VULINDLELA LOCAL AREA PLAN

SPATIAL FRAMEWORK

FEBRUARY 2016

MSUNDUZI MUNICIPALITY

CITY OF CHOICE

PIETERMARITZBURG
MSUNDUZI

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VULINDLELA LOCAL AREA PLAN: EXECUTIVE SUMMARY

1. BACKGROUND

The Msunduzi Municipality identified the need for a Local Area Plan for Vulindlela. The main aim of the plan was to identify ways of overcoming the negative impact of separate development policies on the people of this area. The Department of Rural Development and Land Reform (DRDLR) commissioned the preparation of the Vulindlela Local Area Plan (VLAP) on behalf of Msunduzi Municipality early in 2015. The project included six phases. The preparation of the final VLAP was included in phase 4 of the project and this document comprises the final plan for Vulindlela. The remaining phases of the project include the adoption of the plan by key stakeholders for implementation and project close out.

2. CHALLENGES

Based on the findings of the status quo assessment in Vulindlela the following key challenges to future development of the area were identified.

Levels of Service

Vulindlela is the western most management area of Msunduzi. As a consequence of its location in this municipality and the fact that it formed part of the ex-homeland of KwaZulu, the area and its people have remained under-developed. This translates into high levels of unemployment, poor levels of education, a youthful population profile and limited access to income generating opportunities.

Households located in Vulindlela have access to basic levels of utility services in the form of potable water, VIP sewerage, electricity and roads with limited access to a broad band network. The costs associated with provision of extended bulk services are high for the municipality. This raises questions over sustainability of services provision in the longer term. This is linked with the provision, by Msunduzi Municipality, of free basic services to the residents of this area.

Social services, in the form of schools and clinics, are scattered throughout Vulindlela thereby improving accessibility for rural households. However, the people do not have direct access to tertiary educational facilities, hospitals, sporting facilities or major commercial centres in Vulindlela. They have to travel to Edendale or Pietermaritzburg for these services.

Population Dynamics

Vulindlela housed 85 033 structures or 161 562 people in 2013 on 25 185 hectares of land. Based on a conservative compounded annual growth rate of 2% per annum Vulindlela will house 12 6354 structures or 240 072 people by 2033. This represents an increase of 41 421 structures or 78 509 people over a 20 year period. Land areas available for settlement in Vulindlela are limited owing to its mountainous landscape and to historical settlement patterns dating back to the 1970s. Thus it has been established that in order to accommodate the additional population over the next 20years, provision will have to be made for densification of settlement in specified areas to avoid further loss of productive agricultural land to settlement.

Land Use

The majority of land in Vulindlela is owned by the Ingonyama Trust Board. The five Traditional Councils in and around Vulindlela are responsible for land allocation while the Msunduzi Municipality is responsible for land use management. Owing to the history of Vulindlela, a traditional form of land use has been practiced in the area for many years. Increased demands for access to land and limitations on areas available, has resulted in traditional structures having had little option but to allocate agricultural land for new settlement development. This has led to the increasing loss of land for productive agriculture in Vulindlela and urban encroachment into open space areas.

Increased numbers of households resident on limited areas of land has led to increased settlement densification particularly in and around Sweetwaters, Taylors Halt, KwaMncane, Mafakathini and Henley Dam. Owing to costs and lack of forward planning it is not feasible for the municipality to both improve and extend high levels of service to all areas of Vulindlela.

While the systems used for land allocation by the traditional structures were appropriate in the 1960s-80s, this situation has changed accompanying settlement densification, particularly in those areas which have experienced major growth since the 1980s. Based on this project and work undertaken by Msunduzi Municipality (Water Services) it was identified that there are areas in Vulindlela with housing densities equivalent to suburbs in central Pietermaritzburg. However, these high density settlements do not have building controls, higher order services and mechanisms in place to ensure the health and safety for the residents. This raises questions about the need to review the current land allocation and land use system applied in these areas in Vulindlela.

3. POLICY CONTEXT

The review of international, national and local planning and development policies was used to inform the planning process in Vulindlela. The seven pillars of the Msunduzi Spatial Development Framework coupled with key planning principles from national and provincial planning and environmental frameworks were used to identify the following five measures for this plan:

- Access.
- Sense of place.
- Livelihoods.
- Space and structure.
- Regulation and control.

4. STRATEGIC DIRECTION

Based on the challenges identified in the status quo component of this project careful consideration was given to finding a new strategic direction for Vulindlela. This should enable the authorities to meaningfully deal with the above challenges in such a way that it would meet the requirements of national, provincial and local planning policies and at the same time benefit the people of Vulindlela.

The new strategic direction is based on the outcome of an analysis of the information collected in the status quo report. It makes provision for the establishment of one higher order and two lower order centres in Vulindlela which are intended to house the majority of the future population growth over the next 20 years. These growth centres would need to be structured such that they include opportunities for public-private investment in the following sectors: industry, retail, social and utility services and a range of housing options and densities. The aim is to ensure that these centres provide opportunities for the people of Vulindlela to live and to work in local urban centres. This would allow them to benefit from higher levels of social and utility services and locally based employment opportunities.

It is argued in national policies that investment in high density urban areas is more cost effective and sustainable for municipalities than attempting to extend low level services throughout rural areas. Following these policies, the aim in rural settlements is to discourage further growth in housing. This is necessary in order to maintain areas of good agricultural land for cultivation and livestock production as the economic basis of these areas. The emphasis in rural services provision should be to continue with basic service levels in identified rural areas. Once the new centres are established in Vulindlela, where households from rural areas seek higher order services and opportunities, they would then be able to locate into these areas to benefit from these opportunities.

Lands in rural areas which were historically used for cultivation and grazing have been identified and set aside in this VLAP for use by small holder farmers to expand their current operations with training and support from public and private sectors. The idea is for them to produce fresh produce and red and white meat for local markets primarily in the proposed centres. Provision is made in these centres for processing, packaging and marketing of agricultural products (food, timber, livestock etc.) for local consumption and retail in the wider region.

A further opportunity in rural areas is the rehabilitation of degraded open space using certain of the state funding mechanisms to create 'green jobs'. Owing to the unique landscape qualities of this area and to certain of its natural and cultural heritage features there is scope for the establishment of different types of tourism routes through the area including landscape, hiking, mountain biking and cultural. This in turn would enable involvement of local communities in the guiding and hospitality industry.

In order for this strategy to be successfully implemented it is necessary for the three main agencies responsible for land ownership, allocation and administration to work together to establish a Joint Management Unit (JMU) for Vulindlela. This entity would be charged by the three agencies with implementation of the VLAP and at the same time introduce adjustments to the traditional forms of land use management, particularly in and around the proposed new centres where densities and proposed new land uses are not easily catered for in the traditional systems.

In the rural areas of Vulindlela where the emphasis is on sustaining agriculture and open space, adjustments will also have to be introduced into the traditional system of land allocation and municipal system of land use. This will involve defining limits to settlement expansion and internal sub-division of land. It will also need to involve including controls over use of agricultural land and open space such that it cannot be converted into further housing development.

5. SPATIAL FRAMEWORK

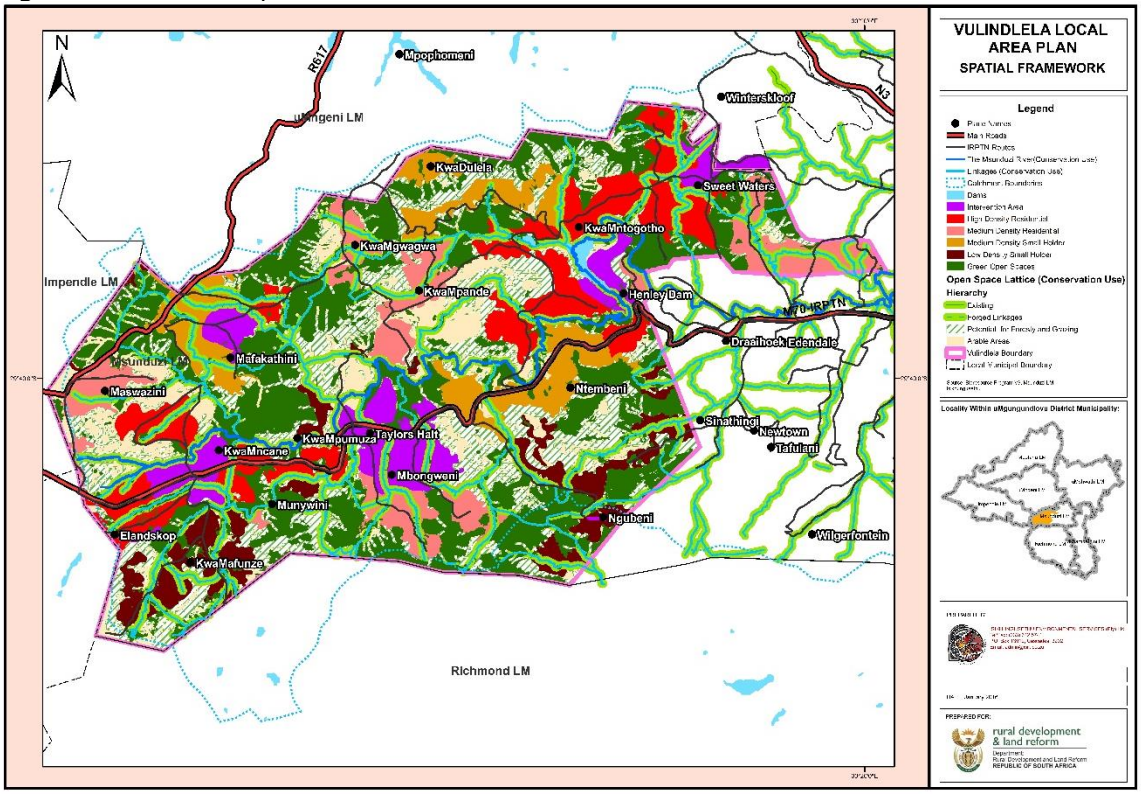
The spatial framework and associated guidelines necessary to achieve the transformation and development of Vulindlela are included in the VLAP. Specific provision has been made for each of the proposed new centres in this plan in terms of broad land use zoning to inform future scheme preparation and to identify the types and levels of services that need to be provided in these areas.

In rural areas provision is made for the expansion of the proposed centres after 2033 should this be required into adjoining high density settlement. In the medium and low density settlements the focus is on limiting further population growth in order to promote the more productive use of these areas in food, plantation crop and livestock production and tourism and 'green job' creation.

The proposed spatial framework for Vulindlela is include in figure 1 below and provides an indication of the location of the following land use in Vulindlela:

- Open space and biodiversity.
- Cultivation, plantation and livestock production areas.
- Medium and low density rural residential areas.
- High density and upmarket residential areas.
- Urban centres inclusive of the full range of social and utility services with opportunities for investment by the private sector in retail, industry and different forms of high density housing development.

Figure 1: Vulindlela Spatial Framework



The land uses are linked together by Msunduzi Municipality's proposed 'integrated rapid public transportation network' (IRPTN) and existing transport linkages in the form of road and rail. A further important integrating element is the Msunduzi Municipality's 'open space system' which provides eco-system goods and services to the people of the sub-region and therefore needs to be rehabilitated and managed in a more sustainable manner.

6. PROJECT PROGRAMME

A comprehensive project programme, which has been included in the plan, has been developed as the basis for the implementation of the VLAP. The project programme provides for project feasibilities, funding and implementation over the short, medium and longer term. The projects included relate to the following key areas of the plan:

- Institutional arrangements.
- Communications and liaison.
- Intervention areas (centres) design and implementation.
- Infrastructure provision.
- Scheme preparation.
- Agricultural plan preparation and implementation.
- Open space rehabilitation and implementation.
- Tourism route establishment.
- Community and youth training.

7. MONITORING AND EVALUATION

The set of measures developed in phase 3 of the project (the assessment phase) is used as the basis for identifying performance measures and milestones that can be used to gauge progress with implementation of the plan. A table is included in the plan which could be used by planning officials working closely with traditional structures to identify key milestones as the basis for an effective monitoring system.

8. CONSULTATION

During the course of preparation of the plan consultation involved municipal ward councillors and officials, representatives of traditional structures, community development structures, municipal officials, line function government departments, para-state structures in energy and bulk water provision and selected non-governmental agencies operating in Vulindlela.

9. CONCLUSION AND RECOMMENDATIONS

In conclusion it is noted that the key stakeholders in Vulindlela have an important choice to make about the future of the area and its people. They could on the one hand adopt a 'business as usual' approach where the challenges to the future development this area are *not properly* resolved. On the other hand they could accept that despite the challenges that development of Vulindlela poses, it nonetheless has opportunities and development potentials that have not yet been 'unlocked'.

Accepting responsibility for pioneering change (particularly institutional) is what is required. This will require a range of new management interventions and strategies in order for the implementation of the VLAP to succeed and to ultimately benefit the people of Vulindlela and the wider sub-region.

It is against this background that the following recommendations are noted for the key roleplayers (Msunduzi Municipality, Traditional Councils and the Ingonyama Trust Board) in Vulindlela:

(i) Accepting and adopting the VLAP as the framework for future development of Vulindlela.

(ii) Agreeing to the establishment of a Vulindlela Joint Working Group to assume responsibility for the overseeing the establishment of the envisaged Joint Management Unit as the implementing agency of the local area plan in Vulindlela.

(iii) Committing to the establishment of JMU (including the three roleplayers) as the foundation institution necessary for the following:

a. Communicating and gaining support for the plan with community and traditional representatives at a 'grass roots level' in Vulindlela.
b. Undertaking detailed planning, fund raising and implementation of the proposed development centres in Vulindlela and all that this includes in terms of housing, services, job creation and land management.
c. Working with local farmers in the preparation and implementation of an agricultural development plan for those areas of Vulindlela where sufficient land is still available for production purposes.
d. Raising funding for and commencing with the rehabilitation and ongoing management of open space systems in Vulindlela.
e. Preparation of a 'wall to wall' scheme in Vulindlela as the basis for effective land use management.
f. Provision of services in all areas of Vulindlela and the generation of revenue from the proposed centres to cover operational costs of the JMU.

(iv) Committing to the signing of a long term memorandum of understanding and associated business plan as the basis for the establishment of the JMU to be located in Vulindlela at Taylors Halt.

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List of acronyms

ABM	area based management
BP	business plan
CBD	central business district
CRDP	Comprehensive Rural Development Programme
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DAEA	Department of Agriculture and Environment Affairs
DFA	Development Facilitation Act (Act 57 of 1995)
DWA	Department of Water Affairs
EIA	environmental impact assessment
FET	further education and training
IRPTN	Integrated Rapid Public Transport Network
IAP	interested and affected party
ITB	Ingonyama Trust Board
JMU	Joint Management Unit
JWG	Joint Working Group
KZN	KwaZulu Natal
LAP	local area plan
LGTA	Local Government Transitional Act (Act 209 of 1993)
MOA	memorandum of agreement
MSA	Municipal Systems Act (Act 32 of 2000)
NDP	National Development Plan: Vision for 2030 (2011)
NSDP	National Spatial Development Plan (2006)
PGDP	Provincial Growth and Development Plan
PGDS	Provincial Growth and Development Strategy
PSEDS	Provincial Spatial and Economic Development Strategy (2007)
SANBI	South African National Botanical Institute
SAPS	South African Police Services
SIP	strategic integrated project
SDF	spatial development framework
SMME	small, medium and micro enterprises
SPLUMA	Spatial Planning Land Use Management Act (Act 16 of 2013)
SWOT	strengths, weaknesses, opportunities and threats
TOR	terms of reference
VJMU	Vulindlela Joint Management Unit
VLAP	Vulindlela Local Area Plan
WSA	water services authority

1. INTRODUCTION

1.1 Background

Isikhungusethu Environmental Services (Pty) Ltd was appointed by the Department of Rural Development and Land Reform in December 2014 to assist the Msunduzi Municipality with the preparation of the Vulindlela Local Area Plan (VLAP).

Vulindlela is located within the greater Msunduzi Municipality. It is situated to the west of both the Pietermaritzurg and the greater Edendale areas. It is peri-urban in character with tracts of agricultural land interspersed with settlement, some of which includes high density housing in areas with limited services. The majority of the land is owned by the Ingonyama Trust Board. Land allocation is undertaken by the five traditional councils located in Vulindlela. Planning, administration and services provision in is a municipal function which extends over nine municipal wards.

Vulindlela has a strategic role to play as a 'gateway' to the to the capital city, Pietermaritzburg, in KwaZulu-Natal. The area attracts high levels of population growth related to in-migration from surrounding rural areas and natural increase. In-migrants tend to focus on traditional areas adjacent to cities in KwaZulu-Natal. This provides them with access to land and improved opportunities (shelter, employment, services) and has resulted in high density informal settlement unaccompanied by formal housing and services provision. This poses a number of risks to these settlements and ultimately to the greater Msunduzi municipal area. It is for this reason and because the area has been neglected in the past, that there is a need for clear directional planning. The recently completed Msunduzi Municipality SDF Review (2015) provides the basis for more detailed planning, of which this, the Vulindlela Local Area Plan, is the next step in the "package of plans" preparation.

One of the features of Vulindlela is its natural beauty and hence the potential to create a part of the city, in the future, which will be an attractive place to live, whilst at the same time affording opportunities and access to daily needs and economic livelihoods for its residents.

1.2 Structure of the document

This document represents the local area plan for Vulindlela.

The VLAP commences with an introduction detailing project scope of work, project method and location of the project area. This is followed in section 2 by a review of national, provincial and local planning policy frameworks with the emphasis on the implications for Vulindlela. Section 3 deals with a summary of the situational assessment included in the status quo analysis. Section 4 includes an analysis of the strengths, weaknesses, opportunities and threats (SWOT), challenges facing Vulindlela, development scenarios and a vision for the future of the area. The spatial framework underpinning the VLAP is included in section 5 followed by detail on each of the intervention areas in section 6. Section 7 is used to develop planning guidelines for rural areas of Vulindlela making a distinction between rural settlement, agriculture and biodiversity. Institutional arrangements for the implementation of proposed development in Vulindlela is considered in section 8 with section 9 providing a programme of projects as the basis of the implementation strategy. The final section (10) provides a framework for monitoring of the implementation of projects in Vulindlela.

1.3 Scope and scale of the Vulindlela Local Area Plan

1.3.1 Structure of the project

The VLAP project comprised six phases. Phase 1 involved the project inception with phase 2 dealing with an investigation into the status quo which resulted in the Vulindlela Local Area Plan Status Quo Report. In phase 3 the findings of the status quo were assessed, the formulation of goals and objectives were formulated and the vision prepared. This document comprises the VLAP and is the result of phase 4 of the project incorporating the findings of phases 2 and 3. Although initially allocated in the TORs to phase 5 of the project, consultation was undertaken during phases 2 to 4. Phase 6 is the adoption of the VLAP by Msunduzi Municipality Council.

1.3.2 Scope of the VLAP

The main purpose of the VLAP is to provide a spatial framework which can be used by the municipality and traditional councils to guide local level spatial and statutory planning. The intention in this planning framework is to provide concepts and guidelines that can be used to achieve sustainable spatial development at the local level.

The VLAP, as the framework plan, is intended to offer an alternative way of thinking about planning, about the whole at the scale of Vulindlela and beyond the confines of individual sectoral interests. The VLAP is intended to enable decision-makers in the region, particularly municipalities and provincial and national government departments, to make well-informed and directed decisions that are strategically sound, and in line with the principles outlined below. Further, it will help officials to evaluate development applications and make informed decisions. It is important that decisions are made on the basis of sound **argument and fact** rather than subjective **opinions**.

The LAP should provide a powerful statement to give direction in decision making. The point of departure based on the principles in the SPLUMA is as follows:

> *'striving to achieve a balance between maintaining biodiversity in the municipality whilst at the same time enabling development of the full potential of the area to be realised'*

The VLAP is a **conceptual framework and not a site specific plan**, and has the following roles:

(i) **Guiding role:** provides a useful set of guidelines for the Msunduzi Municipality to assist with the incorporation of the principles contained in the LAP into their local spatial planning processes.

(ii) **Control role:** with the backing of legislation, it is intended that this plan will provide the basis for formulation of a set of land use controls by municipalities in their regulatory role in land use management.

(iii) **Co-ordination role:** to enable alignment of spatial plans between the different areas of Msunduzi Municipality and surrounding municipalities.

(iv) **Budget informing role:** to assist the different spheres of government with the planning of programmes and budgets towards an accepted strategic purpose.

(v) **Spatial structural role:** to assist the Msunduzi Municipality to structure their space in a manner that integrates neighbouring municipalities in the district and region, and ensures that the principles of equity and sustainability are achieved.

(vi) **Policy informing role:** with the advent of SPLUMA, the VLAP will be legally binding on municipalities through their schemes.

1.3.3 The local area plan in the hierarchy of plans

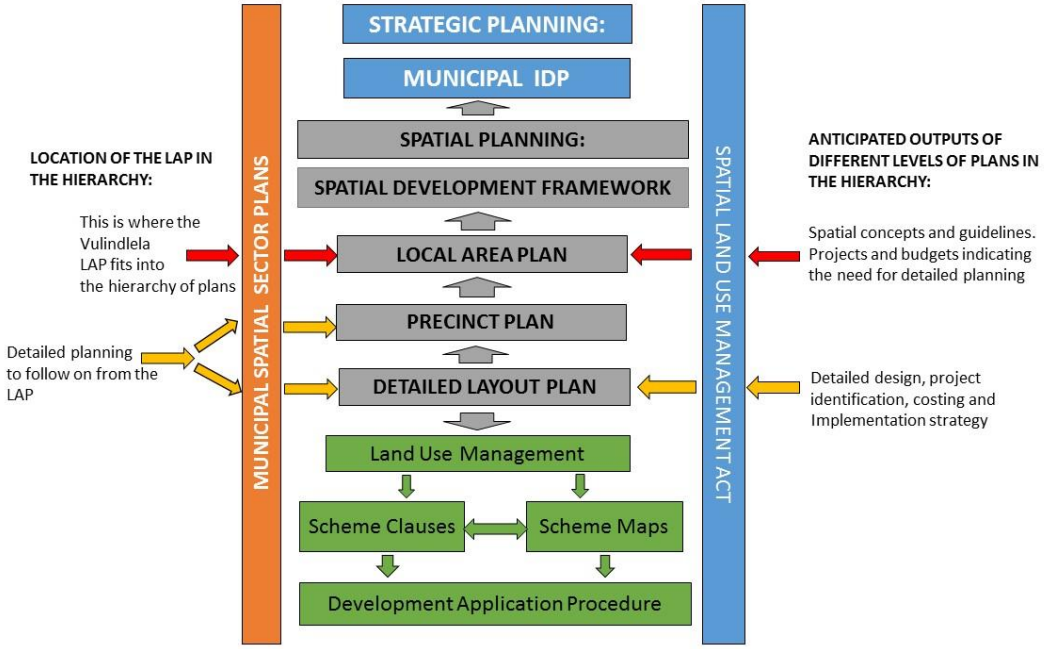
In terms of the hierarchy of plans envisaged in SPLUMA, the LAP is located between the spatial development framework (SDF) and the precinct plan (diagram 1, below). Thus the role of the LAP is to inform content of the intervention areas, detailed layout plans and schemes. The content of these plans should be the subject of the more detailed work prepared subsequent to the completion of the LAP. This subsequent level of investigation should give rise to formalisation of land rights, establishment of cadastre and the determination of cost for implementation of the proposed centres.

In order to provide this overarching framework to guide future development of Vulindlela, the intention is for the VLAP to be 'pitched' at sub-regional and local levels. This is to ensure that it is contextualised and provides a framework to achieve the following:

(i) Guide the type and location of future development in urban, peri-urban and rural areas of Vulindlela.

(ii) Inform the preparation of land use schemes and the introduction of land use management throughout Vulindlela.

Diagram 1: Hierarchy of plans



1.4 Approach and method

The planning approach used in the preparation of the VLAP has been 'bottom-up', process driven and iterative in nature. The method used in this approach involved the following:

- Gathering information about Vulindlela and its inhabitants from:
  - field work,
  - desktop review of literature and data sets, and
  - contact sessions with municipal staff, ward councillors, traditional leaders and community leaders.

- Assessing and analysing the material to establish informants and constraints to the future development of Vulindlela.
- Preparing a problem statement for Vulindlela and the vision and objectives of the LAP which indicate how the challenges of the area should be overcome.
- Developing a regional and sub-regional context for the plan in the context of the vision and objectives.
- Preparing a spatial framework within the sub-regional context to guide future development for interventions at a local level.
- Integration of spatial data sets in order to arrive at a realistic and workable spatial plan to shape the future development of Vulindlela.

At a more specific level, the methods used in identifying future centres (nodes) for development included:

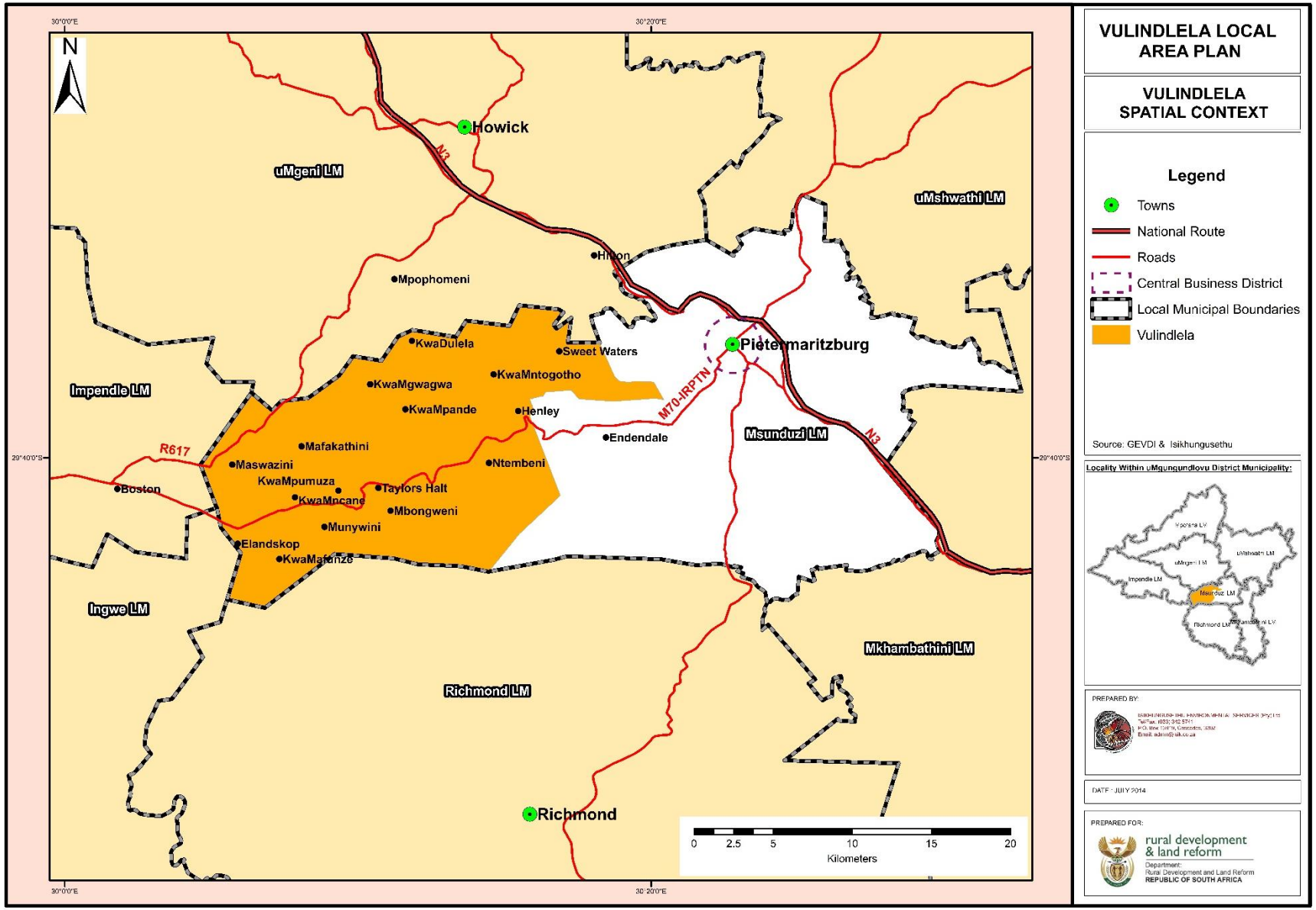
- Ascertaining areas of land best suited to future development in each of the areas based on an interpretation of findings of the SDF, local economic development dynamics, location of services and facilities, land ownership, population growth, developmental pressures and broad land use zoning.
- Determining growth trends in population in order to gauge location of areas experiencing growth pressures.
- Reviewing the 'generative power'[1] of areas under pressure to continue to grow in future considering the type and level of local economic activities, location on transportation routes, density of existing development, available land for future development, type and location of existing and planned social services and land rights arrangements.
- Comparison of the areas with high development energy with those identified as future nodes for development in the Msunduzi Municipality SDF Review (Msunduzi, 2015) to establish alignment or otherwise.
- Identifying the relationship between:
    - proposed centres,
    - surrounding settlement,
    - land suited to different types of agriculture, and
    - areas which should be protected to enhance biodiversity.

1.5 Study area

Vulindlela is one of four management areas of the Msunduzi Municipality. It is located to the west of the central business district and the south eastern district management area. The project area adjoins uMngeni, Impendle, Ingwe and Richmond local municipalities (figure 1). The main access route into Vulindlela is the M70 which traverses Edendale, Taylors Halt and Elandskop. This links with the R617 which provides access to Mpophomeni and Howick to the north and Bulwer to Underberg to the west. Connectivity to Richmond in the south east is limited to gravel roads via Byrne Valley and Baynesfield Estate.

[1] A term used to describe the social, economic, population and resource growth potential.

Figure 1: Vulindlela in a sub-regional context



2. POLICY CONTEXT

The intention of this section of the document is to briefly review planning and the outcome of the analysis of the status quo as a backdrop to the preparation of the VLAP.

2.1 International trends

In order to contextualise this and other plans, it is important to consider the impact of international tendencies and perspectives on regional planning which include the following:

(i) **Population growth**

Uneven internationally, from negative in certain regions and countries to extremely high in the poorest parts of the world, it is becoming increasingly difficult to cope with this exponential population grown and the implications in terms of resources required and the provision of services.

(ii) **Economic globalisation and structural unemployment**

Unemployment is increasing in the formal and informal economies, and there is no potential solution in sight. It is imperative to plan with the preconditions that may address this issue, particularly in the field of sustainable job creation and 'green economy' development.

(iii) **Climate change**

Climate change is one of the most critical issues facing the global community today – it is driven by a multitude of reasons from the use and exploitation of fossil fuels to pollution and to loss of biodiversity. Particularly, it is now well established that there is an increase in catastrophic events. Regions vary, but in the KwaZulu Natal region the expectation is that drier and warmer conditions will prevail, with shorter and more intensive rainfall which has implications for runoff, sustainable water supply and flooding. A conservative approach must be undertaken in relation to planning, urban design and local food security, regarding climate change.

(iv) **Water scarcity**

The world climate currently is experiencing extreme droughts and flooding in different parts of the world. However, even with areas experiencing a wet cycle, water scarcity remains a constant issue of concern for all authorities who have to source and distribute potable water. In addition, the quality of water is frequently compromised due to high pollution levels.

(v) **Food security**

A household is considered food secure when its occupants do not live in hunger or fear of starvation. With population growth, climate change, water scarcity, long-term structural unemployment and mass migration due to war and conflicts, ensuring food security for all is becoming increasingly difficult.

(vi) **Sustainability**

Population growth is outstripping resources available at local, national and global levels. It is imperative that the ecological footprint of human impact be reduced in order to attempt to achieve some level of environmental sustainability. Without this, it will be nearly impossible to achieve economic and social sustainability.

(vii) **Fossil fuel depletion**

Fossil fuel exploitation and depletion is one of the most critical issues facing the global community today – it is largely responsible for driving the excessive carbon released into the atmosphere and in turn fuelling climate change. For example, fracking releases methane gas which would normally be trapped under layers of rock; methane is a highly potent greenhouse gas that produces 86 times as much heat as carbon dioxide – it may therefore be worse than coal in contributing to global warming. Therefore, every development decision made regarding opening up new coal mines or natural gas fracking sites locally has a cumulative effect globally.

These international trends are all relevant at local and district levels and for some of them, such as fossil fuel depletion and climate change, it is imperative that the phrase "think global, act local" forms a guiding principle of local plans with respect to these global trends.

In South Africa, as with many parts of the world, there is a general trend of rural depopulation as people move towards urban centres in search of better opportunities. This increases pressure on the urban centres to provide essential services, particularly water and sanitation.

Increasing risks associated with local food production in Vulindlela are linked to drought conditions in addition to rising input costs and loss of productive land to urban sprawl. For local sustainability, the containment of urban and rural settlement sprawl is essential to protect the catchment – both water and land resources – and to leave sufficient space available for agriculture (in particular crops) to assist with ensuring food security.

Climate change is a global issue which needs to be addressed, in a very practical way in Vulindlela by looking at localised renewable energy and water collection systems, and at spatial planning which takes into account the need to reduce travel and encourage local work opportunities and local food supplies. The importance of taking development in this direction is reinforced by the NDP as set out below.

2.2 National policy

Development and strategic infrastructure provision in South Africa is guided by the NDP which was adopted in 2012/13, and is therefore a critical consideration spatial planning. Sections of the NDP which are of particular importance to this plan are recorded here.

2.2.1 Implications of the National Development Plan for the Vulindlela Local Area Plan

The following provides key issues from the NDP relevant to the VLAP.

(i) **Urbanisation and the importance of settlement centres**

The need for proper planning is based on a number of aspects. In terms of demographic trends, 60% of the population was living in urban areas by 2011. It is suggested that this figure will increase to 70% by 2030. Although urbanisation in South Africa is slower than other parts of Africa, a further 7,8 million people will need to be accommodated in South African cities by 2030, and a further 6 million by 2050. This will bring about more pressure on municipalities to provide services (NDP 2012 p 238). Recognising the importance of urban centres and the services they provide are therefore essential considerations of any future planning.

(ii) **Increase in density**

The NDP further recognises that settlement patterns and settlement extension need to change. One of the intentions is to reduce the distance between employment opportunities and home. This will naturally require densification of settlements. The NDP also seeks strategic capital investment which will improve efficiency, particularly in respect of communication and movement. The influx of people into urban areas will create significant demands on settlement and town boundaries. An important planning tool to be used to balance and counter this notion is development of policies, plans and controls to limit urban sprawl.

(iii) **Land ownership patterns**

The NDP also recognises that the distorted land ownership and land use patterns associated with apartheid still need to be addressed particularly in areas such as Vulindlela as part of an ex-homeland area.

(iv) **Accessibility**

The NDP further recognises the importance of transportation of persons and goods as an important contributor to social and economic upliftment. Transport and access is therefore a critical factor in the improvement of the livelihood of people.

(v) **Structured infrastructure investment**

There is a need for municipalities to adopt growth management strategies to prioritise infrastructure investment where growth is desired. This approach requires spatial plans to incorporate a growth management approach that will align areas of population and economic growth with investment in bulk infrastructure.

2.2.2 Strategic integrated programme

The National Infrastructure Plan (2012) had the intention of transforming the economic landscape, creating jobs and strengthening the delivery of basic services. Under the guidance of the Presidential Infrastructure Co-ordinating Committee, eighteen strategic integrated projects (SIPs) were identified throughout the country. These SIPs were categorised into the following groups:

- Geographic (SIPs 1 – 5)
- Energy (SIPs 8 – 10)
- Spatial (SIPs 6, 7 and 11)
- Social infrastructure (SIPs 12 – 14)
- Knowledge (SIP 15 and 16)
- Regional (cross border) (SIP 17)
- Water and sanitation (SIP 18)

The SIP's which relate to Vulindlela developments are as follows:

- **SIP 6: Integrated municipal infrastructure project**
  Developing national capacity to address maintenance backlogs and upgrades required in water, electricity and sanitation bulk infrastructure. The road maintenance programme enhances service delivery capacity thereby impacting positively on the population.

- **SIP 7: Integrated urban space and public transport programme**
  Co-ordinating planning and implementation of public transport, housing, economic and social infrastructure and location decisions into sustainable urban settlements connected by densified transport corridors. This will focus on the 12 largest urban centres of the country, including Pietermaritzburg in Msunduzi Municipality. Significant work is underway on urban transport integration.

- **SIP 8: Green energy in support of the South African economy**
  Supporting sustainable green energy initiatives on a national scale through a diverse range of clean energy options and support biofuel production facilities.

- **SIP 11: Agri-logistics and rural infrastructure**
  Improving investment in agricultural and rural infrastructure that supports expansion of production and employment, small-scale farming and rural development which includes the following:
    - Facilities for storage (silos, fresh-produce facilities, packing houses).
    - Transport links to main networks (rural roads, branch train-line, ports).
    - Fencing of farms.
    - Irrigation schemes to poor areas.
    - Improved education on rural issues (including expansion of agricultural colleges).
    - Processing facilities (abattoirs, dairy infrastructure).
    - Rural tourism infrastructure.

- **SIP 18: Water and sanitation infrastructure**
  This is a 10 year plan to address the estimated backlog of adequate water to supply 1.4 million households and basic sanitation to 2.1 million households. This involves provision of sustainable supply of water to meet social needs and support economic growth. Provision will be made for new infrastructure, rehabilitation and upgrading of existing infrastructure, as well as improvement in the management of water infrastructure.

The projects arising from the VLAP are aligned with these SIPs in order for the Msunduzi Municipality to qualify for funding for implementation thereof.

2.2.3 Environmental legislation

A set of environmental principles have been developed by the Msunduzi Municipality to promote environmental sustainability in the implementation of their integrated development plan (IDP). These are based largely on the environmental management principles contained in Chapter 1 of the National Environmental Management Act (Act 107 of 1998) (NEMA), but also incorporate the principles of Local Agenda 21 (Cotter, B et al, 1999) and the KwaZulu-Natal Environmental Implementation Plan (DAEA, 2002)[2]. These principles while formulated some time ago, still hold true, as all good principles should.[3]

[2] *http://www.enviroleg.co.za/acts/National%20Environmental%20Management/REGS/862-04%20KZN%20EIP%20First%20Edition.pdf*

[3] This plan was a first edition, intended to give effect to environmental governance in the province, based on NEMA. These provincial plans are supposed to be produced every four years, focusing on the DAEA's environmental management functions, policies and laws and how it ensures compliance by other departments.

The environmental sustainability principles are divided into the following six themes:

- Sustainable development.
- Environmental justice and equity.
- Participation, empowerment and transparency.
- Co-operative governance.
- Ecological and cultural integrity.
- Environmental decision-making.

The KwaZulu Natal environmental landscape, in terms of governance and legislation, has undergone recent changes where the environmental affairs section was shifted from the Department of Agriculture to the Department of Economic Development and Tourism, now the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA). The DEDTEA produced a strategic plan for 2014 to 2019 (DEDTEA 2014) where the priority areas of environmental affairs for 2009 to 2014 are discussed. Table 1 below provides a summary of relevant environmental legislation and policies.

Table 1: Summary of legislation and policies on the natural environment

Act / Policy	Summary of relevant legislation
The National Environmental Management Act (Act 107 of 1998)	NEMA requires that planning and development be undertaken in accordance with a number of principles. The principles applicable to spatial planning are: ▪ Sustainable development – environmentally socially and economically, ▪ Natural resource and systems protection, and ▪ The provision of access to resources and environmental management that puts people and their needs first. These principles were adhered to in the preparation of the VLAP.
National Response to Climate Change White Paper (2012)	This Paper is the South African Government's response to the threat of climate change. It is a document that is intended to provide guidance in terms of policy development and implementation. The document focuses on mitigation, and includes a chapter on adaptation. The VLAP tries to address any pertinent issues, although these would be largely be addressed in the Msunduzi Municipality SDF.
Subdivision of Agricultural Land (Act 70 of 1970)	This Act seeks to protect the integrity of agricultural land, and is applicable areas outside of schemes, but it is not applicable to Ingonyama Trust land. The VLAP is consistent with the underlying objectives of this Act.
Conservation of Agricultural Resources Act (43 of 1983)	This Act seeks to protect all agricultural resources from inappropriate forms of development and utilisation.
National Water Act (36 of 1998)	This Act aims to establish sustainable use and management of water resources throughout South Africa.
Draft Provincial Green Economy Strategy	DEDTEA drafted this Green Economy Strategy of which the key initiatives implemented thus far include: the development of solar and wind resource maps for the province; a Municipal Waste to Energy Protocol and Technical Assistance Programme; and a Green Economy Technical Assistance Fund worth R 2,5 million were established to assist green economy initiatives (DEDTEA Strategic Plan 2014-19, p.5)

Source: eThekwini SDF Review 2014/15 (adapted for the VLAP by Isikhungusethu, 2016)

An important programme that the Vulindlela community can tap into is the SANBI driven "Building Resilience in the Greater uMngeni Catchment" programme[4] which aims to increase resilience of vulnerable communities through interventions such as early warning systems, climate-smart agriculture and climate proofing settlements. This project will have four pilot sites "to show different ways that communities can prepare for changing weather patterns, so they are better able to bounce back after a disaster"[5]. The pilot sites will be in the low-lying, high density settlements on the outskirts of Pietermaritzburg, including Vulindlela.

2.2.4 Planning legislation

The planning legislation from which LAPs derive their direction, are embodied in a number of laws and policies already mentioned above such as the Municipal Systems Act (Act No 32 of 2000), the SPLUMA and the NSDP. A summary of the laws and policies pertaining to planning are included in table 2 below. The common set of performance qualities or measures which underpin these laws and policies are central to an understanding of a spatially sustainable future in Vulindlela.

Table 2: Summary of planning legislation and policies

Act / Policy	Summary of Relevant Legislation
Legislation	
Constitution of South Africa (Act No. 108 of 1996)	The Constitution sets the framework for all legislation stipulating the three spheres of government and who is responsible for various aspects of planning and development, among others.
Municipal Structures Act (Act No. 117 of 1998)	This Act established the 'wall to wall' municipalities, the municipal councils and the internal structures, functions and powers of municipalities.
Municipal Systems Act (Act No. 32 of 2000)	This Act confirmed the municipal functions and powers, stipulating various procedures such as by-laws and internal legislative procedures. Chapter 5 set up the framework for IDPs and what regulations and guidelines should flow from tis.
Development Facilitation Act (Act No. 67 of 1995)	This Act is no longer in use, although the Chapter 1: Land Development Principles have been carried through into other legislation and are still referred to.
Spatial Planning and Land Use Management Act (Act No. 16 of 2013)	This Act provides for a framework for spatial planning and land use management in the country; it specifies the relationship between spatial planning and land use management system and other kinds of planning; it provides for inclusive, developmental, equitable and efficient spatial planning in the different spheres of government, it provides a framework for policies, principles, norms and standards for spatial development planning and land use management; to create greater consistency and uniformity in application procedures and decision-making by authorities responsible for land use decisions and to provide for the establishment, functions and operations of Municipal Planning Tribunals.

[4]This programme for uMgungundlovu District Municipality, submitted by South African National Biodiversity Institute for funding to the Global Adaptation Fund, has apparently been approved (DEDTEA Strategic Plan 2014-19, p.7) http://www.sanbi.org/biodiversity-science/state-biodiversity/climate-change-and-bioadaptation-division/national-impleme-1

[5]Op cit (website sanbi reference)

Act / Policy	Summary of Relevant Legislation
Municipal Finance Management Act (Act No. 56 of 2003)	The purpose of this Act is to secure sound and sustainable management of the financial affairs of municipalities and other institutions in the local sphere of government.
Municipal Demarcations Act (Act No. 27 of 1998)	This Act provides for criteria and procedures for the determination of municipal boundaries by an independent authority.
National Building Regulations and Building Standards Act (Act No. 103 of 1997)	This Act provides for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities and for the prescribing of building standards
SPLUMA KZN Draft By-Laws (2015)	These draft by-laws have been provided to local municipalities for adaption and adoption as their own internal regulations and by-laws governing planning and development applications, procedures etc.
SPLUMA Regulations (Government Gazette 597, no. 38594) 23 March 2015	These regulations set out various stipulations for municipal planning tribunals. Land development and land use applications, appeals, exemptions etc.
Housing Act (Act No. 107 of 1997)	Provides for the facilitation of a sustainable housing development process and to lay down general principles applicable to housing development in all spheres of government; to define the functions of national, provincial and local governments in respect of housing development.
National Development Plan: Vision for 2030 (2011)	The NDP was drawn up to chart a new direction for the country's development in terms of the changing needs of the 21st Century and the need to address some of the burning issues still prevalent such as poverty and spatially divided communities, as well as addressing some of the global trends as they find expression locally.
Subdivision of Agricultural Land Act (Act No. 70 of 1970)	Replaced by the Subdivision of Agricultural Land Act Repeal Act of 1998. The intention of this Act is to control the subdivision of agricultural land and matters connected to this.
Traditional Leadership and Governance Framework Act (Act No. 41 of 2003)	This Act provided for the recognition of traditional communities and for a statutory framework for leadership positions as well as the functions and roles of traditional leadership. It set out traditional leadership roles and functions in relation to land allocation and administration which needed to be done in consultation with municipalities as part of the cooperative governance framework. This is national legislation.
KZN Traditional Leadership and Governance Act (Act No. 5 of 2005)	This Act gave provincial expression to the National Traditional Leadership Governance Framework Act, providing greater detail as to the structures and functions of KZN traditional leadership.

Policy	Summary of relevant legislation
Policies and guidelines	
KZN Provincial Growth and Development Strategy 2011	The PGDS sets out the Province's commitment to achieving the vision of KZN as a prosperous province with a healthy, secure and skilled population, acting as a gateway to Africa and the world. It aimed to build this gateway by growing the economy for the development and improvement of quality of life for all people in the province. It provides for a strategic framework to achieve accelerated and shared economic growth through catalytic and developmental interventions, with a coherent equitable spatial development structure and building sustainable communities, livelihoods and living environments. Annexure C sets out the provincial SDF.
KZN Provincial Growth and Development Plan 2011-2030	The PGDP sets out seven strategic goals for the Province: job creation, human resource development, human and community development, strategic infrastructure, environmental sustainability, governance and policy and spatial equity.
Provincial Spatial Economic Development Strategy 2006	The PSEDS looked at the spatial expression of an economic development strategy for the Province. It strongly endorsed the NSDP directives concerning limiting urban and rural settlement sprawl in order to provide more cost-effective and sustainable services, and to provide for economically sustainable human settlements.
National Spatial Development Plan (2006)	The NSDP provided a clearly articulated set of spatial priorities and criteria to guide government choices about investment and development spending. It looked at the national space economy and saw the NSDP as a critical instrument for policy coordination with regard to the spatial implications of infrastructure programmes at national, provincial and local government levels.

Source: eThekwini SDF Review 2014/15 (adapted for the VLAP by Isikhungusethu, 2016)

2.2.5 A set of performance qualities/measures

A set of well-established performance qualities should give direction to the VLAP. The qualities have evolved over time and are embodied in national and provincial planning legislation, such as the DFA, the MSA and the SPLUMA. It is a legal requirement that the directives contained in these pieces of legislation are carefully considered in any planning or development initiative in Vulindlela.

The qualities contained in these pieces of legislation are interlinked, and influence each other. It is important to note that they cannot be applied individually, or mechanically, or converted into a rigid set of rules. They need to be translated creatively into meaningful spatial constructs which are sympathetic to, and informed by, local contextual conditions. Generally, these qualities are not well understood, and in many instances they have become mere clichés. It is thus important here to explain their application in this plan. The key performance qualities that provide a foundation for the VLAP are elaborated as follows.

SUSTAINABILITY

The SPLUMA (Section 7(b)) sets out sustainability as follows:

> *'Spatial sustainability, whereby spatial planning and land use systems must:*
>
> - *promote land development that is within the fiscal, institutional and administrative means of the Republic;*
> - *uphold consistency of land use measures in accordance with environmental management instruments;*
> - *promote and stimulate the effective and equitable functioning of land markets;*
> - *consider all current and future costs to all parties for the provision of infrastructure and social services in land developments;*
> - *promote land developments in locations that are sustainable and limit urban sprawl; and,*
> - *result in communities that are viable.'*

An important consideration is the long term view, reconciled with immediate needs, that is embodied in this quality of spatial sustainability. It is also inclusive of both local and national interests and resources so that all current and future costs of both public and private initiatives are taken into consideration. It is common practice to count only the direct and immediate costs in development and infrastructure projects, whilst excluding most of the indirect ones, such as costs to the environment, longer term impacts on transport costs and so forth.

EFFICIENCY

The principle of efficiency is set out in SPLUMA (Section 7(c)), as follows:

> *'The principle of efficiency, whereby –*
>
> - *land development optimises the use of existing resources and infrastructure;*
> - *decision-making procedures are designed to minimise negative financial, social, economic or environmental impacts; and*
> - *development application procedures are efficient and streamlined and timeframes are adhered to by all parties.'*

It is important that maximum benefit be derived from every rand of capital expenditure both private and public, and that where possible, investments support one another to achieve effects that are greater than the sum of the parts. Infrastructure,particularly that which amounts to a large portion of annual expenditure, should be located where its use can be optimised.

As indicated above, application and decision-making procedures should be resource conscious, and designed to minimise negative impacts.

EQUITY

Equity in spatial structure implies that all inhabitants have reasonable access to the opportunities and facilities which support living in settlements. **It is neither possible nor desirable for all parts of settlements to be the same**, in the sense that they are supported by the same level of social services and commercial and economic activities. So the principle of **equity does not connect to uniformity,** but rather equity of access.

The current patterns of development were largely decided in the 1970s in Vulindlela. This resulted in village type settlement. Sub the consequences of which are wastage of resources, inefficiencies and a spatial structure which lacks sustainability and resilience.

There is also a tendency for urban areas to be planned radially from a central point and this often results in a spatial structure which is inherently inequitable, with increasing numbers of poorer people being spatially and economically marginalised. Greater levels of equity can be achieved through the framework of a grid structure, where points of intersection of movement routes provide an intrinsic opportunity for services and facilities over time. Development at each of these opportunity points may vary, but a more equitable spread of opportunities and access to these, results from such a structure.

At the heart of this principle is the idea that situations should not be created where more advantaged groups benefit at the expense of less advantaged ones. In equitable settlements all inhabitants have reasonable access to the opportunities and facilities which support living there. It is important to ensure that each tranche of new investment is directed at meeting the greatest amount of need.

INTEGRATION

Planning tends not to consider systems in totality. It only works on small parts and so the full impacts are not considered. Thus integration implies a way of thinking about planning, about the whole, and a way of managing the budgeting and implementation process.

There is a need for integration in many spheres: institutional, spatial, and financial, amongst others.

Important to this plan is spatial integration, and there are a number of forms (DFA 1995 Chapter 1 *Principles of the DFA*):

(i) Integration between rural, urban and primeval landscapes for example, the urban system providing markets for produce from the rural system, and social, cultural and economic services for rural dwellers; and the compaction of settlement that this implies.
(ii) Integration between elements of spatial structure, for example between different movement nodes; between public transport and social facilities; integration of settlement with movement; integration of different modes of movement etc.
(iii) Integration of new development with old.
(iv) Integration of different classes – wealthier and poorer people are all part of the same settlement system and should benefit from the resources and energies brought by others.

Critical to the successful implementation of the VLAP is also the integration and co-ordination across government departments, each responsible for their budgets and programmes, especially the public capital investment programmes which have a profound effect on the development of the area. Over time, increasingly consistent and integrated actions and investments should occur across scales of planning and across spheres of government, to ensure co-ordination and efficient use of resources.

It is the common intention that IDPs tie public agency plans to governmental budgetary processes. That is, plans relating to the development of public spatial structure involving movement, public space, public facilities and utility services. Plans and budgetary processes need to be fully integrated and co-ordinated at the district and local municipality level. In general there are insufficient integrating mechanisms, both spatially and institutionally, to give sufficient direction to capital investment plans of line departments.

This is necessary for two reasons:

- To integrate these elements in order to create a clear spatial framework or capital web.
- To create a proactive planning system rather than one which is reactive. This will prevent responding to needs in an unplanned manner.

It is in the interests of the private sector to co-ordinate its investment programmes with public sector investment programmes. This co-ordination is made possible by the clear commitment about the spatial patterns of future public spending contained in the IDPs which should be informed through the municipal SDFs, LAPs and other municipal plans.

RESILIENCE

The SPLUMA sets out the principle of spatial resilience as follows:

> *'The principle of spatial resilience, whereby flexibility in spatial plans policies and land use management systems are accommodated to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks.'*
> (SPLUMA, Section 7(1) p.15)

Resilience derives from generality, implying that planning is not directed only at a specific set of unique circumstances prevailing at a point in time. The best systems are structurally neutral, and able to adapt to changing and varying situations.

In the present context, the plan should establish the inherent structure in an existing system and use it as the basis for accessibility and roll out of capital investment into the future. The regional plan should get settlement to respond to the neutral system. The neutral system is more balanced in the landscape, and is able to accommodate change over time. The 'neutral system' in this sense means that resilience, adaptive capacity and transformability are neither 'good' nor 'bad' but describe the capacity of the system to meet defined goals – it is the sustainability goal which defines what is 'desirable' or 'undesirable'. (CISRO 2015)

2.2.5.1 SPLUMA requirements of SDFs

Sections 20 to 22 of the SPLUMA set out the requirements and procedures for municipal SDFs. Section 21 includes 16 specific requirements, including adherence to the principles set out in Chapter 2 of the Act. In the preparation of the VLAP these requirements have been imbedded into the future spatial structure of Vulindlela.

2.2.6 Rural development and the role of traditional leaders

The NDP promotes better integration of the countries rural areas into the space economy of South Africa. It argues that this should be achieved by developing rural economic opportunities to sustain long term growth. One of the key components that needs to be considered in rural development involves transforming human settlements which is a large and complex agenda with far reaching policy implications with shifts in household, business and institutional practises. In Vulindlela, this applies most particularly to traditional institutions associated with land use and land allocation.

One of the key elements associated with promoting sustainable development involves enhancing institutional capacity in rural areas especially reforms to resolve contested relationships between indigenous and constitutional institutions. Such reforms should involve:

- Promoting better land use practises in traditional areas; the role of traditional structures will come under scrutiny when new urban and agricultural proposals are tabled for implementation.
- Overcoming accessibility to land though introduction of undifferentiated forms of land use and land rights.

- Work with traditional structures to secure tenured rights in situations where economic development potential cannot be realised due to the communal rights issue e.g. securing finance for agriculture, housing development or business establishment.

Identifying mechanisms to resolve the challenges associated with use of traditional land for structured social and economic development. The aim in the establishment of such mechanisms should be to eliminate the ambiguity around the developmental role of traditional structures.

Allied to these implications are the policy imperatives included in the Medium Term Strategic Framework (National Treasury 2015). Included in Appendix 7 of the Medium Term Expenditure Framework are provisions which deal with pre-requisites for development in rural areas and include the following:

- Improved land administration and spatial planning **for integrated development in rural a**reas.
- Sustainable **land reform** (agrarian transformation).
- Improved **food security**.
- Smallholder **farmer development** and support for agrarian transformation.
- Increased **access to quality basic infrastructure and services**, particularly in education, healthcare and public transport in rural areas.
- Growth of sustainable **rural enterprises and industries** characterised by strong rural-urban linkages, increased investment in agro-processing, trade development and access to markets and financial services – resulting in job creation.

Finally, the need for a spatial vision and the need to guide infrastructure development are effectively captured in the extract hereunder from the NDP.

South Africa needs a spatial vision to inform development policy specifically to:

- Tackle inherited spatial divisions – South Africa's spatial structure perpetuates exclusion. Distorted growth patterns cannot be ignored. They also worsen economic and logistical inefficiencies.
- Unlock development potential – Many places are not growing economically because of a lack of infrastructure, inadequate skills, poor innovation capacity and weak governance. The locked-in potential of these areas could be released through targeted investment in economic and social infrastructure and institutional support.
- Guide and inform infrastructure investment and prioritisation – A spatial investment framework is needed to support growth and inform the long-term infrastructure investment strategy.
- Manage contemporary economic and demographic shifts – Economic dynamism is produced by concentrating productive activity, entrepreneurs, workers and consumers in a place without congestion.
- Facilitate coordination between parts of government and other agents - Spatial policy could be used to bring different actors and interests together to define a common future binding all spheres and sectors.

Source: NDP, November 2011. p. 259

The availability of service centres is therefore an important backbone of the NDP and plays a critical role in the future of Vulindlela.

2.3 Provincial policies and plans

2.3.1 Provincial Growth and Development Strategy and Plan

The KwaZulu Natal Provincial Growth and Development Strategy (PGDS) was developed in 2011 and led to the KwaZulu Natal Provincial Growth and Development Plan 2011 – 2030 (PGDP) produced in 2014. The PGDP is informed by four main spatial principles that furthermore inform the provincial SDF. The four variables are:

- environmental sensitivity,
- economic potential,
- social need, and
- urban accessibility.

These principles are represented by a number of spatial factors. The areas where highest social need, high economic potential, low environmental vulnerability and low accessibility are identified as the high priority intervention areas.

It is important to note that the priority intervention areas identified in the VLAP also include the nodes which have been identified in the 2011 PGDS as centres which have a significant role in growing the economy and forming the backbone for economic development and service delivery in the province. Msunduzi and uMngeni Municipalities have been identified as priority intervention areas owing to their strategic location on the N2 highway linking eThekweni with Gauteng.

The recognition of hierarchy of service centres is a theme that is found in the NDP and the PGDS and carried forward in the PGDP, as will be demonstrated later in this document.

2.3.2 Provincial Spatial Development Framework

Part of the PGDS is the provincial spatial development framework which sets out spatial principles, spatial variables and identifies priority intervention areas per district municipality. Various catalytic projects were identified within each district with the focus in Umgungundlovu District being on industrial, commercial and agricultural development to benefit the growing population in the district's major urban centres and adjoining traditional areas such as Vulindlela.

2.3.3 Agricultural support programmes

It is important to be able to link with agricultural support programmes that are provided by either provincial or national departments. This ties in directly with the global imperatives of food security and climate change, promoting local agricultural initiatives and local markets. Such programmes include the following:

- The Comprehensive Agricultural Support Programme.
- The National Agricultural Production Strategy.
- The Million Trees Programme.
- Community seed production schemes.
- Agricultural Starter Pack Programme.
- The Veggie Tower Programme.
- Fencing programmes.

In addition, there are other programmes such as Working for Water, Working for Forests and Working on Fire which should be tapped into as they perform dual roles of controlling, for instance, alien invasive plants and thus protecting water supplies, as well as providing employment through the expanded public works programme known as EPWP.

2.4 Local policies and plans

2.4.1 Msunduzi Spatial Development Framework and seven pillars of the SDF

One of the main informants to the VLAP, as depicted in diagram 1 of this document, is the Msunduzi Municipality SDF Review (Msunduzi 2015). It is therefore important to understand informants to the SDF development and the strategic directives contained in the SDF which should cascade into the VLAP.

The SDF is based on seven pillars (table 3) which form the backbone of sustainability for the future of Msunduzi, as detailed below.

Table 3: The seven pillars of sustainability

Pillar	Intervention
Global connectivity	Improved local, regional and national physical connectivity of the municipality via road, rail, non-motorised transport (NMT) and air transport, as well as bridging the digital divide with a strategy for enhanced ICT connectivity.
Productive systems	Developing a strategy for land release along the N3 corridor, reviving the CBD and other secondary and tertiary centres of economic activity, introducing new economic centres in previously neglected areas (particularly those previously considered 'rural'), and making the most of productive agricultural land.
Ecological infrastructure	Enhancing the open space network in the city for improved natural service provision and ecological functionality, through the protection of formal and informal nature reserves, open spaces, enhancing linkages across catchments and increasing setback lines in key areas such as those adjacent to watercourses.
Sustainable transport	Spatially identifies and promotes an equitable movement structure across the city, through an enhanced public transport backbone (e.g. the IRPTN and possible future NMT routes) and by reviewing the functionality of the rail network.
Quality urbanism	Creating functional, well-serviced neighbourhoods, building a polycentric city structure with secondary major centres (such as in Edendale), identifying areas for future smaller sustainable urban centres, promoting densification and public place making in the aforementioned areas and along public transport trunk routes.
Social inclusivity	Identifying areas for new housing opportunities, areas where informal housing needs to be addressed and/or upgraded on-site, and areas requiring the equitable distribution of public amenities.
Sustainable services	Enhancing existing infrastructure based on findings per ABM, identifying areas for future infrastructure installations and mechanisms for achieving infrastructure-related efficiency through economies of scale (at densified urban centres and along key transport routes, using resource-efficient technologies where appropriate).

Source: Msunduzi SDF, 2015. p. 8 and 9.

Directives from the SDF are at the centre of the development of the VLAP include the following:

- The need to ensure integration of Vulindlela into Msunduzi.
- Connectivity via transport, job opportunities and ecological infrastructure (open space networks) and the Msunduzi River Regional Parkway.
- Identification of growth centres, interventions and striving for quality in urban form.
- Increasing densities to manage increase in population, particularly in respect of the identified centres.
- Enhancing infrastructure and the provision of sustainable services.
- Land use management options which will support economic development.

The following is noted from the Msunduzi Municipality SDF:

> *"Vulindlela is currently a misunderstood area. It is viewed as a traditional rural environment, which in certain parts is true, however the majority of the area should be classified as a traditional suburb - much like other suburban areas within the Msunduzi context…Understanding Vulindlela as a suburban and not a rural area is the first step of its successful integration into overall municipal planning, and in successfully providing the needs, services and facilities to 'complete' Vulindlela as a liveable settlement*".
> (Msunduzi SDF, 2015. p. 21 and 22)

The quotation above has been adopted as a point of departure and has informed the approach used in the development of the VLAP.

2.4.2 Climate change policy and strategy

Msunduzi Municipality adopted a climate change policy in 2014 and a climate change strategy in 2015. The policy sets out strategic responses to climate change with adaptive mitigating measures in respect of biodiversity, water resources, food security and agriculture, stormwater, waste, energy utilisation and transportation.

Of importance for the LAP are the goals which have been set as part of the strategy, and which must influence future planning to reflect these goals. It is submitted that the following goals need to be reflected in the LAP plans for the future:

- The protection of ecosystems and biodiversity resources.
- Water quality and management.
- Waste management and technology.
- Making infrastructure resilient against disasters.
- Stormwater management.
- Agricultural food security.
- Address inappropriate land uses.

2.4.3 Integrated environmental management policy

The Msunduzi Municipality adopted an environmental management policy in 2015. The policy seeks to:

- Formulate and implement principles and underlying approaches supporting sustainable development in Msunduzi.
- Ensure access to natural resources and their sustainable use.
- Uphold the environmental rights as provided for in section 24 of the Constitution of South Africa.
- Formulate relevant approaches to address specific environmental issues in the Msunduzi area.
- Conserving biodiversity.
- Priorities legal environmental responsibilities and raising awareness in respect of environmental legislation and compliance with such legislation.
- Facilitate responsible stewardship of resources within the municipal area.
- Building partnerships with other role players.
- Ongoing monitoring, evaluation and empowerment of all primary growth points.
- Identify and implementing best environmental practices and activities.
- Integrate environmental considerations in planning, construction and any other municipal function or activity and making informed decisions about the development of its citizens.
- Ensure that impact assessments are carried out for developments to reduce, prevent or mitigate environmental and social impacts.
- Develop strategies to manage resources sustainably.
- Recognize the importance cultural heritage, and developing protection and enhancement strategies.

(Msunduzi Integrated Environmental Management Policy, 2015. pg. 8)

To facilitate the implementation of the policy, the following management principles are recommended:

- The formulation of appropriate institutional structures and procedures to initiate, monitor and ensure effective implementation of the policy.
- That resources, to implement the policy are secured.
- Development and implementation of an environmental management plan.
- The development of an environmental management information system.
- The inclusion of the policy in the IDP.
- Monitoring and auditing by the Municipal Environmental Management Unit to ensure that the policy is being effectively implemented.

The policy includes specific measurable goals and targets in respect of the biophysical environment and the socio-economic environment. This creates a useful tool and critical base for the development of any plan. These goals and targets can be separated into strategic planning and implementation and monitoring actions. For the VLAP it would be important to ensure that the strategic directives are encapsulated in the VLAP. The following is submitted as important in this regard:

- The creation of an open space system.
- Compliance with the commercial forestry guidelines.
- Green awareness and programmes.
- Sustainable use and management of water.
- Rehabilitation programmes.

- Protection of the city townscapes and landscapes.
- Waste management planning.
- Protecting and managing environmentally sensitive areas.
- Recognition of the role small businesses in respect of the city's economy.
- Importance of cultural heritage.

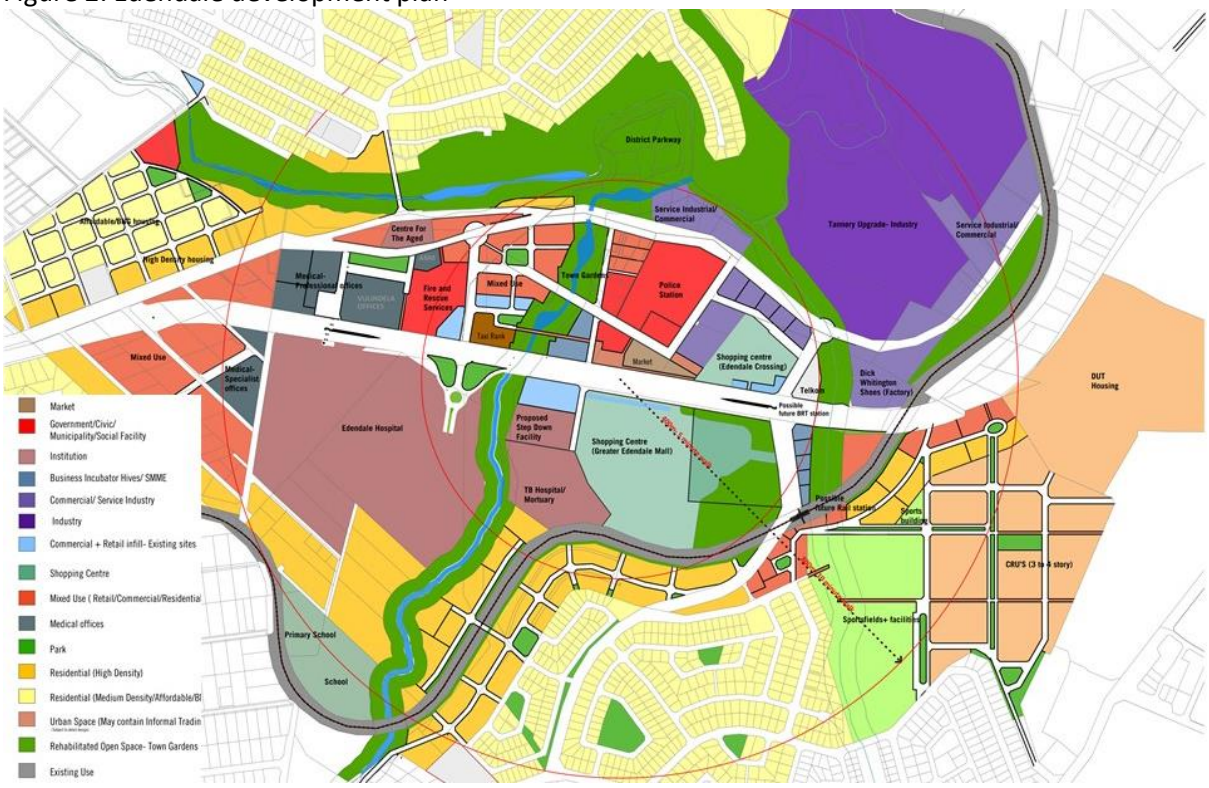
A review of the status quo and the content of the VLAP will reveal that this has formed part of the analysis and the long term planning for Vulindlela.

2.4.4 Local planning - Edendale and Imbali hub and Taylors Halt hub

Initiatives, following the recognition and need to develop Edendale/Imbali and Taylors Halt, are in the process of being launched by Msunduzi Municipality.

The Edendale urban hub initiative includes the construction of new and upgrading of existing roads, the identification and site preparation for development of service industry, SMME incubator units and the integration and upliftment of the open space system through the channelling of rivers and the integration of the riparian area into a user friendly urban park.

Figure 2: Edendale development plan



Source: Edendale Urban Hub design report Urban Design Studio 2014.

Edendale is located to the east of Vulindlela, and consequently, the development of the Edendale hub has implications for the development of Vulindlela, particularly from an economic perspective. Whilst the Edendale hub will temper the economic growth opportunities in Vulindlela, it can potentially address some of the poverty issues in Vulindlela through the creation of job opportunities (figure 2). The eastern portion of Vulindlela could become an upmarket housing precinct in respect of the hub. The high lying areas between Henley Dam and Edendale naturally lend themselves to this new role and there are indications of this already taking place.

The need for the development of Taylors Halt as a centre has been recognised by the traditional leadership of the area and the ITB. This has been ratified by inclusion in the 2015 Msunduzi Municipality SDF review, as a development node. The ITB, through a proactive initiative has developed a precinct plan for the area and is negotiating with developers regarding the allocation of leases that will allow the development to proceed. Consequently it has been used as an informant in the preparation of the VLAP. The status of the plan could not be verified with representatives of the ITB.

3. SITUATIONAL ASSESSMENT

The purpose of this section of the VLAP is to summarise the findings of the situational assessment in phase 2 of the project (Status Quo Report) to inform the formulation of the VLAP.

3.1 Components of the situational assessment

The following components were considered in the assessment of the status quo of Vulindlela:

(i) **Accessibility** - in terms of sub-regional location, transportation networks, access to land, economic opportunities, infrastructure and social services.

(ii) **Land allocation and land use** - challenges in terms of informal system of land allocation and land use.

(iii) **Demographics (population profiles) and social issues** - high proportion of the population being in the low income and state welfare dependent categories, high levels of unemployment and limited prospects to turn this around linked to limited access to skills training, employment opportunities and lack of market information.

(iv) **Ecological services -** transformation of biodiversity in Vulindlela and the associated loss of ecological services production due to the expansion of settlement and different forms of agriculture (subsistence, small scale, commercial and livestock).

Ecological infrastructure - transformation due to the expansion of unplanned settlement and different forms of agriculture (subsistence, small scale, commercial and livestock), the need for future development to safeguard against further transformation, particularly of the more sensitive areas whilst at the same time generating opportunities for green job creation through rehabilitation programmes.

(v) **Economy -** the economy of Vulindlela, under current conditions is largely based on government interventions with limited private sector income and investment. Identifying opportunities for the diversification of the local economy in the VLAP.

(vi) **Cultural assets -** cultural heritage risks including cultural heritage sites and landscape features, view sites and gateways.

3.2 Key findings of the status quo assessment

The key findings, inclusive of issues and challenges, facing the future development of Vulindlela in respect of the status quo are summarised in the tables below.

Table 4: Accessibility and services

Key finding:	Difficulties with accessibility and services delivery
Transport network	A poorly defined transportation network in place with limited all-weather surfacing. Difficulties with road networks due to mountainous terrain.
Basic utility services	Basic utility services extend throughout the area although there are challenges sustaining supply to meet growing demand. Sewage disposal in Vulindlela is by means of ventilated pit latrines (VIPs) and there is no reticulated sewerage even in the most densely settled areas.

Key finding:	Difficulties with accessibility and services delivery
Social services	Social service facilities are numerous, scattered and lower order.
Servicing costs	A lack of up to date spatial planning coupled with uncontrolled, informal settlement results in lengthy service lines and in the process results in additional services provision costs and engineering challenges.
Topography	Topographical constraints for infrastructure development.
Economic development constraints	Economic development opportunities are limited by poor access influenced by steep topography, limited areas of serviced land available, infrastructure not suited to large scale development and limitations on local technically skilled and trained workforce.

Table 5: Land allocation and land use

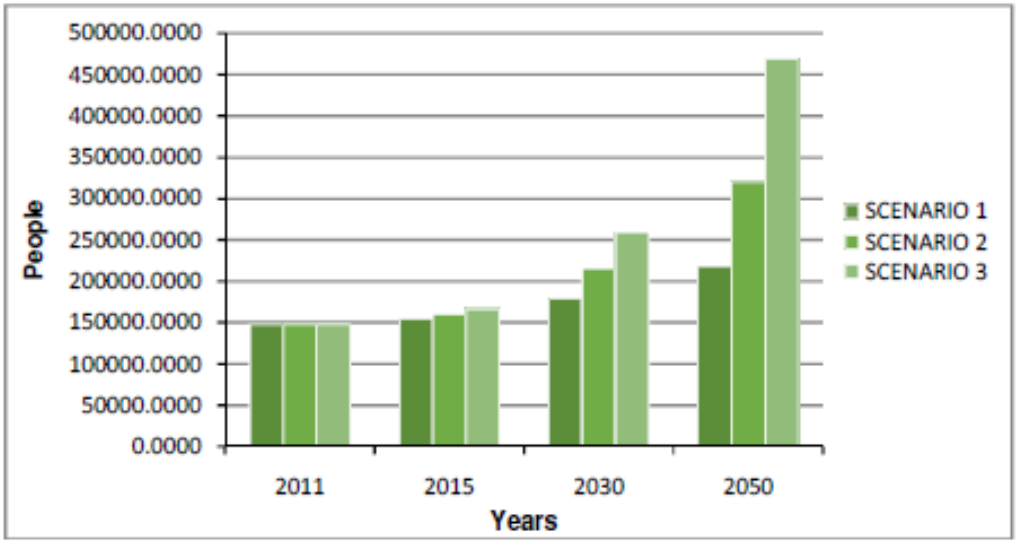
Key finding:	Poor land allocation and land use practices
Informal housing	Traditional land allocation system favours informal housing where land is available for informal residential allocation but inaccessible for the more formalised large scale economic development.
Loss of good agricultural land	Progressive loss of good agricultural land and biodiversity due to the lack of a standardised zoning and land use management system across all traditional areas in Vulindlela.
Scatter of settlement - sprawl	Mix of high, medium and low density settlement scattered throughout Vulindlela – inefficiency in use of space and provision of services - no evidence of the notion of densification and urban or settlement edge definition. Construction of scattered new formal housing units serving to entrench inefficiencies in areas where services are not available.
Location in high risk areas	Danger of certain housing being located in high risk areas (flood and unstable slopes).
Poor location of new upmarket housing	Upmarket housing development located in inappropriate locations in the area e.g. Henley Dam, and numerous ridgelines. The land ownership negotiations between Umgeni Water and the Msunduzi Municipality, complicated by an unconfirmed land claim, together with the associated exponential growth and settlement of the Henley Dam area, mostly in terms of high value residences.
Land allocation processes	Land use management by ward councillors and land allocation by traditional leaders has the potential to lead to inherent problems. Ward councillors are concerned with land use and service provision, whereas traditional leaders consider land allocation. Allocation cannot be separated from land use and hence this relationship requires further attention.

Table 6: Demographics: population growth

Key finding:	Population growth
High population growth	The 2014 Msunduzi SDF review considered three growth scenarios as reflected in figure 3 below. The review opted for the medium growth scenario for Vulindlela. At that rate the population will more than double in the next 35 years. Figure 4 provides a synopsis of the population growth rates from 2000 to 2013.

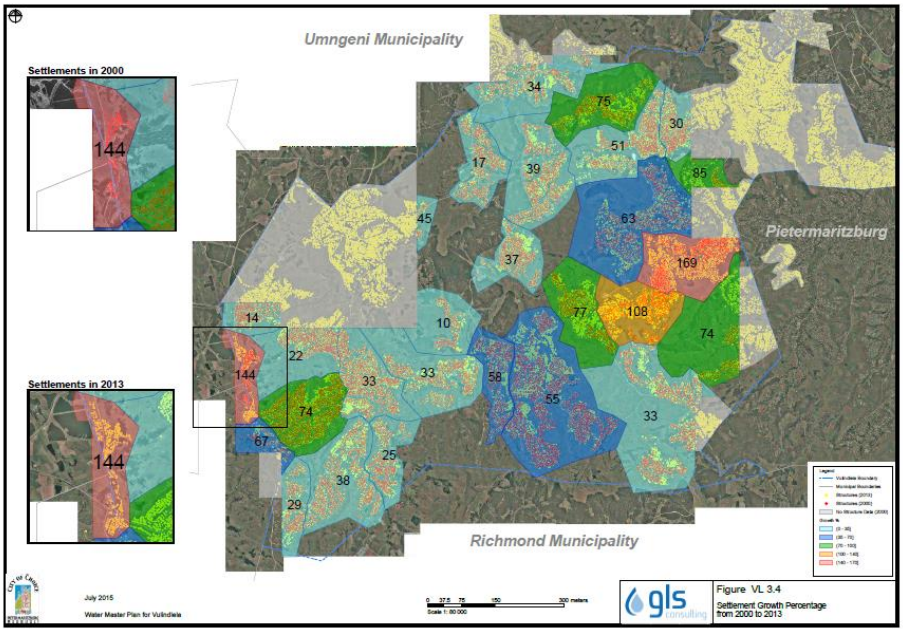
Key finding:	Population growth
Implications for service delivery	The rapid increase in population in certain parts of Vulindlela has implications in respect of pressure on demands for service delivery, social services, open space facilities and burial sites, all which influence the environment.
Entry point to the city	There are indications that certain parts of Vulindlela are being used as an 'entry point' for migrants who are wanting to gain access to the formal services economy in Pietermaritzburg.
National urbanisation patterns	Following national and provincial trends, exponential growth through natural increase and in-migration into South African cities is being experienced in Vulindlela.

Figure 3: Msunduzi population growth scenarios



Source: Msunduzi Municipality SDF Review, 2015

Figure 4: Vulindlela growth rates from 2008 to 2013



Source: GLS Consulting, 2015

The need for planning intervention in Vulindlela becomes evident when viewed in the light of the following:

- Population pressures (figure 4 above).
- Loss of biodiversity and productive agricultural resources.
- An exponential need for housing, social services, infrastructure provision and employment generating opportunities.

Table 7: Demographics: social issues

Key finding:	Extensive social issues
Majority low income	A high proportion of the population is in the low income and state welfare dependent categories.
Unemployment	High levels of unemployment and limited prospects to turn this around linked to limited access to skills training, employment opportunities and lack of market information.
Poorest sector of Msunduzi	The poorest people in the Msunduzi Municipality (i.e. Vulindlela) having to travel the furthest and to pay the most to gain access to employment and services.
Low education levels	Low levels of education - linked in some way to large numbers and scattered location of schools in Vulindlela and possible impacts on standards of education provided.
High cost of access to services	Limited access to higher order services for the residents of Vulindlela owing to distance and cost. These are mainly located in the inner-city and residential areas of Msunduzi Municipality.
High proportion of youth	Youthful age profile with limited facilities to engage this age group such as sports facilities, internet facilities, entertainment outlets and post school training.
Crime risk	Security and crime risk linked to unemployment, limited SAPS presence in the area and a wide range of social issues.
Potential for making an impact on poor socio-economic situation	Despite the challenges inherent in the Vulindlela area, there is significant opportunity for reversing, or at least halting some of these trends, particularly with the opportunity of creating a small number of viable central places, thereby opening up new possibilities across a wide front.

Table 8: Biodiversity

Key finding:	Loss of biodiversity
Significant transformation	The majority of the area included in Vulindlela has been subject to transformation due to the expansion of settlement and different forms of agriculture (subsistence, small scale, commercial and livestock).
Potential for rehabilitation and protection of biodiversity	Despite the level of transformation there are nonetheless areas where biodiversity is still intact and where, with rehabilitation, these areas could be expanded to produce sustainable ecosystem goods and services to local communities.
Protect against further transformation	The emphasis in future development of Vulindlela needs to be to safeguard against further transformation, particularly of the more sensitive areas.

Key finding:	Loss of biodiversity
Climate change influences	Improved management of biodiversity could have beneficial effects in the mitigation of certain of the impacts of climate change, in particular increased intensity of flooding events.
Historical protection of agricultural land	The area was subject to 'betterment planning' in the 1960s and 70s and hence settlement has in the past been located on land not suited to agriculture. That is, the best agricultural areas have been protected. However, over the past 15-20 years agricultural resources have come under pressure from settlement particularly in the high density and high growth areas around Sweetwaters, Elandskop and Henley Dam.

Table 9: Economy

Key finding:	Current economic difficulties; significant future potential
Government sector dominated economy	The economy of Vulindlela, under current conditions, is largely based on government interventions with limited private sector income and investment.
Agricultural potential	Vulindlela comprises land with high agricultural potential in the form of arable, plantations and livestock production. These high value agricultural resources, if consolidated and properly managed, could feed into local and district markets with the view to replacing costly imports thereby enhancing self-sustainability and the reduction of the carbon footprint.
Processing of agricultural produce	Limited, but well located land suitable for small and medium scale processing-manufacturing of agricultural produce, materials for the construction sector and possibly component-part manufacturing for industries located in Msunduzi Municipality.
Assets under threat	The economic development potential (assets) of the area appears to be under threat and possibly being eroded by inappropriate land use management practices.
Possibilities for turn-around	Based on a review of those assets in Vulindlela with economic development potential it would appear that, under different management regimes and changed local attitudes, it may be possible to turn around the local economy as one of the key challenges to the future development of this area.
Potential for growth	Ample human potential in youth and working age population profiles. Incidence of local small scale entrepreneurs operating in the agricultural, production processing, retail and commercial sectors which with appropriate strategic support could be expanded and grown into local business ventures serving local and external consumers located in proposed development centres in Vulindlela.
Tourism potential	Optimising on the cultural heritage, landscape and future development intentions of the people of Vulindlela geared towards the turn-around of the economy of this area: adopting a positive attitude to change and in the process attracting local, national and international interest in investment in the turnaround strategy. Potential to develop a number of local features as a tourist destinations including water sports, hiking trails, landscape and cultural experiences.

Key finding:	Current economic difficulties; significant future potential
Green economy	Opportunities for green job creation through rehabilitation programmes by promoting the green economy.

Table 10: Cultural assets and issues

Key finding:	Changing cultural values
Assets at risk	▪ Loss of cultural heritage due to changing value systems. ▪ Transformation of landscape features, view sites and gateways. ▪ Urban sprawl is threatening agricultural resources. ▪ Loss of traditions and changing value systems due to influx of migrants and exposure to cosmopolitan cultures in greater Msunduzi.
Cultural values and practices	▪ Burials - currently burials are carried out on land surrounding homesteads. This poses a challenge with densification of settlement and the need for residents of high density areas to accept the principle of the use of designated graveyard facilities. ▪ Livestock - this has always been an important feature of traditional areas in KwaZulu Natal. However, where settlement has densified to the same level as that in a city, then livestock is inappropriate in terms of health and safety. ▪ Traditional land allocation - whilst this system has many advantages for disadvantaged households in rural areas it also has many limitations for future development in traditional areas which adjoin major metropolitan areas of the province.

The status quo assessment of Vulindlela have been used to inform the interventions to be implemented that are required to overcome the central challenges identified in this part of Msunduzi. Table 11 summarises the status quo findings and the main areas where future intervention is required in Vulindlela. These interventions coincide and are aligned with the seven pillars identified in the Msunduzi SDF as detailed in section 2.4.1 above.

Table 11: Status quo findings and directives for implementation

Issues	Key findings	Directive	Interventions
Accessibility and services	▪ Challenges in respect of services. ▪ Cost of servicing due to topography and settlement pattern. ▪ Lack of connectivity to Msunduzi.	▪ Access available resources and implementation methodology. ▪ Improve road and ITC connectivity.	▪ Improve cost effectiveness through higher density. ▪ Use IRPTN as base for development by improving accessibility.
Land allocation and land use	▪ Different roles and authorities of traditional leaders and councillors in respect of land use management. ▪ Lack of a settlement plan.	▪ Establish a joint structure to align and manage land use decisions. ▪ Determine settlement edges to contain growth and urban form.	▪ Establish a joint decision-making authority. ▪ Prepare a land use scheme(s) as the basis for land administration. ▪ Establish settlement edges for authorities to co-manage.
Population increase	▪ There has been a rapid increase in the population including in-migration. ▪ The SDF suggests that the population (178 000) will double in 35 years.	▪ Identification of urban vs rural residential areas. ▪ Development of a densification strategy for the urban nodes.	▪ Development of density controls in both urban areas (encourage) and rural areas (discourage), linked to services.
Demographics and social issues	▪ Limited access to higher order services. ▪ Poor and youthful population with lack of economic opportunities.	▪ Identify intervention areas to create environment to establish services. ▪ Consider land uses to support local job opportunities, including youth.	▪ Establish intervention areas at nodal points. ▪ Land use configuration to support economic opportunity.
Protection of biodiversity and agriculture	▪ Need to contain settlement expansion to protect agriculture. ▪ The need for a plan to protect and enhance ecological infrastructure.	▪ Develop strategies to protect agricultural practices. ▪ Develop strategies and plans to protect ecological infrastructure	▪ Development of a rural development strategy. ▪ Develop open space system linking with Msunduzi system.
Economy	▪ Lack of economic development opportunities in Vulindlela. ▪ Missed tourism and agricultural opportunities.	▪ Land use configurations to support economic opportunity development. ▪ Assess opportunities for tourism and agricultural growth.	▪ Land use plan recognising economic development needs. ▪ Make provision for manufacturing and agri-processing as the basis for sustainable local economic development. ▪ Establish tourism opportunities and corridors.
Cultural assets and issues	▪ Rural lifestyle in urban setting challenges – e.g. livestock and on-site burials. ▪ Urbanisation is placing cultural heritage sites at risk.	▪ Identify methods and policy needs to address these challenges. ▪ Determine settlement edges to contain growth and urban form.	▪ Identify policy gaps to address rural lifestyle in urban setting. ▪ Development of settlement/urban edges. ▪ Identify important cultural assets in Vulindlela and incorporate them into tourism routes and opportunities.

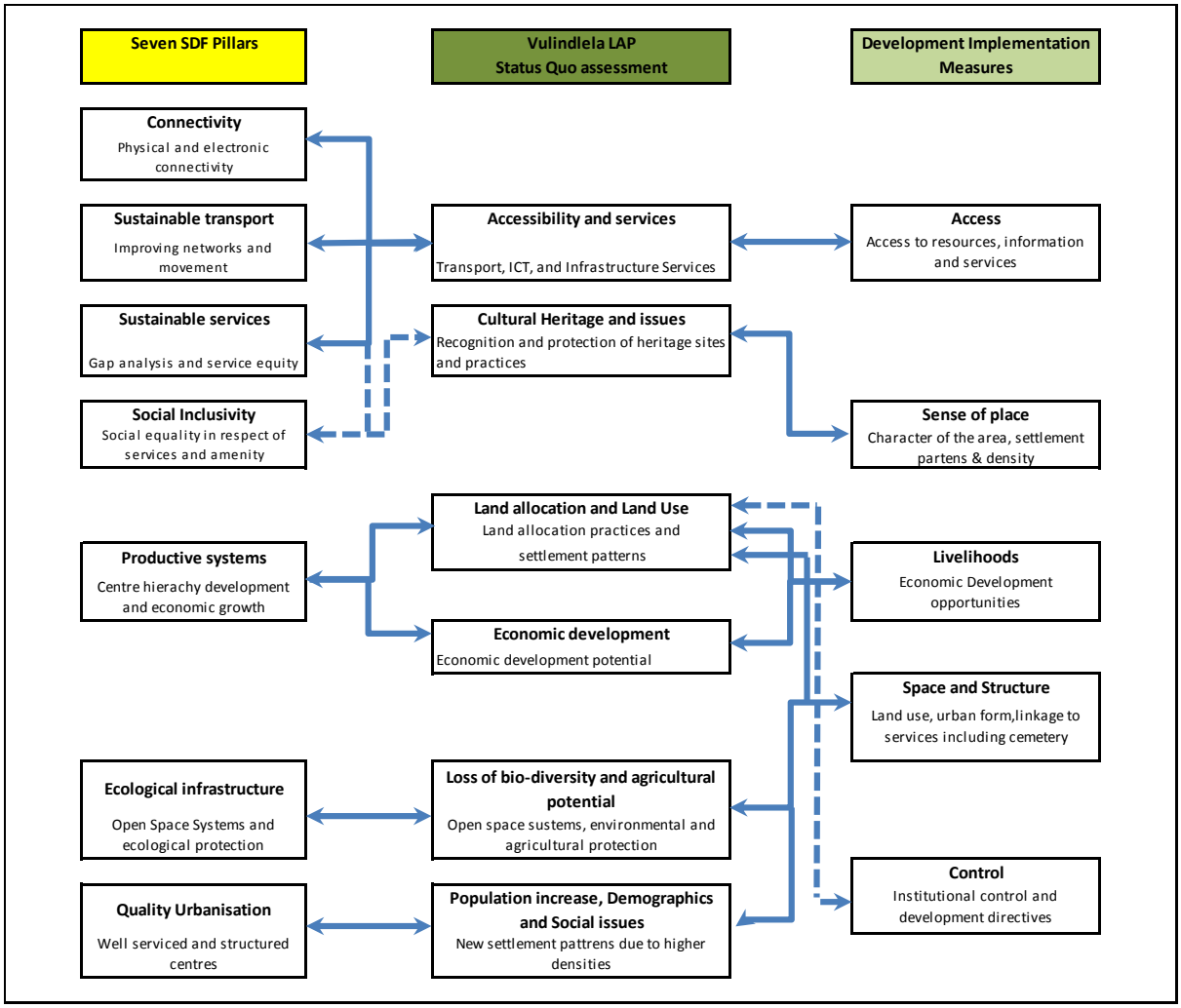
4. STRATEGIC DIRECTION

4.1 Introduction

The key findings and issues identified in the Vulindlela status quo analysis are aligned with the seven pillars identified in the Msunduzi SDF in the table below. This is necessary to ensure that planning and development interventions achieve compatible outcomes with those envisaged in the other management areas of the municipality.

Alignment of the SDF and status quo is provided in diagram 2 below where the seven pillars of the Msunduzi SDF are linked with the key findings identified in the status quo assessment in order to produce five development measures as the basis for the VLAP.

Diagram 2: Rationalisation and alignment of development measures/criteria with SDF and status quo assessment



The five development measures are summarised below and form the basis of the VLAP.

(i) **Access**

Ability to access daily needs with little or no cost, including opportunities, resources, services, information and human interaction.

(i) Sense of place

The identity and character of the area, in terms of cultural, community, aesthetic values, including landmarks, natural and built features, providing orientation and meaning for its inhabitants.

(ii) Livelihoods

The degree to which the area supports economic development, and its ability to productively interact with the rest of the city in creating sustainable livelihoods, and entrepreneurship.

(iii) Space and structure

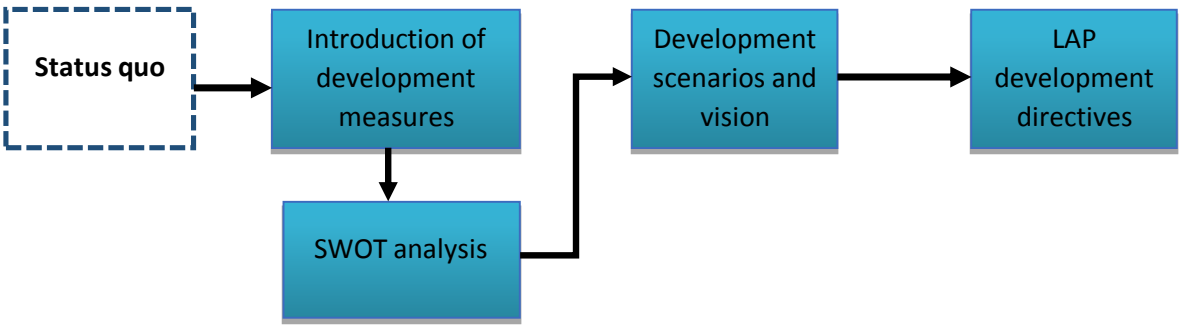
The form of settlement with supporting infrastructure, and the manner in which different spaces, places and land uses fit together in space with hierarchies that are logical and efficient.

(iv) Control

The ability of communities and institutions to control and determine the direction of development within the greater Vulindlela area and for ordinary people to contribute to shaping their own built and natural environment.

Each of the development measures identified above are subjected to an analysis to establish the strengths, weaknesses, opportunities and threats in relation to Vulindlela. The status quo findings extrapolated from the situational assessment in section 3 and the SWOT analysis inform the development of scenarios and the vision of Vulindlela. Synthesis of the SWOT analysis is then included which represents the development directives for Vulindlela.

Diagram 3: Process to determine LAP development directives



4.3 SWOT Analysis

Further to the status quo, summarised in section 3 above, the analysis hereunder (tables 12-16) provides an overview of the strengths, weaknesses, opportunities and threats for each of the development measures detailed in section 4.1 above, thus providing an ordered framework to inform the VLAP.

Table 12: Development measure 1 - Access

Strengths	Weaknesses
Sub-regional connectivity to hinterland is good.	Located to the west of Msunduzi in broken, hilly terrain with a poorly defined transportation network.
Although on the outskirts of the city, Vulindlela is a gateway to urban opportunities for new migrants.	Some social services such as schools and clinics are numerous, but scattered throughout the area, making access difficult. There are very few libraries and SAPS offices.
	Lack of integrated public transport terminal and poor pedestrian infrastructure.
	Limited information technology communication capacity in the area.
	Scattered settlement pattern inefficient in terms of viable transport system.
Opportunities	**Threats**
New IRPTN and its terminals will create better access between Vulindlela and the Pietermaritzburg centre, and help restructure public transport.	Topographical constraints for infrastructure development.
	Lack of integrated transport alternatives to private motor car.
Restructure pedestrian networks to link to IRPTN.	Culture that prioritizes the vehicle and not the pedestrian.
The high density settlement in the east and the west of the Vulindlela boundaries suggests new and stronger linkages with uMngeni in the West and Edendale in the South East.	Limited access to finance to maintain infrastructure.
Capital city status means access to growth and possible development grants.	Poorer residents of Vulindlela will remain on the physical periphery, with high costs of accessing to their needs.
Edendale/Imbali education hub provides new prospects for access to higher education opportunities.	
Water master plan being developed for the whole of the Msunduzi Municipality, including Vulindlela - allows for settlement planning to be aligned with future bulk water requirements in Vulindlela.	

Table 13: Development measure 2 – Sense of place

Strengths	Weaknesses
Spatial clusters of high density settlement dispersed between lower density peri-urban settlement provides a backdrop of place-making.	Settlement patterns are devoid of effective planning.
Proximity to Pietermaritzburg CBD, linked by an activity movement route with potential for development.	Protection of stream buffers areas not a priority river edges largely ignored.
Place of choice – with conscious choice/action.	Limited quality sport facilities
Henley Dam is developing an upmarket housing development area, with positive potential, but needs planning support.	Lack of maintenance of space and land - perception of neglect.
Pockets of rural tranquillity and beauty.	Low levels of safety and security.
Carefully structuring proposed centres such that they improve efficiency in use of limited space, reduce services costs and attract investment into the area.	Settlement sprawl overtaking peri-urban/rural tranquillity.
	Poor legibility of place, and lack of clearly identifiable spatial structure.
	No urban edge definition.
Opportunities	**Threats**
Developing Henley Dam and other natural features into opportunities for tourism.	No unified vision for the area and no supporting guidelines for this fast growing part of Msunduzi.
The development of urban edges to define urban housing and land use development, but protecting the environment and agricultural potential.	Very limited non-residential land use opportunities.
Topography and form of the physiography provides opportunities for creating a diverse range of places.	Rapid growth destroying the natural beauty of Vulindlela.
Strong relationship with new Edendale hub development strengthening this areas role as a residential hinterland.	Loss of natural assets.
Recognition of heritage assets and formalising means to protect them.	Inadequate management of spaces and built form Lack of management of public space.
Celebrate the river and co-ordinated landscape elements. Public space definition, co-ordinated public capital expenditure to create places of interest that properly serve local communities, and attract visitors/tourists; tree planting to improve quality of spaces and establish identity.	Inappropriate building and land use control.
Despite the level of transformation some biodiversity is still intact and where, with rehabilitation, these areas could be expanded to produce sustainable ecological goods and services to local communities.	Agricultural landscape – uncoordinated and poorly managed land use will lead to loss of rural character of the area.
Improved management of biodiversity could have beneficial effects in the mitigation of certain of the impacts of climate change and increased intensity of flooding events.	
The implementation of the IRPTN will facilitate better connectivity of the Vulindlela community with the rest of Msunduzi Municipality.	

Table 14: Development measure 3 – Livelihoods

Strengths	Weaknesses
Wealth of human potential in youth and working age population profiles.	The economy of Vulindlela, under current conditions, is largely based on government interventions with limited private sector income and investment.
Incidence of local small scale entrepreneurs operating in the agricultural, production, retail and commercial sectors which with appropriate strategic support could be expanded and grown into local business ventures serving local and external consumers.	Land accessible for informal residential allocation, but inaccessible for the more formalised large scale economic development.
Vulindlela includes a number of land parcels with high agricultural potential in the form of arable, plantations and livestock production. This can be harnessed.	Land use management by ward councillors and land allocation by traditional leaders has the potential to lead to inherent challenges. Ward councillors are concerned with land use and service provision, whereas traditional leaders consider land allocation.
Land suited to processing and manufacturing has been identified as a further strength of this area.	The rapid increase in population in certain parts of Vulindlela, has implications in respect of pressure on demands for service delivery, social services, open space facilities and burial sites, all which influence the environment.
	High unemployment with low levels of education.
Opportunities	**Threats**
High value agricultural resources with potential, if consolidated and properly managed, to feed into local and district markets with the view to replacing costly imports thereby enhancing self-sustainability and reduced carbon footprint.	The economic development potential (assets) of the area appears to be under threat and possibly being eroded by inappropriate land use management practices.
Limited, but well located land suitable for small and medium scale processing-manufacturing of agricultural produce, materials for the construction sector and possibly component part manufacturing for industries located in Msunduzi Municipality.	High levels of unemployment and limited prospects to turn this around linked to limited access to skills training, employment opportunities and lack of market information.
Potential to develop Henley Dam as a tourist destination and water sport facility.	Low education levels-linked in some way to large numbers, scattered location of schools and possible impacts on standards of education provided.
Optimising on the cultural heritage; landscape and futuristic development intentions of the people of Vulindlela geared towards the turn-around of the economy of this area.	Limited access to higher order services for the residents of Vulindlela owing to distance-cost. These are mainly located in the inner-city and residential areas of Msunduzi.
The IRPTN will include five terminals within Vulindlela which will create new market opportunities.	Youthful age profile with limited facilities to engage this age group such as sports facilities, internet facilities, entertainment outlets and post school training.
The emphasis in future development of Vulindlela needs to be to safeguard against further transformation, particularly of the more sensitive areas whilst at the same time generating opportunities for green job creation through rehabilitation programmes.	Security and crime risk linked to unemployment, limited SAPS presence in the area and a wide range of social issues.
	Livestock has always been an important feature of traditional areas in KZN. However, where settlement has densified to the same level as that in the city, then livestock is inappropriate in terms of health and safety.

Table 15: Development measure 4 – Space and structure

Strengths	Weaknesses
There are pockets of good agricultural land remaining, which if effectively managed through the LAP findings and recommendations can provide a sustainable livelihood for many people.	Limited housing variety for diverse demands.
The Department of Human Settlement and Msunduzi is in the process of building 25 000 new residential buildings.	Underutilised land – low-rise development and wasteful development practices.
Despite the urban and peri-urban sprawl there is space to plan ahead.	Traditional land allocation-whilst this system has many advantages for disadvantaged households in rural areas it also has many limitations for future development in traditional areas which adjoin major metropolitan areas of the province.
	Settlements patterns are not based on services and environmental planning. This is leading to difficulty to provide services and escalated costs.
Opportunities	**Threats**
Proposed IRPTN to restructure city.	Loss of natural assets.
Developed appropriate non-motorised transport network.	The following aspects of cultural heritage may be at risk or alternatively holding back development of the area: ▪ Cultural heritage sites – changing value systems. ▪ Landscape features, view sites and gateways – rapid landscape transformation. Traditions - changing value systems due to influx of migrants and exposure to cosmopolitan cultures in greater Msunduzi.
Provide for higher density housing.	
National housing department increasingly pushing for "inclusionary" housing and social/spatial restructuring.	
The opportunity, through the LAP process to develop an urban edge which can counter some of threats identified.	
Developing the area around Henley Dam as a sustainable high Income precinct.	Possible lack of acceptance of the principle of the use of designated grave yard facilities instead of on land surrounding homesteads.
Residential neighbourhoods for uMngeni Municipality and Msunduzi Municipality, and the capacity for a well-managed development to absorb large urbanisation growth into Msunduzi into the future.	Failure to recognize and to address these cultural opportunities and limitations poses one of the many challenges that the leadership of Vulindlela need to face in order to avoid the 'opportunity lost' situation which otherwise is in the process of materializing.
Through the development of the LAP, centres of different orders can be initiated/ or further developed to bring services to the community of Vulindlela.	Progressive loss of good agricultural land and biodiversity due to the lack of a standardised zoning and land use management system across all traditional areas in Vulindlela.
The development of the LAP provides an opportunity to begin to address the wrongs of the apartheid era.	Construction of scattered new formal housing units, by Vulindlela Rural Housing Project, in existing and new settlements is serving to entrench inefficiencies in areas where services are not available.
	Danger of certain housing being located in high risk areas (flood and unstable slopes).

Table 16: Development measure 5 – Control

Strengths	Weaknesses
Strong municipal planning unit in place Recognised willingness to intervene from both private and public sector.	There is limited control in respect of land use control in the area. This leads to development in inappropriate places.
Strong traditional leader and municipal councillors in place. Co-operation necessary.	The unchecked high-income residential development around Henley Dam, and other prominent positions on the landscape.
Effective ABM officers - strong and willing municipal planning team.	Management processes between the municipality, the traditional leaders and the municipal councillors not integrated.
Legal systems are in place to manage issues.	
	Land use management and land allocation situate in two authorities Enforcement of regulation and law is weak.
	Management processes not integrated.
	Municipal budgets are under pressure to deliver in competing areas.
	Reliance on private sector to redevelop.
Opportunities	**Threats**
The establishment of a forum for the municipality, councillors and the traditional leaders being able to work together. Potential positive influence of planning policy and development control.	Uncontrolled development, affecting sustainable land uses such as agriculture.
	Non-payment for services, leading to non-payment culture.
	Lack of urban management and by-law enforcement.
Resolution of the land administration between Umgeni Water, Msunduzi and the traditional leaders, to see the legal development of this precinct.	Politically influenced decision making.
	Perceived increase in anti-social behaviour.
	A “do-nothing” and “wait and see” approach from the private and/or public sector.
Legislation in place to ensure effective land use management and enforcement.	Slow decision making e.g. plan approval processes.
A LAP supported by all parties can provide the plan to unify control and manage development.	Significant number of illegal water and electricity connections.
	“Shack-farming” and overcrowding.
	Lack of communication between stakeholder groups and dominant interest groups.

4.4 VLAP development challenges

The key issues emanating from the SWOT analysis are used to indicate what needs to be considered in the VLAP to achieve robust sustainable development. In order to introduce debate on the future of Vulindlela two scenarios have been considered. The intention is to contrast the ‘what could be’ with the ‘what is’ in order to stimulate debate and understanding about the benefits associated with realising future development potential of Vulindlela in the context of Msunduzi.

4.4.2 Challenge

The history of development in Vulindlela, as an ex-apartheid homeland area, is one of the crucial factors that has, over many years, served to limit development in the area. This, allied to the traditional system of land allocation and land use and the challenges associated with gaining access to land for productive economic development in areas owned by the Ingonyama Trust, has further limited external investment. A further influence on the current state of Vulindlela has been its location in close proximity to an identified growth centre in KwaZulu Natal i.e. Pietermaritzburg. Over time, extensive informal settlement development has resulted throughout the area which has densified significantly along major transport and services routes in response to the above mentioned factors.

Following its legislative mandates, the Msunduzi Municipality, when allocated the responsibility for Vulindlela, invested in the provision of a wide range of social and infrastructural services to deal with the backlogs in this area. The provision of services (including free basic) on Ingonyama Trust land in close proximity to an industrialised centre has only made this area more attractive for migrants seeking opportunities to gain access to employment and associated services. As a consequence of these factors, favouring extensive informal settlement over other forms of potentially more productive land use that could enable greater economic potential, has served to further diminish opportunities for economic advancement of the majority of people resident in the area.

In terms of these findings the main challenge facing the future development facing Vulindlela can be summarised into a central question that has been identified is as follows:

> Question
>
> 'How should this complex set of historical issues and development potentials be addressed in order to achieve sustainable development in Vulindlela as an integral part of Msunduzi Municipality?'

This question and the underlying issues raised in the SWOT analysis are addressed in the VLAP and the formulation of interventions and strategies necessary to ensure sustainability.

It is against this background that the two broad scenarios have been identified to inform the future development of Vulindlela. As noted previously, the intention of these scenarios is to provoke debate and to encourage change in the way in which leadership structures and the community have in the past dealt with challenges associated with under-development and the pressures associated with urbanisation. In fact, what is increasingly necessary is that the rationale behind traditional land allocation and land use systems (deriving from the pastoral history of the isiZulu people) needs to be adjusted in peri-urban areas such as Vulindlela. This is necessary to accommodate urbanisation into the rules and conditions which need to be used to effectively govern this phenomenon. This is not to say that traditional structures do not have a role in the process of land use allocation and management, rather what needs to be debated is how the institution can be changed such that it can better accommodate these fundamental responsibilities on behalf of the people they represent. This need for constructive change in traditional land administration is noted in the NDP as an important component of realising sustainable development in areas such as Vulindlela.

4.4.4 Scenarios

The two scenarios that have been formulated for the future development of Vulindlela are intended to promote debate and understanding about the future outcomes subject to different types and levels of intervention.

4.4.4.1 Scenario 1: The 'business as usual approach'

Scenario 1 would derive from the adoption of a 'do nothing approach' by the authorities and traditional leaders. This would be related to concerns about loss of powers by traditional structures and the essentially 'hands off' approach adopted by national and provincial government over interventions in traditional areas.

The impact of the 'do nothing approach' would result in the progressive spread of poorly serviced informal settlement over the majority of Vulindlela with densification increasing along major transport routes. The predominant land use would be informal housing with limited differentiation due to the absence of a land market and formal site demarcation for deeds registration purposes. Similarly, land use and land allocation would mitigate against the introduction of diversification in the local economy and residents would continue to be reliant on opportunities in surrounding regional centres i.e. commuter economy. Social and economic opportunities in the area would continue to be pitched at a low level due to the fact that people would not be in a position to contribute to the costs of such services and hence would continue to be wholly dependent upon government.

The environmental conditions in Vulindlela would continue to decline accompanying further transformation of the biodiversity of the area and the progressive reduction in the ability of the system to continue to provide a variety of ecosystems goods and services. Similarly the agricultural resources and associated opportunities in Vulindlela would, in this scenario, be lost to extensive low income settlement. The affect would be that food security would be limited to homestead gardens and opportunities for small holder commercial production would be minimised. This would result in increasing reliance on imported foods at high cost to marginalised local communities.

Finally, employment opportunities for a limited number of working age people in Vulindlela would continue to be located within the central city and suburbs in Msunduzi Municipality and uMngeni Municipality and surrounding farming areas. This would continue to involve long distance and costly travel for the majority of the working population. The ability of Vulindlela, as a local economy within Msunduzi, to generate economic growth and opportunities would continue to be limited in future. One of the key outcomes of pursuit of this scenario would be that the social and economic development potential of Vulindlela would not be realised as envisaged in the developmental guidelines which comprise the NDP. Furthermore Vulindlela would be characterised by high density informal settlement along major transport routes and in areas adjoining economic and services opportunities. The remaining areas would be subject to medium density urban sprawl where residents would be required to travel long distances for social services and economic opportunities. Local level utility services would continue to be basic and the area would be characterised by a number of risks associated with high concentrations of population, limited services provision and no real form of building control taking place. These risks include: health, fire, flooding, poor levels of education, high levels of unemployment and limited local opportunities for improvement.

4.4.4.3 Scenario 2: Managed change

In this scenario there is progressive recognition by the authorities and the people of Vulindlela that there is need for change. There is need to identify and to confront the institutions and systems that have not worked or have had limited influence in the past and have combined to produce the conditions in which people, now and in future, will have to endure. The real challenge is to recognise what is wrong, what has not and does not work, and over time focus on putting it right.

If this could be achieved, then this second scenario would involve the establishment of a number of defined higher order urban centres located on the main transportation routes. These would cater for high density development and the provision of a wide range of higher order social and commercial services. In addition, land would need to be set aside for industrial and commercial development to attract external investment. This would need to be recognised and managed by all authorities through incentivisation. The centres should cater for privatisation of land and the differentiation of land use and property values to enable the introduction of a land market in this precinct.

The establishment of higher order centres should be accompanied by differentiation in terms of size and functionality based on topography, generative growth factors and accessibility. The differentiation in functionality will result in a differentiation in types and levels of services provided in this hierarchy of centres.

Over time population and economic growth would gravitate to these centres as would opportunities and information on markets and production. It is anticipated that existing lower density settlements in the more rural areas would decline over the medium term in the face of improved higher order services and economic opportunities for the younger generation in the defined centres. It is argued that movement from informal to formal areas would take place on a voluntary basis over a number of generations. However, one of the key issues is that this would be contingent upon municipalities introducing a differentiation in the levels of services provision and cost recovery. Thus in the defined urban areas, residents would have the opportunity to benefit from improved levels of services owing to the fact that they are contributing to the costs. Residents in informal and possibly lower density settlements located outside of these defined centres would have access to basic services where costs are met by government in terms of free basic services policies adopted by the municipality.

There would be a more defined relationship between the centres in Vulindlela and those identified in the Msunduzi SDF where different types of services, resources and opportunities would be available in different order centres thus resulting in complementary rather than competitive relationships.

Undeveloped areas of Vulindlela (including areas under agriculture) would be linked to those in and around the central areas of Msunduzi Municipality and used as part of a sub-regional open space system aimed at green job creation, recreation, tourism and rehabilitation. Market gardens, small holder farming and larger scale production would be integrated into the green and urban matrices where produce is retailed locally and only surpluses exported giving rise to high levels of specialisation in the production, processing and marketing components of the sector.

Similarly, the cultural heritage associated with the traditional people resident in Vulindlela allied to the landscape and natural features of the area would be enhanced and linked by the re-establishment of historical rail and foot or bike trails through the area working with local hospitality initiatives to enhance the experience for both local and foreign tourists: optimising the economic potential of local assets.

In the medium to longer term the youth and those of working age would have access to a variety of educational and employment opportunities in the different areas of Vulindlela identified in the spatial framework (i.e. centres, agricultural areas, green belts and or cultural heritage sites). Following principles contained in the NDP, PGDS and the Msunduzi SDF, this would result in a reduction in long haul and expensive transportation to the city centre and the associated congestion on this main route. The emphasis in transportation infrastructure in this second scenario would need to be on improved inter-centre connectivity and enhanced linkages to the provincial and national transportation networks.

In this scenario there is progressive recognition by the authorities and the people in Vulindlela that there is need for change in the planning and management of this area. In order to achieve this change there is a need to confront the institutions and systems that have not worked or had limited influence in the past and have combined to produce the conditions in which people, now and in future, will have to endure. The real challenge is to recognise what is wrong, what has not and does not work, and over time focus on putting it right.

If this could be achieved, then this second scenario would involve:

- The establishment of a defined higher order urban centre located on the main transportation route. This would cater for high density development and the provision of a wide range of higher order social and commercial services.
- In addition, land would need to be set aside for industrial and commercial development to attract external investment. This would need to be recognised and managed by all authorities.
- The centre should cater for privatisation of land and the differentiation of land use and property values to enable the introduction of a land market in this precinct.
- The establishment of this higher order centre should be accompanied by the establishment of a number of lower order centres whose location is determined on the basis of centrality, topography, generative factors and accessibility.
- These lower order centres should offer a range of lower order services easily accessible to local residents.
- Such centres should in turn allow for densification, freeing up of land for land use differentiation and the provision of higher order services.
- Over time population and economic growth would gravitate to these centres as would opportunities and information on markets and production.
- It is anticipated that existing lower density settlements in the more rural areas would decline over the medium term in the face of improved higher order services and economic opportunities for the younger generation in the defined centres.
- Movement from informal to formal areas would take place on a voluntary basis over a number of generations.
- However, one of the key issues is that this would be contingent upon municipalities introducing a differentiation in the levels of services provision and cost recovery. Thus in the defined urban areas, residents would have the opportunity to benefit from improved levels of services owing to the fact that they are contributing to the costs.
- Residents in informal and possibly lower density settlements located outside of these defined centres would have access to basic services where costs are met by government.
- There would be a more defined relationship between the centres in Vulindlela and those identified in the Msunduzi SDF where different types of services, resources and opportunities would be available in different order centres thus resulting in complimentary rather than competitive relationships.

- Undeveloped areas of Vulindlela (including areas under agriculture) would be linked to those in and around the central areas of Msunduzi Municipality and used as part of a sub-regional open space system aimed at green job creation, recreation, tourism and rehabilitation.
- Market gardens, small holder farming and larger scale production would be integrated into the green and urban matrices where all produce is retailed locally and only surpluses exported giving rise to high levels of specialisation in the production, processing and marketing components of the sector.
- The cultural heritage associated with the traditional people resident in Vulindlela allied to the natural features and landscape of the area would be enhanced and linked by the re-establishment of historical rail and foot or bike trails through the area working with local hospitality initiatives to enhance the experience for both local and foreign tourists: optimising the economic potential of local assets.
- In the medium to longer term the youth and those of working age would have access to a variety of educational and employment opportunities in the different areas of Vulindlela identified in the Msunduzi SDF (i.e. centres, agricultural areas, green belts and or cultural heritage sites).
- This would result in a reduction in long haul and expensive transportation to the city centre and the associated congestion on his main route.
- The emphasis in transportation infrastructure in this second scenario would need to be on improved inter-centre connectivity and enhanced linkages to the provincial and national transportation networks.

It is clear that this second scenario is more positive and forward-looking than scenario 1. There will undoubtedly be variations to both of these scenarios, but the fundamentals have been expressed here, and the view of the planning team is that all of the above in the second scenario is achievable. However, this will require commitment and dedication to a process of constructive change by all parties concerned.

4.5 Vision and objectives

The vision and objectives for Vulindlela are based on findings of the policy review, Msunduzi SDF, the SWOT analysis and scenario 2 outlined above which informs future development of this area and has been identified as the preferred option.

4.5.1 Vision for Vulindlela

> 'Three main development centres will be established in Vulindlela (i.e. Taylors Halt, Sweetwaters and KwaMncane). These will be designed to accommodate future high density residential development. Residents will have access to upgraded social, commercial and utility services. Provision will be made in each of these centres to encourage private sector investment in manufacturing, processing and services industries. The centres will be structured to encourage local economic development inclusive of the production and processing of local agricultural produce. The edges of these centres will be clearly defined in order to preclude urban sprawl into rural areas.
>
> A selected area will be set aside around Henley Dam to encourage private sector investment in up-market residential development. This will involve the formalisation of existing development located outside of 1:100 year floodlines around the dam and investigations into land allocation processes followed to date.

Settlement outside of the identified centres will be provided with lower order services than those provided in the centres. Future growth and densification will not be encouraged in these areas, but rather re-directed to the identified centres. The aim will be to maintain the rural character of these settlements where clearly defined edges should be used to limit further encroachment of agricultural and biodiversity areas.

High value agricultural land will be set aside for rehabilitation and sustainable management. The establishment of commercial agricultural enterprises by local farmers will be promoted at small and medium scales with high value farming (market gardening) being located close to the proposed centres and the larger producers located in the more rural areas where there is land to accommodate such development.

Areas identified for ecoservices production will also be set aside as part of the greater Msunduzi open space system. These areas will be inclusive of a range of 'green' activities associated with cultural, educational and adventure sporting opportunities inclusive of local employment and skills transfer.

The future development of Vulindlela will be managed by a joint municipal-traditional structure. This unit will be tasked with land use management, oversight of the development of the proposed centres, provision of services and the collection of revenue to enable this unit to function effectively'.

4.5.2 Strategic objectives

These strategic objectives respond to and are distilled from the SWOT analysis above to provide the basis from which to design the strategy for the long-term sustainable development of Vulindlela.

These strategic objectives have been used to address the challenges facing future development of Vulindlela in the spatial framework and the development guidelines for urban and rural areas, contained in the remainder of this document.

Table 17: Strategic objectives

Strategic Objectives	Means
Access	
Strengthen and integrate sub-regional connectivity to the hinterland.	Improve vehicular access between Vulindlela and the CBD core.
	Increase/improve vehicular and pedestrian linkage and connectivity between Vulindlela and immediately adjacent areas.
	Strengthen movement links with uMngeni and Edendale.
	Maximise the gateway function of Vulindlela in respect of the Msunduzi/Pietermaritzburg centre.
Enhance internal movement within Vulindlela on a sustainable and efficient basis.	Improve internal circulation and access to local level nodes, services and facilities.
	Consolidate public transport routes and facilities, and maximise the opportunity of the IRPTN system.

Strategic Objectives	Means
	Provide for good pedestrian linkages between home and public transport, and facilities. Provide also for NMT – cycle paths.
Promote and emphasise sustainable public transport.	Rationalise public transport routing.
	Encourage public transport oriented development.
Improve accessibility to services and facilities.	Establish an increased level of mixed land uses in appropriate high accessibility locations.
	Upgrade and increase provision of/access to social facilities.
	Minimise costs of physical access to CBD.
	Introduce ITC.
Sense of place	
Protect, rehabilitate and enhance environmental assets.	Rehabilitate the rivers and manage as ecological corridors.
	Protect and integrate environmental assets and enhance their ability to contribute to ecological services delivery.
	Protect and secure valuable agricultural land.
	Preserve and enhance the features of natural beauty within Vulindlela which contribute to its sense of place.
Identify and secure public space as an integral part of the urban and peri-urban settlement system.	Establish and enhance public space in nodes and Corridors.
	Establish new public spaces with visual and functional qualities.
	Promote and create neighbourhood identity.
	Protect and celebrate natural and manmade (cultural) landmarks.
Introduce spatial features to enhance the legibility of space (and hence its ordering).	A few quality facilities sports fields etc.
	Protection and enhancement of Henley Dam area as a quality space.
	Introduce and define settlement edges, emphasising the relationships between built and unbuilt areas.
	Conserve and establish hilltops and high places for public use and as important backdrop for sense of place within Vulindlela.
Livelihoods	
Increase and improve economic spaces.	Promote a balanced mix of complementary use and activities i.e. balanced community.
	Minimise the potential adverse impacts of incompatible land uses and activities on one another.
Expand and support local small scale entrepreneurs in the agricultural production retail and commercial sectors.	Utilise land parcels with high agricultural potential.
	Address traditional land allocation to release and open up land for small industry.
	Encourage linkages with centrally based industries.
	Optimise the cultural and heritage resources for tourist potential.

Strategic Objectives	Means
Space and structure	
Define and strengthen the spatial structure of Vulindlela.	Promote the establishment of land uses and activities which contribute to ordered and efficient neighbourhoods.
	Establish and consolidate and reinforce a hierarchy of local level activity nodes throughout the area in order to provide a framework for effective and efficient services delivery.
	Build into spatial structure the new IRPTN infrastructure.
	Upgrade and enhance the quality public space in nodes, corridors and neighbourhoods.
Establish a more responsive urban form.	Provide opportunities for the incremental development of social services along sustainable lines – including libraries, police stations etc.
	Immediately bring the scattered development under control, through the implementation of rationally identified settlement edges.
	Manage rapid urban growth.
	Ensure close physical relationship between intensive agriculture and central places.
	Strengthen link to education hub at Imbali.
	Focus development and new building in relation to movement routes.
Develop an alternative housing delivery model.	Higher density housing.
	Promote a range of housing types using all available policies and resources of the Department of Housing.
	Promote NMT options.
Control	
Enhance the capacity and responsiveness of local government to manage the settlement and development of Vulindlela.	Coordinate and enhance management and maintenance initiatives.
	Improve and enhance enforcement of legal infringements and unplanned settlement.
Enhance co-ordination and co-operation between stakeholder groups.	Coordinate existing stakeholder initiatives and energies.
	Involve stakeholder groups in the current planning process.
Build management capacity within the stakeholder community.	Promote the establishment of Interest based groups e.g. farmers, traders.
	Link communities and businesses to surrounding and metropolitan business.
Develop the willingness of the municipality in conjunction with traditional structures to manage development.	Manage illegal building and township development.
	Develop public private partnerships.
	Resolution of land issues around Henley Dam for optimum development.

5. SPATIAL FRAMEWORK

5.1 Introduction

This section of the document is used to compile the spatial framework and associated guidelines for the VLAP. The plan itself draws on the key components of the policy framework in section 2 of this report, the vision and objectives contained in section 4 and spatial layers gathered in the Status Quo Report. The remainder of this report is used to address the central question and planning issues raised in the assessment in section 3 and the SWOT analysis in section 4 above.

5.2 Method used in compilation of the spatial framework for Vulindlela

In the compilation of the VLAP spatial framework a variety of data sets were used to inform the process of deciding 'what types of development should go where' (land use) in the future development of Vulindlela. These include: topography, biodiversity, open space, land ownership, land administration, settlement distribution and densities, distribution of social and utility services, future growth potential, transportation networks and efficiencies in the use of space. Relevant components of these data sets were intersected in the formulation of the final LAP spatial framework. The key elements used in building the final spatial framework for Vulindlela are summarised below.

5.3 Components of the spatial framework

5.3.1 Topography

One of the important factors affecting the location of different types of development in Vulindlela is topography. As may be noted in figure 5, Vulindlela is characterised by terrain which is predominantly undulating and mountainous. The figure provides an indication of areas under 12% slope, those between 13-24% and those above 25%. It is noted from figure 5 that there is a limited amount of suitable land available for expansion of urban development with most of the available flatter land having been settled. Land with 12-24% slope lends itself to limited housing development and extensive grazing and forestry. That in excess of 25% is best suited to conservation of ecological infrastructure.

5.3.2 Biodiversity and open space system

Vulindlela is characterised by areas with high levels of biodiversity particularly along the major ridge lines and river systems. However, the natural habitat in Vulindlela has been transformed through settlement, infrastructure, plantations, cultivation and livestock. Thus, the remaining areas of ecological infrastructure (figure 6) need to be conserved and managed to optimise the production of ecological goods and services and agricultural products for households in Vulindlela. The linkages with surrounding ecological support areas are also provided in figure 6 in the form of 'green arrows'.

Figure 5: Topography

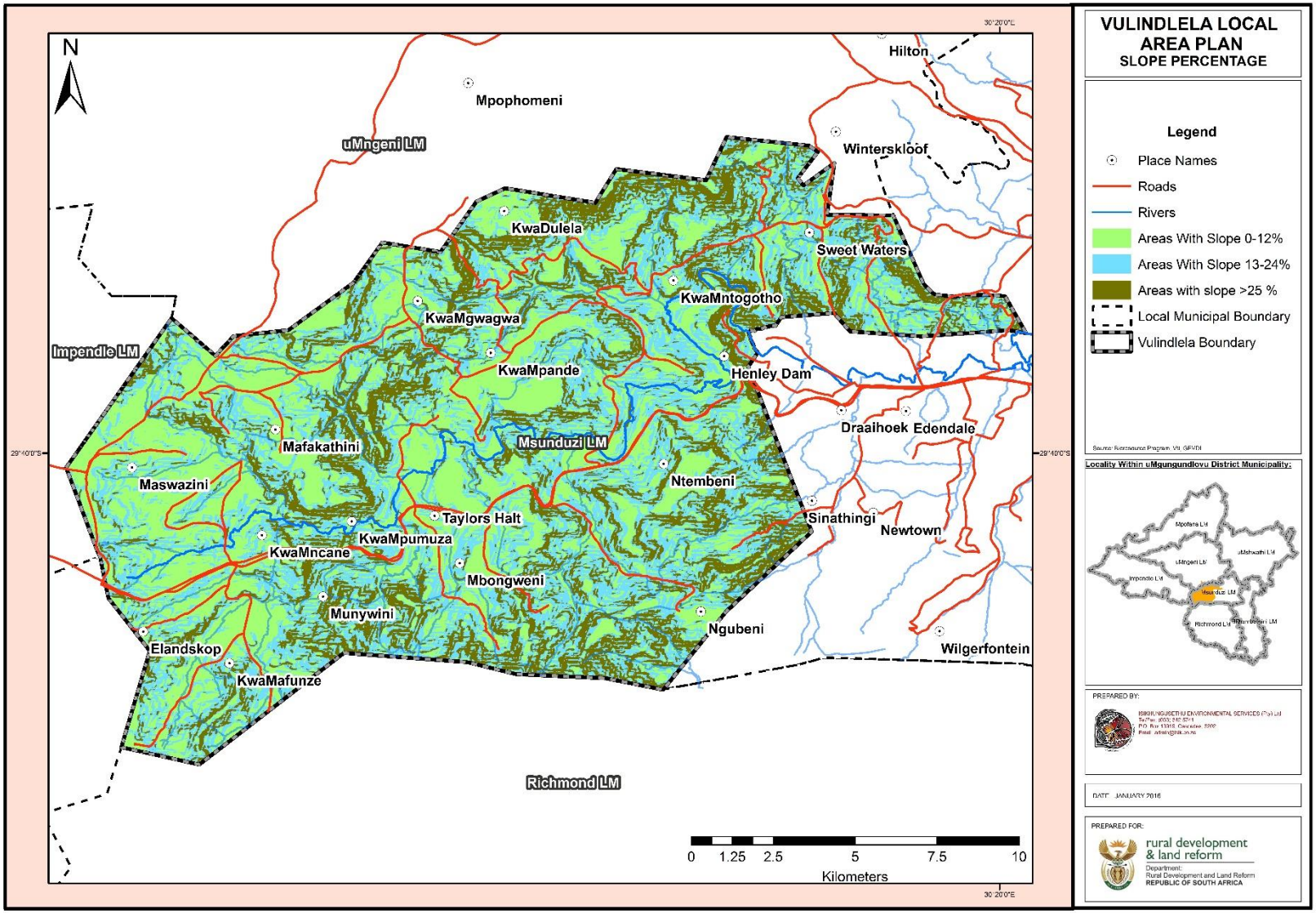
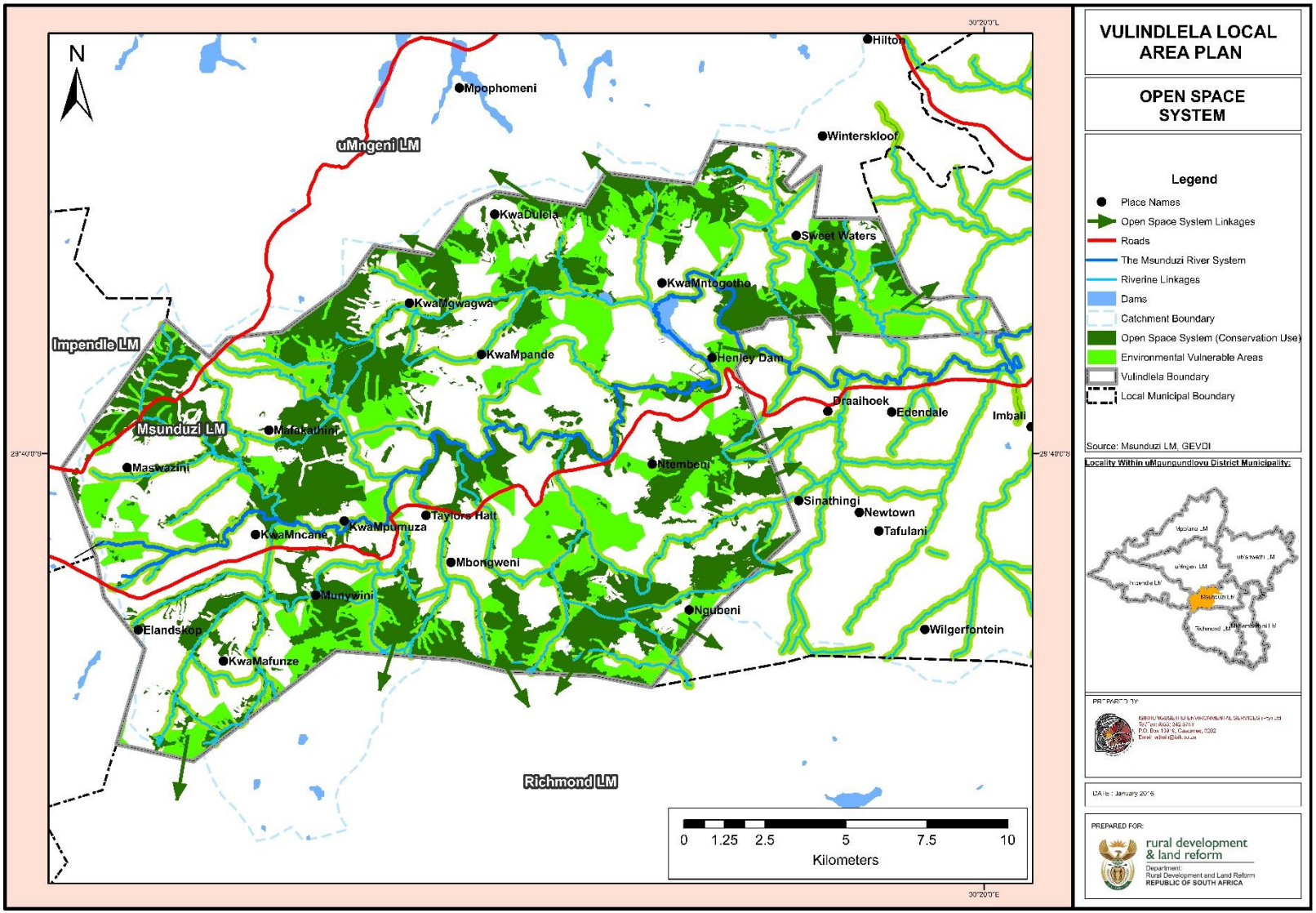


Figure 6: Biodiversity



5.3.3 Agricultural potential and land for different types of production

The agricultural potential of Vulindlela is moderate to high when taking into account the potential for cultivation, plantation and livestock production. However, the natural habitat in Vulindlela has been transformed and fragmented through settlement and associated transformation (figure 7). Thus remaining areas of ecological infrastructure and agricultural resources need to be protected and managed to optimise the production of ecological goods and services and agricultural products for households in Vulindlela.

Figure 7 provides an indication of the limited remaining areas which are suited to arable crops, livestock and plantation production in Vulindlela. The more intensive forms of production are indicated in terms of land areas set aside for medium and low density small holder production in and around existing settlements (figure 7). Provision is also made for intensive forms of production (market gardening) in certain of the intervention areas where suitable undeveloped land is available for this type of production.

5.3.4 Access to land

Vulindlela is located on land owned by the Ingonyama Trust Board and to a lesser extent the state. As can be seen in figure 8 there are small areas owned by the Msunduzi Municipality. The ITB land is occupied and administered by traditional councils. Owing to there being no freehold and limited municipal land available in Vulindlela, gaining access to land to accommodate future development will require support at the following levels: communities, traditional councils, ward councillors, ITB and the Msunduzi Municipality. Owing to the number of organisations involved this could cause delays in gaining approval for release of land for development purposes and in the processing of development applications.

5.3.5 Settlement patterns

As noted in the Status Quo Report, Vulindlela was subjected to 'betterment planning' in the 1970s. This involved locating human settlement on what was then considered to be poor quality agricultural land in order to protect high quality land for agriculture. Settlements were planned such that each homestead had access to a residential site and up to half a hectare for cultivation on an adjoining piece of land. Larger landholdings for each household were then allocated outside of settlement areas. Land outside of settlement and arable areas was set aside for livestock production and for woodlot establishment.

This basic settlement layout persists today in the majority of Vulindlela. However, pressures for land have resulted in substantial increases in housing numbers in settlements. These have in turn extended into agricultural lands and biodiversity areas where housing can no longer be accommodated in the original settlement areas. The pressures for land for housing are much higher in the more accessible areas of Vulindlela. Thus a settlement pattern has emerged since the 1970s in Vulindlela which ranges from low density small holdings in the less accessible rural areas to high density residential areas in the more accessible locations. The distribution of these different types of settlements in Vulindlela is included in figure 10 below where three density categories have been identified as indicated in the key to the figure. This debate on density is used to identify a settlement typology in section 7 of the plan. The typology provides the basis for the identification of interventions which are designed to deal with the maladies associated with continuing urban sprawl in Vulindlela.

Figure 7: Agricultural potential

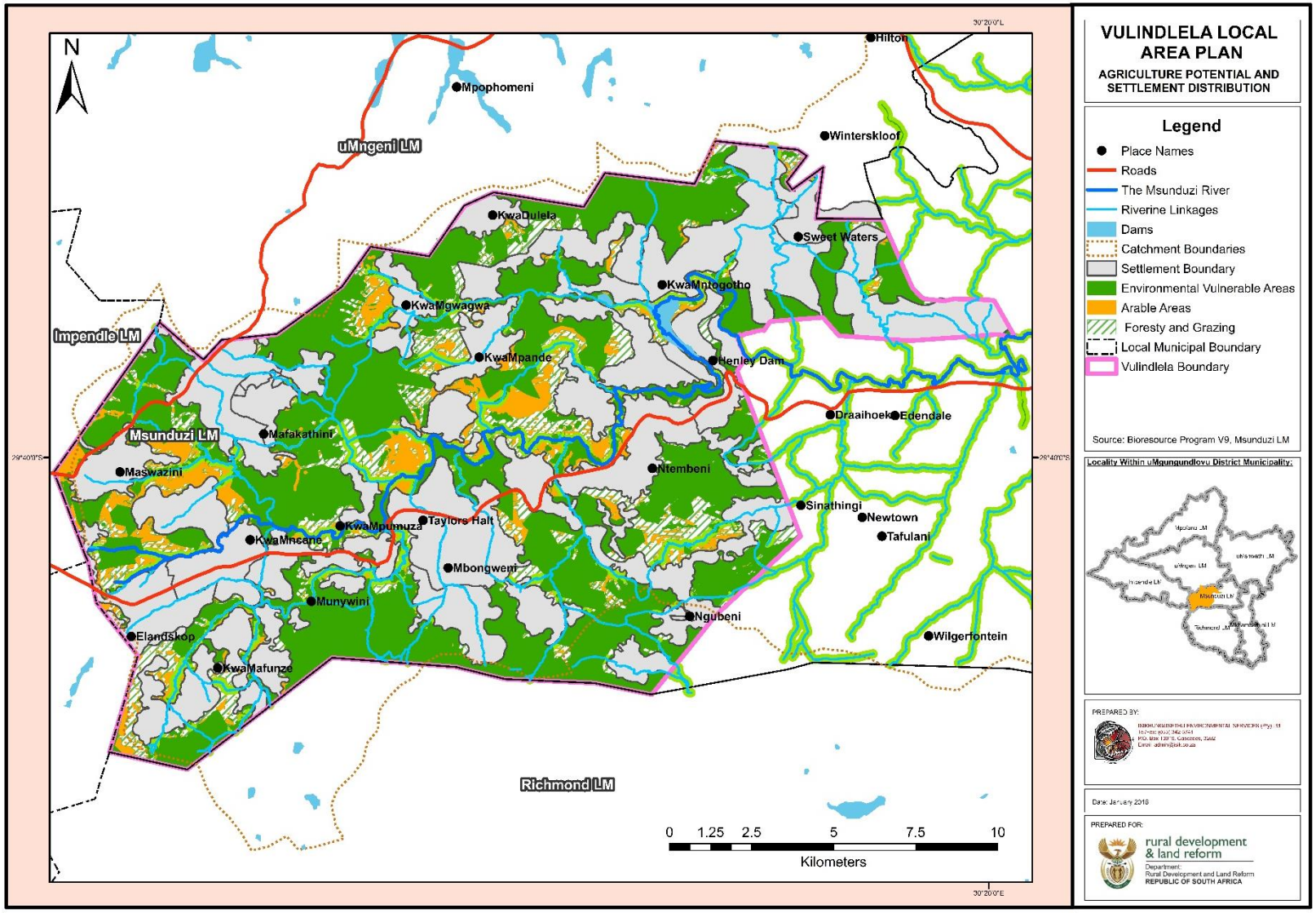
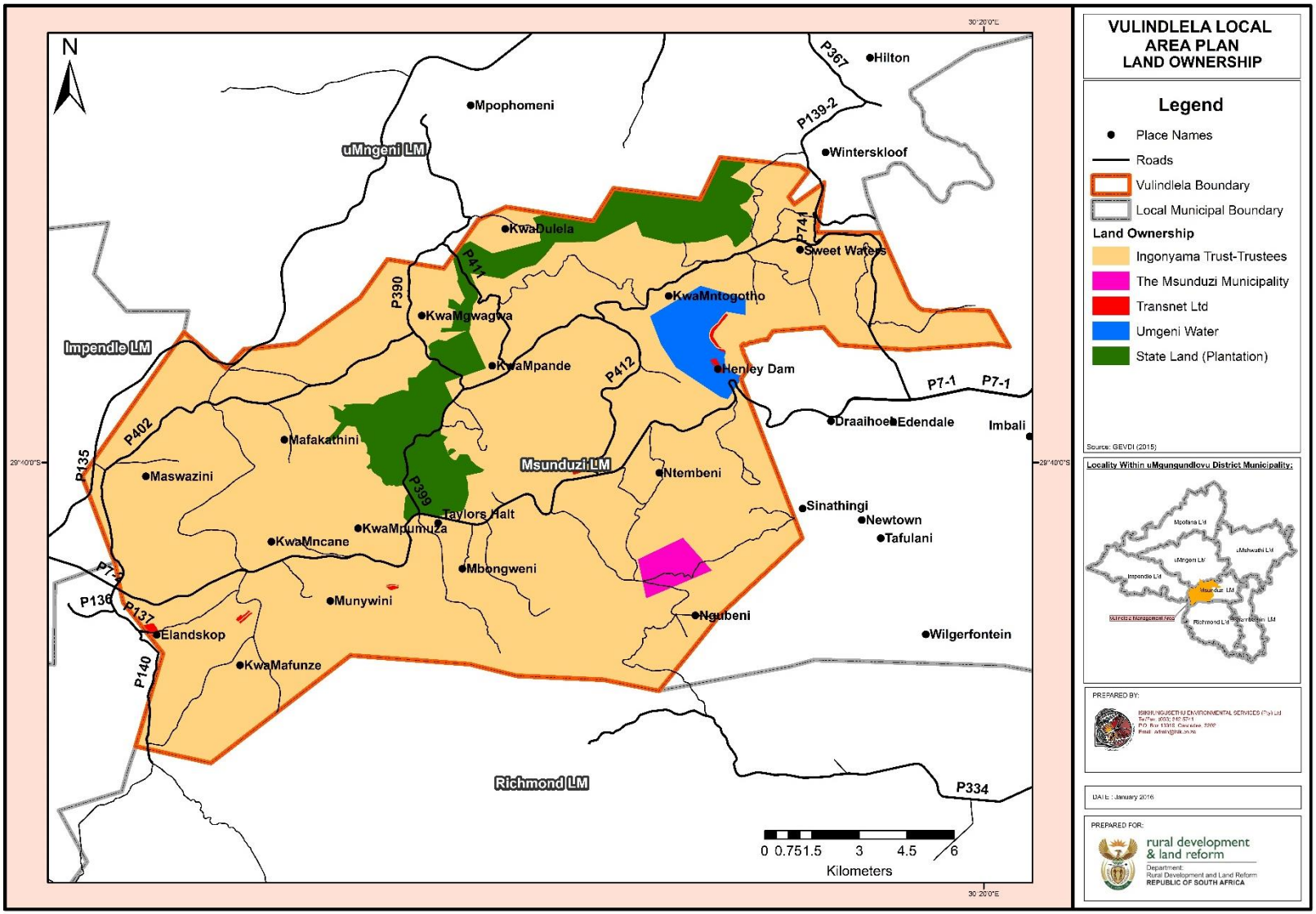


Figure 8: Administrative boundaries



The location of traditional councils on ITB land in Vulindlela is outlined in figure 9 as is the location of State owned (DWA) land.

Figure 9: Traditional councils

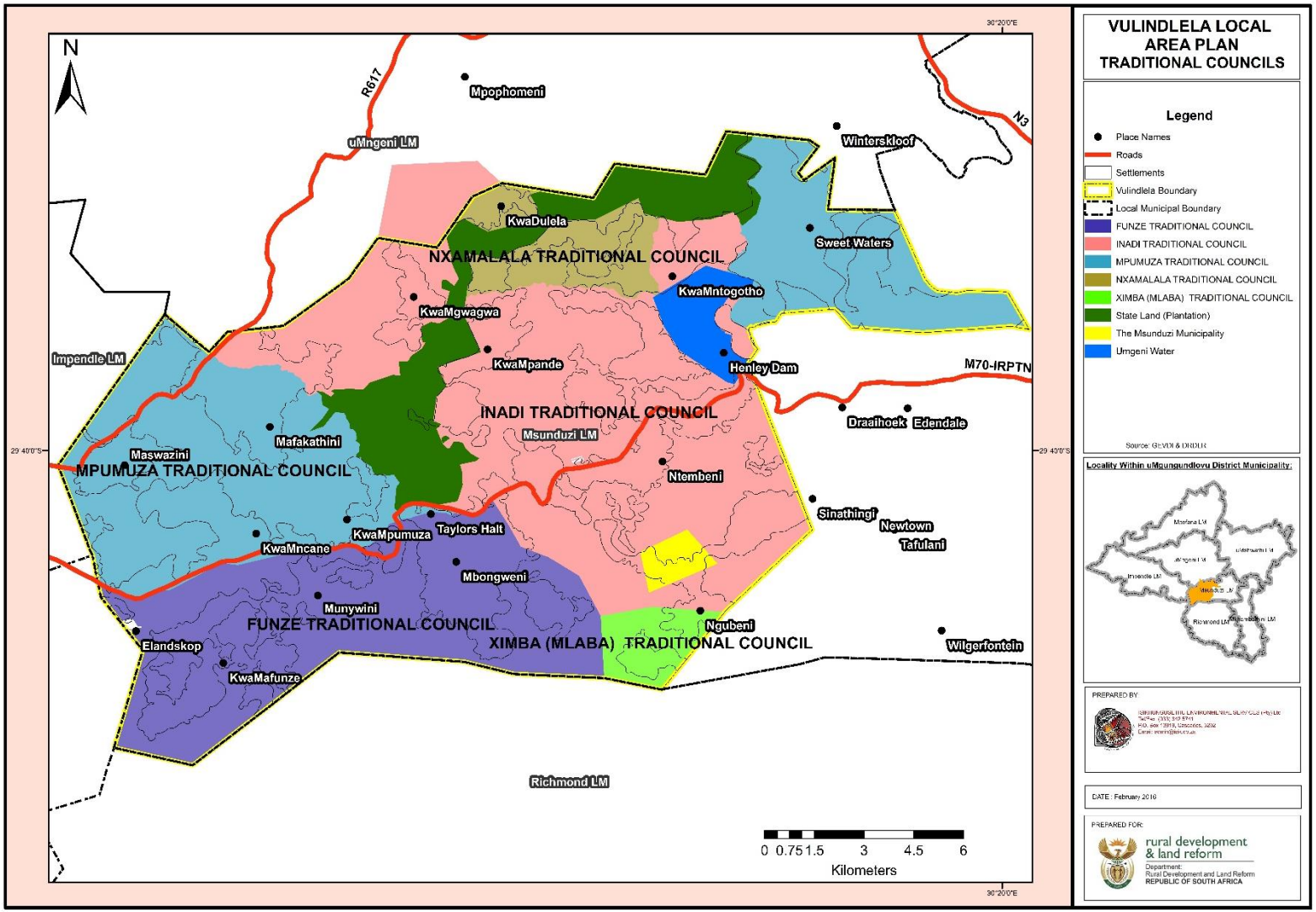
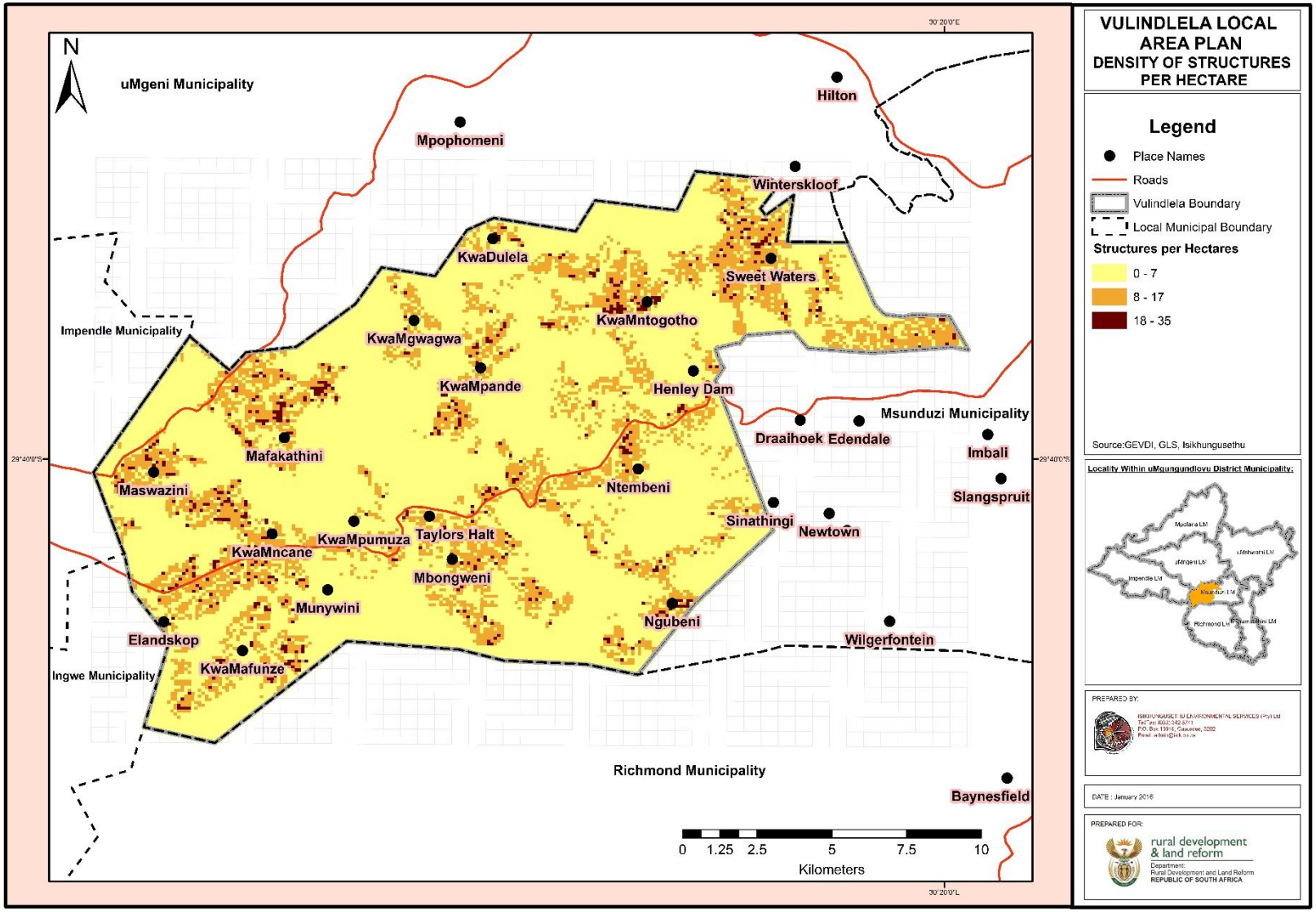


Figure 10: Housing Densities in Vulindlela



5.3.6 Distribution of social service facilities

In the Status Quo Report it was demonstrated that the **majority of households in Vulindlela have access to school level educational facilities** (primary and secondary), local health facilities (clinics and community health facilities) and traditional courts. However, access to tertiary educational level facilities was restricted to Pietermaritzburg-Edendale. Similarly access to South African Police services is restricted to a temporary police station located at Taylors Halt. It was further established in the Status Quo Report that residents of Vulindlela have limited access to sports facilities other than for those located at Sweetwaters, Taylors Halt and informal facilities located at schools. For access to sport complexes residents have to travel to Pietermaritzburg-Edendale.

5.3.7 Location of utility infrastructure

In the investigations into bulk infrastructure provision in Vulindlela it was established that extensive water, electricity and local roads networks have been introduced into Vulindlela since 1994. The indications from the status quo investigations are that these services are accessible to the majority of households that were located there in the planning and implementation stages of the roll out of these infrastructure projects. However, considerable numbers of new houses and households have moved into different part of Vulindlela outside of the planned services footprints. This, allied to densification in established areas has resulted in the increase of illegal connections and the associated demand for additional services requirements placing pressure on the Msunduzi Municipality to review for example the entire potable water system for the area.

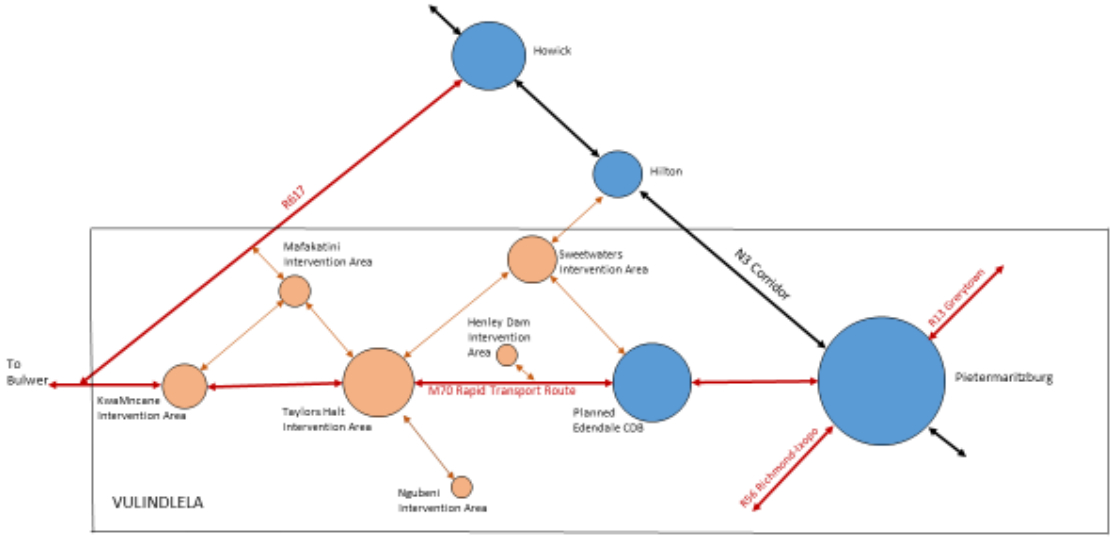
Utility services that are still lacking in Vulindlela include:

- Reticulated sewerage in the high density settlements.
- Comprehensive collection and centralised waste disposal system.
- Cemetery facilities.
- Telecommunications networks with efficient high speed broadband capability.

5.3.8 Movement and circulation frameworks

The main objective in this spatial framework for Vulindlela is to provide a logical basis for ‘breaking down space’ such that all residents have access to service facilities through establishment of a hierarchy of centres and transportation routes as indicated in diagram 4. This is based on principles inherent in the provincial accessibility framework envisaged in the “Rural Human Settlement in KwaZulu-Natal” report (Isikhungusethu 2008).

Diagram 4: Movement routes in Vulindlela



The main concept for transportation in Vulindlela is to incorporate the rapid transportation network proposed for greater Msunduzi aimed at linking Northdale through the city centre with Edendale and Taylors Halt. In order to achieve improved accessibility by all residents of Vulindlela to service and economic opportunities it is proposed that the M70 is established as the major transport 'spine' of Vulindlela. This should be accompanied by the upgrade of the rail network, which follows the M70 east-west alignment, to include both rapid passenger and freight transport. Rail is critical to the future development of Vulindlela and if upgraded could be used to reduce road traffic congestion and the carbon footprint of Msunduzi.

In order to enhance movement and circulation through Vulindlela the transport routes which link Taylors Halt to Sweetwaters and Hilton and associated feeder systems are supported in this VLAP (figure 11). Similarly improved linkages to Howick via the R617 should also be encouraged to improve access to higher order economic and service opportunities for those resident in the western areas of Vulindlela. Opportunities for improved linkages between the southern areas of Vulindlela and Richmond- Mkhambathini need to be explored, in further detailed investigation, by upgrading the existing gravel road through Baynesfield Estate (figure 11) as a possible future extension of the IRPTN.

Upgrade of the smaller internal road networks linking settlements with the proposed centres (figure 11) is also supported by the VLAP and will serve to improve access to services for those communities located to the south and west of Vulindlela.

Figure 11: Transportation networks

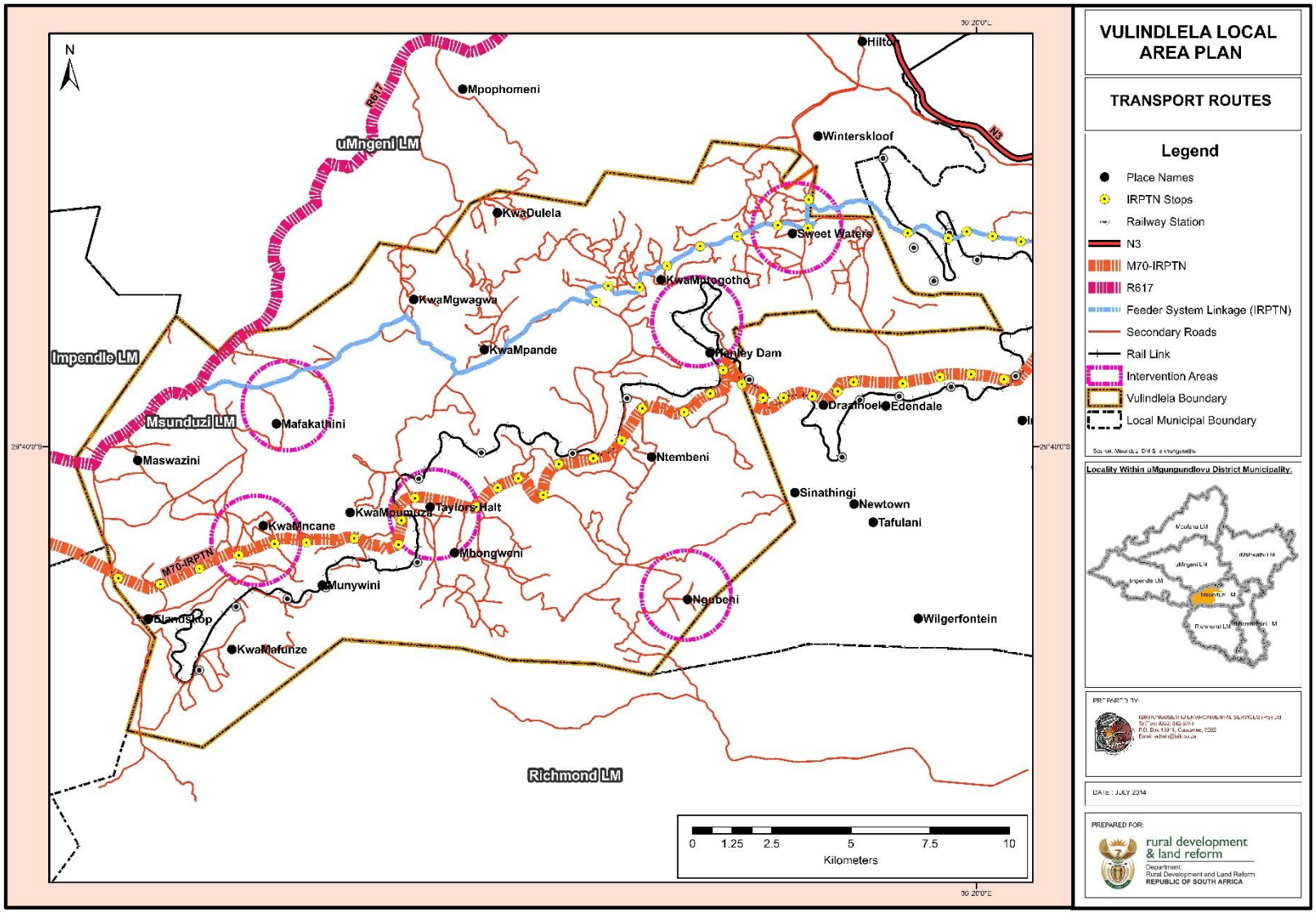
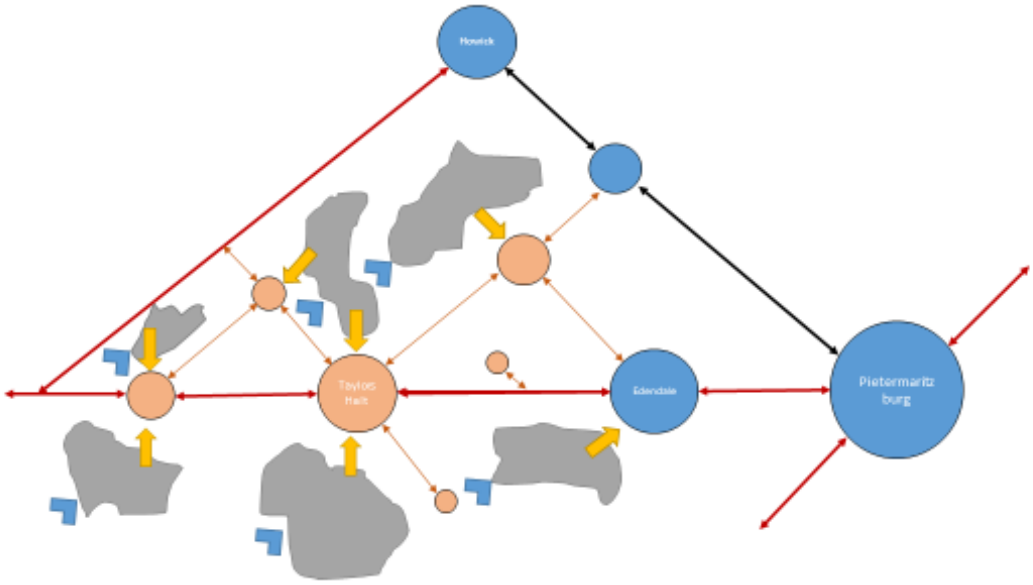


Diagram 5 further provides an indication of the relationships between the existing and proposed centres (intervention areas) located within the greater Msunduzi Municipality with specific reference to Vulindlela. The hierarchical nature of these centres and their location on the transportation network is indicated in their relative size (circles) in the diagram 5. The size and functionality of each of these centres has been established based on reference to the following factors: Msunduzi SDF, location on the local and sub-regional transport network, pressures for population growth, generative power of these areas to sustain growth in future, social services opportunities, economic opportunities and access to land for expansion.

Diagram 5 provides a spatial interpretation of the central principle underpinning this spatial framework for the VLAP, namely 'future urban growth being accommodated in defined centres' (beige circles on diagram). The implication is that further human settlement growth in rural areas (arrows on diagram) of Vulindlela should not be promoted by the municipality and traditional councils. In fact the existing edges of rural settlements should be used as edges beyond which no further expansion should take place in future (blue arrows on diagram). Further detail on the proposed location of urban edges is provided in section 7.1 of this document. Principles to be considered in defining different types of edges at a more detailed level of planning are included in Annexure 4.

In other words, as depicted in diagram 5, the majority of future growth should be accommodated in the defined intervention areas (centres) in Vulindlela and Edendale. There is already evidence of urbanisation pressures on the ridges surrounding Edendale and Henley Dam. This is impacting on settlement patterns in Vulindlela.

Diagram 5: Relation of urban to rural



5.4 Spatial concepts

5.4.1 Open space

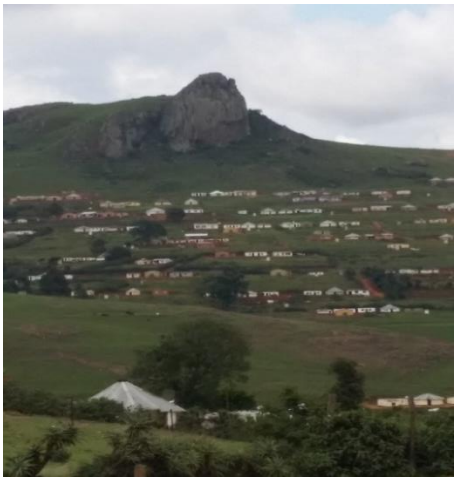
One of the main objectives of this plan is to integrate the greater Msunduzi open space system (Msunduzi SDF 2014) into the VLAP without compromising the spatial and functional efficiency of urban form proposed in this plan. Thus all the river systems, wetlands, indigenous forests, grasslands and ridge lines in Vulindlela should be aligned and linked with those identified in the other areas of Msunduzi with the view to creating opportunities for green economy development in biodiversity rehabilitation, management and tourism.

5.4.2 Viewscape and landscape management and protection

There are also a number of areas in Vulindlela with viewscapes and landscapes that need to be identified and quantified in terms of aesthetic, local cultural and tourism value. This needs to form part of a more detailed investigation at localised levels. These then need to be prioritised for management intervention to protect them against inappropriate forms of development.

In addition to landscape, there are also a number of topographical features in Vulindlela that need to be identified and assessed in terms of cultural significance and tourism potential. These include the dolerite dome known as iKanda (Photo 1) near Ngubeni, the high point above Sweetwaters known as Swartkop (and associated indigenous forests), the high ridge running from Swartkop through to Mafakathini and the Msunduzi River system and associated tributaries arising in Vulindlela.

Photograph 1: iKanda



The important ecological infrastructure components in Vulindlela need to be linked up with the landscapes, viewscapes and topographical features integrated into the open space system for Msunduzi. In order to safeguard this ecological infrastructure against loss or destruction it is necessary to include elements in the, to be developed, Vulindlela scheme. This is turn should be accompanied by local awareness creation and involvement of both traditional and municipal planning officials in effective management of these resources. This will require the definition of what may be termed 'green edges' and 'green corridors' to be included in the scheme as the basis for the introduction of effective management of these resources. Annexure 4 provides guidelines on 'green edge' definition.

5.4.3 Land use framework

As has been stated in this document, the central objective of the VLAP is to concentrate future growth and development in Vulindlela in the identified intervention areas. The pressures for further population growth in rural areas should be reduced and even reversed, over time, through the establishment of a hierarchy of well-located intervention areas (centres) in this part of greater Msunduzi.

In the process of reducing pressure on the rural landscape the objective should be to protect, rehabilitate and enhance both natural and agricultural capital in the area. These two resources are currently under severe pressure owing to rapid population growth in rural settlements over the past 15-20 years.

5.4.4 Efficiency in the provision of services

As noted in the Status Quo Report, there are comprehensive social services facilities and infrastructure networks distributed throughout Vulindlela in an effort to meet the services requirements of the widely scattered population. The central challenge associated with this type of development is how sustainable is it and what quality of services are being provided? In formulating the VLAP every effort has been made to follow national and provincial development plans and policies which increasingly indicate that there is a need to centralise future urban development in order to optimise efficiency, quality and sustainability. Hence one of the key objectives has been to seek ways of improving accessibility through the rationalisation of services and infrastructure in seeking to accommodate future population growth in this part of Msunduzi.

5.4.5 Economic growth

The establishment of intervention areas is aimed at promoting diversification of local economies. Making provision in intervention areas for high density residential development, serviced land for commercial and manufacturing development is aimed at attracting private sector investment. The concept is to generate local demand for improved housing and services opportunities and a wider range of locally produced goods and services to meet the needs of residents of these intervention areas and surrounding local communities.

5.5 Proposed VLAP spatial framework

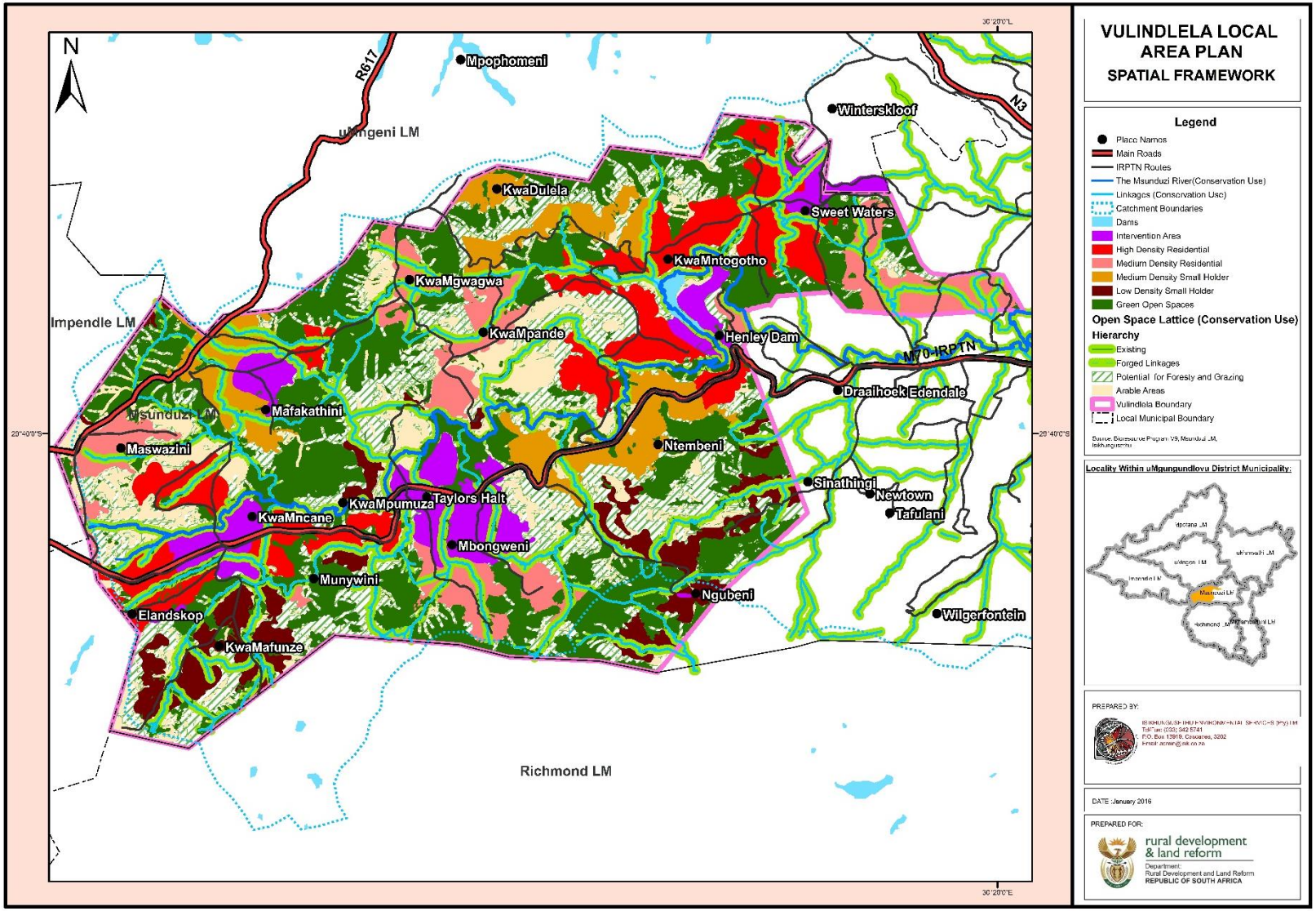
The spatial framework for the VLAP provides an indication of future land uses in Vulindlela. Adopting and implementing this land use plan is a prerequisite to meeting the vision and objectives of this plan and the associated planning policies contained in the Msunduzi SDF and national and provincial development plans. The VLAP spatial framework is structured in order to inform the preparation of a 'wall to wall' scheme for Vulindlela as a requirement of SPLUMA.

The key components of the proposed land use plan for Vulindlela, as depicted in figure 12, include:

- Intervention areas which in turn include:
    - Residential.
    - Commercial.
    - Industrial/manufacturing.
    - Amenity areas.
    - Intensive agriculture.
- Residential rural (medium density).
- Small holder agriculture (medium and low density).
- Agriculture (arable, forestry and grazing).
- Open space (terrestrial and aquatic).

Further detail on the intervention areas is provided in section 6 of this document.

Figure 12: Proposed spatial framework for Vulindlela



As has been noted in the document thusfar there is limited land available to accommodate future population growth and development in Vulindlela. Consequently selected areas of transformed land in appropriate locations (as indicated in the Msunduzi SDF) have been selected as intervention areas. The remaining areas of transformed land (rural settlement) have been identified for high, medium to low density rural settlement and agriculture. Remaining areas of un-transformed open space and high potential agriculture have been identified as areas not suited to further built environment types of development. That is, these areas need to be set aside for optimising ecological services production and/or agriculture depending upon local conditions.

Bulk infrastructure requirements necessary for the development of the proposed intervention areas represents a departure from current services provision policies being pursued in Vulindlela by municipal and provincial government i.e. basic services provision.

As a consequence detailed planning and engineering design is required for the intervention areas. In order to promote detailed design, a suite of infrastructural feasibilities have been included in the project programme in section 9 of this document. Furthermore reference is made to types and levels of services that should be considered in all types of settlement in Vulindlela in sections 6 and 7 of this document.

6. INTERVENTION AREAS

6.1 Introduction

The purpose of this section of the document is to provide guidelines for the future development of the intervention areas identified as centres in the VLAP. As noted in diagram 1 of this document, the intention of the VLAP is not to provide detailed planning design and layout, but rather to inform this as a subsequent phase of the project. Clarifying the anticipated output of this project is necessary since, as noted, there is no internal cadastre in Vulindlela and hence site specific planning cannot take place without detailed survey.

In order to provide further insight into what is anticipated for these intervention areas it is necessary to 'drill down' from a municipal management area (i.e. Vulindlela) level to a more localised intervention area level. Thus the policies, concepts and suggested levels of service identified in sections 2-5 of this plan will be further detailed at this more localised level of planning.

The intervention areas are dealt with individually in this section of the VLAP and prefaced with an indication of location in Vulindlela and further detail on the layout guidelines suggested for these areas. An overview of conditions to be considered in the preparation of schemes and levels of services to be considered in detailed design of these intervention areas is included in section 6.4.

6.2 Location of intervention areas

In this guideline, intervention areas are identified as the future developmental centres (nodes) in Vulindlela. Each of the intervention areas is located in the hierarchy of centres and transportation routes envisaged for Vulindlela in the Msunduzi SDF. The criteria used in selecting the location of these intervention areas was based on the notion of the 'generative power' of these areas to sustain development and growth. This term was coined by J. Kiepiel in his work on the KwaSani Local Municipality (Kiepiel 2012). A summation of the factors affecting 'generative power' include:

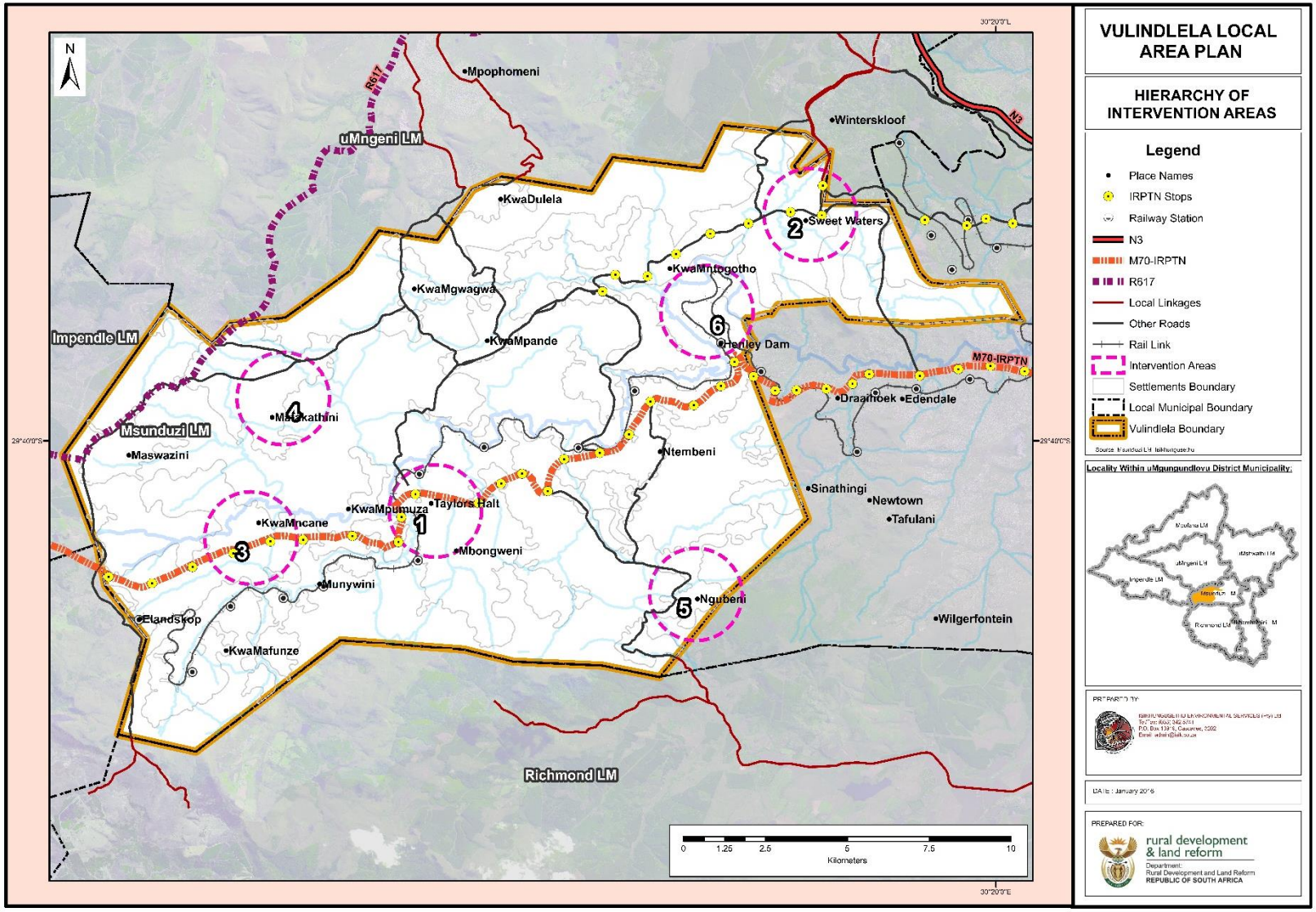
- Review of the management areas and precincts identified in the Msunduzi SDF.
- Role in providing differing orders of services to the residents of Vulindlela.
- Housing density and population growth.
- Economic diversity and development pressures.
- Location in relation to major transportation and movement routes.
- Land availability for growth and expansion.
- Location in relation to agricultural and biodiversity resources.
- Proximity to existing rural settlements in Vulindlela.

The following intervention areas are identified for the VLAP (see figure 13 for location):

- Taylors Halt as the main centre of Vulindlela.
- Sweetwaters as a secondary centre.
- KwaMncane as a secondary centre.
- Mafakathini as a third order centre.
- Ngubeni as a fourth order centre.
- Henley Dam as an upmarket residential area.

The planning policies, concepts and guidelines identified in sections 2-5 of this document are used to inform the concepts which underpin the proposed layout and land use identified in the intervention areas which in turn address the developmental challenges identified in the status quo.

Figure 13: Location of intervention areas in Vulindlela



6.3 Intervention areas in Vulindlela

6.3.1 Sweetwaters

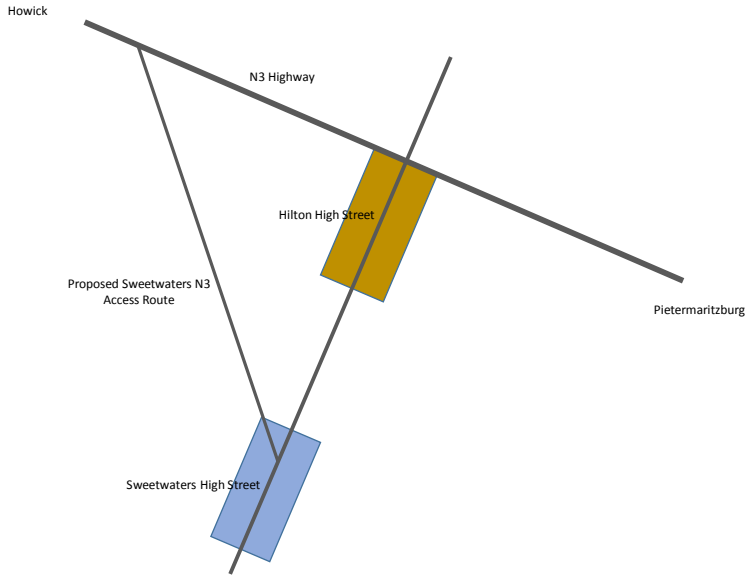
6.3.1.1 Location

The Sweetwaters intervention area is located in the northern sector of Vulindlela. The area adjoins Winterskloof and Cedara College in the north and Henley Dam to the south. The intervention area itself is purposefully located at the crest of the ridge and includes the Sweetwaters-Dennis Shepstone intersection and the subsequent intersections which lead to Edendale, KwaMpande and ultimately to Taylors Halt. This location differs from that included in the Msunduzi SDF. The rationale for location of the centre on the ridge is to benefit from the flatter land and the major intersection as a driver of development and opportunities for expansion onto land under freehold title. The area identified in the SDF appears to be located to the west of the Sweetwaters ridge line on steeply sloping land that is densely settled without prospects for major expansion to accommodate a variety of different land uses.

6.3.1.2 Linkages to surrounding areas

The future development of Sweetwaters is closely linked with that of Hilton which forms part of uMngeni Municipality as indicated in diagram 6 below.

Diagram 6: Sweetwaters in context



The concept is to establish the centre of Hilton as a retail-services centre following the 'high street' format which characterises small towns in many parts of southern Africa. The idea is for a similar format development from Winterskloof to the Sweetwaters turnoff. This would be followed by the establishment of a larger shopping complex as in the case of the Quarry centre in Hilton. The idea is to link the Sweetwaters and Hilton centres via an upgrade of the Dennis Shepstone Drive to the N3. A further access link is envisaged from Sweetwaters directly to the N3 at Cedara to limit traffic congestion along Dennis Shepstone Drive. This is only likely to be developed in the longer term.

Since the proposed development of Sweetwaters includes land in uMngeni Municipality, cross boundary co-ordination is required at detailed planning stage to ensure alignment between the plans in the two municipalities.

6.3.1.3 Spatial structure

The proposed spatial structure for Sweetwaters is include in figure 14. The suggestion is that future commercial development is located along Dennis-Shepstone-Sweetwaters road commencing from the Winterskloof boundary. The aim would be for commercial development to take place on both sides (eastern and western) of this section of road. This would include the establishment of a number of single or double storey individual commercial outlets with a street frontage up to the intersection (figure 14, diagram 7).

The aim is to replicate the notion of a high street identified for Hilton in that precinct plan. The conditions associated with the development of the high street would need to be built into a scheme for this area. In the medium to longer term the aim would be to improve linkages between the Hilton centre and that proposed at Sweetwaters along the 'to be upgraded' Dennis Shepstone Drive (diagram 6).

The possibility of establishing a direct link from Sweetwaters via Cedara to the N3 forms an integral part of the debate over future development of the Hilton – Sweetwaters precinct. If this comes to fruition in the medium to longer term it would play an important role in improving access to Sweetwaters and overcoming one of the causes of traffic congestion in Hilton.

Diagram 7: Proposed Sweetwaters high street concept

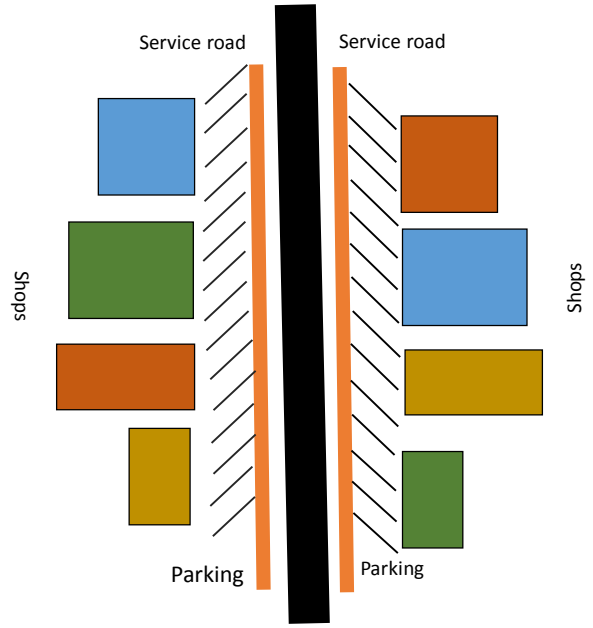
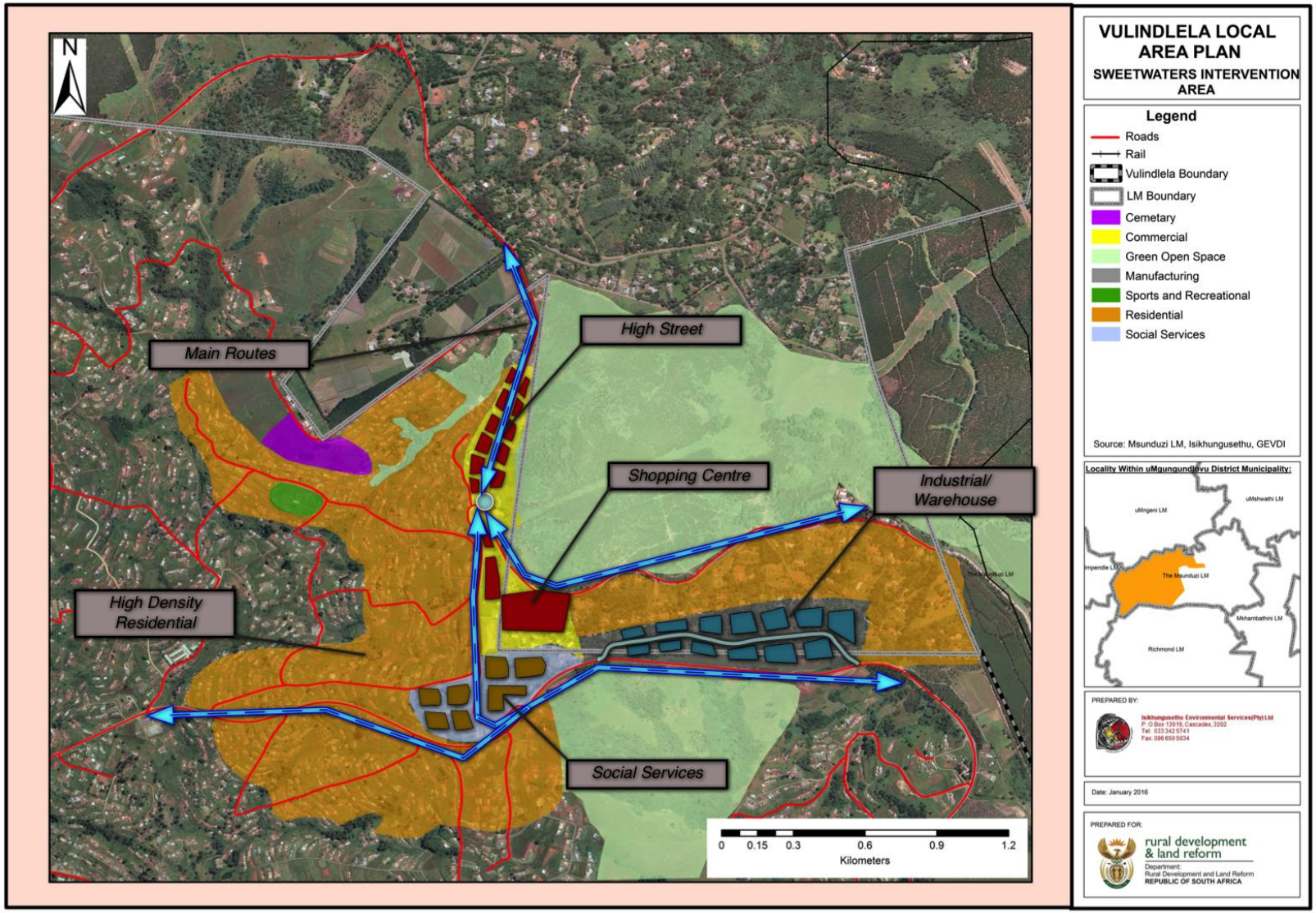


Figure 14: Sweetwaters spatial structure



It is proposed that the lower half of the proposed commercial centre at Sweetwaters is located south of the intersection on land currently under small scale retail development (figure 14). The idea here is to convert this area into large scale retail commercial outlets dealing with food, clothing, furniture, personal services etc.

Two high density residential developments are envisaged for this precinct. The first located to the south east of Sweetwaters where land is privately owned. The aim is to convert this area into upmarket high density residential development on 2 to 3 storey walk-ups and in blocks of flats as being constructed at Foxhill by Msunduzi. The suggested densities would be in the order of 60-70 units per hectare involving fully reticulated water and sewerage, roads sufficient to handle increased traffic volumes and provision for open space, social service facilities and employment opportunities. Responsibility for promoting the development of high density housing on freehold land will include uMngeni and Msunduzi assuming responsibility for detailed planning, design and provision of infrastructure and the Department of Human Settlements working with banking institutions and private developers in the construction of high density housing.

The second residential development would involve the incremental upgrade of services and densification of existing residential development on traditional land located to the west of the road. The outer limit to this type of development will in time be determined by traditional mandate, slope, utility services, costs and ultimately residents' willingness to convert their land holdings to high density development. In the case of traditional areas in Sweetwaters the responsibility for densification would be that of the traditional councils working with local structures and the Msunduzi Municipality in reaching agreement on survey of sites, formalisation of land rights and ultimately provision of services with the Department of Human Settlements and the private sector implementing densification of housing.

To enable job creation, land has been identified to the south east of the precinct for the establishment of a manufacturing park (figure 14). Similarly the commercial and social service facilities would also provide employment opportunities as would the construction and maintenance of high density development. The aim should be to establish densities sufficient to sustain commercial and manufacturing employment opportunities.

Opportunities for intensive agricultural production in this intervention area are limited owing to the topography of the area and planned levels of development. Consideration could be given to alternative forms of intensive production by local producers on small land areas.

6.3.1.4 Density projections

Land areas identified in the Sweetwaters intervention area for different uses are included in table 18. The total land area for the Sweetwaters intervention area is 251 Ha excluding provision for open space.

Table 18: Sweetwaters land use

Land use	Hectares 2013	Hectares 2033
Residential	185	195
Commercial	22	22
Industrial	23	23
Social services	13	13
Other (sport, cemetery)	8	8
Total land area	251	261

Table 19: Sweetwaters residential projections

Residential	Units	
2013	1 751	structures
2033	13 040	structures
Area for residential land use by 2033	195	Ha
Recommended units per hectare	67	structures
Potential shortfall in hectares (existing & new structures)	-11	Ha

Annexure 3 provides detail on the projection method used in the above tables.

In order to establish the number of structures that will need to be accommodated in Sweetwaters by 2033, an average growth rate of 2% for Vulindlela was calculated using the data Census (2011). Thus it is determined that by 2033 in the order of 13 040 structures will be located in Sweetwaters on 195 hectares of land at a density of 67 units per hectare (table 12) with a potential shortfall in land of 11 hectares. Provision for future expansion is dealt with in section 7.1 of this report.

6.3.1.5 Structuring elements

Residential:

As noted above, in Sweetwaters residential area comprises two sections (figure 14). That located to the west includes existing settlement located on ITB land. The concept is for this area is to densify over time as land holders see value in this taking place. The area to the south east (diagram 7) is located on freehold land and should be developed to accommodate 2 to 3 storey walk up structures located on 600 square meter properties or alternatively multiple storey flats. Areas for expansion are dealt with under section 7.1 of this document.

Commercial:

Two types of commercial are envisaged for the Sweetwaters centre and include:

- Small retail outlets located along both sides of the proposed high street as detailed in diagram 7 and figure 14.
- Larger scale shopping centre complex located off the Sweetwaters-Dennis Shepstone intersection close to the site of the present day 'Bible College'.

It is not feasible to estimate number of commercial units that could be accommodated in the land area available, this will be subject to supply and demand during the detailed design and developmental phases when implementing the VLAP.

Manufacturing:

The concept involves establishing an incubator manufacturing park complex (figure 14) for small scale operators sharing resources, costs and opportunities with processing mainly geared towards supplying local needs.

It is not feasible to estimate the size of factory units that could be accommodated in the land area available, this will be subject to supply and demand during the developmental phase of the VLAP.

Social services:

As noted in the status quo findings, social service facilities are scattered throughout Vulindlela to meet the needs of people resident in the rural settlements. As a result there are challenges associated with the provision of higher quality services in numerous scattered facilities. Following the NSDP and PGDP principles the indications are that provision of fewer higher order services in central locations is the most cost effective route to follow in future. Consequently, the type of service recommended for Sweetwaters, as a proposed centre in Vulindlela, should be closely linked with its location in the regional hierarchy of centres. In this case this includes Pietermaritzburg, the proposed new centre at Edendale and then the three higher order centres proposed for Vulindlela.

Table 12 below provides an indication of the types and levels of services appropriate to Sweetwaters. However, owing to limitations on land available in the Sweetwaters footprint the aim should be to build fewer bigger and more comprehensive facilities to serve the population of this area. Hence the suggested number of facilities required will have to be determined at detailed design stage. Once the type and level of services for Sweetwaters has been finalised it may be that the land area allocated for social services facilities will have to be increased to accommodate the facilities required.

Table 20: Types and levels of services for Sweetwaters

Order of kit	Sector	Facility
Secondary kit (inside urban edge)	Education	Primary school
		Secondary school
		Mobile library (if insufficient for library)
		Library/Resource centre
	Public space	Public space
	Health	Mobile clinic (if insufficient for clinic)
		Clinic
		Community health centre
	Judicial	Traditional court
	Police	Satellite police station
	Postal	Post office

Source: Demonstration Project on Capital Investment (Isikhungusethu, 2012)

Sport and recreation:

It is proposed that the existing sports facilities in Sweetwaters (figure 14) be expanded to include a wider range of facilities to service the need of local and surrounding communities. It is further proposed that provision is made in the detailed layout planning of Vulindlela for a number of open spaces commensurate with population densification and incorporating the environmentally sensitive areas in the proposed centre.

Cemetery:

Provision has been made for the establishment of a cemetery facility in Sweetwaters.

Utility services:

A review of types and levels of services for intervention areas is provided in section 6.4.3 in this document.

6.3.2 Taylors Halt

6.3.2.1 Location

Taylors Halt centre is located on the M70 some 25kms distant from Pietermaritzburg and 18kms distant from Edendale (figure 13 Location of intervention areas). Owing to its central location in Vulindlela access to land for growth and development and ease of access to the majority of settlements in the area, it has been selected as the major growth point to accommodate future development in this management area of Vulindlela.

6.3.2.2 Linkages to surrounding areas

Taylors Halt is located on the IRPTN proposed by Msunduzi and is inclusive of one of the bus terminals and feeders. It has direct linkages with Sweetwaters on the newly constructed KwaShange road and the section passing through Esibomvini and KwaMpande (P399). The rail route traverses the northern and western perimeter of Taylors Halt providing access to cost effective transportation of freight and passengers. There are also well defined gravel roads which link settlements to the south and west of Vulindlela to Taylors Halt.

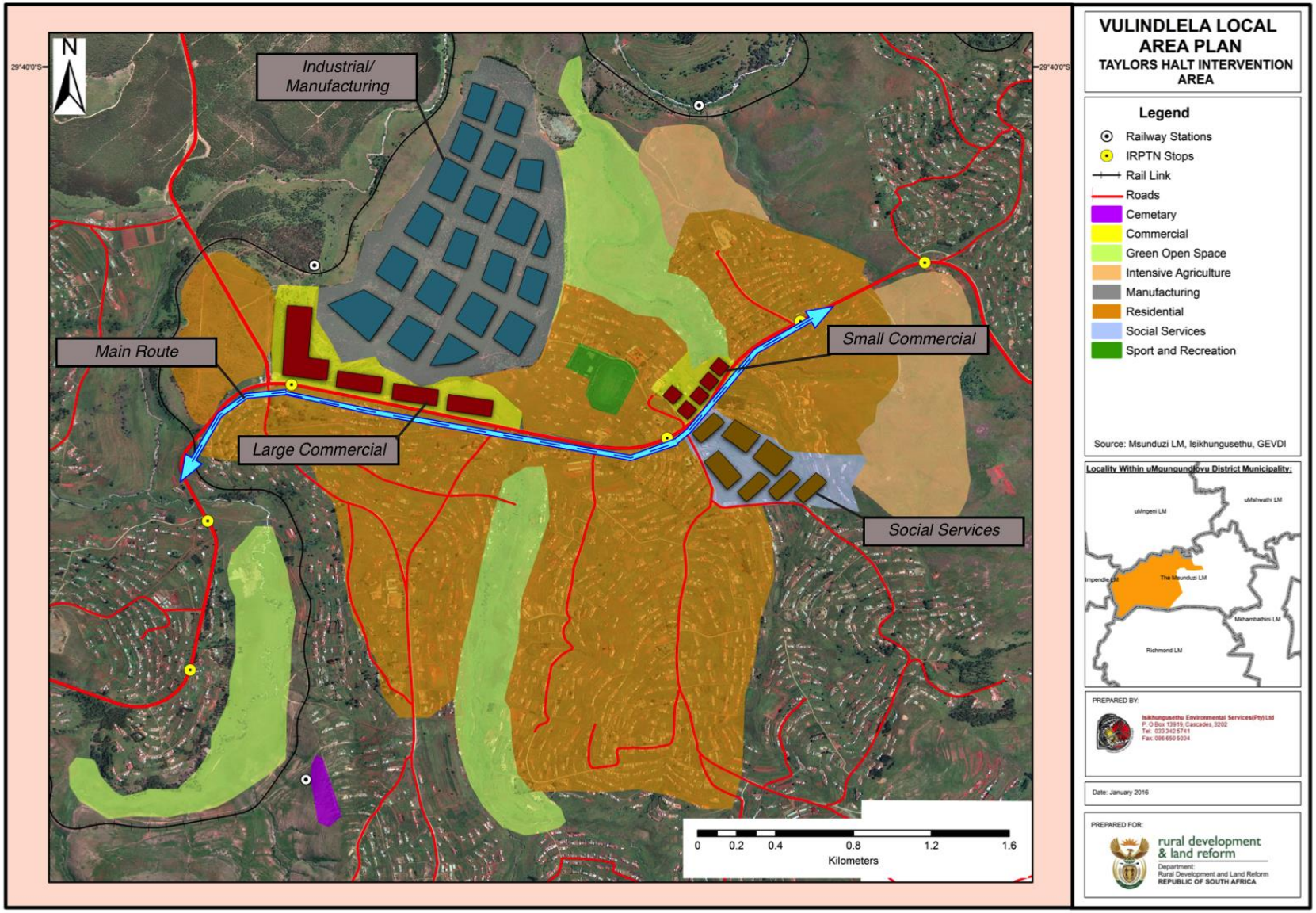
6.3.2.3 Spatial structure

The Ingonyama Trust Board prepared a layout for Taylors Halt (undated) aimed at structuring the proposed centre of Taylors Halt (undated layout plan). It was not possible to establish the status of that layout and hence certain of those concepts have been incorporated in the proposed spatial structure in diagram 8 below.

The proposed centre of Taylors Halt is located on undulating land where the higher ground is suitable for further development. The area was 'betterment planned' in the 1970s and thus all existing settlement was confined to higher land with the lower flatter areas being set aside for cultivation and food production. The proposed development of Taylors Halt involves capitalising on the relatively large area of land available for the establishment of high density residential development, commercial-retail, industrial-manufacturing and the provision of higher order social services including health, education, security, sport etc. (figure 15).

In order to achieve the transformation of this into a growth centre, alignment of the main transportation routes (road and rail) has been taken into account. This includes the M70 which carries the majority of traffic and provides access to Edendale and Pietermaritzburg centre and the settlement along the route (figure 15). The second major access route is the P399 which links Taylors Halt to Sweetwaters on a surfaced all weather road. The western side of Taylors Halt is also bounded by rail – that is the rail line that links Pietermaritzburg with Donnybrook and Creighton. A further important factor affecting the proposed structure of the centre is the need to introduce new developments and new concepts associated with the use of urban space which constitute a quantum 'break away' from the more traditional development characterising the eastern areas of Taylors Halt (figure 15). The suggestion therefore is for the introduction of new development concepts on the western side onto unencumbered land and over time these will extend along the M70 in an easterly direction reaching the more traditional centre proposed in the eastern areas. High density commercial development on both sides of the M70 is not being proposed owing to the high traffic volumes and future status of this as a proposed rapid transport route.

Figure 15: Taylors Halt spatial concepts



The notion, to the western side of Taylors Halt, is for high density upmarket residential development to be located adjacent to the proposed large scale commercial area to be set aside for shopping centre development. This new upmarket residential area will also benefit from access to the proposed industrial area which could, once developed, provide employment and entrepreneurial opportunities for local residents. The industrial, commercial and residential sites located to the western area of Taylors Halt are not settled at this time and hence provide an opportunity to fast track development in these areas. This would be subject to planning, environmental and agricultural authorisation and support from the ITB and traditional councils. All the other areas identified for development are settled and hence this will serve to slow down the rate of development in those areas. Hence the concept of 'spearheading' the initiative with unencumbered land and then using the momentum to 'drive' further development into settled areas. The initiative for this development will have to be taken by the Msunduzi Municipality and traditional leaders working through a proposed Joint Management Unit (section 8).

In the settled areas the concept is to transform the land immediately south of the industrial area into high density affordable housing with at least a 1 or 2 walk up provision to encourage densification. This area is intended to accommodate the workforce in the industrial and commercial areas. The eastern side of Taylors Halt is characterised by more upmarket residential development. Social services facilities and government offices are located on land south of the M70 and east of the main intersection leading to the proposed industrial area. Small scale retail outlets located to the north and south of the intersection of the M70 and a local road leading to sports complex is located to the north of the M70. The southern areas are all settled and it is proposed that over time property holders will recognise the benefits of densification accompanying the growth of Taylors Halt as the main centre of Vulindlela. Densification of these areas will have to be initiated by the municipality and traditional structures.

6.3.2.4 Density projections

A total area of 632 Ha has been identified in table 21 for the proposed Taylors Halt growth centre comprising:

Table 21: Taylors Halt land use

Land use	Hectares 2013	Hectares 2033
Residential	450	517
Commercial	33	33
Industrial	116	116
Social services	24	24
Other (sport, cemetery)	9	9
Total land area	632	699

Table 22: Taylors Halt residential projections

Residential	Units	
2013	3 549	structures
2033	34 630	structures
Area for residential land use by 2033	517	Ha
Recommended units per hectare	67	structures
Potential shortfall in hectares (existing & new structures)	-67	Ha

Annexure 3 provides detail on the projection method used in the above tables.

In order to establish the number of structures that will need to be accommodated in Taylors Halt by 2033, a 2% average growth rate was used based on 2011 Census data. Thus 34 630 structures will need to be accommodated on 517 hectares of residential land at 67 units per hectare. This could lead to a shortfall in land area available for housing by 2033. Provision is made for expansion of residential development post 2033 in section 7.1 of this report.

6.3.2.5 Structuring elements

The following structuring elements are noted for Taylors Halt:

Residential:

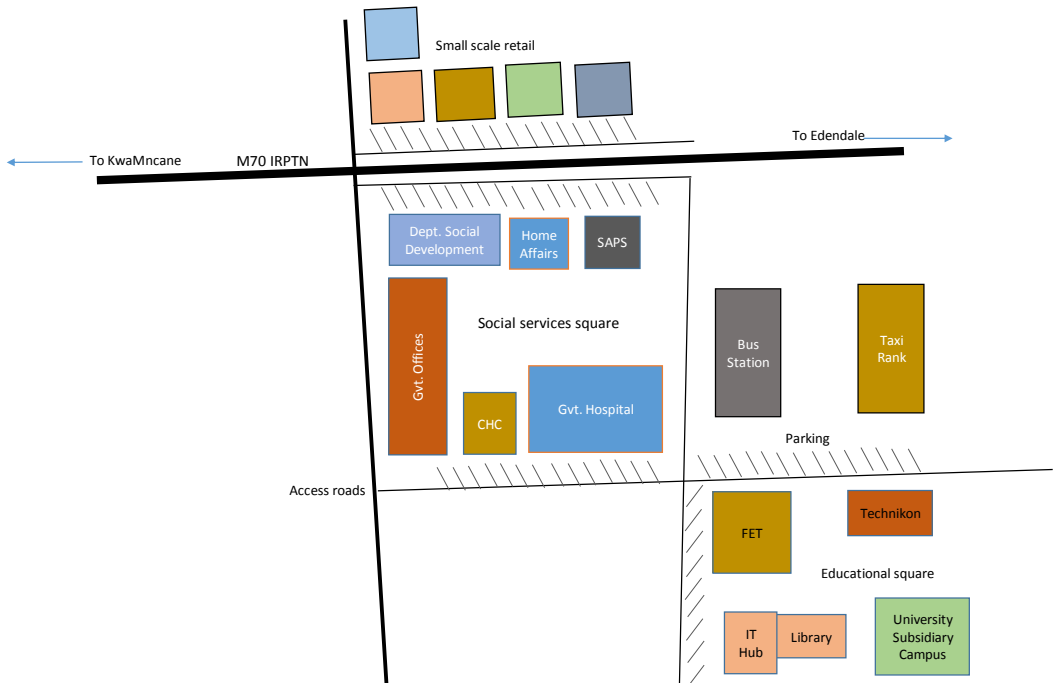
A number of areas suitable for high density residential establishment were identified at Taylors Halt to accommodate future population growth (figure 15). Since this is the main centre envisaged for Vulindlela it includes the largest land areas for future development. As noted above it is proposed that the unencumbered western areas of land (figure 15) are developed first in order to introduce the concept of densification to local residents. This opportunity can then be extended to the area adjoining the industrial land prior to moving south of the M70. It is suggested that owing to scale of the area identified that densification will follow pressure for land as employment and service opportunities generate in the eastern and western centres comprising Taylors Halt.

Commercial:

As noted above, two areas of commercial development are proposed for Taylors Halt (figure 15). The first larger block is envisaged for large scale retail outlets such as a shopping complex and wholesalers. The second block of commercial land is envisaged for small scale retail and services outlets typically dealing with local pedestrian trade requirements. Owing to the importance of Taylors Halt as the future centre of Vulindlela it is proposed that the small retail outlets be structured such that a public square is created on the inside of the shops and parking located on the outside (diagram 8). This square should be linked with and preferably merged into a government services square surrounded by government services facilities with parking on the outside. This would provide Taylors Halt with a centre and a sense of place and allow those dependent upon public transport to easily access commercial and social services in the same space with easy access to transport routes (diagram 8).

In contrast the western commercial area would be characterised by large scale retail, manufacturing and high density residential development. The focus in the west would be on providing access to large scale commercial and residential development for people dependent upon private transport and resident in the high density newer upmarket areas of Taylors Halt (figure 15 and diagram 8).

Diagram 8: Taylors Halt urban centre spatial concepts



Agri-Industrial:

The concept for the industrial area (figure 15 and diagram 8) is to initially establish an agri-processing park comprising a cluster of symbiotic processing units. These would draw on local suppliers of agricultural products including: timber, grain, red and white meat, vegetables, fruit and root crops. An information centre would be located at the centre of the agri-processing hub. The prime responsibility of the centre would be to achieve the following linkages: link producers with input suppliers; producers with refrigerated storage facilities; processing and packaging plants; processors with markets; producers and processors with market information and market 'intelligence'; and producers and processors with transport options (short haul – bakkie, long haul multiple articulated trucks or/rail). The centre would also provide information on training for producers and processors.

The agri-processing hub would need to be used to 'kick off' the development of the industrial centre at Taylors Halt. This in turn would have a positive impact on local farmers in that there would be locally based processing, storage and marketing capacity. A further incremental development in the industrial area could involve the establishment of a traction, haulage and repair section for agricultural equipment where small holder farmers are often not able to purchase, operate and maintain this type of equipment. If centralised under some form of co-operative, a unit could be based in the industrial area servicing local agricultural requirements. Finally a major industry could be established in the industrial area dealing with the processing of timber products using the wood produced locally. Production could include building materials (roofing, windows and doors, wall cladding etc.). Provision should also be made over time to accommodate industries seeking serviced land in Vulindlela with access to rail owing to space and cost limitations in Edendale and Pietermaritzburg.

Social services:

As noted the emphasis should be for government agencies responsible for social services facilities to provide these in a central location close to public transport to ensure ease of access by people who do not have access to private transport (figure 15 and diagram 8). The location of schools in Taylors Halt should be determined by walking distance for the learners in the town and by the provision of

boarding facilities for out of town learners with access to public transport. As noted in the NDP and PGDS the emphasis in planning for these schools should be on improving the quality of education through increasing the size and therefore viability of these facilities. Larger better resourced education facilities should replace smaller scattered rural schools where it is difficult to attract and retain well qualified teachers and associated teaching equipment.

Provision should also be made in Taylors Halt for post school education at both technical and academic levels. The FET colleges and universities need to establish subsidiary campuses in Taylors Halt to make provision for a wide range of educational opportunities in this area (diagram 8).

In order for education to succeed it is essential for different forms of communications to be fully functional in Taylors Halt including internet, mobile phone services, fibre-optic telecommunications etc. and the establishment of a comprehensive IT hub facility that will enable students and scholars to gain access to the wealth of information on internet a pre-requisite is for the construction of a broad band internet network to Vulindlela.

The full range of social services that needs to be provided in Taylors Halt, as the main centre of Vulindlela, is contained in table 14 below. The size and number of facilities will have to be determined by the relevant line function departments in the detailed design phase of the development of Taylors Halt. Table 14 below provides an indication of the types and levels of services appropriate to Taylors Halt as a higher order centre in Vulindlela. Following policies outlined in section 2 of this document the aim should be to build fewer bigger and more comprehensive facilities to serve the population of this area.

Table 23: Types and levels of services for Taylors Halt

Order of kit	Sector	Facility
Tertiary kit (formal town - inside urban edge)	Education	Primary school
		Secondary school
		Mobile library (if insufficient for library)
		Library/Resource centre
		Tertiary education/training
	Public space	Public space
	Health	Mobile clinic (if insufficient for clinic)
		Clinic
		Community health centre
		Regional hospital
	Judicial	Traditional court
		Magistrate's court
	Police	Satellite police station
		Police station
	Postal	Post office

Source: Demonstration Project on Capital Investment (Isikhungusethu, 2012)

Sport and recreation:

In planning for the future development of Taylors Halt the existing sports facility (figure 15) should be expanded to include a wide range of sporting activities with access to equipment and trainers. The aim is to provide youth with options in terms of interests and possible careers. Schools should each have access to lower order sporting facilities where access to the central large scale facility is available for those scholars who aspire to higher levels of achievement.

Cemetery:

Provision has been made for the establishment of a cemetery facility to accommodate the need for land in future for burials.

Utility services:

A review of types and levels of services for intervention areas is provided in section 6.4.3 below.

6.3.3 KwaMncane

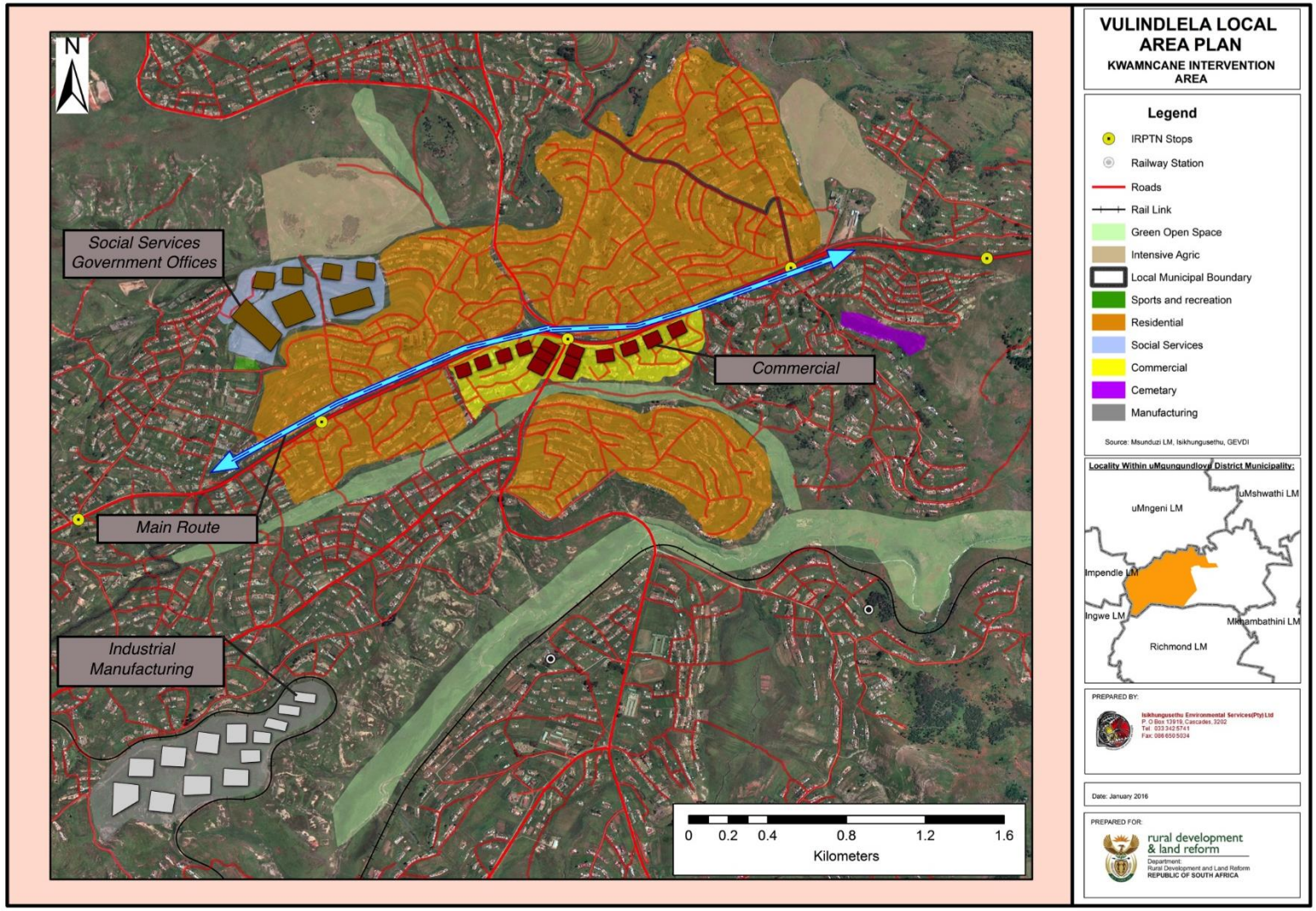
6.3.3.1 Location

KwaMncane is located on the western side of Vulindlela on the M70 some 10 kilometers from the Msunduzi Municipality's boundary (figure 13 – Location of intervention areas). It is situated on a ridge line running in a westerly direction with a well-developed valley system located to the south.

6.3.3.2 Linkages to surrounding areas

KwaMncane is located close to the outer boundary of greater Msunduzi and the intersection between the M70 and the R617 linking this area to Pietermaritzburg, Boston and Howick (figure 13). It also has linkages south to the apostolic mission at Mbambane and the prison adjoining the boundary of this area of Vulindlela.

Figure 16: KwaMncane spatial concepts



6.3.3.3 Spatial structure

Formulating a workable spatial concept for KwaMncane has proven to be a complex process in terms of topography to the south (two incised valley systems), relatively dense residential development all around the intersection, possible areas of open land for expansion to the north west (on agricultural land) and very limited open space for small and large scale commercial, social services and industrial development. It is in this context that a potential concept for spatial development of the centre has been prepared and is included in figure 16.

The spatial concept for KwaMncane, as a development development centre, includes the establishment of a high density residential development to the north east and north west of the centre (i.e. main intersection). This would be accompanied by the establishment of an area set aside for small scale commercial and services outlets located along the M70 (diagram 9). There is a portion of agricultural land located to the north west of the centre of KwaMncane which could potentially be used for social services. The proposed large scale manufacturing area is located to the south west of the centre on land surrounded by rail. Whilst separate from the proposed centre of KwaMncane it is the only unencumbered flat area close to rail suitable for future expansion of the manufacturing sector once the area identified at Taylors Halt is fully developed. Establishment as a manufacturing area will be subject to planning, environmental and agricultural approvals and the full support of the local traditional structure.

In essence, given the topography, the structure of the proposed intervention area is aimed at achieving efficiency in terms of accessibility and movement, but at the same time accommodating what exists in the form of an 'upgrade' to enable future growth and development in KwaMncane.

Land surrounding the centre has a high level of settlement development and therefore changing existing patterns of land use in a traditional area in favour of densification and commercialisation will be challenging and take a number of years to achieve.

6.3.3.4 Density projections

Land areas identified in the KwaMncane intervention area for different uses are included in table 24. A total area of 355 Ha has been identified for the proposed KwaMncane centre as identified in the table.

Table 24: KwaMncane proposed land development

Land use	Hectares 2013	Hectares 2033
Residential	265	227
Commercial	38	38
Industrial	40	40
Social services	8	8
Other (sport, cemetery)	4	4
Total land area	355	227

Table 25: KwaMncane residential projections

Residential	Units	
2013	3188	structures
2033	15175	structures
Area for residential land use by 2033	227	Ha
Recommended units per hectare	67	structures
Potential surplus in hectares (existing & new structures)	+38	Ha

Annexure 3 provides detail on the projection method used in the above tables.

In order to establish number of structures that will need to be accommodated in KwaMncane by 2033 a 2% average growth rate was used based on 2011 Census data. Thus 15 175 structures are anticipated on 227 hectares of residential land. This is based on a density of 67 units per hectare leaving a potential surplus of 38 hectares if this development takes place (i.e. additional land area for expansion).

6.3.3.5 Structuring elements

The structural elements and their associated linkages are summarised in figure 16. These elements will be considered further in this section of the document.

Residential:

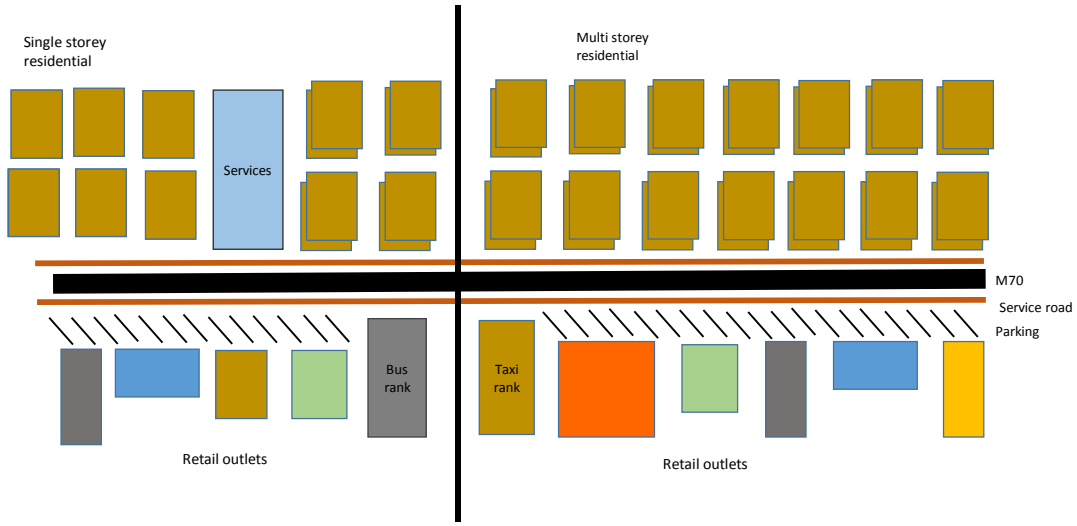
As noted, the majority of the land identified for development in KwaMncane has been settled with higher densities towards the main intersection. Newer formal housing development has been implemented to the south east of the more traditional areas. As may be noted in figure 16, in order to establish opportunities for growth as a centre, residential densities need to increase to enhance thresholds and in the process improve the viability of business and improve the quality of social and utility services provision. Owing to topography south of the centre and to the fact that there is a concentration of traditional residential development north of the centre the opportunities for densification are located to the north east and north west of the main intersection. Consequently, unlike Taylors Halt and Sweetwaters there are no large areas of unencumbered land available to spearhead the densification process. The notion is that the concept of settlement formalisation and upgrade is introduced to the property holders with the view to identification of portions of vacant land for sub-division and construction of 2 to 3 storey walk ups. This will be a slow incremental process, but the aim is to achieve residential densification north east and north west of the existing centre (diagram 9). The more upmarket type of development could be located further away from the centre for example to the south east where a development is in progress.

Commercial:

Ideally, commercial and social services should be located ether at or close to the main intersection in order to optimise accessibility for pedestrian traffic. However, in order to accommodate existing residential development at KwaMncane (north of the M70), the concept is to re-enforce and increase the number of small scale commercial developments located south of the M70. The concept is to develop a service road off the main road and use this for access to off-street parking and to the shop frontages (diagram 9). The aim is to encourage local trade based primarily on pedestrian traffic and limited private transport. Consequently these retail outlets have to be centrally located, provide a

variety of goods and services at competitive prices and provide customers ease of access to shops and public transport. The spatial concept for the centre of KwaMncane is detailed in diagram 9 below.

Diagram 9: KwaMncane: proposed land use



Agri-industrial:

As noted in figure 16 a relatively large area of land has been identified to the south west of the centre of the proposed KwaMncane. This land is relatively flat and has direct access to rail. As was indicated in Taylors Halt, it is suggested that this area is set aside by the municipality in co-operation with the relevant traditional councils for future manufacturing development. This area is suited to the establishment of an agri-park type development. The idea is to include a range of related services industries in this area. It is suggested that industrial development in KwaMncane is something which is only likely to take place in the medium to longer term, once Taylors Halt is functional and additional land is required.

Social services:

There is limited land available for social services establishment in KwaMncane and thus the area located to the north west of the centre (figure 16) has been identified for this use (currently agricultural land). Following the NDP principle the aim here would be to rationalise the scattered social services facilities located in surrounding rural areas and in the process to improve the quality of services provided particularly in health, education, security and welfare services at KwaMncane recognising the close proximity of Taylors Halt as the primary centre for Vulindlela.

Table 12 below provides an indication of the types and levels of services appropriate to KwaMncane as a level 2 centre (figure 16). However, owing to limitations on land available in the KwaMncance footprint the aim should be to build fewer bigger and more comprehensive facilities to serve the population of this area. Hence the suggested number of facilities required will have to be determined at detailed design stage. Once the type and level of services for KwaMncane has been finalised it may be that the land area allocated for social services facilities will have to be increased to accommodate the facilities required.

Table 26: Types and levels of service at KwaMncane

Order of kit	Sector	Facility
Secondary kit (inside urban edge)	Education	Primary school
		Secondary school
		Mobile library (if insufficient for library)
		Library/Resource centre
	Public space	Public space
	Health	Mobile clinic (if insufficient for clinic)
		Clinic
		Community health centre
	Judicial	Traditional court
	Police	Satellite police station
	Postal	Post office

Source: Demonstration Project on Capital Investment (Isikhungusethu, 2012)

Sport and recreation:

A sports stadium with a limited number of facilities needs to be established in KwaMncane as there is no such facility in the area at the present time. One of the possible locations is at the entrance to the eastern side of town where land could be made available for this use subject to environmental and agricultural authorisation. This would not be a full stadium as envisaged in Taylors Halt, but rather a lower order facility with a number of different types of sport available for residents of the centre and surrounding areas.

Cemetery:

Provision has been made for the establishment of a cemetery facility to accommodate the need for land in future for burials accompanying densification of settlement.

Utility services:

A review of types and levels of services for intervention areas is provided in section 6.4.3 below.

6.3.4 Mafakathini

6.3.4.1 Location

The Mafakathini intervention area is located in the western sector of Vulindlela (figure 13 Location of intervention areas). The area adjoins the R617 in the north and KwaMncane to the south. The intervention area is located on a relatively densely settled hilltop between two local transport routes and large surrounding rural settlements.

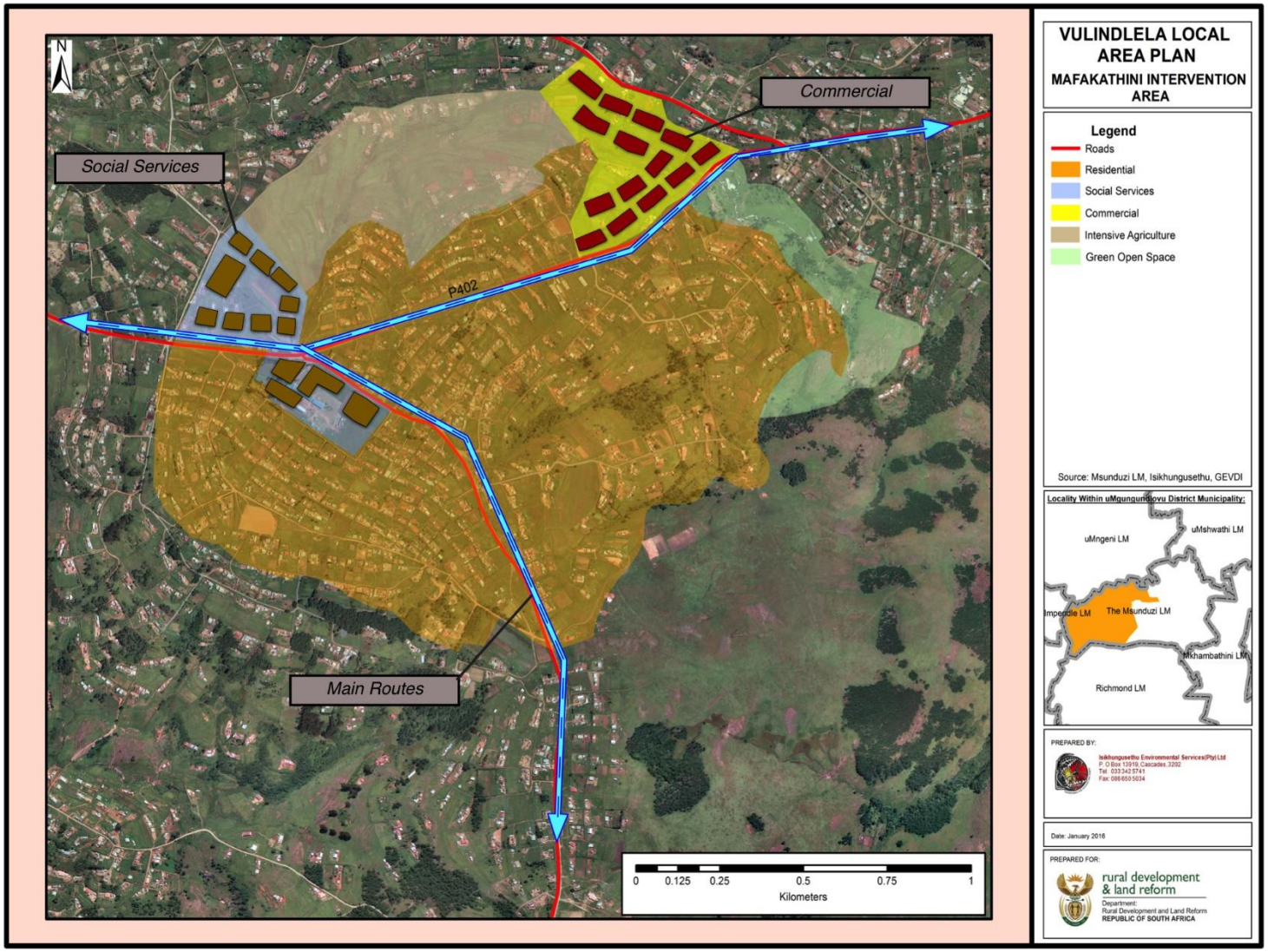
6.3.4.2 Linkages to surrounding areas

The main linkages to and from Mafakathini include the D2343 leading to the R617 and the local route leading to KwaMncane to the south. These are surfaced gravel roads and therefore this limits accessibility particularly in the wet season.

6.3.4.3 Spatial structure

The concept at Mafakathini is to develop two different but related intersections surrounded by settlement to achieve a low level centre in this intervention area (figure 17). Whilst there is pressure for development in this part of Vulindlela this has not been identified as a major growth point and hence limited commercial and services development is envisaged for this intervention area in the short to medium term. The western intersection of the proposed development would include a social services hub involving the existing school in this complex. The eastern intersection would include a commercial complex with provision for a number of small scale outlets located on two of the intersecting roads thereby enhancing access. The existing residential areas located to the north and south of the access road would remain with the potential for densification in future. A fairly large area of unencumbered land is located to the north of the settlement and has been identified for intensive agricultural production in the short to medium term.

Figure 17: Mafakathini spatial structure



6.3.4.4 Density projections

Land areas identified in the Mafakatini intervention area for different uses are included in table 27. A total area of 153 Ha has been identified for the proposed Mafakatini centre as identified in the table.

Table 27: Mafakatini proposed land development

Land use	Hectares 2013	Hectares 2033
Residential	141	257
Commercial	7	7
Industrial	NA	NA
Social services	5	5
Other (sport, cemetery)	NA	NA
Total land area	153	269

Table 28: Mafakatini residential projections

Residential	Units	
2013	1 621	structures
2033	12 846	structures
Area for residential land use by 2033	257	Ha
Recommended units per hectare	50	structures
Potential surplus in hectares (existing & new structures)	116	Ha

Annexure 3 provides detail on the projection method used in the above tables.

In order to establish number of structures that will need to be accommodated in Mafakatini by 2033 a 2% average growth rate was used based 2011 Census data. Thus 12 846 structures are anticipated on 141 hectares of residential land at densities of 50 units per hectare leaving a shortfall of 116 hectares by 2033. The land for intensive agriculture immediately north of the residential area (figure 17) has been included as a potential expansion area for residential development post 2033 if necessary.

6.3.4.5 Structuring elements

Residential:

As noted above, residential comprises of two sections north and south of the road on traditional land (figure 17). The concept is for limited densification in future in the existing and new settlement areas adjoining the two intersections in Mafakathini.

Commercial:

The commercial anticipated for Mafakathini includes small retail outlets located along two of the roads comprising the intersection located to the north of the eastern intersection.

Manufacturing:

No provision is made for manufacturing at Mafakathini owing to the fact that it is a lower order centre in Vulindlela.

Social services:

Land for social services is located at the western intersection comprising Mafakathini centre. This will include lower order services. Table 29 below provides an indication of the types and levels of services appropriate to Mafakathini as a lower order centre.

Table 29: Types and levels of services for Mafakathini

Order of kit	Sector	Facility
Primary kit (Emerging town - inside urban edge)	Education	Primary school
		Mobile library
	Public space	Public space
	Health	Mobile clinic (if insufficient for clinic)
		Clinic

Source: Demonstration Project on Capital Investment (Isikhungusethu, 2012)

Sport and recreation:

It is proposed that the sports facilities in Taylors Halt and KwaMncane be expanded to include a range of other sporting facilities and that the residents of Mafakathini have access to the facilities in these areas for sporting purposes.

Cemetery:

Provision will need to be made for a cemetery in the medium to longer term at Mafakathini accompanying densification.

Utility services:

A review of types and levels of services for intervention areas is provided in section 6.4.3 below.

6.3.5 Ngubeni

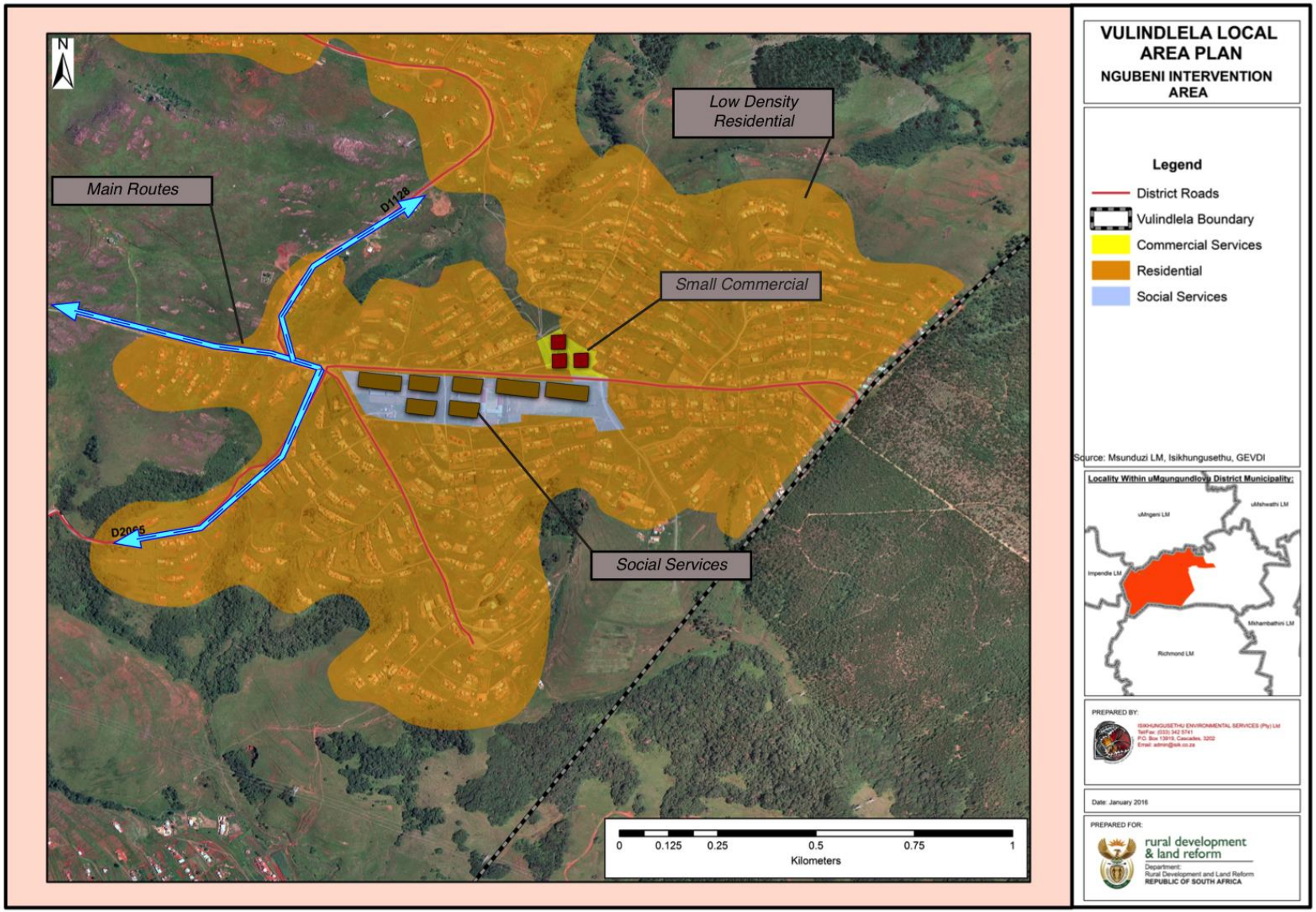
6.3.5.1 Location

Ngubeni is located south east of Taylors Halt on the boundary of Msunduzi Municipality overlooking the Baynesfield estate. If established as a low order services centre, it would provide services to households located in settlements within a 5km radius of the centre particularly to the north east, north west and south west. Ngubeni already has both a primary and secondary school located near the main intersection in the settlement.

6.3.5.2 Structuring and elements

Land is available in the centre of the settlement which could be utilised for further social services facilities such as community health centre, mobile clinic, mobile library, pension pay point etc. In addition land needs to be set aside for the establishment of small retail outlets providing for the needs of local communities. Further research will be required to establish the population that would utilise these facilities (catchment) to establish the viability prior to proceeding with establishment.

Figure 18: Ngubeni spatial concepts



6.3.5.3 Density projections

It should be noted that as a lower order centre in Vulindlela located in a low density settlement, no further growth or densification of residential development has been planned for this area.

A total of 140 hectares has been identified for the Ngubeni intervention area as noted in table 30 below.

Table 30: Ngubeni proposed land development

Land use	Hectares 2013	Hectares 2033
Residential	133	NA
Commercial	1	NA
Industrial	NA	NA
Social services	6.4	NA
Other (sport, cemetery)	NA	NA
Total land area	140	NA

Table 31: Ngubeni residential projections

Residential	Units	
2013	1 391	structures
2033	1 391	structures
Area for residential land use by 2033	132.8	Ha
Recommended units per hectare	NA	structures
Potential shortfall/surplus in hectares (existing & new structures)	0	Ha

Annexure 3 provides detail on the projection method used in the above tables.

As noted above, following the concepts included in this plan, Ngubeni as a low density agricultural settlement should not be encouraged to grow and densify beyond current levels. The emphasis in this intervention area is only on expanding social and limited commercial services provision for local residents owing to the relatively isolated location of this area. Thus, it is noted that no provision for densification of residential development has been made at Ngubeni in this plan.

The types and levels of services for Ngubeni as a lower order centre is included in table 32 below and a review of types and levels of services provision is provided in section 6.4.3.

Table 32: Types and levels of services for Ngubeni

Order of kit	Sector	Facility
Primary kit (Emerging town - inside urban edge)	Education	Primary school
		Mobile library
	Public space	Public space
	Health	Mobile clinic (if insufficient for clinic)
		Clinic

Source: Demonstration Project on Capital Investment (Isikhungusethu, 2012)

6.3.6 iNadi

Consideration has been given to the development of a lower order centre at iNadi or KwaDluleni owing to the relative isolation of these settlements from Taylors Halt and Sweetwaters. This is caused by the well-defined ridge line that runs through the north western side of Vulindlela. Whilst these settlements may be inaccessible to the two major centres proposed for Vulindlela they nonetheless have access to Mafakathini, Mpophomeni and the R 617 leading to Howick and Merrivale. Thus it is contended that development of a lower order centre at iNadi or KwaDluleni is unlikely to be viable as local residents would by-pass this in favour of a wider range of social and commercial services in the more developed centres in the sub-region.

6.3.7 Henley Dam

6.3.7.1 Context

It is recognised that the Vulindlela area, including Henley Dam, is an aesthetically appealing environment, however, this could be destroyed by the current trend of uncontrolled urbanisation that is occurring in this area. In order to control this urbanisation a measure of planning needs to be in place, especially in the vicinity of Henley Dam, which could become a high income precinct and a hospitality destination. It has been acknowledged by the authorities that there are already a number of expensive dwellings that have been erected within the vicinity of this water body, some of which fall within the 1 in 100 year floodline which is dangerous for those structures involved.

It has been established at project Steering Committee meetings that Umgeni Water, the current land owner, is concerned regarding the impact on the housing on the water body, and whether the land is not better suited for other land uses, such as recreation. There is recognition that the water body needs to be protected. In addition to the water containment value, the dam plays an important role in the annual, World renowned, Duzi canoe marathon. As a consequence, Umgeni Water has initiated an application in terms of the National Spatial Planning and Land Use Management Act (Act 16 of 2013) and the KwaZulu-Natal Planning and Development Act (Act 6 of 2008), to separate the dam and the 100 year floodline from the rest of the property. It is their intention to retain this portion of land containing the dam, to ensure proposer management of the area. It is intended that the remaining portion of the property be transferred to Msunduzi Municipality. Whilst this application, if supported and approved, will divorce the waterbody from the current encroachment and illegal settlement practices, it does not address the illegal development, verification of the rights of persons who have settled on the land, building plans, encroachment of the 1:100 year floodline, the need for environmental assessments an related matters.

Where dwellings have been constructed below the 1 in 100 year floodline, the matter will have to be dealt with by the Department of Water Affairs as they have mandate to deal with such issues.

The Henley Dam area, is a relatively small, but important part of Vulindlela and the LAP. There are diverse views regarding the long term vision for the area, which includes using the area for agricultural purposes. The fact of the matter is that the land owner and authorities have allowed the building a number of high value dwellings on the property. Retrospective enforcement under such circumstances, based on experience has failed. To avoid that this portion of land delay the implementation of the remainder of the VLAP, it has been agreed that this land parcel needs much more detailed assessment and consultation which should be dealt with separate from the LAP process.

To affectively deal with the *de facto* development around the dam, a separate process briefly mentioned hereunder, needs to be undertaken by key stakeholders responsible for the land. This includes:

- A land rights enquiry.
- A geo-technical assessment.
- Floodline determination.
- An environmental impact assessment.
- A traffic impact assessment.
- Town formalisation.
- Survey of the land.
- Community consultation.
- Method and type of servicing.

However, this is beyond the scope of this project and this study will only be able to make recommendations as to the best route to follow in order to achieve the desired result. It is against this background that the following proposals are made for the future development of this area with a suggested strategy for resolving land-legal issues contained in Annexure 1 of this document.

As noted in the Status Quo Report for Vulindlela, the water body at Henley Dam and surrounding land areas are administered by Umgeni Water on behalf of the Department of Water Affairs. It appears that there may be some confusion over responsibility and legality for the land and development surrounding the dam. This is due to the fact that land has been allocated for upmarket housing development immediately to the east of the dam. This includes land settlement that would appear to be within the floodline of the dam. It is noted in discussions with officials from Msunduzi that this upmarket development has not been approved by the municipality. Furthermore it does not have access to a level of service that is commensurate with the type of housing that has been erected in this area.

6.3.7.2 Structure

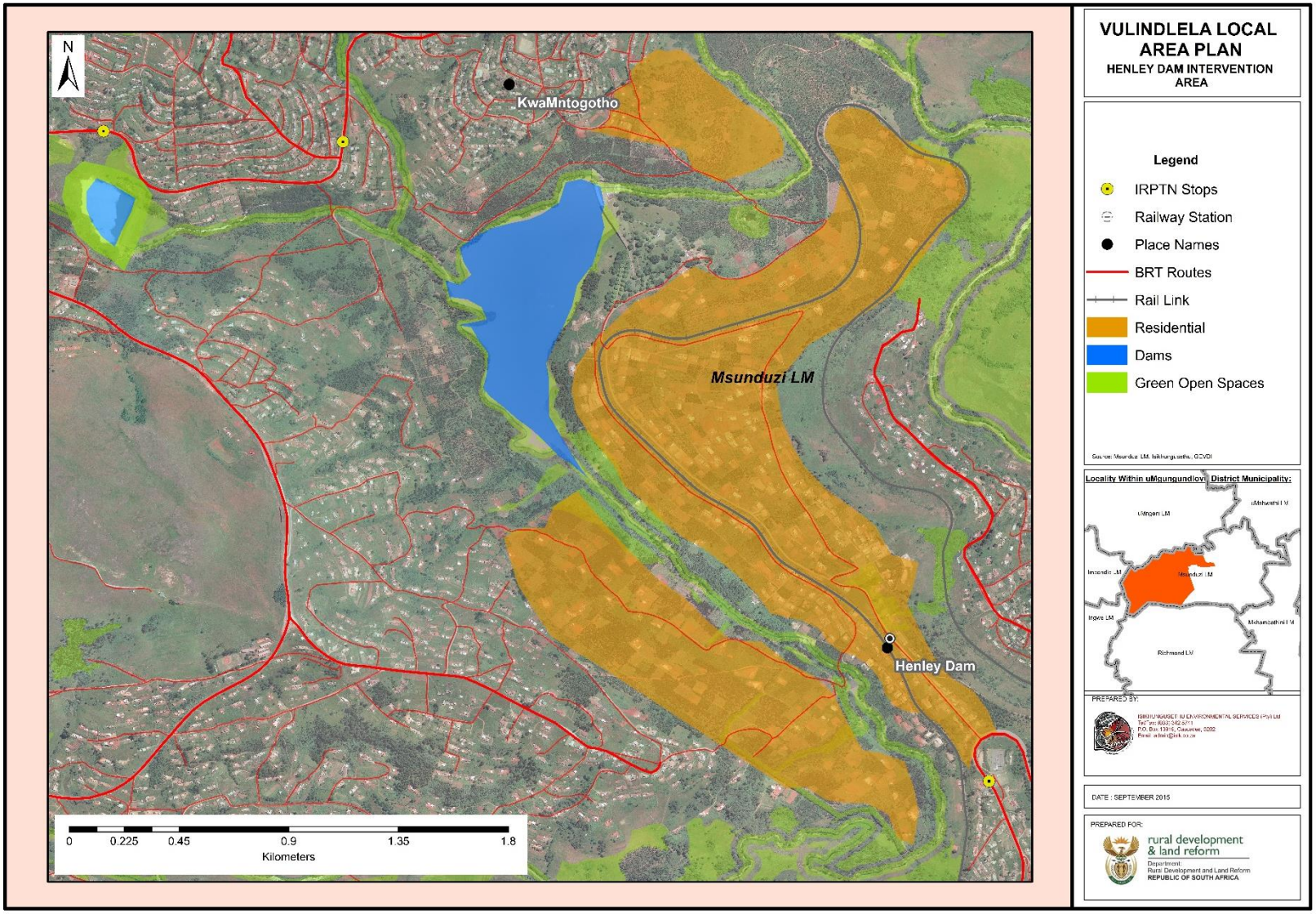
Provision should be made in planning for the future development of Vulindlela to accommodate upmarket low density residential development to encourage investment in the area by entrepreneurs and property investors. In order to make provision for this type of development it may be appropriate to extend the development at Henley Dam in the following directions (figure 19):

(i) The partially settled land on the higher ground above western side of the dam which runs parallel to the main inlet and the water body itself.
(ii) The tongue of land extending into the valley below the dam wall.
(iii) The land which has already been developed which is located on the eastern side of the dam.

If this concept were to be acceptable to the municipality and affected traditional structures, then the selected areas could be further investigated and set aside for excision from the ITB and privatisation for upmarket development and utility services provision by the municipality.

Where traditional councils receive further requests for upmarket residential development outside of identified urban centres in Vulindlela, then these could be channelled into the areas identified in figure 19.

Figure 19: Proposed upmarket development areas



6.3.7.3 Structuring elements

A total area of 228 hectares of residential land has been identified for the proposed Henley Dam upmarket residential development. This does not include social services, commercial or industrial since this area is only intended as upmarket residential.

Table 34 provides an indication of structures likely to be located at Henley Dam in 2033 based on an average 2% growth rate. The land required to accommodate these structures at a density of ten units per hectare is 206 hectares while the available land amounts for 228 hectares. This means a limited amount of land for upmarket development may be available post 2033 depending on demand.

Table 33: Henley Dam proposed land development

Land use	Hectares 2013	Hectares 2033
Residential	228	206
Commercial	NA	NA
Industrial	NA	NA
Social services	NA	NA
Other (sport, cemetery)	NA	NA
Total land area	228	206

Table 34: Henley Dam residential projections

Residential	Units	
2013	363	structures
2033	2 006	structures
Area for residential land use by 2033	228	Ha
Recommended units per hectare	10	structures
Potential surplus in hectares (existing & new structures)	22	Ha

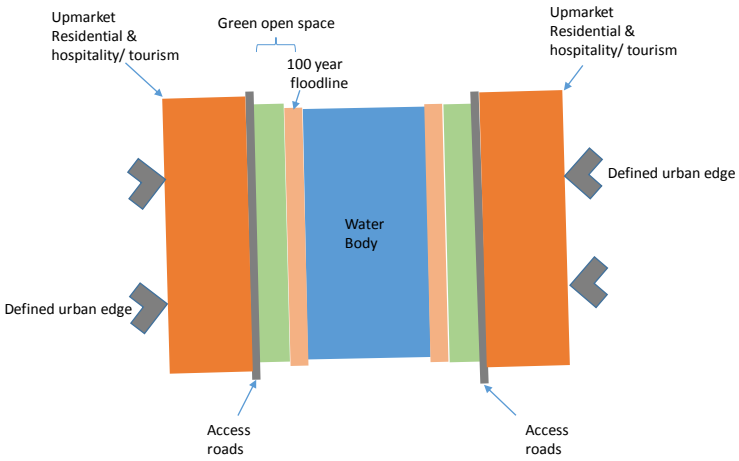
Annexure 3 provides detail on the projection method used in the above tables.

In order to establish the number of structures that will need to be accommodated in Henley Dam by 2033, a 2% average growth rate was used based 2011 Census data. Thus 2 006 structures will need to be accommodated on 228 hectares of residential land at 10 units per hectare.

The aim in promoting further development of this area would be to consolidate upmarket residential development on the higher ground around the dam following examples of inland water bodies such as: the Vaal and Hartebeespoort dams. However, development around the dam should be defined by a 100 year floodline in addition to the areas set aside for open space(around the dam), where this exceeds the floodline (diagram 10). The outer limits of development should be defined by clearly identified urban edges included in the land use scheme for Vulindlela and enforceable by the municipality and traditional structures working jointly to manage land use.

The open space (including the 100 year floodline) around the dam should be linked into open space envisaged for Vulindlela as an integral part of the open space system for Msunduzi. As indicated in diagram 10, the area defined as open space should be set aside and maintained for recreation by the municipality for the benefit all residents of Vulindlela and greater Msunduzi. Hence provision should be made for access roads as a hard edge between the open space and the residential development.

Diagram 10: Structuring elements



6.3.7.4 Social services

As this is not intended as a growth centre, but rather an upmarket residential area no commercial services are envisaged for the Henley Dam area. Similarly social services should be kept to a minimum to ensure that the area retains a low density upmarket profile in order to retain the appeal of the dam and surrounding areas. Hence it may be noted that in table 35 the minimum level of services has been indicated for this area including primary schools and public open space. If residents require higher order services, then they will need to travel to established centres at Sweetwaters, Taylors Halt or Edendale.

Table 35: Types and levels of services for Henley Dam

Order of kit	Sector	Facility	Minimum threshold
Single facility (Rural settlement – outside urban edge)	Education	Primary	1 000 households
	Public space	Public space	1 000 households

6.4 Guidelines for the preparation of schemes in intervention areas

Vulindlela comprises a complex mix of inter-linked land uses. What started in the 1970s as a rural subsistence agricultural settlement has rapidly changed over the last few years, particularly in the high density areas, due to natural population growth, in-migration to perceived improved economic and service advantages and a limited increase in wealth.

The pressure on residential development has led to the demise of high potential agricultural land in favour of residential settlement. This has taken place closer to possible economic and work opportunities and has led to the development of middle and upper income residential development in what were traditional settlements. The more exclusive residential developments are located around Henley Dam and some of the more prominent ridges overlooking Edendale.

In the absence of building design codes and precinct planning along formal lines and boundaries, there is often a mixture of building designs and standards. This is not a bad phenomenon, but a reality and a natural development associated with a community which is becoming more affluent. Design guidelines are useful in establishing standardisation and a sense of place. These guidelines will contribute to achieving defined standards in respect of the residential components of Vulindlela as well as the proposed commercial and industrial developments associated with the intervention areas. It is suggested that a residential development component provides for three categories, namely the high income urban development component, the traditional mixed residential component and the small holder farmer.

In order to accommodate future growth and to develop a more standardised character in these residential areas, the following guidelines for the preparation of a scheme(s) in Vulindlela are proposed.

6.4.1 Scheme objectives

The following objectives should be noted in the preparation of schemes in the proposed intervention areas of Vulindlela. It should be noted that the scheme conditions should be sensitive to the level of intervention area proposed in the hierarchy of centres for Vulindlela.

Objective 1: The key objective in relation to the establishment of a hierarchy of centres and movement routes is to achieve improved efficiency and accessibility in the urban form.

Objective 2: Promote densification and compaction of residential development in the identified centres in the hierarchy in order to limit further urban sprawl.

Objective 3: Unlock the social and economic development potential of Vulindlela through establishment of these intervention areas to create local economic opportunities, markets and to narrow the services and income gap for the people of this area.

6.4.2 Scheme guidelines

The following guidelines are provided in tables 36 and 37 in the context of the above objectives.

Table 36: High density residential component (intervention areas)

Layout	Built form
1. Residential areas should be structured around formal road and service networks. 2. The recognition and protection of environmental protected areas and corridors are to be observed. 3. Existing vegetation, should where possible, and where it will advance the quality of the neighbourhood, be retained. 4. Higher density development should be linked to nodal intersections and main collector routes. 5. Vulindlela is characterised by a number of streams and ecological corridors which must be the basis of planning for the area.	1. Streets, squares and public amenity areas should be designed to enhance connectivity and to allow the flow of people, traffic and fauna and flora. 2. Building density must conform to the accepted density controls for the particular precinct. 3. Height and coverage controls as approved by the Msunduzi Municipality to be used until incorporated in the town planning scheme. 4. Road widths and surfacing to be in line with CSIR and municipal requirements. 5. Building frontages, should contribute and enhance the public nature of the streetscape.

Layout	Built form
Any development along corridors needs to be soft to mitigate the transition. 6. Access to residential erven off provincial, district and local roads must not be permitted, other than the existing pre-VLAP access points.	6. The quality and type of road surfaces must reflect and be based on the volume of traffic. High volume traffic roads must have a durable hard surface. Lesser used roads may be gravel roads. 7. Promote the provision of public spaces in these identified areas including 'squares', open spaces, parks, walkways linked to open space. 8. Make provision for a range of housing typologies as envisaged in the NDP at scales which promote integration of urban areas and provide for the full range of income groups. 9. High density should will comprise a grid layout with limited street frontage and elongated site length to economise on utility costs whilst at the same time providing adequate space for three story walk ups.

Figure 20 below, based on the well-known Cornubia development in eThekwini, provides an example of how higher density controls, integration of parks into open spaces and formal structured road networks can be achieved.

Figure 20: Images from Cornubia

Source: Internet, 25 January 2016.

Table 37: Commercial, manufacturing and mixed use nodes (intervention areas)

Layout	Built form
1. Non-residential development must generally be in the intervention areas as indicated. The municipality and traditional leader structures have the right to agree and support low key special consent applications outside the intervention areas. 2. Access to commercial sites must be approved by the municipality and the Department of Transport where required. 3. Existing vegetation, should where possible, and where it will advance the quality of the neighbourhood, be retained. 4. These area are characterised by a number of streams and ecological corridors which must be the basis of planning for the area. Any development along corridors need be soft to mitigate the transition.	1. Height and coverage controls as approved by the Msunduzi Municipality to be used until incorporated in the town planning scheme. 2. Building lines must be observed. 3. Sufficient on-site safe parking must be provided. 4. Building design and material must be in line with municipal planning and building bylaws and regulations. 5. Service areas should be hidden from viewsheds. 6. Property boundaries and interfaces with open spaces must be landscaped and maintained. 7. Access to pedestrian and public transport must be included in any building and access design. 8. In schemes provision is made for both small scale outlets as well as large scale complexes (where appropriate) to meet current and future retail demands accompanying densification. 9. In intervention areas provision needs to be made for manufacturing parks (small scale) as well as large scale individual factor sites. The types of manufacturing in the different intervention areas should sensitive to nuisance factors (sound, smell, smoke and visual) for adjoining residential and commercial areas.

6.4.3 Services level guidelines

A further factor which should be taken into account in the preparation of a scheme(s) and the detailed planning and design of implementation areas is the issue of levels of services that are appropriate and affordable in these areas. The suggested levels of service are listed in table 38 below and will need to be reviewed at detailed planning and design stage in terms of provincial norms and standards and municipal policy.

Table 38: Suggested levels of service in Vulindlela

Intervention areas	Density/size	Suggested level of service
High and medium density residential	Up to 70 units per hectare.	Two to three story walk ups. Fully serviced in terms of: internal paved roads, water, sewerage, stormwater, electricity, refuse disposal and cemetery facilities. The proposed intervention areas need to be linked with road and rail access which links these areas directly with local, provincial and national transportation routes, urban centres, markets and the sub-regional economy. Access to the full range of social service facilities characteristic of a formal urban area including: pre-school, school going and tertiary education facilities; clinic, community health centre and hospital health services; SAPS; postal services, municipal offices; government offices; information hubs (including libraries and IT centres) and sport and recreational facilities. Access to amenity areas for all households. Access to a full range of commercial services and locally based employment opportunities.
Commercial	Opportunities for the establishment of both large (up to 1 000 square meters) and small scale commercial sites (up to 300 square meters).	Fully serviced sites including: internal paved roads, water, stormwater, sewerage, electricity and refuse disposal facilities. Alternative energy, waste disposal and water recycling systems promoted in commercial areas. Provision for access and egress of articulated vehicles to the manufacturing sites. Transportation linkages (road and rail) to local, national and provincial transportation networks.

Intervention areas	Density/size	Suggested level of service
Manufacturing	Opportunities for the establishment of manufacturing parks containing mini-factory sites. The proposed parks should be 'tailor made' to suit local conditions in terms of site sizes, site location, types of manufacturing anticipated and accessibility.	Fully serviced sites including: internal paved roads, water, stormwater, sewerage, electricity and refuse disposal facilities. Municipal in addition to alternative energy options, waste disposal and water recycling systems promoted in manufacturing areas. Provision for access and egress of articulated vehicles to the manufacturing sites. Transportation linkages (road and rail) to local, national and provincial transportation networks. Those intervention areas located adjacent to the railway line need provision for stations for the loading and offloading of freight.
Intensive agriculture	Land set aside within the urban design framework which is suited to intensive agricultural production (one hectare blocks) aimed at supplying homesteads and local markets with fresh produce.	Internal division of these blocks down to 10-15 square meter sites for leasing from the municipality for intensive production. No livestock permitted in these areas. Alternative energy, water and nutrient efficient systems of production promoted in these intensive production areas.

7. RURAL AREA GUIDELINES

7.1 Introduction

This section of the VLAP is intended to provide planning guidelines for those areas located outside of the intervention areas (centres) which include: (i) rural settlement, (ii) agricultural areas, and (iii) open space systems.

7.2 Rural settlement guidelines

7.2.1 Background

The phenomenon of informal urbanisation in and around major metropolitan areas in KwaZulu Natal is dynamic and responds to the following factors (Davis 1989) including access to land, economic opportunities and also social, utility and commercial services. As noted in the Status Quo Report, the people who occupy informal settlements in Vulindlela include: those relocated in the 1960s and 70s through forced removals and 'betterment planning'; natural increase from the original settlers; and those moving into the greater Msunduzi area in search of opportunities as individuals and families. Possibly the greatest wave of in-migration accompanied the enactment of Land Reform and Labour legislation post 1994. Throughout KwaZulu Natal this resulted in large numbers of farm dwellers being displaced from commercial farming areas in favour of traditional areas around towns and townships adjoining established towns and cities in the province. This placed pressure on traditional structures to accommodate this influx of people into these area over many years. The fact that the original 'betterment scheme' settlement areas and associated agricultural lands have to a large extent remained intact is a tribute to the traditional councils attempts to retain the rural and subsistence nature of Vulindlela. However, there is evidence, particularly in the high and medium density settlements areas, to suggest that urbanisation pressures now exceed available land areas to accommodate them under the current traditional planning and basic services technology regime. This would seem to suggest that alternative planning and engineering technology options are now required to make provision for the future to avert a series of unnecessary disasters associated with health, flooding, fire and associated social and utility services challenges.

One of the consequences of this is that in an area such as Vulindlela it is going to take many years to introduce a more formalised system of land use management and administration. Under the current traditional land administration system there is recognition of differentials in land use, but there is no formal zonation and associated conditions for land use management. Thus it is argued that the 'edges' of the different land uses have tended to be 'soft' in the sense when placed under pressure land uses are changed as the need arises. Thus under the current traditional and future scheme based land use regimes it will be difficult to clearly direct future development pressures through a system of regulation. The dynamic nature of informal settlement and its response to infrastructure has been established in this and other planning studies undertaken in KwaZulu Natal[6]. The provision of services, access to land and income generating opportunities can be effectively used as the driver to shape future land use in these areas. Following this understanding it is recognised that land cannot easily be set aside in traditional areas for future planned development. Rather the emphasis should be to follow settlement dynamics in order to identify areas where there is pressure for growth and change. Planning in traditional areas needs to identify ways in which this energy can be effectively utilised and

6 For example the study on informal settlement and housing (Davis 1989) and others undertaken by Isikhungusethu on spatial planning guidelines (2010), the development framework for Impendle Local Municipality (2010), the corridor plan for the Okhahlamba-Drakensberg region (2013) and an SDF for uThungulu District Municipality (2014).

in the process achieve positive change in the future landscape of Vulindlela. This alternative approach has been applied in section 6 of the VLAP to the shaping of intervention areas and now will also be applied to working out a plan for the future of rural areas of Vulindlela in this section of the plan.

7.2.2 Types and location of settlement

Owing to the varied location and nature of informal settlement in rural areas of Vulindlela it was necessary to identify common factors that could be used to quantify and categorise this phenomenon for future planning purposes. In this section it is assumed that changing housing densities and population growth are indicators of: social pressures for change, increased economic activity and local political support for development and change. Consequently these indicators provide a useful point of departure in the formulation of planning guidelines for these settlement areas.

Housing densities in rural areas of Vulindlela vary considerably (figure 21) and the indications are that densities are highest in those areas adjoining greater Edendale. Similarly densities are high in and around Sweetwaters where it adjoins Blackridge and Winterskloof. Densities tend to be low in the central areas of Vulindlela where accessibility to economic and services opportunities remains a challenge. The areas around Elandskop to the west of Vulindlela are also experiencing high density levels. A visual comparison of the location of densely settled areas (figure 21) and percentage population growth (figures 3 and 4) would seem to indicate a high degree of correlation between these two factors. This would seem to indicate an inherent 'generative' power in these localities (i.e. social, economic and political advantages promoting growth and development).

Owing to the scale of settlement in Vulindlela and costs associated with the provision of services, Msunduzi has adopted a basic level of service for all areas in Vulindlela (Pers com. M. Greatwood, WSA Manager Msunduzi Municipality). As population numbers and densities increase in the high and medium density areas of Vulindlela this poses a number of risks particularly in relation to health, fire, flood and increasing costs of infrastructure.

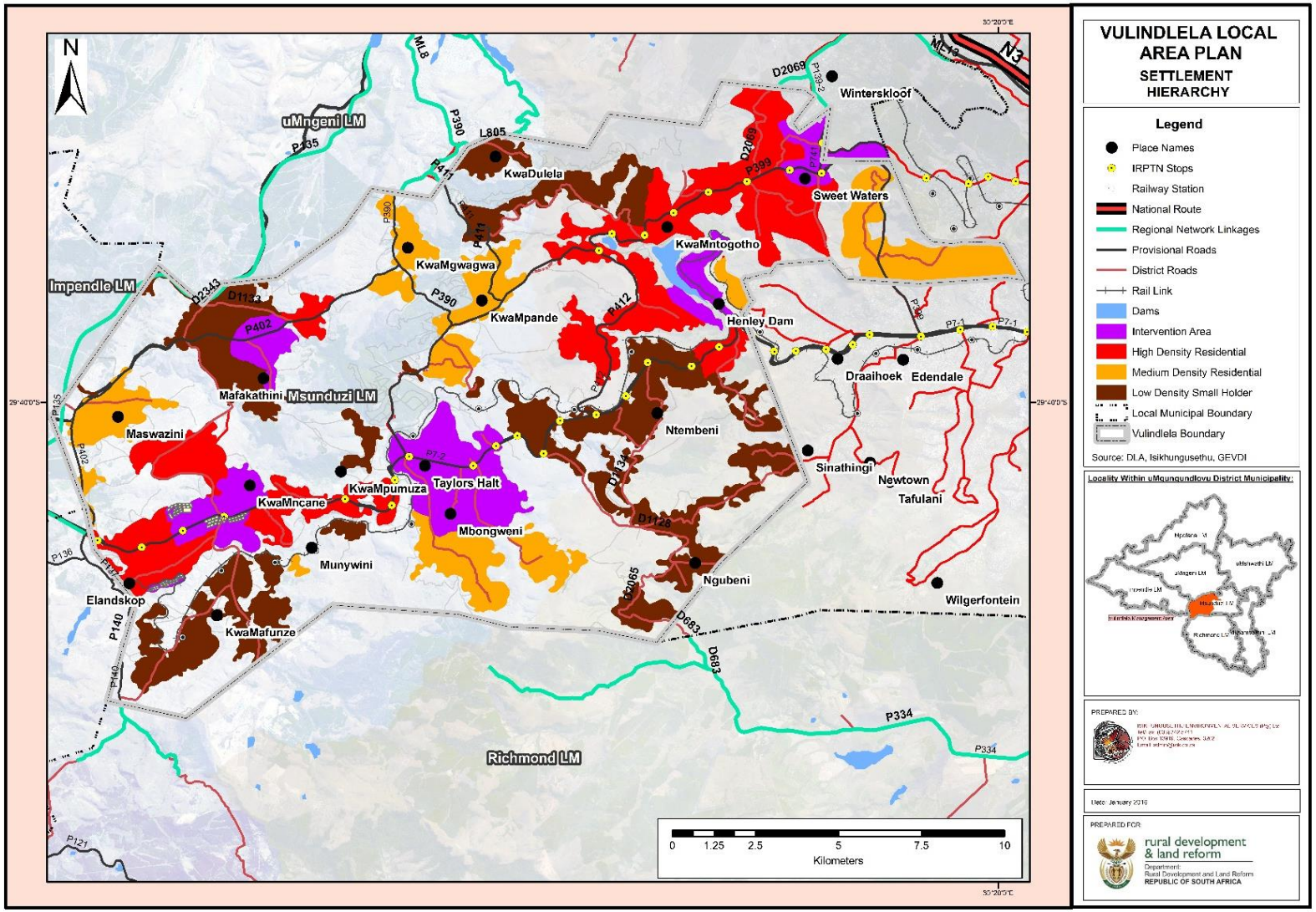
The level of densities identified in this study range from 0 to 35 units per hectare (figure 21). In order to identify appropriate interventions for the areas under different densities the following density categories are noted:

Table 39: Categories of settlement density in Vulindlela

Density category	Density (units per ha)	Average site sizes
Low	0-7	1429
Medium	8-17	588
High	18-35	286

As may be seen in table 39, as densities increase plot sizes decrease and *vice versa*. The above categories will be used as the basis for formulating the following strategy on interventions in rural areas of Vulindlela.

Figure 21: Hierarchy of settlement and densities in Vulindlela



7.2.3 High density settlement

7.2.3.1 Location of expansion areas

The high density settlements identified in Vulindlela are mainly located as follows:

- West of Sweetwaters and Henley Dam.
- Around KwaMncane and Taylors Halt.
- North and south of Mafakathini.

As may be noted in table 39, high density settlement in Vulindlela results in an average of 300 square meter plot sizes. The aim is for these high density settlements to absorb further growth once the intervention areas are fully populated. Thus they will in time become an extension of the intervention areas where population densities are likely to increase substantially in order to accommodate growth post 2033, if it continues at present rates.

These areas will be considered in more detail below in terms of their ability to absorb population growth and development post 2033 (i.e. intervention areas reach capacity population and design limits).

Sweetwaters intervention area

Once the Sweetwaters intervention area has been fully populated (by 2033), future growth will need to be absorbed in the high density areas identified in figure 22 and located to the west of Sweetwaters along the main transportation routes. This growth will need to be accompanied by the imposition of clearly defined urban edges as indicated in figure 22 and further detailed in Annexure 5.

Owing to the extent of the high density areas west of Sweetwaters it will be necessary, in future, to identify a further intervention area to provide higher order services to residents in these high density areas located more centrally in Vulindlela. This will be necessary as population densities increase and access becomes an issue due to congestion and distance. The most likely site for the establishment of an additional intervention area after 2033 will be at KwaMpande owing to favourable topography and unencumbered land surrounding that settlement. This will need further investigation once the centres proposed for Vulindlela are established and functional.

Taylors Halt intervention area

Owing to the fact that Taylors Halt is located centrally in Vulindlela it has not been subjected to the same population growth pressures experienced at KwaMncane and Sweetwaters. As a consequence there is land to the south and north that could be used to accommodate future expansion of the intervention area post 2033 (figure 22). Once again the urban edges as detailed in figure 22 will have to be further investigated at detailed planning and design stage where issues identified in Annexure 5 should be considered.

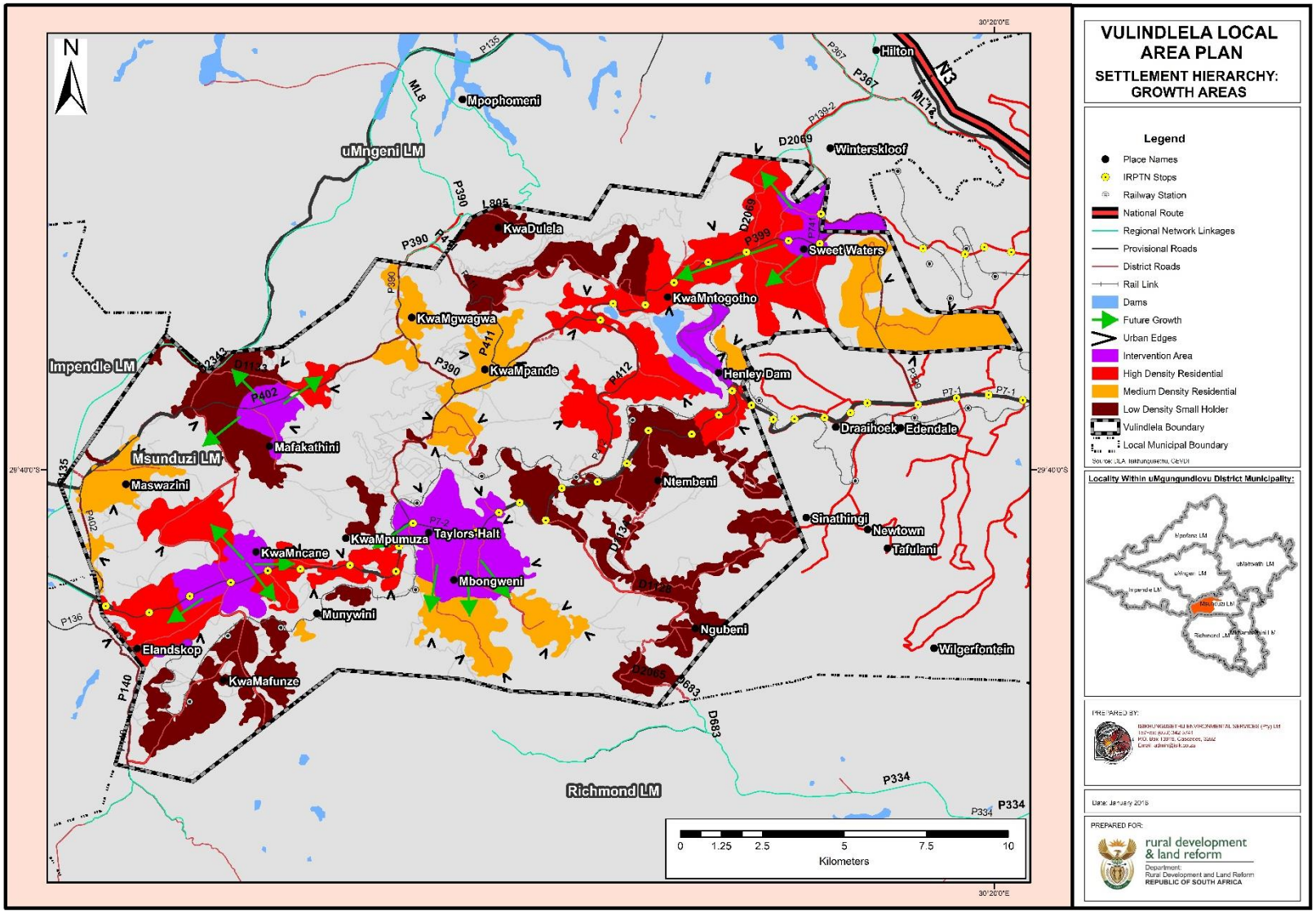
KwaMncane intervention area

KwaMncane is surrounded by high density settlement (figure 22) which provides opportunities for future growth and expansion once this intervention area is fully populated in 2033. Urban edges should be taken into account in the detailed planning and design stages of the development of this intervention area.

Mafakathini intervention area

As can be seen in figure 22, this intervention area is surrounded by high density settlement in the east and low density settlement in the west. Thus there is an opportunity for expansion, post 2033, particularly in a westerly direction where the topography is better suited to residential development. Urban edges should be taken into account in the detailed planning and design stages of the development of this intervention area.

Figure 22: Settlement hierarchy: edges and growth areas



7.2.3.2 Scheme guidelines in high density settlements

The following scheme guidelines are noted for application in high density settlements located outside of the intervention areas:

Table 40: Rural residential component (high density rural)

Layout	Built form
1. Residential areas should be structured around formal road and service networks. Deviation from networks must be discouraged, as this leads to access difficulties. 2. High density residential development 3. Any new site allocation and development must ensure proper access to allow vehicular access to sites for sewage management and access to fire hazard control. 4. Layout plans, although informed by the existing brown fields, must in respect of any new development, provide for adequate vehicular access (at least 3 meter roads). 5. New residential development and additions /extensions to existing homesteads must recognise and enforce environmental protected areas and corridors. 6. Existing vegetation, should where possible, and where it will advance the quality of the neighbourhood, be retained. 7. Higher density development should be linked to nodal intersections and main collector routes. 8. Vulindlela is characterised by a number of streams and ecological corridors which must be the basis of planning for the area. Any development along corridors need be soft to mitigate the transition. 9. Access to residential sites off provincial, district and local roads must not be permitted, other than the existing pre LAP access points. 10. Densification in high density settlements must follow an upgrade route in preference to 'greenfield' development.	1. Streets, squares and public amenity areas should be should be designed to enhance connectivity and to allow the flow of people, traffic and fauna and flora. 2. Building density must conform to the accepted density controls for the particular precinct. 3. Height and coverage controls as approved by the Msunduzi Municipality to be used until incorporated in the Town Planning Scheme. 4. Road widths and surfacing must allow adequate vehicular access to allow for servicing of sites in respect of sewage management and fire control. 5. Ad hoc site allocation must be avoided and site allocation along service lines must be applied and encouraged. 6. Existing settlement edges must be observed. Only new areas, as provided in the intervention areas, may be used for the allocation of sites outside the exiting settlement patterns. 7. Existing high density settled areas may be used to increase densities as overspill from intervention areas. Densification must be aligned to nodal points, intersections and main collector routes. 8. Clearly defining urban edges around these high density settlements at detailed planning and design stage following the principles contained in Annexure 4 on urban edges.

7.2.3.3 Services levels in high density settlements

In the *short term additional interventions* to those already anticipated by the municipality in high density settlements *are not recommended*. Rather the priority should be on planning and implementing the identified intervention areas in Vulindlela. Once these are established and operational then attention should be devoted by the municipality to high density settlements in rural areas immediately adjoining the intervention areas as indicated in figure 22. It is recommended that an interim upgrade of services takes place in these settlements in anticipation of major densification and development prior to 2033 once the intervention areas are fully populated and additional areas are needed for expansion. The nature and extent of formal urban expansion into these high density areas in future will be dependent upon urbanisation trends over the next 20 years. These will need to be accommodated in the planning of the high density areas in the future with indicators of levels of service being provided in the table below.

Table 41: Services levels in high density areas

Land use	Density/size	Suggested level of service
Rural residential high density	Residential sites up to 300 square meters	Land serviced in terms of reticulated water and sewerage, on-grid electricity, internal gravel roads, waste disposal and access to cemetery facilities in intervention areas. Higher order utility services anticipated for high density areas will need to be paid for by the residents of these areas. Primary educational and health facilities within 2-5kms of homesteads. Higher order social services to be provided in the identified intervention areas. Commercial services and employment opportunities relating to manufacturing to be located in identified intervention areas. Livestock only permitted in amenity and commonage areas of medium density areas.

7.2.4 Medium density settlement

The remaining areas in Vulindlela include medium and low density settlements (figure 22). The average plot sizes in medium density settlement is in the order of 600 square meters. As may be noted in figure 22, these medium density settlements are located on the eastern side of Sweetwaters (overlooking Edendale), between Mafakathini and Sweetwaters, west of KwaMncane and south of Taylors Halt. Owing to housing densities (8-17 units per hectare) they do pose certain risks to health, fire etc. However, there is less urgency for immediate intervention than in the high density areas.

One of the complexities that has arisen in the medium settlement category is that certain of it is clearly aligned with small holder agriculture while other areas are more of a mixed residential use in process of transition from agriculture to high density development. In compilation of this plan, investigations were conducted into this issue to enable the differentiation of medium small holder from medium residential. However, this proved not to be feasible within the time and budgetary constraints

available to those preparing the plan. Consequently it is noted that medium density settlement areas in Vulindlela, particularly where related to intervention areas, are likely to respond to pressures for densification in future. This applies most particularly to the following areas (figure 22):

- Settlement located to the east of Sweetwaters.
- Settlement located to the west of both Mafakathini and KwaMncane.
- Settlements located to the south of Taylors Halt.

The interventions that form part of the strategy for medium density areas include:

- Defining an intermediary level of service associated with these areas where costs in excess of the most basic level of services must be paid for by the householder.
- Clearly define geographical edges (hard edges) to these settlements and defining conditions associated with these areas for inclusion in the proposed land use scheme for Vulindlela.
- Identifying factors to be considered in the preparation of a scheme for these areas of Vulindlela.
- The scheme and services level requirements for medium and low density settlements will be dealt with jointly since it is not always possible to distinguish between these two types of settlement.

7.2.5 Low density settlement

As may be noted in table 39 densities range from 0-7 units per hectare with residential property sizes in the order of 1,5 hectares. Each of the households with a residential land allocation, traditionally would also have been allocated an arable site (approximately 5-10 hectares in extent) and access to grazing lands and natural resources in traditional commonage areas.

Under current conditions low density settlements in Vulindlela should be regarded as small holdings. As a consequence of the scattered nature of settlement, costs of services, poor accessibility and limited population it is argued (in terms of nation policy perspectives) that these settlements qualify for the most basic levels of services. Consequently, the interventions recommended for low density areas include:

- Defining a basic level of service following the principles contained in the 1994 government's RDP policy which form part of the free basic services package provided by the municipality.
- Identifying and mapping low density areas at ground level working with residents of the affected areas.
- Clearly defining geographical edges (Annexure 4) to these low density areas and identifying conditions associated with these areas for inclusion in the proposed land use scheme for Vulindlela.
- Conduct detailed designs and costs associated with the provision of basic services, where required, and submit to the appropriate state agency to assist the municipality in funding such upgrades as a priority to minimise risks.

7.2.6 Housing upgrades

Provision has been made for a further category of settlement associated with the roll out of the Vulindlela housing programme. It appears that the majority of developments are 'in situ' upgrades and thus serve to increase densities in existing settlements and so are dealt with in the categories above. However, if 'greenfield' informal townships are established in areas where infrastructure has

not been provided, and on land not set aside for this type of development then the following strategy should be considered:

- Review proposed development following the requirements of SPLUMA, NEMA and the relevant agricultural legislation to determine if it is appropriate in a rural locality or should rather be located in one of the defined intervention areas (centres).

If such informal township qualifies, then the conditions under high, medium or low density apply.

7.2.7 Scheme guidelines for medium and low density settlements

Table 42: Rural residential component (medium and low density settlement)

Layout	Built form
1. Residential development must be discouraged in these areas in recognition of the costs of servicing medium/low density development and the loss of agricultural potential and food security. 2. Recognition and protection of environmental protected areas and corridors are to be observed. 3. Existing vegetation, should where possible, and where it will advance the quality of the neighbourhood, be retained. 4. These areas are characterised by a number of streams and ecological corridors which must be the basis of planning for the area. Any development along corridors need be soft to mitigate the transition 5. Access to residential erven off provincial, district and local roads must not be permitted, other than the existing pre LAP access points.	1. Only a basic level of service should be considered for medium and low density settlements. 2. Internal residential layouts in these settlements should be formalised to enable effective land use control. 3. Building density must conform to the accepted density controls for the medium and low density areas. 4. Height and coverage controls as approved by the Msunduzi Municipality to be used until incorporated in the town planning scheme for these areas. 5. Arable lands located outside of small holder settlements where site size depends upon historic land allocation by traditional councils. These areas should be set aside in terms of the 'wall to wall' scheme for arable production. Provision needs to be made for lease agreements to enable local farmers to gain access to larger areas of productive land in Vulindlela. 6. Land areas suited to plantation and livestock grazing should be set aside in terms of the 'wall to wall' scheme for these types of land use. In terms of 'betterment planning' the steeper lands were generally set aside as commonage for livestock and woodlots. Management conditions, particularly for indigenous grasslands, should be defined in the scheme conditions and implemented by livestock associations working closely with extension officers from the Department of Agriculture.

7.2.8 Services levels

The following types and levels of services are suggested for medium and low density settlements in Vulindlela.

Table 43: Service levels

Land use	Density/size	Suggested level of service
Rural medium and low density	Residential sites up to 1500 square meters.	Provision of a basic level of services to households in these settlements including access to: reticulated water (communal standpipes), VIP toilets, on and off-grid electricity, gravel road access and telecommunications. Primary educational and health facilities within 5 kilometres of homesteads. All higher order social services provided in the identified Intervention areas. Provision should be made in rural agricultural areas for infrastructure such as impoundment for irrigation and road infrastructure for access to production areas.

7.3 Agricultural guidelines

7.3.1 Policy context

The NDP recognises the importance of integrating the rural economy into the wider economy, and the importance of agriculture in playing this role. ”Since 1994, the main challenge for rural development has been the need to combat marginalisation of the poor.” One of the points is to “develop strategies that give new entrants access to product value-chains and support from better resourced players” (NDP p 200).

The NDP identifies the potential for the agricultural sector to provide jobs, with the following needing to be in place: land, finance, markets, and agro-processing which includes emerging farmers and training support and mentorship.

A further provision in the NDP includes investing substantially in providing innovative market linkages for small-scale farmers in communal and land reform areas, with provisions to link these farmers to markets in South Africa. This involves improving infrastructure, including “communications infrastructure that gets the products from the farm gate through the different stages of the value chain. Information on buying and selling prices and supply and demand trends need to be provided to farmers, traders, processors and consumers”. This could be achieved by improving and extending skills development and encouraging research and development into alternative technology solutions. The importance of extension services was also stressed, including looking at innovative means for agricultural extension and training by the state in partnership with industries and commercial farmers.

It is against this background that these agricultural guidelines are presented for Vulindlela. It should be noted that these are *only guidelines* and should be followed by the preparation of a detailed agricultural development plan for Vulindlela with detailed business plans for each of the enterprises identified in that plan for funding and implementation.

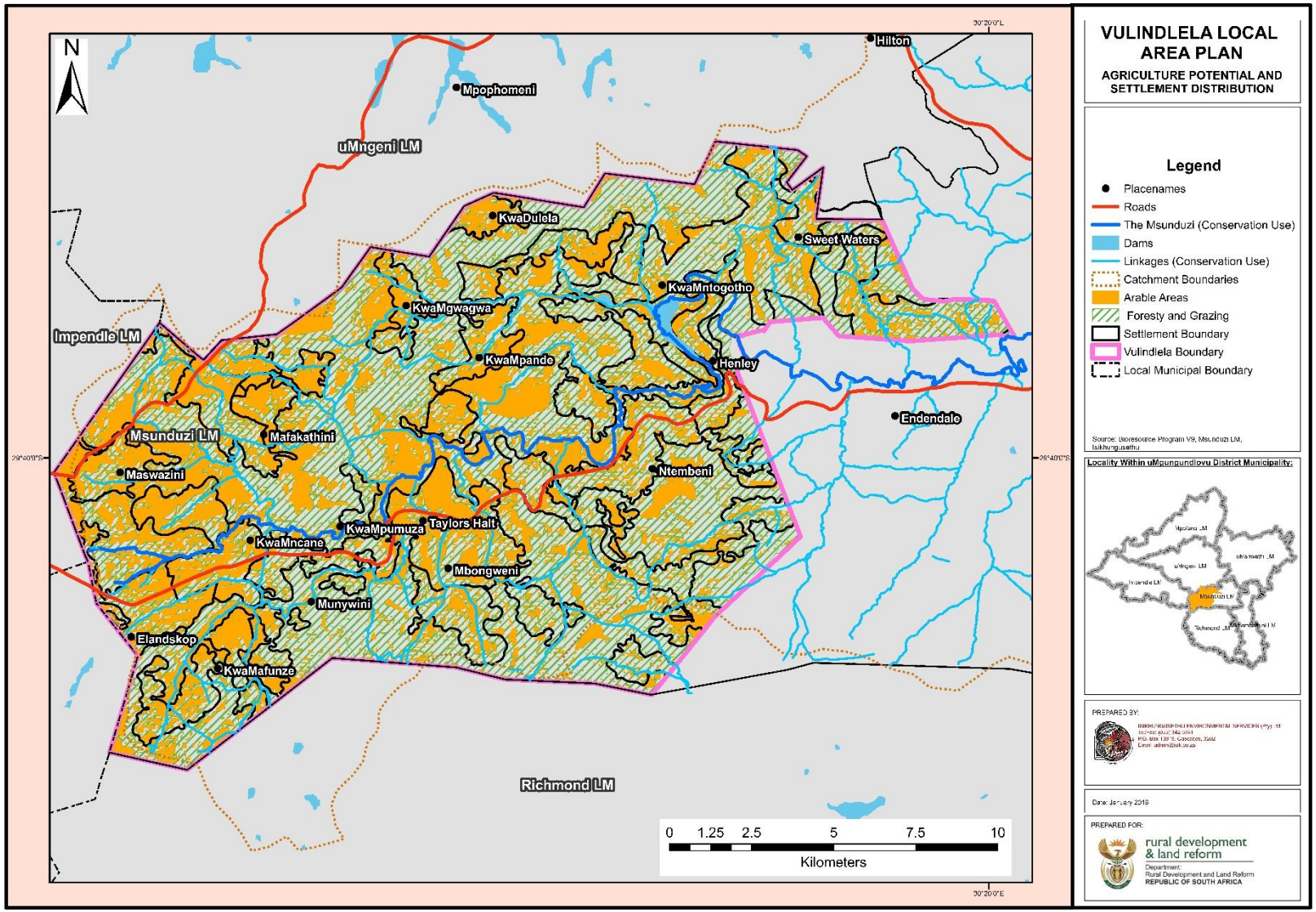
7.3.2 Agricultural potential in Vulindlela

As noted in the Status Quo Report, agricultural potential in Vulindlela is generally moderate owing to a variety of factors that combine to determine potential. However, there are different types of agriculture that operate under different production conditions. Thus for example it is not feasible to successfully cultivate vegetable crops on steep slopes subject to major climatic extremes. However, these areas may be well suited to timber, fruit or sugar production. In cases where plantation crops are not suitable on these slopes, natural pastures may be ideal for beef or dairy production. In other areas there will be overlaps between the different types of agriculture that will operate profitably.

It is against this background that figure 23 (agricultural potential) provides an indication of the areas where cultivation, livestock and plantations are likely to do best located in Vulindlela. The figure is inclusive of settlement (current and future) which indicates how much of the good quality land, suited to cultivation, has been settled and therefore has been lost to agriculture. In other words this figure details remaining areas available for agriculture in Vulindlela once settlement has been accounted for. As a consequence, all remaining areas of cultivable land, located inside and outside of settlments, need to be protected from poor land use and settlement expansion in order to protect the food production capability of this area for local people.

Figure 23 provides an assessment of the areas suitable for different types of production. As may be noted in the figure, land up to 12% slope (light and dark green) is best suited to cultivation of vegetable and grain crops and these will differ according to soils, slope, climate and rainfall requiring detailed investigation at local level for establishment. Areas in the slope categories from 13-24% are suitable for plantation crops (mainly forestry depending on aspect, temperature and rainfall) and livestock production (depending upon condition of the veld). Areas in excess of 25% should ideally be left under indigenous vegetation and included in the land set aside for open space and biodiversity conservation due to risks of erosion.

Figure 23: Vulindlela's agricultural potential



7.3.3 Potential production areas in Vulindlela

The remaining agricultural productive areas (figure 23) indicates that the largest remaining areas of land available for production are located in the western, southern and northern areas of Vulindlela on lands surrounding and included into the following villages[7]:

North	South	Central	West
KwaMagwagwa KwaDulela KwaNxamalala Chaewe	Ngubeni Tafuleni KwaQanda Ezinmyaneni Munwini	Shange Ntembeni KwaMpande	KwaNomo Nzondweni Nkabindi Mbumbane Kwamfunze KwaMncane Elandskop Emaswazini Mafakathini

In the south the majority of the agricultural potential is limited to livestock, plantations and small areas of cultivation due to steeply sloping and mountainous landscape. In the west the land tends to be less mountainous with larger flatter areas available for cultivation. The north is similar to the south in terms of topography and consequently potential. There is good land available in the central areas of Vulindlela mainly in the valley bottoms and on the broader ridge lines for cultivation. A scan of 2011 and 2015 aerial coverages would seem to indicate limited areas of land under cultivation. Rather, the majority of arable is taking place close to homesteads on small areas of land (less than 1 hectare). Extensive areas are either fallowed or allocated to forestry (commercial and/or woodlots) and livestock production (see land use section in the Status Quo Report).

7.3.4 Limitations on small holder production

It was established, from field work, that the majority of households in medium and low density rural settlements are involved in cultivation for household use and trade in small surpluses. It was further established that a limited number of small holder farmers are operational in the more rural areas of Vulindlela- listed above. They are mainly involved in production for sales to local markets. However, there are numerous constraints to production on traditional lands in KwaZulu Natal and it is likely that these factors are also limiting the establishment and operation of viable small holder producers in Vulindlela.

Table 44: Limitations on small holder production

No.	Challenge
1	Limitations on access to large areas of agricultural land in traditional areas owing to historical land allocations system.
2	Lack of access to loan capital and production finances due to lack of security on traditional agricultural lands.
3	Lack of up to date farm gate planning to confirm location of high value agricultural lands and associated production potential.
4	Lack of in-field infrastructure for production purposes.

7 Village names sourced from Google Earth 2015

No.	Challenge
5	Limited access to traction equipment for land preparation, crop maintenance and harvesting.
6	Ongoing security issues relating to livestock and crops.
7	Lack of market information on produce quality, demands and prices.
8	Lack of training opportunities on commercial production and business management.
9	Lack of storage capacity for inputs, crop harvest and equipment.
10	Challenges to transportation for production, inputs, and haulage for processing and marketing.

Source: Isikhungusethu, uMzimkhulu Agricultural Development Plan, 2013

7.3.5 Types of producer suited to Vulindlela

It is against this background that the focus of future investment in this sector in Vulindlela needs to include promotion of the following types of producer:

- Homestead food production amongst households throughout Vulindlela as the basis of food security in the face of increasing levels of unemployment and economic hardship which is likely to challenge South Africans for some years to come.
- The establishment of intensive market garden production in areas adjacent to the proposed intervention areas. The aim here is to ensure food production is taking place close to assured markets, as noted above, to limit costs and create local economic opportunities.
- The establishment of viable small holder producers on remaining areas of good agricultural lands set aside during 'betterment planning'. The aim is for small holders to produce sufficient produce for processing at the manufacturing centres identified in the intervention areas and then either sold in local outlets or further afield in other parts of Msunduzi, uMngeni etc.
- Refinement and upgrading of the livestock in Vulindlela through the introduction of: selective breeding programmes, disease control, reduction in numbers and improvement in herd quality, rotational grazing of natural pastures, regular livestock sales at defined sales yards and abattoir facilities at intervention areas such that residents can 'buy local' and benefit from competitive prices.
- Further investigations into the feasibility of converting the commercial forestry sector in Vulindlela (Msunduzi on lease to NCT) into a viable community based initiative. This was under review in 2015 and implementation should follow recommendations from the review.

In summary, there are limited opportunities available for the establishment of large scale commercial production in Vulindlela and thus the focus needs to be on food security, market gardening and promoting a small holder farmer expansion programme. In order to achieve this there are a number of components that need to be set in place as a pre-condition to establishment. These are considered in more detail below.

7.3.6 Small holder agricultural value chain

Overview of components:

Establishment of an effective smallholder agricultural production and marketing chain requires integration and alignment of a number of components including: (i) a hierarchy of centres located on (ii) a defined system of transport routes which provide access to (iii) collection points in rural villages for a variety of crops and produce transported by farmers where these points (iv) provide basic facilities which allow for 'bulking up' ready for (v) collection and bulk transport to processing hubs in established intervention areas. The processing hubs are included into industrial parks established in

centres where a range of associated processing activities take place including: processing and packaging, re-cycling of waste and production of agricultural inputs for farmers. Bulk transport to and from collectors involves 'pay loads' in both directions – taking inputs to farmers and removing produce in bulk for processing and marketing.

The entire value chain is dependent upon volume and quality of produce supplied by farmers. As noted above, volumes of fresh produce are limited in Vulindlela. There is evidence of large numbers of livestock in the southern, western and northern areas of Vulindlela, but actual figures could not be obtained from Department of Agriculture. As noted in the Status Quo Reports, Msunduzi has land holdings outsourced to NTC in Vulindlela to manage for commercial timber production.

Thus it is only the forestry sector that has been commercialised, whilst livestock and fresh produce production is mainly being undertaken on a subsistence basis. In other words a major investment will be required in order to establish the physical and economic infrastructure necessary to transform this sector in Vulindlela. This is particularly challenging since agricultural resources are increasingly under threat from urbanisation and traditional systems of production tend to be resistant to change.

7.3.7 Agricultural intervention strategies

The following strategies are noted for establishment of a viable agricultural sector in Vulindlela:

- Consideration can be given by the Msunduzi Municipality to facilitate the establishment of a stakeholder group interested in investing in the different aspects of agricultural production in Vulindlela in particular.
- The stakeholder group contributes to the establishment of the agri-hubs in Vulindlela based on mobile technology and information sharing.
- Further funding be sought to expand the existing farmer support provided in Vulindlela. This should be linked to a farm mapping programme to enable the monitoring and support of production by farmers and associated budgeting for and management of inputs.
- Funding for the implementation of expansion of lands be sought in terms of the following:
    - Capital costs of new lands development requiring grant funding.
    - Operational costs to be partially grant funded, but moving towards funding from returns on production by farmers.
- An investor needs to be located for the establishment of pack houses in the intervention areas which can be used for the washing processing and packaging of fresh produce. This would be a pre-cursor to the further investment in other forms of processing and the possible establishment of a processing parks in these centres.
- A collective marketing process needs to be initiated amongst local small holder producers to empower them to enter the market place and in the process expand opportunities for production. The aim is to involve groups of local farmers in all aspects of the marketing process and to ensure that they have marketing 'intelligence' from agri-hubs. This will enable them to work more closely with the networking unit and stakeholders for market information, inputs, transport, sales and forecasts into the next production season.
- Introduction to farmers (small scale) of the notion of diversification of the types of production: inclusion of alternative high value cropping enterprises into the current household food security regime aimed ultimately at local future up-market consumption and import substitution.

- Locating prime agricultural areas in selected locations and identifying existing small scale farmers in these areas to work co-operatively in production, transportation and marketing.
- Ensuring that small holders have access to the full range of support services. This will be achieved by gradually building up the marketing, processing and support infrastructure at all levels working with government and the private sector. Thus investment will be required in institutional development, infrastructure (road upgrades, collector facilities, processing facilities etc.), improved extension support, training, collective marketing, information communications technology, transportation and mechanisation.
- Avoiding the establishment of co-operatives for production. Rather rely on the individual farmer as the producer working co-operatively with other producers to secure inputs into transport, marketing etc.

7.4 Open space plan

7.4.1 Objectives

One of the central objectives of the Msunduzi Municipality's open space system is to integrate this into the VLAP. It is therefore essential that all the river systems, wetlands, indigenous forests, grasslands and ridge lines in Vulindlela should be aligned and linked to those already identified in other areas in Msunduzi.

There are core components of the open space system which are included in the planning of Vulindlela and which will require recognition by the community, traditional structures and inclusion into the scheme(s) to ensure support, management and where necessary enforcement. These components are detailed below.

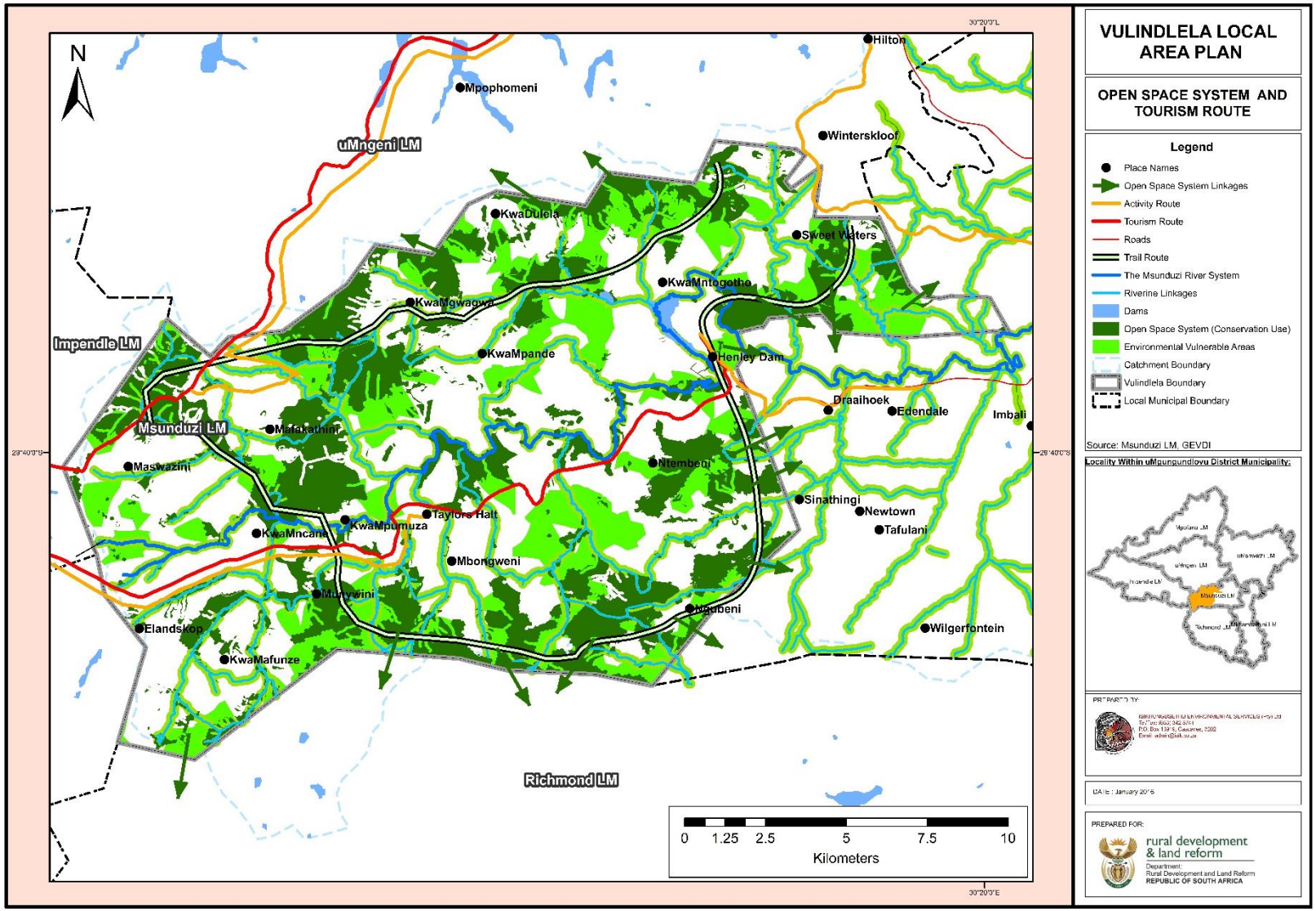
Table 45: Components of the open space system

Component	Function/role	Areas of priority
Open space corridors	1. Protection of open space cores and areas of high biodiversity. 2. Protected river and ecological corridors.	1. The Msunduzi River and its tributaries and riparian buffer. 2. Henley Dam and 100 year floodline. 3. Wetlands. 4. Ridges. 5. Floodrisk areas. 6. Priority biodiversity areas.
Open space linkages and patches	1. Provide linkages and connections between catchments though corridors and patches. 2. Cultural heritage opportunities.	1. Incorporation of forestry areas as patches in system. 2. Protection of the dolerite dome known as iKanda near Ngubeni.
Open space buffer	1. Protect open space system though a buffer and only allowing low impact development in buffer areas.	1. Protection of Henley Dam. 2. Encroaching residential development in riparian buffer areas.

Based on table 45, an open space system map has been developed for Vulindlela (figure 24). This includes:

- Buffers around Msunduzi River and its tributaries.
- Protecting ecologically sensitive areas and threatened areas.
- Linkages with corridors.
- Henley Dam.
- Opportunities to establish a hiking trail in Vulindlela following the higher ridges in the area.
- Opportunities to establish a tourism route through Vulindlela following the M70 and R617 transport routes.

Figure 24: Vulindlela open space system



7.4.2 Management

The development of an open space system without community buy-in and support and management will not have the desired outcome. It is therefore critical that the open space system design be augmented with a management system, and community consultation. The endorsement and adoption of the open space system plan by the Msunduzi Environmental Directorate will be a critical ingredient to ensure the implementation and management of the open space system.

The management strategies suggested are:

- Consultation and refinement, based on local knowledge.

  Undertake consultation with communities, key stakeholders and relevant municipal officials to achieve support for the plan and its implementation. These consultation sessions ideally will include the refining and incorporation of local knowledge.

- Identification of ecological threatened and high priority areas.

  A combination of data gathered by Msunduzi Environmental Directorate, Ezemvelo KZN Wildlife, specialist and local knowledge must be used to integrate to identify threatened and high priority areas. Ideally these areas must be protected through designation or zonation.

- Protection initiatives:

  - Zonation in land use scheme.

    One of the methods to facilitate the protection of open space areas is to either zone or designate areas as open space. Together with zonation, it is more beneficial to transfer or vesting of such properties into the ownership of the municipality to allow it to maintain and traverse such areas.

  - Alien clearing programmes.

    The eradication of alien species from open space areas is an ongoing process. This is an essential requirement to support the regeneration of indigenous species and must be subject to a proper programme.

  - Controlling development adjoining the open space system.

    The open space system and any land zoned as open space must form one of the critical considerations for any development adjoining the open space system. Ideally, only compatible and low impact development should be permitted and particularly in compliance with any impact studies required in terms of the NEMA.

  - Recognise the environmental services provided by the open space system.

    Traditional settlements are disbursed though-out the Vulindlela open space system. These traditional communities recognize the ecosystem services provided by nature, and will be dependent on medicinal plant harvesting. It is therefore important to recognize this service and dependence in the management of the open space system.

7.4.3 Encourage recreational value

Open space systems also provide recreational value for nature walks, mountain-biking and other activities. The management and design of the open space system must include and encourage recreational value, as this will ensure community ownership and co-management. The use of Henley Dam for recreational purposes needs further attention through consultation and detailed design, but this will be subject to discussions with the current custodians, Umgeni Water and traditional leadership in the area.

Future planning of urban areas need to include quality open spaces, both from an ecological and a human point of view. Municipalities must encourage the use and protection and co-ownership of these areas. If not managed effectively, open space system can quickly degrade into ghettos where open areas are simply invaded by settlement. This LAP wants to be as bold to recommend that open spaces are not a luxury, but a necessity. In this regard it is encouraging that urban ecology is a growing scientific field which considers the interface between fauna and flora and human beings.

7.4.4 Tourism routes

As noted in the VLAP Vulindlela has a landscape appeal and a number of natural assets that if linked to major transport routes could form part of a tourism network in the sub region. Figure 24 provides an indication of possible tourism routes linked to a hiking trail and possibly a steam rail route from Masons Mill to Creighton.

8. INSTITUTIONS TO IMPLEMENT THE VLAP

8.1 Introduction

As noted in the NDP, initiatives should be taken by municipalities and traditional structures to establish entities that can be used to effectively plan and develop areas under traditional management. To this end the following proposal is included in this plan.

8.2 Institutional arrangements

It is contended that in order to succeed, the VLAP requires a dedicated structure to ensure implementation which must be accompanied by ongoing operation, maintenance and management of the outcomes of the plan.

Owing to the fact that this land is owned by the Ingonyama Trust and is administered by traditional councils with line function municipal and provincial departments providing utility and social services, it is necessary for government to invest in a joint management structure responsible for co-ordinating government agencies and implementing the VLAP. The need for a locally based Joint Management Unit (JMU) to assume responsibility for both implementation of the plan, provision of services (utility) and land management in Vulindlela was been identified by stakeholders in a number of forums during consultation on the VLAP.

In order to function effectively it has been recognised that the proposed JMU needs to be supported at the following levels:

- Grassroots households and communities in Vulindlela.
- Traditional structures.
- Municipal administrative, financial and technical structures.
- Political support from ward structures and from the Msunduzi Municipality Council.
- Provincial government and associated political structures.

Whilst the inclusion of this structure could form part of and be located at the offices in Edendale of the Greater Edendale Vulindlela Development Initiative (GEVDI), an office dedicated to the people of Vulindlela located at Taylor's Halt would have a greater impact and generate more community support and increased chances of success.

In order to secure support for the establishment of a JMU a proposed programme of actions has been developed and is contained in table 45. One of the key elements identified by traditional and municipal officials and political representatives, at ward level, was the need for a working group of all the structures to be established in order to structure and oversee implementation of the JMU.

8.3 JMU Costing

8.3.1 Establishment costs

The JMU would need to be established by founding entities including the Msunduzi Municipality, traditional councils located in Vulindlela and other line function governmental agencies operational in Vulindlela. This entity should be established through the JWG that has been established in the planning process. A business plan (BP) for the JMU would need to be prepared indicating structure, functions, representation, and establishment and operational costs. The BP should be used to raise funding for establishment and subsidies for operational costing at least in the initial stages of

operation. Funding for establishment of the JMU would need to derive from the municipality's 'own' revenue stream and from traditional councils trust funds managed by COGTA and the ITB. Investigations would need to be undertaken into additional sources of government and donor funding that could be used in the establishment process.

8.3.2 Operational costs

Operational costs would be derived from income generated from utility and social services provision, municipal rates and from a contribution by the municipality in lieu of potential revenue lost through free basic services provision. In the short term the JMU would be dependent upon grant funding to meet its full operational costs. However, the BP should be structured such that in the medium to longer term the JMU is able to meet the majority of its own costs. The ability of this structure to meet its operational costs would be achieved by the establishment of the proposed development centres in Vulindlela, particularly if the land in these centres is administered by the JMU. High density residential development, the establishment of large scale commercial and manufacturing operations and the introduction of a land market allied to town planning scheme and by-laws will enable the JMU to generate real income once these centres are fully established. This, in addition to contributions from the municipality for free basic services, would need to be used to offset the costs of basic services provision in rural areas where limited income can be generated now and in the longer term.

8.4 Basis of the JMU

The structure, functions and modus operandi of the JMU would need to be clearly defined by all participating parties by way of an all-inclusive agreement i.e. memorandum of agreement (MOA) underpinning the business plan. Both the BP and the MOA would need to be authorised by all parties involved and should be binding for a period of no less than 10 years renewable for a further 10 years thereafter if it meets defined performance criteria, to ensure stability, continuity and delivery in terms of the VLAP. Lessons on inter-governmental sharing of staff, planning, functions and budgets are available from the KwaZulu-Natal Development Planning Shared Services models applied in this province (Isikhungusethu 2015).

8.5 Components of the JMU

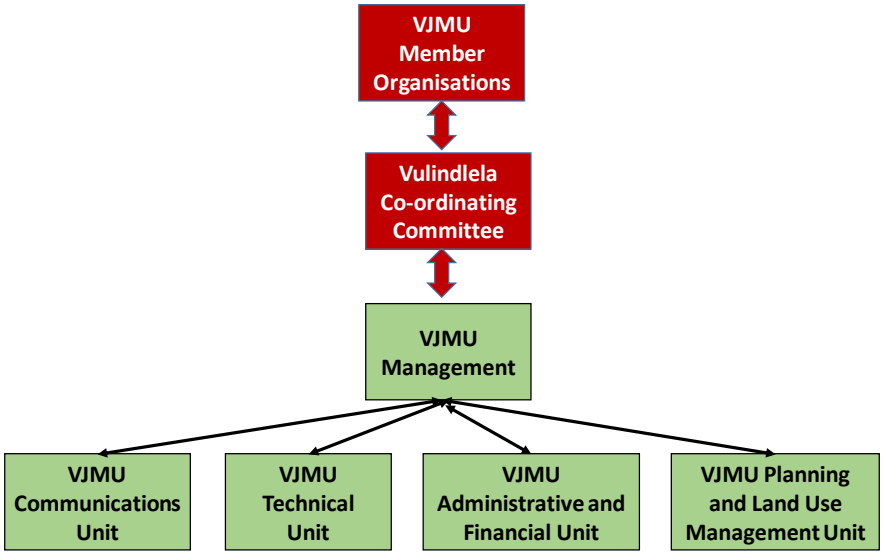
In order to be sustainable and viable in Vulindlela this structure needs to include the following components:

- Overall manager with delegated authority to direct the JMU staff and accounting to the residents of Vulindlela and to member entities for services provided, monies raised and expended and types and levels of development achieved in terms of defined targets and milestones.
- Communications section dealing with awareness creation among the people of Vulindlela.
- Technical section dealing with detailed design, raising of project funding (government and donor grants) and 'hard project' implementation (construction of infrastructure, township layout) and operation and maintenance.
- Land management and administration involving representation from traditional structures, the municipality and the ITB.
- Delegated authority from the municipality to receive and conduct initial processing of development applications prior to directing them to either the Authorised Officer or the Joint Municipal Planning Tribunal for final decision making.
- Revenue generation related to billings and payment for services.

Once legally established, the structure requires delegations to proceed with implementation of funded mandates from its parent bodies. This should not function simply as a works depot of the municipality, but rather operate as a functional entity with dedicated responsibility for 'turning Vulindlela around'. The area should be established as a cost centre (by the JMU) in its own right where revenue should be generated from services provided. The unit should be accountable at all times to the people of Vulindlela for the roll out of the plan, management of land use and for the provision of services to the people.

An illustration of the components of the JMU is provided in diagram 11 below.

Diagram 11: Suggested structure and reporting lines for the Vulindlela Joint Management Unit



8.6 Functions of the VJMU

It should be noted at the outset that this is not intended as a political or commercial entity and should not be used by any party to further their political or financial ends in Vulindlela. It should be clearly stated in the BP and MOA that this is, first and foremost, a services delivery vehicle whose primary responsibility is providing defined services to the people of Vulindlela. Accordingly the following functions of the VJMU are noted, once established, and would need to be more fully investigated as part of the feasibility study necessary for its establishment and preparation of the BP and MOA:

Establishment of fully functional management, communications, technical and administrative components of the VJMU involving:

- Location of offices in Taylors Halt - the effective administrative centre of Vulindlela.
- Appointment of a small group of qualified, trained and experienced staff to assume responsibility for implementation of the VLAP and the provision of services following the principles of 'Developmental Governance' as contained in the Interim Local Government Transitional Act (Act 26 of 1995) which preceded the Municipal Systems Act (Act 32 of 2000) and the Municipal Structures Act (Act 117 of 1998). This involved outsourcing to local entrepreneurs and holding them accountable for delivery thereby creating local skills and employment.

- Assuming responsibility for ongoing utility services provision from existing line function municipal and governmental agencies involved in Vulindlela (water, sanitation, transportation, energy, billings for services and collection of revenues such as services, rates and taxes).
- Negotiating with local structures and proceeding with detailed design and the implementation of urban centres (intervention areas) as identified in this VLAP. This would need to include negotiations with traditional councils and ward structures over the location, nature and extent of the proposed centres, the excision of land from the ITB and the introduction of a land market, densification of residential development and the establishment of commercial and manufacturing precincts within these proposed centres or intervention areas.
- Communicating the need in terms of the SPLUMA and the associated Msunduzi Municipality Planning Spatial By-Laws to establish a 'wall to wall' land use management scheme in Vulindlela and to progressively introduce an appropriate form of land administration:
    - In the proposed centres or intervention areas.
    - In the traditional settlements, agricultural and open space areas as set out in the VLAP.
- Working with the Department of Agriculture and local farmers in the preparation and implementation of an agricultural development plan for Vulindlela.

Table 46: Programme for institutional establishment

Actions	2016				2017						
	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apl
Secure the principle of the establishment of the JMU in Vulindlela with relevant structures in Msunduzi Municipality e.g. the Economic Sub Cluster, Executive Committee (EXCO), Council.											
Identify as a budgeted project in Msunduzi Municipality the establishment of the JMU.											
Advertise and appoint a highly competent facilitator for establishment of the JMU and associated JWG in Vulindlela.											
Confirm councillors from Economic Sub-Cluster who will be driving the institutional and planning process in Vulindlela.											
Prepare a proforma BP and MOA on the structure, membership and operating conditions of the JWG.											
Convene meeting of ward councillors, traditional leaders and officials to undertake the following: (i) Agree to the establishment of the JWG as the basis for establishment of a JMU in Vulindlela. (ii) Agree on the membership, structure and logistics associated with the operation of the JWG. (iii) Adopt the VLAP for implementation.											
Establish a sub-committee of the JWG to investigate legal and administrative options, prepare a business plan and propose a structure, budget and programme for the way forward on the establishment and operation of a JMU in Vulindlela.											
JWG submit business plan to the Economic Sub-cluster for review and adoption subject to budget availability.											
Economic sub-cluster submit business plan to Msunduzi Municipality Council for review and adoption.											
Proceed with implementation of JMU in terms of the agreed BP and MOA and including:											
▪ Establishment of land administration offices centrally located in Vulindlela.											
▪ Joint staff selection and appointment.											
▪ Establishment of appropriate land administration procedures for Vulindlela based on SPLUMA.											
▪ Training of staff in land administration procedures.											
▪ Set up an ongoing communications programme for people of Vulindlela to be informed about the land administration system working through councillors and traditional structures.											
▪ Commencement of business											

9. PROJECT PROGRAMME AND BUDGETS

9.1 Introduction

Owing to the history of Vulindlela it has not, in the past, received the level of strategic capital investment required to promote sustained development. The focus has rather been on free basic services provision where government bears both capital and operational costs. In order to address the backlogs of the past and at the same time generate operational revenue, the Msunduzi Municipality, together with line function provincial and national government departments needs to focus on strategic investment in the future as indicated in the VLAP.

Understanding that there are many competing demands on government's funding, it is recommended that a phased implementation plan is followed. Three implementation timeframes are suggested for the Vulindlela project programme:

- Short term (1 to 3 years).
- Medium term (4 to 7 years).
- Longer terms projects (8 and more years).

In the attached budget it should be noted that the emphasis is on short and medium term projects owing to the fact feasibilities are required in order to establish full project budgets, particularly for the intervention areas. Once these feasibilities have been completed then budgets for the medium and longer term can be completed.

9.2 Strategic investment areas

Strategic investment areas considered in preparing the implementation plan for the VLAP follow.

9.2.1 Institutional establishment

Land use management and land use allocation are administered by two authorities in Vulindlela. Msunduzi Municipality and its councillors are charged with the responsibility to manage land use, whilst traditional leaders, together with the Ingonyama Trust Board are responsible for land allocation procedures, which includes long term commercial leases. This separation of the land use management and land allocation responsibilities necessitates the establishment of an institution to ensure the joint management of land use and strategic development in Vulindlela. The implementation of the VLAP will only succeed if adopted and enforced by both authorities. This is a critical pillar for the implementation of the VLAP.

9.2.2 Urgent demand

The need for ICT and internet connectivity has become an essential ingredient for business development, social interaction, services provision and education. These services require urgent attention and therefore must be linked to short term project delivery.

9.2.3 Conditions conducive for investment

As indicated in section 3 of this document, one of the main outcomes associated with the status quo analysis was the need to identify nodal intervention areas. These are intended to introduce land use planning, land rights and land markets to accommodate future growth and development. Government's primary role is to create an enabling environment for development through provision of infrastructure and social services. This will create conditions favourable for private sector investment, job creation and revenue generation for government to meet operational costs. The planning and refinement of the six intervention areas forms the crux of this VLAP and its economic development initiatives. The planning phase must be implemented as soon as possible, followed by the catalytic infrastructure development programme.

9.2.4 Programmed state and municipal infrastructure investment

The Msunduzi Municipality's 2015 IDP, SDF and the Medium Term Investment Framework have identified a number of infrastructure projects to address the service demands of Vulindlela. Due to limited financial and other resources available, the implementation plan seeks to move away from uniform services delivery throughout Vulindlela. The aim is to introduce the differential identified in national and provincial planning policies. This involves investing in higher order services in the intervention areas where costs recovery is essential and provision of lower order services in surrounding rural settlement where free basic services can be provided. In addition it is essential to identify more cost effective methods of services delivery than those conventionally applied in urban development.

9.2.5 Subsistence agriculture support programmes

Growing population trends and the increasing costs associated with food supply necessitates the realisation of agricultural potential in the future development of Vulindlela. This is necessary to achieve import substitution of foodstuffs, reduce costs and achieve improved local food security and local employment creation. In the future development of Vulindlela, provision needs to be made for the production of food close to markets (i.e. intervention areas). The potential for agriculture in Vulindlela is good, but available land is limited due to urbanisation and traditional land allocation system. Thus intensive small holder production could be used to meet the food requirements of the people of this area subject to a major investment in establishment of the critical components of the production, processing and marketing chains as a pre-condition to promoting the growth and expansion of this as a primary sector in Vulindlela.

9.2.6 Ecological infrastructure

Ecological infrastructure plays an increasingly important role in counter-acting and mitigating the effects of climate change and altered rainfall patterns. Ecological infrastructure supports both human life through ecological services (water, purification, air, soil, building material, as well as habitat for plants, animals, fish and insects). With Msunduzi Municipality adopting climate change and environmental management policies in 2015, the protection of the Vulindlela open space systems is a critical asset, which cannot be subjected to further damage. Promoting the rehabilitation and management of biodiversity in Vulindlela forms an integral part of the VLAP particularly that related to 'green job' creation for local people, creating a sense of place and mitigation of climate change.

9.3 Project alignment

In the preparation of this project programme an investigation was undertaken into the Msunduzi SDF, IDP and the city development strategy in order to establish existing projects and funding streams in municipal budgets. Based on the outcomes of these findings the following large scale projects are included into this VLAP:

- IRPTN as a major focus of future investment in the transportation network to enhance accessibility into Vulindlela. This needs to be extended to include the upgrading of the rail network in Vulindlela.
- Inclusion of fibre optic broad band infrastructure that will include Vulindlela on the ADSL network.
- Upgrade of bulk water supply network with the re-alignment of the recently completed Vulindlela Water Master Plan (GLS Consulting 2015) to include supply to the six intervention areas.
- Review of the policy associated with type and level of basic services to be provided in Vulindlela with particular emphasis on reticulated sewerage in the intervention areas and lower order services in surrounding rural settlements.
- Making provision for high density housing development to accommodate future population growth in Vulindlela, particularly in intervention areas.
- The clustering of governmental services in Taylors Halt as the main intervention area in Vulindlela.
- Investigating the establishment of a solid waste disposal facility, recycling and associated collection service to serve the people of Vulindlela.
- Investigating alternative sewerage disposal facilities for intervention areas and high density settlements.
- Making provision for cemetery facilities in the intervention areas.
- Identifying opportunities for economic growth and development in the intervention areas as well as in the rural component of Vulindlela, particularly in the agricultural and tourism sectors.
- Including projects for the rehabilitation of open space such that it becomes an integral part of the urbanising landscape.

9.4 Project implementation agents

There are essentially three implementation agents for projects contained in the VLAP. The project implementation plan identifies the relevant agent or combination of agents responsible for project implementation.

- The first relates to projects managed and funded by the municipality which relates to service infrastructure.
- The second relates to state aided projects for example: housing which will be managed and supported by the Department of Human Settlement.
- The third component relates to private sector and community initiatives.

This will need Msunduzi to facilitate involvement through incentives and creating conditions which will lend itself to private sector and community development.

9.5 Implementation plan

A number of strategic intervention projects have been developed, in respect of the various sectors identified above, to give effect to the Vulindlela LAP. This is detailed in table 46 and shown in figure 25 below.

9.5.1 Area of influence of projects

Projects, based on their influence can either be applicable to the whole area, for example the IRPTN or the have a localised influence, such as reservation of an area for commercial land use. Larger scale projects will therefore have a more significant influence on encouraging development in Vulindlela than their smaller counterparts.

9.5.2 Strategic intervention projects

Strategic intervention projects in respect of Vulindlela include the following:

- Establishing a joint decision-making structure for land development in Vulindlela.
- Gaining community, political and administrative support for the proposed developments at Vulindlela most importantly the development of the intervention areas and implementation of land use management.
- The introduction and implementation of the IRPTN and its associated infrastructure.
- Obtaining planning authority for the preparation of feasibility studies, including detailed design and costing, for each of the six intervention areas.
- Providing the full package of infrastructure services and a package of incentives to each intervention area to enable private sector investment.
- Preparation of an agricultural development plan for Vulindlela with clearly defined projects for implementation.

In terms of prioritising development projects in Vulindlela, it is recommended that the strategic principle is applied in order to promote sustainable development. The projects identified in the table 46 are included in figure 25 for locational purposes. In addition intervention areas have been included in maps in the Status Quo Report to indicate which traditional councils are involved in each area.

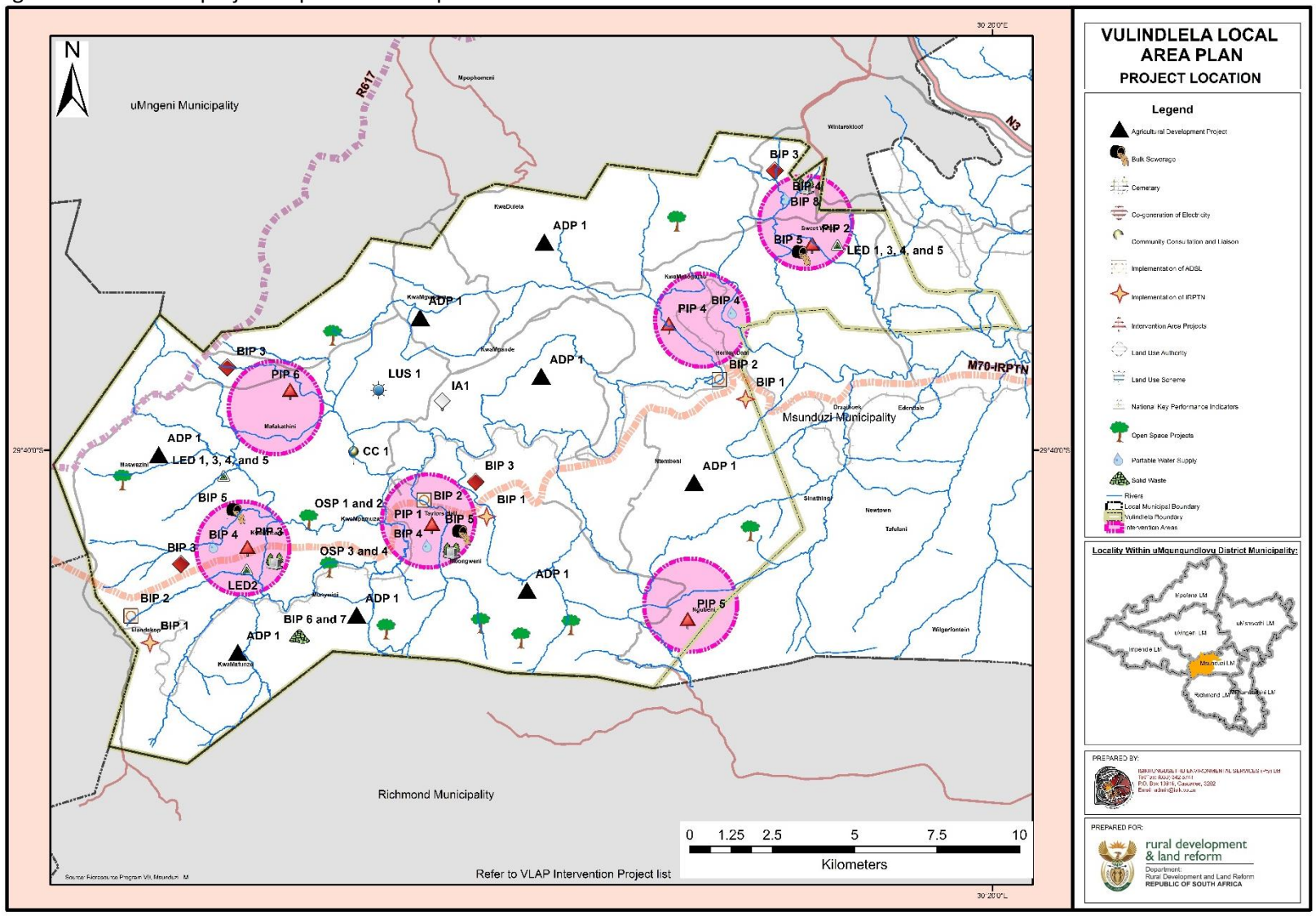
Table 47: Project programme and budgets

Project reference	Project name	Project description	Responsibility	Value Estimated	In CDS	CDS Targets	Short term			Medium term				Loner term					
							Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13
Institutional arrangements																			
IA 1	Establishing Joint Land Use Management Decision-making authority	Feasibility of establishing a joint management unit (JMU)	Msunduzi Municipality, the ITB and the House of Traditional Leaders	R 5 000 000															
		Feasibility study for establishment of a JMU																	
		Municipal financing																	
		Establishment & ongoing operation - costs still to establish in medium to longer term																	
		Appointment of a manager for the JMU to be based at Taylors Halt responsible for establishing and operating the administrative centre and associated sections anticipated for the JMU at Vulindlela.		R 550,000															
Intervention area projects																			
PIP 1	Taylors Halt intervention area	Prepare TORs for feasibility studies, prelim design and costing for the establishment of identified development centres in the LAP:	Msunduzi Municipality together with the ITB and Traditional leaders	R 2 000 000															
		Municipality to undertake detailed planning applications, infrastructure development plans, EIA's, and relevant studies.																	
		Proceed with implementation - costs to estabilsh medium to longer term																	
PIP 2	Sweet Waters intervention area	Prepare TORs for feasibility studies, prelim design and costing for the establishment of identified development centres in the LAP:	Msunduzi Municipality together with the ITB and Traditional leaders	R 2 000 000															
		Municipality to undertake detailed planning applications, infrastructure development plans, EIA's, and relevant studies.																	
		Proceed with implementation including new road design and construction-costs to establish medium to longer term																	
PIP 3	KwaMncane Precinct intervention plan	Prepare TORs for feasibility studies, prelim design and costing for the establishment of identified development centres in the LAP:	Msunduzi Municipality together with the ITB and Traditional leaders	R 2 000 000															
		Municipality to undertake detailed planning applications, infrastructure development plans, EIA's, and relevant studies.																	
		Proceed with implementation-costs to establish medium to longer term																	
PIP 6	Mafakhatini intervention area	Prepare TORs for feasibility studies, prelim design and costing for the establishment of identified development centres in the LAP:	Msunduzi Municipality together with the ITB and Traditional leaders	R 1 200 000															
		Municipality to undertake detailed planning applications, infrastructure development plans, EIA's, and relevant studies.																	
		Proceed with implementation- costs to establish medium to longer term																	
PIP 5	Ngubeni intervention area	Prepare TORs for feasibility studies, prelim design and costing for the establishment of identified development centres in the LAP:	Msunduzi Municipality together with the ITB and Traditional leaders	R 800 000															
		Municipality to undertake detailed planning applications, infrastructure development plans, EIA's, and relevant studies.																	
		Proceed with implementation-costs to establish medium to longer term																	
PIP 4	Henley Dam intervention area	Prepare TORs for feasibility studies, prelim design and costing for the establishment of identified development centres in the LAP:	Msunduzi Municipality together with the ITB and Traditional leaders	R 3 500 000															
		Municipality to undertake detailed planning applications, Land Rights Enquiries, exproriation, infrastructure development plans, EIA's, and relevant studies.																	
		Proceed with implementation-costs to establish medium to longer term																	

Project reference	Project name	Project description	Responsibility	Value Estimated			Short term			Medium term				Loner term					
Bulk infrastructure projects																			
BIP 1	Implementation of IRPTN	Implementation of rapid transport system:	Msunduzi Municipality	R 25,000,000	MM 03 (Strat 3) R 700 Million	6% implementation annually													
		Upgrade and widening of M70																	
		Upgrade of existing rail network for passenger & goods traffic																	
BIP 2	Implementation of broad band fibre optic high speed communications network	Investigation into implementation of ADSL fibre optic high speed communications network linking proposed centres in Vulindlela	Msunduzi Municipality	R 1 500 000															
BIP 3	Co-generation of electricity	Investigation into feasibility of co-gereration of electricity options in each of the defined centres	Msunduzi Municipality	R 2 500 000															
		Implementation & operation of co-generation systems																	
BIP 4	Bulk potable water supply to high density centres	Feasibility of bulk potable water provision to proposed centres	Msunduzi Municipality	R 6 000 000	W & S 14 (Strat 3) R 220 Million	51 Km pipeline constructed and 1 reservoir													
		Implementation & operation of bulk potable water supply to centres																	
BIP 5	Bulk sewerage provision in proposed high density centres & high density rural settlements	Feasibility of bulk sewerage provision in proposed high density centres & high density rural settlements	Msunduzi Municipality	R 4,000,000	W & S 06 (Strat 3) R55 Million	5 500 VIPs by 2020													
		Implementation & operation of bulk sewerage system(s)																	
BIP 6	Vulindlela solid waste disposal site and refuse collection system	Feasibility into establishment of a Vulindlela solid waste disposal site and refuse collection system	Msunduzi Municipality	R 4 000 000															
BIP 7		Implementation & operation of solid waste disposal site & collection system																	
BIP 8	Establishment of cemetary sites in main intervention areas	Feasibility into establishment of cemetary sites in each of the intervention areas in vulindlela	Msunduzi Municipality																
		Implementaion & operation of cemetary sites		R 3 000 000															
Land use scheme																			
LUS 1	Preparation of a town planning scheme for Vulindlela	Establishment of a land use management system:	Msunduzi Municipality	R 1 700 000															
		Prepare planning scheme for Vulindlela - centres & rural areas																	
		Ensure community & Trad Councils buy-in to scheme																	
		Set-up landuse admin system in JMU to process applications and feed them to approriate structures for decision making (MPT)																	
		Operating & maintaining admin system																	
Community consultation and liaison																			
CC 1	Public consultation	Participation and communication	Msunduzi Municipality	R 3 000 000															
		JMU to set up communications networks using local structures																	
		Ongoing communications on impementation of LAP at local level																	

Project reference	Project name	Project description	Responsibility	Value Estimated			Short term			Medium term				Loner term					
Agricultural development programme		**PROJECTS RURAL AREAS VULINDLELA**																	
	Vulindlela agricultural development project	**Preparation of an agricultural development plan for Vulindlela:**	Msunduzi Municipality	R 5 000 000															
		Identify existing farmers, types of production, challenges and access to markets																	
		Set up information hub for local farmers to access information, inputs, markets, traction, transport etc.																	
		Working with farmers, verify additional areas suited for different types of agriculture																	
		Set up farmer expansion programmes on identified land areas																	
		Prepare management plans for each of the selected areas																	
		Provide mentorship & support to farmers in the implementation of the expansion programme																	
		Introduce rationalisation and upgrade of traditional livestock herds commenurate with available grazing lands																	
		Conduct feasibility studies for establishment of agri-manufacturing parks in intervention areas																	
		Proceed with implementation of above projects-costs for medium and long term to be confirmed		R 100,000,000															
ADP 1		**PROJECTS GREEN OPEN SPACE**																	
	Prepare a management plan for rehabilitation and management of 'green areas' in Vulindlela	Prepare a management plan for rehabilitation and management of 'green areas' in Vulindlela:	Msunduzi Municipality	R 2 000 000															
		Establish status of 'green' areas at field level and establish type of management interventions required to rehabilitate and sustain ecological capital in Vulindlela																	
		Establish interventions required in settled areas to minimise negative impacts on rivers, ground water, grasslands and forests																	
		Prepare environmental management plan for Vulindlela including both sensitive areas as well as settled areas and include conditions of use in Vulindlela scheme																	
		Prepare applications to Working for Water, Wetlands, Forests etc. for funding for rehabilitation																	
	Roll out rehabilitation programmes for degraded areas and for removal for aliens	Roll out rehabilitation programmes for degraded areas and for removal for aliens	Msunduzi Municipality and Dept of Public Works	R 100,000,000															
	Implement management plan for 'green job' generation	Implement management plan for 'green job' generation in the form of establishing: trails, protecting natural forests, landscapes, cultural heritage sites and natural features.	Msunduzi Municipality	R 5 000 000															
	Introduce Education for Susutainable Development in all schools	Working with WESSA, introduce Education for Susutainable Development in all schools and in all grades in Vulindlela and Msunduzi	Msunduzi Municipality: Environmental component	R 1,000,0000															
Open Space Projects																			
OSP 1	National Key Performance Indicator 3: Youth development and training	Five year programme to facilitate and create Youth owned enterprises	Msunduzi Municipality	R 4 000 000	LED 18 (Strat 1) R4 000 000	Youth Development and training													
	National Key Performance Indicator 3: Satelite market upgrade	Facilitate the upgrade of the Kwa Mncane satlite markets	Msunduzi Municipality	R 300 000	LED 23 (Strat 3) R 300 000 Budget	Upgrade Kwa Mncane satelite market													
	National Key Performance Indicator 3: Business retention and expansion programme	Assist distressed companies	Msunduzi Municipality	R 4 000 000	LED 20 (Strat 5) R4 000 000	Assist various companies													
	National Key Performance Indicator 3: Tourism development support	Tourism development marketing	Msunduzi Municipality	R 1 000 000	LED 20 (Strat 6) R 1 000 000	Tourism marketing													
	National Key Performance Indicator 3:Training workshops for SMME's and Co-ops	Training for SMME's and Co-ops	Msunduzi Municipality	R 500 000	LED 11 (Strat 7) R 500 000	Tourism marketing													
	Project Term						Short term			Medium term				Long term					
							R 158, 350,000			R 293,000,000				To be determined					

Figure 25: Vulindlela project implementation plan



10. MONITORING AND EVALUATION

10.1 Rationale for monitoring and evaluation

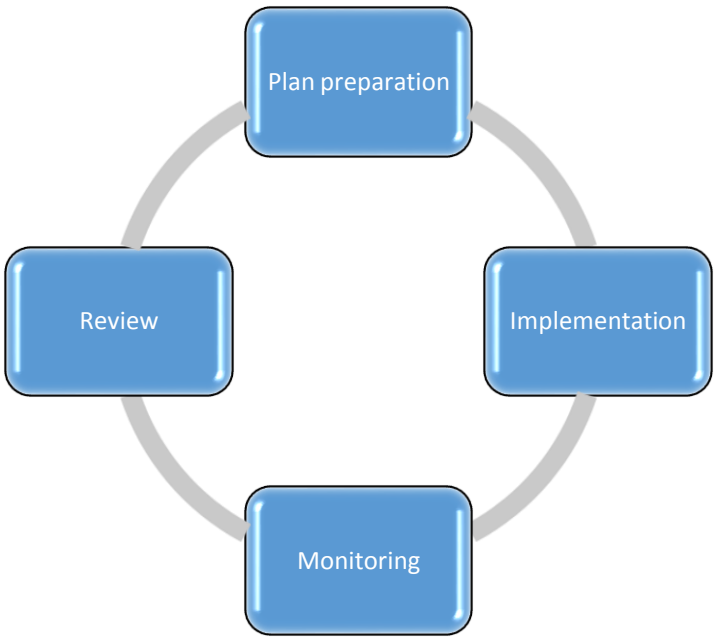
As noted in the introduction to the VLAP (diagram 1) this plan, in the hierarchy of plans, provides a spatial framework, planning concepts and guidelines for the future development of Vulindlela. As a pre-cursor to project implementation the VLAP needs to be followed by three processes working in parallel:

- Detailed layout and design of intervention, high density and agricultural areas to determine quantities and costs.
- Initiating the process of property survey and scheme preparation.
- Ongoing communications and facilitation among local stakeholders and interest groups to ensure their support and 'buy in' to the changes inherent in this plan.

These processes need to run in parallel in order to introduce land use management at the same time as the implementation of proposed developments takes place. This is necessary to achieve regulation or control of development and in the process ensure accessibility and equity for all people of Vulindlela.

Owing to the logistics, costs and socio-political issues associated with the implementation of this plan, implementation is scheduled over the short, medium and longer term. In order to ensure that the principles contained in this plan are followed during the implementation stages a process of monitoring is required based on the five measures and seven pillars identified in section 4.1 of this report. Monitoring needs to be accompanied by a regular review of the implementation plan to accommodate adjustments arising from possible financial, technical, logistical and social challenges. The project monitoring and review process is diagrammatically shown below (diagram 12).

Diagram 12: Monitoring and review process



10.2 Plan implementation and monitoring

Project implementation, in respect of the VLAP is allocated to different line functions in Msunduzi Municipality. Table 47 shows the project actions to be allocated to these different departments.

It is suggested that monitoring is undertaken by those responsible for implementation of the VLAP, but with regular reporting to a higher authority with particular measurable and/ or tangible targets which are based on the five key measures identified in section 4.1 of this report and link to the seven pillars identified in the Msunduzi SDF. The implementation of identified projects is the mechanism that should be used in ascertaining progress with implementation of this plan. Therefore it is recommended that a score card is developed for the various projects based on the five measures, with annual benchmarks, for quarterly report-back to Council. The schedule below provides reference to the main outputs which must be achieved in terms of the five measures. The monitoring schedule can be further developed to include more detailed tasks to ensure accurate and effective reporting. The continual monitoring and review and updating of this scorecard would be the responsibilities of the JMU for Vulindlela located at Taylors Halt.

Table 48: VLAP Implementation monitoring schedule

Measures /targets	Sector	Project actions	Responsibility	Project output	Project implementation monitoring		
					Year 1	Year 2	Year 3
Creating a liveable space and structure	Planning and communications	Establishing a joint development planning decision-making body.	Planning Department	▪ Joint decision-making body established. ▪ Institution operational.	▪ TOR prepared. ▪ Project initiated.	▪ Project implementation. ▪ Operational.	▪ Monitor operation.
		Community consultation and inter-municipal liaison.		▪ Development of communication plan. ▪ Implementation and monitoring.	▪ Development of communication plan. ▪ Implementation and monitoring	▪ Development of communication plan. ▪ Implementation and monitoring.	▪ Development of communication plan. ▪ Implementation and monitoring.
		Preparation of plans for intervention areas.		▪ Detailed implementation plans. ▪ Site preparation for non-residential development.	▪ TOR prepared. ▪ Project initiated.	▪ Plan development.	▪ Plan implementation. ▪ Identified sites ready for implementation.
		Preparation of a Vulindlela Agricultural development plan.		▪ Agricultural implementation plan with identified projects.	▪ TOR prepared. ▪ Project initiated.	▪ Project completion. ▪ Project implementation.	▪ Project implementation and monitoring.
Regulating future development (control)	Land use management	Preparation of a 'wall to wall' land use scheme for Vulindlela commencing with intervention areas.	Planning Department	▪ 'Wall to wall' land use scheme.	▪ TOR prepared. ▪ Project initiated.	▪ Plan development. ▪ Adoption by Council.	▪ Proceed with implementation of the scheme and introduction of land use regulation.
		Creation of awareness.	Planning Department	▪ Communications with traditional structures, municipal officials and community groups.	▪ Preparation of job description. ▪ Preparation of materials for communication. ▪ Appointment of communications officers.	▪ Ongoing communications.	▪ Monitoring impact of communications on achieving support and buy in to the VLAP and associated projects.

Measures /targets	Sector	Project actions	Responsibility	Project output	Project implementation monitoring		
					Year 1	Year 2	Year 3
Achieving improved accessibility for all	Infrastructure	IRPTN implementation.	Transport Department And Provincial DOT	▪ Functioning IRPTN.	▪ Project implementation as per City Development Strategy.	▪ Project implementation as per CDS.	▪ Project implementation as per CDS.
		ADSL communication network (broadband).	Municipal Manager's Office and Telkom	▪ Operational ADSL network.	▪ TOR prepared. ▪ Project planning and approvals.	▪ Project implementation phase 1.	▪ Project implementation phase 2.
		Electricity supply.	Electricity Department ESKOM	▪ Electrification of all intervention areas.	▪ TOR prepared. ▪ Project initiated.	▪ Plan development. ▪ Adoption by Council.	▪ Project implementation phase 1.
		Bulk water supply.	Water and Sanitation Department And Umgeni Water	▪ Bulk water and reticulation in place.	▪ Water master plan in place.	▪ Implementation and roll-out of plan.	▪ Implementation and roll-out of plan.
		Waterborne sewerage implementation for high density residential areas.		▪ Waterborne sewerage in place at high density nodes.	▪ Sewerage master plan in place.	▪ Implementation and roll-out of plan.	▪ Implementation and roll-out of plan.
		Solid waste removal planning.	Works Department	▪ Solid waste removal plan in place. ▪ Solid waste site identified. ▪ New solid waste site operational.	▪ Solid waste removal plan development. ▪ Site identification.	▪ Site authorisation.	▪ Site preparation. ▪ Site operationalisation.
		Establishment of cemetery and policy implementation.	Parks and Recreation Department	▪ Cemetery plan. ▪ Site identification. ▪ Site preparation. ▪ Implementation. ▪ Burial policy development and communication.	▪ TOR prepared. ▪ Cemetery plan preparation and site identification. ▪ Burial policy preparation.	▪ Applications for authority including EIA. ▪ Burial policy communication.	▪ Implementation of plan. ▪ Cemetery operationalised.

Measures /targets	Sector	Project actions	Responsibility	Project output	Project implementation monitoring		
					Year 1	Year 2	Year 3
Enhancing a sense of place	Ecological Infrastructure	Preparation of an open space management and rehabilitation plan which includes urban areas.	Environmental Directorate and Department of Environment Affairs and Ezemvelo KZN Wildlife	▪ Open space management and rehabilitation plan to integrate urban and rural areas in Vulindlela.	▪ TOR prepared. ▪ Project initiated.	▪ Open space plan prepared. ▪ Plan approved by all IAP's and adopted by Council.	
		Implementation of rehabilitation plan.		▪ Implementation of rehabilitation plan.	▪ TOR prepared. ▪ Project initiated.	▪ Implementation of programme. ▪ Programme monitoring.	▪ Programme monitoring.
		Green job implementation plan.		▪ Green job implementation.	▪ Funding sought and secured. ▪ Implementation and management of programme.	▪ Implementation and management of programme.	▪ Implementation and management of programme.
		Environmental education programme.		▪ Environmental educational programme.	▪ Funding sought and secured. ▪ Implementation and management of programme.	▪ Implementation and management of programme.	▪ Implementation and management of programme.
Improving livlihoods	Local economic development	Five year programme to facilitate and create youth owned enterprises.	LED Directorate DEDTEA	▪ Operational youth owned enterprises.	▪ Development of programme. ▪ Implementation of programme.	▪ Implementation of programme.	▪ Implementation of programme.
		Facilitate the upgrade of the KwaMncane satellite markets.		▪ Upgrade KwaMncane satellite markets.	▪ Upgrade KwaMncane satellite markets.		

Measures /targets	Sector	Project actions	Responsibility	Project output	Project implementation monitoring		
					Year 1	Year 2	Year 3
		Assisting distressed companies.		▪ Identification of companies requiring assistance. ▪ Assistance to companies.	▪ Identification and assistance of distressed companies.	▪ Identification and assistance of distressed companies.	▪ Identification and assistance of distressed companies.
		Tourism development marketing.		▪ Support tourism.	▪ Marketing of tourism.	▪ Marketing of tourism.	▪ Marketing of tourism.
		Training SMMEs and co-operatives.		▪ Local economic development workshops.	▪ Training on SMME's and co-operatives.		

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ANNEXURES

Annexure 1: Henley Dam - Strategy

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Annexure 4: Urban edges

Annexure 5: Intervention areas and traditional councils

Annexure 1: Henley Dam – Strategy

1. Risks associated with housing development at Henley Dam

The following **risks** were identified at several of the Vulindlela Project Steering Committee meetings and raised by senior officials in Msunduzi in respect of the current development around the dam.

(i) Upmarket housing development has taken place on land owned by the Department of Water Affairs and administered by Umgeni Water.
(ii) It appears that this development is illegal and houses have been constructed without planning approval.
(iii) A number of these houses have been built within the floodline of the dam.
(iv) Umgeni Water has initiated a process to subdivide the dam together with the 100 year flood line from the remainder of the property in order to protect this water body.
(v) The Department of Water Affairs will act against persons who have built below the floodline.
(vi) There is a risk that the non-reticulated sewage disposal systems (VIPs) will contaminate the dam water and have a negative impact on downstream usage.
(vii) There is a need for both planning and environmental approval in respect of all the buildings which have been constructed in this area.

2. Suggested interventions

In order to resolve the land rights issues that have arisen in the 'illegal' development on the eastern shores of Henley Dam it is suggested that an experience land rights practitioner be appointed. The role of the practitioner would be to determine whether the land issues could be resolved using one or some of the land reform legislation in place in South Africa involving the following actions.

Historic ownership and rights to the land:

- When was Henley Dam constructed?
- Who or what authority owned the land prior to dam construction?
- Is there any evidence of historic forced removals from this land at the time when the dam was constructed and land alienated for this purpose?
- Did the said land form part of the traditional authority in the area at that time?
- Was the traditional authority then responsible for land allocation?
- Was this land (site of the dam and surrounding areas) obtained in a legal and transparent manner by the current owner?
- Were the families and traditional councils compensated for this land by the current owner?
- Are there any written agreements in place regarding such transaction?

Land under upmarket housing:

- Determine current ownership of the land in question from title deeds.
- Establish traditional zoning or legal usage permitted on said land by the traditional councils, ITB, State (DWA) or rightful owner of said land.
- Resolve responsibility over land use management and control.
- Establish who and under what conditions land was allocated for upmarket development and under what authority.
- Quantify number of sites allocated.
- Time when land was allocated: how long ago did this take place?
- Did the households occupying these sites have alternative opportunities for access to land and housing?
- Agency/individual responsible for orchestrating site allocation and occupation.
- What were the perceived rights of that agency/individual to the land: did that agency have the right to allocate this land for residential development?
- What actions were taken by the land owner and municipality to prevent such land invasions?
- What land rights have been granted to property holders by the agency allocating said land?
- Number of sites allocated and number of residents located on said properties
- Use of land on allocated sites.

The outcome of investigations could potentially form the basis of an application to the Department of Rural Development and Land Reform or other organs of state for assistance with resolving this situation.

Annexure 2: Summary of relevant statistics for Vulindlela 2013- 2033

Land area	Hectares
Vulindlela total land area	25 185
Intervention areas land area 2013	1 454
Remainder Vulindlela land area (rural settlement, agriculture and open space) 2013	23 731
Intervention areas land area 2033	1 533
Remainder Vulindlela land area (rural settlement, agriculture and open space) 2033	23 651

Housing structures	Structures
Total structures Vulindlela 2013	85 033
Projected structures Vulindlela 2033	126 355
Rural settlement structures 2013	73 170
Rural settlement structures 2033	47 267
Intervention area structures 2013	11 863
Intervention areas structures 2033	79 088

Annexure 3: Population projection method

In order to determine the number of structures that are currently located in Vulindlela a map was created showing each of the areas in question, i.e. KwaMncane; Taylors Halt; Sweetwaters and Henley Dam. In order to determine the current number of structures in the area, the ESKOM households layer, dated 2013, was added. This facilitated the estimation of the number of structures located in each of the aforementioned areas. The number of structures in each of these areas was determined using a GIS function which provided numerical output for each node. This output was then input into an excel spreadsheet to be used in further calculations. Based on research into the study site, the area available for future expansion of structures was determined, and a number of options with varying densities were computed:

- 11 structures per hectare
- 33 structures per hectare
- 50 structures per hectare
- 67 structures per hectare
- 90 structures per hectare
- 10 structures per hectare (Henley Dam area only).

However, future increases in structures in this area would be distributed into the centres above in order to prevent further unplanned development in the more rural areas, which often result in poor agricultural and environmental practices. In order to facilitate the distribution of the possible future population between these development nodes the following weighting factors were applied:

- 60% of overall growth in Vulindlela to be directed to the intervention areas (centres) where the following distribution applies:
    - 45% of future population increases would be distributed to Taylor's Halt.
    - 16% of future population increases would be distributed to both KwaMncane and Sweetwaters.
    - 7% future population increases would be distributed to Henley Dam.
    - 16% of future population increases would be distributed to Mafakathini.
- The remaining 40% of growth in structures (population) to be accommodated in selected high and medium density settlements adjoining intervention areas.

A decision regarding the density of structures could now be taken based on the number / density of structures currently present in addition to the number of future structures that need to be accommodated in the area that is available.

From these numbers significant revisions were made and it was determined that in order to accommodate the number of people living in these intervention areas that each plot would need to be 100 m^2. The structures to be constructed on these sites would be double or triple storey units in order to meet the requirements of the increase in population into the future.

Additionally, there are a number of industrial manufacturing requirements that have to be met in the aforementioned areas that have been highlighted for development. Areas of available land in or around the identified intervention areas have been set aside for industrial development. The actual site sizes in each area will have to be determined at detailed design stage.

Annexure 4: Urban edges

1. Introduction

The main purpose of this report is to establish the key principles that need to be taken into consideration developing policies and programmes aimed at limiting further urban sprawl in Vulindlela.

Dewar (2012) notes that the phenomenon of urban sprawl has evolved in the South African landscape out of the application of different ideologies associated with urban development and growth. The inability of planners and policy makers to properly align the succeeding generations of different ideologies has led to fragmentation, separation and inefficiency in urban forms all of which have in turn promoted urban sprawl. A further factor influencing the urban malady in South Africa is the fact that municipalities have lost the ability to forward plan to accommodate future urban growth. One of the consequences is that land speculators, land invaders and land owners use this space to determine the direction of urban growth with municipalities tending to 'rubber stamp' such developments. Ironically the poorest of the poor experience the greatest hardship as a consequence of current policies which were in fact designed to address these challenges.

In other words experience suggests that authorities implementing current approaches to urban edge definition and regulation are not succeeding in their endeavours. This raises questions around the efficacy of such policies and whether they are adequately dealing with all the factors associated with edge definition and management. Dewar (2012) notes that South Africa is not alone in challenges associated with edge definition, but he goes on to note that the problem here is one of the worst in the world due to historical influences and our inability to recognise the factors that have and continue to contribute to this phenomenon. The key factors in seeking to manage sprawl in future include: changing local values and perceptions around issues of sustainability, urban re-structuring to accommodate infill and densification, enhancing and improving different forms of public transportation aimed at reaching the poorest of the poor, reduction in travel distances and costs and defining a 'no go' dispensation for the development of agricultural land and sensitive environmental areas.

2. Background

The rural nature and extent of the project area (comprising nine municipal wards and five traditional houses and associated leadership structures) plays an important role in attempting to explain the scale and extent of urban sprawl or displaced residential development that has taken place in Vulindlela over the last 100 years.

The land is predominantly owned by the Ingonyama Trust with limited private holdings included in the area. The result is that the land use is primarily the responsibility of the Msunduzi Municipality whilst land allocation is that of the ITB working through traditional houses. The onus is on the municipality working closely with the ITB and traditional houses to ensure that land use is in accordance with the hierarchy of spatial plans prepared by the municipality in terms of the relevant legislation (Planning and Development Act (PDA), Spatial Planning Land Use Management Act (SPLUMA)).

It is recognised that this area was historically located under the KwaZulu-Government and subject to different legislation, at that time, governing land use and land management (KwaZulu Land Act). As a consequence of the history of the development of this area we have entered an era where uniform

legislation, in relation to development planning, has to be implemented by the local municipality to achieve the five objectives of the Spatial Planning and Land Use Management Act namely:

- Spatial Justice
- Spatial Sustainability
- Efficiency
- Spatial resilience
- Good administration

The origins of settlement relate to the colonial and subsequent apartheid policies embedded in the history of the people and the settlement of the area. Owing to these policies black people were unable to reside in Pietermaritzburg and had to find alternative accommodation to take advantage of the economic opportunities in order to generate income to pay for hut taxes imposed on them by the colonial government. In addition the area was subjected to different approaches to planning since the late 1800s by the different administrations. This in turn has had an impact on the type and nature of development that has taken place over the years. For example under colonial and apartheid regimes the area was set aside for separate development resulting in minimal investment in infrastructure, economic development and land use. The result was that land allocation for people moving into the area followed the traditional norms as set out by traditional houses at that time which, due to population pressures, has led to urban sprawl, inefficiencies in services provision and the concomitant loss of biodiversity and agricultural resources.

Post 1994, Vulindlela was administered in isolation of the other three components of what now comprises the Msunduzi Municipality. In order to better integrate the different components of Msunduzi, the Pietermaritzburg Transitional Local Council was established in 1993 (LGTA (Act 209 of 1993)). This was followed in 2000 by the establishment of the Msunduzi Municipality (MSA 2000) where Vulindlela and other areas to the south east of the city were brought into the fold. This inclusion process allied to national government plans and policies (e.g. NDP, Urban Networks Strategy, Neighbourhood Development Partnership Grant) has allowed Msunduzi to adopt a more holistic approach to integrated planning which is inclusive of the following: (i) the desired patterns of land use in Vulindlela which are inclusive of finding ways of limiting further costly and un-sustainable urban sprawl; (ii) the most appropriate capital investment framework for the area addressing the spatial marginalisation of certain areas in the past; (iii) providing a strategic framework to assist Msunduzi Municipality to unlock development in the area and to guide decision making on land development applications; (iv) opportunities and constraints inherent in the natural resources; and (v) the nature and location of different types of development.

3. Working definitions

The Provincial Urban Edge Guideline (DEADP 2005) defines and urban edge as being "…a demarcated line to manage, direct and control the outer limits of development around an urban area". It goes on to note that the intention of the edge is to "…establish the limits beyond which urban development…should not occur…". The edge is the transition between urban and rural areas: places where full services are provided and high density land use is appropriate as opposed to agricultural use of land where minimal services are provided and low density development relating to agriculture is appropriate. It is further indicated in the guideline that the use of edges to direct future urban growth and development can also have negative consequences associated with manipulation of the land market. In order to be effective, edges need to be adopted by municipalities as a mechanism to both control and at the same time promote compact and efficient development of urban areas. An important observation about the nature of edge definition is that it is condition sensitive and hence

the rules associated with one urban area will not necessarily apply to other areas where differing local conditions apply (DEADP 2005).

Smit (2003) in his work on Paarl notes that the unplanned, uncontrolled spreading of urban development into areas adjoining the edge of a town is known as 'urban sprawl' or 'suburban sprawl'. The term 'urban containment' has been coined to limit urban sprawl in areas where encroachment of the built environment is not appropriate (Smit).

Dewar (2009) notes a number of different types of urban sprawl that have to be identified and contended with by municipalities. These include but are not limited to:

- Large private projects such as golfing and ecological estates (known as 'eco-estates') which results in urban development in rural and wilderness areas.
- Small scale incremental sprawl where one development leads to another in rural areas thereby expanding the urban footprint.
- Large authority driven developments to accommodate low cost housing often located in rural areas.
- Informal settlement expansion into rural traditional areas.

Dewar (2009) suggests that the most effective approach to adopt in attempting to deal with the different types of urban sprawl involves increasing densities and infill in defined urban areas on the one hand while at the same time needing to "…maintain a dynamic balance between the 3 fundamental landscapes namely: wilderness, rural and urban". He goes on to indicate that the two approaches give rise to two types of spatial definitions. In the case of the urban there is a need for a defined containment edge as the limit of the urban core. In contrast the focus in rural areas is to identify what types of development should and should not take place beyond the containment boundary. The approach in rural areas goes further in that provision should be made for 3 broad zones involving peri-urban, rural and wilderness and the interventions necessary to maintain the balance.

4. Three drivers

Smit (2003) and Dewar (2012) note that in South African cities urban growth (the driver of sprawl) takes four forms which include:

(i) Market driven sprawl – space extensive consuming large areas of farmland and environmentally sensitive areas on the urban periphery.
(ii) State subsidised low income housing sprawl.
(iii) Illegal land occupation.
(iv) Industrial/commercial development in rural areas.

Further factors influencing the nature and location of sprawl in KwaZulu Natal include: the history of development of an area, economic inequality, land ownership, security of tenure, accessibility to services, access to areas of economic intensity, levels of education and skills and personal safety. These factors have in the past and continue to drive the urbanisation process. Thus, where people from traditional rural areas, with a low skills base and limited market information, are seeking to gain a foothold in urban areas, access to traditional areas in close proximity to these centres provides a cost effective point of entry. Full integration into urban areas may take place over many years and even on an inter-generational basis. Thus a migrant into Vulindlela from a rural area is likely, once established with employment, to gain access to traditional land for residential purposes. Members of his/her family are then likely to follow and use this as their base for entry into the urban area.

Similar processes accompany movement of people off of a low income and skills base from one urban centre to the next where entry poses a major challenge in terms of costs of living and gaining access to market information for employment or trading operations. Traditional areas in close proximity to regional economic hubs have and continue to provide a point of entry and a place to ensure relative security of tenure at low cost for people wanting to gain a foothold in the formal economy.

5. Perspectives on interventions

Urban growth and sprawl has become a universal phenomenon, but as noted has different drivers depending on location, context and local conditions. Consequently interventions have to be appropriate in terms of local context if they are to be effective. Thus for example in Great Britain green belts are installed to make a clear statement on the limits to further urban expansion and there is popular support for the notion of green belts serving a variety of other functions (social, recreational, sport, environment). The multiple value of green belts is recognised and supported by municipalities and hence the concept has proven effective in the control of urban sprawl. In KwaZulu Natal the notion of green belts to manage urban sprawl is unlikely to succeed owing to a variety of factors such as land invasions, crime, financial status of municipalities etc.

Mexico City, when faced with rapid informal urban development in the late 1980s, responded with the promulgation of regulations for rural areas adjoining the city paralleled with a programme of inner city infill and densification as a means of managing urban sprawl. This type of intervention would seem more appropriate for local conditions with one major exception, the regulation of land use in traditional areas. This requires a different type of intervention that needs further research and development.

In the Western Cape (Drakenstein) there is increasingly a recognition that effective definition and implementation of an urban edge requires a number of interventions which include:

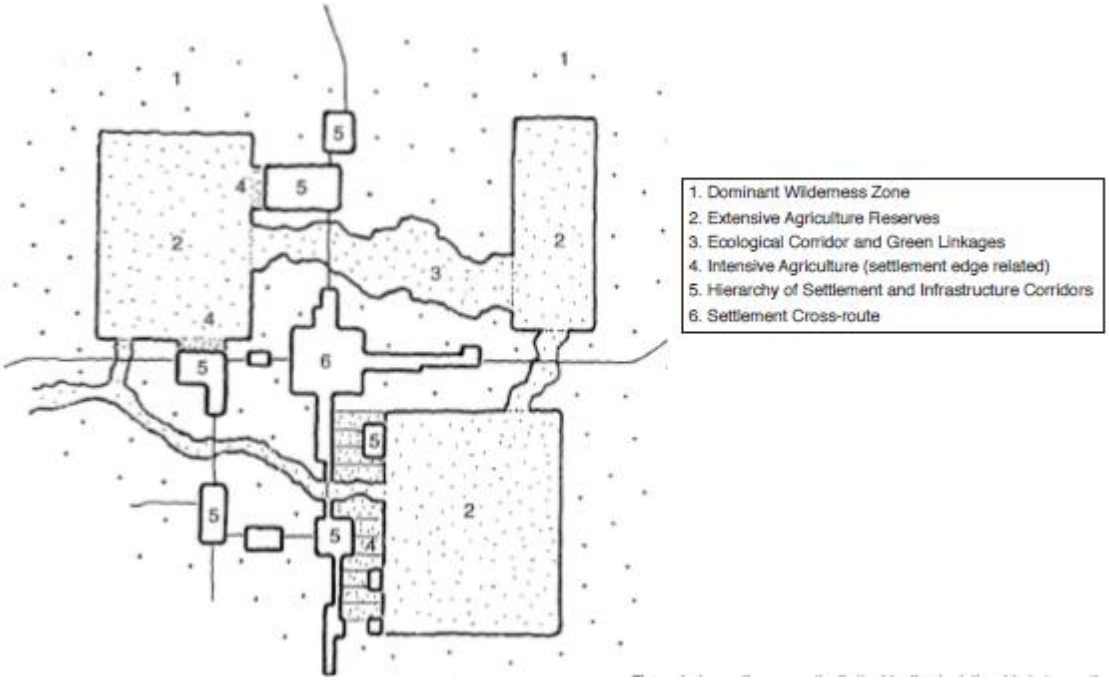
- Formulation of a set of guidelines for land use in rural areas adjoining urban precincts with clear justification i.e. it must be relevant to local conditions.
- As a matter of principle exclude all farm land and areas with biodiversity importance from any form of urban speculation. In parts of the USA it has been possible to regulate a differential in the land market: farm land values versus urban values in order to prevent speculation on the interface of urban and rural areas.
- Infill and densification should be promoted as an evolving norm in society where positive values and incentives are associated with living in higher density urban areas and progressively urban sprawl is associated with a number of negative issues (e.g. Loss of character of towns, inefficiencies-costs, security issues, services issues, loss of food production potential and loss of ecological services).

In KwaZulu Natal the Western Cape experience has application in areas such as the Midlands under private ownership where farmland and areas rich in biodiversity are being fragmented through a variety of developments which should in reality be confided to defined urban areas. However, the Western Cape experience has very limited application to traditional areas where different tenure and historical conditions apply.

In order to overcome the current challenges associated with urban sprawl Dewar (2012) notes that the balance between wilderness, rural and urban landscapes has been upset by un-managed and un-controlled urbanisation. He notes that there is a need to introduce a change into the current culture prevalent amongst developers and policy makers regarding wilderness and rural areas being 'open' for development. In seeking to identify an edges policy municipalities need to define where

development should not be allowed to take place in their wilderness and rural areas. These are the resources which should be set aside as food baskets and sources of natural resources for current and future generations. Once this has been achieved then the definition of limits to urbanisation should be hard, permanent and tightly regulated. Policy makers, in defining areas suited to future development, should adopt a conservative approach aimed at maintaining as much land under wilderness and rural as is feasible. This should be achieved by seeking opportunities within existing defined urban areas to integrate, infill and densify all forms of future urban development and in the process divert the pressure for more land away from rural and wilderness areas. The concept of maintaining dominant wilderness areas around urban centres with extensive and intensive agriculture in rural areas adjoining and forming a part of urban areas and edges is depicted in figure 1 below. The figure further highlights the notion of different types and densities of development within the urban form to enhance the aesthetic appeal of urban space.

Figure 1: Relationships between landscapes



Source: Dewar et al (2012).

Key considerations in controlling sprawl relate to:

- Restrictions on lateral expansion of settlement.
- Defining paths for expansion which will have least impact on wilderness and rural.
- Overcoming land speculation in surrounding rural areas by outlawing further development in defined areas and incentivising infill and densification in existing urban precincts.
- Managing edges such that human waste processing sites form an integral part of the containment of urban growth: expansion of urban areas should not proceed beyond waste processing sites due to nuisance and health related issues.
- A further key consideration in the management and containment of urban expansion is the question of hazards. Floods, fire and the spread of disease can be better predicted and managed in defined urban areas. This is not the case in extensive and often un-planned peri-urban areas where fires and disease can spread rapidly and often out of control.

In order to introduce and management urbanisation pressures therefore the following approach to land use could be considered:

- Defining the high density urban core areas with a containment line beyond which such forms of development cannot go.
- Identifying peri-urban areas adjacent to the urban core where there is a mix of intensive agricultural production and low density urban development. This balance needs to be maintained through regulation and popular support and the limits to this development could include open space, waste disposal sites and natural barriers.
- The third broad land use surrounding the essentially urban core is the extensive agricultural area where very limited forms of development could be considered related to agricultural production (not processing) and low intensity ecological tourism. As noted these areas are not open for any form of residential development including retirement villages, golfing estates, land reform projects and low cost housing developments.
- The final broad land use category necessary to achieve effective containment of urban sprawl is wilderness which as noted is defined as no-go for any form of permanent development.

Smit (2003) summarises the determinants used by officials in Paarl in the Western Cape for demarcating edges around urban areas and these include:

- Agricultural land suited to extensive production in its different forms (arable, plantation, grazing resources) was set aside from urban areas.
- Actively farmed small holdings were also excluded from urban areas.
- Open space and natural areas were also excluded from urban areas inclusive of those linked with provincial and national natural systems and corridors.
- Rivers and flood plains were wherever possible excluded from urban areas due to the risks associated with flooding and migration of river beds.
- Topography, slope and stability of soils where areas that are not suited to development of the built environment were excluded.
- Valuable landscapes and heritage resources were also identified and where possible excluded to ensure that such features are sustained for all time and public good.
- Planning to accommodate current and future growth was included into urban areas.
- Similarly the identification and development of vacant land in defined urban areas was included into the edges.

Smit goes on to outline the method that was followed in gaining access to vacant land in urban areas which could be used for infill and development. This poses a challenge due to determining ownership, land speculation, existing zoning and resistance from surrounding owners to change in land use and character of the area.

The Provincial Urban Edge Guideline (DEADP 2005) differentiates between hard and soft edges in urban edge definition. Hard edges follow cadastral boundaries, transportation routes, waste disposal sites etc. This creates an immediate discontinuity between rural and urban land uses. In contrast a soft edge allows for a more gradual transition from one land use to another involving the transition from high density urban through low density small holdings to rural land use. The hard and soft edge approach provide yet a further dimension to urban edge definition and intervention in order to contain further sprawl into the rural hinterland.

6. Issues and possible strategies

In the Msunduzi-Vulindlela context the central issues to be considered relate to the question of how settlement development in traditional areas in close proximity to a dynamic regional economic growth point can be formalised and regulated in order to safeguard against the following major threats to the future of the emerging metropolitan areas:

- Excessive costs associated with providing services to large population located in relatively inaccessible locations.
- Loading services costs results in the city becoming increasingly un-competitive as an investment destination for business.
- Health risks associated with poor sanitation and waste disposal place all residents at risk.
- Security and crime have become a feature of the emerging metro due to large populations without access to employment and services.
- The costs of informal land allocation by traditional leaders to entrants into Vulindlela are being borne by the rate payers of Msunduzi and not by the traditional structures responsible for this condition. These structures and the ITB should be required by the municipality to assume responsibility for these costs.

Based on a review of the above material it would appear that following strategy would need to be considered in dealing with urbanisation pressures in Vulindlela:

- Defining criteria which can be used to differentiate urban core from surrounding areas.
- Extensive consultation with ward and traditional structures aimed at seeking consensus on the areas which comprise high density urban as opposed to peri-urban, rural and wilderness areas.
- Working with local structures and municipal officials in attempting to define:
    - The containment edge following the hard boundary principle and incorporating features such as ridges, rivers, waste treatment works, hazards and the co-ordination of line and point bulk services provision etc.
    - The changes in urban structure and land use management principles that will be necessary to accommodate the edge in terms of intensification that this implies.
    - The soft edges in what comprises wilderness, rural and peri-urban with particular reference to the conditions necessary to achieve the sustainable and balanced management of these areas.
- Excising those high density areas which are located in the urban core from traditional control and including them into the city precinct in terms of land use management, rates and taxes and privatisation of ownership to encourage the introduction of a land market.
- Municipalities would need to assume responsibility for the preparation of a general plan and the upgrade of such areas to enable individualisation of tenure and the provision of an appropriate level of services to the residents of these areas.
- Similarly conditions should be imposed on the ITB and traditional councils around land use in peri-urban areas where no further densification or land allocation is permitted beyond that defined in the zonation process. Management of per-urban areas should be based on conditions contained within the land use management scheme adopted by the municipal council.

A further set of non-negotiable principles should be identified and adopted by council for land use management in rural and wilderness areas of Vulindlela such that remaining areas of high value land for ecological services and /or agriculture are maintained and where necessary added onto to sustain current and future populations in this and surrounding areas.

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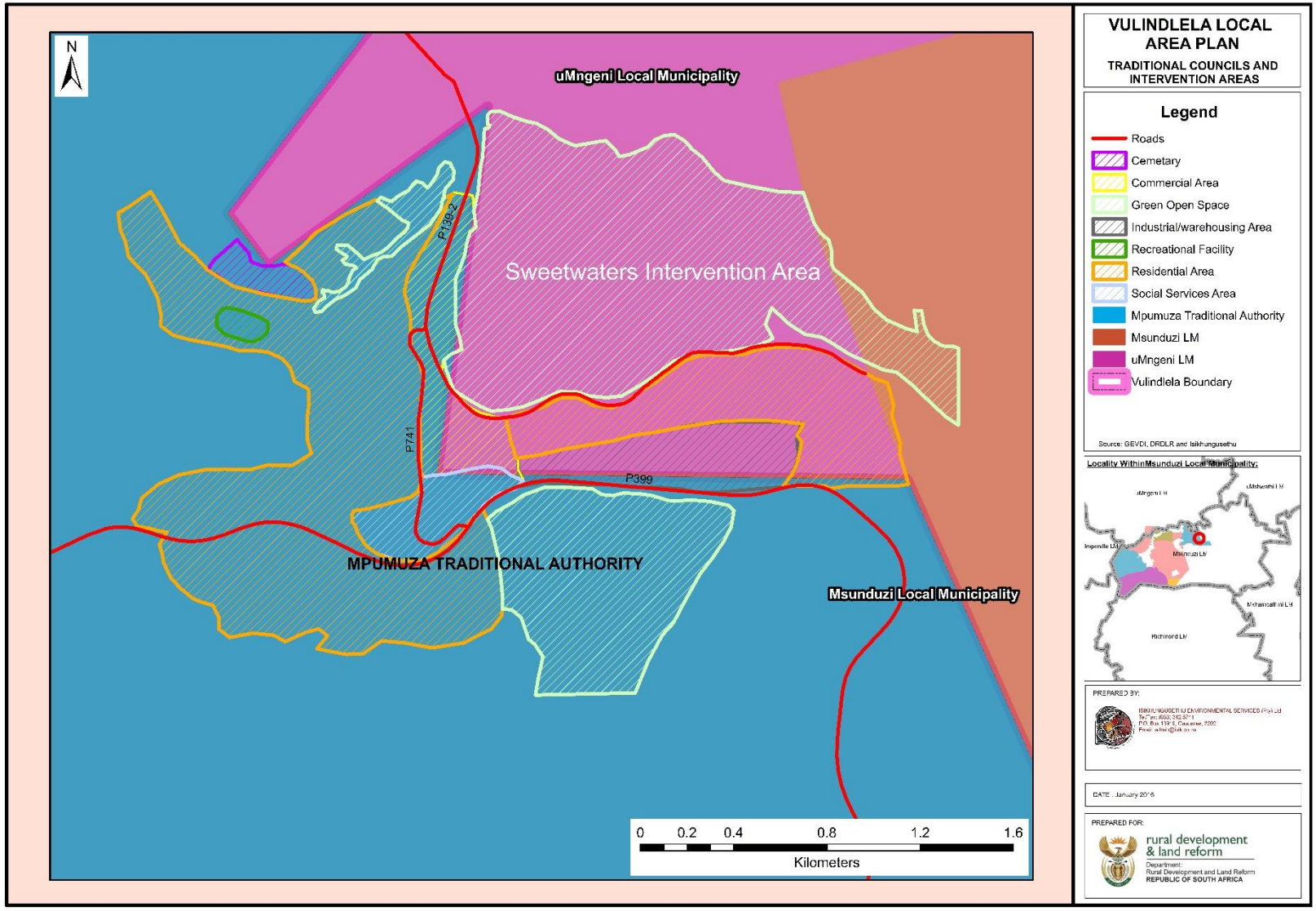
Annexure 5: Intervention areas and traditional councils

A series of maps are included in this annexure which show each intervention area indicating which traditional councils will be involved in the Vulindlela Joint Management Unit and in the implementation of the intervention areas.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Sweetwaters Intervention Area
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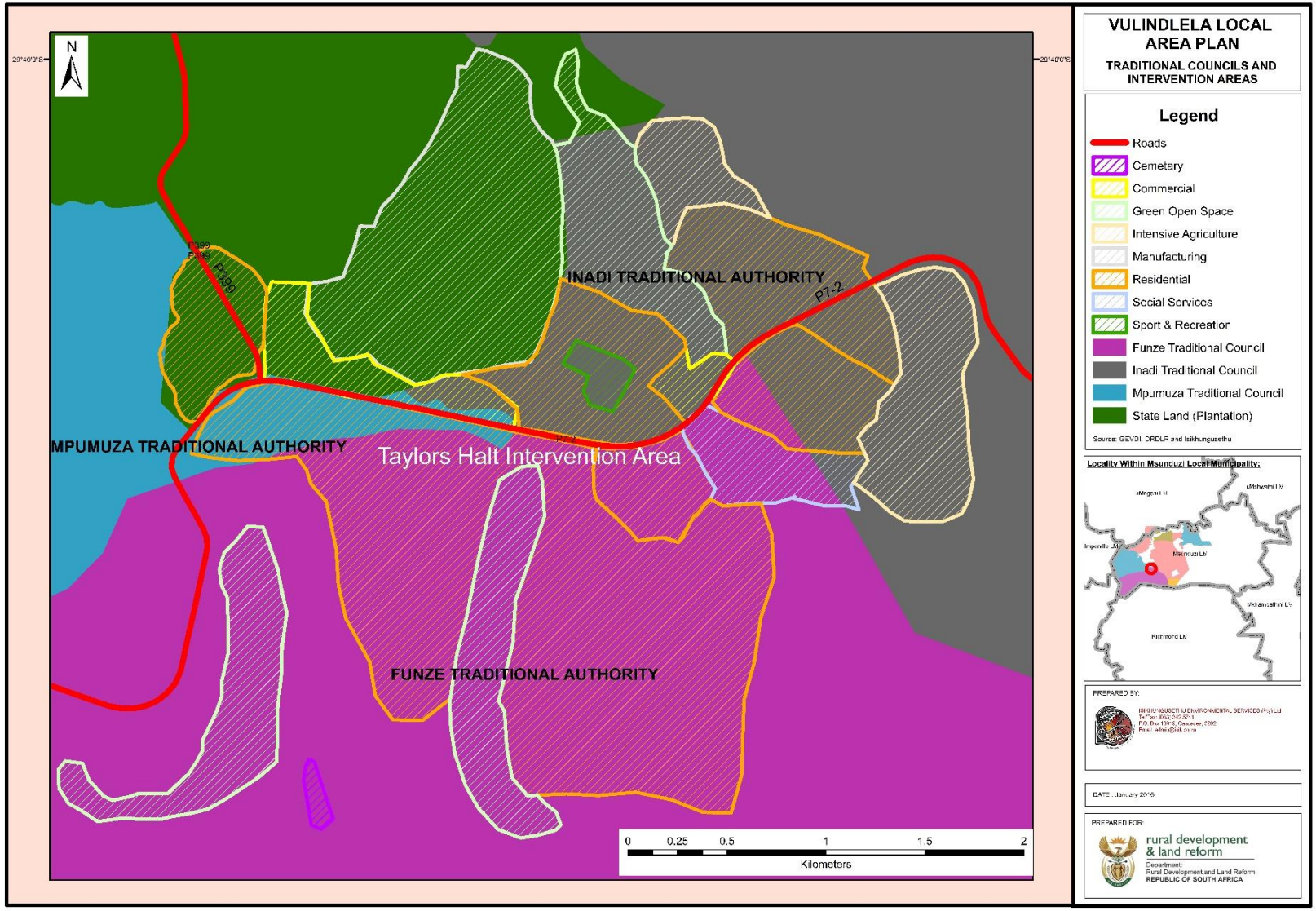
Kilometers
VULINDLELA LOCAL AREA PLAN
TRADITIONAL COUNCILS AND INTERVENTION AREAS
Legend
Roads
Cemetary
Commercial Area
Green Open Space
Industrial/warehousing Area
Recreational Facility
Residential Area
Social Services Area
Mpumuza Traditional Authority
Msunduzi LM
uMngeni LM
Vulindlela Boundary
Source: GEVDI, DRDLR and Isikhungusethu
Locality Within Msunduzi Local Municipality:
PREPARED BY:
DATE : January 2016
PREPARED FOR:
rural development & land reform
Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA


VULINDLELA LOCAL AREA PLAN
TRADITIONAL COUNCILS AND INTERVENTION AREAS
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Roads
Cemetary
Commercial
Green Open Space
Intensive Agriculture
Manufacturing
Residential
Social Services
Sport & Recreation
Funze Traditional Council
Inadi Traditional Council
Mpumuza Traditional Council
State Land (Plantation)
Sources: GEVDI, DRDLR and Isikhungusethu
Locality Within Msunduzi Local Municipality:
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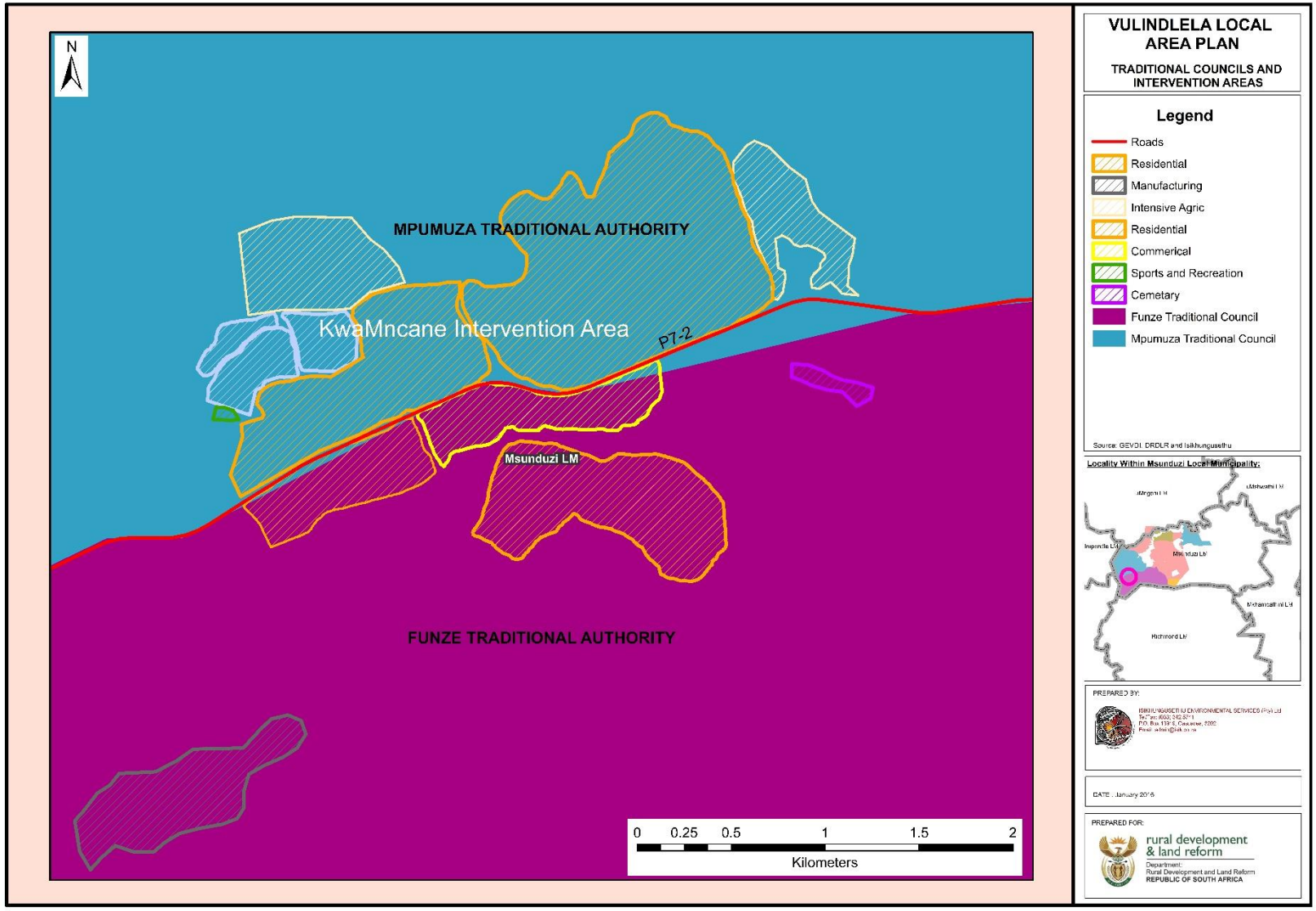
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Funze Traditional Council
Mpumuza Traditional Council
Source: GEVDI, DRDLR and Isikhungusethu
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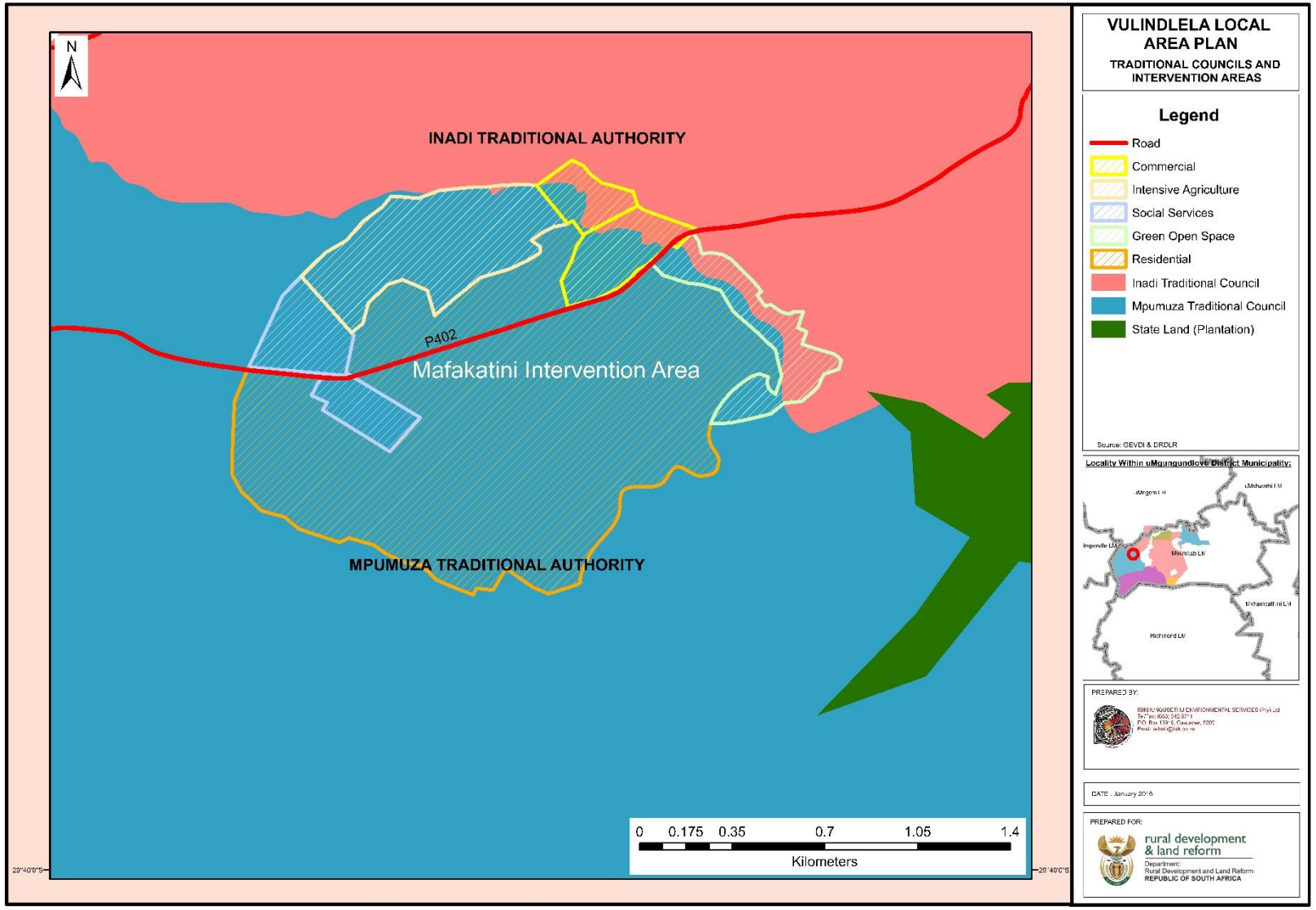
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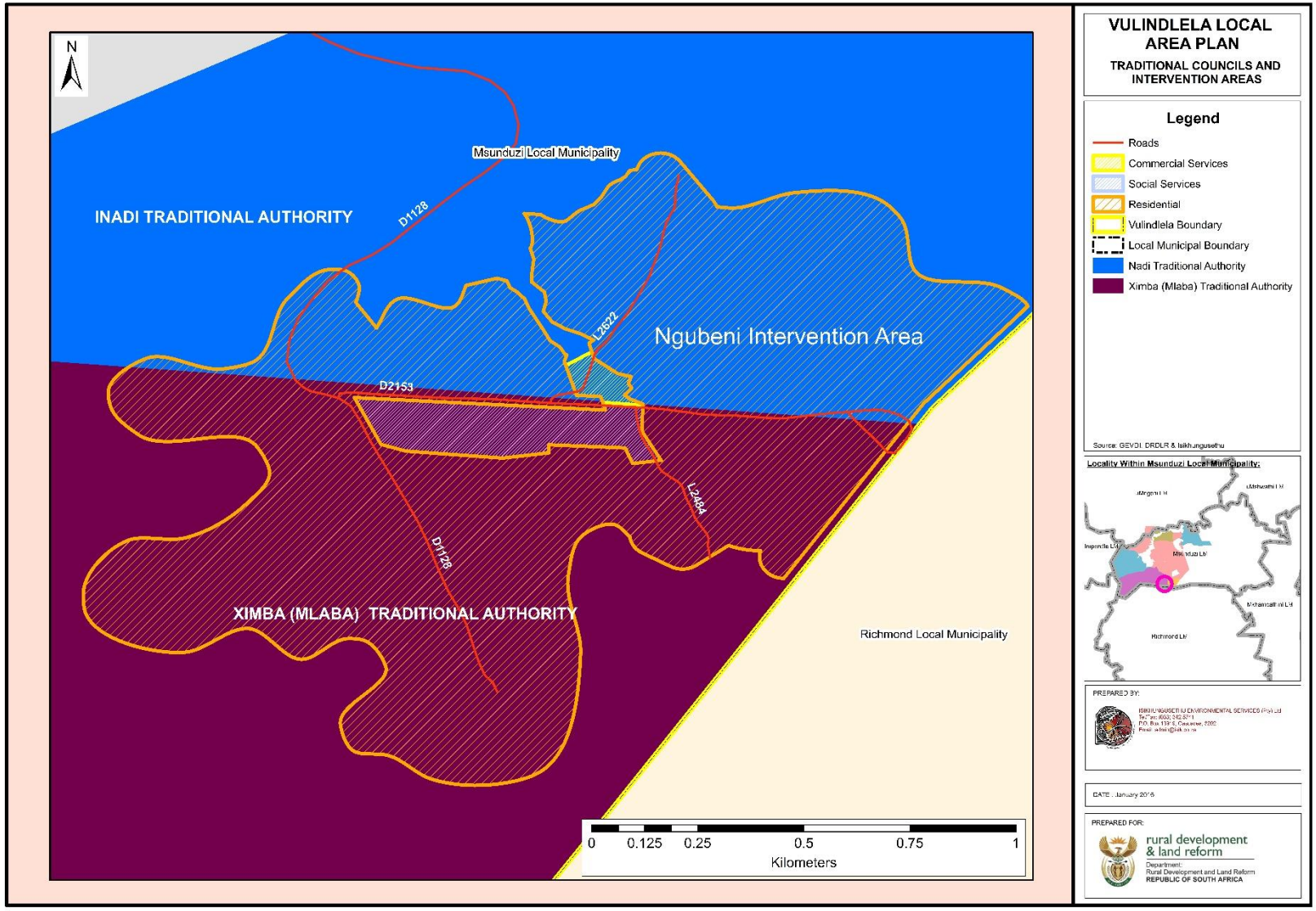
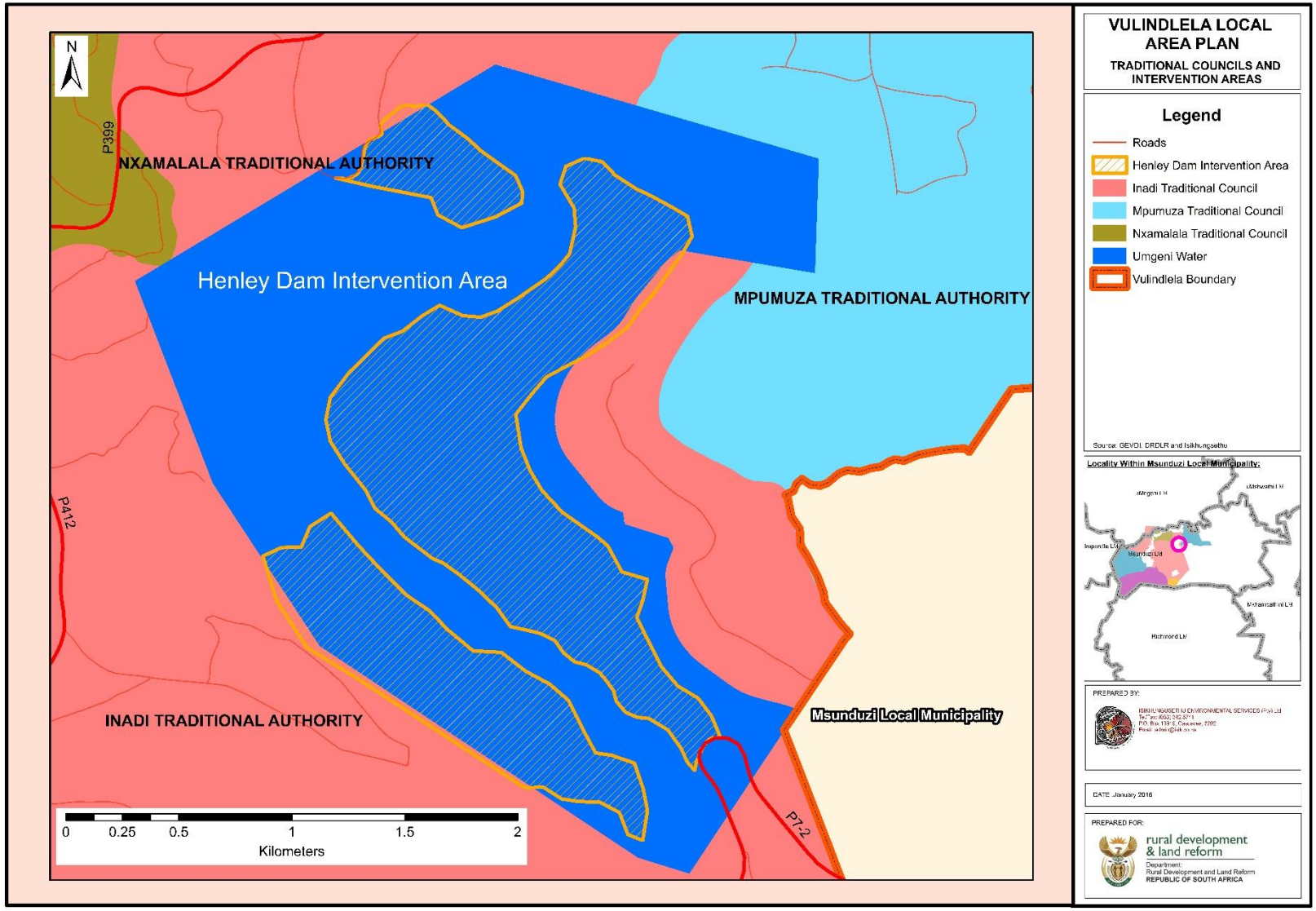
0 0.175 0.35 0.7 1.05 1.4
Kilometers
VULINDLELA LOCAL AREA PLAN
TRADITIONAL COUNCILS AND INTERVENTION AREAS
Legend
Road
Commercial
Intensive Agriculture
Social Services
Green Open Space
Residential
Inadi Traditional Council
Mpumuza Traditional Council
State Land (Plantation)
Source: GEVDI & DRDLR
Locality Within uMgungundlovu District Municipality:
PREPARED BY:
PREPARED FOR:
rural development & land reform
Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA


N
Msunduzi Local Municipality
INADI TRADITIONAL AUTHORITY
D1128
L2672
Ngubeni Intervention Area
D2153
L2484
D1128
XIMBA (MLABA) TRADITIONAL AUTHORITY
Richmond Local Municipality
0 0.125 0.25 0.5 0.75 1
Kilometers
VULINDLELA LOCAL AREA PLAN
TRADITIONAL COUNCILS AND INTERVENTION AREAS
Legend
Roads
Commercial Services
Social Services
Residential
Vulindlela Boundary
Local Municipal Boundary
Nadi Traditional Authority
Ximba (Mlaba) Traditional Authority
Source: GEVDI, DRDLR & Isikhungusethu
Locality Within Msunduzi Local Municipality:
PREPARED BY:
DATE : January 2016
PREPARED FOR:
rural development & land reform
Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA


N
P399
NXAMALALA TRADITIONAL AUTHORITY
Henley Dam Intervention Area
MPUMUZA TRADITIONAL AUTHORITY
P412
INADI TRADITIONAL AUTHORITY
Msunduzi Local Municipality
P7-2
0
0.25
0.5
1
1.5
2
Kilometers
VULINDLELA LOCAL AREA PLAN
TRADITIONAL COUNCILS AND INTERVENTION AREAS
Legend
Roads
Henley Dam Intervention Area
Inadi Traditional Council
Mpumuza Traditional Council
Nxamalala Traditional Council
Umgeni Water
Vulindlela Boundary
Source: GEVDI, DRDLR and Isikhungusethu
Locality Within Msunduzi Local Municipality:
PREPARED BY:
DATE: January 2016
PREPARED FOR:
rural development & land reform
Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA