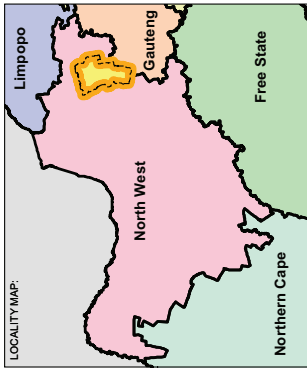
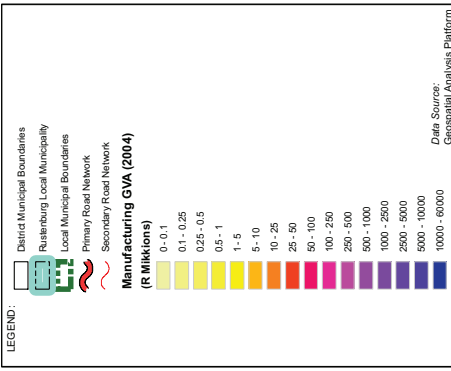
Project Manager: [Signature]  
Author: [Signature]  
Reviewer: [Signature]  
Approver: [Signature]



**RUSTENBURG LOCAL  
MUNICIPALITY**

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**MANUFACTURING GVA  
(2004)**

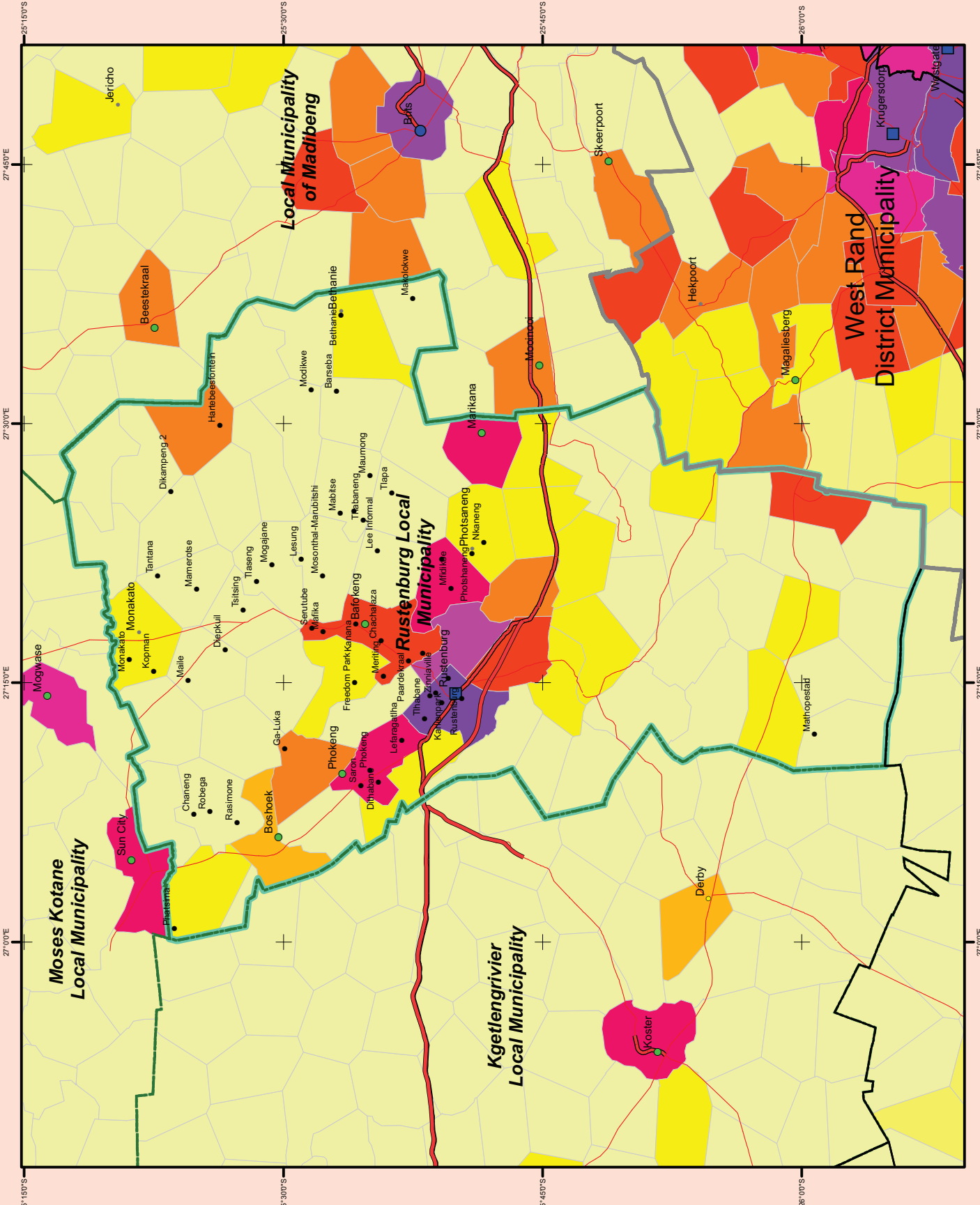
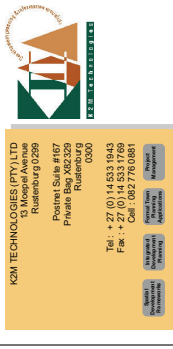


DATE: February 2010

MAP REFERENCE/ VERSION NUMBER: Version 1

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

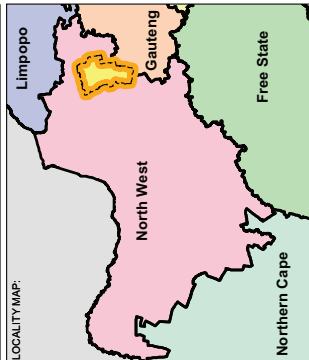
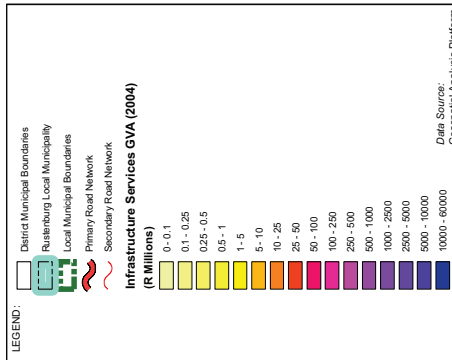
PREPARED BY:



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### INFRASTRUCTURE SERVICES GVA (2004)



**MAP REFERENCE/VERSION NUMBER:** Version 1

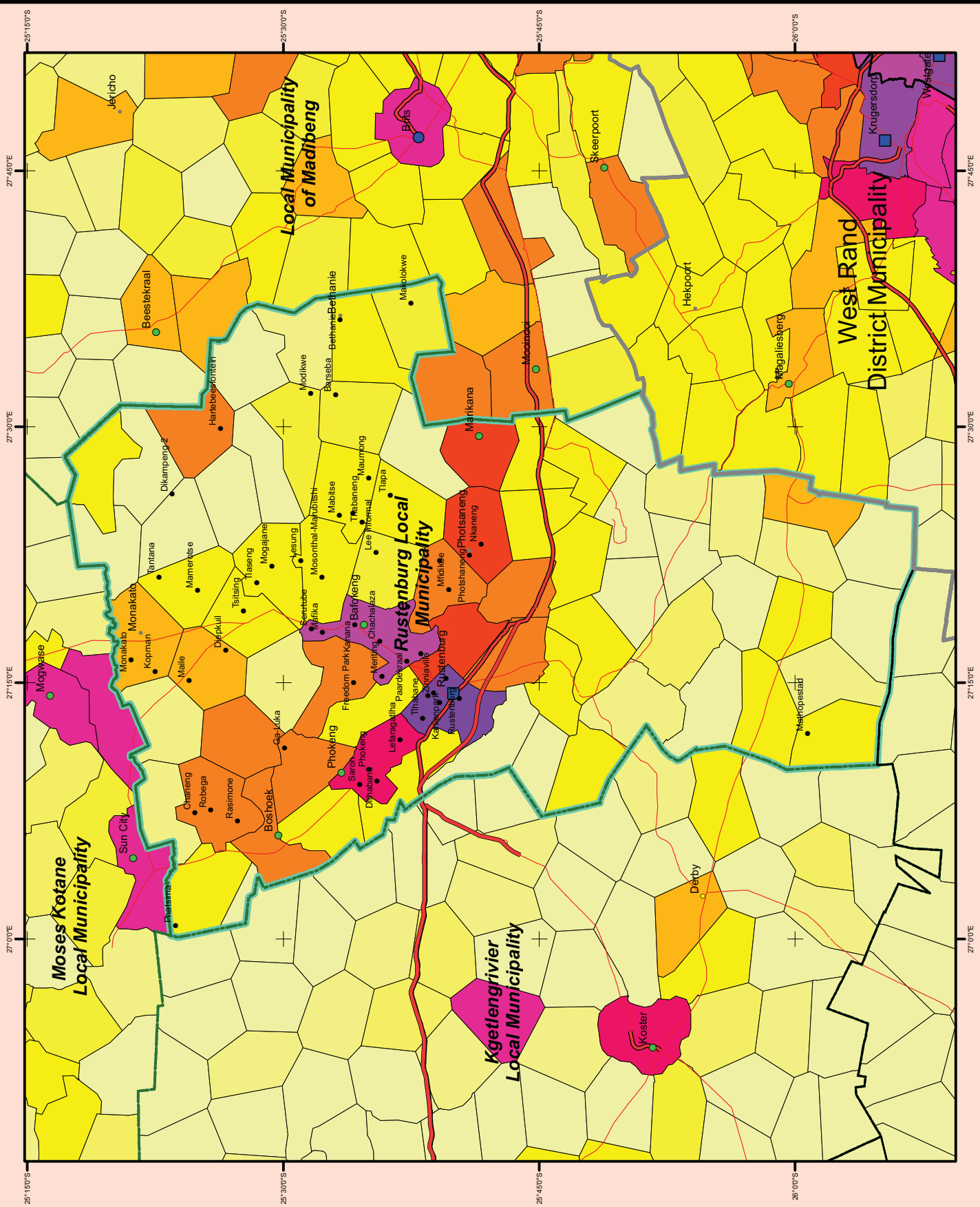
**COORDINATE SYSTEM:** Municipal WGS84 (Lc31)

**PREPARED BY:**

**K3M TECHNOLOGIES (PTY) LTD**  
13 Mispel Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0000

Tel : +27 (0) 14 533 1643  
Fax : +27 (0) 14 533 1769  
Cell : 082 776 0861

**Approved for:**  
Municipal Council  
Municipal Manager  
Municipal Engineer  
Municipal Surveyor



## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**LEGEND:**

- District Municipal Boundaries
- Rustenburg Local Municipality
- Local Municipal Boundaries
- Primary Road Network
- Secondary Road Network

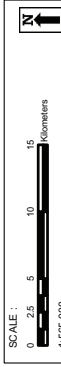
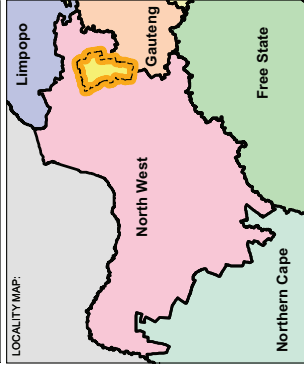
**Government & Community Services GVA (2004)**

(R Millions)

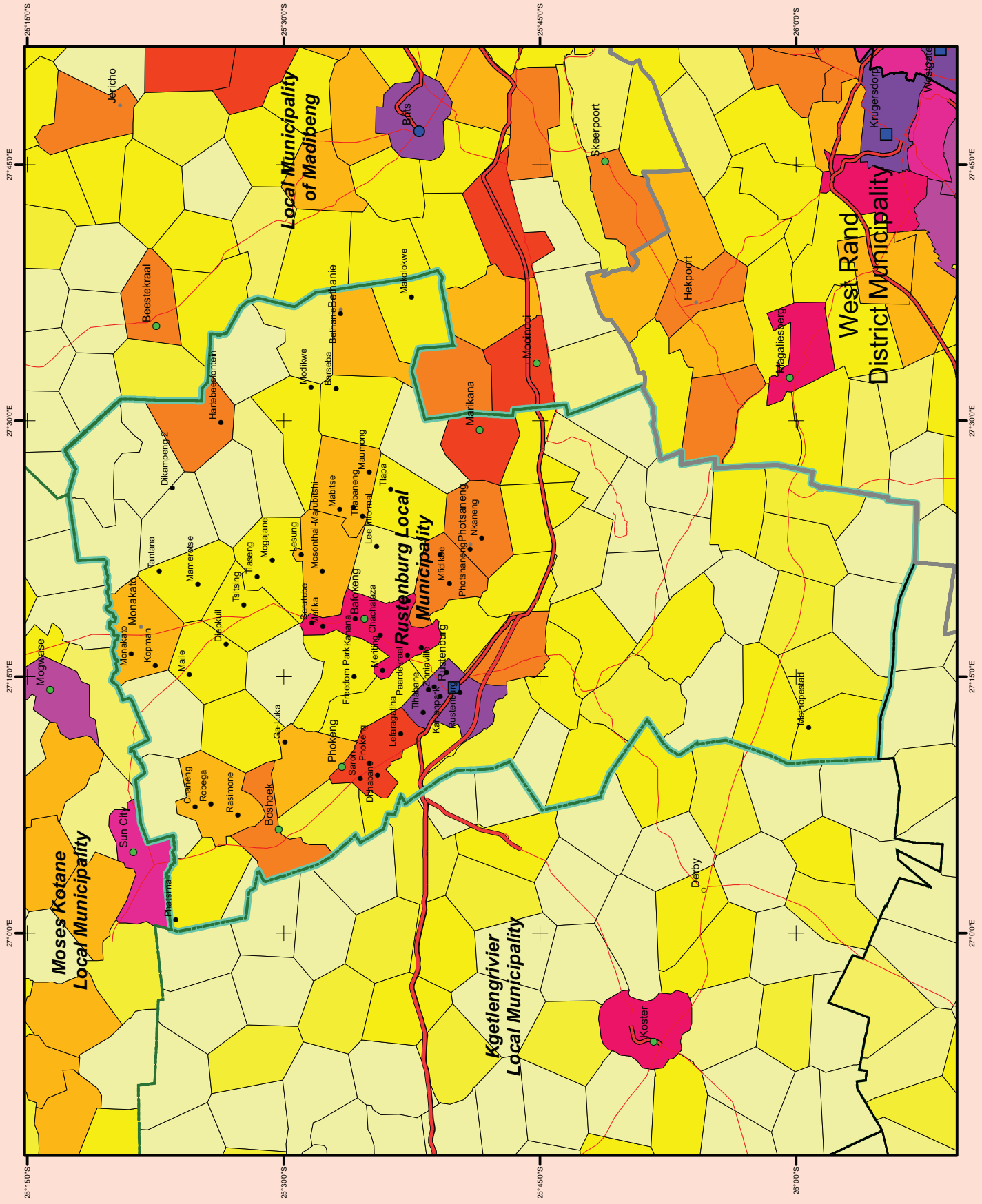
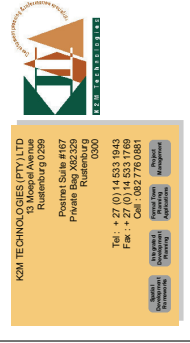
- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 100
- 100 - 250
- 250 - 500
- 500 - 1000
- 1000 - 2500
- 2500 - 5000
- 5000 - 10000
- 10000 - 60000

*Data Source: Rustenburg District Municipality*

LOCALITY MAP:



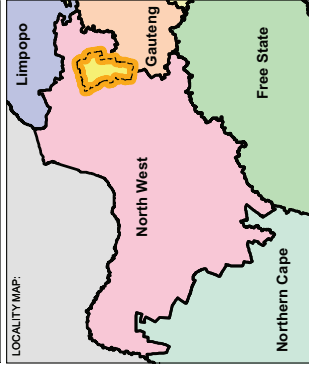
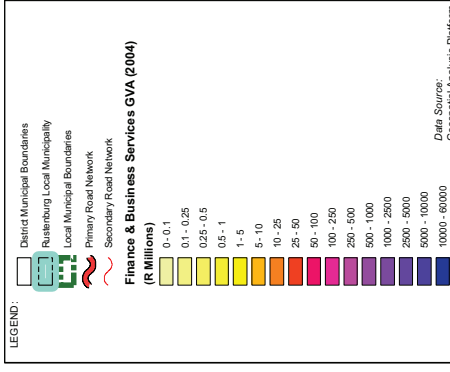
PREPARED BY:



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### FINANCE & BUSINESS SERVICES GVA (2004)



**MAP REFERENCE/VERSION NUMBER:** Version 1

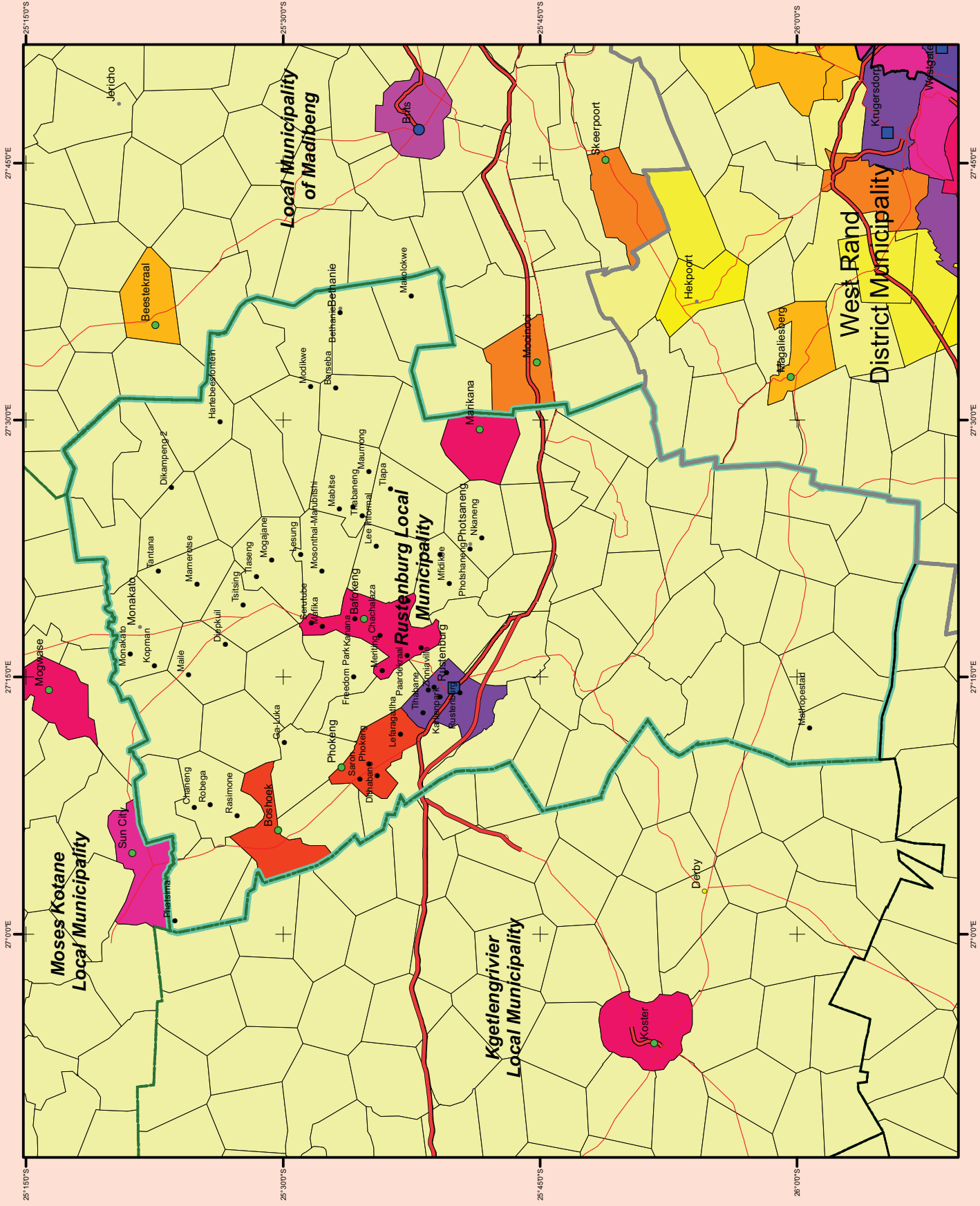
**COORDINATE SYSTEM:** Municipal WGS84 (Lc31)

**PREPARED BY:**

**KSM TECHNOLOGIES (PTY) LTD**  
13 Moskop Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0000

Tel : +27 (0) 14 533 1643  
Fax : +27 (0) 14 533 1789  
Cell : 082 776 0861

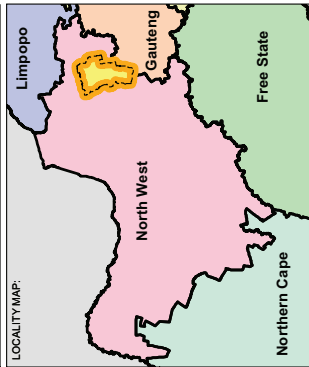
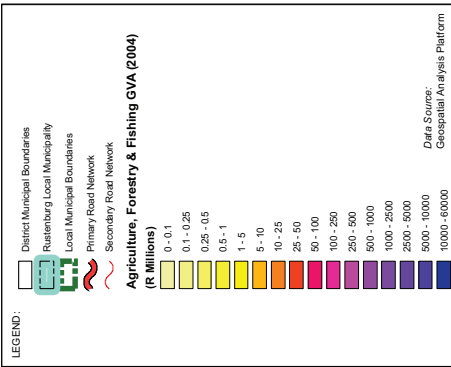
**Approved for Publication**



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### AGRICULTURE, FORESTRY & FISHING GVA (2004)



**MAP REFERENCE/VERSION NUMBER:** Version 1

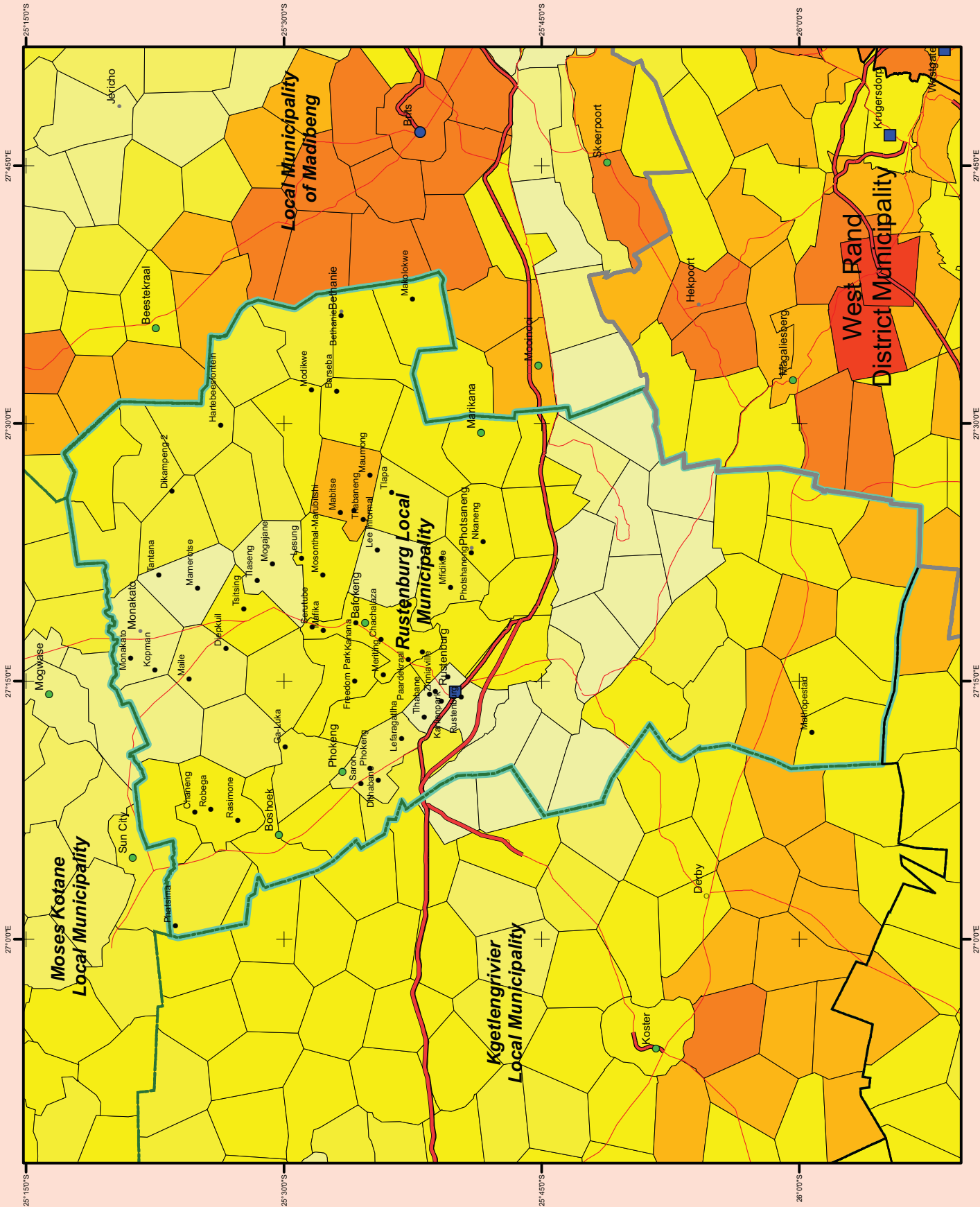
**COORDINATE SYSTEM:** Municipal WGS84 (Lc31)

**PREPARED BY:**

**K3M TECHNOLOGIES (PTY) LTD**  
13 Mosipf Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0200

Tel : +27 (0) 14 533 1843  
Fax : +27 (0) 14 533 1789  
Cell : 082 776 0881

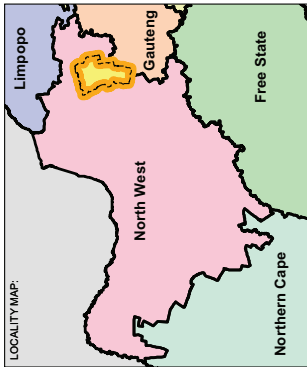
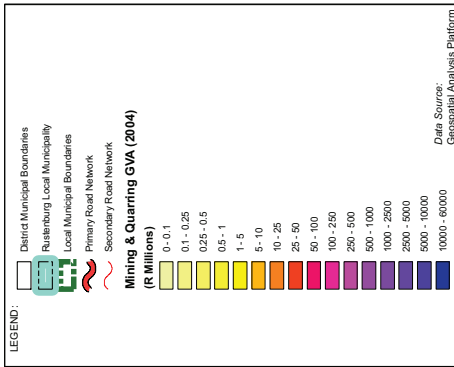
**Author**  
**Designer**  
**Project Manager**  
**Client**



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### MINING & QUARRYING GVA (2004)



DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

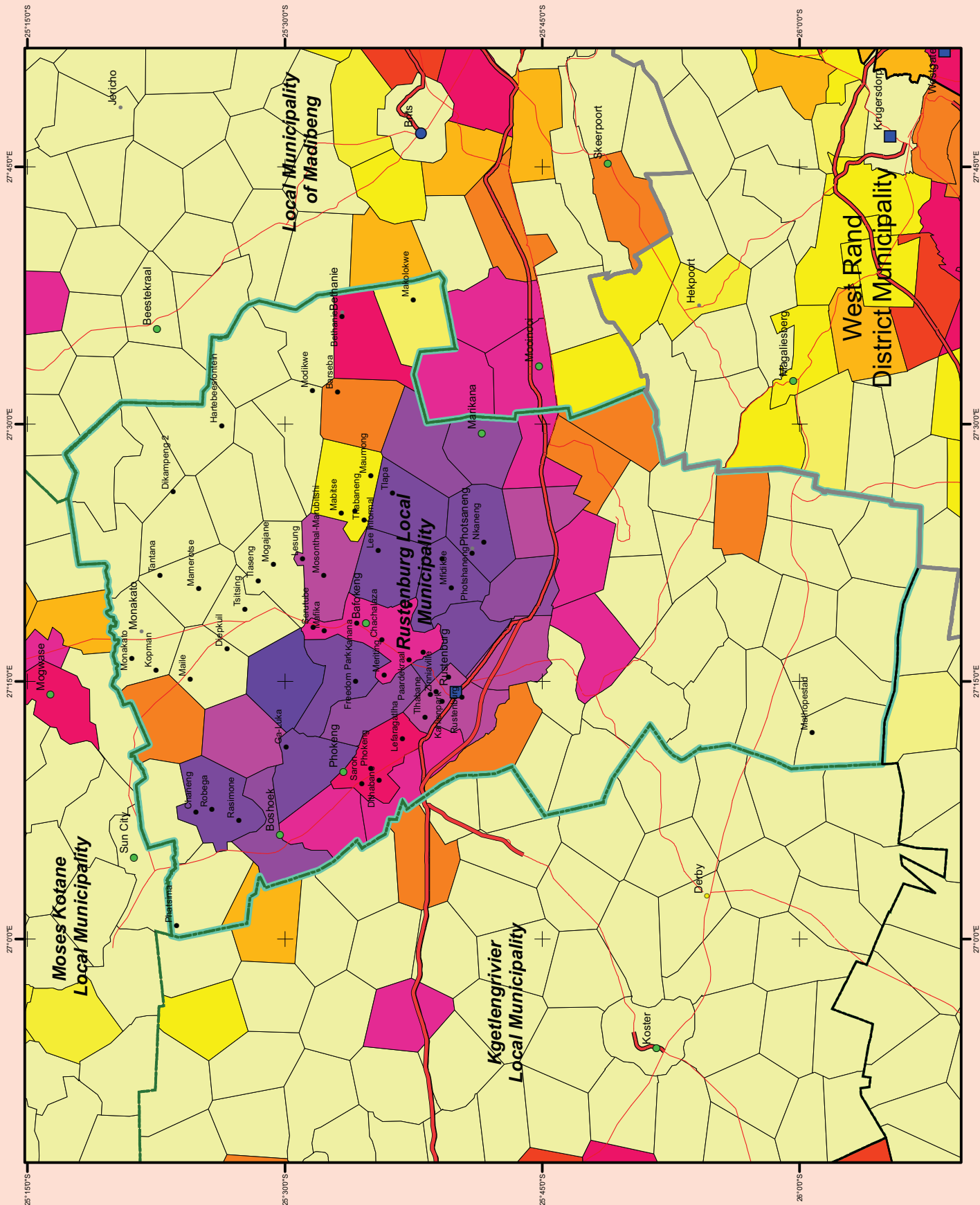
COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

KSM TECHNOLOGIES (PTY) LTD  
13 Moskop Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0000

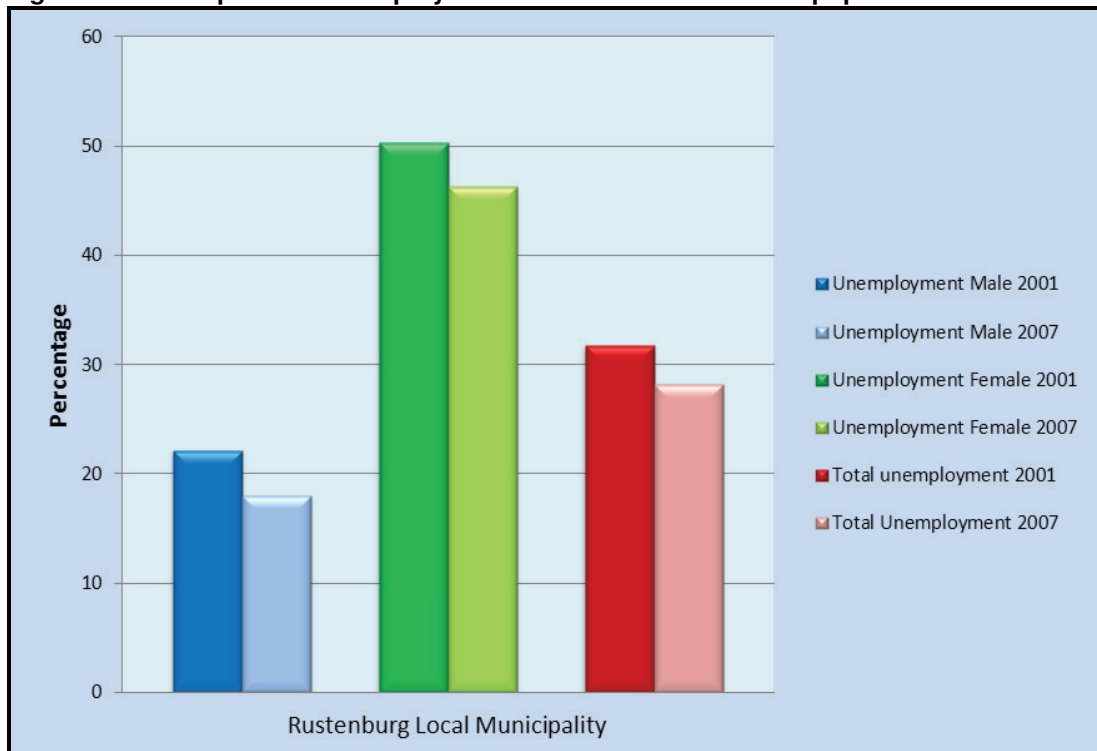
Tel : +27 (0) 14 533 1643  
Fax : +27 (0) 14 533 1789  
Cell : 082 776 0861

Author  
Designer  
Illustrator  
Printer  
Publisher



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

**Figure 3.15: Comparative unemployment rate of male and female population**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

### 3.5 THE INFORMAL SECTOR

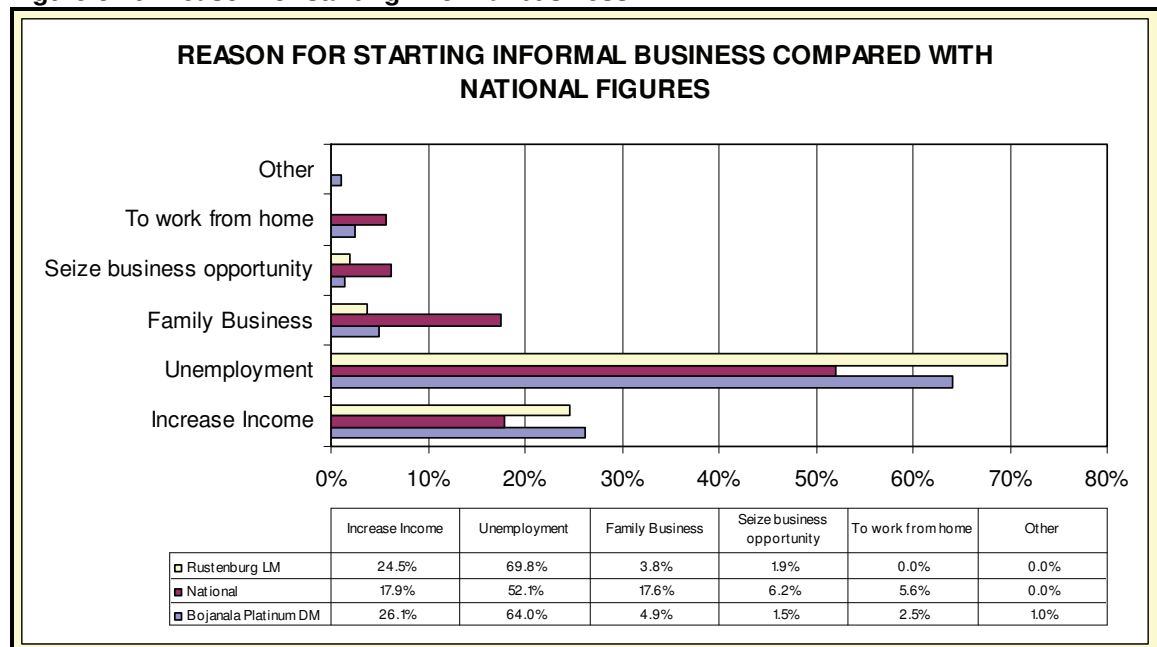
Although the role of the informal sector of the so-called “*second economy*” receives significant attention in policy debates, very little is known about the characteristics and the spatial implications thereof. It is thus necessary to reflect on available information which may shed some light on this topic.

A sample survey of informal businesses was undertaken in all municipalities in the BPDM as part of the preparation of a LED plan for the Bojanala Platinum District. The sample group of settlements was representative of all Local Municipalities in the study area, including both urban and rural areas, and settlements of different sizes. The results of some of the more pertinent findings of the sample survey are outlined below. In these figures, the characteristics of the informal business sector in Rustenburg is compared with the figure for the Bojanala Platinum District as well as the overall National figures (as determined in a National Survey undertaken by the Human Sciences Research Council). It may be argued that these statistics which have been compiled in 2004 are now somewhat outdated, but it still

remains the only known available source of information relating to the informal sector. It is also unlikely that the characteristics would have changed substantially over this period.

The information depicted in Figure 3.16 clearly illustrates that many informal business operators are forced to engage in informal business activities due to unemployment. Only a limited proportion of the survey respondents indicated entrepreneurial reasons (e.g. to increase income or to seize business opportunities) as their main reasons for starting an informal business. In the Rustenburg area, unemployment also appears to be a much stronger motivation (69.8%) for engaging in informal business activities compared to the Bojanala Platinum District (64%) and the overall national comparative figure (52%).

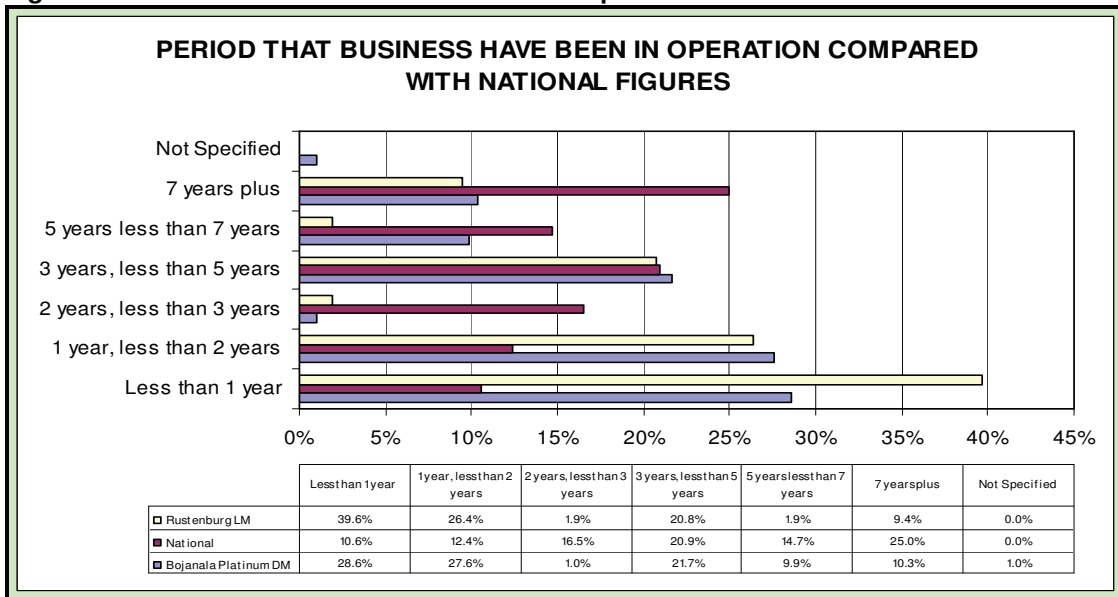
**Figure 3.16: Reason for starting informal business**



*Source: BPDM LED Plan*

One of the most notable findings of the sample survey was the large proportion of respondents who entered into informal business activities in the two years preceding the survey. As many as 39.6% of respondents have indicated that they have been in business for less than one year and a further 26.4% between one and two years. Only 11.3% of respondents have been operating an informal business for more than five years. These figures imply that there are a much larger proportion of new entrants into the informal business sector in Rustenburg compared to the comparative district and national figures.

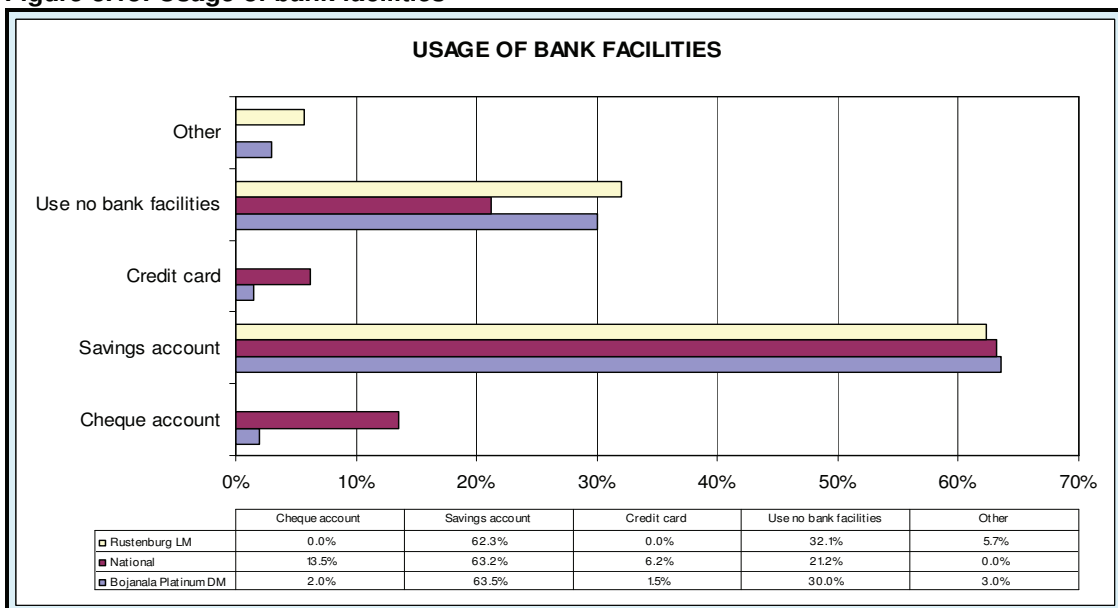
**Figure 3.17: Period that business have been in operation**



Source: BPDM LED Plan

Unlike the general perception, the results of the survey revealed that more than two thirds of the survey group makes use of formal banking facilities, in all instances utilizing savings accounts. These figures clearly point out a definite need for informal business owners and operators to have access to formal banking facilities.

**Figure 3.18: Usage of bank facilities**



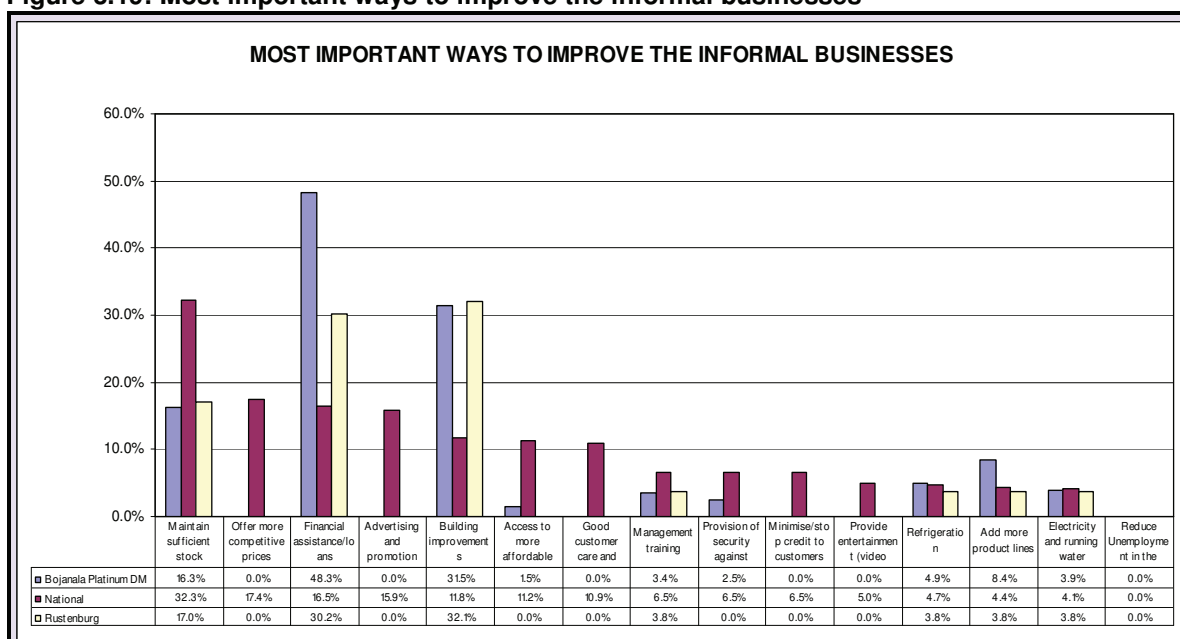
Source: BPDM LED Plan

In response to the question on the most important ways on how the informal business could improve their operations, three main factors were mentioned by the survey respondents. These include:

- The need for physical improvements to buildings or structures (32% of respondents), the need for financial assistance/loans (30% of respondents)
- The ability to maintain sufficient stock (17%).

Apart from the obvious need for improvement to physical building structures, institutional support in the form of financial assistance is thus the most pertinent issue for improving the functioning of the informal business sector in the Rustenburg LM. Improved road accessibility will also play a major role in the ability of these informal business operators to maintain sufficient stock at their business premises.

**Figure 3.19: Most important ways to improve the informal businesses**



Source: BPDM LED Plan

## 4 LAND USE

### 4.1 SETTLEMENT PATTERN

In order to understand the spatial development pattern of the Rustenburg LM, it is necessary to consider the key features that influenced the historical development pattern. There are four major elements that substantially shaped the development pattern of the Municipal Area.

- ***Rustenburg Town***

Rustenburg has influenced and shaped the Municipal Area's settlement pattern, as the centre of population concentration, employment opportunities and economic activities. Most of the other settlements across the municipal area are thus highly dependent on Rustenburg and its concentration of economic activities. As a result, the largest towns and settlements in the Municipal Area that contains the majority of the Municipal Area's urban population (70%), have developed within 20 km from Rustenburg.

- ***Magaliesberg Mountain Range***

The Magaliesberg Mountain Range traverses the Municipal Area south of Rustenburg from east to north-west. This mountain range has influenced the existing settlement pattern due to the fact that it has limited urban expansion in a southwesterly direction. The result is that urban expansion has mainly occurred in a northern and north-eastern direction.

- ***Main Road Network***

The main road system had a profound impact on the shape of urban development within the municipal area. The following components of the road network can be distinguished as having the most significant impact on urban development in the region. These are:

- The N4 traversing the municipal area in an east-west direction from Brits towards Swartruggens had a profound impact on development as the main movement corridor across the municipal area. At a micro scale the construction of the N4 toll road through Rustenburg also substantially influenced the internal development pattern of Rustenburg over the last decade. It had a substantial impact on the flow of traffic through Rustenburg itself and also created some physical north-south barriers within Rustenburg.

- The Rustenburg/ Sun City road (R565) that links Rasimone, Luka and Phokeng to Rustenburg.
- Rustenburg/ Thabazimbi road (R510) that links Tlaseng, Kanana and Boitekong to Rustenburg.

- ***Platinum Mines***

The mining belt, running north and roughly parallel to the Magaliesberg mountain range has dramatically shaped the settlement pattern of the municipal area. On the one hand, it fragmented urban development by creating physical barriers such as transport facilities, pipelines, infrastructure and surface mining infrastructure between Rustenburg and the settlements located north of the mining belt, (e.g. Boitekong). On the other hand, it also facilitated the development of certain towns such as Luka, Kanana, Thekwane and Photsaneng.

The urban pattern that was shaped by the centrality function of Rustenburg, the Magaliesberg buffer, the accessibility of major roads and the impact of the mining belt, is radial with Rustenburg as the core area and three urban corridors extending from it in a northerly, northeasterly and westerly direction. It is evident that the major towns located within the Municipal Area are functionally linked to Rustenburg. This functional linkage expresses itself by the movement of people between these towns and the economic opportunities located in Rustenburg. These functional linkages extend over socio-political boundaries such as the Bafokeng Magisterial Boundary.








As indicated on the attached thematic map, the resulting municipal level settlement pattern is characterized by a distributed and fragmented pattern in the northern parts of the municipality (north of the Magaliesberg), and a sparsely populated southern part. The functional characteristics and linkages between the various individual settlements can be grouped into a number of settlement clusters for functional and analysis purposes. These settlement clusters and it comprising individual towns and settlements are depicted on the attached thematic map and is summarized in Table 4.1 below. This table summarizes the total population and number of housing units per settlement cluster and provides an indication of the proportional contribution of each cluster to the overall municipal population.

# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

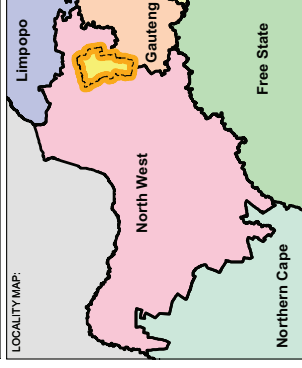
### COMPOSITION MAP

LEGEND:

-  District Municipal Boundaries
-  Rustenburg Local Municipality
-  Local Municipal Boundaries
-  Primary Road Network
-  Secondary Road Network
-  Tertiary Road Network
-  Settlements

Data Source: Census 2001

LOCALITY MAP:



SCALE :




DATE: February 2010





MAP REFERENCE/VERSION NUMBER: Version 1





COORDINATE SYSTEM: Municipal WGS84 (Loc1)

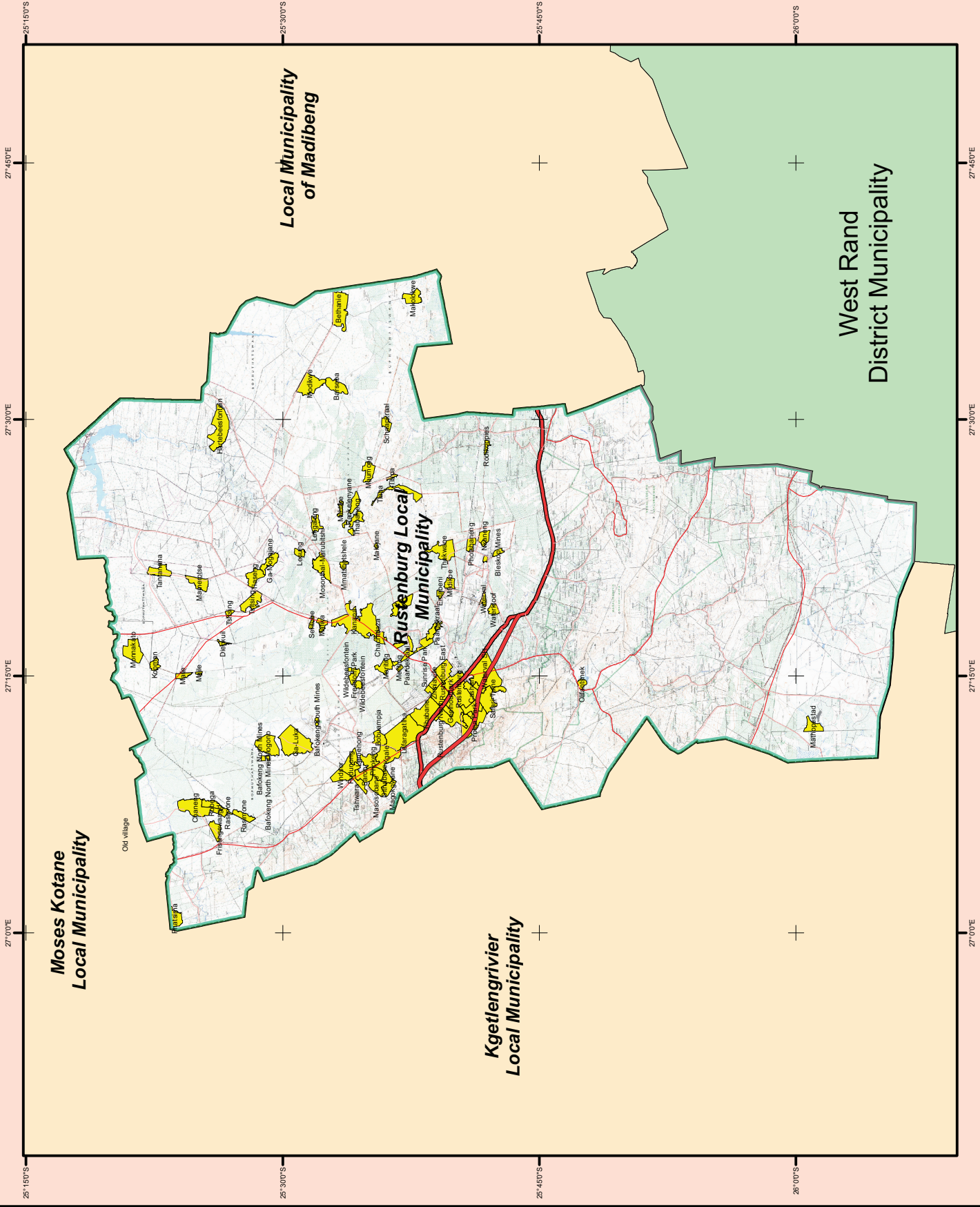
PREPARED BY:



**KSM TECHNOLOGIES (PTY) LTD**  
 13 Mispel Avenue  
 Rustenburg 0299  
 Postnet Suite #107  
 Private Bag X52329  
 Rustenburg 0299  
 Tel: +27 (0) 14 533 1843  
 Fax: +27 (0) 14 533 1789  
 Cell: 082 776 0851

 Client  
 Approved  
 Submitted  
 Reviewed

 Project  
 Approved  
 Submitted  
 Reviewed



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

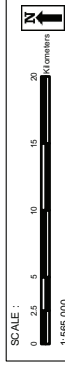
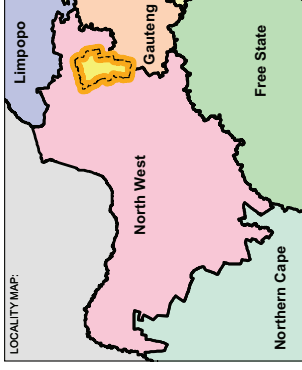
### SETTLEMENT CLUSTER/ URBAN EDGE

LEGEND:

- District Municipal Boundaries
- Rustenburg Local Municipality
- Urban Edge
- Primary Road Network
- Secondary Road Network
- Tertiary Road Network
- Settlements

Data Source: Census 2001

LOCALITY MAP:



DATE: February 2010

MAP REFERENCE/ VERSION NUMBER : Version 1

COORDINATE SYSTEM : Municipal WGS84 (Loc1)

PREPARED BY:

**K2M TECHNOLOGIES (PTY) LTD**  
13 Mosiel Avenue  
Rustenburg 0299  
Postal Code 0107  
Private Bag X52329  
Rustenburg 0299  
Tel : + 27 (0) 14 533 1843  
Fax : + 27 (0) 14 533 1789  
Cell : 082 776 0881

Author  
Designer  
Illustrator  
Printer  
Project Manager  
Client

Moses Kotane  
Local Municipality

Local Municipality  
of Madibeng

Rustenburg Local  
Municipality

Kgetlengrivier  
Local Municipality

West Rand  
District Municipality

# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### TRIBAL LAND

LEGEND:

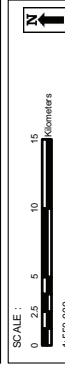
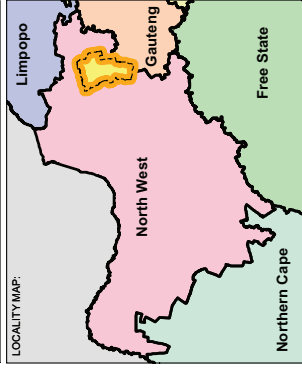
- Provincial Boundaries
- District Municipal Boundaries
- Local Municipal Boundaries
- Rustenburg Municipality
- National Road (N4)
- Primary Road Network
- Secondary Road Network
- Tertiary
- Railway
- Rivers & Streams
- Non-Perennial
- Perennial
- Pans & Dams
- Contour (20m)

### Tribal Land

- Bafokeng
- Bakwena Ba Mopopa
- Baphalane

Data Source:  
SA Explorer Data

LOCALITY MAP:



DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**KSM TECHNOLOGIES (PTY) LTD**  
13 Mosiel Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0000

Tel : +27 (0) 14 533 1643  
Fax : +27 (0) 14 533 1789  
Cell : 082 776 0881

Approved for Publication  
Checked for Accuracy  
Checked for Consistency

**Moses Kotane  
Local Municipality**

**Local Municipality  
of Madibeng**

**West Rand  
District Municipality**

**Rustenburg Local  
Municipality**

**Kgetlengrivier  
Local Municipality**

**Table 4.1: Rustenburg Settlement Hierarchy**

Settlement Clusters	Total Housing	% of Housing	Total Formal Housing	Total Informal Housing
Rustenburg/Tlhabane	27739	23.8	21684	6055
Boitekong/Kanana	23202	19.9	9470	13732
Phokeng	9007	7.7	6502	2502
Thekwane	8902	7.6	1349	7553
Hartebeesfontein	5905	.1	923	4982
Luka	4864	4.2	3945	919
Tlaseng	3488	3.0	1838	1650
Robega	3327	2.9	1824	1503
Wonderkoppies	3007	2.6	632	2375
Mine Hostels	2748	2.4	1502	1246
Bethanie	2370	2.0	2083	287
Monnakato	2251	1.9	1664	607
Modikwe Berseba	1464	1.3	1127	337
Phatsima	1457	1.3	93	1364
Maumong-Tlapa	1354	1.2	1281	73
Marikana	1322	1.1	1289	33
Tantane-Marotse	831	0.7	553	278
Makololwe	550	0.5	498	52
Maile-Kopman	430	0.4	361	69
Mathopestad	303	0.3	130	173
Olifantsnek	92	0.1	83	9
Rustenburg Rural	11800	10.1	6652	5148
<b>Total</b>	<b>116413</b>	<b>100.0</b>	<b>65483</b>	<b>50947</b>

*Source: Based on Statistics SA, Census 2001 data*

Four broad types of settlements can be distinguished in the Rustenburg LM. These can be described as formal urban settlements, tribal settlements, rural settlements and informal settlements. These settlement types are distinguished primarily by the availability of services and security of tenure.

**a. Formal Urban Settlements**

These settlements have a formal layout, are serviced with a full range of municipal services and the settlement households can obtain security of tenure. These include areas such as Rustenburg, Tlhabane, Boitekong, Rankolenyane, Phatsima, Hartbeesfontein, Kroondal and Marikana.

**b. Tribal Settlements**

These settlements are mainly located on Bafokeng tribal land and the households living in these settlements are considered Bafokeng citizens. Although these households do not own title deeds, they have security of tenure through their association with the tribe and are characterized by varying levels of service. Settlements that fall within this category include areas such as Phokeng, Kanana, Luka, Chaneng, Tlaseng, Thekwane and Photsaneng.

**c. Rural Settlements**

Rural settlements are settlements that are similar in nature to the tribal settlements with regard to the residential densities and functions, but they are not located on Bafokeng tribal land.

**d. Informal Settlement**

These settlements have mainly developed along the mining belt. These include areas such as Wonderkoppies, Nkaneng, Zakhele, Popo Molefe and Freedom Park. The informal settlements are characterized by a lack of security of tenure and a lack of basic municipal services. Some of these settlements are in the process of being upgraded or relocated.

## **4.2 RESIDENTIAL**

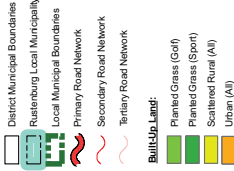
The municipal housing profile is depicted in Figure 4.1. According to the official census statistics, the proportion of households living in formal houses on separate stands in proportional terms declined somewhat from 47.4% in 2001 to 42% in 2007. This does not imply that the actual number of households residing in formal structures on separate stands have declined (actual number increased from 55146 in 2001 to 61477 in 2007). It does however mean that other categories have increased at a faster rate than formal housing in formal settlements, hence the resulting proportional decrease. A further notable feature is the large proportional increase in the number of households residing in informal structures in backyards that increased from 13.4% in 2001 to 21% in 2007. According to the Statistics SA data the total number of households residing in informal structures in backyards has doubled between 2001 and 2007 (15540 to 30685). A positive feature is the decrease in number of households residing in informal structures in informal settlements that have declined from 30094 in 2001 to 23922 by 2007. This also represents a proportional decrease from 25.9% in 2001 to 16.3% in 2007.

**RUSTENBURG LOCAL  
MUNICIPALITY**

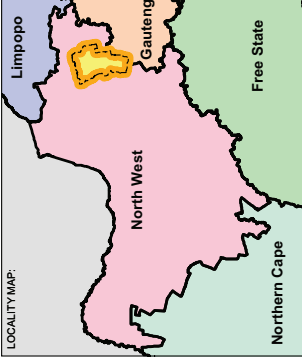
## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**LANDCOVER:**  
**Built-Up Land**

## LEGEND



*Data Source:*  
NW Land Cover 2006

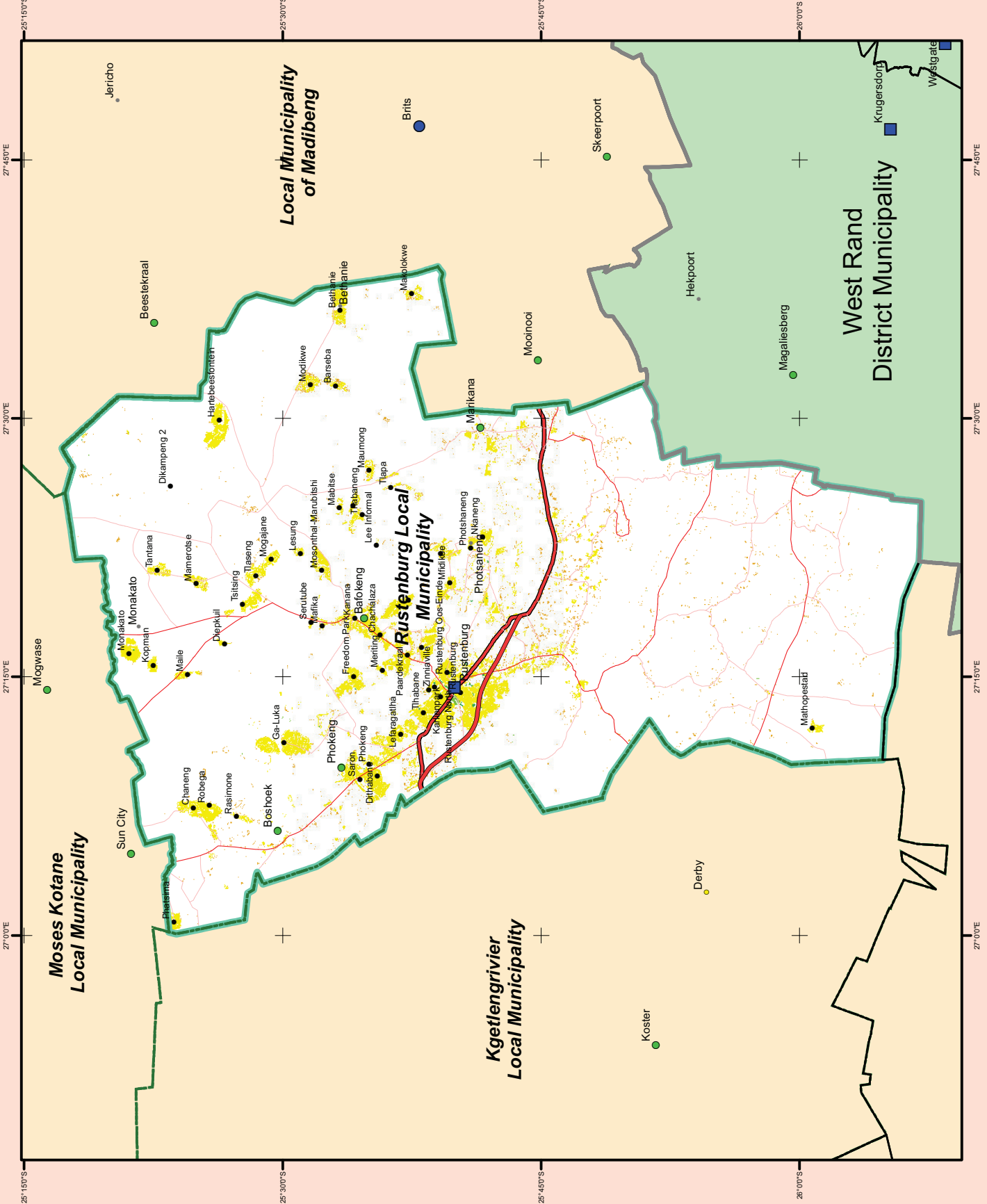
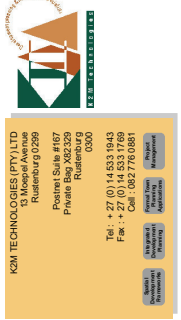


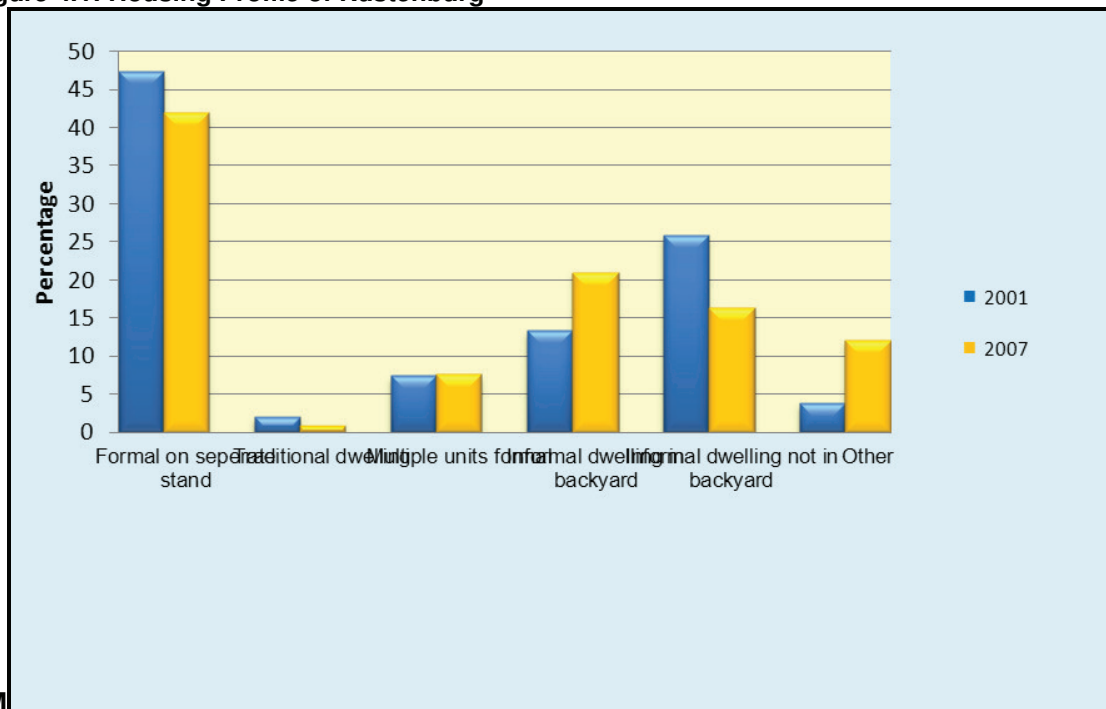
DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY



**Figure 4.1: Housing Profile of Rustenburg**

LM

Source: 1. Statistics SA, Census 2001  
 2. Statistics SA, Community Survey 2007

The Rustenburg Housing Sector Plan analysed the total overall municipal housing need, as well as the spatial disaggregation housing need per settlement cluster. The data used for this purpose is based on the information contained in the Rustenburg Housing Strategy and was updated with the results of the backlog study for Local Municipalities completed by the Bojanala Platinum District Municipality. In some clusters the estimated housing backlogs in the district backlog study was higher than the estimates contained in the Rustenburg Housing Strategy. The approach adopted in the Housing Sector Plan was to use the higher of the two estimates (aggregated to cluster level) to provide the most realistic backlog figure. The results of this process are summarized in Table 4.2. According to these figures the total backlog (which comprises informal structures in informal settlements, informal structures in backyards, traditional houses constructed of traditional materials and other informal categories) is estimated to be approximately 58 600 units. This backlog is mostly concentrated in the Boitekong/Kanana Cluster ( $\pm 14\ 000$ ), the Thekwane-Mfidikoe-Photsaneng Cluster ( $\pm 12\ 000$ ) and the Rustenburg/Thlabane cluster ( $\pm 6\ 000$ ). The potential future growth of the municipality, resulting from both natural growth, as well as immigration to the area due to its high economic growth rate will result in a additional demand for housing over the period up to 2015. The total additional demand over period is estimated to be approximately 57 000 units. This figure includes both affordable housing units to be provided through the public sector, as well as bonded houses to be provided through the

# RUSTENBURG LOCAL MUNICIPALITY

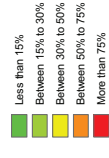
## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### HOUSING: Percentage of Households living in Informal Structures

LEGEND:

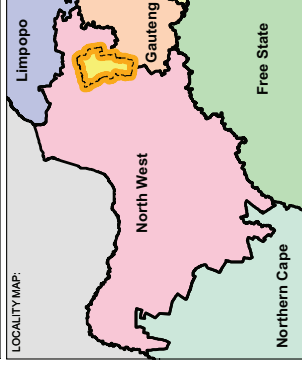


Percentage of Households living in Informal Structures



Data Source: Census 2001

LOCALITY MAP:



SCALE:



DATE: February 2010

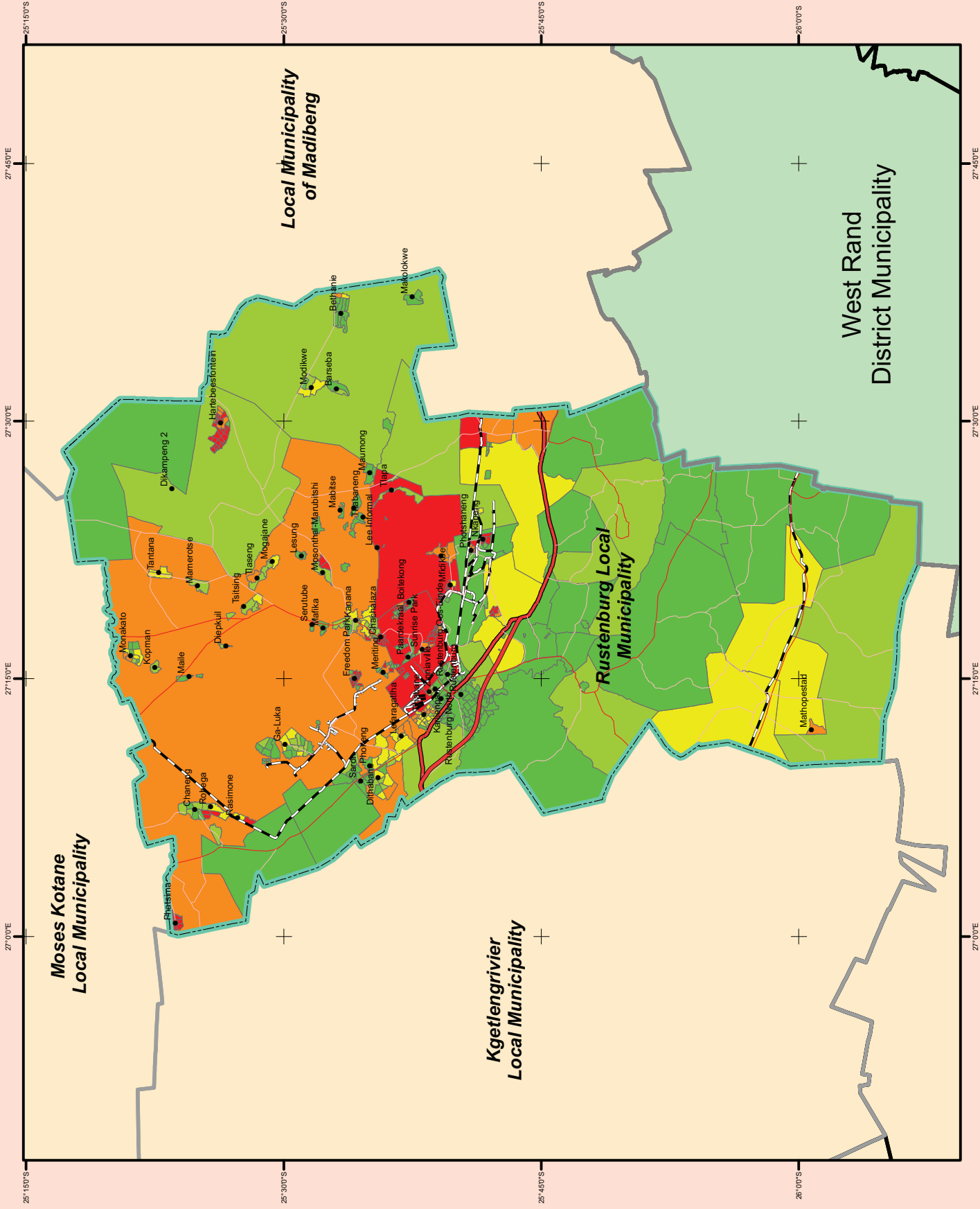
MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**KSM TECHNOLOGIES (PTY) LTD**  
 13 Mispel Avenue  
 Rustenburg 0299  
 Postnet Suite #107  
 Private Bag X52329  
 Rustenburg 0299  
 Tel: +27 (0) 14 533 0443  
 Fax: +27 (0) 14 533 1789  
 Cell: 082 776 0881

Prepared by:  
 Approved by:  
 Checked by:  
 Date:



private sector. Based on the socio-economic and affordability characteristics of the Rustenburg population, the Housing Sector Plan estimates that approximately 18% of this future demand will be provided through the private sector in the form of bonded housing and the remainder through the public sector (in the Rustenburg/Thlabane Cluster it was assumed that approximately 80% of the additional demand would be in the form of medium to high income bonded housing). It was further also assumed that approximately 75% of this potential future affordable housing demand would potentially qualify for government assistance in the form of subsidies.

**Table 4.2: Current backlog and future demand**

Settlement Clusters	Total Estimated Backlog	Total estimated future effective affordable housing demand
Rustenburg/Thlabane	6000	1843
Boitekong/Kanana	14000	14022
Phokeng	3000	1871
Hartebeesfontein	5000	1112
Thekwane-Mfidikoe-Photsaneng	12000	2886
Luka-Mogono	2000	890
Robega-Chaneng-Mafenya	2000	2007
Tlaseng-Tsitsing-Lesung	1600	689
Monnakato	600	196
Bethanie	300	238
Phatsima	1700	301
Marikana	1500	252
Modikwe Berseba	800	137
Tantanana-Mamorotse	200	79
Makolokwe	500	55
Maumong-Tlapa-Rankelenyane	700	194
Mathopestad	100	28
Maile-Kopman	400	39
Rustenburg Rural	5000	336
Hostels	1200	169
<b>Total</b>	<b>58600</b>	<b>28523</b>

*Source: Rustenburg Housing Sector Plan*

The following priority housing development aspects were identified in the latest 2009/10 IDP document:

- Provision of bulk services to the Boschoek area to unlock development potential of this area.

- A new project has been identified in the Rietvlei area. Land for development is available, owned by the RLM. Tender documents were prepared to obtain assistance from the private sector to develop the area as a turnkey project.
- Marikana area was declared as a restructuring zone in order to speed up the development in the area as well as to pave the way for additional funding in the housing program. The development of 4 400 units over the next 5 to 6 years is envisaged for the area.
- Farm land in Waterkloof, Syferfontein and Rooikoppies were purchased with the intention to provide housing in agricultural areas of previous disadvantaged communities. Town Planning processes to establish townships in those areas started and will be finalized during the 2010/2011 financial years.

Table 4.3 below lists the priority housing projects identified by the municipality for implementation over the period 2010 to 2013 (subject to the availability of funding from the Department of Housing). The total number of units to be developed within these identified projects is 14,050.

**Table 4.3: Housing projects to be implemented in the 2009/10 financial year**

Settlement Cluster	Housing Programme	Number of Units
Robega/Rasimone/Chaneng and Mafanya	Project Linked	1150
Kopman/Maile/Maile Ext/Monnakato	Project linked	1800
Nkaneng	Project Linked	1200
Phokeng	Project Linked	1000
Bobuampya/Lefaragatlha	Project Linked	300
Ikageng/Rankelenyane/Maumong/Tlapa Mabitse	Project Linked	2600
Ikemeleng	Project Linked	1300
Luka/Mogono/Mfidikoe	Project Linked	1000
Tlhabane	Community Residential Unit	600
Lethabong	Project linked/in-situ upgrading	1400
Marikana/Rooikoppies	Project linked	1000
Cyferfontein/Mathopestad	Project linked	300
Waterkloof	Project linked	400

*Source: Rustenburg LM, 2010*

### 4.3 AGRICULTURE

The distribution of agricultural activities across the municipal area is reflected on the attached thematic map. This information indicates that the majority of agricultural activities take the form of commercial dryland farming which is mainly concentrated in the extreme southern parts of the municipality. There are also notable areas of commercial agriculture in the central parts in the areas immediately north and south of the N4 between Kroondal and the eastern boundary of the municipality, as well as in the north western parts along the foothills of the Magaliesberg mountain range in the vicinity of Boschoek. Agricultural activities in the central and north eastern parts of the municipality are very limited. The occurrence of irrigated agriculture is mainly based in the extreme south eastern parts of the municipality as well as in the areas south and south west of Kroondal. The occurrence of cultivated small holdings is extensive in the central parts of the municipality south and south east of the Kroondal node.

From a climatic perspective the municipal area is marginal for dry land cultivation with the mean annual rainfall in the central and southern parts between 600mm and 800mm and between 400mm and 600mm in the northern parts, with the typical erratic rainfall distribution of the Bushveld region of Southern Africa. In addition, high evaporation rates, especially in summer, mean that any drought period in the growing season can easily lead to moisture stress for crops.

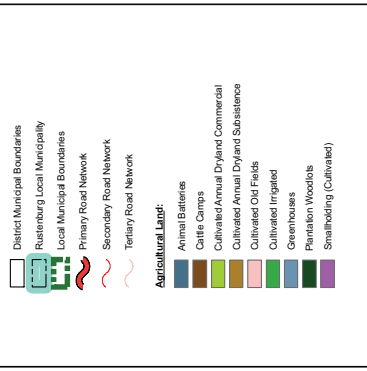
The gross farming income per product category in the Rustenburg area is depicted in Figure 4.3 below, while Figure 4.4 expresses the gross farming income of these categories as a percentage of the North West provincial total. This data indicates that the main source of income derived from agricultural products in the Rustenburg area is from animals (46.6%), field crops (25.1%) and animal products (23.9%). Within the North West provincial context, the income from animal products in the Rustenburg area is the most prominent in the north west province accounting for 22.2% of total income derived from this source within the province. In the case of animals, horticulture and field crops, the extent of production in the Rustenburg area represents 12.1%, 5.0%, and 4.8% of the provincial total respectively.

**RUSTENBURG LOCAL  
MUNICIPALITY**

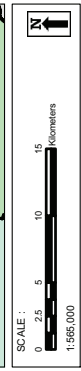
## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**LANDCOVER:**  
Agricultural Land

LEGEND:



*Data Source:*  
NW Land Cover 2006

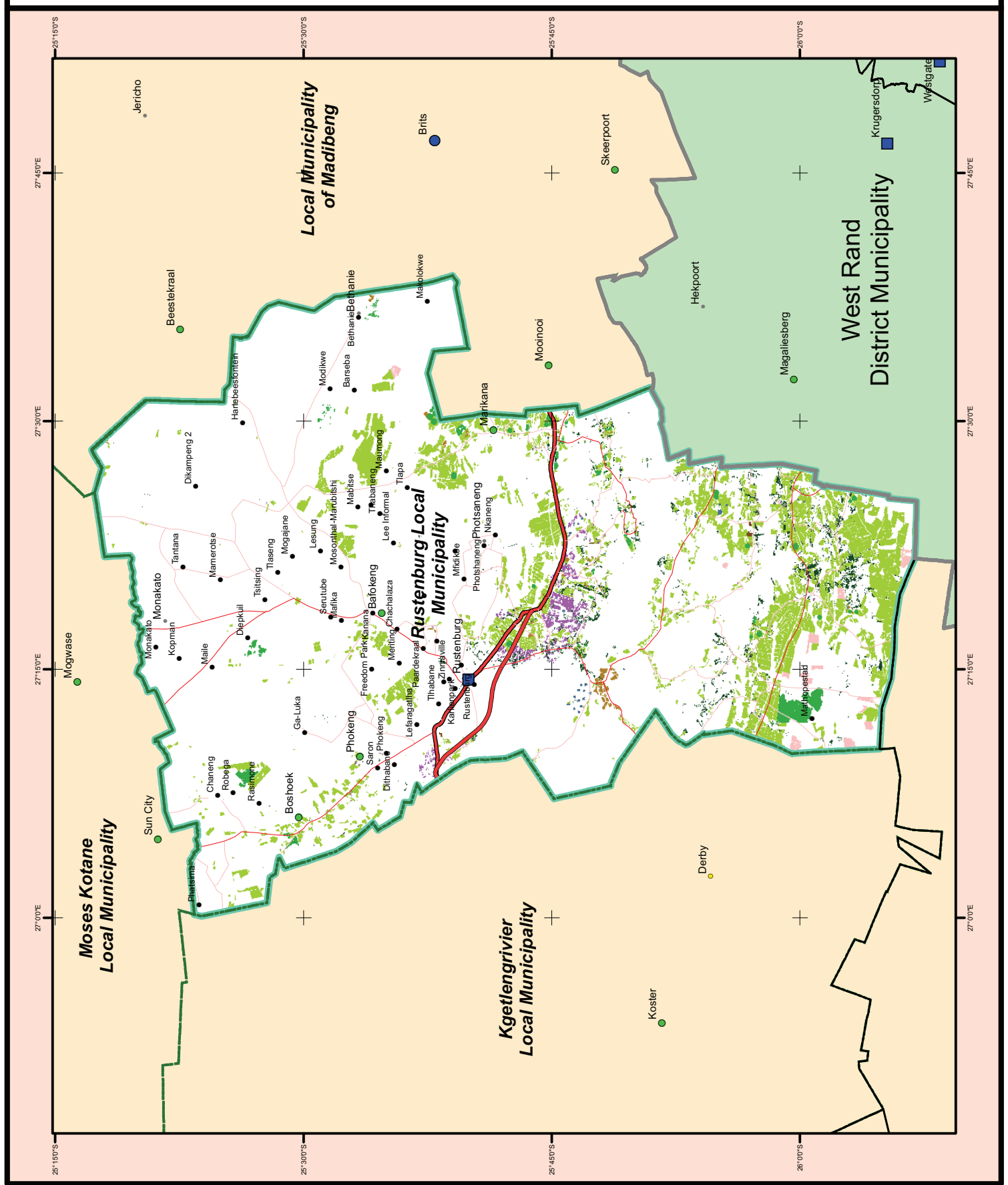
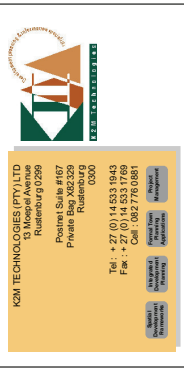


DATE: February 2010

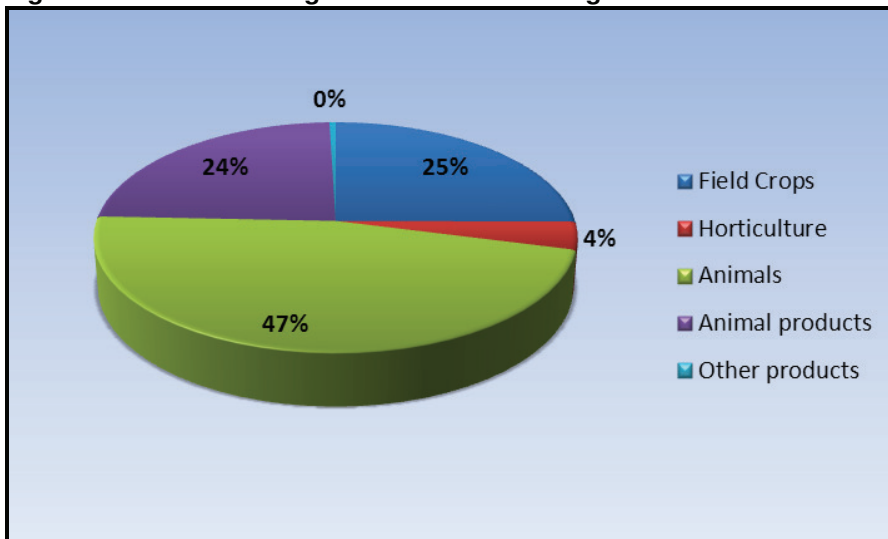
MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY:

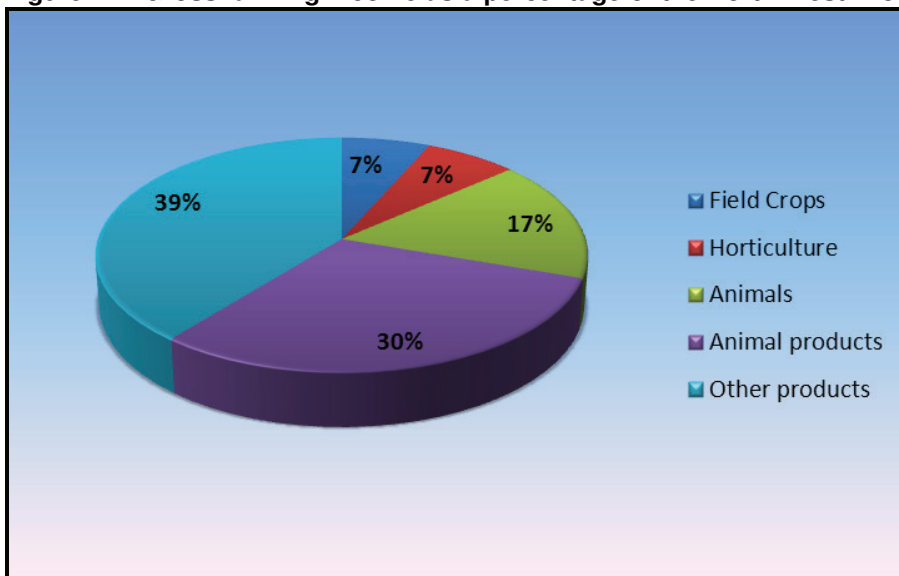


**Figure 4.3: Gross farming income in Rustenburg**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

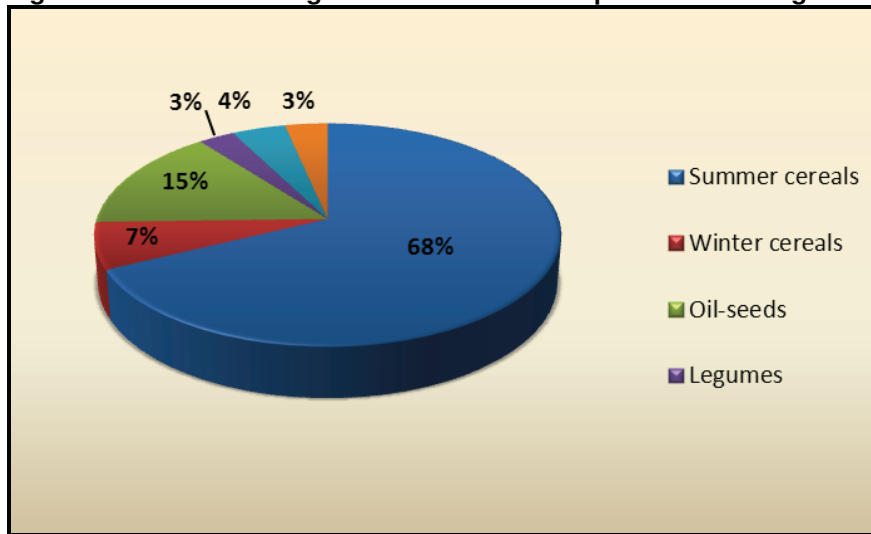
**Figure 4.4: Gross farming income as a percentage of the North West Provincial Total**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

The gross farming income derived from field crops in the Rustenburg area mainly originates from the production of summer serials (67.8%) and oil seeds such as sunflower (14.9%).

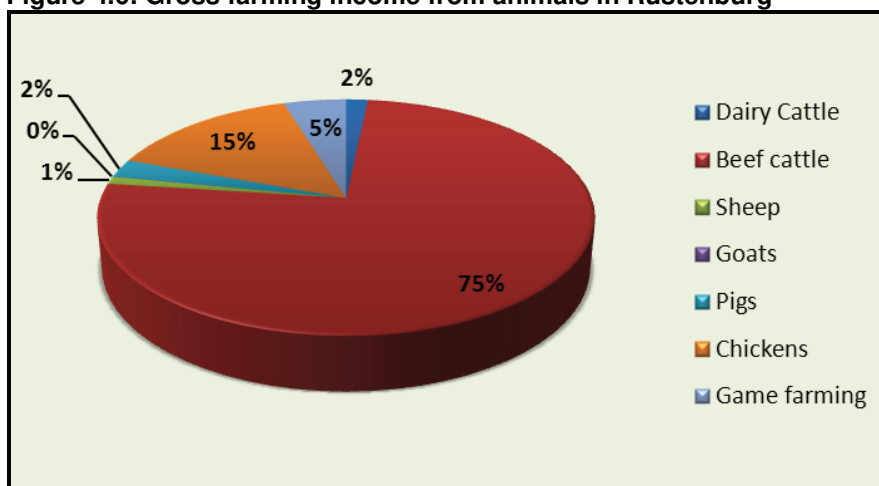
**Figure 4.5: Gross farming income from field crops in Rustenburg**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

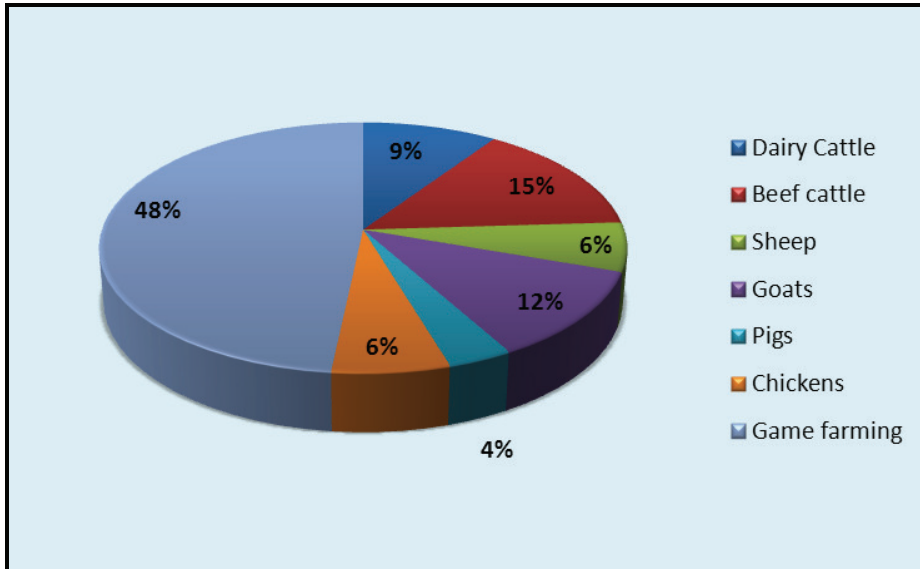
The income derived from animals in the Rustenburg area is mainly related to beef cattle (accounting for 75.4% of animal related product income) and chickens (14.6%). Despite the important contribution of beef cattle in the Rustenburg context, the total value of beef cattle products in Rustenburg only represents 15.3% of the provincial total and in the case of chickens 6.7% of the provincial total. A further notable feature is that although game farming has a relative modest value in terms of income generated, this category is particularly dominant in the Rustenburg area accounting for more than 50% of income in the North West province.

**Figure 4.6: Gross farming income from animals in Rustenburg**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

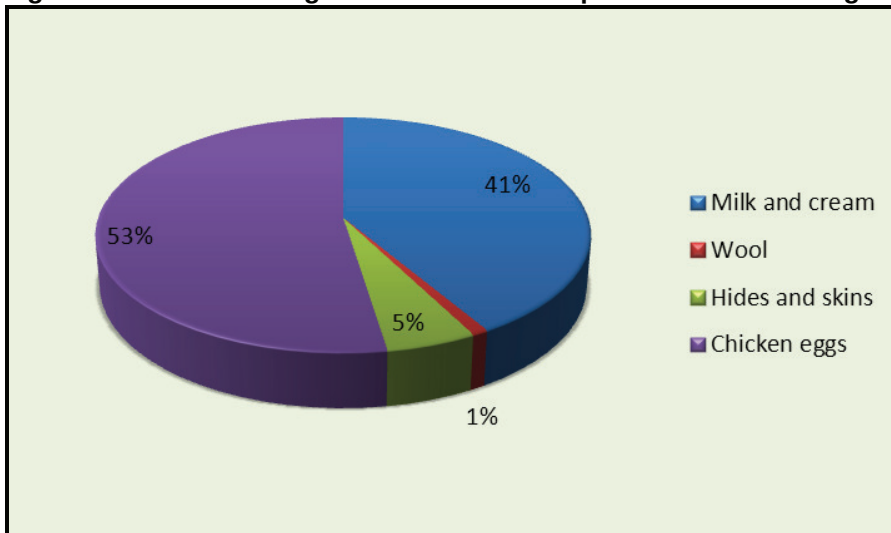
**Figure 4.7: Gross farming income from animals in Rustenburg as a percentage of the North West total**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

As indicated in Figure 4.8, the main source of income from animal products in the Rustenburg area is from chicken eggs which represent 52.5% of total income generated from this category. Despite this significant role in the Rustenburg context, this still only account for 9.5% of the total provincial income generated from chicken eggs.

**Figure 4.8: Gross farming income from animal product in Rustenburg**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

## 4.4 MINING

The economic, social and physical characteristics of Rustenburg are largely determined by the presence of mining activities within its Municipal Area. Mining activities are mainly concentrated along a geological belt, known as the Bushveld Complex.

The Rustenburg Municipal Area lies on the western edge of the Bushveld Complex. This part of the Bushveld Complex is one of the most heavily mineralized districts in the world and the platinum mines in this region are the largest producers of platinum in the world. The Merensky Reef and the UG2 chromitite layers are renowned for their Platinum Group Metal (PMG) content and together they form the world's largest depository of PGMs. Apart from chrome and platinum, other minerals mined in the region are tin, lead, marble, granite and slate. Underground mining predominates, although open cast mining exists.

The platinum-group metals (PGM) constitute a family of six chemically similar elements. They are divided according to their densities into a heavier category, comprising platinum, iridium and osmium, and a lighter group, consisting of palladium, rhodium and ruthenium. Their excellent catalytic qualities, resistance to corrosion, chemical inertness and high melting points render them most suitable for a number of specialist applications.

Platinum is a precious metal and an industrial metal. The main use for platinum, however, is in autocatalysts, jewelry and for industrial purposes. Supply of platinum is dominated by South Africa, which supplies approximately 77% of world supply. Other producing countries are Russia the USA and Canada, Zimbabwe and Australia.

Rustenburg Platinum Mines (RPM), which belongs to the Anglo American Platinum Corporation Limited (Anglo Platinum), is the largest single producer, and operates three geographically separate sections: Rustenburg, Union and Amandelbult Sections, all on the western limb. The other mines on the western limb are Impala Platinum Holdings Limited's Impala Platinum and Crocodile River (through Barplats Investments Limited) mines; Lonmin Platinum's Eastern Platinum, Western Platinum and Karee mines; Northam Platinum Limited's Northam Mine, and Aquarius Platinum's Kroondal and Marikana mines

Figure 4.9: Production and sales of platinum group metals

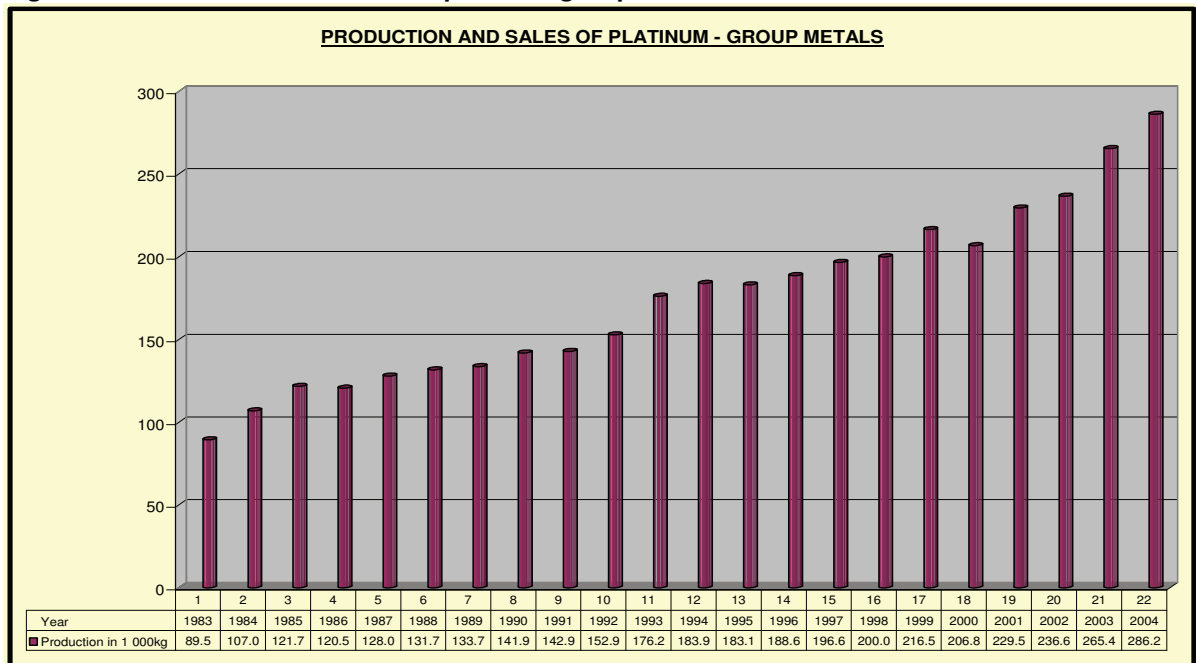
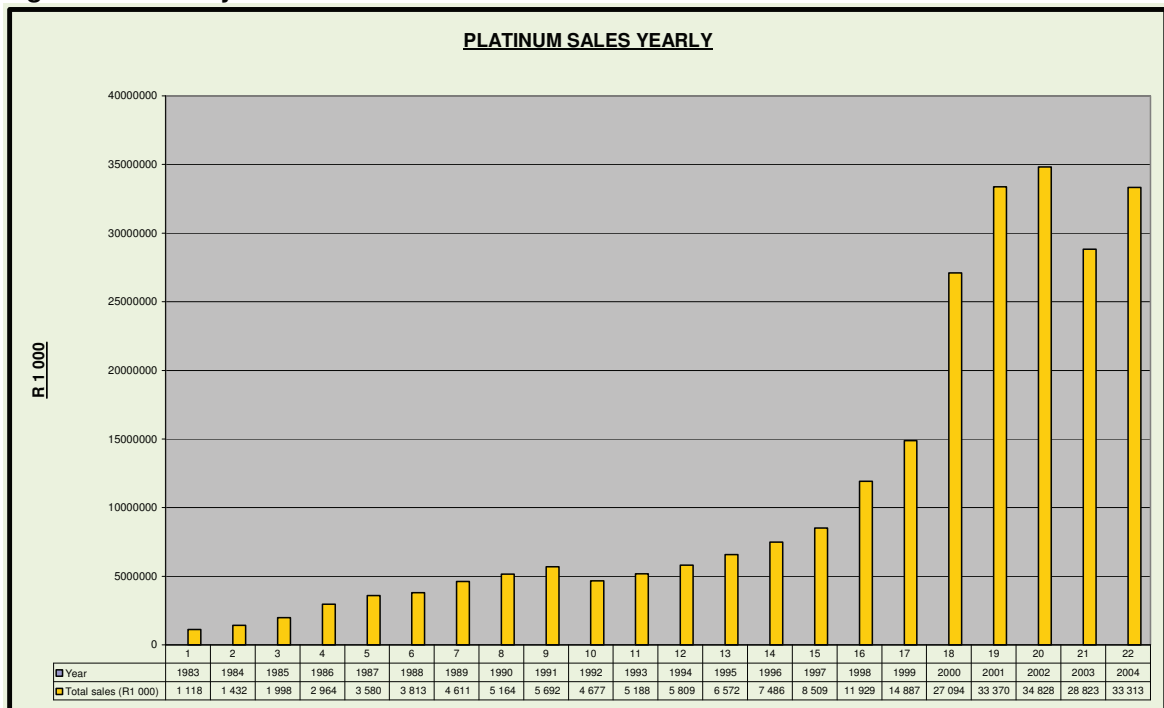


Figure 4.10: Yearly Platinum sales



According to the municipal IDP (2009/10) the projected lifespan of operations along the Merensky reef is 61 years and the UG2 reef 51 years. Mining operations within the Rustenburg Municipal Area is dominated by three mining companies. These are Impala Platinum, largely operating on Bafokeng tribal land through concessions; Anglo Platinum, operating northeast of Rustenburg; and Lonmin Platinum, operating west of Thekwane. The areas where these mines have ownership or mining lease rights are depicted on the attached thematic map.

**a. *Impala Platinum***

Impala Platinum (Implats) has its primary operations concentrated on the Impala lease area near Rustenburg. The mine's smelting operations (Minpro) are also located on the lease area, while the refineries are located in Springs, east of Johannesburg.

Mining at Impala focuses primarily on two reefs, the Merensky Reef and the UG2 chromitite layer. The majority of mining operations extend to a depth of around 1000m below surface. Mining operations consist of 13 operational shafts. Impala currently mines around 15 million tons of ore annually, yielding 1.9 million ounces of PGMs, including over 1 million ounces of platinum. Impala is able to maintain production levels at a minimum of 1 million ounces of platinum for the next 30 years. Some 28000 people are employed by Impala Platinum.

Impala holds mining leases covering more than 27000 hectares. Mineral rights within the lease area are owned by the Royal Bafokeng Nation, to whom royalties are paid. An agreement, which secures Impala's access to these mineral rights for the next 40 years, was signed with the Royal Bafokeng Nation in 1999. In terms of the agreement, the Royal Bafokeng Nation not only receives royalties for the mineral rights, but has also become a major shareholder in the company with board membership by a representative of the Royal Bafokeng Nation.

**b. *Anglo Platinum***

The Rustenburg section of Anglo Platinum consists of three separate mining units: the West Mine comprising Frank, Townlands, and Paardekraal shafts; the East Mine comprising Turffontein, Bleskop, and Brakspruit shafts; and the Waterval Mine.

The geological source of Anglo Platinum's current production is the Bushveld Complex. Since mining first began in the 1920s, the uppermost of the two PMG bearing layers of the Bushveld Complex, the Merensky Reef, has been the most important PGM source for Anglo Platinum.

The second PGM-bearing layer, the UG2 chromitite layer, has become an important alternative source of PGMs in recent years. Mining of the Merensky Reef is steadily being replaced with the mining of the UG2 layer. This is mainly due to a decrease in available Merensky Reef reserves. Other base metals present in the UG2 are not significant but are recovered by Anglo Platinum.

Anglo Platinum holds mineral rights throughout the Bushveld Complex under various titles. These are being exploited on a fully operational basis at the Rustenburg, Amandelbult, and Union sections (latter 2 located north of Municipal Area), covering a total of 39000ha. Anglo Platinum is developing a mine on the farm Boschkoppie 104JQ that covers a total area of 3362ha.

**c. *Lonmin Platinum***

Lonmin Platinum operates 3 mines located in the Marikana district to the east of Rustenburg. These are the Western Platinum Mine, Karee Mine and Eastern Platinum Mine. The Karee Mine is situated entirely within the Rustenburg Municipal Area on the farms Zwartkoppies 296JQ and Rooikoppies 297JQ. Only part of the Eastern Platinum Mine is located within the Rustenburg Municipal Area on the farm Wonderkoppies 400JQ. The remainder of Eastern Platinum Mine, as well as the Western Platinum Mine is located within the Municipal Area of Madibeng.

The Merensky and UG2 platinum-bearing reefs are mined simultaneously in the Lonmin lease area covering of some 27km at an average depth of 360m. Lonmin mines produce 11 million tons of ore a year, producing over 750,000 ounces of platinum. Nickel, copper and other PGMs are also recovered. Underground mining predominates, although open cast mining has been undertaken at all three mines. Base metals are produced at the on-site Base Metals Refinery (BMR) and precious metals are sent to Brakpan for refining.

The mines that operate within the Rustenburg Municipal Area impact upon the spatial structure of the region and, in particular, the urban structure of the Municipal Area. This impact is both positive and negative. On the one hand, mining in the area has spawned urban development and has contributed significantly to the fact that Rustenburg is one of the fastest growing municipalities in the country. Many towns and settlements located within the Municipal Area are testament to this. Towns like Marikana and Wonderkoppies are associated with the development on the Lonmin mines, Mfidikwe, Thekwane and Photsaneng are associated with the development of the Anglo Platinum mines and Luka and Robega are associated with the development of the Impala Platinum mines.

**RUSTENBURG LOCAL  
MUNICIPALITY**

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**LANDCOVER:**  
Mining Activities

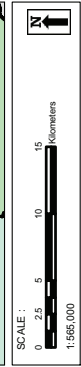
LEGEND :

- 
- Legend:
- District Municipal Boundaries
  - Rustenburg Local Municipality
  - Local Municipal Boundaries
  - Primary Road Network
  - Secondary Road Network
  - Tertiary Road Network
  - Mining Activities
  - Mines Extraction & Tailings
  - Mines Sub-Surface & Infrastructure

*Data Source:*  
NW Land Cover 2006

LOCALITY MAP:

The map shows the North West province of South Africa in pink. Surrounding provinces are Limpopo (blue), Gauteng (orange), Free State (green), and Northern Cape (grey). A yellow shaded area in the northern part of North West province indicates the study area.



DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

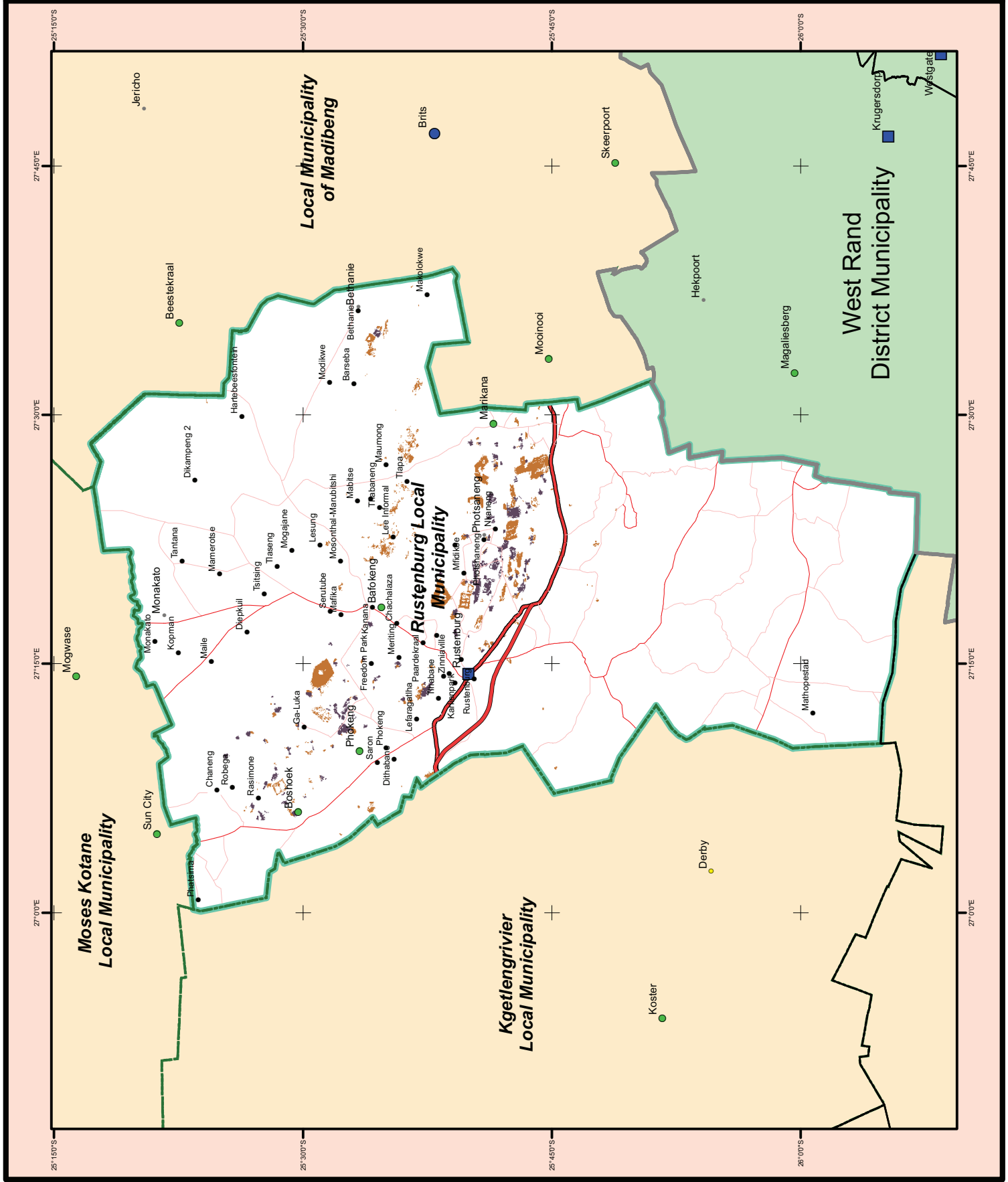
[illegible]

**K2M TECHNOLOGIES (PTY) LTD**  
13 Moepel Avenue  
Rustenburg 0299

Postnet Suite #167  
Private Bag X82 329  
Rustenburg  
0300

Tel: + 27 (0) 14 533 1943  
Fax: + 27 (0) 14 533 1769  
Cell: 082 776 0881

Management



On the other hand, mining has subjected the spatial development of the Rustenburg Municipal Area to a severe constraint in the form of a belt of extensive mining activity that traverses through the Municipal Area from southeast to northwest. This belt forms a barrier consisting of mining infrastructure and operational activities between Rustenburg town and the settlements located north of the mining belt.

In addition to the above, various mining and mining lease rights that stretch along the mining belt affect urban development within the Municipal Area. What makes this particularly restrictive is the fact that the mining is located in the close proximity to Rustenburg and therefore limits the alternatives available for the expansion of the town..

## 4.5 OPEN SPACE AND PROTECTED AREAS

The natural landscape of Rustenburg is primarily defined by its mountain ranges and water sources which comprises the prominent topographic features in the Municipal Area. Certain regions within the Rustenburg Municipal Area are protected by environmental legislation.

- ***Kgaswane Game Reserve***

Located south-west of Rustenburg, this 4000 hectare reserve is located against the northern slopes of the Magaliesberg. A unique feature of this reserve is an extensive valley basin which lies between the ridges of the Magaliesberg. To the west of this basin lies a large plateau. The plateau and the basin form a catchment area that drains into ravines, most of which have water for at least part of the year. The Magaliesberg ridges are characterized by giant quartzite boulders and rocky mountain slopes.

- ***Vaalkop Dam Nature Reserve***

The Vaalkop Dam Nature Reserve lies near Beestekraal, northeast of Rustenburg. An 800ha section of the reserve has been set aside as a bird sanctuary, which is not open to the general public. The reserve hosts over 340 species of birds. In addition, the reserve is stocked with a variety of bushveld game species and the dam is stocked with many fish species. A section of the dam has been set aside for water sports.

- **Magaliesburg Protected Environment**

The boundaries of the Magaliesberg Protected Environment are depicted on the attached map. Although not a formal proclaimed nature reserve it is protected in terms of a previous Administrators notice, as well as the recently completed Environmental Management Framework for the Magaliesberg Protected Environment.

## 4.6 TOURISM

The main local tourism attractions the region has to offer, are closely linked to the comparative advantages the area has to offer with regard to its natural assets, the occurrence of many heritage sites relating to iron/stone age, Anglo-boer history and indigenous tribes such as the Tswana and Ndebele, and the variety of minerals and mining activities found in the area. The main local tourism attractions is summarized in Table 4.4 below.

Most of the tourism and accommodation establishments are located in the immediate Rustenburg area (71%) with the remainder being in the Buffelspoort/ Mooinooi/ Maanhaarrand area (16%), at Vaalkop dam (5%), at Boshhoek (4%) or near Magaliesburg (4%).

**Table 4.4: Tourism Accommodation Product Summary for Rustenburg Municipal Area (2006)**

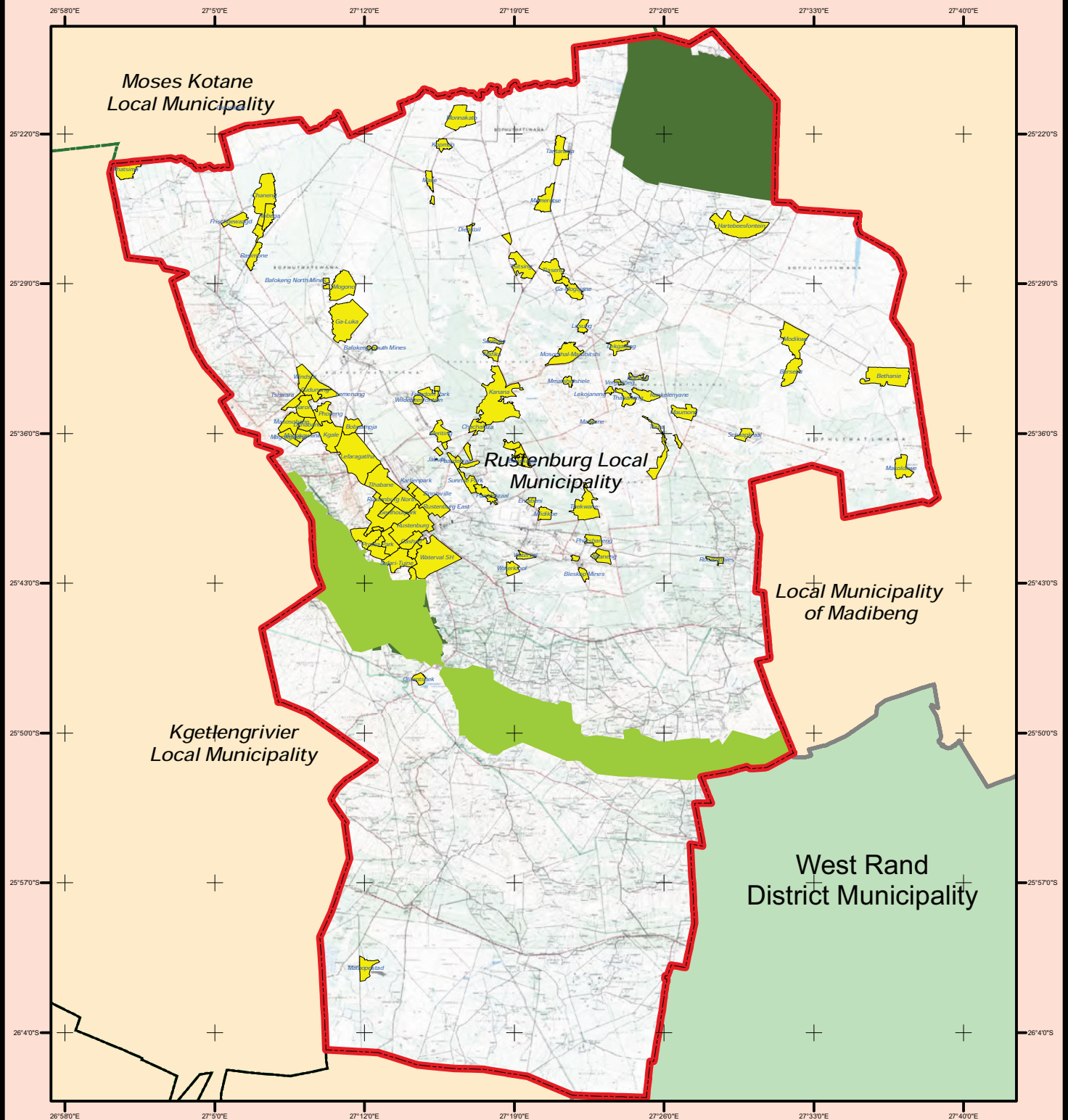
Area	Hotels / Resorts	Self catering	Guest Houses	B&B's	Lodges
Rustenburg, Kroondal, Olifantsnek	10	9	26	21	3
Buffelspoort, Mooinooi, Maanhaarrand	3	5	1		5
Vaalkop Dam	1	1	2	1	
Boshhoek		3			1
Magaliesburg					
<b>TOTAL</b>	<b>14</b>	<b>19</b>	<b>29</b>	<b>22</b>	<b>9</b>

*Source: Spatial Tourism Plan for Rustenburg Municipal Area (2006)*

Tourism plays an increasingly important role within the Rustenburg Municipal Area. The typical Bushveld climate and vegetation of the Municipal Area, as well as the unique topography of the Magaliesberg, offer several opportunities for tourism. These include opportunities for eco-tourism, as well as tourism associated with the variety of historical and cultural interests found within the Municipal Area. Primary tourism areas and facilities located within the Municipal Area are as follows:

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - PROTECTED AREAS -



### LEGEND:

- Rustenburg Local Municipality
- Magaliesberg Protected Environment
- Vaalkopdam Nature Reserve
- Settlements

\* Proposals informed by:  
1. Demarcation Board  
2. Rustenburg SDF

SCALE : 1:475,000  
0 2.5 5 Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Moesep Avenue  
Rustenburg 0269

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks
Integrated Development Planning
Formal Town Planning Applications
Project Management

**a. Rustenburg Town**

Rustenburg is the third oldest town of the old Transvaal Province and has, as a result, numerous places of historic interest and importance. Attractions include the Anglican Church (1871); the Dutch Reformed Church (1898 -1903); and Paul Bodenstein Park.

**b. Kgaswane Game Reserve**

As described above.

**c. Vaalkop Dam Nature Reserve**

As described above.

**d. Kroondal**

Kroondal was founded as a Lutheran mission station on the farm Kroondal in 1885. The largely German-speaking town has a distinctly Teutonic architecture and cultural atmosphere. Tourist attractions include a Lutheran Church (a national monument built in 1896 and restored between 1979 and 1982) and the Tobacco and Cotton Research Institute.

**e. Bafokeng Sport Palace**

The Bafokeng Sports Palace was constructed in 1999 and is located 12km from the Rustenburg city centre. The spectator capacity of this sports stadium is roughly 40000. It has a field that can accommodate athletics, soccer and rugby, as well as the full range of support facilities for television, radio and press reporting. A swimming pool complex and tennis and netball facilities also form part of this facility. The Bafokeng Sports Palace was also a designated venue for the 2010 FIFA World Cup Soccer tournament.

**f. Buffelspoort Dam**

The area surrounding the Buffelspoort Dam is a significant tourism node located within the Municipal Area.

Despite the abovementioned tourist attractions, the prominent, regional tourist destination are not located within the Rustenburg Municipal Area itself, but on its borders. The broader region has some of the finest game parks, cultural and archaeological sites and entertainment resorts in South Africa. Rustenburg is ideally situated as a gateway to many of these regional tourist destinations. The most significant of these regional tourist destinations are:

**a. *Pilanesberg National Park***

The Pilanesberg Game Reserve located just one and a half hours drive from Johannesburg and Pretoria, is most probably the most accessible of all the major South African game reserves. This reserve, which is the fourth largest national park in South Africa, is set within the Pilanesberg mountain range, providing a number of different habitats for the parks fauna and flora. The Pilanesberg National Park conserves all the major mammal species, including lion, leopard, elephant, rhino and buffalo. The Mankwe Dam situated in the centre of the reserve is a gathering point for many of the park's animals and bird life.

**b. *Madikwe Game Reserve***

North of the Pilanesberg lies the Madikwe Game Reserve, a 75000ha conservancy and a transition zone between the Kalahari sandveld and thornveld biospheres. The Madikwe Game Reserve hosts all the major animal species, including the 'big five', and has the second largest concentration of elephants in South Africa.

**c. *Sun City and Lost City Resort***

The Sun City and Lost City Resort is a prime tourist attraction in South Africa. This complex is set in a valley between the peaks of the Pilanesberg. It has world-class recreational facilities, including a casino and entertainment centre, a water park, two world renowned championship golf courses and four top class hotels.

**d. *Cradle of Humankind***

The Cradle of Humankind is a World Heritage Site, preserving in its dolomitic extrusions the remains of world-famous pre-historic humans. The Cradle of Humankind is not only of importance and interest locally, but even more so internationally. This region will in future draw more-and-more international tourists and visitors and could, in conjunction with the Platinum SDI, become a valuable tourism asset neighbouring the Rustenburg Municipal Area.

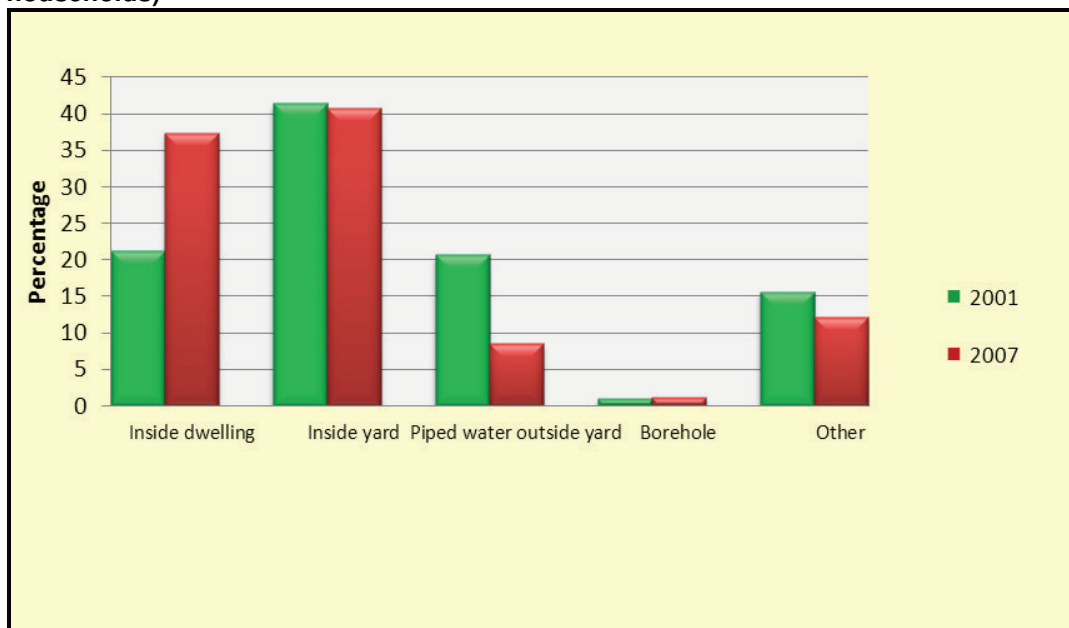
## 5 MUNICIPAL INFRASTRUCTURE

### 5.1 WATER SUPPLY AND SOURCES

#### 5.1.1 Availability of basic infrastructure

The information depicted in Figure 5.1 clearly illustrates the progress that have been made with the provision of basic water infrastructure to households in the Rustenburg LM. The proportion of households receiving piped water inside their dwellings increased from 21.3% in 2001 to 37.4% by 2007. Conversely, the percentage of households receiving piped water outside their yards decreased from 20.7% to 8.5% and those from other untreated sources of water from 15.6% to 12.1%.

**Figure 5.1: Access to water infrastructure in Rustenburg LM (% households)**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

If the categories “piped water outside yard”, “borehole”, and “other” are assumed as representing the backlog, it would imply an estimated backlog of approximately 32000 households in 2007. The latest DWAF Reference Framework estimates (2007) is regarded in the Draft Rustenburg Water Services

Development Plan (Revision 3) as the most accurate estimate with a figure of 29 365 households. This figure also closely resembles the estimated 32 000 households of the 2007 Community Survey.

### 5.1.2 Water sources

The Rustenburg Local Municipality is supplied with surface water from the Elands and Crocodile rivers via the Vaalkop dam and the Hex River from the Bospoort Dam. It also receives water from Vaal Dam via the Rand Water System.

The Vaalkop Dam supplies a significant portion of the RLM area. This dam is mainly fed by the Crocodile and Elands river system. These river systems form part of the Crocodile catchment that comprises of the Upper Crocodile, Elands River, Pienaars River and the Lower Crocodile sub systems.

Bospoort Dam is fed by the Hex River that flows from the Olifantsnek Dam in the south and is in turn fed by Waterkloofspruit and Rooikloofspruit tributaries.

From a hydrological point of view, the Rustenburg Local Municipality area comprises the following river and stream courses:

- Waterkloofspruit
- Waterfallspruit
- Dorpspruit
- Tributary of the Legadigadi Spruit
- Hex River
- Rooikloofspruit
- Sterkspruit

The area generally drains in a north-easterly direction, forming part of the Crocodile Catchment and comprises three sub-drainage systems. The first comprises the Elands River, which flows from west to east into the Vaalkop Dam. A number of tributaries run from south to north into the Elands River, including the Hex River and its tributaries (the second sub-drainage system). The Hex River, flows to the Bospoort Dam and continues to drain into the Vaalkop Dam downstream. The Sterkstroom runs from south to north, parallel along the eastern boundary of the study area and becomes the Crocodile River just outside the study area. In many instances, towns and villages developed close to natural drainage systems.

The largest river in the area is the Hex River. Both the Waterkloofspruit and the Waterfallspruit are tributaries of the Hex River that originates from the catchment of the Kgaswane Mountain Reserve. The Dorpspruit also originate from the Kgaswane Mountain Reserve but bisects Rustenburg town before it drains into the Hex River further north of the town. The Waterfallspruit traverses areas that are rapidly being developed for the purpose of residential development. Several illegal land uses occur within the sub-catchment of these streams and may have contributed to the decline in the water quality of the Hex River. Tributaries of the Dorpspruit similarly originate from the Kgaswane Mountain Reserve. These tributaries bypass several development areas that have apparently contributed to a decline in the water quality (i.e. at the Rustenburg Kloof). This impact has apparently resulted due to sewage overflows. Furthermore, analysis of the monthly rainfall and monthly rate of flow of the Waterkloofspruit shows a weak correlation between the two, indicating that rainfall is quickly absorbed by the highly permeable quartzite's of the mountain. This base flow is maintained however by the releasing of the water slowly over time.

Dams in the area include the Olifantsnek Dam. This is an irrigation dam and is associated with a furrow system downstream and north of the dam. The Olifantsnek dam lies in the Hex River drainage catchment and is fed by the Rooikloofspruit, Sterkstroom Spruit and Hex River in the south. The Olifantsnek Dam was completed in 1929 and has a catchment area of 492 km<sup>2</sup>. The Olifantsnek Dam has a storage capacity of 13.6 x 10<sup>6</sup> m<sup>3</sup> water. The Olifantsnek Dam, is committed to irrigation. The dam is also notoriously unreliable and its high assurance yield (99.5%) is so low that it will be counterproductive for Rustenburg to try and develop a water purification plant to serve its needs.

The Olifanstnek Dam is privately owned by the Olifantsnek Water Board and utilized to irrigate small citrus orchards and support small scale angling activities. The basin of this impoundment is fairly shallow, having a maximum depth of 13.6 m and a mean depth of 5.5m. On the basis of Medium-term hydrological data (1968 – 1978), the system has a low retention time, which means that it is flushed approximately 2.5 times per annum.

Flooding of the dam usually occurs in summer whereas in winter the status quo remains, except under condition of extreme drought. The quality of the inflowing water is typical of unpolluted water in this area.

The Olifantsnek Dam drains into the Bospoort dam in the north. The Bospoort Dam finally drains into the Vaalkop Dam approximately 45km north east of Rustenburg. Both of these dams provide potable water to Rustenburg and surrounds.

Rustenburg has one water purification works of significance, namely the Bospoort Water Purification Works. This has been recently upgraded as part of the Rustenburg Water and Sewerage Project and has been operated through the Rustenburg Water Services Trust by Magalies Water. The plant is designed to treat 12 MI/day and can be expanded to 18 MI/day provided sufficient raw water is available.

The issue of raw water availability is subject to the quantity of sewage effluent that will be used consumptively by the mines. At present the inflow to Bospoort Dam is approximately 5 MI/day natural inflow and the remainder is sewage from the two sewage purification works within the catchment. It is possible that all the flow from Rustenburg Sewage Purification Works will in future be utilized by the mines and that will effectively reduce the inflow to the dam by 25 – 30 MI/day. The flow from the Boitekong Sewage Purification Works ( $\pm 9$ MI/day) will, at this stage, continue to flow to the dam.

According to the Water Services Development Plan, the possibility to extend Bospoort Water Purification Works beyond 18 MI/d appears to be remote and the conclusion reached is if it is taken into account that the total water demand within Rustenburg Local Municipality is in excess of 90 MI/d, it is patently clear that a heavy dependency will continue on external water services providers such as Rand Water and Magalies Water. The local resources are now optimally utilized and will not have any significant contribution to make in the future. Only the organic growth in treated sewage effluent can in future further reduces the consumption by the mines.

The only other option is to transfer additional industrial grade water from Hartbeespoort Dam to Bospoort WTW and to purify it further for domestic purposes.

There is thus no possibility to extend water purification of own sources within Rustenburg to any significant degree and the only other potential source of raw water, the Olifantsnek Dam, is committed to irrigation. The dam is also unreliable and its high assurance yield (99.5%) is so low that it will be counterproductive for Rustenburg to try and develop a water purification plant to serve its needs. This does not preclude the possibility to install small scale package plants to serve local resorts around the dam.

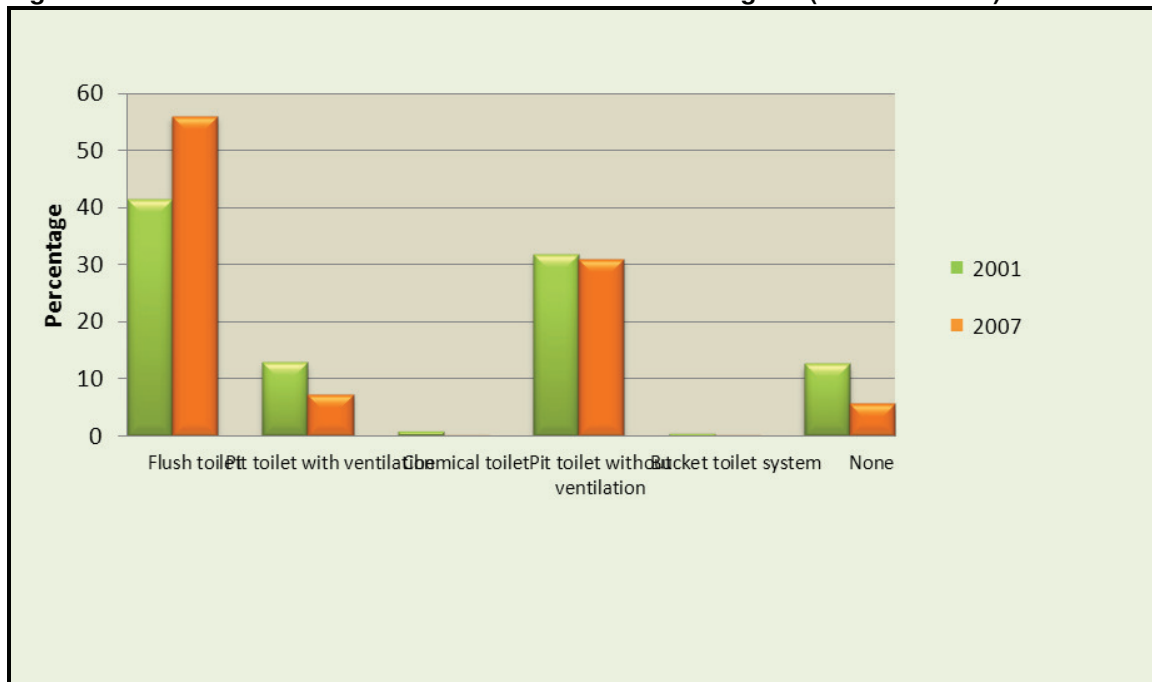
Additional water will have to be imported by one of the following ways:

- Rand Water through an augmented and extended Barnardsvlei system.
- Magalies Water through an augmented and extended Vaalkop system.
- Additional raw water from Hartbeespoort Dam for purification at Bospoort or another new plant

## 5.2 SANITATION

The availability of basic sanitation infrastructure to households in the study area is depicted in Figure 5.2. This information indicates that the proportion of households with in-house access to a flush toilet increased from 41.5% in 2001 to as much as 56% by 2007. A further notable feature is that the proportion of households with no form of sanitation infrastructure decreased substantially from 12.6% to 5.6%. Despite the significant progress that have been made, large challenges still remain with more than 45 000 households reliant on pit latrines without ventilation and more than 8 000 without access to any sanitation infrastructure, implying an estimated backlog of approximately 53 000 households. The latest DWAF reference Framework estimates (2007) as quoted in the draft Water Services Development Plan puts the backlog figure at a more conservative 40 994 households.

**Figure 5.2: Access to sanitation infrastructure in Rustenburg LM (% households)**



Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

The draft Rustenburg WSDP (revision 3) identified the three most feasible sanitation options in terms of monetary value to address the sanitation backlog over a 20 year period are as the following:

- VIP (Ventilated Improved Pit)
- The solids free sewer system (Small borne system)
- Waterborne – the shallow sewerage system

The advantaged and disadvantages of these three options as described in the draft WSDP is summarized below.

**(i) VIP sanitation**

VIP's are widely used internationally and in rural and peri-urban areas of South Africa. These systems are most successful in water scarce environments such as this focus area. Failures of VIP's are generally due to inadequate user education and poor construction. Generally the system has been found to be robust, not prone to negative impacts due to the failure of other services, and widely affordable. Minor adaptations can also be made where shallow rock or shallow water tables occur. The impact to the environment is regarded as varying between medium to low. The health risk of the VIP system is described as medium to low.

The placement of the VIP is critical to prevent ingress of storm water to the pit and to prevent the contamination of local groundwater. The VIP system cannot accept domestic wastewater or be placed inside a house. Additional land is also required for future VIP facilities as the VIP needs to be replaced approx every 4-15 years.

The O&M institutional support tasks for VIP's include the following:

- Management and supervision arrangements for mechanical pit emptying, sludge transfer, treatment and disposal
- Plant, equipment and vehicle O&M.

Geotechnical suitability also largely influences the suitability of VIP's and clay soils in Rustenburg is a major concern in this regard.

**(ii) Small bore free sewer Sanitation systems**

This option is described as the second most feasible over a period of 20 years. Although the system's water requirements may be less than those of a septic tank and a soak away, a household water connection is needed for this system. The small bore solid free sewer system is not widely used in South Africa, except where existing tank and soak away systems have been converted for convenience and environmental reasons.

Failures in this system are usually as a result of poor design and construction, and the use of inappropriate cleansing material. Problems also occur due to lack of maintenance of the pipe work. Research has shown that the small bore solid free system has a low impact on the

environment. The system also has a lower health risk and impact on the environment as the VIP systems.

The O&M and institutional support tasks for this sanitation option include the following:

- Sewer pipelines and treatment plants/oxidation ponds
- Mechanical emptying of the digester
- Sludge transfer, treatment and disposal plant, equipment and vehicle O&M
- Ideally a Cost recovery system needs to be in place
- User education
- Health and hygiene promotion

### **(iii) The Conventional waterborne system with shallow sewerage**

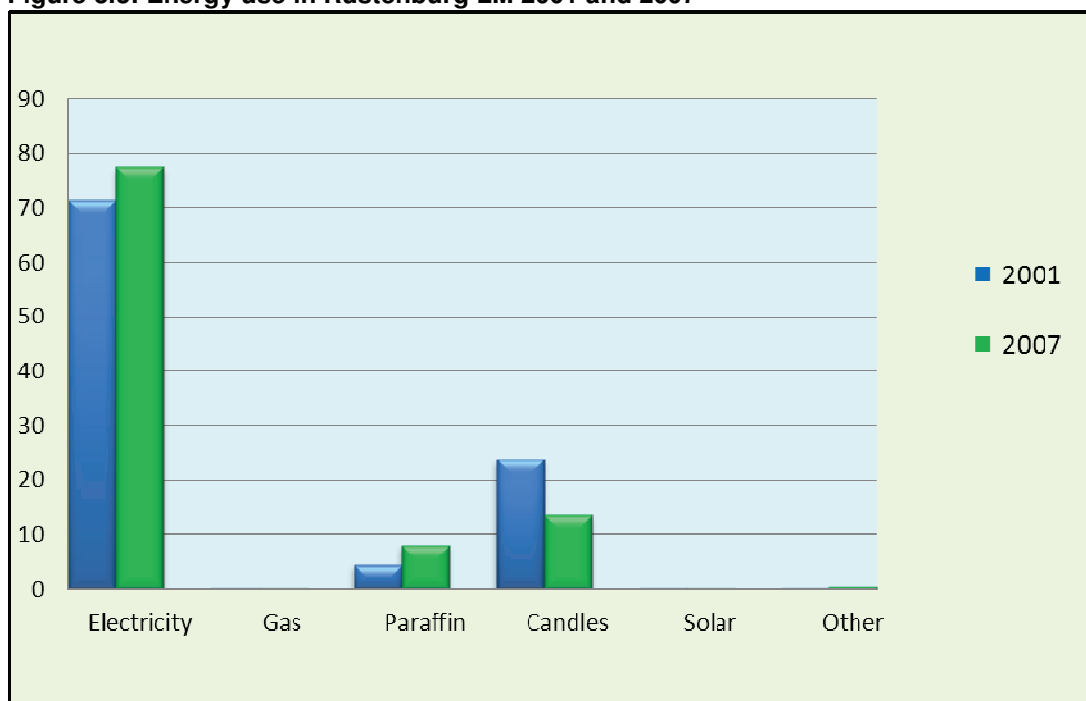
This sanitation option has not been used widely in South Africa. It is however used, with reported success, under a wide range of conditions in a number of South American countries, Ghana, Pakistan and Greece. Pilot projects have been completed in Gauteng, Durban and the Free State, with ongoing monitoring to determine overall success and sustainability. These indicate a saving of up to 50% over conventional sewerage capital costs. This sanitation option requires a reliable and uninterrupted household connection, with high levels of connection into a sewerage system. The sewer lines can however be laid out in less formal or spatially regular settlement pattern. Less stringent design criteria may be applied, but organised and effective operation and maintenance capacity is required. This can be delegated to residents for the on-site portion of the sewers. Significant user education and acceptance of shared management of the system is critical. Skilled, organised and effective operation and maintenance capability is required for the functioning of waste water treatment facilities.

## **5.3 ELECTRICITY SUPPLY**

### **5.3.1 Consumer Profile**

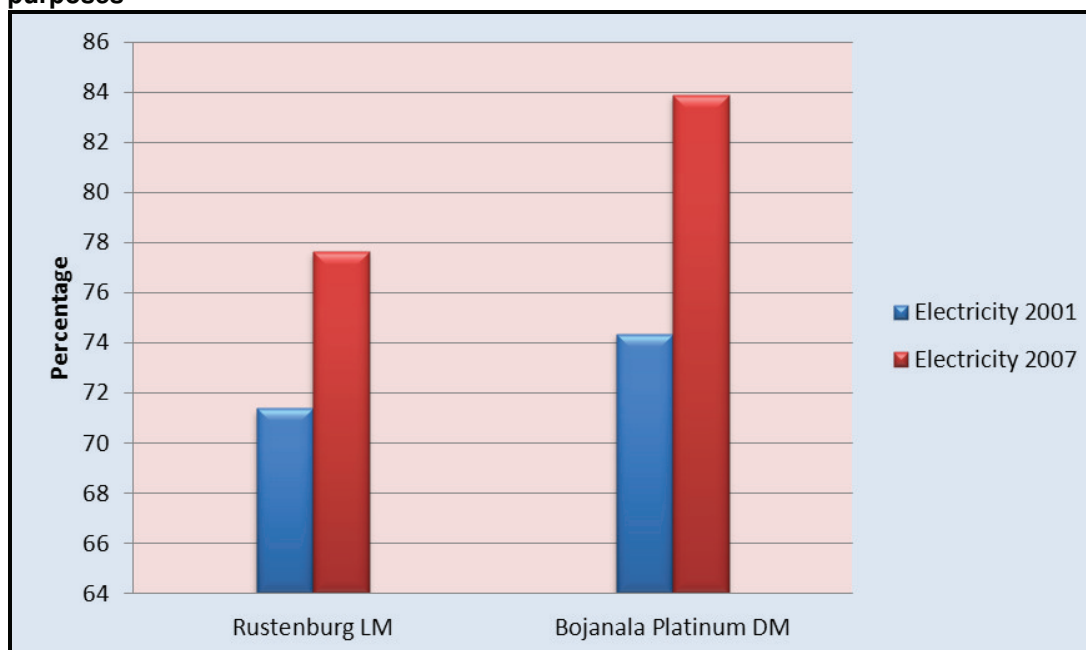
The proportion of households in the Rustenburg LM with access to electricity for lighting purposes have increased from 71.4% in 2001 to 77.7% in 2007 (see Figure 5.3). Over the same period the percentage of households using candles for lighting decreased from 23.7% to 13.6%. In real figures this imply that the number of households with electricity increased from 83 000 in 2001 to nearly 114 000 by 2007. Despite these significant improvements, the proportion of households in Rustenburg with access to electricity is still somewhat lower than the overall comparative figure for the entire Bojanala Platinum DM (83.9%).

**Figure 5.3: Energy use in Rustenburg LM 2001 and 2007**



*Source:* 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

**Figure 5.4: Percentage households with access to electricity for lighting purposes**



*Source:* 1. Statistics SA, Census 2001

## 2. Statistics SA, Community Survey 2007

The profile of the electricity client base in the Rustenburg LM is depicted in Table 5.1 below. This information indicates a total of approximately 38 000 residential consumers with a significant number (13 200) making use of pre-paid electricity facilities.

**Table 5.1: Client-base of the Rustenburg Local Municipality**

CONSUMER	QUANTITY
Chrome furnaces	2
Residential 1	29875
Residential 2-4	8749
Government	9
Industrial	80
Commercial	1452
Mines	7
Agricultural	1750
Pre-paid	13 200

*Source: Rustenburg IDP 2009/10*

**5.3.2 Bulk Infrastructure**

The current maximum demand, safe transformer capacity and installed transformer capacity at the different supply-points of Rustenburg are summarised in Table 5.2:

**Table 5.2: Supply Transformer capacity at Main Eskom/RLM supply Substations**

SUBSTATION	MAXIMUM DEMAND	SAFE CAPACITY	INSTALLED CAPACITY
Smelter sub	118 MVA	160 MVA	240 MVA
Industries sub	110 MVA	120 MVA	160 MVA
Voltaire sub	18.7 MVA	20 MVA	40 MVA
Kroondal sub	19.6 MVA	10 MVA	20 MVA

*Source: Rustenburg IDP 2009/10*

A summary of the main substations in the Rustenburg LM as described in the Rustenburg IDP (2009/10) is summarized below:

- **Industries substation**

This supply-point has an installed transformer capacity of 160 MVA at 33kV consisting of 4 X 40 MVA, 88/33 kV transformers. The safe transformer capacity of Industries substation is thus 120 MVA. At present this substation is the main substation feeding the industrial area, the City of Rustenburg and portions of the rural area including some of the chrome mines and ancillary plants. The electrical demand at Industries substation exceeds the safe transformer capacity during peak demand periods. Xstrata was therefore requested to relocate the 33000 volt supply to two of their furnaces in such a manner that these two furnaces can be fed from Smelter substation.

- **Kroondal substation (Marble Lime)**

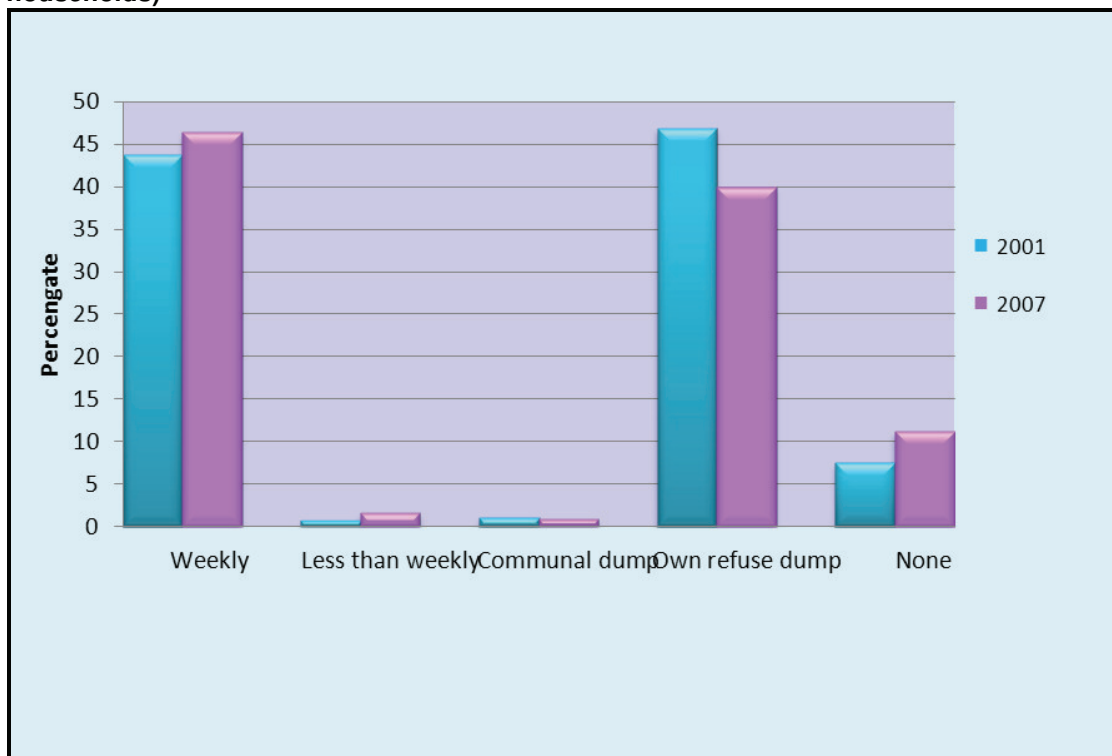
This substation is supplied by Eskom via a single 88 kV overhead line and has an installed transformer capacity of 20 MVA at 11 kV consisting of 2 X 10 MVA, 88/11 kV transformers. Kroondal substation is at present supplying the bulk of the rural clients in the area to the South West of the City of Rustenburg. The bulk of the chrome mines and ancillary plants are also fed from this substation. The installed safe transformer capacity of the substation is already exceeded.

- **Voltaire substation**

Voltaire substation was designed to supply the Paardekraal area to the north-east of the city (Boitekong, Meriting, commercial and industrial areas associated with these townships). The design of the substation makes provision for an installed transformer capacity of 80 MVA with a safe capacity of 60 MVA. At present the substation is equipped with 2 x 20 MVA transformers. The current maximum demand registered is 18.7 MVA, which exceeds the safe transformer capacity. As the industrial sector planned for Paardekraal has not yet materialised the demand consists of mainly residential clients as well as street and area lighting.

## **5.4 WASTE REMOVAL**

The proportion of households receiving a weekly refuse removal service from the municipality increased somewhat from 43.7% in 2001 to 46.5% in 2007. There was a slight decrease in the number of households using own refuse dumps (46.9% to 39.9%), but the proportion of households without any form of refuse removal is reported to have increased from 7.5% to 11.2%.

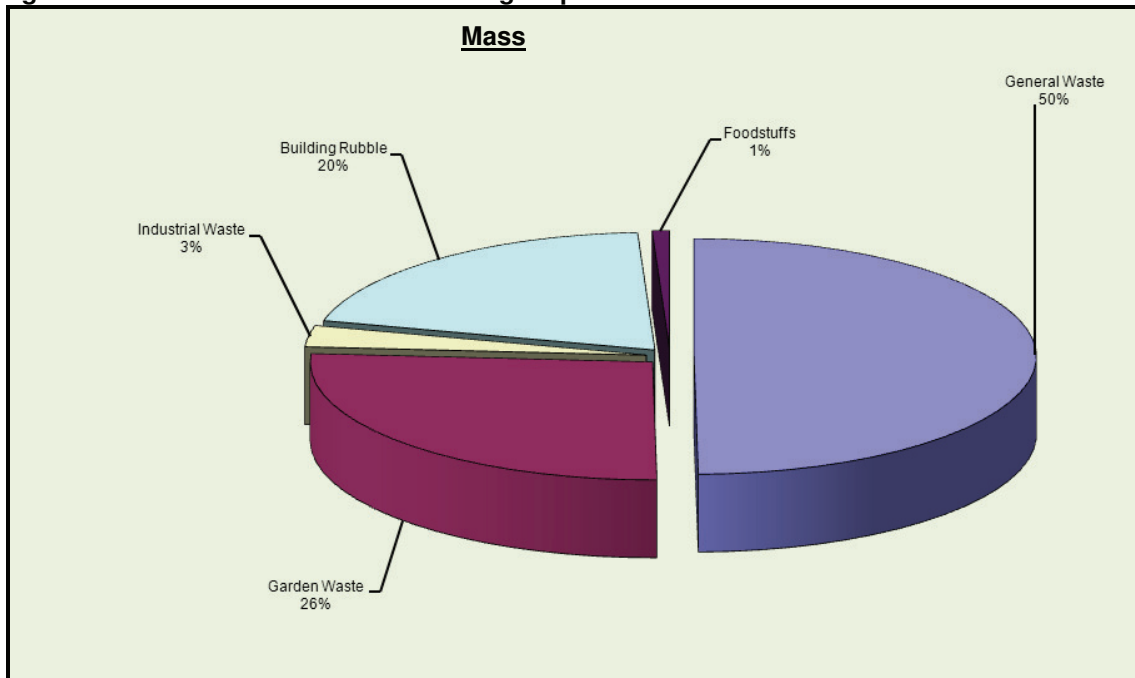
**Figure 5.5: Access to refuse removal (percentage households)**

Source: 1. Statistics SA, Census 2001  
2. Statistics SA, Community Survey 2007

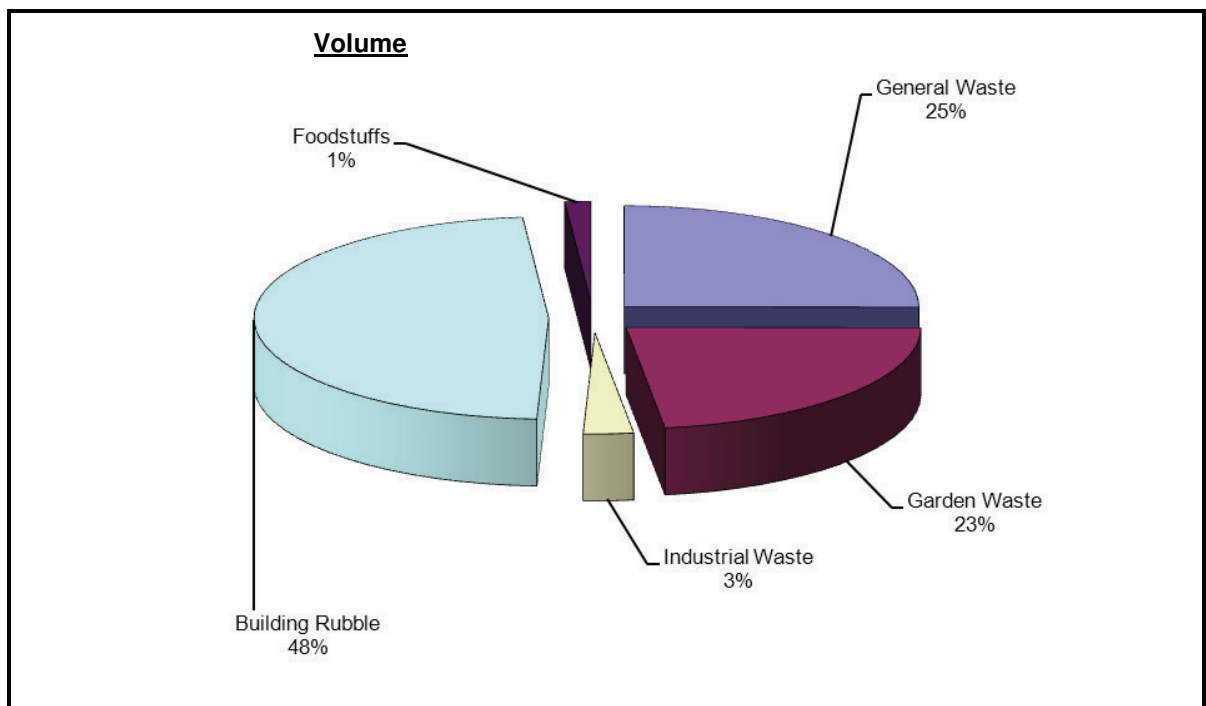
According to the Rustenburg IDP (2009/1), the Rustenburg Local Municipality provides a collection service to 75 700 dwellings (38 435 domestic service points) and 3105 business service points. Most rural areas and villages, some informal settlements as well as RBA areas do not receive a service from the Rustenburg Local Municipality.

Approximately 87% of waste collected by the RLM is domestic and domestic garden waste, while 6 % of waste collected is from illegal dumping and 5 % from the business sector. Of the 41000 tonnes of domestic waste collected annually, the municipality itself collects 28 000 tonnes. The remainder is collected by service providers sub-contracted by the RLM. Only 2 800 tonnes/annum of exclusive commercial waste is collected by the Municipality, particularly from Thlabane where the commercial and industrial centres are located. Eleven landfills are operational within the municipal area, where general waste is disposed of. Townlands landfill receives the majority of municipal collected waste. The private landfills do not accept waste from the RLM. The mines in certain instances do however save communities and the domestic waste is then disposed of on their landfills

**Figure 5.6: Waste mass and volume being disposed of at the Townlands Landfill site**



*Source: Rustenburg IWMS – Draft StatusQuo, 2005*



*Source: Rustenburg IWMS – Draft StatusQuo, 2005*

The RLM owns and utilises the Townlands, Monnakato, Hartbeesfontein and the Phatsima landfill sites. Of these sites only the Townlands site is permitted (Rustenburg IDP 2009/10). Other private landfill sites owned by mines in the municipal area include sites at Impala Platinum, Rustenburg Platinum, Rasimone Platinum and Karee Mine. The Townlands site is nearing the end of its life span adjacent residential developments and informal settlements are encroaching on the site. The Municipality operates three garden sites (Kremetart, Abbottoir and Zinniaville) which have been designed to act as public drop-off areas, where the public and private sector can drop-off garden waste.

Platinum Waste Resources (PWR) was awarded the contract for the Landfill Operation and Remedial Works at the Townlands Landfill in May 2004 and the following actions were completed since then:

- A specialist report has been submitted on the final rehabilitation and grassing of the landfill slopes
- A landfill gas assessment has been carried out
- Operational Audits were carried out every six months
- An area has been prepared on the south western side of the landfill for the reclaimers sorting operations
- The recovery of landfill gas (Methane) and the possible registration thereof as a Clean Development Mechanism (CDM) project are currently under investigation. This will enable Rustenburg Local Municipality to trade the tons of Carbon converted on the open market at a substantial profit.

The feasibility study for a new waste disposal facility at Waterval, as required in terms of the Department of Water Affairs and Forestry's "Minimum Requirements for Waste Disposal by Landfill" was completed in 2004 and approved by the Department. Authorisation to commence with the EIA process has been received from the North West Department of Agriculture Conservation and Environment (NWDACE)

The Permit Application process with the Department of Water Affairs and Forestry (DWAF) and the Department of Environmental Affairs and Tourism (DEAT) is in process and it is estimated that the site will be operational towards the end of 2010 (Rustenburg IDP 2009/10).

## **5.5 TRANSPORTATION**

### **5.5.1 Road Infrastructure and transport patterns**

According to the Rustenburg Transport Plan (2008), traffic in Rustenburg is characterised by a relative short and high peak hour demand on the network, which is partly due to the fact that most of the schools start around the same time in the morning. Also, the starting times of businesses are probably

very similar in Rustenburg, without significant variation. The main areas of traffic congestion in Rustenburg are the CBD and the southern suburbs, especially on the following links:

- P16-1 from Waterberg Rd to P2-4 (R104);
- Helen Joseph Drive between the southern suburbs and the CBD, including the interchange with the N4; and
- Kruger St between the southern suburbs and the CBD.

These congestion areas is an indication of the limited routes being provided across the N4 freeway, and is indicative of the need for improved capacity across the N4, linking the southern suburbs with the CBD area of Rustenburg. Further *status quo* issues are :

- Nelson Mandela Drive and Oliver Tambo Drive in the CBD, including onstreet parking on these streets;
- R 510 / Beneden Rd intersection with Buiten / P16-2;
- Dr Moroka / Lebone / Wit / Molen Street at-grade intersection next to the railway line; and
- Intersections on Kock Street, without sufficient turning lanes. No clear road hierarchy is presented on Kock Street, which is similar to other adjacent streets.

In addition to the extent of road congestion, some other traffic related issues were identified, namely:

- Intersections not complying with the South African Road Traffic Signs Manual (SARTSM),
- At-grade crossing of Dr. Moroka Drive with the railway line;
- A significant backlog of paved roads exist in some areas, such as Phokeng, Boitekong and Tlhabane;
- A large number of four-way stop controlled intersections are present in Rustenburg. The traffic control at these intersections might be improved, as four-way stop control is probably ineffective and drivers tend not to adhere to the control measure;
- Dr. Moroka and Helen Joseph Drive Interchanges with the N4 freeway only have ramps to and from the east. This leads to insufficient accessibility from the west. Also this leads to U-turn movements on the N4 freeway, which presents an important safety hazard;
- Insufficient conveniently located parking in the Rustenburg CBD;
- There is a high demand for land use development on Beyers Naude Drive in the southern perimeter of the Rustenburg CBD. The road has insufficient right turn lanes and access Management is required to ensure safe and efficient access to the various adjacent properties;
- Roads Master Planning is not available in a number of areas. This leads to insufficient guidance with new development applications, especially where sufficient road reserve requirements need to be specified. A road hierarchy plan is also required to address these issues; and
- Absence of a Access Management Policy for Rustenburg.

### 5.5.2 Modal split and travel characteristics

The modal split and travel characteristics of different parts of Rustenburg are depicted in Table 5.3. This information clearly depicts the dependence of households in the Boitsekong, Phokeng and Tlhabane areas on minibus-taxis as mode of transport to work with more than 50% of households in all three these areas making use of taxis. A further important feature is the large proportion of households (between 24% and 26% in all three these areas) to have who make use of two taxis per trip to get to their place of employment. Conversely, the proportions of households in the Rustenburg North suburbs are relatively low (approximately 25%) and are virtually completely absent in the central and southern parts of the city. In the latter two areas private car ownership is the dominant mode of transport with 88% of households in the southern suburbs and 85% in the central parts using private vehicles as their main mode of transport to work. In both Boitsekong and Phokeng, a notable proportion (15.9% and 14.1%) respectively is walking to work. The implication of these characteristics for spatial development is the importance of an efficient and rapid public transport system catering for taxis from Boitsekong, Phokeng and the Tlhabane areas to the main economic nodes of Rustenburg. It also implies that the traffic characteristics and areas of congestion on the road network and improved road accessibility from the central and southern parts of Rustenburg to these economic modes are imperative.

**Table 5.3: Mode of travel to work for household members in Rustenburg**

Mode to work	Home area						
	Boitsekong	Phokeng	Rustenburg Suburbs North	Rustenburg Central	Rustenburg Suburbs South	Tlhabane	All
Bus	3.9%	1.3%	1.5%	-	-	2.3%	2.5%
Two busses	1.3%	-	0.8%	-	-	2.3%	8%
Taxi	26.2%	32.1%	15.9%	-	-	32.6%	21.6%
Two taxis	26.5%	24.4%	10.6%	-	1.3%	26.7%	19.6%
Bus and taxi	0.8%	-	2.3%	-	-	-	0.7%
Car driver	13.9%	16.7%	63.6%	85.5%	88.2%	17.4%	34.3%
Car passenger	4.6%	2.6%	0.8%	5.5%	2.6%	1.2%	3.3%
Company transport	4.9%	1.3%	0.8%	-	2.6%	3.5%	3.2%
Walk	15.9%	14.1%	1.5%	7.3%	1.3%	12.8%	11.2%
Cycle	0.8%	-	0.8%	-	2.6%	-	0.7%
Motorcycle	-	-	-	1.8%	1.3%	-	-
Own transport (paid)	0.3%	-	-	-	-	-	0.1%
Lift club	0.8%	-	-	-	-	-	-
Special hire		6.4%					0.6%
Special		1.3%	1.5%			1.2%	0.5%
Stay at work	0.3						0.1%
All	100%	100%	100%	100%	100%	100%	100%

*Source: Rustenburg ITP, 2008*

These implications are further amplified by the data portrayed in Table 5.4 that depicts the average vehicle ownership per household in the different parts. The vast majority of households in Boitekong and Phokeng does not own vehicles (78% and 68% respectively) and the mean number of cars owned by households in these two areas are 0.31 and 0.38. In contrast, as much as 45% of the households in the northern suburbs of Rustenburg, 73% in the central parts and 81% in the southern suburbs own two or more vehicles. Overall, 55% of all households in the study area does not own a motor vehicle.

**Table 5.4: Average number of motor vehicles per household**

Number of cars owned by the household	Home area						
	Boitekong	Phokeng	Rustenburg Suburbs North	Rustenburg Central	Rustenburg Suburbs South	Tlhabane	All
None	78.2%	68.6%	19.9%	33.3%	2.4%	57%	55.7%
1	16.8%	24.5%	34.8%	23.3%	15.9%	24%	21.3%
2+	5.1%	6.9%	45.4%	73.3%	81.7%	19%	23%
Mean	0.31	0.38	1.49	2.25	2.32	0.76	0.82

*Source: Rustenburg ITP, 2008*

The average commuting time to work for households in various parts of Rustenburg (see Table 5.5) revealed two important characteristics:

- The majority of households in the Boitekong and Phokeng areas travel between 46 and 60min to work.
- In the northern, central and southern parts of Rustenburg and Tlhabane, the majority of households travel between 16 and 30min to their places of work.

The first point referred to above from a spatial perspective implies both the need for effective public transport system from these two areas to major economic nodes, as well as the vision of appropriate economic development and employment opportunities to be developed in both these areas.

**Table 5.5: Commuting time to work for households in Rustenburg home areas**

Travel time to work	Home area						
	Boitekong	Phokeng	Rustenburg Suburbs North	Rustenburg Central	Rustenburg Suburbs South	Tlhabane	All
1 – 15 mins	6.9%	9%	18.2%	34.5%	37.3%	12.9%	14.3%
16 – 30 mins	25.4%	28.2%	47.7%	38.2%	52%	43.5%	34.5%
31 – 45 mins	17.2%	16.7%	10.6%	14.5%	5.3%	20%	15.1%
46 – 60 mins	30.6%	26.9%	16.7%	10.0%	4%	15.3%	22.6%

*Source: Rustenburg ITP, 2008*

The origin destination work trips depicted in Table 5.6 reveals a number of important residential employment interactions:

- The majority of households in Boitekong and Phokeng (29% and 40.8% respectively) are employed at Anglo Platinum mines. In the case of Phokeng, a substantial proportion (26.3%) is employed at Impala Platinum.
- The majority of residents of the Tlhabane area are employed in the Rustenburg CBD (23%) and Rustenburg surroundings (19.8%). A surprisingly high proportion (17.4%) is employed within Tlhabane itself. Impala Platinum (16.3%) are also important source of employment to residents of Tlhabane.
- Residents of Rustenburg's northern suburbs are fairly equally distributed between employment in the CBD, Impala Platinum and Anglo Platinum mines.
- The majority of population residing in the central parts of Rustenburg is employed in the Rustenburg CBD (35.3%).
- Residents of the southern suburbs of Rustenburg are mainly employed at Anglo Platinum mines and within the Rustenburg CBD area.

**Table 5.6: Origin – destination work trips**

Work location	Home area
---------------	-----------

	Boitekong	Phokeng	Rustenburg Suburbs North	Rustenburg Central	Rustenburg Suburbs South	Thlabane
<b>Rustenburg CBD</b>	21.2	10.5	22.8	35.3	25.7	23.3
<b>Impala Platinum</b>	15.1	26.3	21.3	9.8	5.7	16.3
<b>Anglo Platinum</b>	29.0	40.8	23.6	17.6	32.9	9.3
<b>Lonmin</b>	1.3	3.9	4.7	13.7	2.9	4.7
<b>Phokeng</b>	0.5	0.0	0.0	0.0	0.0	0.0
<b>Thekwane</b>	1.1	0.0	0.0	0.0	0.0	0.0
<b>Rustenburg surroundings</b>	14.8	7.9	15.7	11.8	24.3	19.8
<b>Boitekong</b>	3.0	1.3	0.8	0.0	0.0	3.5
<b>Thlabane</b>	5.4	1.3	2.4	2.0	0.0	17.4
<b>Outside Rustenburg</b>	8.6	7.9	8.7	9.8	8.6	5.8
<b>All</b>	100	100	100	100	100	100

*Source: Rustenburg ITP, 2008*

The overall split and travel characteristics outlined earlier clearly also manifests itself in the monthly household expenditure patterns on public transport. Nearly two thirds of all households in Phokeng (65%) spend more than R300.00 per household per month on public transport, with the comparative figure in Boitekong being 41%. The figures for Thlabane and Rustenburg northern suburbs are 39% and 29% respectively. Conversely, as much as 94% and 84% of residents in Rustenburg central and southern suburbs does not make use of public transport and does not have any expenditure on a monthly bases for this purpose.

**Table 5.7: Monthly household expenditure on public transport**

Monthly household expenditure	Home area						
	Boitekong	Phokeng	Rustenburg Suburbs North	Rustenburg Central	Rustenburg Suburbs South	Thlabane	All
<b>Nothing</b>	6.1	1	35.8	94.9	84.1	2.5	21.3
<b>R1 – R50</b>	7.6	3	3	1.7	1.2	3.3	5.1
<b>R51 – R100</b>	5.1	4	3	1.7	3.7	13.3	5.3
<b>R101 – R150</b>	7.6	5	2.2	1.7	3.7	11.7	6.4
<b>R151 – R200</b>	15.2	5.9	11.9		2.4	12.5	11.5
<b>R201 – R300</b>	17.3	15.8	14.2		1.2	17.5	14.4
<b>&gt; R300</b>	41.0	65.3	29.9		3.7	39.2	36.1

*Source: Rustenburg ITP, 2008*

### 5.5.3 Rail Infrastructure

A single inter-provincial rail line crosses the Rustenburg Municipality Area. This line runs from Tshwane in the east via Brits to Rustenburg. From Rustenburg it diverts to the north past Mogwase to Thabazimbi. The rail line links nodes within the Municipal Area, such as Marikana, Thekwane, Rustenburg, Phokeng, Luka and Chaneng. Stations on this line are located at Thekwane (Bleskop), Rustenburg and Phokeng. No commuter service is however provided on this line and it is primarily used for the transportation of freight. Spoornet is responsible for all rail freight operations within the Rustenburg Municipality Area

### 5.5.4 Air Transport

According to the Rustenburg ITP (2008) the Rustenburg Local Municipality has a small airfield which has a 1 225 metres runway. Most of the air transport services are provided at the Pilanesberg Aerodrome, serving mainly tourists to Sun City and the Pilanesberg game reserve. The Rustenburg area also has two heliports which are located at the Paul Kruger Hospital and the Marikana Platinum mine

### 5.5.5 Public transport

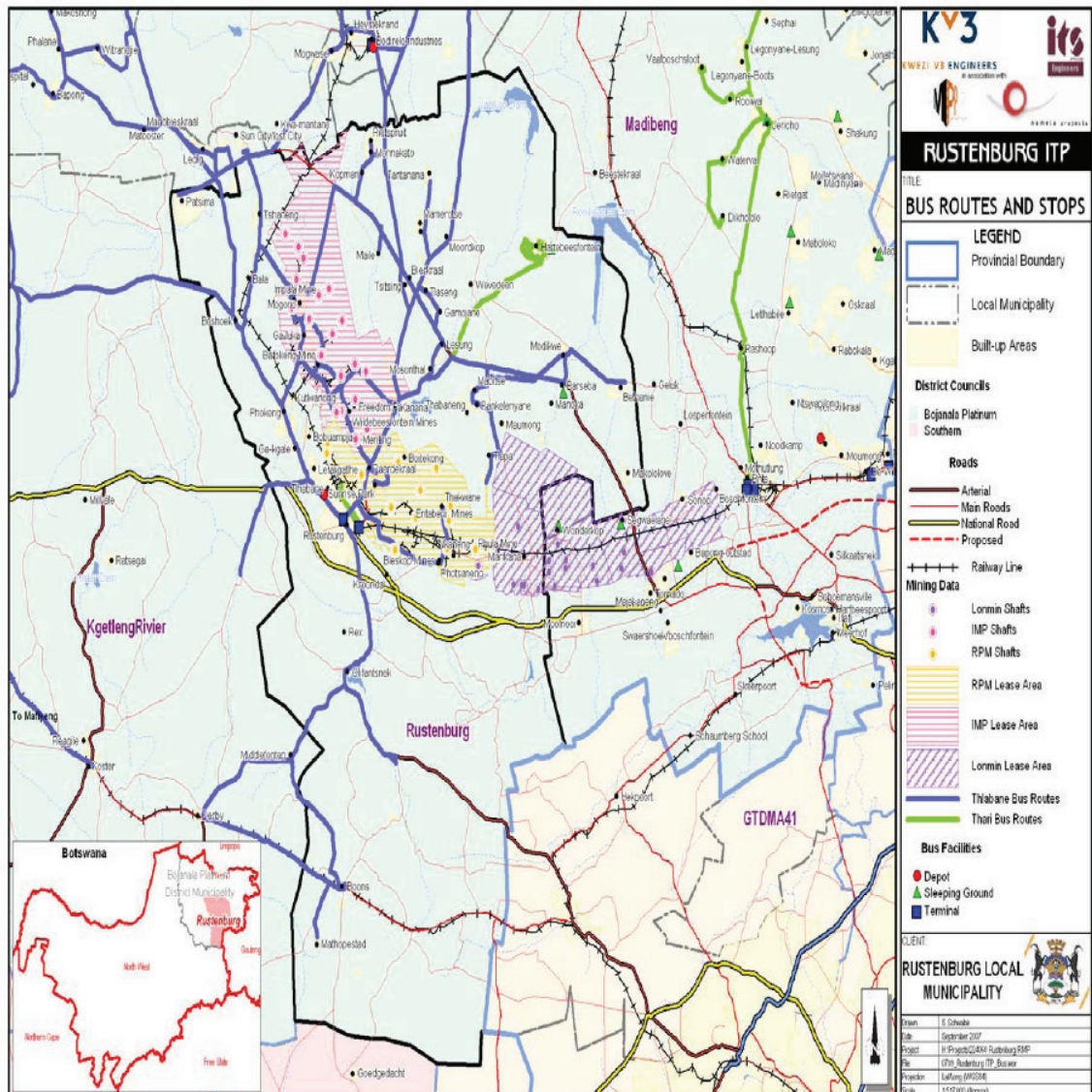
Two modes of public transportation operate within the Rustenburg Municipal Area, namely busses and minibus-taxis. The area is not served by commuter railway services.

#### *a. Bus*

Bojanala Bus (formerly North West Star) provides the subsidised commuter services in Rustenburg in terms of an interim contract, which commenced on 1 April 1997. Services are operated in both peak and off-peak periods. The peak services normally carry full loadings, while the off-peak services are mostly under-utilised. Services are operated directly to the following main destinations: Bafokeng North, Boitekong, De Brak, Geelhoutpark, Boitekong, Koedoesrand, Koster, Ledig, Madikwe, Rustenburg, Pella, Protea Park, Putfontein, Styledrift, Sun City, Sunrise Park, Rooiwal, Tlhabane, Pella, Silwerkrans, Uitkyk, Koedoesrand, Styledrift, Magong, Swaruggens, Zeerust, Mmabatho, Schoongezicht and Wildebeesfontein.

A total of 128 standard buses are used to operate services during peak hours and the average age of the fleet is 12 years. The bus routes and stops are depicted on the attached thematic map.

**Figure 5.7: Bus routes and stops**



*Source: Rustenburg Integrated Transport Plan, 2008*

There are pronounced peaks in both the morning and the evening routes there is severe over-capacity in the busiest two hours in both morning and afternoon. In the morning, between 05h00 and 08h00, some 85 000 bus seats are supplied but only a little over 50 000 are utilised. There is a similar picture in the afternoon between 16h00 and 18h00 where some 60 000 seats per hour are offered, but only around 36 000 are utilised.

**b. Minibus-Taxis**

According to the Integrated Transport Plan there is little difference between the number of seats and the number of passengers, indicating that most of the taxis are travelling full. This does however not, indicate that there is scope for some further expansion of the minibus-taxi fleet. This is due to the fact that taxis are not making enough trips during the course of the day to make them highly viable. Thus, while they travel full, their capacity is not adequately utilised because they spend large periods of the day stationary in ranks (ITP, 2008). A summary of minibus-taxi rank facilities is outlined in Table 5.8.

**Table 5.8: Summary of minibus-taxi rank information**

<b>No of ranks by type</b>	
Formal off-street	3
Formal on-street	-
Informal off-street	11
Informal on-street	8
Total no. of ranks	22
No. of long-distance ranks	1
Ranks surveyed	15
Total no. of bays	1 550
No. of passengers surveyed period	48 934
Average bays per rank	70
Average passengers per rank	2224

*Source: Rustenburg Integrated Transport Plan, 2008*

Table 5.9 indicates the public transport priorities of residents in Rustenburg. This information indicates that the biggest public transport priority for the transport survey respondents is road conditions (34.4% of respondents). This range between 26% in the case of residents in Tlhabane to as high as 55.8% in Rustenburg Central. Other important priorities include the training of drivers (17.7% of respondents), facilities at bus stops and taxi ranks (11% of respondents) and the cost of transport (10.7%). The training of drivers were particularly important in Tlhabane where it was mentioned by 27.7% of survey respondents and the facilities at bus stops and taxi ranks in the Rustenburg southern suburbs (20.7%).

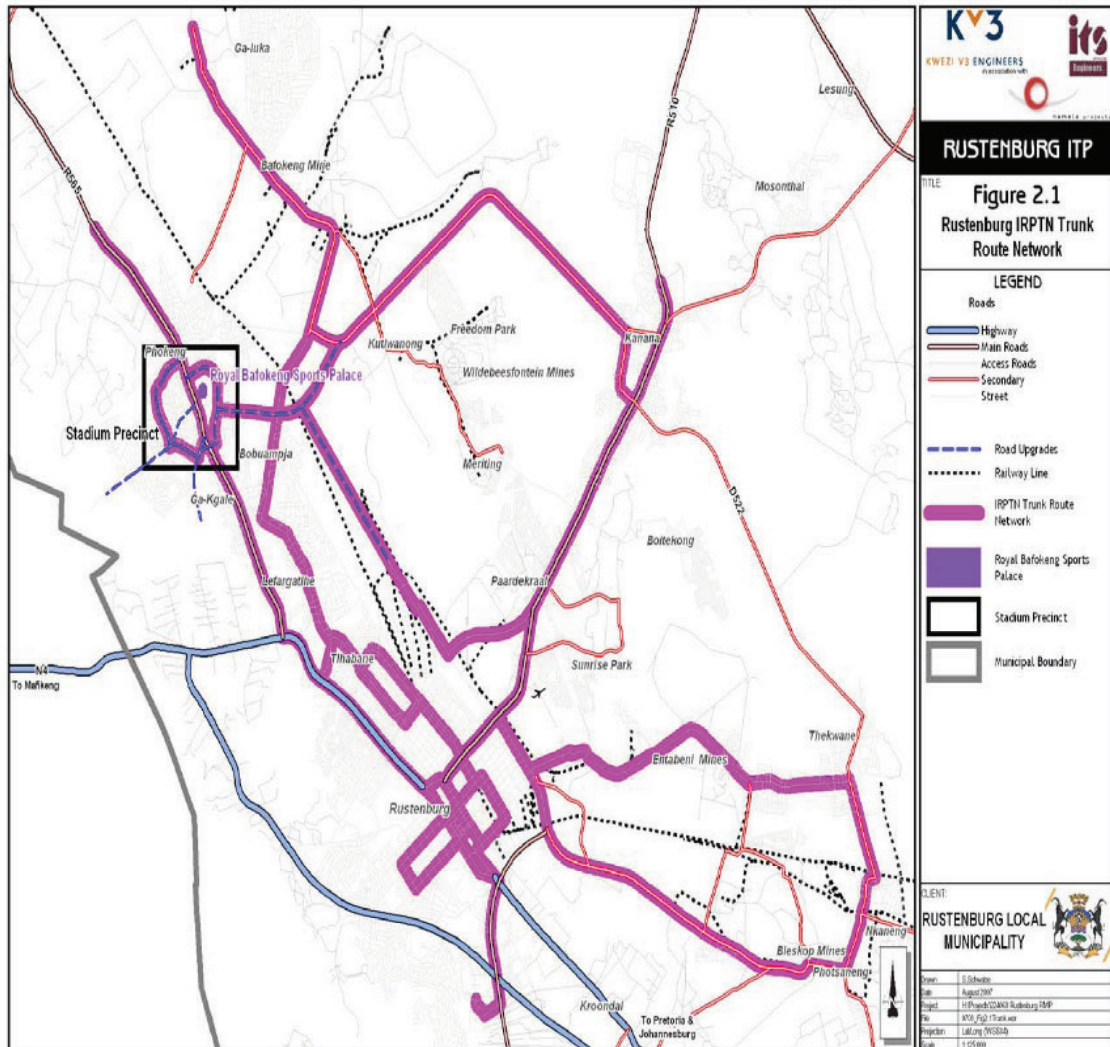
**Table 5.9: Public Transport Priorities**

All Priorities	Home area						
	Boitekong	Phokeng	Rustenburg Suburbs North	Rustenburg Central	Rustenburg Suburbs South	Thalbane	All
Nothing don't know	1.9%	12.7%	3.5%	4.2%	15.2%	3.7%	4.7%
Roads	34.6%	38.2%	30.9%	55.8%	30.5%	26%	34.4%
Training of drivers	18.9%	11.3%	19.1%	5.8%	10.4%	27.7%	17.7%
Facilities at bus stops and taxi ranks	9.3%	8.3%	13.5%	15%	20.7%	9%	11%
Cost of transport	10.6%	9.8%	13.5%	1.7%	6.7%	15.7%	10.7%
Public transport vehicles, safety	10.2%	7.4%	8.2%	5%	4.3%	8.3%	8.6%
Improve and expand bus services	7%	5.4%	6.4%	4.2%	4.3%	7.9%	6.4%
Improve and expand taxi services	2.5%	2.9%	4.3%	3.3%	6.7%	1.2%	3%
Education, jobs	2.7%	1.5%	0%	0%	0%	0%	1.5%
Housing and services	2.2%	0.5%	0%	0%	0%	0%	1.1%
Other	0%	2%	0.7%	5%	1.2%	0.4%	0.7%

*Source: Rustenburg Integrated Transport Plan, 2008*

The proposed Integrated Rapid Public Transport Network (IRPTN) for Rustenburg is planned to be implemented over a phased period. The IRPTN are described by the national Department of Transport as the mobility wave of the future and are the only viable option that can ensure sustainable, equitable and uncongested mobility in livable cities and district.

**Figure 5.8: Rustenburg ITP Truck Route Network**



*Source: Rustenburg Integrated Transport Plan, 2008*

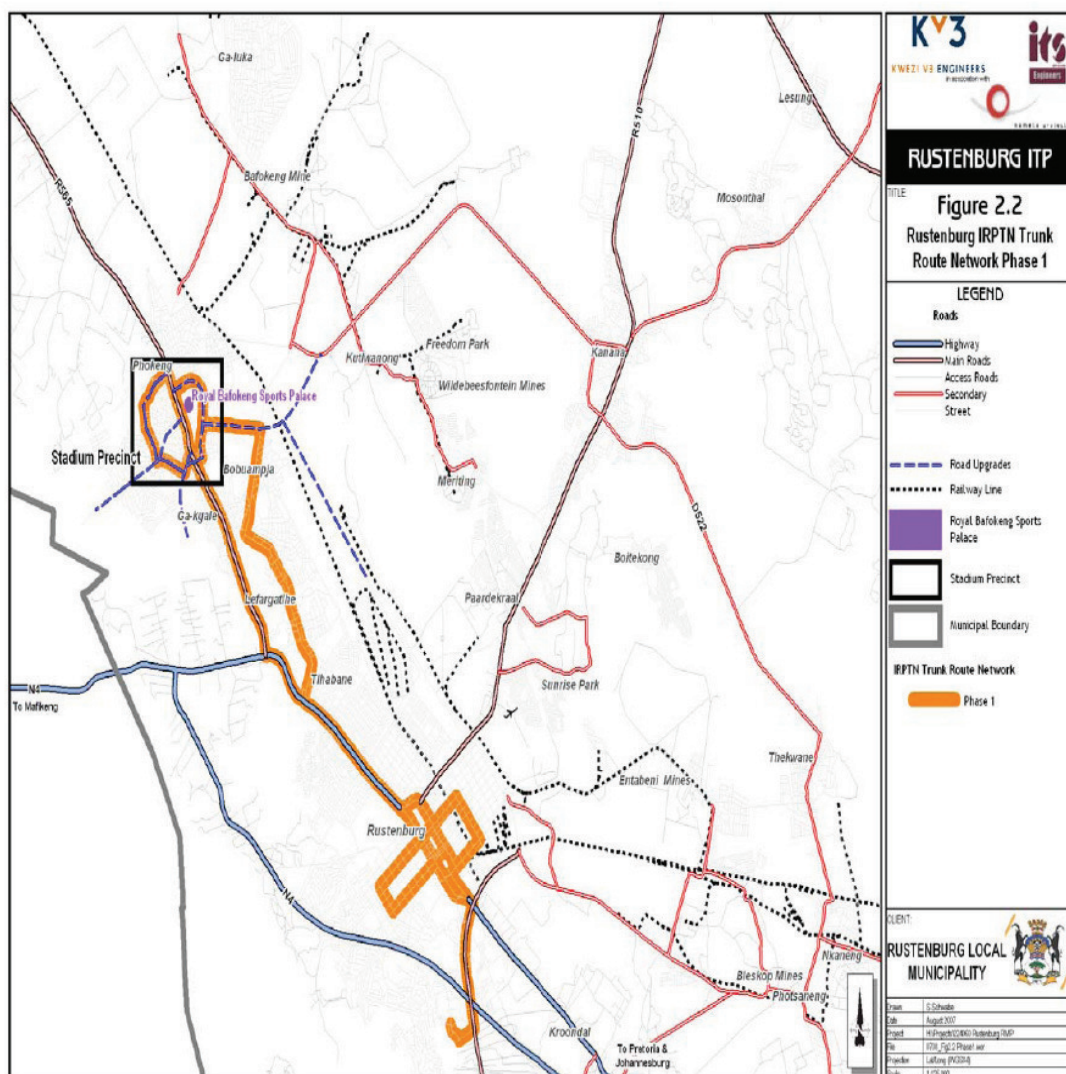
The design of the Rustenburg IRPTN is planned to include the following:

- Pedestrian walkways to access the IRPTN routes and complementary cycle-ways;
- Terminals at Phokeng and Waterfall Mall;
- Transitional upgrading and use of the existing public transport facility on the fringe of the Rustenburg CBD area until the full IRPTN network is completed;

- Stops with shelters, public transport information and lighting every 700 m where passengers can access the routes;
- Curb-side High Occupancy Vehicle (HOV) lanes with lay-byes;
- Signal queue priority measures with queue jump lanes; and
- Appropriate road signage.

The preliminary CBD routing and Distribution System is shown on the attached thematic map.

**Figure 5.9: Rustenburg IRPTN Trunk Route Network Phase 1**



*Source: Rustenburg Integrated Transport Plan, 2008*

## 6 NATURAL FEATURES

### 6.1 LANDSCAPE CHARACTER AND TOPOGRAPHY

The study area is mostly dominated by relatively flat undulating slope ranging between 0 and 9%. The central part of the study area is however characterized by elevated slopes associated with the Magaliesberg mountain range traversing the Rustenburg LM from east to west and then north west along the western border of the municipality. The mountain consists of north and south facing slopes. The approximate angles of incline are 20-30 degrees for the north aspects while the south aspects shows a 35-40 degrees incline below the cliff, 25-30 degrees mid section and 10-15 degrees on the lower slope. The southern slopes are formed through erosion of shale which underlies the quartzite cap. It is a continuous process which causes the mountain to slowly retreat northwards. Underneath the cliffs the shale is covered by the overburden of collapsed quartzite rock from the overhanging cliffs. Lower down the slope the quartzite boulders become smaller due to longer periods of exposure to weathering. At the foot of the mountain the content of the soil reflects a combination of shale and quartzite, in some cases with high clay and humus content. The watercourses along the southern slope, many of which were formed due to the erosion of gullies and dykes of igneous intrusion, shapes what can be described as an undulating topography. Due to the fact that the shale and quartzite strata dip to the north, the majority of springs are located along the northern slopes. The northern slopes consist of sedimentary quartzite strata at a more gradual incline than the south. Lower down the northern slope Kolobeng Norite forms a prominent bulge overlying the quartzite slopes. The prominent quartzite cliffs of the Magaliesberg face mainly to the south. Their height ranges in average between 60m and 70m, with a maximum exceeding 100m in certain locations. The vertical fissures and gullies provide unique micro-climatic conditions and protection to plant and animal life. Because the cliffs are south facing they also receive less radiation and sunlight with a lengthy shady period during the day.

### 6.2 HYDROLOGY

#### 6.2.1 Rivers

The study area falls within the Limpopo River System Drainage Basin. The study area comprises the following main river and stream courses:

- Waterkloofspruit
- Waterfallspruit
- Dorpspruit

- Tributary of the Legadigadi Spruit
- Hex River
- Rooikloofspruit
- Sterkstroom Spruit

The largest river in the study area is the Hex River. Both the Waterkloofspruit and the Waterfallspruit are tributaries of the Hex River that originates from the catchment of the Kgaswane Mountain Reserve. The Dorpspruit also originate from the Kgaswane Mountain Reserve but bisects Rustenburg town before it drains into the Hex River further north of the town. The Waterfallspruit traverses areas that are rapidly being developed for the purpose of residential development. Several illegal land uses occur within the sub-catchment of these streams and may have contributed to the decline in the water quality of the Hex River. For instance, the Status Quo Report of the Rustenburg Environmental Management Framework reports that waste water from the collection dam in the Samancor Chrome Mine in Kroondal area has been channelled towards Hex River through the storm water management channels. Kroondal area is mainly characterised by agricultural activities that draws water from Hex River for irrigation and this polluted water then poses a threat to the quality of water in the river as well as the products produced.

Tributaries of the Dorpspruit similarly originate from the Kgaswane Mountain Reserve. These tributaries pass through several development areas that have apparently contributed to a decline in the water quality (i.e. at the Rustenburg Kloof). Analysis of the monthly rainfall and monthly rate of flow of the Waterkloofspruit shows a weak correlation between the two, indicating that rainfall is quickly absorbed by the highly permeable quartzites of the mountain (*EMF Status Quo, 2010*). This base flow is maintained however by the slow releasing of the water over time. A summary of the state of the main river systems is summarized in Table 6.1 below.



Table 6.1: State of some rivers within the study area

River	Ecological importance and sensitivity	Instream habitat integrity	Riparian zone habitat integrity	Riparian zone vegetation integrity	Fish assemblage integrity	Macro-invertebrate integrity	Water quality
Upper Hex River	MARGINAL / LOW - primarily because of the low diversity of habitat in this reach of the river, although the wetlands at Waterkloofspruit are significant. The Kgaswane Mountain Reserve and the Magaliesberg Protected Environment (MPE) conserve the natural landscape and restrict development.	FAIR - Olifantsnek Dam is situated at the confluence of the Hex and Klein Hex rivers, there is some water abstraction from the river for irrigation purposes and some sedimentation as a result of bank erosion. Low abundances of <i>Myriophyllum aquaticum</i> (parrot's feather) were observed.	GOOD with only localized areas of erosion adjacent to river bridges. Downstream of the Olifantsnek Dam there is some localised impacts, upstream of the dam natural vegetation predominates.	FAIR - there is some infestation by poplar species, although not very abundant. Wattle infestation in parts of the catchment is severe.	FAIR - this is attributable to water abstraction in some sections which lowers the frequency of occurrence of some species, although some sensitive species such as minnows and yellowfish are still present.	FAIR - impacts are mostly due to localised habitat alteration.	GOOD - flows have between low and intermediate levels of nutrients and are free from significant organic pollution. Waterkloofspruit is well known for its exceptionally good water quality.
Lower Hex River	MARGINAL / LOW - diversity of habitat and species is low with some localized refugia for slightly sensitive species and protected natural area in the form of a conservancy around Bospoort Dam.	POOR, primarily because of high levels of development especially in terms of mining activities as well as water abstraction for irrigation purposes. There are a number of weirs that comprise the irrigation scheme but their use is limited. Stretches of the river have been diverted for the mines but more recently for the upgrade of the N4 Platinum Toll Highway.	FAIR - channel modifications caused by diversions for mining have impacted on riparian zone habitats.	GOOD - there is some vegetation clearing for sand winning activities and some pockets of sesbania and blue gums, both of which are very localised.	POOR - sensitive species are lost due to flow modifications and obstructions. Water quality problems originating from the mines and from agriculture have created stress conditions for fish species.	POOR, the cumulative impacts of reduced water quality and, flow and habitat modifications have had a large effect on invertebrate diversity and abundance.	FAIR - flows have between low and intermediate levels of nutrients but are largely free of significant organic pollution. High conductivity readings were recorded – high salinity levels are possibly due to mines.
Upper Sterkstream	MODERATE with a high proportion of species dependent on permanently flowing water and some protection of natural areas offered by the Magalies Protected Natural Environment.	GOOD with some water abstraction upstream of Buffelspoort Dam for farming. Some small weirs are present but have minimal impact on flows and channel morphology.	FAIR - there are a few weirs which when full inundate the riparian zone which cause some localised bank erosion.	FAIR - this is primarily attributable to the widespread invasion of alien vegetation, mostly poplars and blue gums.	GOOD to NATURAL - sensitive species with permanent flow and high water quality requirements are present. Frequency of occurrence is close to natural. Eels are lost due to flow regulating structures obstructing their migration routes.	FAIR with flow and habitat modifications contributing to localised impacts on invertebrates.	GOOD - flows have between low and intermediate levels of nutrients and are free from significant organic pollution.
Lower Sterkstream	MARGINAL / LOW - low scores can be attributed to the low diversity of species and habitat types within this reach of river, primarily the result of severe modifications of flows and of channel morphology.	POOR primarily because of mining activity in the area. Water abstraction and mine dewatering has altered the natural flow regime of the river to such an extent that the upper reaches of the river are drier than they should be and the lower reaches are wetter than they should be. In some cases water abstraction points have become mining process dams severely impacting on flows and channel morphology.	FAIR because of flow and channel modifications due to mining activities	FAIR with moderate abundances of alien vegetation in the riparian zone. Increasing levels of development has resulted in vegetation removal.	POOR - water quality problems originating from mines create stress conditions for most fish species, sensitive species are lost due to the cumulative impacts of reduced water quality and flow modifications and obstructions.	POOR with water quality having the largest impact on invertebrate diversity and abundances and flow and habitat modifications contributing to low scores.	FAIR - flows have intermediate levels of nutrients and emerging signs of water quality problems with organic pollution likely to contribute to eutrophication. Impacts on water quality originate primarily from mining activities with mines acting as a salt sink, increasing salinity levels.

Source: Magaliesberg EMF Status Quo Report, 2007

## 6.2.2 Dams

The characteristics of the major dams in the study area are depicted in Table 6.2 below.

**Table 6.2: Major dams with relevance to the study area**

Dam	River	Year completed	Main Purpose	Natural Mean Annual Runoff (million m/a)	Full Storage Capacity (million m)
Bospoort	Hex	1933	Irrigation	25.4	18.2
Buffelspoort	Sterkstroom	1935	Irrigation	31.9	10.3
Olifantsnek	Hex	1928	Irrigation	11.7	13.6
Vaalkop	Elands	-	Irrigation	113.0	56.1

*Source: Department of Environmental Affairs and Tourism, 2005*

### Olifantsnek Dam

The Olifantsnek Dam is an irrigation dam and is associated with a furrow system downstream and north of the dam. The Olifantsnek dam lies in the Hex River drainage catchment and is fed by the Rooikloofspruit, Sterkstroom Spruit and Hex River in the south. The Olifantsnek Dam was completed in 1929 and has a catchment area of 492km<sup>2</sup>.

The Olifantsnek Dam is privately owned by the Olifantsnek Water Board and utilised to irrigate small citrus orchards and support small scale angling activities. The basin of this impoundment is fairly shallow, having a maximum depth of 13.6m and a mean depth of 5.5m. On the basis of Medium-term hydrological data, the system has a low retention time, which means that it is flushed approximately 2.5 times per annum. Flooding of the dam usually occurs in summer whereas in winter the status quo remains, except under conditions of extreme drought. The quality of the inflowing water is typical of unpolluted water in this area. Nitrate levels in the water of the dam have been high, possibly due to fertilizer run-off from the catchment. This is also probably true for the orthophosphate phosphorus levels.

### The Bospoort Dam

The Hex River was impounded by the Bospoort Dam in 1933. The dam has a surface area of 379.0 ha at full supply level and a mean depth of 5.5m. Activities observed in the 1080 km<sup>2</sup> catchment of this dam indicates residential, mining, industrial and include subsistence pastoral and commercial farming. The dam is shallow and massive algal blooms are observed in summer.

#### Vaalkop Dam

The Elands River was impounded by the Vaalkop Dam in 1943. The resulting dam has a surface area of 1110.5 ha at full supply level.

#### Buffelspoort Dam

Buffelspoort Dam is located at the confluence of the Sterkstroom River and Klein River. It forms part of the Sterkstroom Government Water Scheme (SGWS), a government controlled water scheme, which was built in 1935 for the storing of water for irrigation purposes (EMF Status Quo, 2010). The dam wall has been raised a number of times to increase its capacity to a volume of 10.250 million m<sup>3</sup>. The Sterkstroom River is the primary inlet, flowing into the Buffelspoort Dam from the south, west and the Klein River enters the dam from the south east.

### **6.2.3 Wetlands**

A wetland is land that is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water and usually inhabited by hydrophytic vegetation (*Rustenburg EMF Status Quo, 2010*). Wetland areas are one of the important sources of water within the RLM area and are known to provide habitat to aquatic species and source of water to both people and animals. A detailed wetland inventory was commissioned by the RLM in 2008 with the main aim of highlighting the distribution and conditions of the wetland within the municipal area. In addition, the objective was to put in place a strategic management plan of the management, rehabilitation and restoration of the wetlands. According to this study, wetlands occur in various areas throughout the RLM municipal area as depicted in the attached map.

## **6.3 VEGETATION**

The study area is predominately covered by Savanna Biome of Central Bushveld Bioregion. The vegetation types that occur within the Rustenburg Local Municipality are depicted on the attached thematic map.

## **6.4 CLIMATE**

The Rustenburg Local Municipality Air Quality Management Plan (2005) provides a detailed meteorological overview for Rustenburg compiled from twelve consecutive years of sequential hourly meteorological data from 1 January 1993 to 31 December 2004. Some of the salient findings of this analysis include the following:

# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

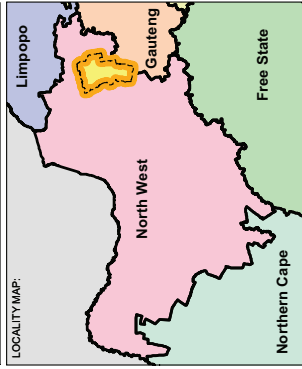
### LANDCOVER: Dams & Wetlands

LEGEND:

- District Municipal Boundaries
- Rustenburg Local Municipality
- Local Municipal Boundaries
- Primary Road Network
- Secondary Road Network
- Tertiary Road Network
- Dams & Wetlands:**
  - Water - Artificial Dams
  - Water - Natural Dams
  - Wetlands - Dry Pans
  - Wetlands - Vegetated
  - Perennial River
  - Non-Perennial River

Data Source:  
1. NW Land Cover 2008  
2. Rustenburg LM Wetland Inventory Study

LOCALITY MAP:



SCALE:



DATE: February 2010

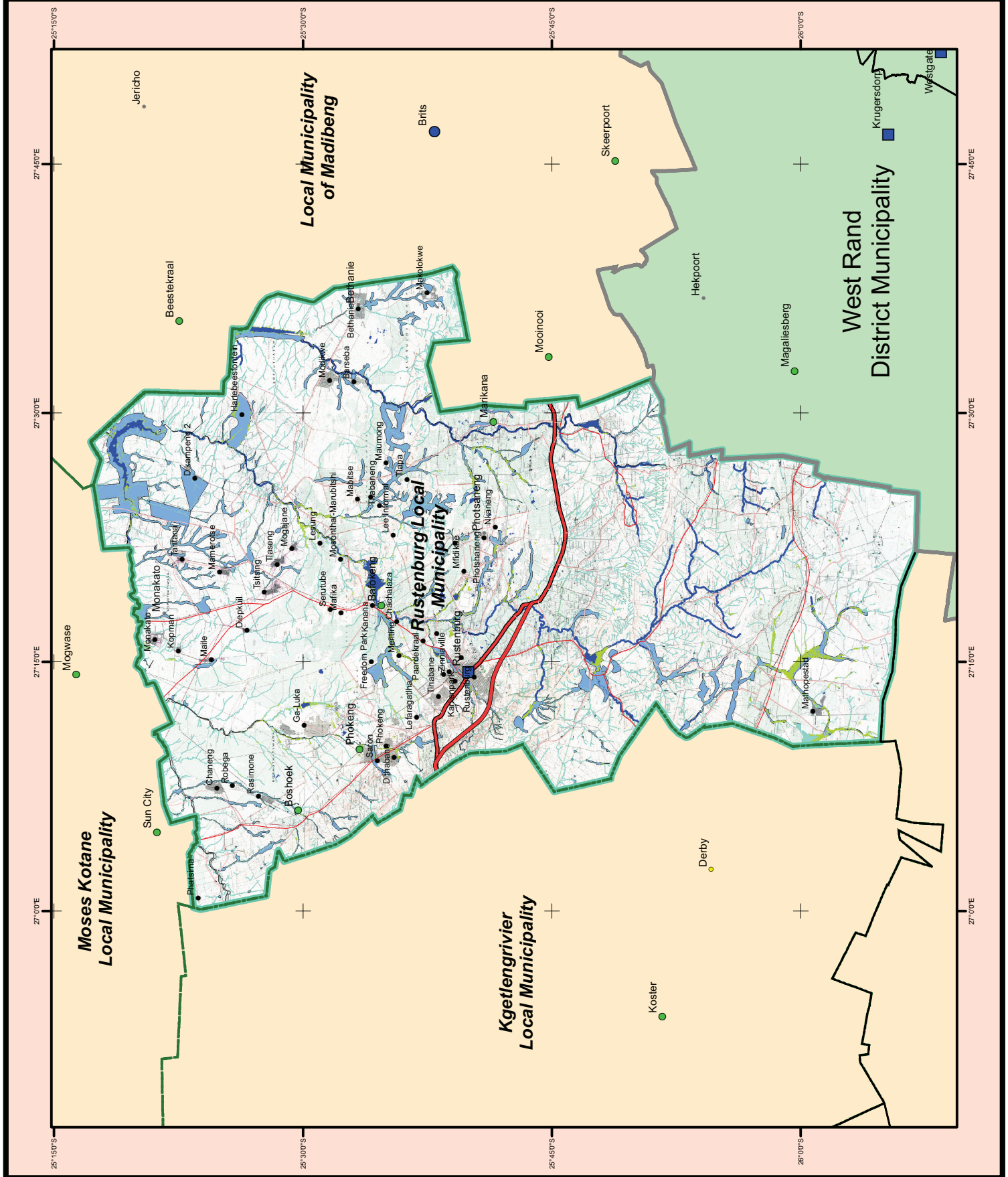
MAP REFERENCE/VERSION NUMBER: Version 1

COORDINATE SYSTEM: Municipal WGS84 (Lc31)

PREPARED BY:

**KSM TECHNOLOGIES (PTY) LTD**  
13 Mispel Avenue  
Rustenburg 0299  
Postal Code 0167  
Private Bag X52329  
Rustenburg 0299  
Tel: +27 (0) 14 533 1843  
Fax: +27 (0) 14 533 1789  
Cell: 082 776 0881

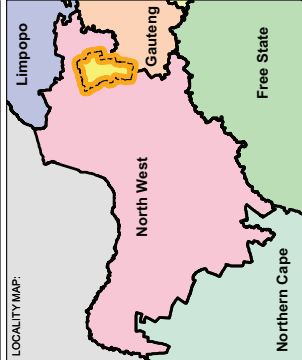
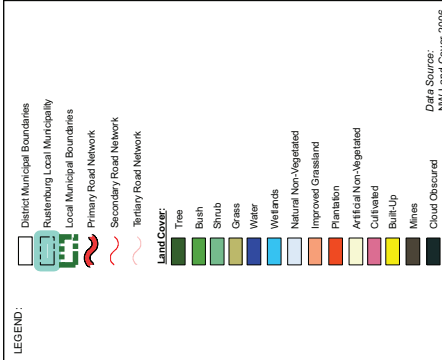
Project Manager: [Signature]  
Author: [Signature]  
Reviewer: [Signature]  
Approver: [Signature]



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### LANDCOVER (Broad Categories)



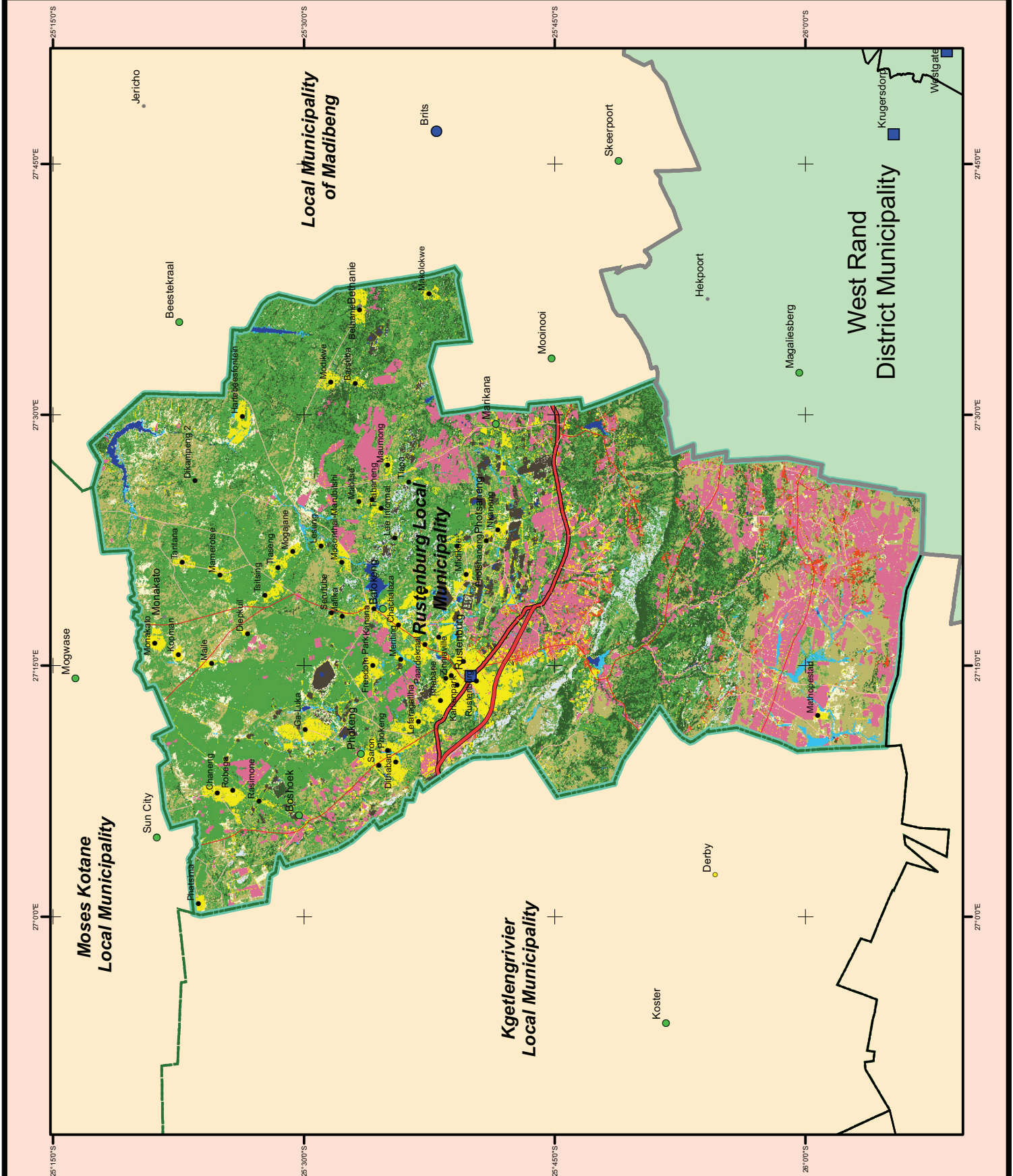
**MAP REFERENCE/VERSION NUMBER:** Version 1

**COORDINATE SYSTEM:** Municipal WGS84 (Lc31)

**PREPARED BY:**

**K3M TECHNOLOGIES (PTY) LTD**  
13 Mosiel Avenue  
Rustenburg 0299  
Postal Code #167  
Private Bag X52329  
Rustenburg 0299  
Tel: +27 (0) 14 533 1843  
Fax: +27 (0) 14 533 1789  
Cell: 082 776 0881

**Approved for Use:**  
Approved for Use  
Approved for Use  
Approved for Use



# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - VEGETATION CLASSIFICATION -



### LEGEND:



Rustenburg Local Municipality



Highway



Main roads



Secondary roads



Other roads



Railway



Perennial River/Stream



Non-Perennial Stream

### Vegetation Categories



Carletonville Dolomite Grassland



Central Sandy Bushveld



Eastern Temperate Freshwater Wetlands



Gauteng Shale Mountain Bushveld



Gold Reef Mountain Bushveld



Marikana Thornveld



Moot Plains Bushveld



Norite Koppies Bushveld



Northern Afrotemperate Forest



Rand Highveld Grassland



Waterberg-Magpiesberg Summit Sourveld



Zeerust Thornveld

SCALE : 1:475,000  
0 2.5 5 Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259  
Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300  
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881  
E-mail: gert@k2m.co.za



Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

- Wind speeds in Rustenburg are generally low, with mean wind speeds of less than 2 m/s throughout the year. Wind speeds of less than 1 m/s, which are designated as calm, occur 20% of the time.
- Wind is most frequently from the south-west and to a lesser extent, west-south-west, but wind speeds are usually low (<2 m/s) from this sector.
- Airflow in the Rustenburg area is clearly influenced by the local topography. The prevailing wind direction over the Highveld is north-westerly. The deviation from the norm is due to the influence of topography. The Magaliesburg Mountain Range runs north-west/south-east and lies to the south-westerly flow at night and north-easterly to north-westerly flow during the day. South-westerly flow starts at around 18:00 once the sun has set and katabatic drainage is initiated. It occurs around 45% of the time at night and wind speeds associated with the flow area is low (usually less than 2 m/s and almost never than 1 m/s). Flow reverses during the day and most airflow is from the northerly sector. North-easterly flow dominates during the morning, while north-westerly flow is more prevalent in the afternoon. South-westerly and west-south-westerly winds are most prevalent in winter (June – August; 38% of the time), while airflow originates more evenly from all directions in summer (December – February).
- Annual rainfall over Rustenburg is highly variable and over the period 1993 to 2004 varied between 230 mm in 2001 and 917 mm in 2000. Mean rainfall over the 12-year period was 536 mm per annum.
- Rustenburg is a summer rainfall region, with most precipitation received between October and March.
- Relative humidity is the highest in the summer months, and any chemical transformations which require water vapour (for example the conversion of SO<sub>2</sub> to sulphate aerosols) will be performed most efficiently in the summer months.
- Mean monthly temperatures in Rustenburg range between 23.0 °C in January and 11.1 °C in July.

The Rustenburg Local Municipality Air Quality Management Plan (2005) identified the major causes of poor air quality in the region as mining and mineral processing, wind blown dust from tailings dams, large informal settlements burning fossil fuels, agriculture, transport, and regional atmospheric transport. The air pollution problem is exacerbated by the topography which is responsible for trapping pollutants under stable atmospheric conditions and limiting flow out of the area. Adverse conditions associated with temperature inversions in the early morning and evening increase the pollution at ground level by reducing dispersion. The dust entrainment by vehicles associated with mining activities elevates dust level throughout the day.

## 6.5 SENSITIVE AND PROTECTED AREAS

The sensitive and protected areas in the study area is depicted on the attached thematic map.

The largest nature reserve within the MPE is the Kgaswane Mountain Reserve, administered by North West Provincial Government. This 4 257 ha reserve is home to klipspringer, grey duiker, bushbuck, kudu, oribi, mountain reedbuck, impala, red hartebeest, zebra, springbok, steenbok, sable antelope and waterbuck, caracal, aardwolf, black-backed jackal and leopard.

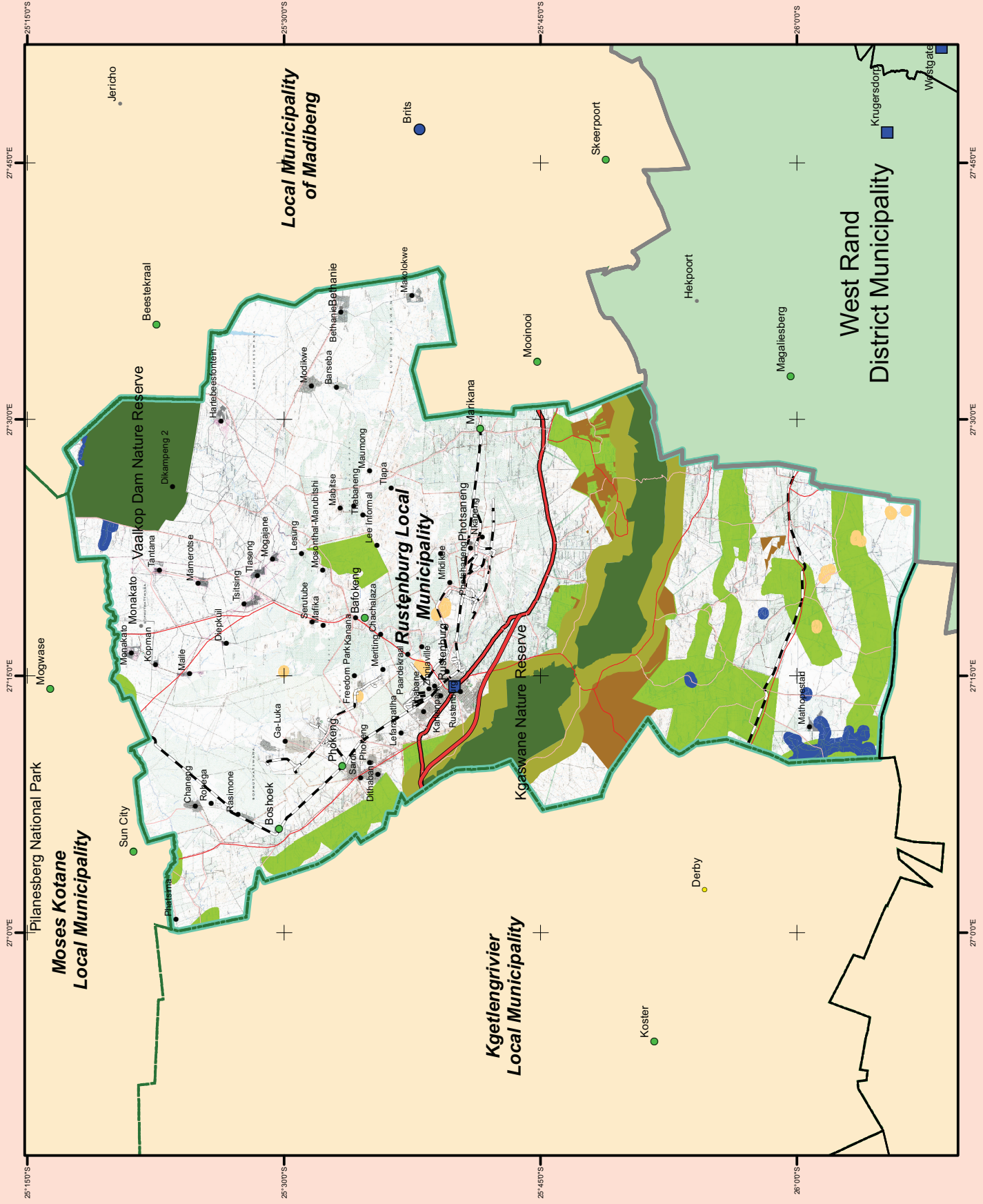
The Mountain Sanctuary Park is the largest privately owned nature reserve in the Magaliesberg range. Smaller private game reserves also occur in the MPE, including Leopard Lodge (Giraffe, Kudu, Blesbuck, Impala, Blue Wildebeest, Red Hartebeest, Zebra, breeding vulture colony). Mamagalie Mountain Lodge and Hunters Rest are amongst the numerous birding hotspots in the Magaliesberg range.

## 6.6 HERITAGE RESOURCES

The “*national estate*” as outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999) is well represented in the Magaliesberg area of Rustenburg. A summary of these resources as described in the Magaliesberg MPE Environmental Management Framework Status Quo Report (2007) is summarised below.

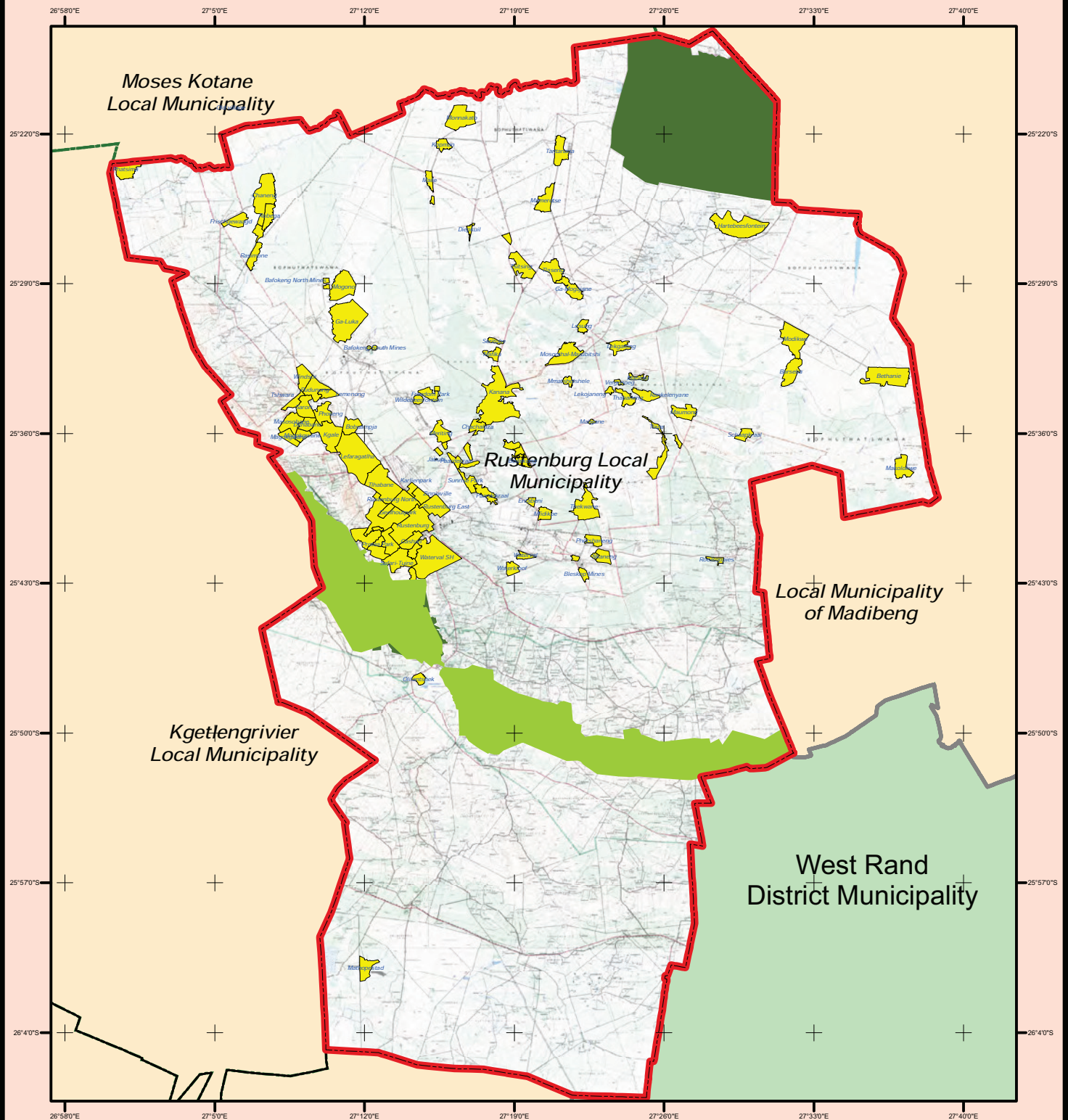
Human history is closely linked to the mountain and its natural resources, which include an abundance of surface water, edible wild plants and fruit, animals and insects that can be used as food and as a supply of other resources. The various necks (*poorte*) in the Magaliesberg, the result of faults, run uninterrupted from Pretoria in the east, to Rustenburg in the west. Since earliest times, these necks served as gateways for animals migrating between the warm bushveld savannah in the north to the cooler grassy plains on the Highveld to the south. Later, when the first humans lived in this area, nomadic Stone Age hunters followed migrating game through these necks. Vaguely recognisable low stone walls in the necks in the Magaliesberg also still reflect a human presence in the mountain from the earliest times, built by people waiting for game to hunt or an enemy to defend themselves, or using the necks as lookout points to look out beyond the Magaliesberg. Commemorative stone cairns (*isivivan*) found at Magatasnek, Hornsnek and other places in the Magaliesberg accumulated when travellers, for as many years as humans passed along those routes, added stones to these heaps in the belief that this act would ensure them safe passage when they crossed the mountain.

The cultural historical significance of the Magaliesberg can be traced back to the Early Stone Age, which began three million years ago, when *Australopithecinae*, humans’ earliest ancestors, roamed the dolomite



# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - PROTECTED AREAS -



### LEGEND:

- Rustenburg Local Municipality
- Magaliesberg Protected Environment
- Vaalkopdam Nature Reserve
- Settlements

\* Proposals informed by:  
1. Demarcation Board  
2. Rustenburg SDF

SCALE : 1:475,000  
0 2.5 5 Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Moesep Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks
Integrated Development Planning
Formal Town Planning Applications
Project Management

area to the south of the Magaliesberg. Here, in what is today called the Cradle of Humankind, one of South Africa's seven World Heritage Sites, some of the earliest evidence for the origins of human life was found in the Sterkfontein, Swartkrans and Kromdraai caves.

*Australopithecus* was succeeded by the Acheulians, who spread remarkably quickly from Africa across the world. The Acheulians adapted successfully to various climates and environments hundreds of thousands of years ago. Large numbers of characteristic Acheulian hand axes and cleavers, stylistically similar across the world and manufactured by *Homo Erectus*, have been found at Wonderboompoort in the Magaliesberg.

The predecessors to modern humans, *homo sapiens*, lived in the Magaliesberg during the Middle Stone Age, approximately two hundred thousand years ago. Middle Stone Age tools were found in the Kruger Cave and near Silkaatsnek. Middle Stone Age hunters-gatherers lived in open sites and in caves. They knew how to make and control fire and used bows and arrows to hunt. They also gathered a wide range of foods from the veldt.

More than twenty thousand years ago, Middle Stone Age people were joined by Late Stone Age hunter-gatherers that either lived near small streams in the Magalies Valley or occupied caves on the slopes of the Magaliesberg. They manufactured microlithic stone tools and ate plant foods, including marula fruit. Rock shelters and caves were used as temporary dwellings and as religious sites where the people left rock paintings on the faces of walls. The Kruger Cave as well as the Jubilee and Xanada shelters were occupied by these people, whose ways of life were very similar to the historically known San people.

Rock paintings sites occur at Jubilee Shelter and in the Kruger Cave near Olifantsnek. More of these sites will probably be discovered. Many exquisite rock engravings have been found on diabase rock along the south-facing slopes of the Magaliesberg, for example, at Maanhaarrand and Avondale. Most of these engravings depict animal figures in such detail that individual species can be identified without any difficulty.

Rock engravings and paintings reflect much of the way Late Stone Age people thought. However, some engravings on smaller moveable rocks have been illegally removed from the Magaliesberg in the past. Consequently, a collection of engravings was removed from the mountain to the Rock Art Museum at the Johannesburg Zoo in the 1960s. Here they can be viewed by the public and they can be conserved.

From AD300 to AD500, mixed farming and pottery manufacture were practised near Broederstroom along the lower slopes of the Witwatersberge, south of the Magaliesberg. These Early Iron Age communities kept small livestock and possibly cattle as well. These farmers were the first humans to

occupy large and semi-permanent villages near the Magaliesberg. They smelted iron ores, and they lived in what was believed to have been hemispherical mud houses in villages built using a circular ground plan. Such remains have also been found at Derdepoort, further to the east along the Magaliesberg.

During the Late Iron Age and in the historical period (AD1650 to AD1880), Tswana tribes such as the Fokeng and Tlôkwa (Rustenburg), the Kwena Môgôpa, the Kgatla of Motšha and the Mmakau and the Kwena of Mogale (Madibeng and Hartebeespoort) lived to the north of the Magaliesberg. The Bapô, who originated from among the Nguni in Kwa Zulu/Natal, lived at Tlhôgôkgolo (Wolhuterskop), near the northern foot of the Magaliesberg, where they intermarried with local baTswana to become known as the Kwena Mogale. The Magaliesberg's name is derived from the name of one of their ancestral chiefs, Mogale.

Numerous stone walled sites, probably occupied by Sotho-Tswana and Ndebele clans during the Late Iron Age and historical period, occur along the slopes of the Magaliesberg. These settlements are visible on aerial photographs but most have not been studied or recorded in any detail as yet.

Closer to Rustenburg, two baTswana chiefdoms (*merafe*) arose early in the seventeenth century. The Kwena Modimosana Mmatau and Ramanamêla chiefdoms occupied the capitals (*metse*) Molokwane and Bôitsêmagano respectively. These *metse* lay to the west of the Magaliesberg. These Late Iron Age peoples practised mixed farming. The populations of these capitals numbered thousands of individuals occupying the largest cities in Southern Africa at the time. The Mmataua was ruled by Kgasoane, probably for fifty years or longer. The name 'Cashan', which is used for the Magaliesberg near Rustenburg, is a corruption of the name of this formidable *kgosi* (king) whose influence must have stretched far and wide. The Modimosana chiefdoms were destroyed during the *difaqane* in the early nineteenth century.

Conflicts and disputes between some baTswana clans near the Magaliesberg in the early nineteenth century were followed by the *difaqane* (AD1827-AD1832) when the Ndebele of Mzilikazi arrived in the Bankeveld. Many Tswana clans were subjugated by the Ndebele, who established at least three military kraals (*amakhanda*) near the Magaliesberg, at Silkaatsnek (derived from Mzilikazi's name), at Wonderboompoort and in the foothills of the Magaliesberg near Rustenburg. It is said that the Ndebele ruler had many of his foes and disloyal tribal members executed by having them thrown from the krantzies at Silkaatsnek. The ruins of Mzilikazi's villages (*imizi*) and military kraals (*amakhanda*) can still be seen in the Magaliesberg.

The first travellers to visit the Magaliesberg during the early decades of the 19<sup>th</sup> century were traders, missionaries, scientists and adventurers such as Robert Schoon and William McLuckie (1829), Robert

Moffat (1829), Andrew Smith (1835) and Cornwallis Harris (1836). Charles Bell and Cornwallis Harris left paintings of the Magaliesberg. They also illustrated animals and plants from the region and left depictions of the local population which serve a record of the cultural history and lifestyles of Late Iron Age peoples near and in the Magaliesberg. They depicted the wretched living conditions of refugees, victims of the *difaqane*, living in massive fig trees (*Ficus Ingens*) along the Magaliesberg between Boshoeck and Rustenburg during the 1830s.

The first Voortrekkers settled near the Magaliesberg during the 1840s. Voortrekker leaders such as Gert Kruger moved into the Moot and established the farm Hekpoort, now a small town in the area. Casper Kruger occupied farms on the southern slope of the Magaliesberg near Olifantsnek. Paul Kruger owned Waterkloof and later Boekenhoutfontein, and Andries Potgieter settled on Buffelshoek on the southern slopes of the Magaliesburg near Rustenburg.

Remains of Voortrekker houses with outbuildings, sheds, schools, cemeteries, cattle enclosures in stone, smithies and remains of mills can be found along the Magaliesberg from Boshoeck in the north to Hartebeespoort in the south.

The Magaliesberg became an important battlefield during the Second Anglo Transvaal War (1899-1902). The British used the mountain as a natural barrier against which mobile Boer commandoes could be driven and trapped, and the Boer commandoes, who knew the terrain well, used the mountainous terrain to ambush the British. The British defensive system included blockhouses and redoubts which were established along the Magaliesberg and the Witwatersberg. Battles between Boer and Brit in the Magaliesberg during 1900 included the two battles of Silkaatsnek for control of the Rustenburg/Pretoria road; a battle at Olifantsnek for control of the Krugersdorp/Rustenburg road; the battle at Nooitgedacht, where the Boers defeated a large British column, and a battle at Buffelspoort, where the Boers destroyed a British supply convoy. Graveyards for British and Boer soldiers, battlefields, memorials and monuments are therefore scattered all along the Magaliesberg.

Ever since Carl Mauch arrived in Rustenburg and discovered chrome along the Hex river in 1865, a good deal of prospecting was done near the Magaliesberg. Minor copper and silver finds were reported. Chrome was commercially mined on De Kroon from 1921, north of the Magaliesberg. By 1925, several mines were in operation. After Hans Merensky had discovered platinum in the Steelpoort area in 1924, he followed the Merensky Reef around the perimeter of the Bushveld complex as far as Rustenburg. Today, major mining houses exploit the Reef for its platinum and other by-products.

The Magaliesberg's beautiful scenery and its tranquillity has been a great source of inspiration for artists, sculptors, writers and other creative people for many decades. Many of these artists have made the

Magaliesberg their home and continue to contribute to the dynamic, holistic and comprehensive heritage which characterizes the Magaliesberg and draw local and foreign tourists into the area.

## **7 GUIDING PRINCIPLES AND CONCEPTUAL FRAMEWORK**

### **7.1 GUIDING PRINCIPLES**

As a point of departure to formulating spatial development strategies and proposals, it is necessary to establish a normative framework within which these proposals will be developed to ensure alignment with national and provincial policy imperatives.

The subsequent sections summarize this normative framework and include the general principles for land development as defined in the Development Facilitation Act (Chapter 1), the overall principles and objectives of the National Spatial Development Perspective, the priorities as outlined in the Medium Term Strategic Framework, the Natural Resource Management Strategy for the North West Province, as well as the North West Provincial Spatial Development Framework.

#### **7.1.1 General principles for land development**

The overall principles that must guide all land development in South Africa as specified in the Development Facilitation Act can be summarized as follows:

- Provide for urban and rural land development
- Discourage the illegal occupation of land
- Promote efficient and integrated land development
- Promote the integration of the social, economic, institutional and physical aspects of land development
- Promote integrated land development in rural and urban areas in support of each other
- Promote the availability of residential and employment opportunities in close proximity to or integrated with each other
- Optimize the use of existing resources including agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities
- Promote a diverse combination of land uses
- Discourage the phenomenon of “urban sprawl” and contribute to the development of more compact towns and cities
- Contribute to the correction of the historically distorted spatial patterns
- Encourage environmentally sustainable land development practices

- Members of communities affected by land development should actively participate in the process of land development
- Skills and capacities of disadvantaged persons involved in land development should be developed.
- Promote speedy land development
- Each proposed land development area should be judged on its own merits and no particular use of land should in advance or in general be regarded as being less important or desirable than the other use of land
- Land development should result in security of tenure, provide for the widest possible range of tenure alternatives
- Stimulate the effective functioning of a land development market based on open competition between suppliers of goods and services.

### 7.1.2 Principles of the National Spatial Development perspective

The National Spatial Development Perspective states that the National Government is committed to economic growth, employment creation, sustainable service delivery, poverty alleviation and eradication of historic inequities. The NSDP thus proposes a number of normative principles to be used as a guide by all spheres of government when making decisions on infrastructure investment and development spending to meet these overall national objectives. These normative principles are defined as follows:

- Economic growth is a prerequisite for the achievement of other policy objectives, key among which would be poverty alleviation
- Government spending on fixed investment, beyond the constitutional obligation to provide basic services to all citizens (such as water, electricity as well as health and educational facilities), should therefore be focused on localities of economic growth and/or economic potential in order to attract Private-sector investment, stimulate sustainable economic activities and/or create long-term employment opportunities.
- Efforts to address past and current social inequalities should focus on people not places. In localities where there are both high levels of poverty and development potential, this could include fixed capital investment beyond basic services to exploit the potential of those localities. In localities with low development potential, government spending, beyond basic services, should focus on providing social transfers, human resource development and labour market intelligence.

This will enable people to become more mobile and migrate, if they choose to, to localities that are more likely to provide sustainable employment or other economic opportunities.

- In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be channeled into activity corridors and nodes that are adjacent to or link the main growth centres. Infrastructure investment and development spending should primarily support localities that will become major growth nodes in South Africa and the Southern African Development Community region to create regional gateways to the global economy.

These principles are applied to the North West province through the provincial Spatial Development Framework.

### 7.1.3 Medium Term Strategic Framework (2009 to 2014)

The Medium Term Strategic Framework guides the planning and resource allocation activities across all spheres of government through the identification of national development priorities. At least four of these priorities have a direct impact and relation to spatial planning at a local level:

- Speed up growth and transforming the economy
- Build economic and social infrastructure
- Rural development linked to land and agrarian reform
- Sustainable resource management and use

### 7.1.4 North West Spatial Development Principles

(i) **Principle One: Accelerate Growth and Development: (People and the Economy):**

- Economic Growth as a pre-requisite for Growth and Development and for the achievement of all other policy objectives
- Localities that historically indicate the highest levels of economic activity (GVA) have the most potential to continue this trend. As reflected in the PGDS, these areas will be the focus for Government to most guide and support economic growth and development through direct investment in capital infra-structure.
- Major Capex Infrastructure investment should be focused in economically sustainable areas

**(ii) Principle Two: Share Growth and Development: (Investing in people not places)**

- Localities with limited economic potential will form part of Government's focus to improve/maintain the quality of life in these areas through investment in appropriate social infrastructure and programmes.
- Basic service delivery to eradicate backlogs and prepare the poor for future growth and development

**(iii) Principle Three: Promote Sustainable Development (People and the Environment)**

- Ensure environmental and ecological integrity and sustainability (NBSAP) by identifying possible conflict points between proposed development and the environmental sustainability

This Provincial Spatial Development Framework provides a clear set of principles for the preparation of municipal SDF's and was summarised in Table 2.2 in Section 2 of the document and is thus not repeated here

### **7.1.5 Natural Resource Management Strategy for the North West**

The Natural Resource Management Strategy of the NW province (2009) states that "*successful environmental governance (Natural Resource Management) depends largely on the extent to which environmental issues are integrated into and addressed by a variety of sector departments and local authorities*".

The key recommendations for effective Natural Resource Management as outlined in this document s:

- Alignment of all provincial strategic and municipal plans, strategies with the PGDS and PSDF;
- Provincial compliance with Environmental Impact Assessment Regulations; Biodiversity Management Act and compliance with NEMA Principles;
- Development and implementation of bio-monitoring programmes to determine quotas for resource uses in the province;
- Development and implementation of the Provincial Land Use Management Bill to ensure sustainable development and the consideration of environmental issues in land use management;

- Participation of sector departments and municipalities in the NW Provincial Development Planning Forum to align and coordinate actions related to land use management and the implementation of the NW Second Edition EIP;
- Implementation of Environment Toolkit by municipalities; the development and implementation of the Environmental Management Frameworks (EMFs) together with SDFs to ensure that environmental issues are addressed in spatial planning;
- Development and implementation of provincial and municipal Air Quality Management Plans as per national guidelines;
- Implementation of provincial ambient monitoring programme to monitor the impact of mines and industry on natural resources;
- Implementation and monitoring of the NW Provincial Integrated Waste Management Plan;
- Provincial environmental enforcement;
- Environmental capacity building and empowerment; and
- Provincial implementation of Disaster Management Act

## **7.2 CONCEPTUAL FRAMEWORK TO GIVE AFFECT TO THE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK STRATEGIES**

### **7.2.1 Strategy 1: Accelerating Growth and Development through main economic growth areas for prioritized development spending**

#### **7.2.1.1 Purpose and principles of Intervention Zone**

The primary purpose of this development zone as described in the NWPSDF is to Strengthen and consolidate a hierarchy of nodes in terms of:

- Areas currently representing existing spatial concentrations of economic activity
- Areas showing future potential for development expansion in terms of economic growth
- Areas that play a supportive role to existing and future economic development areas.

The principle led responses applicable to this intervention zone as described in the NWPSDF include the following:

- Economic growth and development is the prerequisite for the achievement of other policy objectives such as poverty eradication and equitable development.

- Government infrastructure investment – beyond basic service delivery – will be in areas of high development potential or economic growth
- Areas with high levels of poverty and high development potential should receive investment beyond basic services to exploit this potential.
- Focusing future settlement and economic development opportunities into activity corridors and nodes adjacent to, or linked to main growth centers.

#### 7.2.1.2 Spatial Structuring Elements

At a Municipal level these are areas prioritized in terms of development spending and investment and will contribute to the following:

- **Addressing Spatial Imbalances**
  - To reduce the number of households living under unsustainable conditions
- **Functional hierarchy of towns and cities**
  - Promoting corridor development
  - To enhance the development of primary nodes to develop into organized, well planned metropolitan areas.
  - To reduce the number of small unsustainable settlements over a period of between 20 and 30 years.
- **Specific Land Use Management Principles**
  - Compact Urban Development
  - Focused Investment
  - Managed growth
- **Conforming to concepts such as:**
  - Economic and social activity overlaps
  - Densification
  - Combatting urban sprawl
  - Providing economies of scale for effective and affordable service delivery
  - Promoting infill development where high levels of services are available
  - Increased population density

#### **7.2.1.3 Proposals to apply the spatial structuring elements in the Rustenburg LM**

The detailed application of these elements within the Rustenburg context is described in Section 9.

### **7.2.2 Strategy 2: Sharing growth and development focusing on Social inclusion areas representing areas for investment in people rather than places**

#### **7.2.2.1 Purpose and principles of Intervention Zone**

This Intervention Zone has a rural focus and promotes the concept of social inclusion by promoting and strengthening overlaps in economic activity and poverty to address high levels of spatial fragmentation and exclusion (NW PSDF, 2008).

The principle led responses applicable to this intervention zone as described in the NWPSDF include the following:

- Areas with high levels of poverty and low development potential should receive investment to provide basic services as well as social transfers, human resource development, and labour market information.
- Development of economic sectors and spatial localities in accordance with people needs and potential;
- Deliver on the constitutional obligation to provide basic services to all citizens
- Promote job creation and skills training;
- Support full participation and equal opportunities to all people,
- Offer the poor skills development and employment opportunities to exercise choices in improving their quality of life in a dignified manner.

#### **7.2.2.2 Spatial Structuring Elements**

The provincial priority interventions identified for these intervention areas are to address backlogs in basic needs and to capacitate and empower cooperatives and emerging farmers in terms of facilitating access to markets. It will also strengthen agricultural and rural development institutions, encourage and develop partnerships; and require the relevant authorities to speed up the land reform process in order to address asset poverty and unlock the value of land. Important interventions include:

- Integrated livestock-wildlife management
- Maintain sustainable farming units

- Protection of high potential agricultural land
- Protection of natural resource base and ecosystems on which communities depend for livelihood
- Protect and promote areas with eco-tourism potential

#### **7.2.2.3 Proposals to apply the spatial structuring elements to the local municipal context**

The detailed application of these elements within the Rustenburg context is described in Section 9.

### **7.2.3 Strategy 3: Stimulating and kick starting new potential growth nodes**

#### **7.2.3.1 Purpose and spatial structuring elements of this Intervention Zone**

The North West PSDF defines this zone as a focus area for the emergence of potential new nodes where spatial overlaps between areas of economic activity and areas of poverty occur. This implies focused investment in poverty concentrations that show potential for economic development in their spatial and socio-economic context in terms of the following:

- Previously disadvantaged areas within existing urban areas
- Agriculturally orientated villages in areas of high agricultural potential
- Communities settled in potential game farming areas
- Communities situated in Tourism Corridors and Eco Tourism areas

The Specific Land Use Management Principles applicable to this zone as described in the NWPSDF include the following:

- Concentration on Economic and social activity overlaps
- Integration in terms of functions, mixed uses, classes of society, residential, commercial, social, agriculture and tourism.
- Job opportunities closer to where people are living thus reducing transportation needs
- Increased population density

#### **7.2.3.2 Proposals for applying these spatial structuring elements at local level in the Rustenburg LM**

The detailed application of these elements within the Rustenburg context is described in Section 9.

### **7.2.4 Strategy 4: Sustainable growth and development through appropriate management of environmentally sensitive zones**

#### **7.2.4.1 Planning principles applicable to this intervention zone**

- Elevate key ecological corridors through appropriate protective measures to contribute to the economy
- Prevent and manage the spread of invasive species through clearing efforts focused at wetlands and other sensitive areas
- Minimise further loss of natural habitat to protect ecosystem functioning by means of sector specific land use management guidelines
- Biodiversity considerations should be reflected in all land-use considerations at all levels of Government especially at local level. In this regard it is of utmost importance that spatial biodiversity priority areas are incorporated into all strategic spatial development frameworks and policies
- Use the natural resource base of the province in a sustainable manner.

#### **7.2.4.2 Spatial Structuring Elements**

- Identify priority biodiversity areas
- Identify and prioritise areas for the creation of protected area networks that are representative of the Province and that are ecologically sustainable
- Spatial analysis of land use pressures in relation to biodiversity
- Identification of possible conflict zones (development vs. conservation and bio-diversity protection)

The overall aim of this strategy is to inform land-use planning and make recommendations as to which parts of the landscape should ideally be retained in a natural state. As described in the NW PSDF, the foundations of the CBA classification and the associated land-use guidelines are based on the fundamental ecological and conservation planning principles of:

- Representation - The biodiversity present at the site;
- Complementarity - The spatial relationship between the biodiversity present at the site and neighbouring areas; and,

- Ecological Processes - Understanding of the landscapes ecological composition, structure and functioning requirements for persistence interpreted as the biodiversity conservation targets or land management objective thresholds that determine the minimum spatial requirements for biodiversity patterns, ecological process and ecosystem services to be adequately represented and persist into the future.

In terms of a “Spatial Planning Context”, the guideline for bioregional plans defines three basic CBA categories based on three high-level land management objectives as outlined in Table 7.1. This table indicates a framework for linking spatial planning categories for CBA’s to land-use planning and decision-making guidelines.

**Table 7.1: Spatial Planning Categories for CBA’s**

CBA category	Land Management Objective
PA & CBA 1	<b>Natural landscapes:</b> Ecosystems and species fully intact and undisturbed. These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the biodiversity features targeted in these areas are lost then targets will not be met.
CBA 2	<b>Near-natural landscapes:</b> Ecosystems and species largely intact and undisturbed. Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets.
Ecological Support Areas (ESA)	<b>Functional landscapes:</b> Ecosystems moderately to significantly disturbed but still able to maintain basic functionality. Individual species or other biodiversity indicators may be severely disturbed or reduced. These are areas with low irreplaceability with respect to biodiversity pattern targets only.
No Natural Areas (NA’S)	<b>Production landscapes:</b> manage land to optimize sustainable utilization of natural.

*Source : NW Provincial Spatial Development Framework, 2008*

The detailed application of these elements within the Rustenburg Context is described in Section 9.1.

## 8 SPATIAL DEVELOPMENT PRIORTIES AND OBJECTIVES

The results of the analysis component as outlined in Sections 3 to 6, as well as the overall development principles and development concept described in Section 7 underpins the identification of the spatial development priorities and objectives of the Rustenburg SDF. These priorities and objectives are summarised below.

### 8.1 PRIORITY 1: INTEGRATED SPATIAL DEVELOPMENT SUPPORTED BY THE REQUIRED BULK INFRASTRUCTURE DEVELOPMENT

- Promote a compact urban structure through urban infill and densification, specifically within the individual settlement clusters
- Create a logical hierarchy of settlements to support effective service delivery
- Define an urban edge to contain urban sprawl
- Identify and strengthen gateways to Rustenburg through appropriate urban design, landscaping and development control
- Improve integration between social amenities, economic opportunities and places of residence
- Increase residential densities in selected focus areas
- Improved connectivity with Gauteng City region and surrounding municipalities

### 8.2 PRIORITY 2: ACCELERATED AND SHARED ECONOMIC GROWTH SUPPORTED BY CREATION OF SPATIAL ECONOMIC OPPORTUNITIES

- Future urban development must take cognizance of the impact of existing and future mining operations and mining rights
- Development must be sensitive to the expected lifespan of large individual mining operations
- Integrate mining settlements with the greater Rustenburg urban structure to ensure its long term sustainability and viability after mine or shaft closures
- Create a viable business node hierarchy linked to the proposed service delivery centers
- Identify and plan for the development of industrial/ commercial area linked to the Platinum SDI
- Identify and develop tourism nodes in line with the character of the its surrounding environment
- Develop tourism in the Rustenburg Municipal Area as gateway facilities to the surrounding regional tourism destinations

### **8.3 PRIORITY 3: SUSTAINABLE USE AND MANAGEMENT OF NATURAL RESOURCES**

- Protect ecologically sensitive natural areas
- Create an integrated municipal open space system, comprising of various habitats and ecological systems
- Only support urban development that is in line with the recommendations of the Rustenburg EMF

### **8.4 PRIORITY 4: INTEGRATION OF LAND USE AND TRANSPORT DEVELOPMENT**

- Develop transport infrastructure in accordance with the recommendations of the Rustenburg Integrated Transport Plan
- Focus urban development along major public transportation routes to establish transport corridors
- Implement a reliable and affordable public transport system
- Align land use planning with the proposed Bus Rapid Transport System

### **8.5 PRIORITY 5: CREATION OF SUSTAINABLE SETTLEMENTS THROUGH ACCESS TO APPROPRIATE HOUSING AND SOCIAL FACILITIES**

- Eradicate housing backlog and provide range of housing types
- Promote a greater mix of housing typologies by supporting the development of alternative housing typologies
- Locate new housing development within a rational urban structure and urban development boundary to ensure sustainable development
- Housing developments must include the full range of community facilities to ensure viable and sustainable living environments
- Identify sufficient land for future housing development

## **8.6 PRIORITY 6: CREATION OF OPPORTUNITIES FOR SUSTAINABLE RURAL DEVELOPMENT**

- Focus rural development around key rural settlements
- Redirect the focus of rural settlements located close to water sources on intensive agriculture to lessen their dependence on the Rustenburg core area
- Strengthen rural centers as centers of service delivery
- Protect the intensive agricultural areas of Kroondal, Heldina, Boons and Boschhoek from urban development as far as possible
- Promote the development of agriculture at rural settlements located in proximity of major water sources as a primary income base for these rural settlements
- Promote the transfer of state owned farms into private or semi-private (coops) ownership to facilitate the development of these farms into commercial farming operations

## 9. SPATIAL DEVELOPMENT FRAMEWORK PROPOSALS

To give effect to the overall spatial development objectives as outlined above, it is necessary to create an integrated framework of physical development proposals aligned with these broad objectives. A summary of these proposals is depicted in detail on the series of attached maps, including both the municipal level Spatial Development Framework, as well as more detailed local Spatial Development Frameworks.

A summary of the broad land use proposals at municipal level as reflected on the attached thematic map is summarized in Table 9.1. These figures indicate that the overall SDF proposals is dominated by the various categories of the conservation and open space system, with the open space system representing 38.7% of the total municipal area, and formally conserved areas a further 9.4%. This implies that just over 48% of the total municipal area is earmarked for formal conservation areas or to be retained as various components of the open space system. Agricultural focus areas (including urban agriculture) accounts for 28.2% of the area and mining just over 10%. The overall urban development footprint (including all areas within the defined urban edge) totals 13.4% of the total municipal land area.

**Table 9.1:**

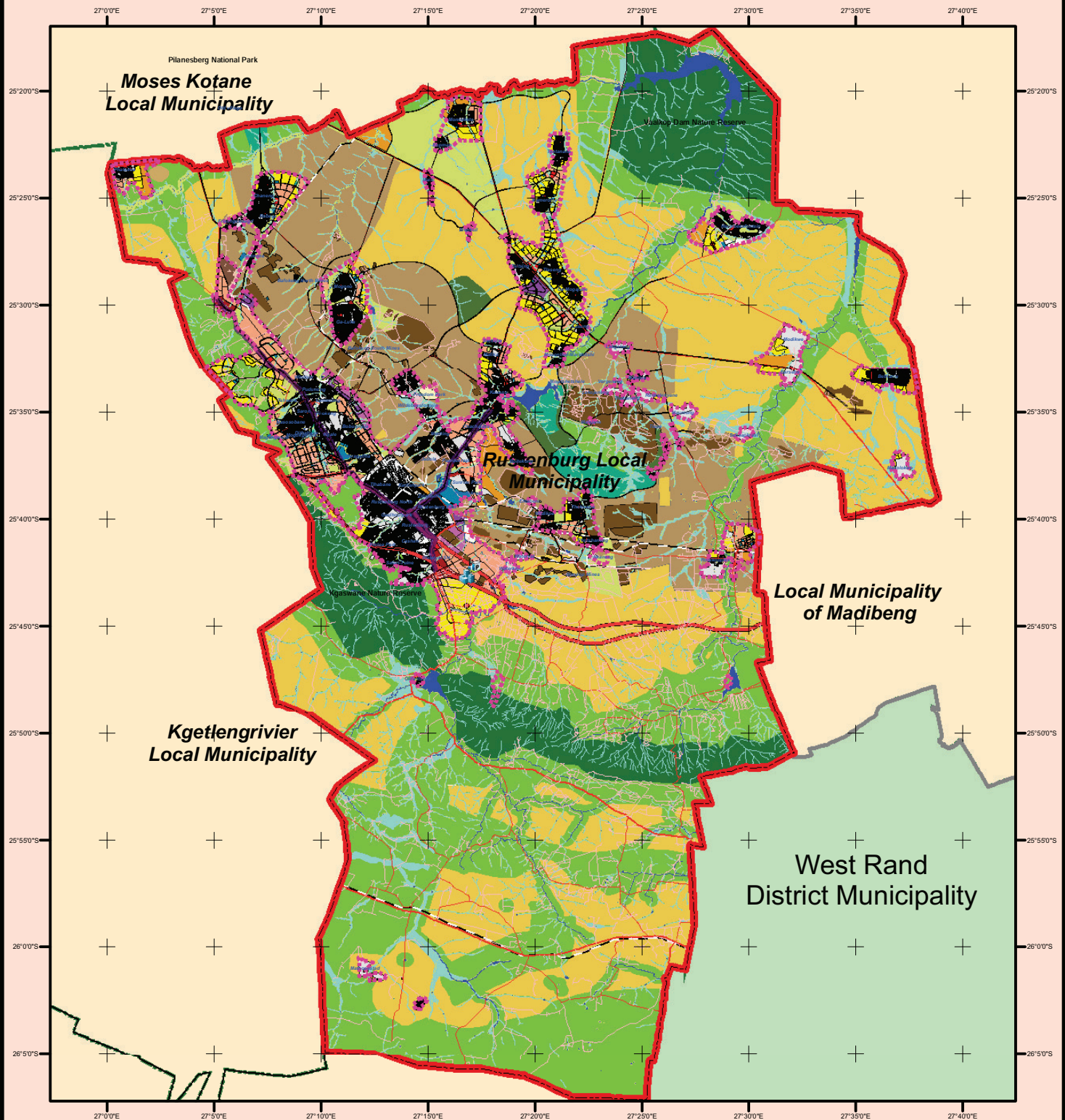
SDF category	Area (%)
Urban development footprint	13.4
Open Space	38.7
Mining	10.3
Agriculture	28.2
Conservation	9.4
Total Municipal Area	100.0

### 9.1 BIO-PHYSICAL

Traditionally, the open space system and network incorporated in Spatial Development Frameworks consisted of “*non developable areas*” such as areas affected by flood lines, geotechnical constraints, steep slopes and topographical characteristics. More recently the focus has shifted to biodiversity protection and the maintenance of ecological systems and processes. In the case of latter, one of the primary focus areas is the limitation of the fragmentation of ecological systems. The overall municipal level open space network has thus been devised to allow for maximum interaction between various

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORK -



### LEGEND:

- |                               |                            |                          |                                   |
|-------------------------------|----------------------------|--------------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge               | Mining                            |
| Highway                       | Non-Perennial Stream       | New Proposed Roads       | Mining (surface infrastructure)   |
| Main roads                    | Existing urban development | Rapid Bus Transport Lane | Mixed use                         |
| Secondary roads               | Aquatic Management Zone    | Business/Commercial      | Public facilities/Institutional   |
| Other roads                   | Possible Education hub     | Agriculture              | Recreation                        |
| Railway                       | Possible Police Station    | Business/Commercial      | Regional Open Space               |
|                               |                            | Conservation             | Single Residential                |
|                               |                            | Industrial               | Multiple Residential              |
|                               |                            | Light industrial         | Residential (potential upgrading) |
|                               |                            | Local Open Space         | Urban agriculture                 |

\* Proposals informed by:  
1. Royal Bafokeng Nation Master Plan  
2. Rustenburg LM Wetland Inventory Study

SCALE : 1:475,000  
DATE: April 2010  
COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mosapel Avenue  
Rustenburg 0259  
Postnet Suite #167  
Private Bag X82329  
Rustenburg 0300  
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881  
E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

ecological systems and processes and ensuring continuity of these systems as far as possible. The following components were used as a point of departure in structuring this open space system:

- Existing nature reserves and protected areas including the Vaalkop Nature Reserve, the Kgaswane Nature Reserve, the Magaliesberg Protected Environment.
- Areas identified as Critical Biodiversity Area (Category 1) in the North West Provincial Spatial Development Framework (also refer to Table 7.1).
- Areas identified as environmentally sensitive areas (Category 1) in the North West Provincial SDF.
- The buffer area around the Magaliesberg Protected Environment as identified in the MPE Environmental Management Framework.
- Proposed new conservation areas as identified in the Master Plan of the Royal Bafokeng Administration.
- The aquatic management zones as identified in the Rustenburg Wetland Inventory.
- A 32m buffer around all perennial and non-perennial rivers within the municipal area.

This framework was then integrated by identifying important areas linking these various components at a municipal level through a regional open space system. At a more local level certain areas has also been designated as local open space playing an important role in maintaining ecological processes at local level and creating recreation opportunities at the level of individual clusters. This open space system is graphically depicted on the attached thematic map.

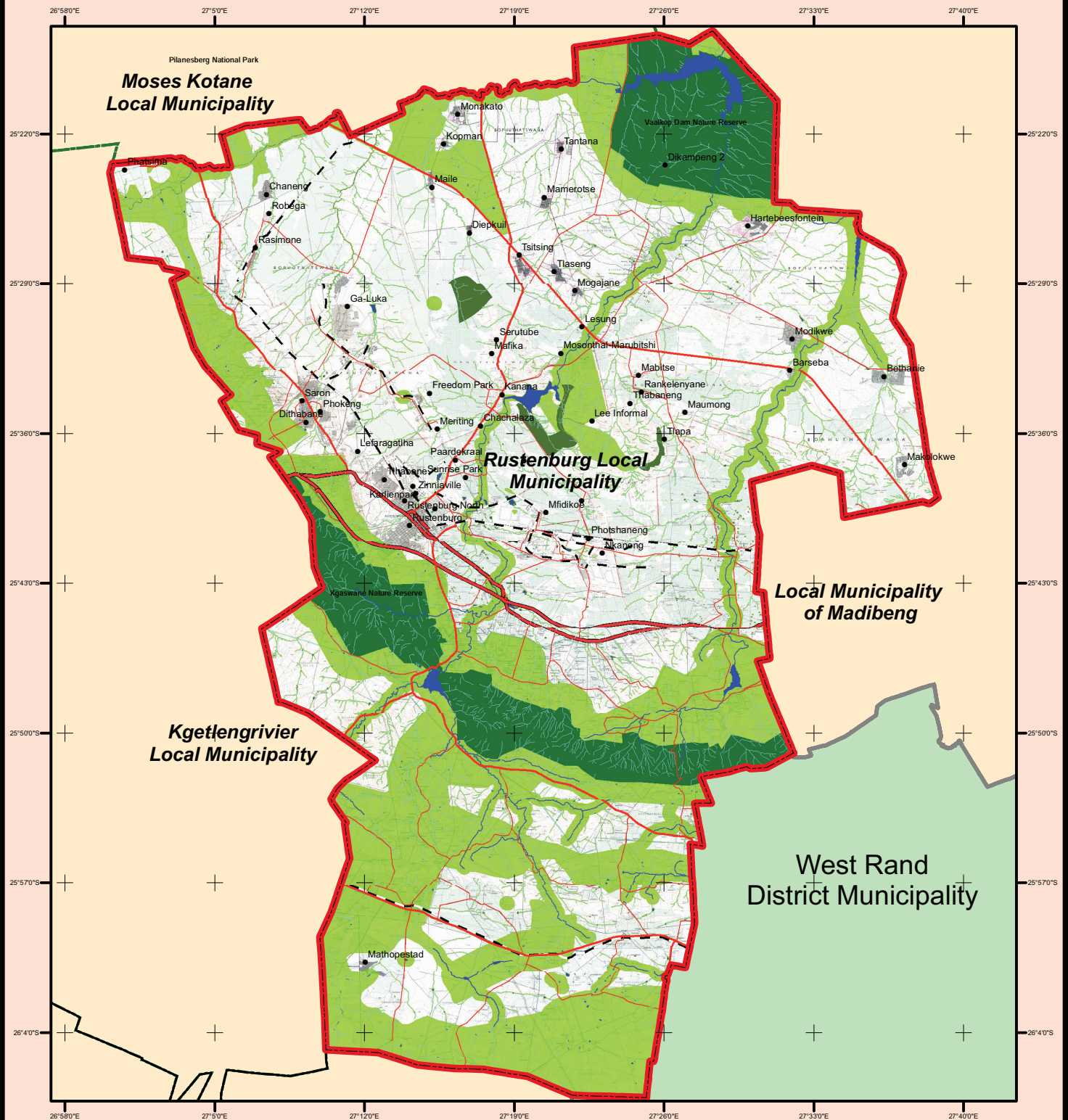
Certain parts of this open space system will function as part of the “passive open space network” and others will form part of the “active open space system”. The functions of the “passive” open space system are summarized in Table 9.2 below.

**Table 9.2: Functions of Passive Open Space System**

<b>Hazard avoidance</b>	<b>Resource conservation</b>	<b>Recreational and psychological</b>	<b>Educational</b>
Passive open spaces should be located on flood prone areas.	Passive open spaces should protect passive water sources.	A developed and maintained passive open space should be retained for social and recreational purposes.	Passive open spaces should be protected for environmental education purposes.
Passive open spaces should be located on steep slopes and geologically unstable ground.	Passive open spaces should protect interlinked areas of conservable indigenous vegetation.	Passive open spaces should be protected for psychological relief from the stresses of urban live.	
Passive open spaces should protect drinking water sources from being contaminated.			

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - MUNICIPAL OPEN SPACE SYSTEM -



### LEGEND:

- Rustenburg Local Municipality
- Highway
- Main roads
- Secondary roads
- Railway
- Perennial River/Stream
- Non-Perennial Stream
- Municipal Open Space System
- Protected Areas

SCALE : 1:475,000  
0 2.5 5 Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Moesep Avenue  
Rustenburg 0259  
Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300  
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881  
E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

Active open space on the other hand involves the recreational component of the open space system. It provides sport facilities at settlements for use by the local residents and schools. These facilities can fulfill the following functions:

- *Social:* Recreation facilities should be venues for social interaction and symbols of community identity. Sport events can become a facilitator of social interaction within a community.
- *Psychological:* Recreation improves the physical and mental health of communities, because it provides space within built-up areas that can be used to relieve people of the stresses of everyday living.
- *Educational:* Recreation is an integral part of the education of school children. The development of well-equipped and designed recreation facilities can be used to enhance the sport education of children.
- *Economic:* Recreation facilities can contribute to the economic development of a community. For example, income can be generated from entrance fees charged at sport matches and secondary spin-offs can be obtained by businesses surrounding the recreation facilities, providing goods and services to visiting spectators

The main development principles that need to be taken into account when developing an active open space system for the Rustenburg Municipal Area is as follows:

**(i) Costs Involved in Development and Maintenance**

An important factor in determining the number and size of active open spaces mainly relates to the development and maintenance costs thereof. The extent of active open spaces that are developed should not exceed the resources available to develop and maintain such open spaces. Experience has proved that active open spaces that are not fully developed and maintained often lose their practical value to local residents. It could thus be argued that smaller and fewer active open spaces that are reasonably developed and maintained are far more useful than a large number of active open spaces that are not.

**(ii) Type of Facilities Provided**

To prevent the provision of inappropriate recreational facilities, the recreational preferences of a local community must be established before planning and developing a recreational facility.

**(iii) Urban Form and Function**

Active open spaces can also form part of proposed Service Delivery Centres (SDCs). If active open spaces are integrated through design with the other facilities within a SDC, it will enhance the usage of these open spaces and enhance the viability of the other land uses the SDC. For example, if an active open space that contains recreation facilities were located next to schools, it would automatically be accessible and available to the schools for use during the week. Placing it close to a retail facility will ensure that during weekend sports matches, spectators will have easy access to local businesses for refreshments, thus benefiting the local economy.

## **9.2 SETTLEMENT PATTERN AND URBAN DEVELOPMENT**

### **9.2.1 Nodes and settlement hierarchy**

**a. 1st Order Settlements**

The core area of the Municipal Area is Rustenburg (including Tlhabane) that contains the region's only CBD and significant industrial area. It is also the area that contains the majority of urban functions and a significant proportion of the Municipal population. The population of the Rustenburg Core Area has shown substantial growth in recent years, mainly attributed to the higher-order employment and commercial opportunities and social amenities located within the core area. It is expected that this core area will continue to grow at a higher than average growth rates over the next decade, in the order of 3 to 5 % per annum

**b. 2nd Order Settlements**

The Boitekong Cluster and the Phokeng Cluster represents the second order settlements in the overall settlement hierarchy. The Boitekong Cluster is largely linked to the growth in the platinum mining industry, which has led to people choosing to reside in this area to obtain easy access to employment at the mines in the area. The Boitekong cluster has been characterized by very high growth rate in recent years, and it is expected that this above average growth rates (3 to 5%) will continue to prevail over the next decade.

The Phokeng cluster is the main node within the Royal Bafokeng Administration and is also the administrative seat of the Royal Bafokeng. The growth and settlement within this cluster is focused only on the residents of the Royal Bafokeng nation and it is thus not expected that it will grow at a similar rate

than the Rustenburg and Boitekong areas. Consequently, an average growth rate of approximately 2% per annum is expected for the next decade.

**c. 3rd Order Settlements**

A total of five 3rd order clusters can be identified in the overall settlement pattern:

- Robega Cluster
- Luka Cluster
- Tlaseng Cluster
- Thekwane Cluster
- Hartbeesfontein cluster.

The historical and future growth of these 3rd order settlement clusters are driven by different growth factors. The growth of the Robega and Thekwane clusters are driven by activities and growth in the platinum mining sector and are therefore expected to maintain higher than average growth rates in the order of 3% per annum.

Although the Tlaseng cluster has not historically grown at the same rate as the other clusters referred to above, this area is less constrained by physical constraints such as mining activities and associated infrastructure compared to some of the other clusters. In the long term strategic master plan of the Royal Bafokeng Administration, this cluster is also seen as an important future growth node with a number of important interventions planned in and around this node (also refer to attached Local Spatial Development Framework for this area). It is thus expected that the growth for this cluster will exceed the historical growth rate and is likely to grow at an above average growth rate of 3% – 4% per annum over the next decade.

Despite the size and historical growth of the Ga-Luka cluster, this area is significantly constrained by surrounding mining activities in terms of potential future expansion. Although strategically located, it is thus not expected to grow at future rate much in excess of 2% per annum over the next decade.

Despite its size, Hartebeesfontein is located a significant distance away from the main development nodes and development corridors identified for the municipal area. A number of current development initiatives will however continue to support the growth of this area, albeit at levels not expected to exceed 2% per annum.

**d. Lower Order Settlements**

The 4th and 5th order settlement clusters primarily comprise the predominant rural settlements located within the Rustenburg Municipal Area (eg. Rankelenyane Cluster, Bethanie Modikwe, etc). In the period up to the early 1990's these rural settlements have shown significant growth, mainly due to the development policies and ideology of the past political dispensation. These policies discouraged the settlement of population based on natural economic and demographic factors and since the advent of the democratic era, many of the people residing in these settlements have now tended to relocate closer to the larger urban nodes for better access to employment opportunities and high order social amenities.

This trend has had a definite impact on the lower order settlements within the Rustenburg Municipal Area. People forming part of the younger age profile, are now choosing to reside closer to core urban areas, such as Rustenburg and Boitekong. Due to this trend, these settlements are generally expected to have lower than average growth rates of 1% or less per annum, and many of the smaller areas may indeed experience negative growth rates over the next decade.

In terms of the NW PSDF principles these lower order settlements act as the focus of the rural areas surrounding them. It implies optimizing the economic base relevant to these types of such as small scale farming or tourism. It must also involve developing Rural Service Delivery Centres at these settlements to service the surrounding rural population, containing community facilities such as schools and clinics

## **9.2.2 Development corridors**

### **9.2.2.1 N4 Corridor**

The primary development corridor of the Municipal Area is aligned along the N4, the Old Pretoria road, and the Thekwane road, stretching from Rustenburg (the core area), south eastwards. It occupies a strategic location at the entrance to Rustenburg and follows an existing and established flow of people and goods towards Tshwane. Due to the impact of the friction of distance, development potential is not equally distributed along the entire corridor. The main focus area is expected to be from the Rustenburg CBD along and between the N4 and the old Pretoria road up to the Kroondal rural settlement. The remainder of the area in both the eastern and western direction have more limited development potential although the mobility and access provided by the N4 could stimulate further economic development and investment along this corridor.

To fully utilise the potential of this corridor, it should become the primary focus for residential, business and commercial development, forming a band of mixed land uses extending from Rustenburg.

Commercial and industrial uses in particular could be a significant contributing land use, especially when linked to the Platinum SDI. To strengthen this corridor, investment and infrastructure development should be focused in this corridor.

Special attention should be given to public transport infrastructure development within the Rustenburg-Thekwane Corridor to ensure the efficient and cost-effective flow of people within this corridor. Public transport facilities should be designed to support the residential function of this corridor through the strategic placing of bus and taxi termini at intersections along this corridor, especially along the Old Pretoria and Thekwane roads.

#### 9.2.2.2 Rustenburg-Kanana-Tlaseng corridor

The Rustenburg-Kanana Corridor follows road R510 and links Boitekong, Meriting, Kanana and Freedom Park to Rustenburg. In addition to historic development trends, development within the proposed Rustenburg-Kanana Corridor was hampered and will in future be hampered by the mining belt that separates the Boitekong Cluster from Rustenburg. Although it may not be feasible to completely link and integrate the Boitekong Cluster with Rustenburg town, there are still significant areas of vacant land within the Boitekong Cluster straddling the R510 that could potentially be developed and will strengthen the proposed Rustenburg-Kanana corridor.

One of the disadvantages of developing and strengthening this corridor is the absence of a significant retail and commercial node within the Meriteng and Boitekong area. The spatial development proposals for this cluster suggests a number of areas earmarked for commercial and retail development and its recommended that a primary retail node should be identified and investment for the development for such a node be actively pursued. A fully functional public transport system along this corridor would also be important to link a significant proportion of the population residing in this area, linking it to the economic and employment activities in the Rustenburg core area as well as in the surrounding mining areas.

#### 9.2.2.3 Phokeng-Robega corridor

The Rustenburg-Robega Corridor links Chaneng, Robega, Rasimone, Mogono, Luka and Phokeng to Rustenburg. The form and function of this corridor is shaped by a number of natural features that includes the regional open space system along the Magaliesberg, as well as the adjacent high potential agricultural areas to the west of this corridor, and the mining activities towards the east. This results in a relatively narrow focused area for potential development along the Rustenburg/Sun City road. This in turn creates ideal circumstances for mixed use development, including residential development at relatively high densities.

The spatial area defined by this primary development corridors and nodes as described above should be the focus area for developing well organized and planned urban areas with the focus on a compact and logical development structure. The focus in this spatially defined area should also be on the densification of existing settlements and optimizing the potential economies of scale that could be related to infrastructure provision in these area. Opportunities to promote infill developments, both at the scale of individual settlements, as well as at the sub-regional level between these nodes, should also be pursued.

### 9.2.3 Demarcating an Urban Edge

The purpose of defining an urban edge is to prevent uncontrolled urban development which may lead to urban sprawl and increases pressure on limited resources. The main advantage is thus directing urban growth and protecting natural resources, without being unduly prescriptive. The demarcation of an urban edge can also have unexpected negative externalities such as restricting the availability of land for urban development which may lead to inflated land prices within the urban boundary. It is thus imperative to ensure that sufficient land for various uses is identified within the urban edge to accommodate the expected growth over the time frame of the plan. The urban edge has also been refined to each development cluster within the municipal area (as compared to an overall municipal urban edge) to accommodate unique development circumstances within and around each cluster. As indicated in the quantitative information outlined in Section 10, the identified land for various urban uses within each of the clusters are deemed to be sufficient to cater for the projected development needs of Rustenburg over the next decade.

It is envisaged that the ongoing implementation of the urban edge will contribute to higher residential densities and that infilling of vacant land between urban areas will be achieved. One of the most significant advantages of higher densities through infilling is that they allow the cost-effective provision of infrastructure, as opposed to lower residential areas, simply because the same bulk infrastructure network serves a larger population in a given geographical area. In addition, the densification of residential areas will promote the efficient use of a public transport system because it places a larger number of people within walking distance of public transportation systems.

### 9.2.4 Housing Development

All new residential development within Rustenburg should be guided by the following set of criteria:

**(i) Availability of Bulk Services**

New residential developments are reliant on access to bulk municipal services. These include water, sewer and electricity bulk infrastructure, of which access to bulk water infrastructure is the most important. As a rule, bulk municipal services are available in or next to existing urban areas. This favors infill development as the primary option for new housing development and opposes urban sprawl as a form of urban development.

**(ii) Access to Social Amenities and Economic Opportunities**

New residential developments should be located in a manner that will ensure that these settlements will have reasonable access to social amenities and economic opportunities.

**(iii) Access to Public Transportation**

As indicated in the Municipal Roads Master plan it is the intention of Rustenburg to significantly increase public transport usage across all income groups over the next decade. The identification of a Bus Rapid Transport system and the alignment of proposed bus lanes is an important guiding element that should inform the location and development of higher density residential developments. The existing public transport routes served by minibus taxis should also be an important consideration.

**(iv) Integration of Urban Structure**

The consideration of new residential developments should be measured against the extent to which they contribute to the establishment of integrated, economically viable and sustainable communities. This implies promoting infill development, instead of allowing urban sprawl to continue unabated and is the overall aim of the SDF development concept described above.

**(v) Located within Urban Edge**

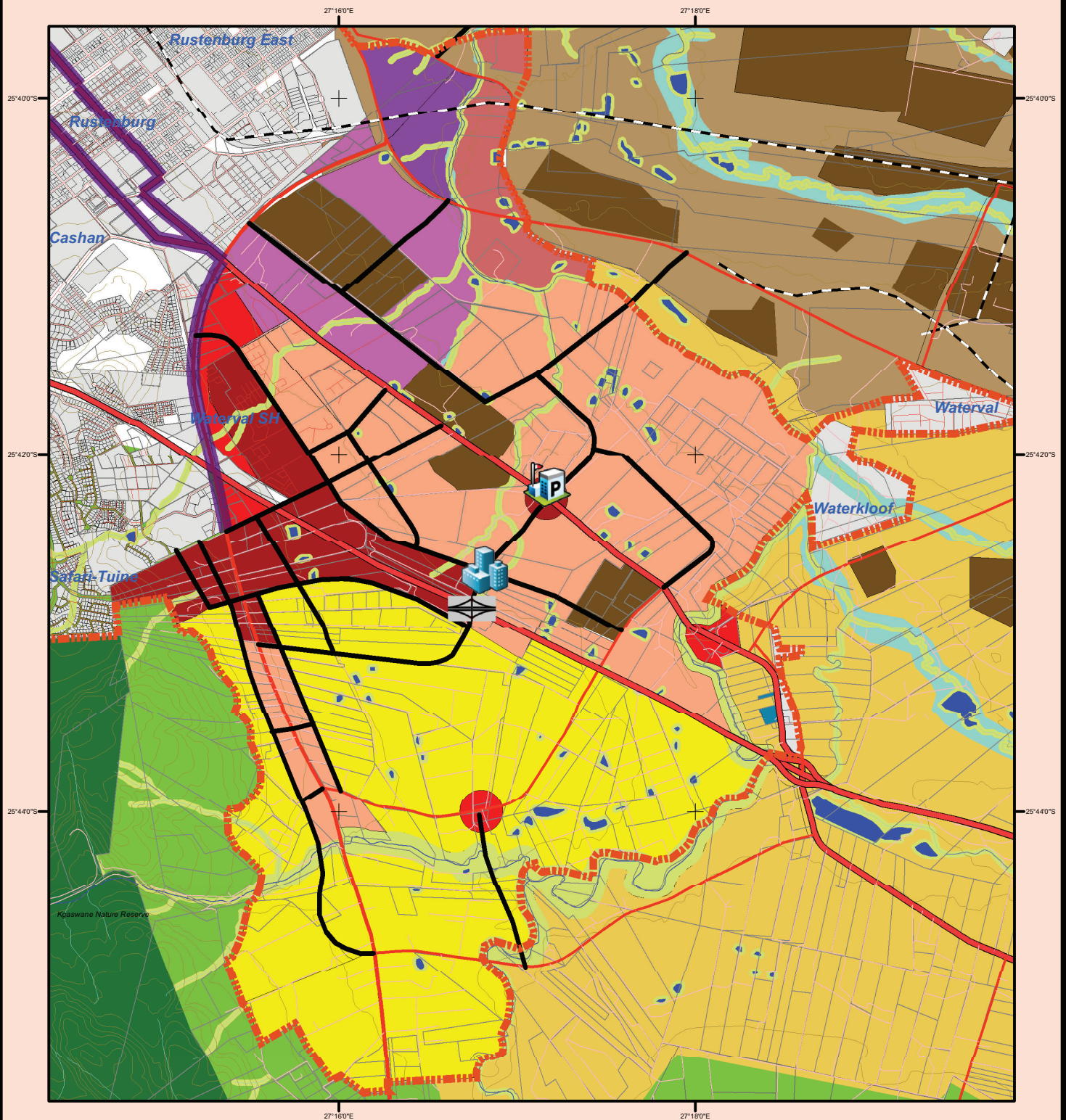
In order to achieve urban integration and limit sprawl, it will be necessary to adhere to the urban edge, as set out above. No new residential developments should be supported outside the boundaries of the urban edge.

CLUSTER	AREA (ha)	PROPOSALS
---------	--------------	-----------

CLUSTER	AREA (ha)	PROPOSALS
Bethanie	220.7	Three potential new areas have been identified for future residential development. These include two areas located adjacent to and immediately south of the existing development area. The third and largest area is located west of the existing residential development of Bethanie.
Chaneng/Robega	556.5	The proposed future residential extension of this cluster will mainly take place in an eastern direction. This area is located between the two local open space corridors along the aquatic management zones located east of the existing development boundary. The areas adjacent to the existing developments are targeted for medium to high density residential development and the surrounding parts for the lower density type of development. A number of smaller infill sites along the western boundary have also been identified.
Ga-Luka	322.4	Future development expansion areas in this cluster is severely constrained by both mining activities located in the immediately surrounding area, as well as a number of aquatic areas and associated local open space corridors. The only viable option for future urban development appears to be in the area along the existing north eastern boundary of the built-up area. It is proposed that the zone located closest to the existing residential development be earmarked for medium to high density residential development, and the zone at the periphery of this development area for low-density residential. Any development in this area will have to take place in parallel with the rehabilitation mining activities and infrastructure, as well as the necessary studies to determine whether a healthy living environment can be created. The protection of the aquatic zones within this area will also play an important role in any future development.
Lekgalong	13.3	The identified area for future residential development is located in the north-eastern part of Lekgalong, immediately north of the Sun City road.
Lethabong	225.4	The main focus areas for future residential development in Hartebeesfontein/Lethabong are in a south western direction. Two development areas are proposed: <ul style="list-style-type: none"> <li>Immediately southwest and adjacent to the proposed Lethabong Ext. 3 and the existing cemetery.</li> <li>An area further west, opposite the public open space corridor, west of the cemetery and proposed Lethabong Ext. 3.</li> </ul>
Mabitse/Rankelenyane	12.7	Two new residential extensions are proposed in the Mabitse/Rankelyneane cluster. The first is south of the existing development in Mabitse and the second a proposed eastward extension of the Rankelyneane development.
Maile/Kopman	4.6	Limited residential expansion area is proposed in a northern direction in Kopman adjacent to the Monakato road.
Makolokwe	63.5	Proposed future residential development in Makolokwe is proposed in a north western direction, and the boundary of this extension area will be determined by the local open space network and aquatic management zones located in these areas.
Mathopestad	18.9	Future residential development in Mathopestad is recommended in a southward direction of the eastern section of Mathopestad. The exact boundaries of this extension area will be determined by the wetland and aquatic management zone located in the surrounding areas.

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR WATERVAL AREA CLUSTER -



### LEGEND:

- |                               |                             |                          |                                   |
|-------------------------------|-----------------------------|--------------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream      | Urban Edge               | Mining (surface infrastructure)   |
| Highway                       | Non-Perennial Stream        | New Proposed Roads       | Mixed use                         |
| Main roads                    | Contours                    | Rapid Bus Transport Lane | Public facilities/Institutional   |
| Secondary roads               | Existing urban development  | Agriculture              | Recreation                        |
| Street                        | Farm Portion                | Business/Commercial      | Regional Open Space               |
| Other roads                   | New proposed N4-on/off ramp | Conservation             | Single Residential                |
| Railway                       | Possible Education hub      | Industrial               | Multiple Residential              |
| Aquatic Management Zone       | Possible Police Station     | Light industrial         | Residential (potential upgrading) |
|                               |                             | Local Open Space         | Special (Mining Suppliers Park)   |
|                               |                             | Mining                   | Urban agriculture                 |

SCALE: 0 0.25 0.5 Kilometers  
1:57,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag N82329  
Rustenburg 0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

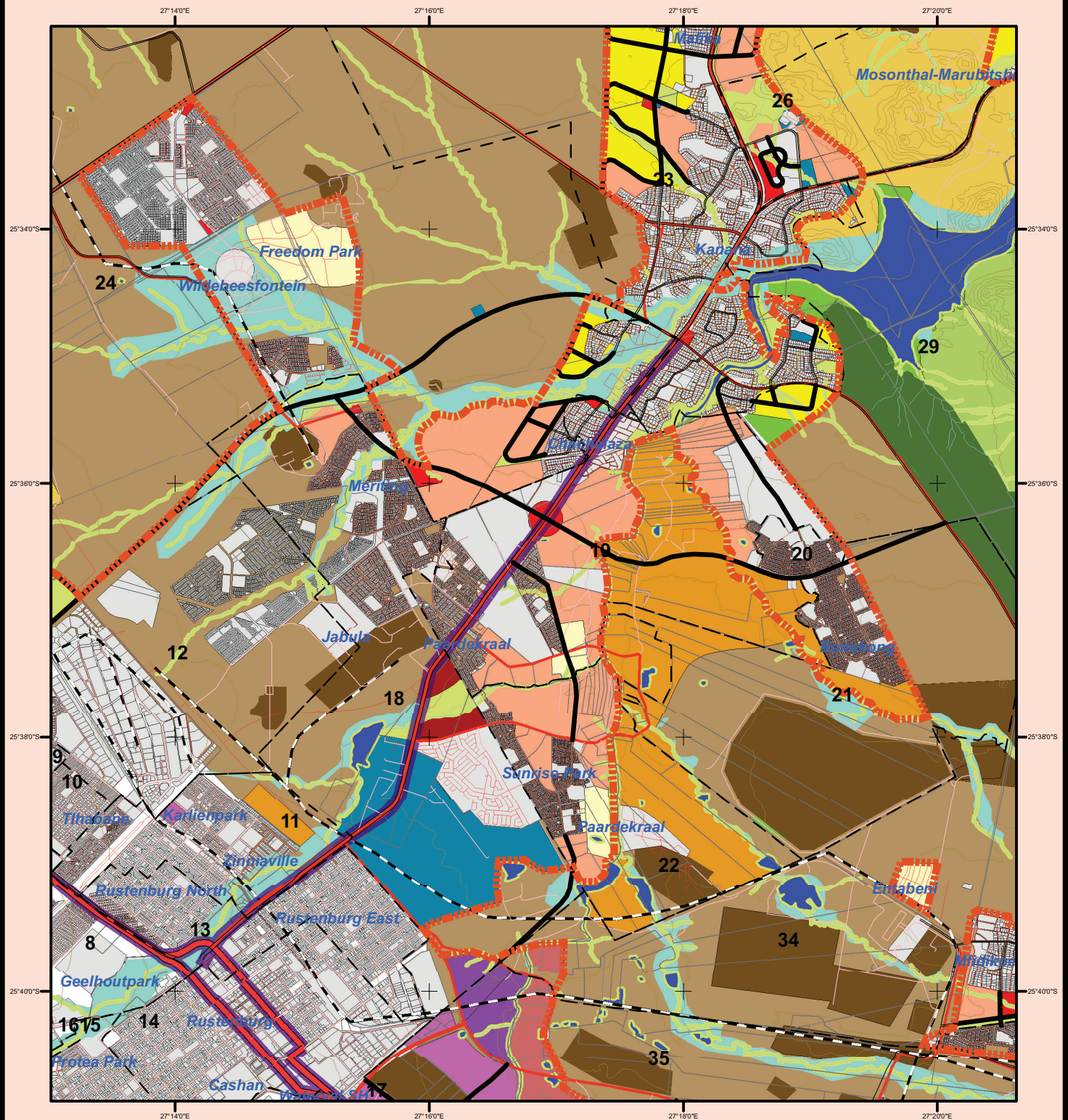
E-mail: gert@k2m.co.za

K2M TECHNOLOGIES

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR BOITEKONG AREA CLUSTER -



### LEGEND:

- |                               |                            |                          |                                   |
|-------------------------------|----------------------------|--------------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge               | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads       | Mixed use                         |
| Highway                       | Contours                   | Rapid Bus Transport Lane | Public facilities/Institutional   |
| Main roads                    | Aquatic Management Zone    | Agriculture              | Recreation                        |
| Secondary roads               | Existing urban development | Business/Commercial      | Regional Open Space               |
| Street                        | Farm Portion               | Conservation             | Single Residential                |
| Other roads                   |                            | Industrial               | Multiple Residential              |
| Railway                       |                            | Light industrial         | Residential (potential upgrading) |
|                               |                            | Local Open Space         | Special (Mining Suppliers Park)   |
|                               |                            | Mining                   | Urban agriculture                 |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0 0.5 1 Kilometers  
1:80,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X83229  
Rustenburg 0300

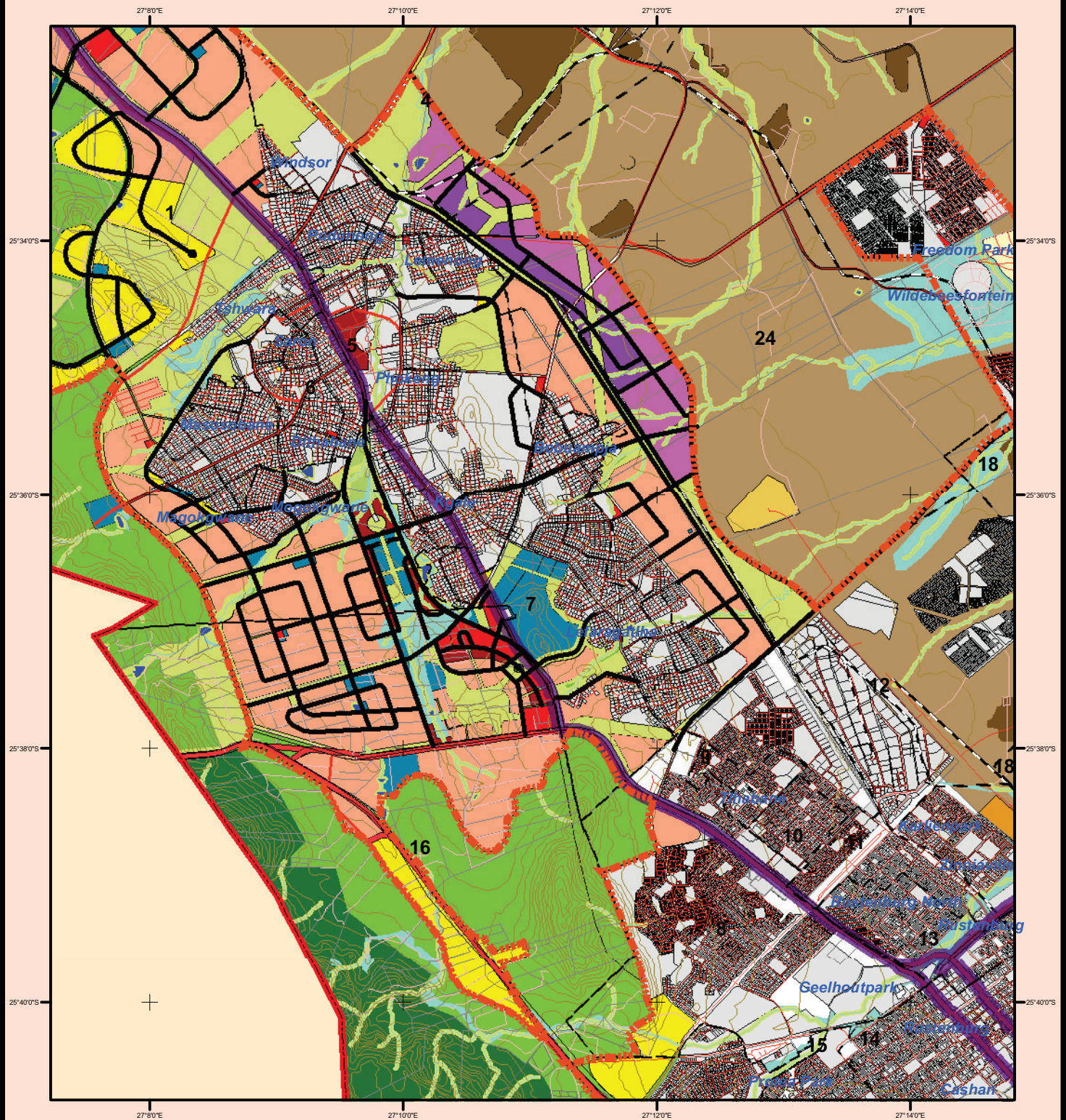
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR PHOKENG AREA CLUSTER -



### LEGEND:

- |                               |                            |                          |                                   |
|-------------------------------|----------------------------|--------------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge               | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads       | Mixed use                         |
| Highway                       | Contours                   | Rapid Bus Transport Lane | Public facilities/Institutional   |
| Main roads                    | Existing urban development | Agriculture              | Recreation                        |
| Secondary roads               | Aquatic Management Zone    | Business/Commercial      | Regional Open Space               |
| Street                        | Farm Portion               | Conservation             | Single Residential                |
| Other roads                   |                            | Industrial               | Multiple Residential              |
| Railway                       |                            | Light industrial         | Residential (potential upgrading) |
|                               |                            | Local Open Space         | Urban agriculture                 |
|                               |                            | Mining                   |                                   |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE: 0.9 0.45 0 0.9 Kilometers  
1:80,000

DATE: April 2010

COORDINATE SYSTEM: Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Moesep Avenue  
Rustenburg 0299

Postnet Suite #167  
Private Bag X02329  
Rustenburg  
0300

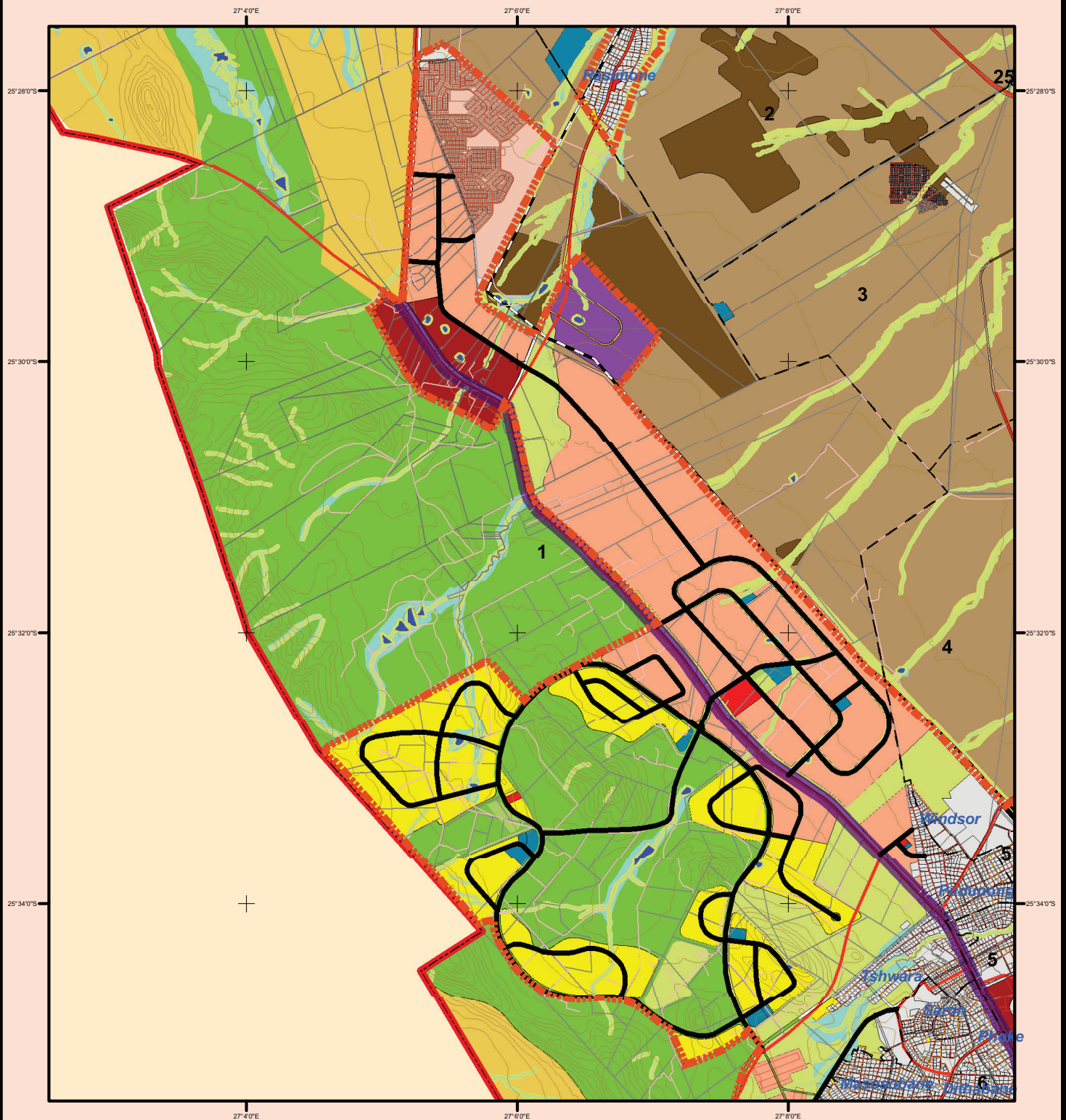
Tel: +27 (0) 14 533 1943  
Fax: +27 (0) 14 533 1769  
Cell: 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR NEW TOWN AREA CLUSTER -



### LEGEND:

- |                               |                            |                          |                                   |
|-------------------------------|----------------------------|--------------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge               | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads       | Mixed use                         |
| Highway                       | Contours                   | Rapid Bus Transport Lane | Public facilities/Institutional   |
| Main roads                    | Aquatic Management Zone    | Agriculture              | Recreation                        |
| Secondary roads               | Existing urban development | Business/Commercial      | Regional Open Space               |
| Street                        | Farm Portion               | Conservation             | Residential (Low density)         |
| Other roads                   |                            | Industrial               | Residential (Med to high density) |
| Railway                       |                            | Light industrial         | Residential (potential upgrading) |
|                               |                            | Local Open Space         | Urban agriculture                 |
|                               |                            | Mining                   |                                   |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0.8 0.4 0 Kilometers  
1:75,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Moepel Avenue  
Rustenburg 0299

Postnet Suite #167  
Private Bag X82329  
Rustenburg 0300

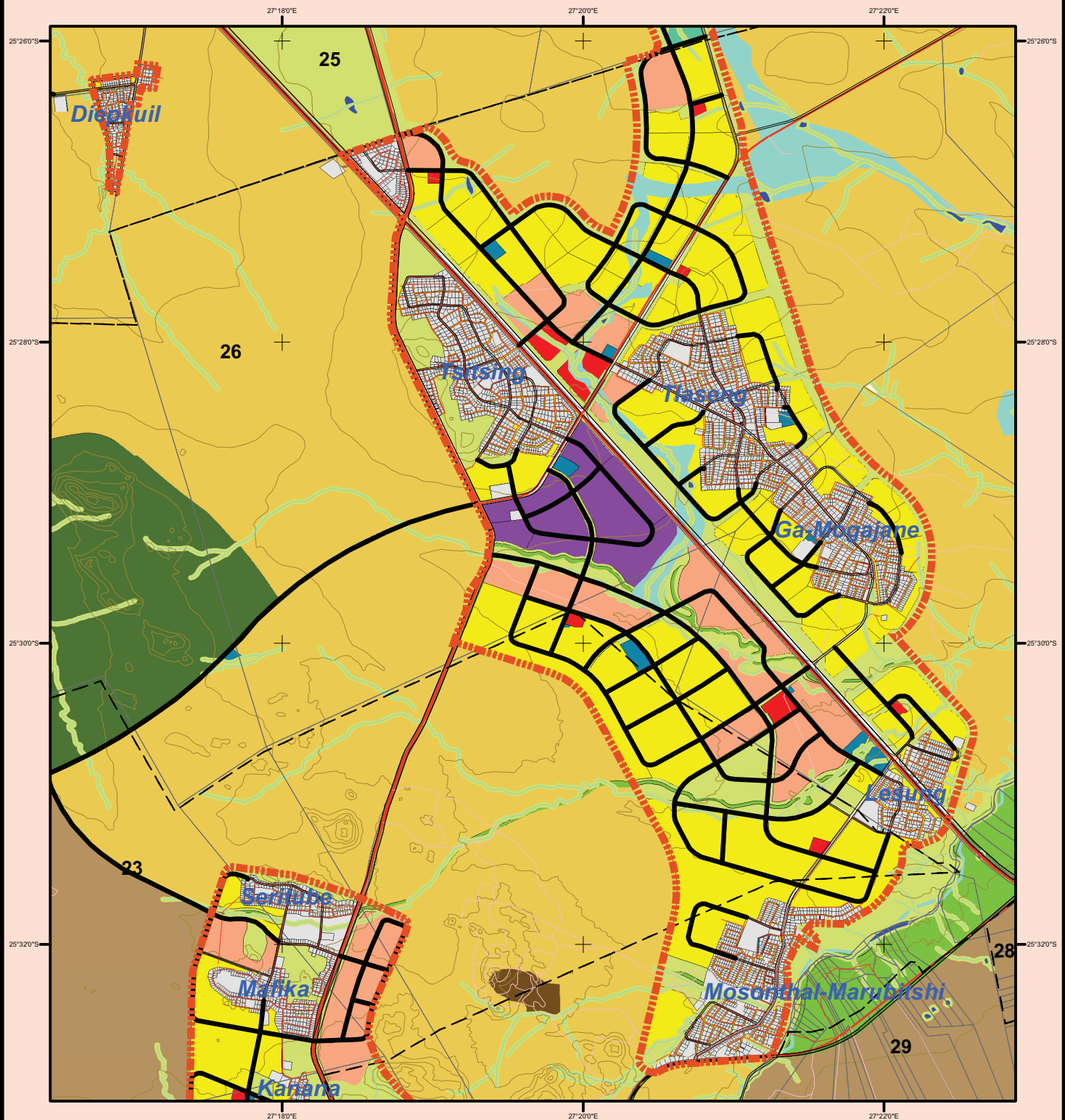
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR TLASENG & LESUNG CLUSTER -



### LEGEND:

- |                               |                            |                     |                                 |
|-------------------------------|----------------------------|---------------------|---------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure) |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                       |
| Highway                       | Contours                   | Agriculture         | Public facilities               |
| Main roads                    | Aquatic Management Zone    | Business/Commercial | Recreation                      |
| Secondary roads               | Existing urban development | Conservation        | Regional Open Space             |
| Street                        | Farm Portion               | Industrial          | Single Residential              |
| Other roads                   |                            | Light industrial    | Multiple Residential            |
| Railway                       |                            | Local Open Space    | Urban agriculture               |
|                               |                            | Mining              |                                 |

SCALE : 0.8 0.4 0 0.8  
1:67,500  
Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

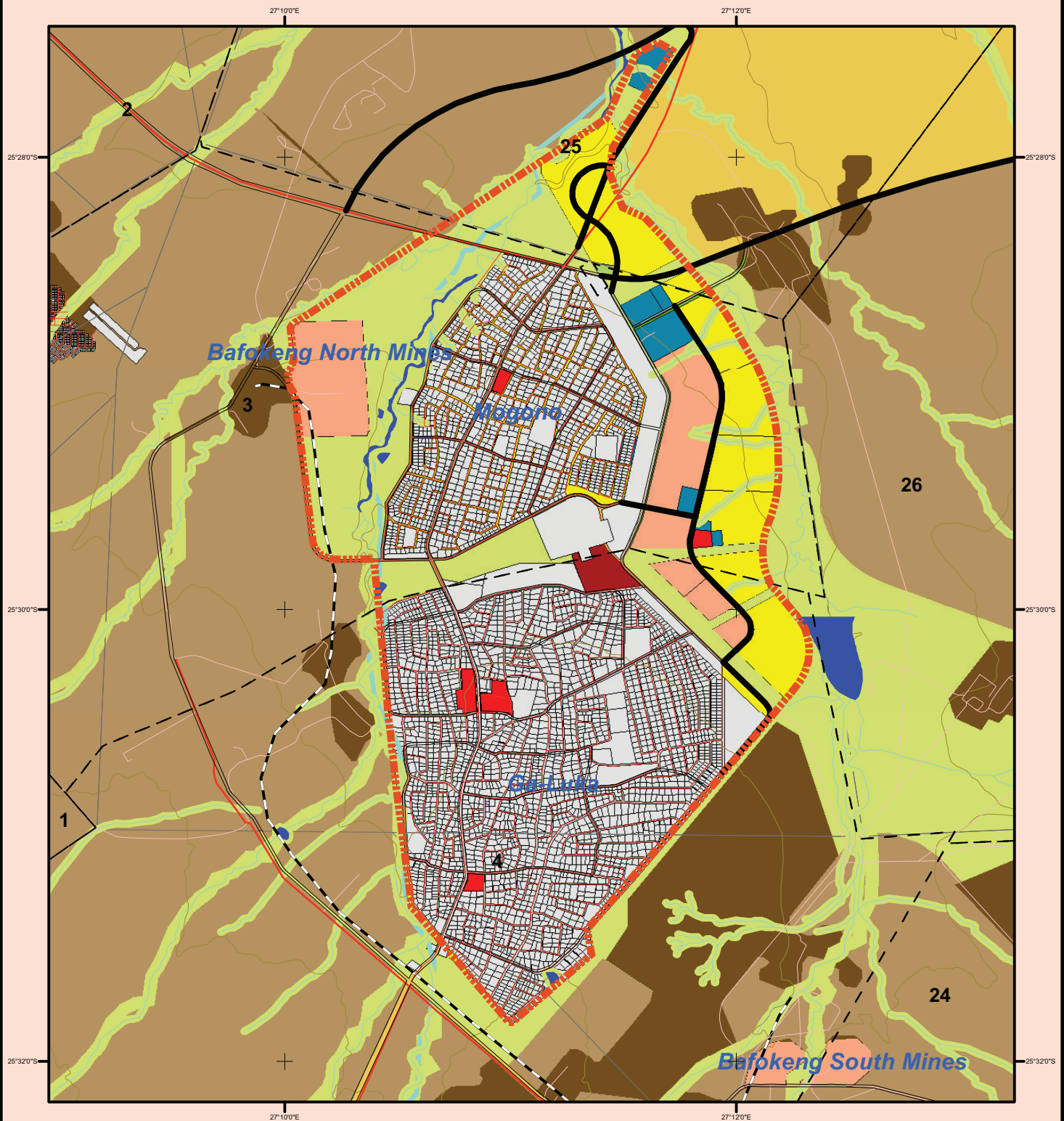
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR GA-LUKA & MOGONO CLUSTER -



### LEGEND:

- |                               |                            |                     |                                 |
|-------------------------------|----------------------------|---------------------|---------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure) |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                       |
| Highway                       | Contours                   | Agriculture         | Public facilities               |
| Main roads                    | Aquatic Management Zone    | Business/Commercial | Recreation                      |
| Secondary roads               | Farm Portion               | Conservation        | Regional Open Space             |
| Street                        | Existing urban development | Industrial          | Single Residential              |
| Other roads                   |                            | Light industrial    | Multiple Residential            |
| Railway                       |                            | Local Open Space    | Urban agriculture               |
|                               |                            | Mining              |                                 |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0 0.25 0.5 Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Moepel Avenue  
Rustenburg 0299

Postnet Suite #167  
Private Bag X62329  
Rustenburg  
0300

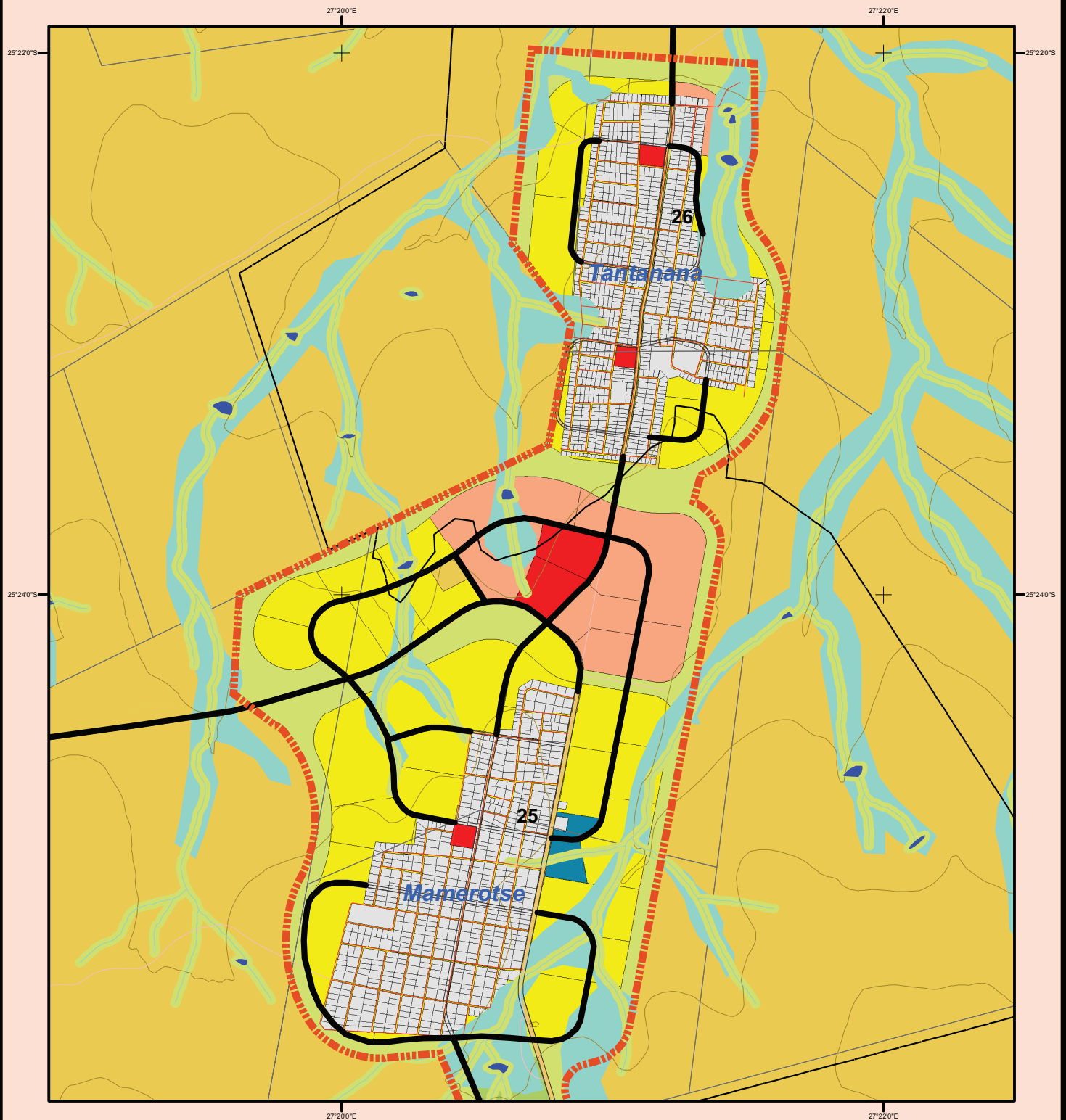
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR TANTANANA & MAMEROTSE CLUSTER -



### LEGEND:

- |                               |                            |                     |                                 |
|-------------------------------|----------------------------|---------------------|---------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure) |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                       |
| Highway                       | Contours                   | Agriculture         | Public facilities               |
| Main roads                    | Aquatic Management Zone    | Business/Commercial | Recreation                      |
| Secondary roads               | Farm Portion               | Conservation        | Regional Open Space             |
| Street                        | Existing urban development | Industrial          | Single Residential              |
| Other roads                   |                            | Light industrial    | Multiple Residential            |
| Railway                       |                            | Local Open Space    | Urban agriculture               |
|                               |                            | Mining              |                                 |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0 0.2 0.4 Kilometers  
1:37,500

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

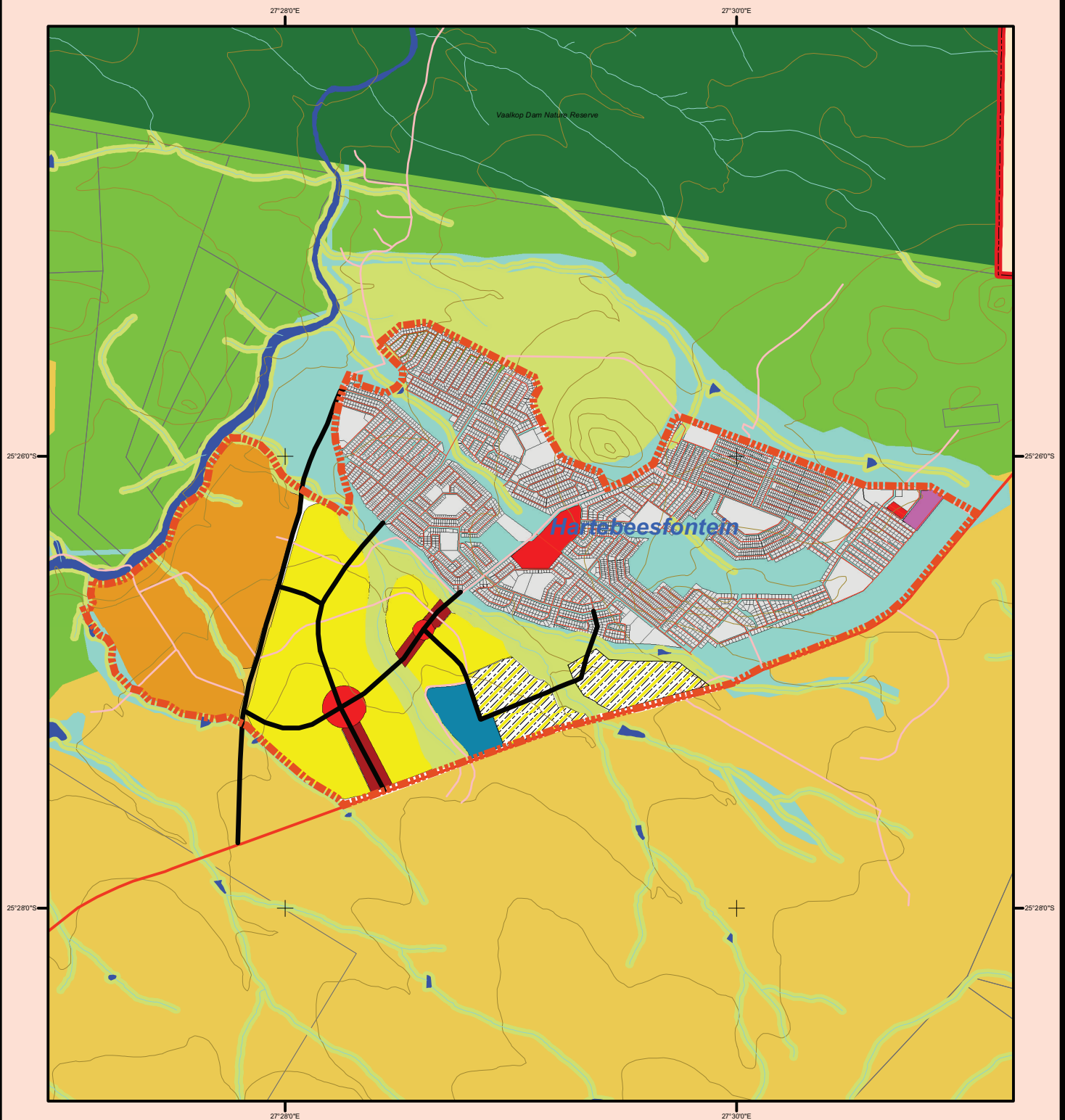
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR LETHLABONG CLUSTER -



### LEGEND:

- |                               |                            |                     |                                 |
|-------------------------------|----------------------------|---------------------|---------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure) |
| Highway                       | Non-Perennial Stream       | New Proposed Roads  | Mixed use                       |
| Main roads                    | Contours                   | Agriculture         | New development (in progress)   |
| Secondary roads               | Farm Portion               | Business/Commercial | Public facilities               |
| Street                        | Existing urban development | Conservation        | Recreation                      |
| Other roads                   | Aquatic Management Zone    | Industrial          | Regional Open Space             |
| Railway                       |                            | Light industrial    | Single Residential              |
|                               |                            | Local Open Space    | Multiple Residential            |
|                               |                            | Mining              | Urban agriculture               |

SCALE : 0.6 0 0.6 Kilometers  
1:45,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospeel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg 0300

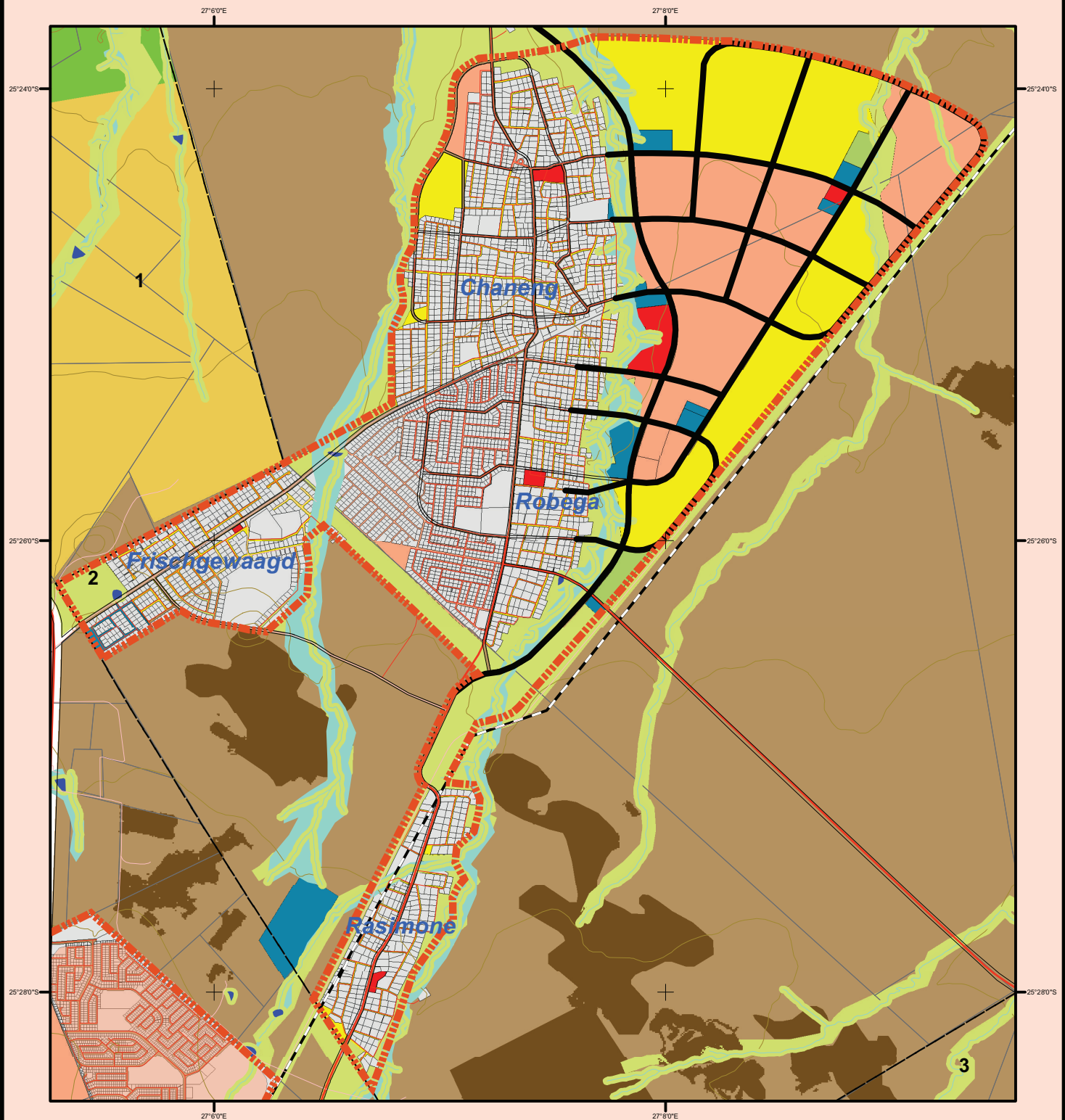
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## -LOCAL SDF FOR CHANENG & ROBEGA CLUSTER -



### LEGEND:

- |                               |                            |                     |                                 |
|-------------------------------|----------------------------|---------------------|---------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure) |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                       |
| Highway                       | Contours                   | Agriculture         | Public facilities               |
| Main roads                    | Aquatic Management Zone    | Business/Commercial | Recreation                      |
| Secondary roads               | Farm Portion               | Conservation        | Regional Open Space             |
| Street                        | Existing urban development | Industrial          | Single Residential              |
| Other roads                   |                            | Light industrial    | Multiple Residential            |
| Railway                       |                            | Local Open Space    | Urban agriculture               |
|                               |                            | Mining              |                                 |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0 0.2 0.4 Kilometers  
1:45,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospeel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

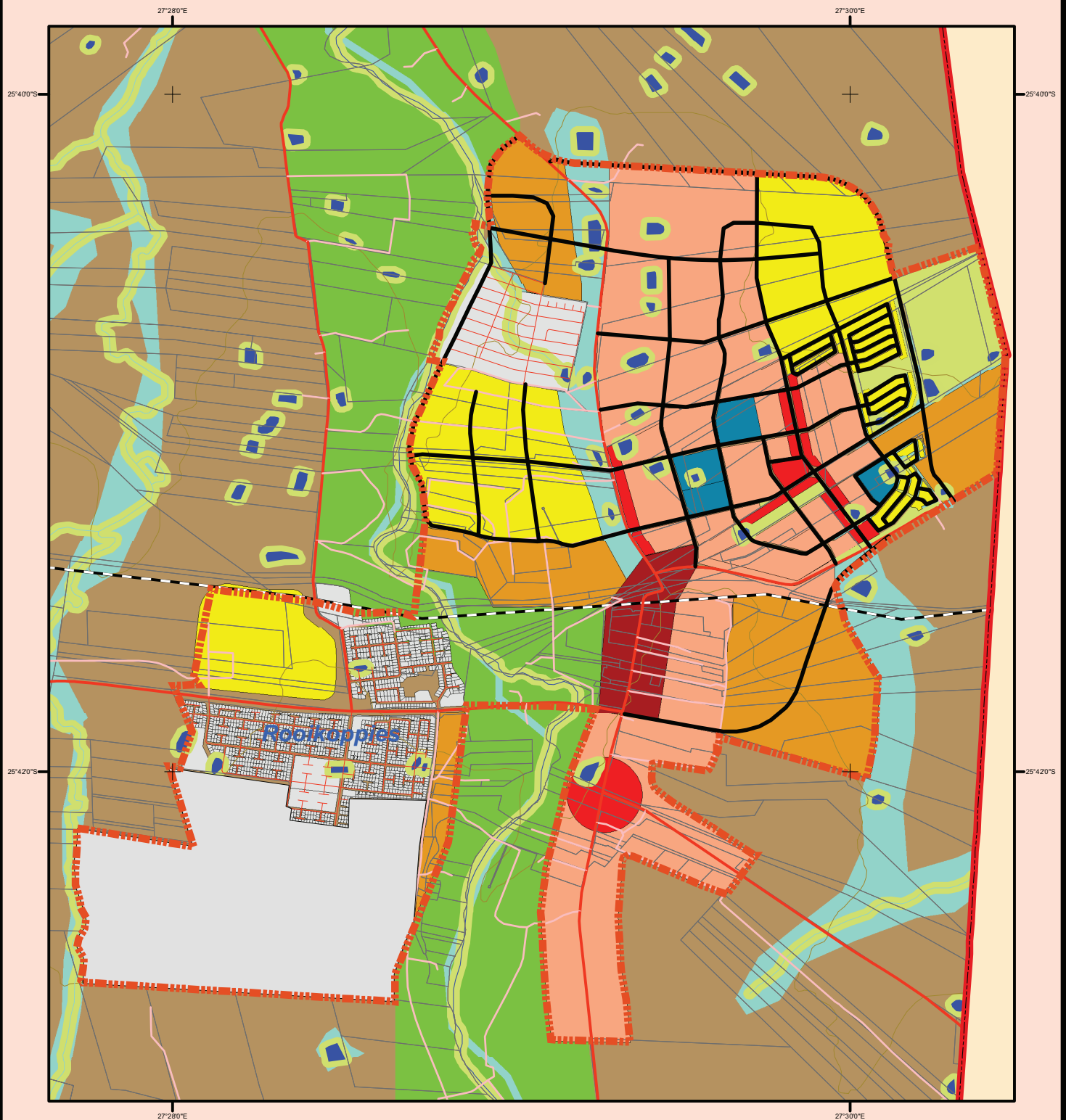
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR MARIKANA CLUSTER -



### LEGEND:

- |                               |                            |                     |                                   |
|-------------------------------|----------------------------|---------------------|-----------------------------------|
| Rustenburg Local Municipality | Railway                    | Urban Edge          | Mining (surface infrastructure)   |
| Highway                       | Perennial River/Stream     | New Proposed Roads  | Mixed use                         |
| Main roads                    | Non-Perennial Stream       | Agriculture         | Public facilities                 |
| Secondary roads               | Contours                   | Business/Commercial | Recreation                        |
| Street                        | Existing urban development | Conservation        | Regional Open Space               |
| Other roads                   | Farm Portion               | Industrial          | Single Residential                |
|                               | Aquatic Management Zone    | Light industrial    | Multiple Residential              |
|                               |                            | Local Open Space    | Residential (potential upgrading) |
|                               |                            | Mining              | Urban agriculture                 |

\* Proposals informed by Marikana SDF prepared by GAPP Architects and Urban Designers

SCALE : 0.4 0.2 0 0.4  
1:30,000 Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

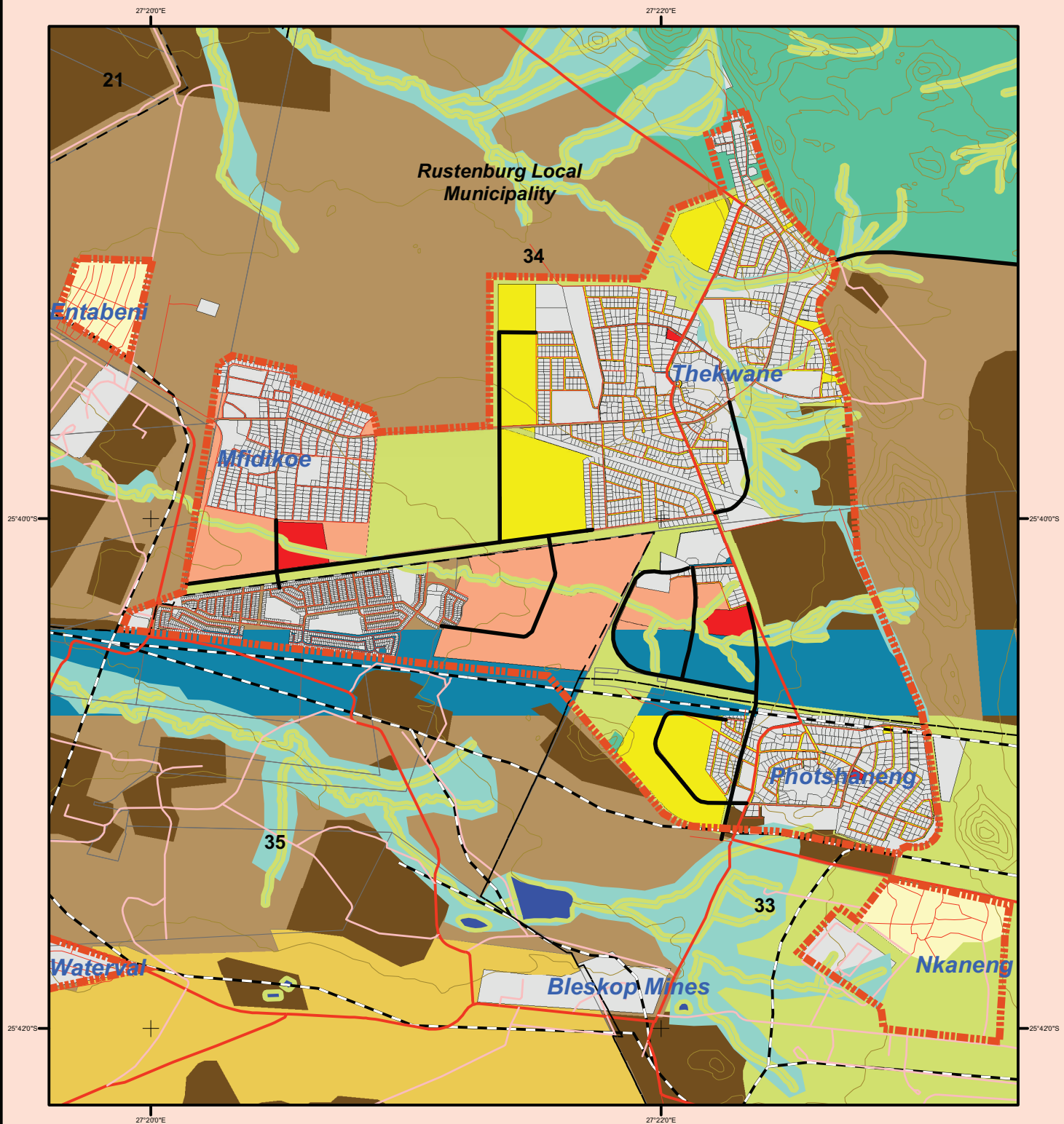
E-mail: gert@k2m.co.za

K2M TECHNOLOGIES

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

- LOCAL SDF FOR THEKWANE & PHOTSHANENG CLUSTER -



## LEGEND:

- |                               |                            |                     |                                   |
|-------------------------------|----------------------------|---------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                         |
| Highway                       | Contours                   | Agriculture         | Public facilities                 |
| Main roads                    | Aquatic Management Zone    | Business/Commercial | Recreation                        |
| Secondary roads               | Farm Portion               | Conservation        | Regional Open Space               |
| Street                        | Existing urban development | Industrial          | Single Residential                |
| Other roads                   |                            | Light industrial    | Multiple Residential              |
| Railway                       |                            | Local Open Space    | Residential (potential upgrading) |
|                               |                            | Mining              | Urban agriculture                 |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0.5 0 0.5 Kilometre  
1:40,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0299

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

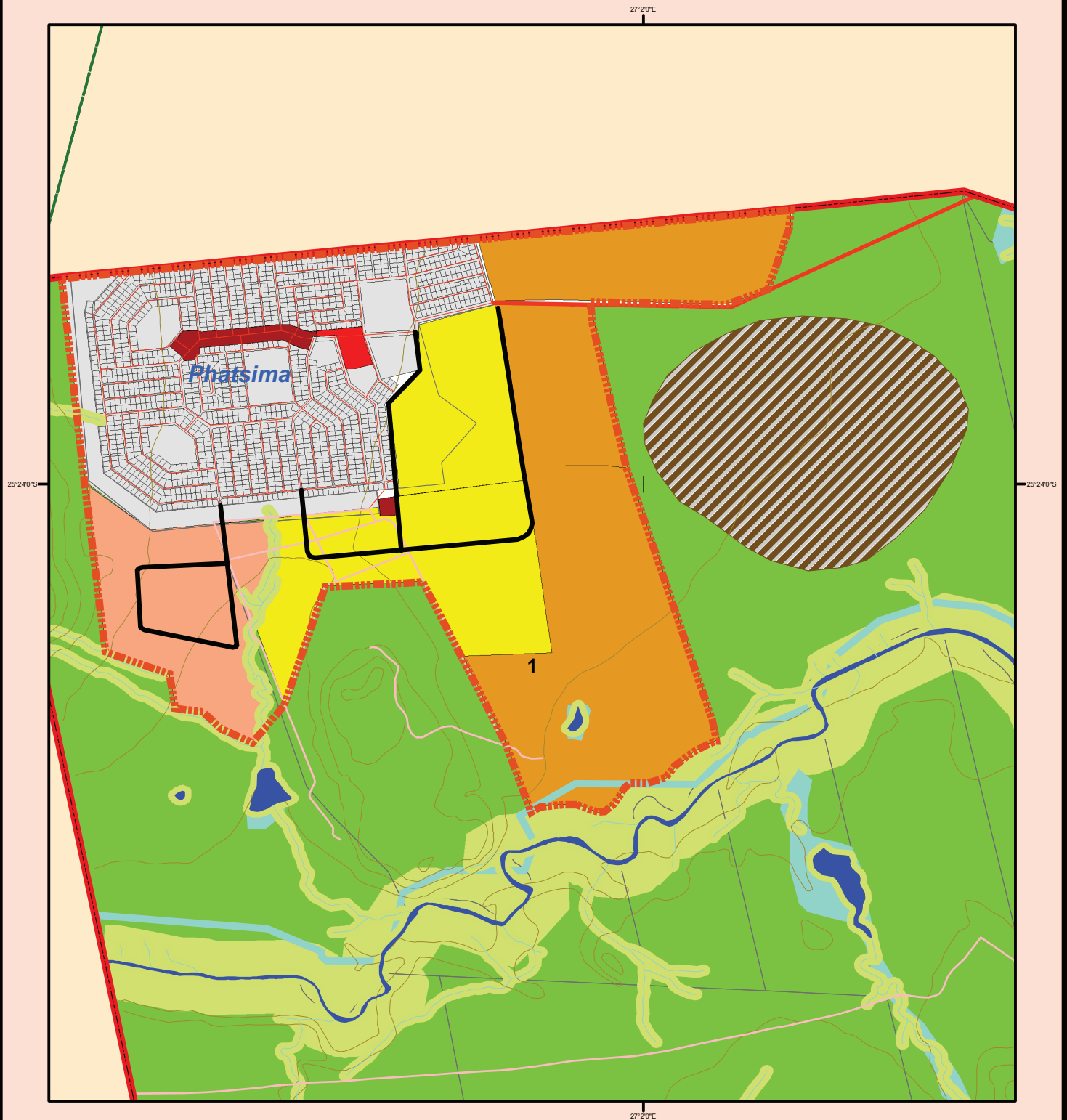
E-mail: gert@k2m.co.za

K2M TECHNOLOGIES

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR PHATSIMA CLUSTER -



### LEGEND:

- |                               |                            |
|-------------------------------|----------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     |
| Ward boundary                 | Non-Perennial Stream       |
| Highway                       | Contours                   |
| Main roads                    | Aquatic Management Zone    |
| Secondary roads               | Farm Portion               |
| Street                        | Existing urban development |
| Other roads                   |                            |
| Railway                       |                            |

- |  |                                 |
|--|---------------------------------|
| Urban Edge                               | Mining                          |
| New Proposed Roads                       | Mining (surface infrastructure) |
| Mining (proposed surface infrastructure) | Mixed use                       |
| Agriculture                              | Public facilities               |
| Business/Commercial                      | Recreation                      |
| Conservation                             | Regional Open Space             |
| Industrial                               | Single Residential              |
| Light industrial                         | Multiple Residential            |
| Local Open Space                         | Urban agriculture               |

SCALE : 0.4 0.2 0 0.4 Kilometres

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

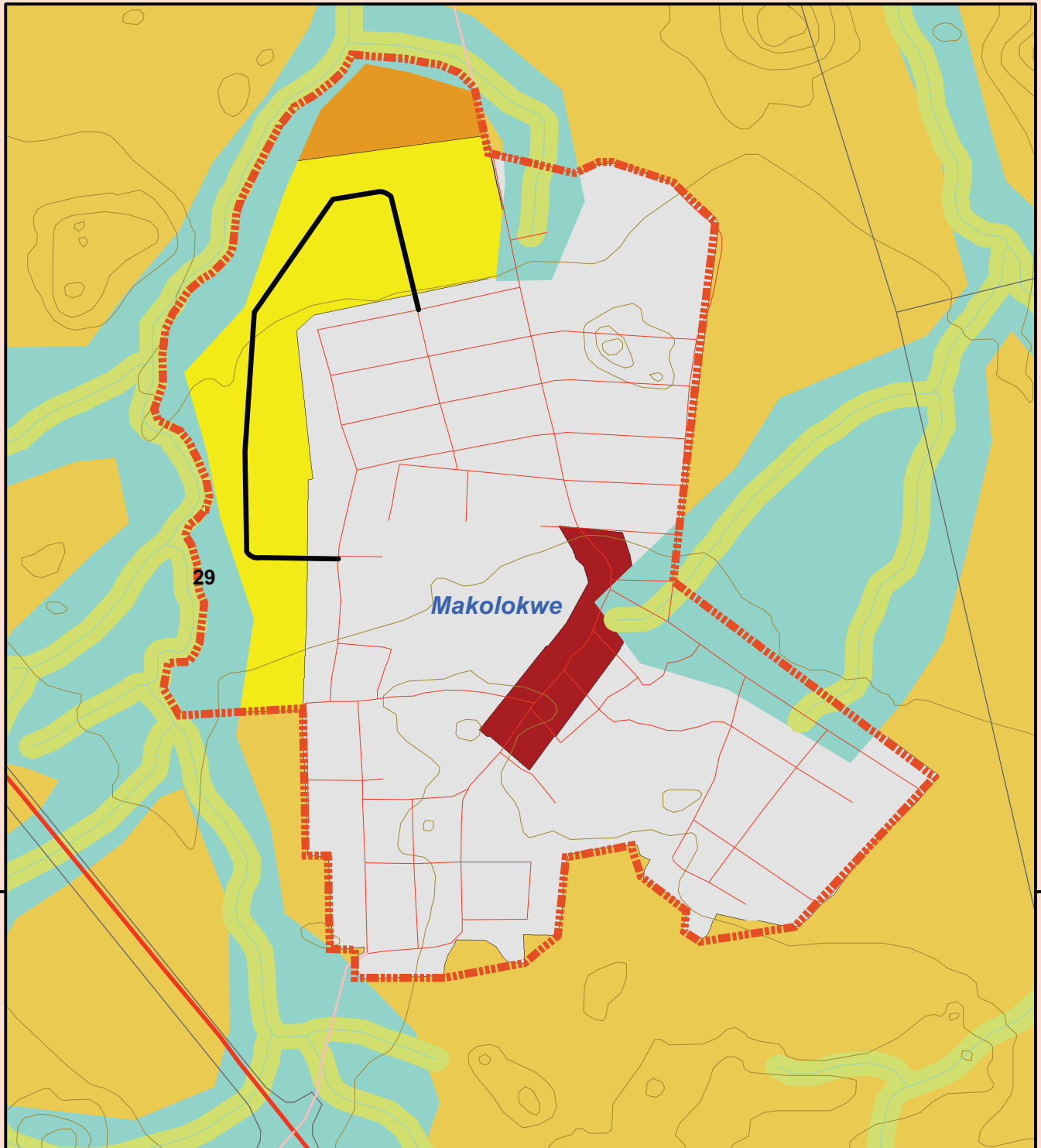
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881  
E-mail: gert@k2m.co.za

K2M TECHNOLOGIES

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR MAKOLOKWE CLUSTER -



### LEGEND:

- |                               |                            |                     |                                   |
|-------------------------------|----------------------------|---------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                         |
| Highway                       | Contours                   | Agriculture         | Public facilities                 |
| Main roads                    | Aquatic Management Zone    | Business/Commercial | Recreation                        |
| Secondary roads               | Existing urban development | Conservation        | Regional Open Space               |
| Street                        | Farm Portion               | Industrial          | Single Residential                |
| Other roads                   |                            | Light industrial    | Multiple Residential              |
| Railway                       |                            | Local Open Space    | Residential (potential upgrading) |
|                               |                            | Mining              | Urban agriculture                 |

SCALE : 0,25 0,125 0  
1:15,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

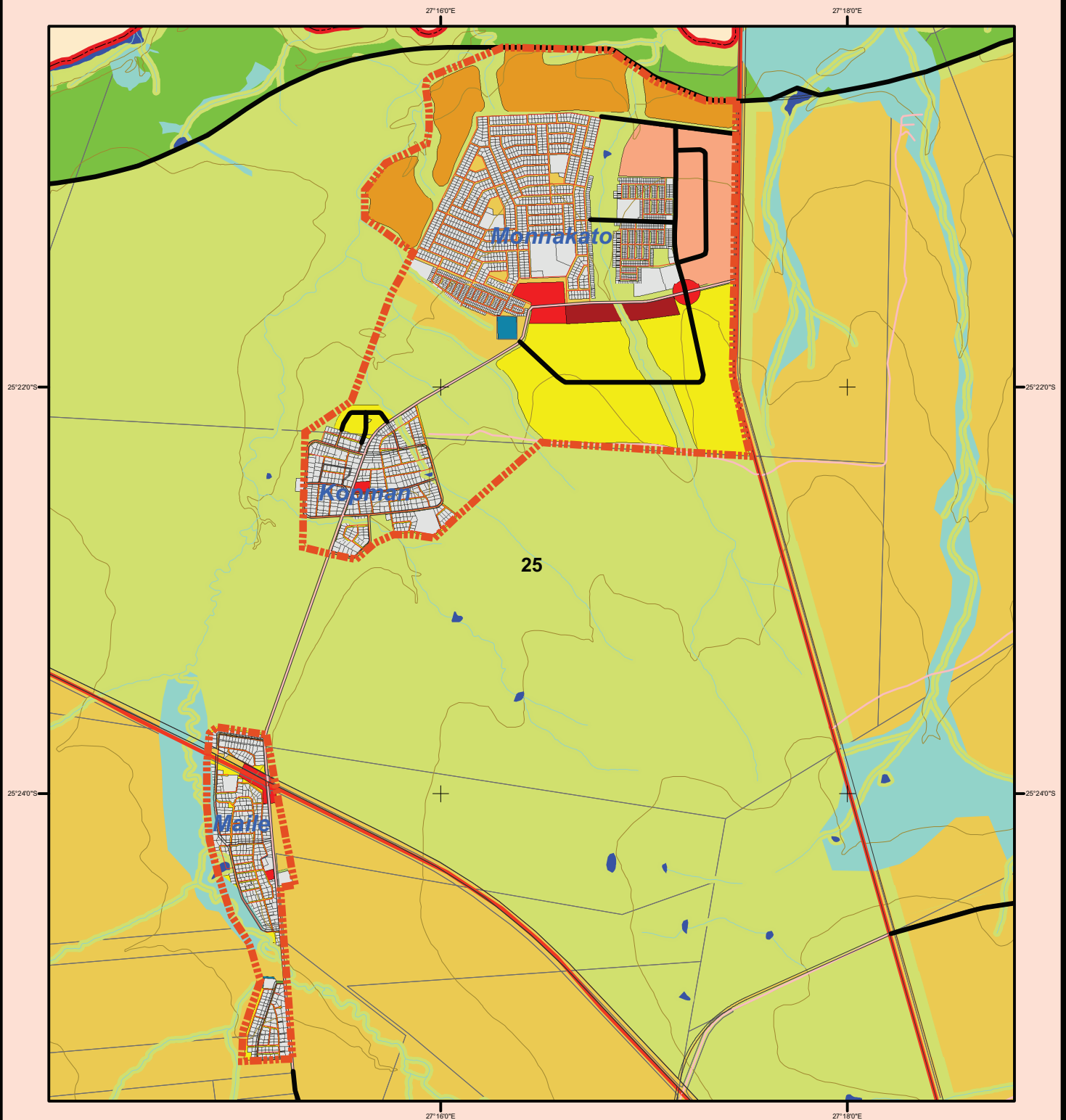
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR MONNAKATO & MAILE CLUSTER -



### LEGEND:

- |                               |                            |                     |                                 |
|-------------------------------|----------------------------|---------------------|---------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure) |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                       |
| Highway                       | Contours                   | Agriculture         | Public facilities               |
| Main roads                    | Aquatic Management Zone    | Business/Commercial | Recreation                      |
| Secondary roads               | Farm Portion               | Conservation        | Regional Open Space             |
| Street                        | Existing urban development | Industrial          | Single Residential              |
| Other roads                   |                            | Light industrial    | Multiple Residential            |
| Railway                       |                            | Local Open Space    | Urban agriculture               |
|                               |                            | Mining              |                                 |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0.5 0 0.5 Kilometers  
1:50,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

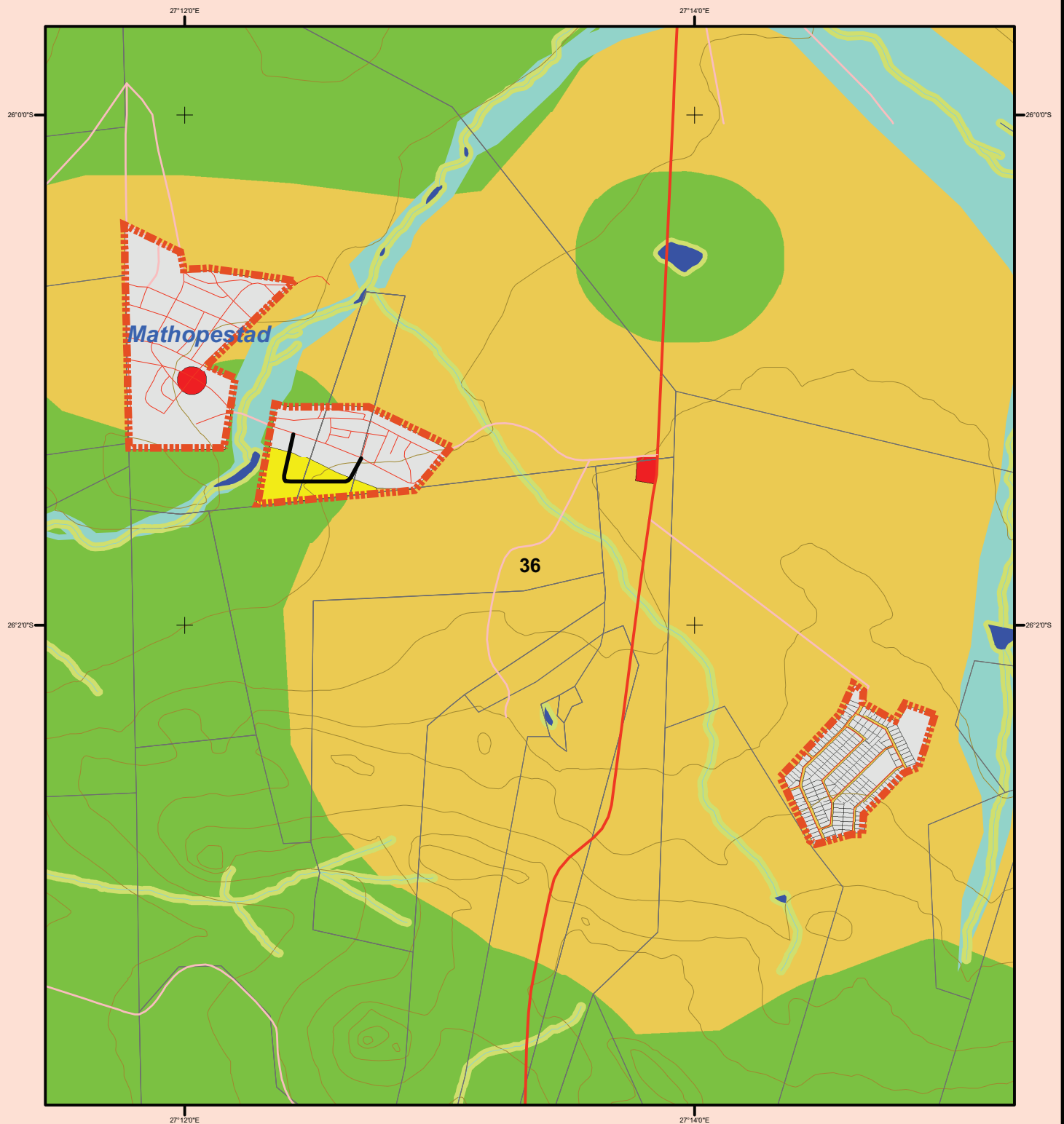
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR MATHOPESTAD CLUSTER -



### LEGEND:

- |                               |                            |
|-------------------------------|----------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     |
| Ward boundary                 | Non-Perennial Stream       |
| Highway                       | Contours                   |
| Main roads                    | Aquatic Management Zone    |
| Secondary roads               | Farm Portion               |
| Street                        | Existing urban development |
| Other roads                   |                            |
| Railway                       |                            |

- |                     |                                   |
|---------------------|-----------------------------------|
| Urban Edge          | Mining (surface infrastructure)   |
| New Proposed Roads  | Mixed use                         |
| Agriculture         | Public facilities                 |
| Business/Commercial | Recreation                        |
| Conservation        | Regional Open Space               |
| Industrial          | Single Residential                |
| Light industrial    | Multiple Residential              |
| Local Open Space    | Residential (potential upgrading) |
| Mining              | Urban agriculture                 |

SCALE : 0.4 0.2 0 0.4  
1:40,000  
Kilometers



DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: **K2M TECHNOLOGIES (PTY) LTD**  
13 Mospel Avenue  
Rustenburg 0299

Postnet Suite #167  
Private Bag X83229  
Rustenburg  
0300

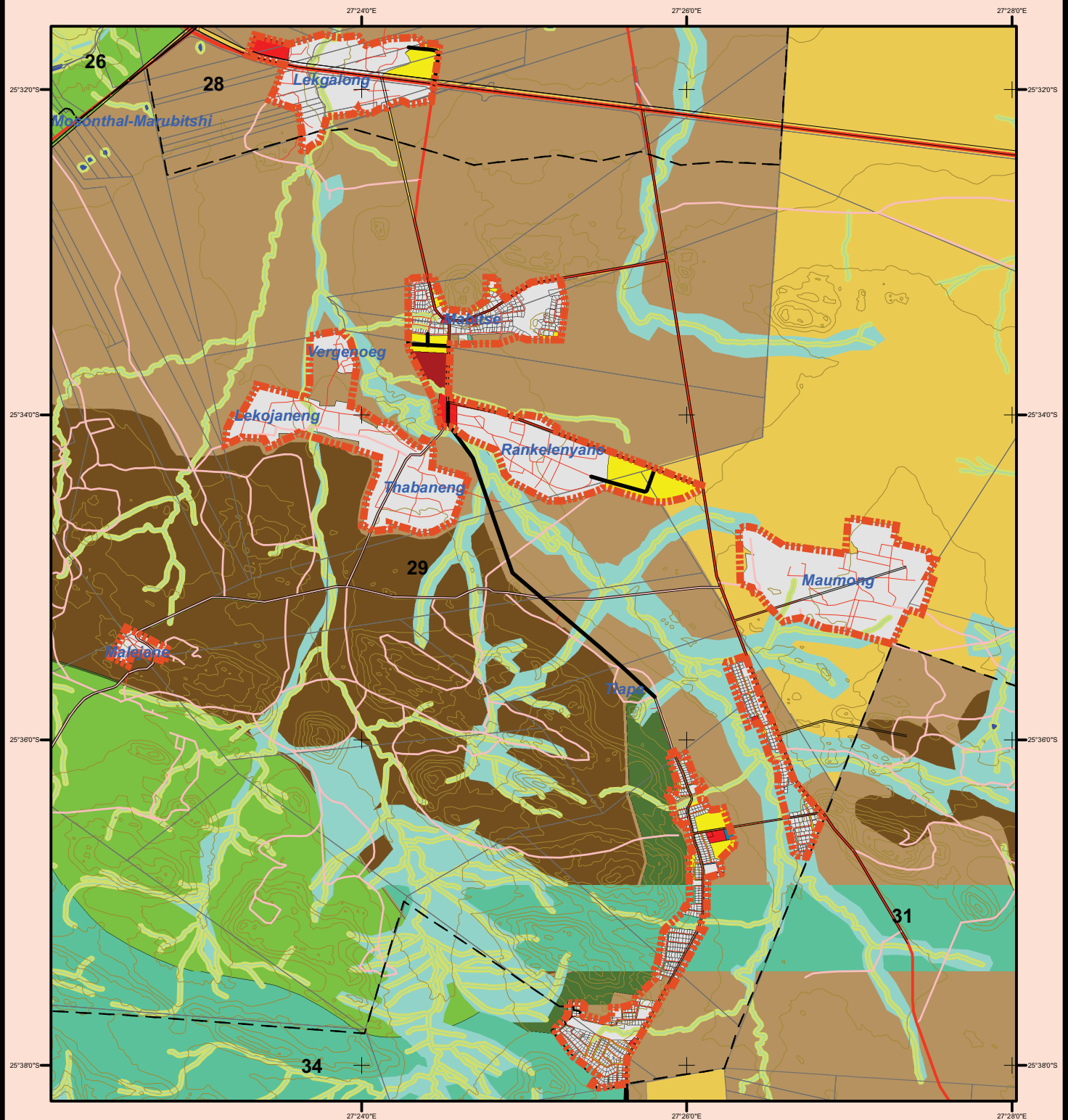
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881  
E-mail: gert@k2m.co.za

**K2M TECHNOLOGIES**

Spatial Development Frameworks    Integrated Development Planning    Formal Town Planning Applications    Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR LEKGALONG & MAUMONG CLUSTER -



### LEGEND:

- |                               |                            |                     |                                   |
|-------------------------------|----------------------------|---------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | Agriculture         | Mixed use                         |
| Highway                       | Contours                   | New Proposed Roads  | Public facilities                 |
| Main roads                    | Existing urban development | Business/Commercial | Recreation                        |
| Secondary roads               | Aquatic Management Zone    | Conservation        | Regional Open Space               |
| Street                        | Farm Portion               | Industrial          | Single Residential                |
| Other roads                   |                            | Light industrial    | Multiple Residential              |
| Railway                       |                            | Local Open Space    | Residential (potential upgrading) |
|                               |                            | Mining              | Urban agriculture                 |

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 0.6 0.4 0.2 Kilometers  
1:62,500

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

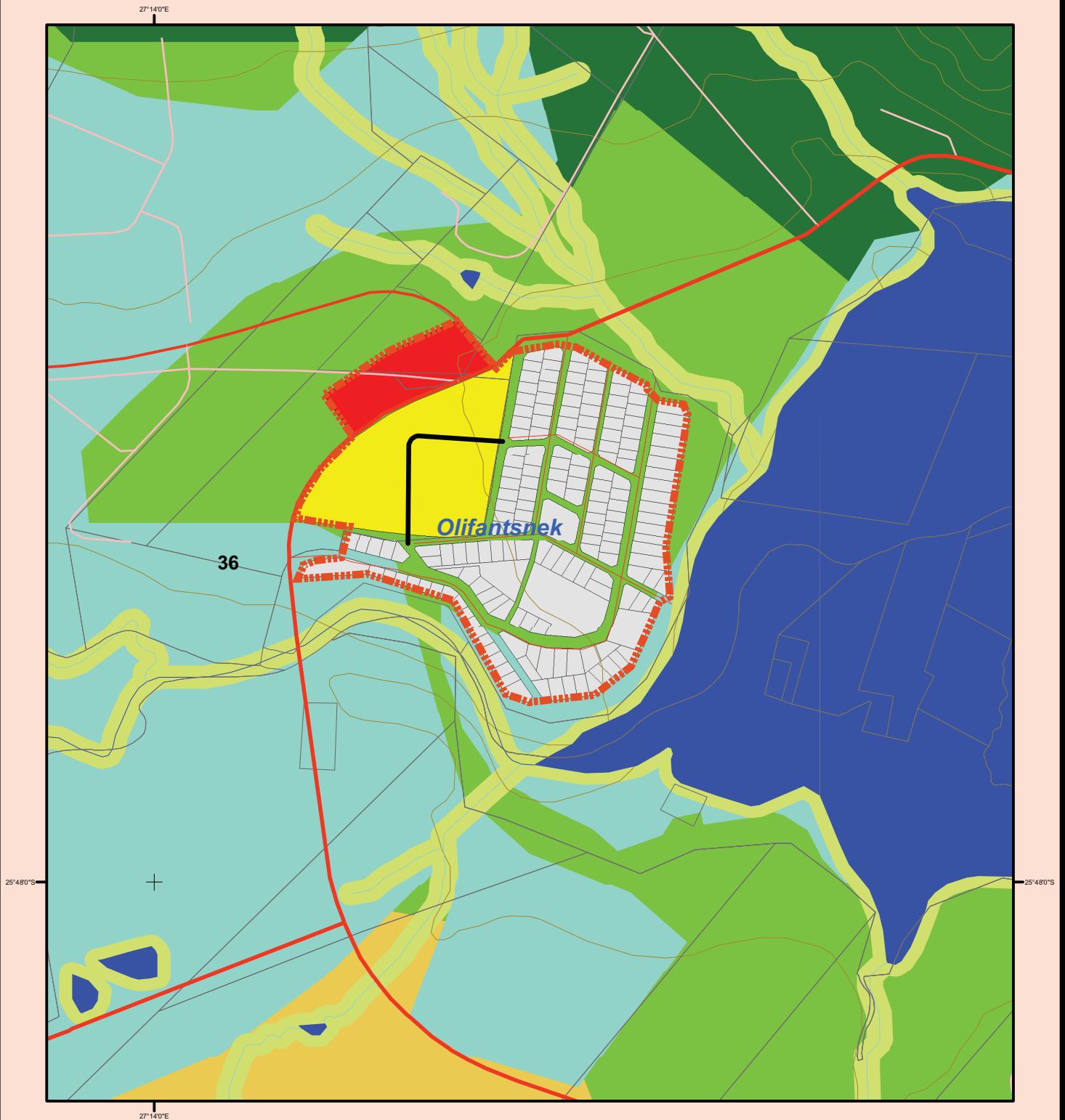
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881  
E-mail: gert@k2m.co.za

K2M TECHNOLOGIES

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR OLIFANTSNEK CLUSTER -



### LEGEND:

- |                               |                            |                     |                                   |
|-------------------------------|----------------------------|---------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                         |
| Highway                       | Contours                   | Agriculture         | Public facilities                 |
| Main roads                    | Existing urban development | Business/Commercial | Recreation                        |
| Secondary roads               | Aquatic Management Zone    | Conservation        | Regional Open Space               |
| Street                        | Farm Portion               | Industrial          | Single Residential                |
| Other roads                   |                            | Light industrial    | Multiple Residential              |
| Railway                       |                            | Local Open Space    | Residential (potential upgrading) |
|                               |                            | Mining              | Urban agriculture                 |

SCALE : 0,2 0,1 0,2 Kilomet

1:15,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

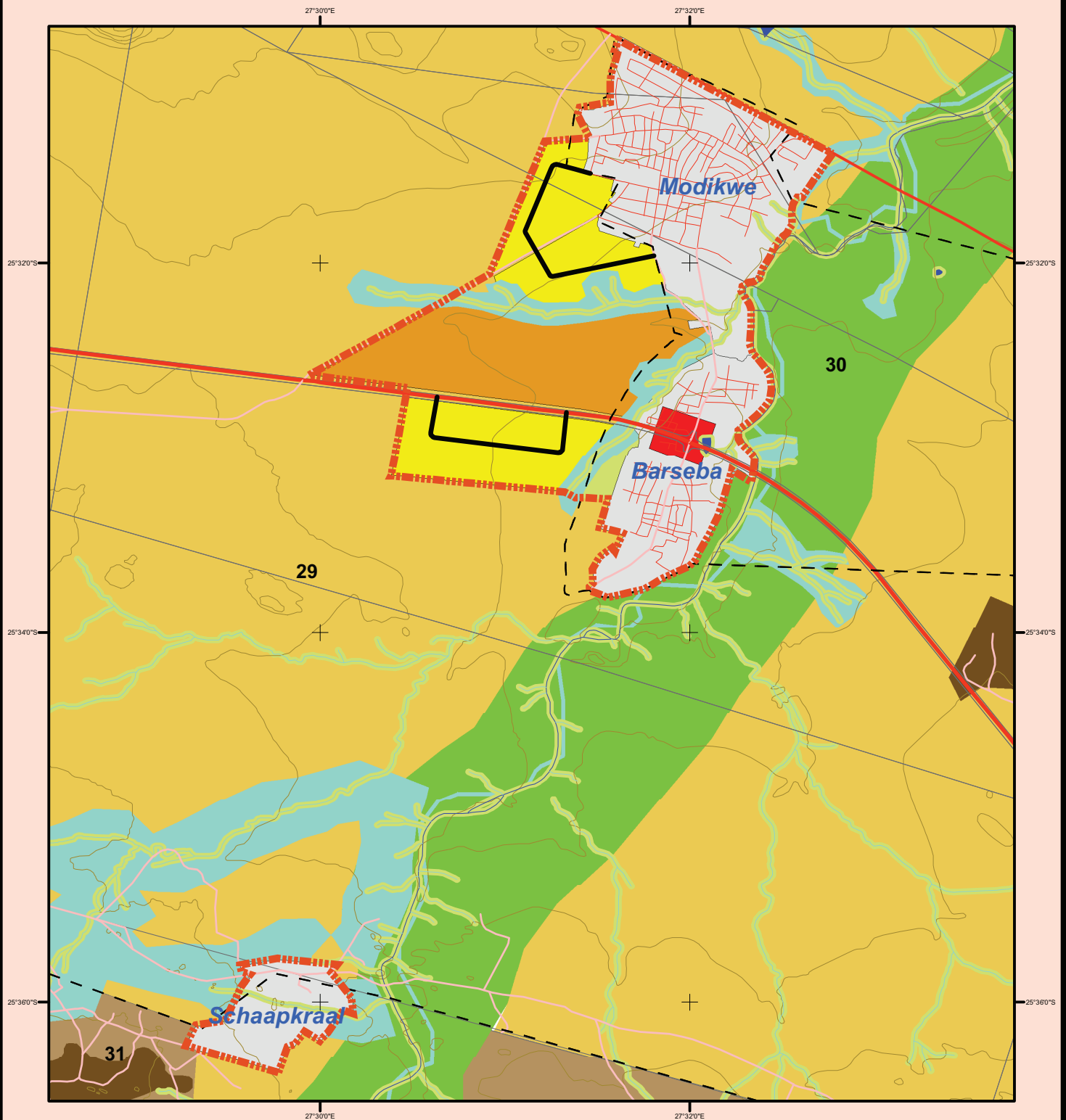
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR MODIKWE & BARSEBA CLUSTER -



### LEGEND:

- |                               |                            |                     |                                   |
|-------------------------------|----------------------------|---------------------|-----------------------------------|
| Rustenburg Local Municipality | Perennial River/Stream     | Urban Edge          | Mining (surface infrastructure)   |
| Ward boundary                 | Non-Perennial Stream       | New Proposed Roads  | Mixed use                         |
| Highway                       | Contours                   | Agriculture         | Public facilities                 |
| Main roads                    | Existing urban development | Business/Commercial | Recreation                        |
| Secondary roads               | Farm Portion               | Conservation        | Regional Open Space               |
| Street                        | Aquatic Management Zone    | Industrial          | Single Residential                |
| Other roads                   |                            | Light industrial    | Multiple Residential              |
| Railway                       |                            | Local Open Space    | Residential (potential upgrading) |
|                               |                            | Mining              | Urban agriculture                 |

SCALE : 0: 0.4 0.8 Km  
1:55,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0299

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

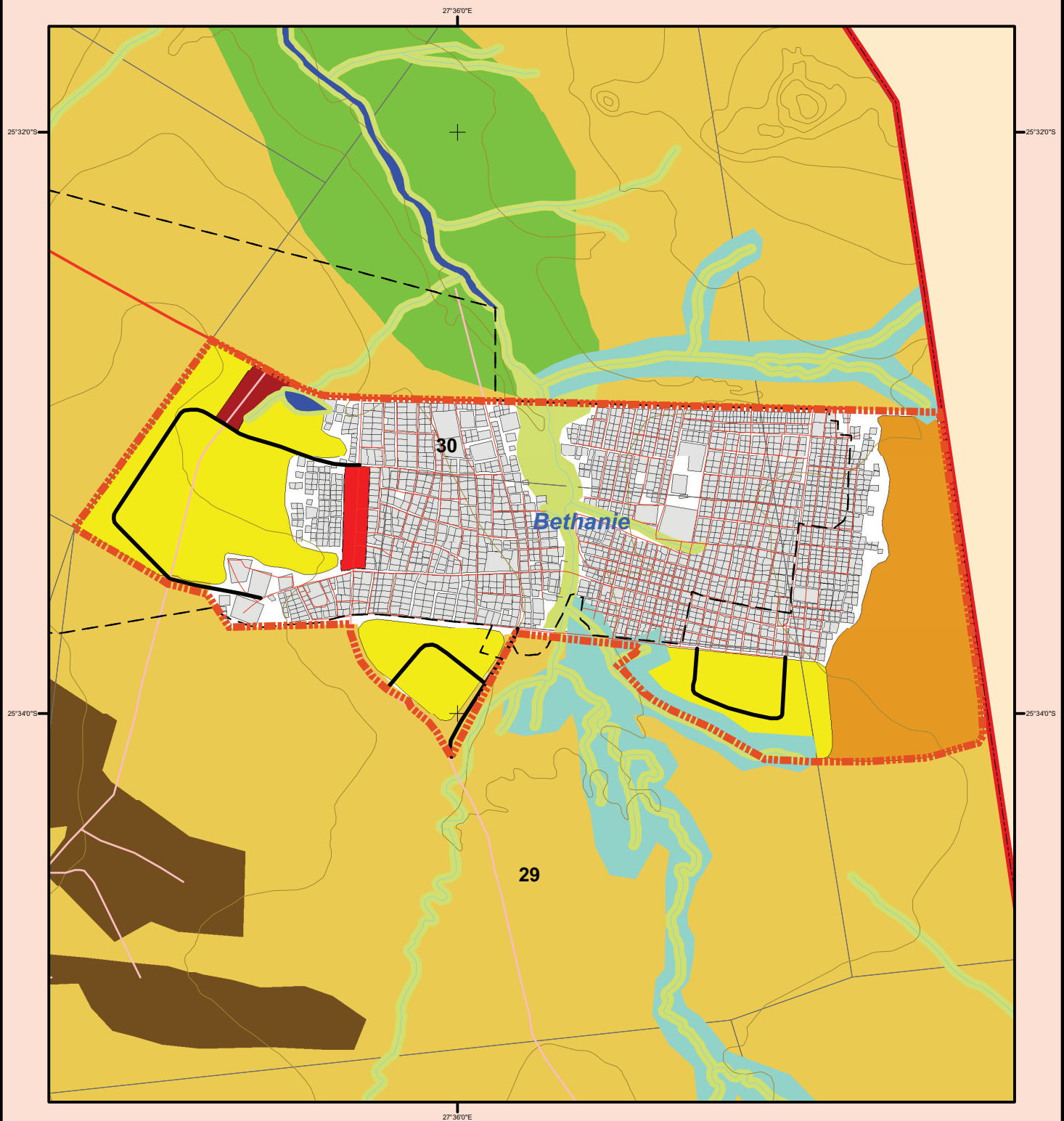
E-mail: gert@k2m.co.za

K2M TECHNOLOGIES

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR BETHANI CLUSTER -



### LEGEND:

Rustenburg Local Municipality	Perennial River/Stream	Urban Edge	Mining (surface infrastructure)
Ward boundary	Non-Perennial Stream	New Proposed Roads	Mixed use
Highway	Contours	Agriculture	Public facilities
Main roads	Aquatic Management Zone	Business/Commercial	Recreation
Secondary roads	Farm Portion	Conservation	Regional Open Space
Street	Existing urban development	Industrial	Single Residential
Other roads		Light industrial	Multiple Residential
Railway		Local Open Space	Urban agriculture
		Mining	

SCALE : 0.4 0.2 0 0.4 Kilometers  
1:35,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

CLUSTER	AREA (ha)	PROPOSALS
<b>Modikwe/Berseba</b>	295.7	Future residential development in both Madikwe and Barseba is recommended in a western direction. This will protect the regional open space corridor along the eastern boundary of both these clusters from negative impacts of development.
<b>Monnakato</b>	586.1	Future residential development of Monakato is recommended in both an eastern and southern direction. The proposed eastern extension up to the Mogwase road is recommended for medium to higher residential development. The southern and south western extensions will take the form of lower density single residential development. This area will also in the longer term facilitate improved integration with the Kopman settlement.
<b>Phatsima</b>	217.8	The proposed future growth of Phatsima is constrained by a number of factors such as topographical constraints towards the west and south, sensitive open space areas south of Phatsima, as well as a proposed new slimes dam that will be located east of Phatsima. The most logical extension of Phatsima would have been in an eastern direction, but the proposed slimes dam in this area necessitates the consideration of alternative options. Two future residential development areas is thus proposed: <ul style="list-style-type: none"> <li>• A lower density single residential development south and southeast of the existing Phatsima development.</li> <li>• An area for medium and high density residential development south and southwest of Phatsima.</li> </ul>
<b>Photsaneng/Thekwane</b>	215.9	Future residential development in the Photsaneng/ Thekwane/ Mfidikoe node is aimed at compacting the urban structure and optimising potential infill opportunities for development. The proposals consist of areas for lower density single residential development immediately west and adjacent to the existing Thekwane and Photsaneng settlements. The area south and immediately adjacent to Mfidikoe, as well as the area between Photsaneng and Thekwane is recommended for medium to higher density residential development. Extensive mining activities and mining surface infrastructure is located in the immediately surrounding areas and the potential implementation of these residential areas will be subject to all necessary detailed investigations to determine the environmental and health aspects prior to implementation.
<b>Marikana/Rooikoppies</b>	347.7	The majority of the future proposals of the Marikana/Rooikoppies node are based on the detailed local spatial development framework that was prepared for this area (GAPP Architects and Urban Designers). Additional development land has also been identified to southern section of Marikana adjacent to the existing road. The details of these proposals are reflected on the attached local SDF map for this area.
<b>Rustenburg/Phokeng/Boitekong</b>	7967.4	The focus area for development in Rustenburg is in the south eastern quadrant in an area around the old Pretoria road, the N4 and the Magaliesberg road, with the Hexriver forming the outer boundary. The area south of the N4 is mostly earmarked for single residential development, with the areas north of the N4 for multiple residential development. The area along the R24, from the mixed land use area southwards and adjacent to this road, up to the Hexriver tributary is also earmarked for a multiple residential development.

CLUSTER	AREA (ha)	PROPOSALS
		<p>Large parts of the Boitekong area is constrained by mining activities and surface infrastructure, as well as by various wetland and aquatic management zones. Large parts of Boitekong also falls within the safety zone of the slimes dam located in this area and is thus demarcated for intensive urban agricultural purposes. Various areas in and around Kanana have also been earmarked for both single and multiple residential development in terms of the RBA Master Plan.</p> <p>Future residential development of Phokeng will mostly be concentrated in a western direction, north of the Rustenburg/Swartruggens road and earmarked for multiple residential development. There are also areas located northwest of the existing urban development of Phokeng earmarked for single residential development. In addition, an area south of the Rustenburg/Swartruggens road and east of the N4, located outside the environmentally sensitive zone, could also be considered for multiple residential development.</p>
<b>Tlaseng</b>	2315.4	<p>The development surrounding the Tlaseng cluster, including Tlaseng, Tsitsing, Ga-Mogajane, Lesung and Mosenthal is viewed as an important future development node within the area of jurisdiction of the Royal Bafokeng Administration as identified in the RBA Master Plan. A mixture of both low density single residential development, as well as medium to higher density development is recommended around the settlements forming part of this cluster (see details on attached map). The medium to high density residential developments are proposed to be located adjacent to the Sun City road traversing this area.</p>

### 9.3 SOCIAL INFRASTRUCTURE, FACILITIES AND SERVICES

Social facilities should ideally be provided in a focused manner in order to stimulate the viability of these activities, create strong focal points with which the surrounding communities can identify, and create a more ordered spatial structure. To achieve this concentration of facilities, it is recommended that a hierarchy of Service Delivery Centres be developed over time. Various land uses can be mixed within SDCs, for example retail, office, education, health and residential uses. The land use mix, however, will depend on the socio-economic status and needs of the population it and can therefore differ between individual circumstances. Four types of SDCs are proposed for the Rustenburg Municipal Area: 1st, 2nd and 3rd order and Rural SDCs. The order allocated to each SDC took into account certain key variable, such as its intended function, the population size its serves and its geographical location. In turn, the order of the SDC determines its size and the type of facilities located within it. The SDC hierarchy, its suggested minimum threshold population and the method of access to each centre, is depicted in Table 9.2.

**Table 9.2: Urban Service Delivery Centres**

SDC hierarchy	Existing transit facilities	Threshold population	Access
1 <sup>st</sup> order	Rustenburg	70 000 +	Freeway and distributor
2 <sup>nd</sup> order	Boitekong	30 000 – 70 000	Distributor
	Phokeng	30 000 – 70 000	Distributor
3 <sup>rd</sup> order	Thekwane	10 000 – 30 000	Distributor, collector and internal
3 <sup>rd</sup> order	Luka/ New Town	10 000 – 30 000	Distributor, collector and internal
3 <sup>rd</sup> order	Robega	10 000 – 30 000	Distributor, collector and internal
3 <sup>rd</sup> order	Tlaseng	10 000 – 30 000	Distributor, collector and internal
Rural	Hartbees-fontein	3 000 – 30 000	Distributor, collector and internal
Rural	Monnakato	3 000 – 30 000	Distributor, collector and internal
Rural	Bethanie	3 000 – 30 000	Distributor, collector and internal
Rural	Phatsima	3 000 – 30 000	Distributor, collector and internal
Rural	Marikana	3 000 – 30 000	Distributor, collector and internal
Rural	Modikwe	3 000 – 30 000	Distributor, collector and internal
Rural	Maumong	3 000 – 30 000	Distributor, collector and internal
Rural	Tantanana	3 000 – 30 000	Distributor, collector and internal
Rural	Kroondal	3 000 – 30 000	Distributor, collector and internal
Rural	Heldina	3 000 – 30 000	Distributor, collector and internal
Rural	Boons	3 000 – 30 000	Distributor, collector and internal

The exact location of a SDC within a settlement cluster will be determined during the detailed planning of such a facility. However, guidelines for its location are the following:

- It should be located on a public transportation route.
- Where two major public transport routes intersect, a SDC should be located as close to this intersection as possible.
- It should utilise existing existing public transport facilities as far as possible.
- It should be located on an area with enough vacant land for its development.

CLUSTER	PROPOSALS
<b>Chaneng/Robega</b>	A total of seven sites have been identified for the future provision of social and public facilities within the proposed new residential areas.
<b>Ga-Luka</b>	A total of four sites for the purposes of social and community facilities have been earmarked within the future expansion zone.
<b>Marikana/Rooikoppies</b>	The majority of the future proposals of the Marikana/Rooikoppies node are based on the detailed local spatial development framework that was prepared for this area (GAPP Architects and Urban Designers). Additional development land has also been identified to southern section of Marikana adjacent to the existing road. The details of these proposals are reflected on the attached local SDF map for this area.
<b>Rustenburg/Phokeng/Boitekong</b>	Two important community facilities are required in the Waterval expansion area i.e. a new police station as well as a potential site for a tertiary education facility. Conceptual locations for these facilities are indicated on the attached maps. Various sites have been earmarked for specific social and community purposes in the Phokeng area in accordance with the RBA Master Plan proposals.
<b>Tlapa</b>	Various sites for the establishment of social and public facilities have been identified in this cluster according to the proposals of the Royal Bafokeng Master Plan for this area.
<b>Mamerotse/Tantanana</b>	Four sites have been identified for the establishment of social and public facilities in this cluster according to the proposals contained in the Royal Bafokeng Master Plan.

## 9.4 SPATIAL ECONOMIC DEVELOPMENT

### 9.4.1 Agriculture

Although agriculture does not play the same dominant role than the mining sector in the local economy, it remains a valuable asset and should therefore be protected. The commercial agricultural activities in the Rustenburg Local Municipality are mainly concentrated in the following areas:

- The extreme southern parts of the municipality which is intensively cultivated and includes the settlement of Mathopestad and the rural node of Boons. A significant proportion of the land area within this part of the municipality is commercially cultivated and also under irrigation.
- The area east of Rustenburg, specifically around Kroondal and westwards, both north and south of the N4 in the direction of Marikana.
- The area around and north of Marikana in the direction of Hartebeesfontein.
- The area around Boschhoek and along the foothills of the Magaliesberg in this vicinity.

The rural development nodes located in these areas should form important focal points for supporting the commercial and economic activities associated with agriculture, with particular emphasis on areas such as Boons, Mathopestad, Kroondal and Boschhoek.

Urban agriculture is also identified as an alternative economic activity and diversification of the economic base at a number of the local nodes with potential access to water resources. Specific areas for focusing on urban agriculture has been identified in the Boitekong, Phatsima, Monakato, Hartebeesfontein, Modikwe and Bethanie clusters (see attached local spatial development framework maps).

The following guidelines should be applied regarding the development of agricultural areas the development of agricultural areas within the Rustenburg Municipal Area:

**(i) Limit Urban Intrusion**

The expansion of mining activities poses the greatest threat to intensive agriculture in the Municipal Area, especially in the Kroondal area. It is thus important that urban intrusion into intensive agricultural areas be limited through the promotion of higher-density urban development.

**(ii) Enforce Urban Edge**

Demarcating an urban edge has the specific purpose to prevent uncontrolled urban sprawl and in this way contributes to protecting valuable agricultural land. For this reason, the proposed urban edge must be strictly enforced. No bulk services should be provided beyond the urban edge and the subdivision of agricultural land should be limited.

**(iii) Transfer State-Owned Land**

The large number of farms in the Rustenburg Municipal Area that are state-owned constitutes an important development opportunity. The development potential (especially agricultural potential) of these farms should be investigated. Based on this investigation, these farms should either be acquired by the municipality or be sold off to individual, established farmers or to emerging farmers or community co-ops. By doing this, the land will be placed in the hands of the local population, who will benefit from its potential and have a private stake in the development of these farms.

CLUSTER	PROPOSALS
<b>Bethanie</b>	An area of approximately 10 ha immediately east of the eastern boundary of Bethanie has been earmarked for urban agriculture purposes. This area will be located between the eastern boundary of Bethanie and the intensive commercial agricultural activities located immediately east of the Rustenburg municipal boundary. This area will also serve as a buffer between the urban fringe and the agricultural activities located east and along the municipal boundary.
<b>Lethabong</b>	The area between the proposed future residential development and the Hexriver is identified for potential use for intensive urban agriculture purposes, possibly making use of water from the Hexriver for irrigation purposes. This development will have to be mindful of the public open space areas and aquatic management zones in the vicinity of the identified site.
<b>Modikwe/Berseba</b>	An area between the future residential expansion of Madikwe and Barseba is

CLUSTER	PROPOSALS
	recommended for intensive urban agricultural purposes. This area is located immediately north and adjacent to the main provincial road and its northern and eastern boundaries will be determined by the local open space corridor and aquatic management zones applicable to these areas.
<b>Monnakato</b>	The areas north and northwest of the existing development boundary of Monnakato and within the urban edge is identified for intensive urban agriculture with the possibility of utilising water from the adjacent rivers and streams for irrigation purposes.
<b>Phatsima</b>	The area east and southeast of the existing Phatsima development ,as well as the boundary of the proposed future single residential development is recommended for intensive urban agricultural farming. This area will possibly make use of water from the Elandsriver south of Phatsima for irrigation purposes. It will serve to support the establishment of an alternative economic base in this area, as well as serve as a buffer area between the residential development and the proposed surface mining activities towards the east.
<b>Marikana/Rooikoppies</b>	The majority of the future proposals of the Marikana/Rooikoppies node are based on the detailed local spatial development framework that was prepared for this area (GAPP Architects and Urban Designers). Additional development land has also been identified to southern section of Marikana adjacent to the existing road. The details of these proposals are reflected on the attached local SDF map for this area.

#### 9.4.2 Mining

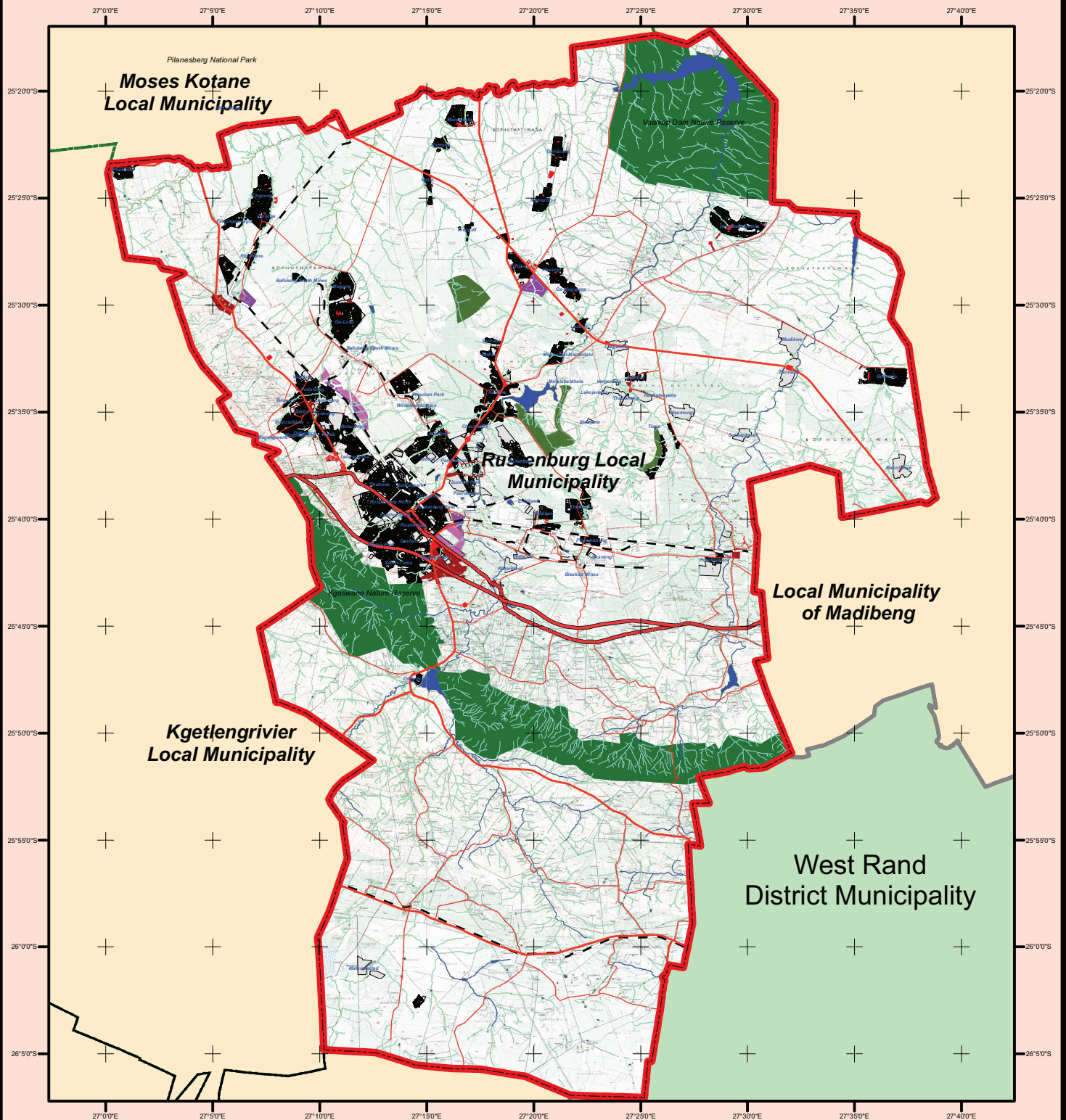
Mining in the Rustenburg Municipal Area predominantly occurs in a belt which runs north of and parallel to the Magaliesberg. It stretches from the Pilanesberg in the north, past Rustenburg towards Marikana. These mining activities are not only the corner stone of the local economy of Rustenburg, but also largely within the North West Province. It is thus important that the necessary infrastructure are created and maintained to ensure the continued optimal operation of these mining activities. At the same time, negative externalities such as environmental degradation and aspects such as the uncontrolled development of informal settlements should be prohibited. The mining activities and infrastructure has a significant impact on the current and future spatial structure of the urban area through the physical constraints it poses. These negative potential interactions between the mining activities and proposed future urban development should be minimised as far as possible.

#### 9.4.3 Commercial and industrial

Various types of commercial and industrial development are proposed in the Municipal and Local Spatial Development Frameworks to support spatial economic development opportunities within the municipal area. These aspects are highlighted on the attached map, highlighting the commercial and industrial development proposals. The various categories being provided for in these proposals include the following:

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

MUNICIPAL SDF: BUSINESS, COMMERCIAL, INDUSTRIAL & MIXED USE PROPOSALS -



## LEGEND:

- Rustenburg Local Municipality
- Perennial River/Stream
- Highway
- Main roads
- Secondary roads
- Railway
- Non-Perennial Stream
- Existing urban development

## Development Proposals

- Business/Commercial
- Industrial
- Light industrial
- Mixed use

\* Proposals informed by Royal Bafokeng Nation Master Plan

SCALE : 1:475,000

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

6 Kilometers

**N**

PREPARED BY:

**K2M TECHNOLOGIES (PTY) LTD**

13 Moesep Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag X82329  
Rustenburg  
0300

Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881

E-mail: gert@k2m.co.za

**K2M TECHNOLOGIES**

Spatial Development Frameworks   Integrated Development Planning   Formal Town Planning Applications   Project Management

- Business/commercial
- Industrial
- Light industrial
- Mixed land use

In case of the latter category, there are certain areas that are deemed appropriate for the development of a mixture of commercial and residential usages. This mixed land use zone can also accommodate light non-noxious industries as well as high density residential development and is particularly suited for development around public transport corridors.

CLUSTER	AREA (ha) (incl “ <i>business</i> ” and “ <i>mixed</i> <i>use</i> ”	PROPOSALS
<b>Bethanie</b>	16.7	Two areas have been identified to accommodate commercial and light industrial activities. These include: <ul style="list-style-type: none"> <li>• A proposed business and commercial area located in the western half of the existing development and which will also serve the proposed future western extension</li> <li>• a proposed mixed land use zone located adjacent to the access roads from the main Sun City road and which also links to the mining activities towards the south. This area is earmarked for both commercial and light industrial activities.</li> </ul>
<b>Chaneng/Robega</b>	17.1	A number of business nodes is proposed, both within the existing development, and within the proposed future residential development. The areas earmarked within the existing development boundary will strengthen the functioning of existing business and retail facilities. The larger of the two proposed new retail nodes within the future extensions is envisaged to function as a central retail node for the larger cluster.
<b>Ga-Luka</b>	14.6	Due to the physical constraints limiting future expansion of this cluster, proposed commercial and business nodes are mainly located within the existing urban area to strengthen existing facilities. A central site has also been identified in the area between Ga-Luka and Mogono for the purposes of developing a centrally located facility. The latter node is demarcated as a mixed land use zone and could thus also accommodate light industrial and high-density residential developments as part of a mixed use node.
<b>Lethabong</b>	39.6	A number of commercial development sites are proposed for Hartebeesfontein: <ul style="list-style-type: none"> <li>• A business node and light industrial area at the northern entrance to Hartebeesfontein.</li> <li>• A proposed central retail node which could function at the level of a community centre.</li> <li>• Two commercial and retail nodes in the proposed future</li> </ul>

CLUSTER	AREA (ha) (incl “ <i>business</i> ” and “ <i>mixed use</i> ”	PROPOSALS
		<p>residential areas at the intersections of the proposed main road system. It is envisaged that these two centres will function at the level of neighbourhood centre or possibly as local convenience centres.</p> <ul style="list-style-type: none"> <li>Two mixed land use corridors are also proposed along the proposed future road network linking the two neighbourhood centres with the existing Hartebeesfontein and main Rustenburg roads.</li> </ul>
<b>Mabitse/Rankelenyane</b>	17.7	The proposed business area is located along the eastern boundary of the existing Rankelyneane development. It is envisaged to function as a neighbourhood centre serving both the communities of Mabitse and Rankelyneane. A mixed land use zone is also proposed between Mabitse and Rankelyneane serving further commercial and possible light industrial functions of both these settlements.
<b>Maile/Kopman</b>	5.9	The proposed business nodes in both Kopman and Maile is envisaged to function at the level of local convenience centre.
<b>Makolokwe</b>	11.1	A mixed land use area is proposed in the central parts of the existing Makolokwe to accommodate retail, commercial or light industrial activities within this cluster.
<b>Modikwe/Berseba</b>	31.7	The proposed business centre in Barseba is located adjacent to and north and south of the provincial road traversing this area. It is envisaged that this node will function at the level of a neighbourhood centre serving both the Barseba and Madikwe settlements.
<b>Monnakato</b>	11.3	<p>Two business nodes is proposed:</p> <ul style="list-style-type: none"> <li>A business node to function at the level of a neighbourhood centre in the central southern parts of the existing Monakato development.</li> <li>A local convenient centre node at the intersection of the Monakato access road and the proposed new access road serving the proposed southern extension. The area south and adjacent to the Monakato access road between the proposed two business nodes is recommended as a mixed land use zone which could also include the establishment of public facilities, high density residential development and light industrial activities.</li> </ul>
<b>Phatsima</b>	10.5	A proposed business node is located along the main Phatsima access road with the intention to serve as a neighbourhood centre. The area west of this node, both north and south of the main internal distributor of Phatsima is also identified for mixed land use development which could accommodate retail, as well as public facilities, high density residential and light industrial activities to serve the local community.
<b>Photsaneng/Thekwane</b>	18.7	Two retail nodes are proposed within this cluster, both to fulfill the functions of neighbourhood centres. These two areas are located south of Mfidikoe, as well as in the area between Thekwane and

CLUSTER	AREA (ha) (incl “ <i>business</i> ” and “ <i>mixed use</i> ”	PROPOSALS
		Photsaneng, the latter aimed at servicing the needs of both these communities. Provision is also made to for smaller local convenient centres in both with Thekwane and Phostsaneng.
<b>Marikana/Rooikoppies</b>	71.4	The majority of the future proposals of the Marikana/Rooikoppies node are based on the detailed local spatial development framework that was prepared for this area (GAPP Architects and Urban Designers). Additional development land has also been identified to southern section of Marikana adjacent to the existing road. The details of these proposals are reflected on the attached local SDF map for this area.
<b>Rustenburg/Phokeng/Boitekong</b>	781.2	<p>The Waterval area around the existing Waterfall node is earmarked for mixed landuse development and will form an important focus area for the future development of Rustenburg. Other important components include proposed new light industrial area northeast of the Pretoria road and an industrial area north thereof. An important component is the proposed special mining supply park that will focus on manufacturing, commercial and related activities aimed at supplying the mining sector with in the area. Specific locations have also been earmarked for the establishment of a possible education hub in the area (specifically related to tertiary education), as well as for a new police station to service the northeastern section of Rustenburg</p> <p>A number of commercial nodes are proposed in the Boitekong and Kanana area. Most significantly, and in accordance with earlier proposals, a business centre functioning at the level of a community centre, should be considered for establishment in the Boitekong area.</p> <p>The major focus for business and commercial development in the Phokeng area is from the intersection of the Rustenburg/Swartruggens road and the Phokeng/ Sun City road in a northern direction, west of the proposed bus rapid transport system. A new light industrial and industrial area is also proposed along the north eastern boundary of Phokeng in line with the proposals of the RBA Master Plan.</p>
<b>Tlaseng</b>	87.5	A number of locations for both neighbourhood and local convenience business centres are proposed in this area according to the proposals in the Royal Bafokeng Master Plan. A centrally located light industrial facility located adjacent to the Sun City road is also recommended for this cluster.

#### 9.4.4 Tourism

Although the primary tourism attractions in the North West Province such as Sun City and the Pilanesburg National Park are not located within Rustenburg itself, Rustenburg plays an important role as a gateway to these nationally important tourism destinations. There are also a number of locations within Rustenburg with significant tourism potential including areas such as the Magaliesberg Protected Environment, the Vaalkop Nature Reserve, the Kgaswane Nature Reserve, Buffelspoort Dam, as well as proposed developments around Bospoort Dam to be undertaken by the Royal Bafokeng Administration. These, together with a rich diversity of cultural heritage attractions could significantly enhance the role of tourism in the local economy of the area and the overall open space network of the spatial framework should serve to enhance the quality and value of these assets.

**Table 9.3: Potential tourism areas**

Tourism area	Attraction	Access	Potential uses
Rustenburg Town	Heritage Site	Direct and well developed	Museums, historic buildings, tourist day facilities (e.g. restaurants and curio shops)
Kgaswane Game Reserve	Mountainous area and undisturbed vegetation	Direct and well developed	Game viewing, lodges, camping, hiking trails
Kroondal	Heritage Site	Direct and well developed	Open air museums, scenery viewing, tourist day facilities (e.g. restaurants and curio shops)
Bafokeng Sport Palace	Sport Stadium	Direct and well developed	International Sporting venue
Buffelspoort Dam	Dam and resorts	Direct and well developed	Resorts, water sports (sailing) and formal tourist accommodation (e.g. lodges)
Vaalkop Dam Nature Reserve	Dam and nature reserve	Indirect and poorly developed	Water sports (sailing) and informal tourist accommodation (e.g. caravan parks and camping)

#### 9.5 TRANSPORT SYSTEM

The proposed Integrated Rapid Public Transport Network (IRPTN) for Rustenburg is planned to be implemented over a phased period. The IRPTN are described by the national Department of Transport as the mobility wave of the future and are the only viable option that can ensure sustainable, equitable and uncongested mobility in livable cities and district.

The design of the Rustenburg IRPTN is planned to include the following:

- Pedestrian walkways to access the IRPTN routes and complementary cycle-ways;
- Terminals at Phokeng and Waterfall Mall;

- Transitional upgrading and use of the existing public transport facility on the fringe of the Rustenburg CBD area until the full IRPTN network is completed;
- Stops with shelters, public transport information and lighting every 700 m where passengers can access the routes;
- Curb-side High Occupancy Vehicle (HOV) lanes with lay-byes;
- Signal queue priority measures with queue jump lanes; and
- Appropriate road signage.

Phase 1 of the IRPTN has been divided into sections with similar characteristics and the preliminary proposals are described below (ITP; 2008):

- **Phokeng to CBD along the R565:** This is a main commuter corridor, as well as one carrying long-distance traffic. It would form an IRPTN trunk route, with some services stopping at applicable intervals in Phokeng and others operating largely as “express” services through to the CBD. The R565 currently has 2 lanes per direction. It is proposed that one curb-side lane should be a 24-hour HOV lane for public transport vehicles and cars with 2+ passengers. This will still be investigated in detail, and may be a public transport only lane in the peak periods, and an HOV lane for cars with 2+ passengers at other times of day. The precise recommendations for the HOV lanes will depend on an analysis of operating thresholds so that the lane should not appear under-utilized. Also, due consideration will be given to operating conditions on the corridor after implementation of the HOV lane.

The R565 currently has a number of stop streets and speed humps. These would need to be removed, and traffic signals introduced where necessary. The traffic signals would be timed to allow for the public transport vehicles on the R565 to maintain a fairly constant travel speed through intersections, particularly on the “express” section of the route where the vehicles do not stop frequently. Signal queue priority measures would be provided for the HOV lane. This would most likely involve the construction of queue jump lanes at intersections. Signal priority treatments may be implemented at a later stage. Public transport lay-byes or bays with stops with seats, shelters and information on the IRPTN services will be provided every 700 m wherever passengers can access the route. The location of the stops will as far as possible be standardized throughout the IRPTN network as either near or far-side before or after an intersection. Pedestrian access to these stops will be considered in the design. HOV only preferential access will be considered at the retail and recreational development node at the Royal Bafokeng Sports Palace. An IRPTN terminus will be constructed at the development node that can also be used to serve the stadium for special events such as 2010.

- **Retail and recreational node at the Royal Bafokeng Sports Palace through Phokeng residential to the CBD:** This corridor follows the R565 from the CBD as described in (i) above, but then turns right and penetrates the residential area of Phokeng, going on to form a ring road around the retail and recreational node at the Royal Bafokeng Sports Palace (stadium precinct), on both the eastern and western sides of the R565. This would form an IRPTN “complementary” route, with services operating in mixed traffic through Phokeng, until the routes join the HOV lane on the R565. A ring road needs to be implemented to allow an acceptable public transport distribution system at the Royal Bafokeng Sports Palace, also linking to the retail and recreational development node at the Royal Bafokeng Sports Palace. The advantage of this route is that it (a) provides better public transport network coverage of the Phokeng area; (b) improves access to the main development node in Phokeng, and (c) for special events, ensures that the Royal Bafokeng Sports Palace can be accessed from more than just one direction as is the case at present. This is a critical aspect, as previous events, such as the International Rugby Match held recently at the Sports Palace highlighted the need for improved circulation around the stadium. Without this improved circulation system, a transportation gridlock on the Phokeng network is expected during major events, such as 2010. The IRPTN terminus to be constructed at the stadium development node will be linked with the retail centre and the stadium with covered walkways, and will have facilities such as public toilets, a staffed information kiosk, safe storage for bicycles and a secure, covered parkand-ride site. Specific attention will also be given to pedestrian walkways within Phokeng and at the development node and Royal Bafokeng Sports Palace.
- **CBD Distribution Service:** The IRPTN routes from Phokeng in Phase 1 (and from the north and east in future Phases) and through to the Waterfall Mall in the south, will be routed to provide a distribution service within the CBD. The routes will enter the CBD from the west on the oneway Oliver Tambo Drive and will exit to the west on the one-way Nelson Mandela Drive. Some services will be routed Beyers Naude, Unie and President Mbeki, and others along Van Belkum and Bosch Streets, thereby providing access to the industrial area to the north-east and to the commercial developments to the south-west. The central “square” formed by Oliver Tambo Drive, Nelson Mandela Drive, Beyers Naude and President Mbeki streets will be intersected by a pedestrian walkway along Fatima Bhayat Street. This “square” will be developed as an urban public space.

It is proposed that along the IRPRN routes within the CBD, one existing curb-side lane should be a dedicated public transport lane, allowing access for emergency vehicles and possibly metered taxis. It may be that on certain sections, this would be a public transport lane only in peak periods, allowing for mixed traffic and delivery vehicle access in the offpeak periods. The traffic signals would be timed

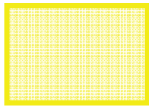
to allow for the traffic on the IRPTN routes in the CBD to flow as smoothly as possible, and signal queue priority measures would be provided for the public transport lane. Localised intersection upgrades, focused at intersections sub-standard to accommodate public transport priority measures, will be implemented. Signal priority treatments may be implemented at a later stage. Public transport lay-byes with stops with seats, shelters and information on the services will be provided every 700 m wherever passengers can access the route. Higher level passenger facilities, e.g. with public toilets, a staffed information kiosk, etc. will be provided at points where routes intersect and transfers could take place. Pedestrian walkways will be provided along all the IRPTN routes in the CBD.

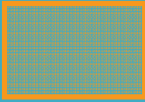
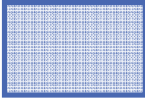

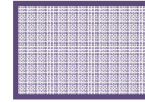
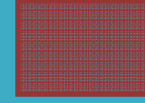
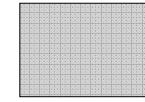

**CBD to Waterfall Mall along road P16/1:** This is a commuter corridor and one of the main access routes to the city from the N4. There are high levels of congestion along this section and an additional lane would be built as a HOV curb-side lane. This could be a 24-hour HOV lane for public transport vehicles and cars with 2+ passengers or may be a public transport only lane in the peak periods, and an HOV lane for cars with 2+ passengers at other times of day. The access ramps to and from the N4 will also be upgraded, with an additional bridge constructed across the N4. The traffic signals would be timed to allow for the traffic on the P16/1 to flow as smoothly as possible, and signal queue priority measures would be provided for the HOV lane. Signal priority treatments may be implemented at a later stage. Public transport lay-byes with stops with seats, shelters and information on the RRT services will be provided every 700 m wherever passengers can access the route. Pedestrian access to these stops will be considered in the design. HOV only preferential access will be considered at the Waterfall Mall. If affordable land is available, a terminus will be constructed, to be linked with the Mall with covered walkways, and will have facilities such as public toilets, a staffed information kiosk and a park-and-ride site. The frequency of service to be provided on the Phase 1 IRPTN will depend on demand, but it is envisaged that at least a minimum level of off-peak services will be provided.

## 9.6 RUSTENBURG CORE AREA PROPOSALS

The more detailed proposals for the Rustenburg core area is depicted on the attached thematic map. The development zones and associated proposed primary user and densities are outlined in the table below.

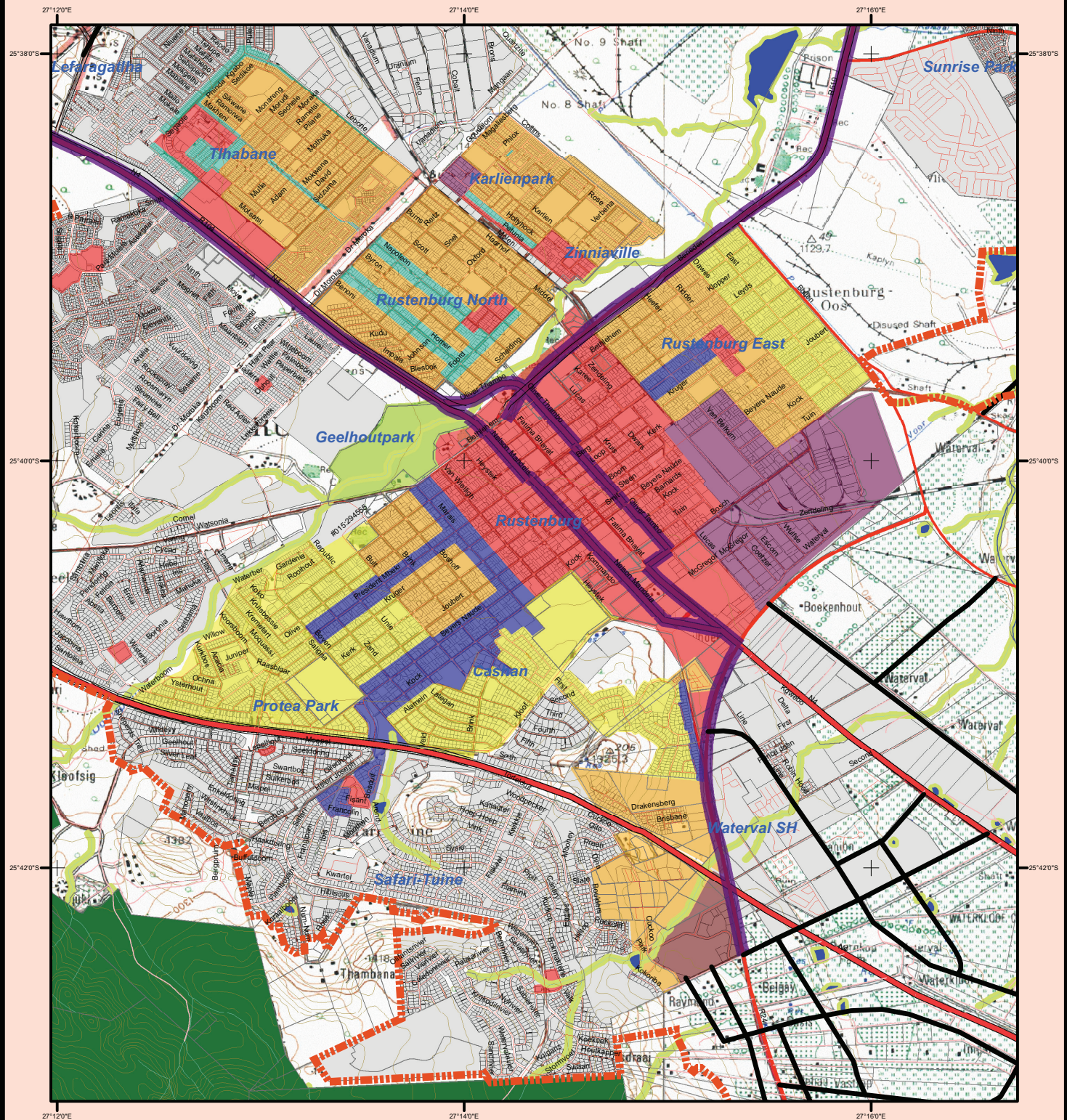
**Table 9.4: Rustenburg Core Area Development Zones**

Map Legend	Proposed Primary Uses	Maximum residential Density	Legend
Residential 1	See Attached Land Use Table	40 u/ha	

<b>Residential 2</b>	<b>See Attached Land Use Table</b>	<b>60 u/ha</b>	
Residential/ Offices	See Attached Land Use Table	<b>60 u/ha</b>	
<b>Zone</b>	<b>Proposed Primary Uses</b>	<b>Proposed residential Density</b>	<b>Legend</b>
<b>Residential, Retail, Commercial &amp; Offices</b>	<b>See Attached Land Use Table</b>	<b>As per LUMS requirements for “Business”</b>	
Commercial & Industrial	See Attached Land Use Table	N.A.	
<b>Mixed Use</b>	<b>See Attached Land Use Table</b>	<b>60 u/ha</b>	
<b>Land uses as per Municipal Policies</b>	<b>Land uses as per Municipal Policies</b>	<b>N.A.</b>	
<b>Opportunity Zone</b>	<b>See Attached Land Use Table</b>	<b>N.A</b>	

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - LOCAL SDF FOR RUSTENBURG/THLABANE CORE AREA -



### LEGEND:

- |                               |                        |                          |   |
|-------------------------------|------------------------|--------------------------|---|
| Rustenburg Local Municipality | Perennial River/Stream | Urban Edge               | Residential/Offices                       |
| Highway                       | Non-Perennial Stream   | New Proposed Roads       | Residential, Retail, Commercial & Offices |
| Main roads                    | Contours               | Rapid Bus Transport Lane | Commercial & Industrial                   |
| Secondary roads               |                        |                          | Opportunity Zone                          |
| Street                        |                        |                          | Existing Golf Course                      |
| Other roads                   |                        |                          | Mixed Use                                 |
|                               |                        | Single Residential       | Landuses as per Municipal Policies        |
|                               |                        | Multiple Residential     |   |

SCALE: 0 0.5 1 Kilometers

DATE: April 2010

COORDINATE SYSTEM: Municipal WGS84 (Lo31)

PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0259

Postnet Suite #167  
Private Bag 42329  
Rustenburg  
0300

Tel: + 27 (0) 14 533 1943  
Fax: + 27 (0) 14 533 1769  
Cell: 082 776 0881

E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management



## 10 MANAGEMENT AND IMPLEMENTATION

### 10.1 MANAGEMENT AND COORDINATION

The approach of trying to accurately predict and quantify the land requirements of individual land use types have been applied in many Spatial Development Frameworks. However, experience has shown that these projections are normally overtaken by events and seldom accurately reflect the true development scenario. This has become particularly problematic over the last decade with the advent of globalisation and fast changing technologies and associated industries. Rather than employing an approach of preparing so-called “*land use budgets*”, an overall framework which is fully adequate to accommodate projected growth even under a high growth scenario is adopted. This allows the flexibility for individual decision makers and entrepreneurs to be able to exercise locational choices in development and investment decisions. An overall summary of the extent of the areas demarcated for individual land uses within each cluster is summarised in Table 10.1 below.

**Table 10.1:**

Cluster	Proposed Development Zone	Area (ha) of proposed development	Existing development footprint (ha)	Cluster size within urban edge (ha)
<b>Bethanie Cluster</b>	Business/Commercial	9.06	332.4	882.88
	Open Space	183.73		
	Mixed use	7.62		
	Residential (Low density)	220.73		
	Urban agriculture	129.34		
<b>Chaneng &amp; Robega Cluster</b>	Business/Commercial	17.14	724.97	1840.02
	Open Space	461.07		
	Public facilities	57.04		
	Recreation	23.22		
	Residential (Low density)	283.86		
	Residential (Med to high density)	272.72		

Cluster	Proposed Development Zone	Area (ha) of proposed development	Existing development footprint (ha)	Cluster size within urban edge (ha)
<b>Diepkuil Cluster</b>	Agriculture	0.79	24.25	43.38
	Business/Commercial	0.19		
	Open Space	17.16		
	Public facilities	0.80		
	Residential (Low density)	0.18		
<b>Entabeni Cluster</b>	Residential (potential upgrading)	28.28	29.55	29.55
<b>Ga-Luka Cluster</b>	Business/Commercial	3.64	892.06	1734.62
	Open Space	421.95		
	Mixed use	11.07		
	Public facilities	74.46		
	Recreation	8.96		
	Residential (Low density)	191.75		
	Residential (Med to high density)	130.74		
<b>Lekgalong Cluster</b>	Open Space	7.19	123.8	144.24
	Residential (Low density)	13.25		
<b>Lekojaneng Cluster</b>	Mining	45.29	129.46	192.49
	Open Space	17.74		
<b>Lethabong Cluster</b>	Business/ Commercial	25.49	550.44	1431.81
	Light industrial	4.65		
	Open Space	355.77		
	New development (in progress)	34.52		
	Mixed use	14.08		
	Public facilities	18.36		
	Residential (Low density)	225.37		
	Urban agriculture	203.14		
<b>Mabitse Cluster</b>	Business/ Commercial	6.64	139.3	249.54
	Open Space	25.94		
	Mining	50.40		
	Mixed use	11.10		

Cluster	Proposed Development Zone	Area (ha) of proposed development	Existing development footprint (ha)	Cluster size within urban edge (ha)
	Public facilities	2.03		
	Recreation	1.42		
	Residential (Low density)	12.71		
<b>Maile Cluster</b>	Agriculture	23.42	73.15	136.39
	Business/ Commercial	5.94		
	Open Space	25.05		
	Public facilities	2.58		
	Recreation	1.60		
	Residential (Low density)	4.64		
<b>Makolokwe Cluster</b>	Business/ Commercial	2.20	186	250.27
	Mixed use	8.89		
	Residential (Low density)	63.52		
<b>Mathopestad Cluster</b>	Business/ Commercial	3.15	40.39	231.45
	Residential (Low density)	18.95		
<b>Maumong</b>			178.4	183.1
<b>Modikwe &amp; Barseba Cluster</b>	Business/ Commercial	31.68	59.73	1217.34
	Open Space	16.83		
	Residential (Low density)	295.57		
	Urban agriculture	261.17		
<b>Monnakato Cluster</b>	Agriculture	270.93	289.85	1140.11
	Business/ Commercial	11.32		
	Open Space	609.45		
	Public facilities	7.44		
	Residential (Low density)	503.09		
	Residential (Med to high density)	83.02		
	Urban agriculture	96.99		
<b>Nkaneng Cluster</b>	Open Space	10.00	108.4	108.4
	Residential (potential upgrading)	79.10		
<b>Olifantsnek</b>	Business/ Commercial	5.40	34.3	65.45

Cluster	Proposed Development Zone	Area (ha) of proposed development	Existing development footprint (ha)	Cluster size within urban edge (ha)
	Open Space	10.57		
	Residential (Low density)	15.18		
<b>Phatsima Cluster</b>	Business/ Commercial	3.18	175.16	708.56
	Open Space	66.02		
	Mixed use	7.40		
	Residential (Low density)	142.88		
	Residential (Med to high density)	75.57		
	Urban agriculture	238.35		
<b>Photshaneng &amp; Thekwane Cluster</b>	Business/ Commercial	18.67	560.59	1367.13
	Open Space	379.32		
	Mining	1.97		
	Mining (surface infrastructure)	167.93		
	Public facilities	7.60		
	Recreation	15.13		
	Residential (Low density)	78.41		
	Residential (Med to high density)	137.50		
<b>Rooikoppies Cluster</b>	Business/ Commercial	13.81	219.31	1038.9
	Open Space	233.16		
	Mixed use	57.64		
	Public facilities	14.33		
	Residential (Low density)	171.16		
	Residential (Med to high density)	176.50		
	Urban agriculture	152.99		
<b>Rustenburg, Phokeng &amp; Boitekong Cluster</b>	Agriculture	71.17	8178.92	26871.47
	Business/ Commercial	214.78		
	Industrial	486.46		
	Light industrial	575.47		
	Open Space	4683.95		

Cluster	Proposed Development Zone	Area (ha) of proposed development	Existing development footprint (ha)	Cluster size within urban edge (ha)
	Mining	653.90		
	Mining (surface infrastructure)	340.07		
	Mixed use	566.44		
	Public facilities	802.54		
	Recreation	49.68		
	Regional Open Space	2106.67		
	Residential (Low density)	2747.88		
	Residential (Med to high density)	5219.63		
	Residential (potential upgrading)	60.00		
	Urban agriculture	113.90		
<b>Tlapa Cluster</b>	Business/ Commercial	2.78	103.35	194.16
	Conservation	3.54		
	Open Space	9.85		
	Mining	10.58		
	Public facilities	2.11		
	Recreation	8.86		
<b>Tlaseng &amp; Mamerotse Cluster</b>	Agriculture	13.71	1112.24	5607.41
	Business/ Commercial	87.53		
	Industrial	196.23		
	Open Space	962.76		
	Mining	11.17		
	Mining (surface infrastructure)	11.17		
	Public facilities	77.74		
	Recreation	28.55		
	Regional Open Space	43.98		
	Residential (Low density)	1796.84		
	Residential (Med to high density)	518.62		

## 10.2 STRATEGIC LEVEL ASSESSMENT OF THE IMPACT OF THE SPATIAL DEVELOPMENT FRAMEWORK PROPOSALS

An important component of any Spatial Development Framework is to reflect on the strategic level impacts of the implementation of the plan. Various tools such as Strategic Environmental Assessments have been suggested for application in this process. A number of Strategic Environmental Assessments have indeed been prepared over a number of years for different parts of the Rustenburg Local Municipal area. None of these have managed to fully integrate the implications of the previous spatial development framework within a strategic level assessment context. More recently the municipality has embarked on a process of preparing an Environmental Management Framework to assist with the strategic environmental management within its area of jurisdiction (also see Section 10.4 below).

Although a detailed Strategic Environmental Assessment does not form part of this assignment, it is deemed necessary to reflect on some of the key implications of the planned implementation. The urban development footprint of the proposals (excluding the various open space categories and agriculture) relative to the various environmentally sensitive zones within the municipality is summarised in Table 10.2 below. This information indicates that none of the proposals would impact negatively on any of the protected areas or nature reserves in the municipal area. In addition, only 0.1% of the proposed development footprint overlaps with areas classified as environmental sensitive areas (category 1) as defined in the North West Provincial Spatial Development Framework. A total of 7.4% of the development footprint (representing 1221 ha) are located within the 2.5km buffer around Magaliesberg Protected Environment (also see attached thematic map). These developments should be carefully considered, taking due cognisance of the detailed guidelines as stipulated in Section 10.4.3 below to ensure that the integrity of this area is not negatively affected. A total of 1725 ha of the proposed development footprint (10.5%) are located in areas classified as critical biodiversity areas (category 1) in the North West PSDF. These mainly relate to areas and proposals within the area of jurisdiction of the Royal Bafokeng Administration as reflected on their master plan and incorporated in the overall Municipal Spatial Development Framework. The most critical potential areas of conflict are highlighted on the attached thematic maps. These areas may necessitate some further interaction between Rustenburg Local Municipality and the RBA to possibly refine or slightly amend these proposals to better accommodate these critical biodiversity areas.

**Table 10.2: Proposed Development Footprint**

Description	Area (ha) of Proposed Development Footprint within	%
Protected Areas/Nature Reserve	0	0.0
Magaliesberg Protected Environment Buffer	1221.6	7.4
Critical Biodiversity Area 1	1725	10.5
Environmental Sensitive Area	22	0.1
<b>Total proposed development footprint</b>	<b>16398</b>	

A further more detailed analysis of the overall impact of the proposed development footprint in terms of the type of existing land use that will be converted into urban use is outlined in Table 10.3 below. This information indicates that 31.7% of the proposed development footprint is currently classified as being in a natural state. This implies that approximately one third of the total land area that will be impacted on by urban development is still classified as various types of vegetation in an untransformed condition. It is unavoidable that in a rapidly growing area such as Rustenburg, there will in certain areas of conflict between natural areas and conservation objectives on the one hand, and the principles and priorities for development on the other. In the implementation of the development proposals, detailed planning processes should thus be sensitive and mindful to try and incorporate the natural areas within the proposed footprint.

A further notable aspect is the 19.7% of the urban footprint which is classified as currently being cultivated. This translates into an area of approximately 3500 ha of cultivated land to be transformed into urban development. These areas are mainly located in the Rustenburg and Boitekong clusters and specifically in the areas southeast of Rustenburg. As described earlier, the physical constraints posed by the Magaliesberg Protected Environment and the mining belt limits the extension opportunities in this part of Rustenburg, thus necessitating the conversion of certain agricultural areas for future development.

A total of 1.7% of the total footprint is classified as being degraded areas and 13.1% as previously degraded areas in a state of succession to a natural state. Important to note is also the relatively small area (0.9%) that may impact on wetlands and waterbodies and the detailed planning stages would thus have to give due consideration to the Wetland Inventory and aspects associated therewith. Nearly 13% of the overall footprint will be in areas which are already identified as urban and can thus be regarded as various forms of infill development.

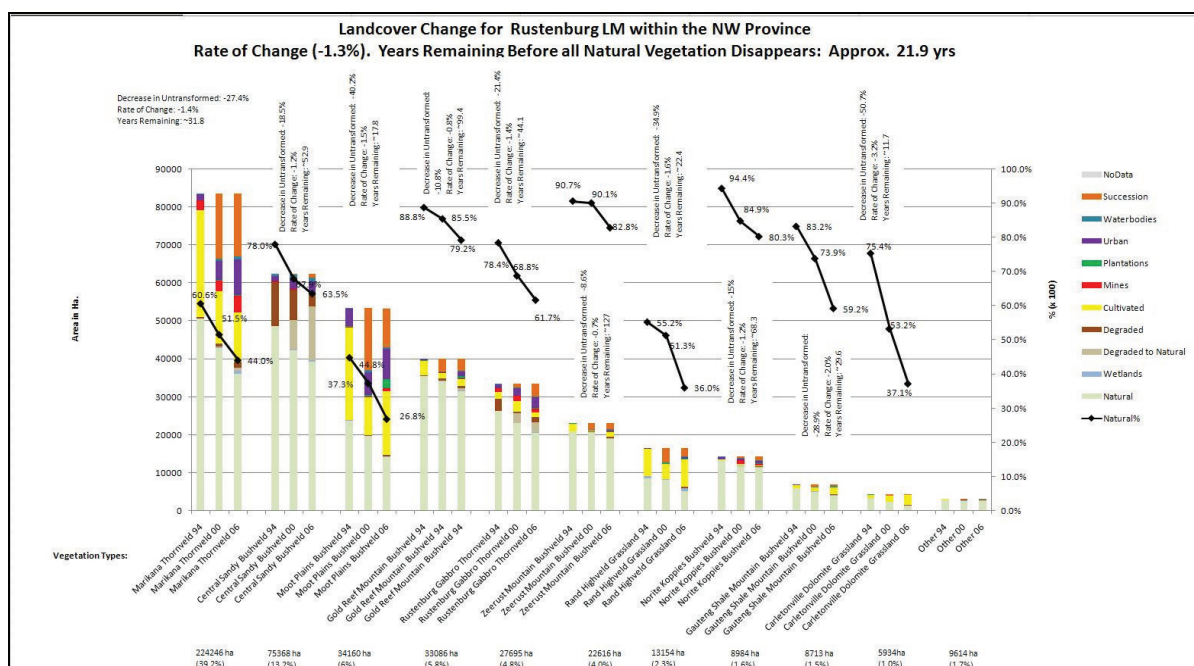
**Table 10.3: Current land use of areas forming part of the proposed future urban development footprint**

Cluster	Current Landcover (ha)								
	Cultivated	Degradation	Degraded/Natu	Natural	Succession	Urban	Wetlands/waterbodies	Mining	Plantation
Bethanie Cluster	16.9	2.0	1.9	163.9	35.8	16.8	0.0	0.0	0.0
Chaneng & Robega Cluster	4.0	4.6	18.9	350.5	226.0	26.8	0.0	0.0	0.0
Diepkuil Cluster	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0
Entabeni Cluster	0.0	0.0	0.0	0.0	0.0	28.3	0.0	0.0	0.0
Ga-Luka Cluster	0.0	5.7	193.4	85.5	32.9	90.8	3.3	0.0	0.0
Lekgalong Cluster	0.0	0.0	0.0	10.9	0.0	2.4	0.0	0.0	0.0
Lethabong Cluster	5.9	39.0	55.2	193.3	14.3	14.1	0.6	0.0	0.0
Mabitse Cluster	0.0	0.0	4.2	20.3	2.4	6.0	0.0	0.0	0.0
Maile Cluster	0.0	0.0	0.0	5.5	0.0	7.6	0.0	0.0	0.0
Makolokwe Cluster	0.0	0.0	0.0	52.2	8.0	4.0	0.0	0.0	0.0
Mathopestad Cluster	0.0	3.7	0.0	13.5	0.0	4.2	0.7	0.0	0.0
Modikwe & Barseba Cluster	0.0	0.0	0.0	172.4	126.1	28.8	0.0	0.0	0.0
Monnakato Cluster	0.0	33.0	528.3	0.0	17.1	37.9	0.0	0.0	0.0
Nkaneng Cluster	0.0	0.0	0.5	1.2	0.7	80.5	0.0	0.0	0.0
Olifantsnek	0.0	0.0	0.0	20.6	0.0	0.0	0.0	0.0	0.0
Phatsima Cluster	0.0	5.3	145.5	62.0	5.1	11.2	0.0	0.0	0.0
Photshaneng & Thekwane Cluster	1.0	7.2	0.0	122.6	83.4	24.2	2.3	1.3	0.2
Rooikoppies Cluster	150.6	0.0	0.0	175.4	93.2	1.2	0.0	13.0	0.0
Rustenburg, Phokeng & Boitekong Cluster	3103.4	115.0	55.4	3305.5	2170.1	1804.6	89.4	63.9	306.3
Tlapa Cluster	0.0	0.0	0.0	0.0	3.2	1.7	0.0	0.0	0.0
Tlaseng & Mamerotse Cluster	302.8	92.1	1373.9	998.7	524.6	133.7	0.9	0.0	0.0
<b>TOTAL (ha)</b>	<b>3584.6</b>	<b>307.8</b>	<b>2377.2</b>	<b>5753.7</b>	<b>3342.9</b>	<b>2326.0</b>	<b>97.3</b>	<b>78.2</b>	<b>306.5</b>
<b>PERCENTAGE</b>	<b>19.7</b>	<b>1.7</b>	<b>13.1</b>	<b>31.7</b>	<b>18.4</b>	<b>12.8</b>	<b>0.5</b>	<b>0.4</b>	<b>1.7</b>

These figures should also be interpreted against the background of the trends in different vegetation types over the period 1994, 2000 and 2006 as reflected in the Land Cover Data. A detailed analysis of the extent of these changes per vegetation type occurring within the Rustenburg LM is depicted in Figure 10.1 below. This data summarizes the overall decrease in untransformed land per category over the three

time periods, the average annual rate of change and, based on the annual rate of change, the number of years remaining before the natural vegetation within a particular category will disappear.

**Figure 10.1: Landcover change for Rustenburg LM**



Source: NW Department of Agriculture, Conservation, Environment and Rural Development

A further important component of evaluating the impacts of the proposed SDF proposals at a strategic level is to quantify the resource use impacts of the spatial development proposals. The most critical aspects in this regard include the water consumption requirements and potential wastewater effluent that will emanate from the proposed developments.

For the purposes of estimating a strategic level resource impact, the following assumptions were applied:

- Single residential (high income):
  - Water-use consumption = 1000ℓ per unit per day.
  - Wastewater effluent = 700ℓ per unit per day.
- Single residential (low – medium income):
  - Water-use requirements = 600ℓ per unit per day.
  - Wastewater effluent = 420ℓ per unit per day.
- Multiple residential development (high income):
  - Estimated water consumption = 700ℓ per unit per day.
  - Wastewater effluent = 490ℓ per unit per day.

- Multiple residential development (low – medium income):
  - Daily water demand = 450ℓ per unit per day.
  - Estimated wastewater effluent = 315ℓ per unit per day.
- Office and retail development equals 400ℓ per 100m<sup>2</sup> of gross floor area per day.

The resulting resource requirements and inputs are summarized in Table 10.4 below.

**Table 10.4: Estimated water use and wastewater effluent impacts**

Cluster	Water (Mℓ/day)	Wastewater effluent (Mℓ/day)
Bethanie	1.9	1.3
Chaneng/Robega	7.3	5.1
Diepkuil	0.0	0.0
Ga-Luka	4.0	2.8
Lekalong	0.1	0.1
Lethabong	2.5	1.7
Mabitse	0.4	0.3
Maile	0.2	0.1
Makolokwe	0.7	0.5
Mathopestad	0.2	0.1
Modikwe/Berseba	2.8	1.9
Monnakato	5.3	3.7
Olifantsnek	0.3	0.2
Phatsima	2.6	1.8
Photsaneng/Thekwane	3.4	2.4
Rooikoppies	5.8	4.0
Rtb, Boitekong, Phokeng	176.8	121.0
Tlapa	0.1	0.0
Tlaseng	27.9	19.1
<b>TOTAL</b>	<b>242.3</b>	<b>166.0</b>

The potential daily requirements and potential wastewater effluents (Mℓ/day) is summarized in Table 10.4. This information indicates that should all land earmarked for the different purposes on the local Spatial Development Framework should be fully developed, and applying the assumptions outlined above, the total additional water requirement per day would be approximately 242 Mℓ and the estimated wastewater effluent an additional 166 Mℓ per day. The vast majority of these requirements would emanate from Rustenburg, Boitekong and Phokeng cluster, accounting for more than 70% of the additional daily demand and effluent. The other most notable inputs would emanate from the Tlaseng cluster, the

Chaneng/Robega cluster and the Marikana/Rooikoppies cluster. Although it is highly unlikely that all areas earmarked for the respective land uses in the local Spatial Development Frameworks would be fully developed, it is necessary to quantify and contextualize the natural resource requirements in terms of water use and wastewater effluent. Various further scenarios can be calculated from these base line figures depending on the rate of development.

### **10.3 CAPITAL INVESTMENT FRAMEWORK**

One of the most neglected components of spatial development frameworks is the capital investment framework to support the implementation of the SDF. This is also a specific requirement of SDFs as outlined in the Local Government Municipal Planning and Performance Management Regulations (2001). To address this aspect, all planned capital projects as reflected in the 2010/11 IDP of the Rustenburg LM was spatially captured (where possible) to enable a comparison of the spatial distribution of capital projects with the overall development proposals. The location of these projects relative to the proposals is depicted on the attached set thematic maps. It also provides an overall summary of the total extent of capital investment per development cluster, also broken down according to the various investment types (see attached thematic map).

### **10.4 MANAGEMENT AND COORDINATION**

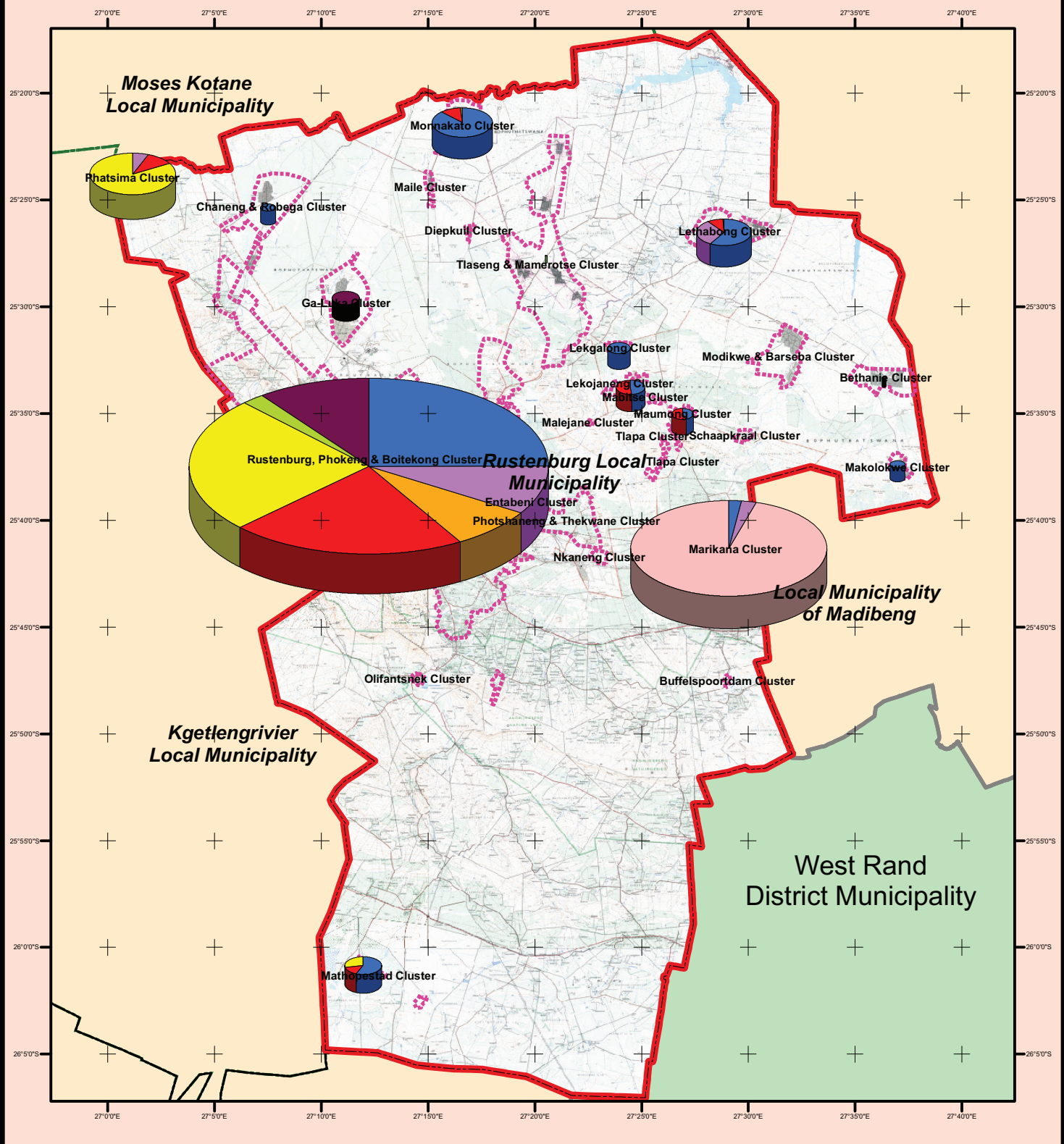
The successful implementation of the Spatial Development Framework will be dependent on sufficient coordination and institutional alignment with other planning instruments in use in the municipal area. The most notable of these include the Rustenburg Land Use Management System, the Rustenburg Environmental Management Framework currently under preparation, and the Environmental Management Framework for the Magaliesberg Protected Environment traversing a significant portion of the study area. The recommendations of the Wetland Inventory of the municipality also constitute an important guiding instrument and the recommendations of this inventory have been incorporated into the open space proposals as contained in this document.

#### **10.4.1 Alignment of Spatial Development Framework and Land Use Management System**

It is important to recognize that the proposals outlined in the Spatial Development Framework do not constitute any development rights in terms of these areas. It merely outlines the proposed longer term spatial development structure deemed to be most appropriate taking into consideration the various influencing factors. Individual development applications are still subject to the normal detailed

# RUSTENBURG LOCAL MUNICIPALITY: SDF REVIEW

## - CAPITAL INVESTMENT FRAMEWORK PER CLUSTER -

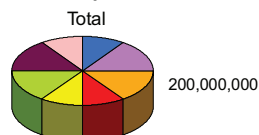


### LEGEND:

Rustenburg Local Municipality

Urban Edge

### IDP Projects



- Water & Sanitation
- Health, Safety & Environment
- Electrification
- Roads & Stormwater
- Housing
- Community Facilities
- Local Economic Development
- Settlement Development

SCALE : 1:475,000  
0 2.5 5 Kilometers

DATE: April 2010

COORDINATE SYSTEM : Municipal WGS84 (Lo31)

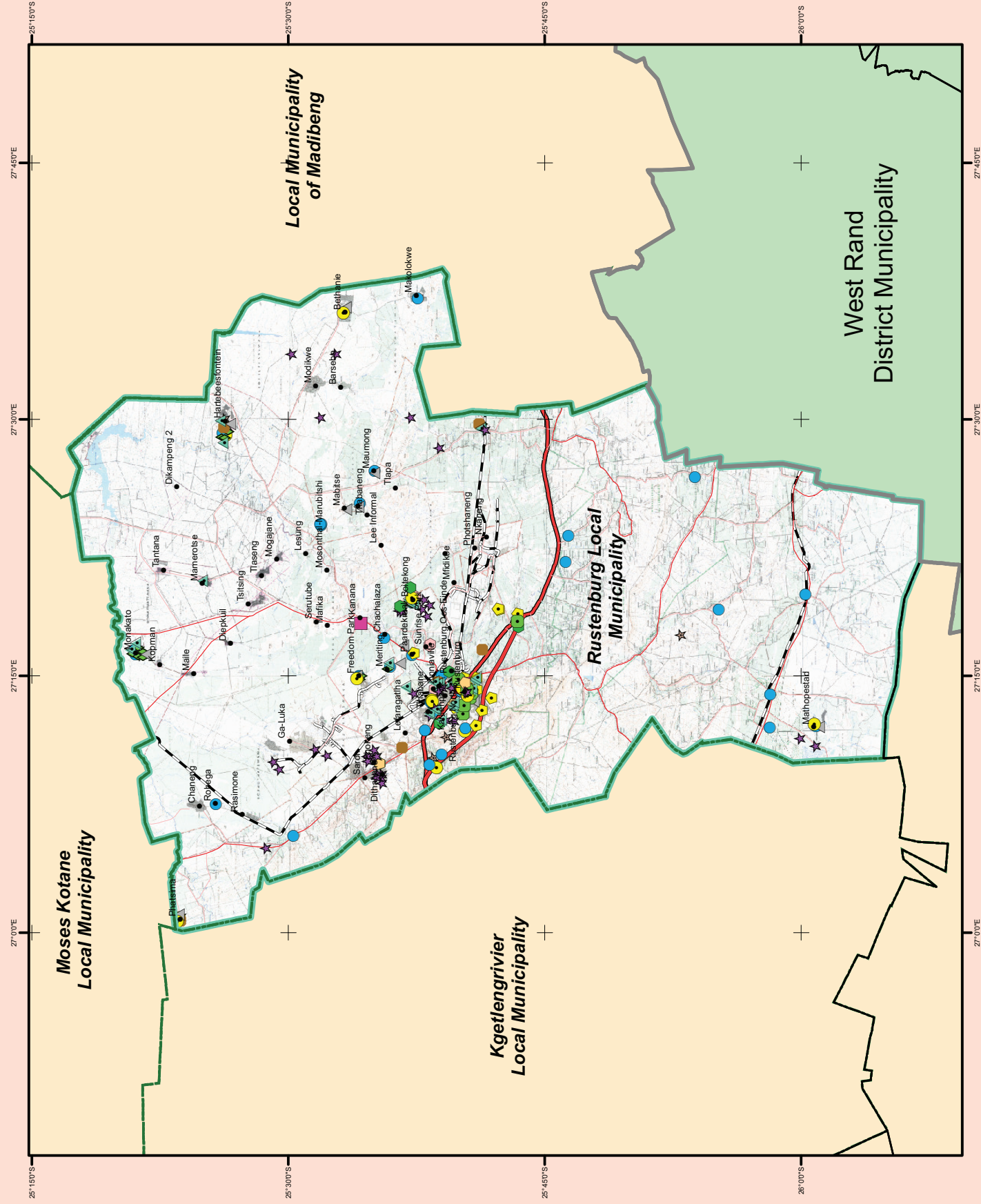
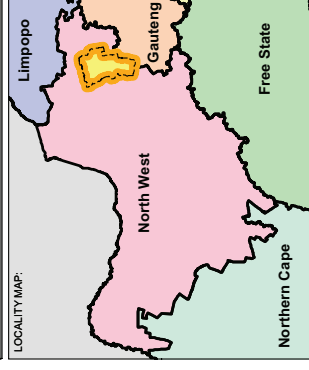
PREPARED BY: K2M TECHNOLOGIES (PTY) LTD  
13 Mospel Avenue  
Rustenburg 0269  
Postnet Suite #167  
Private Bag X82329  
Rustenburg 0300  
Tel : + 27 (0) 14 533 1943  
Fax : + 27 (0) 14 533 1769  
Cell : 082 776 0881  
E-mail: gert@k2m.co.za

Spatial Development Frameworks Integrated Development Planning Formal Town Planning Applications Project Management

# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### IDP PROJECTS



# RUSTENBURG LOCAL MUNICIPALITY

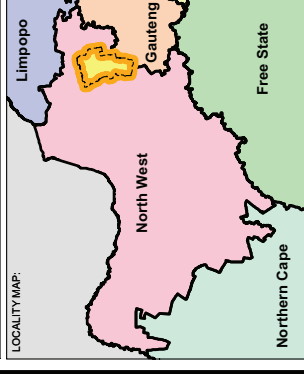
## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### IDP PROJECTS: Water

LEGEND:

- Main Towns
- Rustenburg Local Municipality
- Local Municipal Boundaries
- Primary Road Network
- Secondary Road Network
- Tertiary Road Network
- Railway Lines
- IDP Projects: Water
- Water

Data Source: Municipal IDP's



SCALE :



DATE: February 2010

MAP REFERENCE/VERSION NUMBER: Version 1

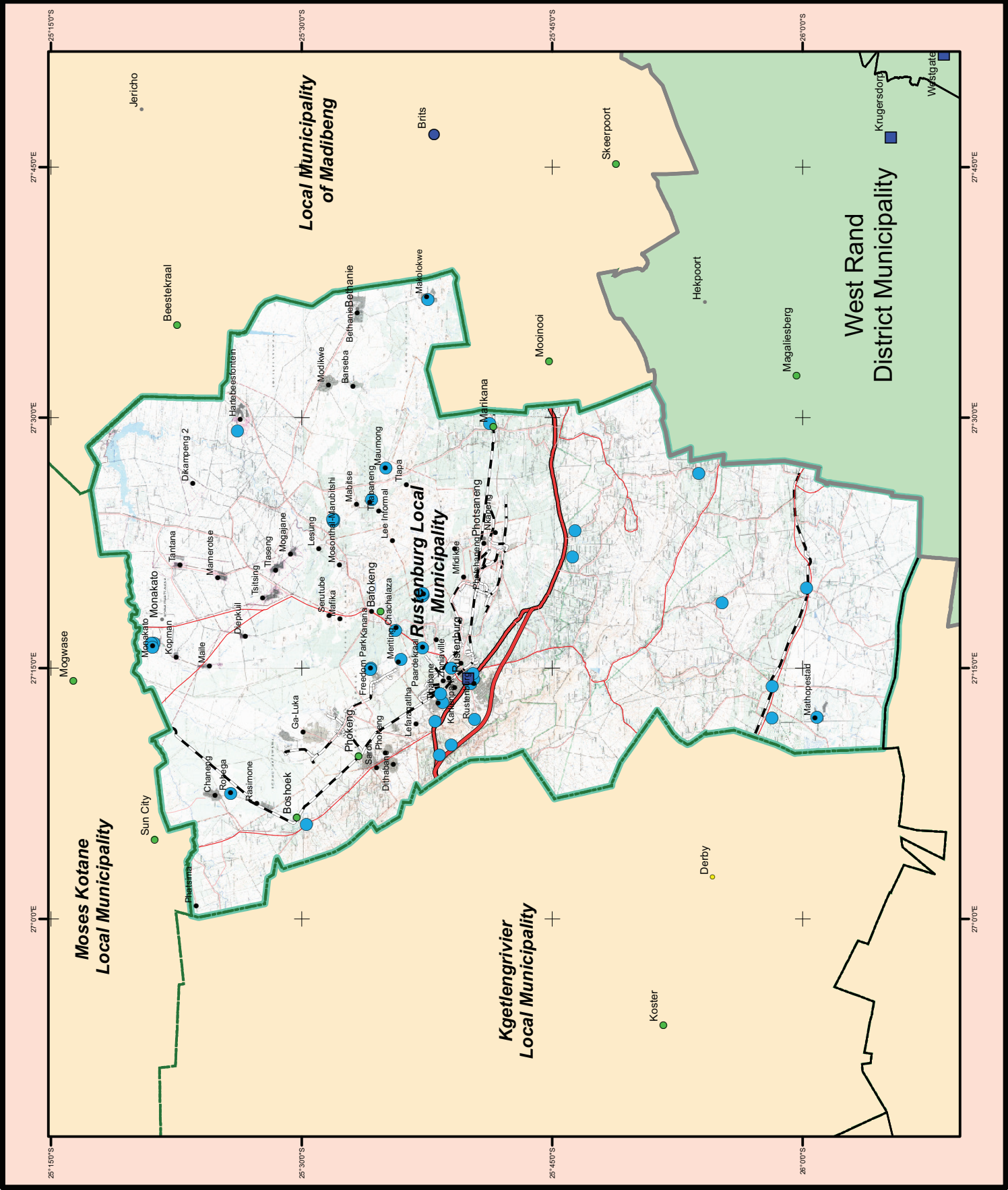
COORDINATE SYSTEM: Municipal WGS84 (Lo31)

PREPARED BY:

**K2M TECHNOLOGIES (PTY) LTD**  
13 Mispel Avenue  
Rustenburg 0299  
Postal Suite #167  
Private Bag X52329  
Rustenburg 0000

Tel : + 27 (0) 14 533 0843  
Fax : + 27 (0) 14 533 1789  
Cell : 082 776 0381

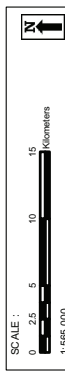
Approved for  
Submission  
Accepted for  
Approval



## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

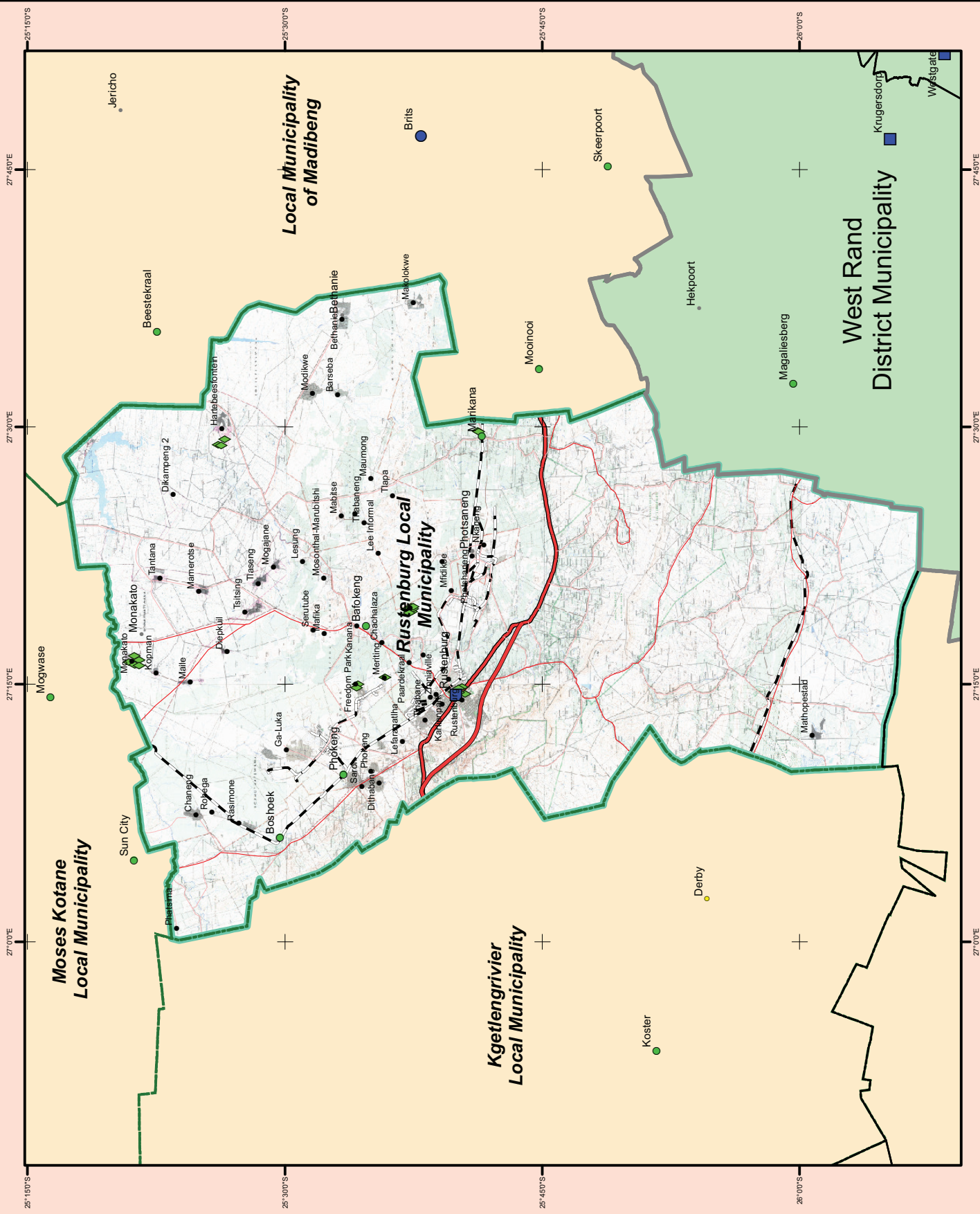
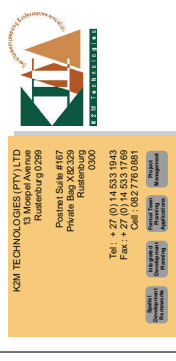
LEGEND:

- Data Source: Municipal IDP's



MAP REFERENCE/VERSION NUMBER: Version 1

PREPARED BY:



# RUSTENBURG LOCAL MUNICIPALITY

## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

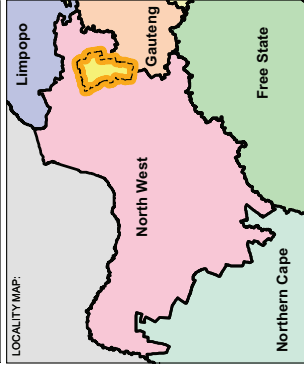
### IDP PROJECTS: Local Economic Development

LEGEND:

- Main Towns
- Rustenburg Local Municipality
- Local Municipal Boundaries
- Primary Road Network
- Secondary Road Network
- Tertiary Road Network
- Railway Lines

- IDP Projects:
- Local Economic Development

Data Source: Municipal IDP's



MAP REFERENCE/VERSION NUMBER: Version 1

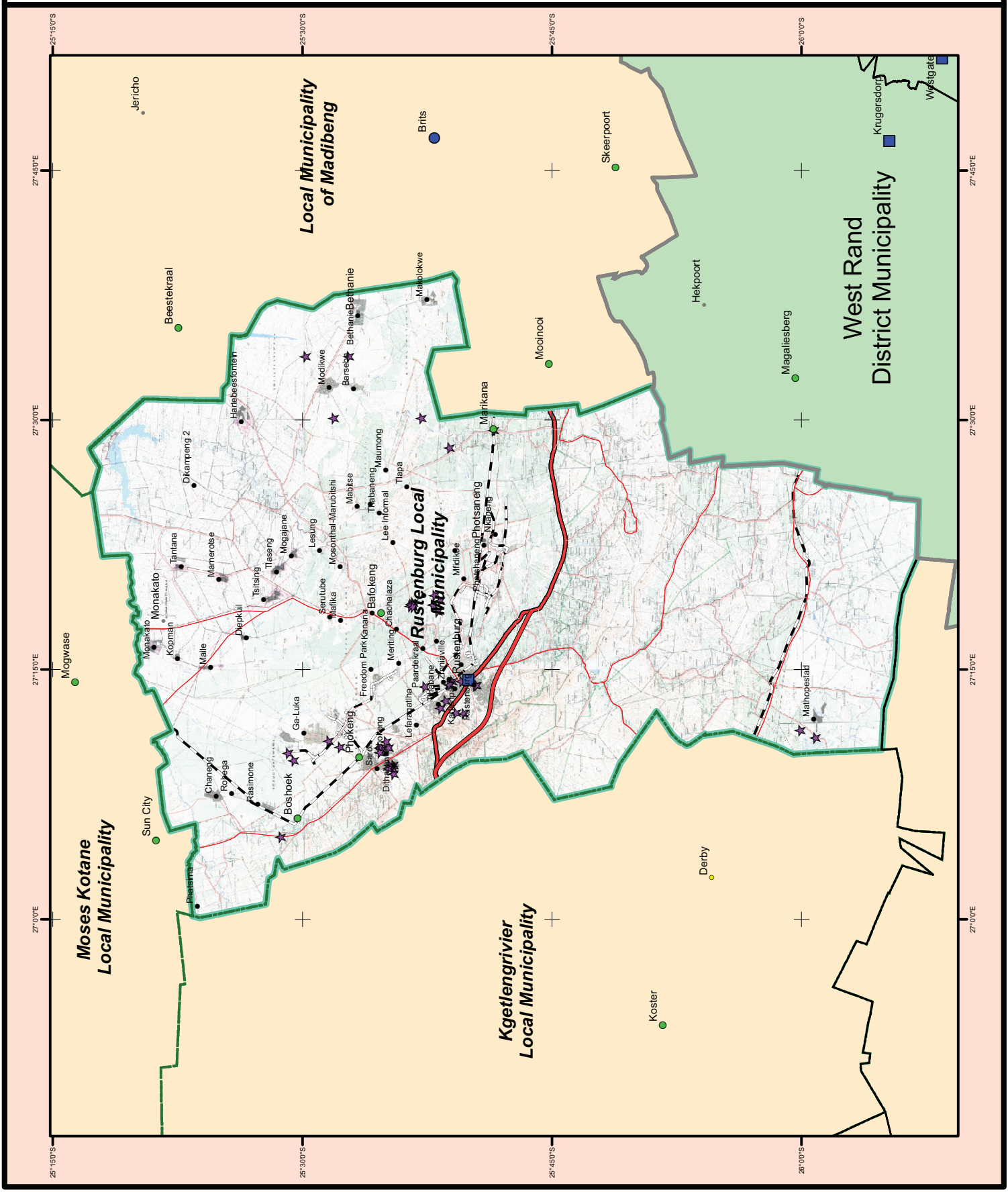
COORDINATE SYSTEM: Municipal WGS84 (Lo31)

PREPARED BY:

**K3M TECHNOLOGIES (PTY) LTD**  
13 Moskop Avenue  
Rustenburg 0299  
Postal Suite #167  
Private Bag X52329  
Rustenburg 0000

Tel: +27 (0) 14 533 0843  
Fax: +27 (0) 14 533 1789  
Cell: 082 776 0881

Approved for  
Submission  
Approved for  
Publication

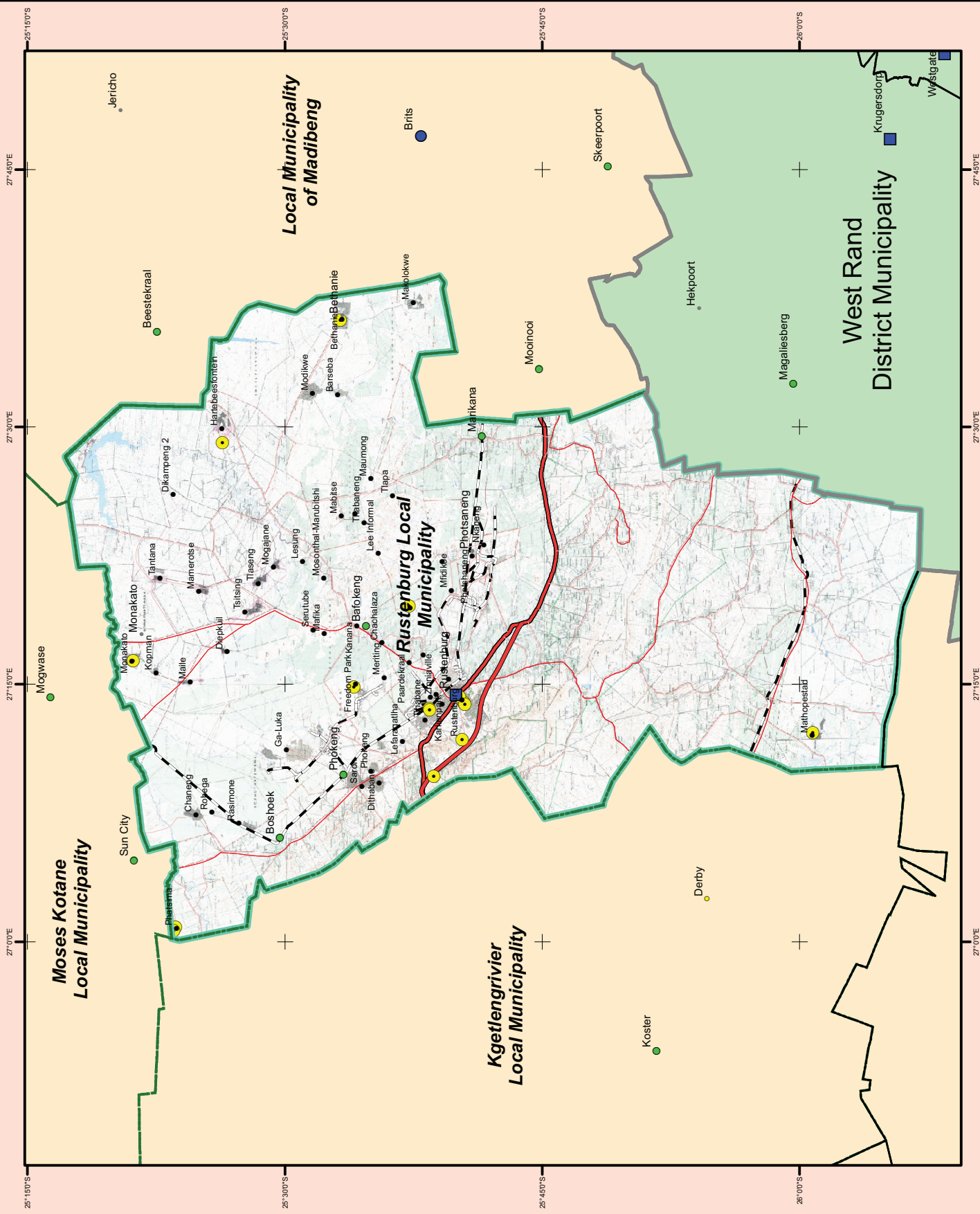


## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

**K2M TECHNOLOGIES (PTY) LTD**  
**OCEANIC BUSINESS CENTRE**  
 Rustenburg 0259  
 Patent Suite #67  
 Private Bag K2 320  
 Rustenburg 0300

Tel : + 27 (0) 14 533 1943  
 Fax : + 27 (0) 14 533 1769  
 Cell : 082 776 0881

Product Development	Project Management
Quality Assurance	System Integration
Software Engineering	Technical Support
Training	



# RUSTENBURG LOCAL MUNICIPALITY

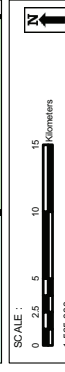
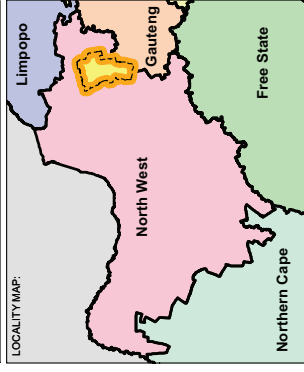
## SPATIAL DEVELOPMENT FRAMEWORK REVIEW

### IDP PROJECTS: Electricity

LEGEND:

- Main Towns
- ▭ Rustenburg Local Municipality
- ▭ Local Municipal Boundaries
- ▭ Primary Road Network
- ▭ Secondary Road Network
- ▭ Tertiary Road Network
- ▭ Railway Lines
- IDP Projects: Electricity

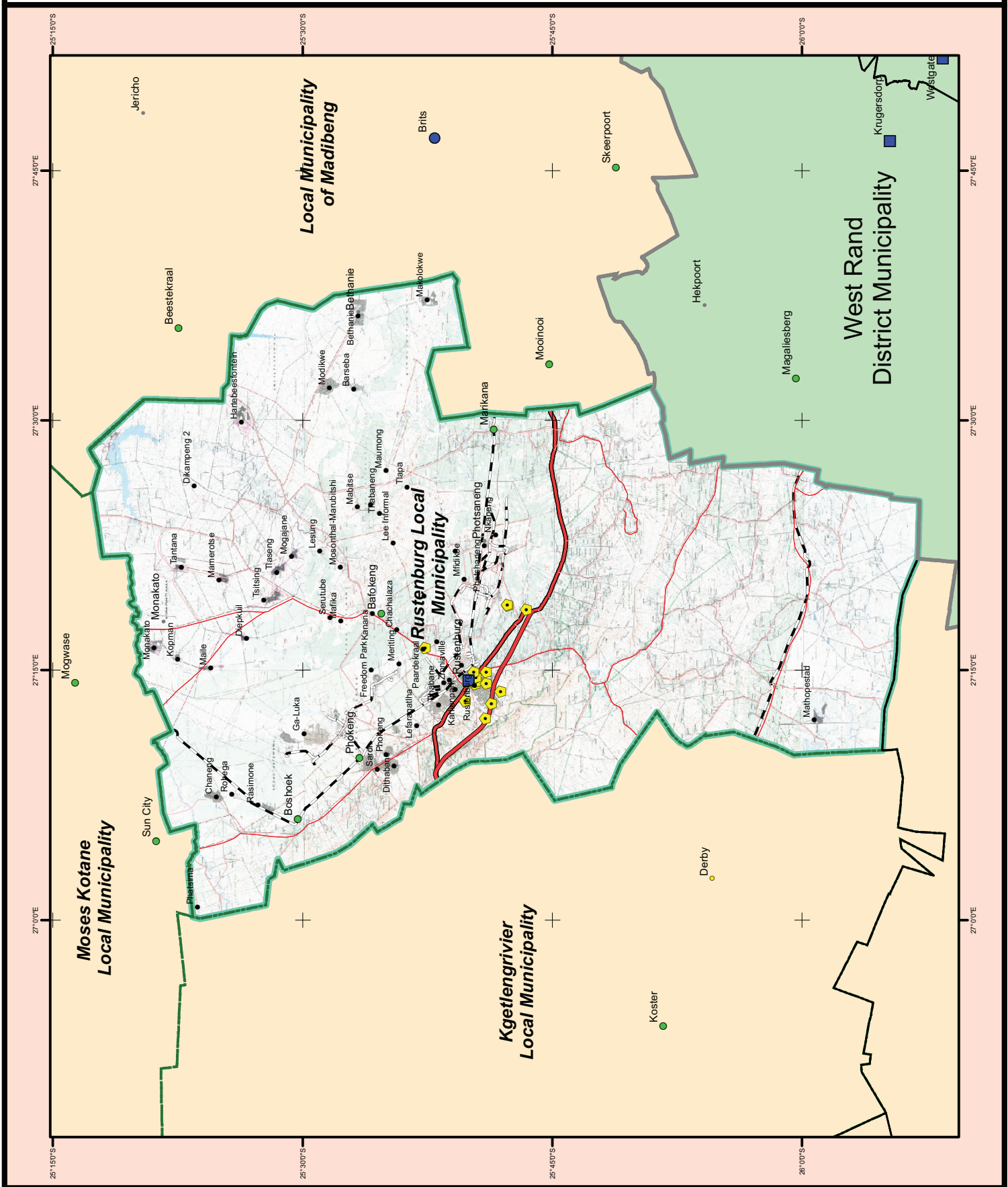
Data Source: Municipal IDP's



**K2M TECHNOLOGIES (PTY) LTD**  
13 Mispel Avenue  
Rustenburg 0299  
Postal Suite #167  
Private Bag X52329  
Rustenburg 0000

Tel : + 27 (0) 14 533 0843  
Fax : + 27 (0) 14 533 1789  
Cell : 082 776 0381

Website: [www.k2m.co.za](http://www.k2m.co.za)  
Email: [info@k2m.co.za](mailto:info@k2m.co.za)  
Sales: [sales@k2m.co.za](mailto:sales@k2m.co.za)  
Support: [support@k2m.co.za](mailto:support@k2m.co.za)



investigation to determine whether an environmental authorisation can be obtained, to consider physical constraints such as flood lines and geotechnical characteristics, and servicing constraints such as the availability of bulk services. The overall development tool that is applied to coordinate the management and changes of land use rights in the municipal area is the land use management systems. For this purpose, an attempt has been made to align the intentions of the broader land use proposals as described on the Municipal Spatial Development Framework, as well as the more detailed categories in the Local Spatial Development Frameworks with the terminology and definitions as used in the Land Use Management System. The broad overall alignment of these various categories is depicted on the attached table.

#### **10.4.2 Areas not sufficiently provided for in terms of the Land Use Management Scheme**

Due to the fact that a large number of settlements/towns within the Rustenburg Local Municipality being established on land belonging to various Traditional Authorities it is proposed that the Black Communities Development Act, Act No. 4 of 1984, be applied if these settlements and towns are not sufficiently provided for in terms of the Rustenburg Municipal Land Use Management Scheme.

#### **10.4.3 Alignment with Rustenburg Environmental Management Framework**

##### **10.4.3.1 Guidelines for Environmental Management Zones**

###### **(i) *Conservancy Management Zone***

The zone is characterized by protected areas, open spaces, tourism areas and areas of conservation. It dominates the southern part of RLM and patches to the north of the study area. This zone must be managed in a way that will prevent natural resources degradation and promote biodiversity protection and conservation. Land uses for this zone must be planned so as to maintain the desired state for the area. Land use applications must be evaluated in line with the requirements of the NEMA EIA regulations. Compatible land uses are those that will maintain the ecological value of the area. Development must also allow for species movement along this zone and ecological connectivity between the different areas that constitute the zone.

###### **(ii) *Aquatic Systems Management Zone***

Rivers, streams, wetlands and dams were identified as areas that constitute this zoning. Specific guideline for management of this zone requires the delineation of the riparian zone from development activities. Wetlands are highly productive and valuable ecosystems of ecological and economic value but

these systems are often taken for granted because their functions are not clearly visible. The table below lists some of these functions and links each to an economic benefit. The ecological, aesthetical and tourism value of this management zone should be retained by ensuring that development is restricted in areas directly adjacent to the riparian zones of water courses and areas with identified species of conservation value

**(iii) Agricultural Management Zone**

RLM is mainly characterized by commercial farming that ranges from citrus to vegetable farming. Furthermore, the rural part of RLM also practices subsistence farming of maize, sunflower and vegetables. Historically, agriculture used to be the main RLM GDP contributor, however due to tradeoffs to other activities such as mining and development, agriculture has turned into a less preferred source of income. Figure 5 below represents areas of active agricultural activities.

There are many acts that regulate agricultural related activities in South Africa. The one, which is most relevant for this study, is the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). This act provides for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water sources and vegetation, and the combating of weeds and invader plants. It must also be noted that though this act exists, land use applications even in land designated for agricultural purposes still needs to comply with the NEMA.

**(iv) Built up Management Zone**

This zone can be used as area that contain development and prevent urban sprawl. It consists of the following areas:

- Areas suitable for “infill development”;
- areas suitable for densification;
- areas inside the urban edge(s);
- areas outside the urban edge;
- areas where development will impact on ecological, geological or hydrological features.

**Priority issues**

- Development must be contained to protect the natural environment and the agricultural potential;
- Development must be at optimal density, but diverse and varied in density levels
- It must use infrastructure and services optimally, thereby conserving energy and the need for additional infrastructure;

- The demand for development is driven by factors such as amenity, visibility and accessibility and not necessarily location in relation to existing development

### Guidelines, policies and legal mechanisms

Guidelines, policies and legal mechanisms which are available:

- Strategic Development Frameworks;
- Integrated Development Plans;
- National Housing Policy; and
- Development Facilitation Act.

The following table illustrates compatible and non compatible land used for the different management zones as well as the roles and responsibilities of the different government departments in carrying out the recommendations suggested in the SEMP.

**Table 10.5: Summary of Environmental Management Zone Guidelines**

Management Zone	General Management	Compatible Land Uses	Incompatible Land Uses
<b>Conservancy</b>	<ul style="list-style-type: none"> <li>• Biodiversity conservation</li> <li>• Functional ecological processes</li> <li>• Recreation and tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Protected areas</li> <li>• Private and Public Nature reserves</li> <li>• Conservancies</li> <li>• Recreational facilities</li> <li>• Resorts, lodges and tourism accommodations</li> <li>• Low density private residences</li> </ul>	<ul style="list-style-type: none"> <li>• Informal settlements</li> <li>• Industrial, retail and commercial facilities</li> <li>• High density development</li> <li>• Agricultural activities</li> <li>• Mining activities</li> </ul>
<b>Aquatic Systems</b>	<ul style="list-style-type: none"> <li>• Water quality</li> <li>• Catchment management</li> <li>• Recreation and tourism</li> <li>• Riparian zone delineation</li> </ul>	<ul style="list-style-type: none"> <li>• Recreational facilities</li> <li>• Open space</li> <li>• Resorts, lodges and tourism</li> <li>• Protected areas</li> <li>• Nature reserves</li> <li>• Tourism facilities</li> <li>• Retention and attenuation ponds</li> </ul>	<ul style="list-style-type: none"> <li>• Mining</li> <li>• High density residential</li> <li>• Industrial activities</li> <li>• Informal settlements</li> </ul>
<b>Agricultural</b>	<ul style="list-style-type: none"> <li>• Agriculture</li> <li>• Protection of agricultural land</li> <li>• Initiative to use land that is underutilized</li> </ul>	<ul style="list-style-type: none"> <li>• Grazing</li> <li>• Irrigation cultivation</li> <li>• Dry land cultivation</li> <li>• Agricultural services</li> <li>• Private residential use</li> <li>• Open space</li> <li>• Tourism and recreational</li> <li>• Large scale subdivisions</li> </ul>	<ul style="list-style-type: none"> <li>• High density residential development</li> <li>• Urban development</li> <li>• Mining activities</li> <li>• Industrial activities</li> </ul>
<b>Built up</b>	<ul style="list-style-type: none"> <li>• Urban core management</li> </ul>	<ul style="list-style-type: none"> <li>• Urban residential development</li> </ul>	<ul style="list-style-type: none"> <li>• Mining</li> <li>• Heavy industrial</li> </ul>

	<ul style="list-style-type: none"> <li>• Development densification</li> <li>• SDF implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Tourism facilities</li> <li>• Community facilities</li> <li>• Open space</li> <li>• Protected areas use</li> <li>• Business, retail light industrial</li> </ul>	
--	---	--	--

*Source: Rustenburg Environmental Management Framework (Draft), 2010*

#### 10.4.4 Alignment with Environmental Management Framework for Magaliesberg Protected Environment

The Magaliesberg area is very rich in biodiversity and associated ecological interactions. A number of threatened flora and fauna species occur in the Magaliesberg, some of which are near endemics to the mountain. It also contains a number of unique habitats large enough to sustain characteristic vegetation types and species that need large areas to survive. This unique area is located in close proximity to the largest urban conurbation in South Africa, with an estimated 10 million people living within a 100km radius of the Magaliesberg. The accessibility of the Magaliesberg also makes it extremely valuable for recreational and eco-tourism purposes. In view of the significant pressure on the Magaliesberg Protected Environment (MPE) and the increasing demand of housing and other developments and possible associated loss of biodiversity, NW DACE prepared an Environmental Management Framework (EMF) for the part of the MPE located in the NW Province. A significant portion of the MPE located in the NW province is located within the boundaries of the Rustenburg LM and thus requires integration with the SDF. The vision for the MPE is defined as follows : *“The Magaliesberg Protected Environment is internationally and nationally recognized for its unique biodiversity, geo-morphology and heritage resources which are protected and conserved to provide sustainable and quality eco-tourism and educational / research opportunities for current and future generations”.*

The key components of this Environmental Management Framework and Plan include the following:

- The desired state of the environment of the MPE and immediately surrounding area is described in terms of an overall vision, objectives and sub-objectives, as well as potential monitoring indicators. These objectives are applicable to the MPE, as well as areas within a 2,5km buffer around the MPE. These objectives may also be applicable to certain activities outside the 2,5km buffer (e.g. large scale mining) which may have an impact on the MPE.
- The activity framework outlines “compatible”, “potentially compatible” and “incompatible” development activities, and the spatial management zones associated applicable to properties or portions of properties located within the Magaliesberg Protected Environment.

- The environmental management framework and plan recommends that all applications for development activities within the MPE not classified as “compatible activities” be subject to a full EIA process as contemplated in Sections 27 to 36 of the Environmental Impact Assessment Regulations. These applications will be dealt with in terms of the process outlined in the EMF, as well as the recommendations for specialist inputs and public participation included in the EMF.
- In order to effectively manage the “edge effects” in the area immediately surrounding the MPE boundary, it is recommended that the objectives as described in the desired state of the environment be considered for all applications within a 2,5km buffer around the MPE. These applications will have to clearly demonstrate their compliance with the specified objectives for the MPE. Furthermore, all activities within the 2,5km buffer area that require a full Environmental Impact Assessment process, are subject to the procedure outlined in the EMF, as well as the minimum requirements for specialist studies and public participation.

To ensure the compatibility of the EMF with existing legislation and Land Use Management Systems, the definition of activities are based on existing legal definitions contained in legislation and other guidelines relevant to the MPE. These include the Administrators Notices 126 and 127 of 1994, the Rustenburg Land Use Management Scheme of 2005, the listed activities in Government Notices R386 and R387, and other definitions from relevant legislation. These “activity frameworks are described in detail in the EMF and are thus not repeated here.

## 10.5 SHORT TERM PRIORITY PROJECTS

The Rustenburg Local Municipality needs to embark on a number of priority short term projects to facilitate the successful implementation and management of the Spatial Development Framework proposals. These priority projects can be summarized as follows:

- **Project 1:** Preparation of a detailed development plan, including road network hierarchy, for the Waterkloof/Watevall development areas south east of Rustenburg. During the SDF review process, it became very clear that the individual developments taking place in this area in an uncoordinated fashion makes it very difficult to plan a systematic road network hierarchy in this area.
- **Project 2:** The implementation of the detailed proposals for the Rustenburg core area as outlined in Section 9 will be dependent on a detailed traffic modelling study of the proposed Beyers Naude/Pres Mbeki one way system as proposed in the Rustenburg Integrated Transport Plan.

The services capacities, and potential upgrading requirements associated with these land use proposals, should also be analysed in detail as part of this investigation prior to in principle support for these proposals.

- **Project 3:** The implementation of the detailed proposals within Karlienpark, Tlhabane, Rustenburg North and Zinniaville will be dependent on the availability of services (water, electricity and sanitation) in the area. A services infrastructure study assessing the current capacity of services in these areas needs to be undertaken prior to densification being permitted.
- **Project 4:** The mixed land use precinct around the Waterfall node and the N4 will form one of the primary commercial growth and development areas of Rustenburg in future. It would be imperative to prepare a detailed precinct Development Plan for this mixed land use precinct in order to facilitate coordinated development and infrastructure investment.
- **Project 5:** The development of a mixed land use service delivery centre in the Boitekong cluster remains a development priority. A detailed feasibility study is required to identify the most appropriate site for such development, the infrastructure and other development requirements associated therewith, and identifying potential investors to support this initiative.
- **Project 6:** The proposed mining supply park is one of anchor local economic development projects of the Rustenburg LM, and is also identified as a priority project in the Provincial Growth and Development Strategy. The proposed location of this facility is identified in the Spatial Development Framework proposals. A detailed feasibility study considering all relevant factors relating to the implementation of this supply park should be completed as a matter of priority.
- **Project 7:** A number of intensive urban agricultural focus areas have been identified in some of the local Spatial Development Frameworks. The feasibility of these areas should be investigated in more detail, taking cognizance of physical factors such as geology, soil conditions, availability of ground water, possibility of obtaining water for irrigation purposes and other relevant factors. Priority implementation areas should emanate from this investigation.
- **Project 8:** The possibility of establishing a tertiary education facility in Rustenburg has been under discussion for a period of time. A detailed feasibility analysis regarding the sustainability of such an initiative, as well as identifying a potential location thereof should be undertaken.
- **Project 9:** The Rustenburg LM should develop, implement and maintain a GIS bases land use information system to keep track of all development applications, and applications for land use changes within the municipal area. This system should be fully integrated with the day-to-day

activities of the planning directorate and will significantly enhance the effectiveness and productivity of this function within the municipality.