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VISIONING AND PROGRAMMING REPORT

Integrated Master Plan for RLM

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ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

Visioning and Programming Report

Rustenburg's privileged position as a major platinum mine in the world has led to its rapid economic growth and urban expansion. Located in the North-West Province, Rustenburg is currently one of the fastest growing cities in South Africa. Its vision is to be "a world class city where all communities enjoy a high quality of life."

With the mining of platinum projected to decline after 2040, the city's local authorities are prudently looking for and adopting mid to long-term plans that will guide the municipality's future. The challenge is both economic and social; it is to ensure the vitality of the Rustenburg and quality of living for its people.

The need for a clear, integrated vision to overcome the coming challenges is certain. The main purpose of this Integrated Master Plan for RLM is to develop a long-term vision for the time horizon of 25 years (up to 2040). It aims to create a visionary plan that will guide future land use and physical developments in a manner that creates sustainable growth. In line with existing planning initiatives, the proposed Integrated Master Plan will directly contribute and be adopted in the preparation of the next Spatial Development Framework (SDF) for Rustenburg.

The Integrated Master Plan is composed of 3 parts: 1) Visioning and Programming; 2) Regional Structure Plan; and 3) Land Use and Zoning Plan. This visioning and programming report is the first part of the Integrated Master Plan that sets the long-term vision, goals, strategies and broad urban growth directions.

The visioning and the master planning process undertaken in this endeavour is intended to be inclusive, ensuring both the horizontal and vertical integration of all related authorities, development programmes, activities, and other master plans - both internally and externally. The Integrated Master Plan is an ideal platform for a diverse group of stakeholders with local expertise and global outlook to have a meaningful dialogue in developing a visionary blue print for the future of RLM.

As Rustenburg is currently a key player contributing to the national economy through mining, the Integrated Master Plan will help RLM to gear up for changes as it transitions into a post-industrialized economy.

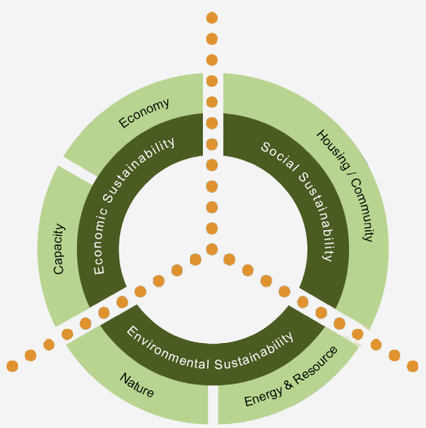
It aims to introduce a systematic approach to spatial planning in order to optimise the use of land for development while identifying areas for management or preservation in RLM. It will spatially guide and coordinate residential areas, public infrastructure and community facilities. In essence, it aims to be an integrated plan that guides future growth and changes in the best way possible for Rustenburg.

The development of the master plan is guided by the Urban Sustainability Framework. It is employed to address issues in a comprehensive, and balanced way by providing the guiding structure and platform to develop planning principles that will ensure the long term sustainability of RLM.

The recommendations will then be translated into RLM's Master Plan to develop the vision and provide appropriate physical planning solutions.

To develop an appropriate vision, supporting goals and site-specific spatial development concepts that meet the aspiration of stakeholders, an in-depth analysis of the various planning and socioeconomic issues pertaining to the municipality are undertaken supported by several interactive stakeholder workshops.

The role envisioned for Rustenburg are captured and presented in 3 vision



Urban Sustainability Framework

Environmental Issues

Need for better and more sustainable water, energy and waste management

Social Issues

Need to increase quality of settlements ensure more social amenities and safety

Economic Issues

Pressing need for expanding and diversified economy for a skilled workforce

Goal 1: City of Vibrant & Diversified Economy

A mining hub of excellence, while exploring new, game-changer economic drivers such as high-tech industry, green technology and smart city initiatives.

The presented options for the vision are:

Rustenburg 2040: World Class City
Where Community Enjoys High Quality of Life

Sustainable Rustenburg 2040
Platinum City of Excellence

Rustenburg 2040
Vibrant, Smart, Livable

Goal 2: City of Identity

A distinctive city enriched with local character that fosters a sense of belonging while providing a competitive edge to attract tourists.

Goal 3: City of Smart House

A leader in quality affordable housing and smart homes provision supported by green

Goal 4: City of Excellence in Sports & Education

The place of choice for "niche" tertiary education and a renowned destination for sports events & development in the

Goal 5: City of Sustainable Resource Management

A leader in sustainable resource management by adopting the best practices in sustainable development.

options. As RLM is currently conducting a city branding exercise, the resulting inputs would feed into developing the final vision. To achieve a vision that focuses on economic transformation and sustainable growth, five key goals to achieve the global liveable standard are identified for RLM which are as such:

1. City of vibrant economy & Diversity
2. City of Smart House
3. City of Excellence in Sports & Education
4. City of Identity
5. City of Sustainable Resource Management

Under the economic sustainability framework, the Integrated Master Plan also pays attention to how to transform Rustenburg from a resource-based to knowledge-based economy. The economic game-changers proposed are to ensure RLM will transit from a mining-dominant economy to a more balance and diversified one, with more secondary and tertiary sector employment opportunities. Through benchmarking study and analysis, some key economic game-changers with potential in RLM have been identified.

Some of the key game-changers identified are:

- Developing specialized medical clusters;
- Creating new tourism clusters;
- Complementing education facilities; and most importantly
- Developing and distributing a variety of industrial clusters.
- Redevelopment of City Centre to ensure a global identity

The secondary and tertiary sector, will be a major contributor to the economy. It is projected to provide about 130,00 jobs in manufacturing and 170,000 service-related jobs by 2040.

These bold and strategic key moves embody the aspirations of Vision 2020 to develop resources, abilities and talents of individuals, opening up a new dimension of empowerment and self-sufficiency for the Rustenburg community.

As Rustenburg grows by 2040 it will have to accommodate more than a million inhabitants. The master plan seeks to meet this challenge and provide high quality of life to all communities and ensure a world class city to live work and play. Rustenburg will be a well connected, clean and green city with variety of choices of lifestyles, affordable homes, ample parks and open spaces, entertainment venues and places to conduct business. The master plan aims to provide opportunities to create new iconic features for the city while conserving its local character and identity. The city will also be a leader in sustainable resource management, by adopting new water, waste and energy management solutions.

Ultimately, the Integrated Master Plans seeks to inspire the Rustenburg community to further uplift their quality of life, creating a bright and exciting future for city and its surrounding areas. It aims to make Rustenburg one of the most liveable cities in South Africa, which can attract and retain global talent, while ensuring high quality of life for its people.

Guided by the goals and strategies developed by the Urban Sustainability Framework, two concept options are developed. They explore different directions for future physical development of the region, resulting in varying degree of investments, risks and returns.

Concept Option 1:

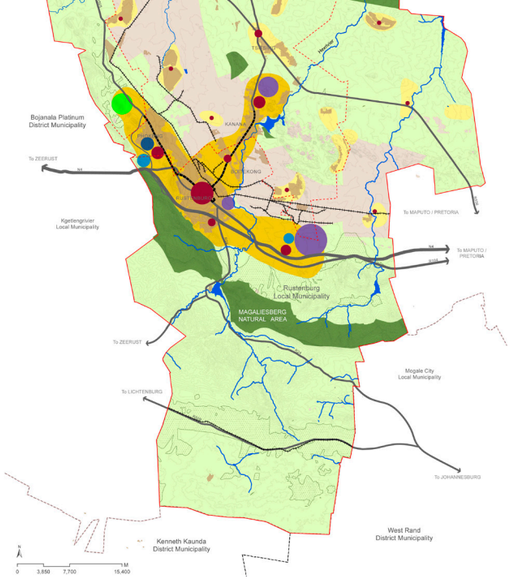
Compact City

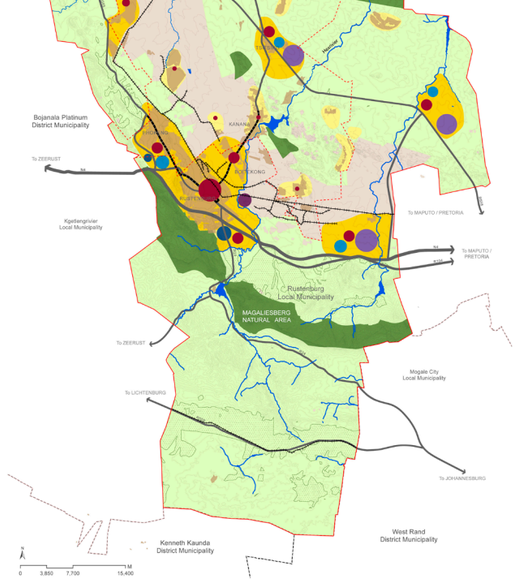
The 'compact city' concept looks at the opportunity to further strengthen the existing urban areas and ensure a compact urban growth that optimizes the existing key transit corridor. The growth will be organized along the 3 distinctive clusters.

Concept Option 2:

City of Cities

The 'city of cites' concept looks at having several thematic developments within RLM; and ensures a well distributed growth. The poly-centric growth will ensure more integration with existing communities and ensure jobs closer to homes.





On September & November 2014, the vision and the two concept options were deliberated by the Steering Committee which expressed its preference to Option 2 as the long-term concept option for future RLM

- Option 2 allows for decentralised growth and better integration with the various communities
- Provides for more distributed growth opportunities and access to facilities and jobs closer to home and is more inclusive

The selected planning concept option sets the macro planning directions and the regional structure of RLM. This concept, however, is not cast in stone; a deeper planning analysis will be undertaken in the subsequent "Regional Structure Plan" to refine the concept before the Integrated Master Plan is finalised.

1

INTRODUCTION

1.1 PURPOSE OF THE REPORT

Integrated Master Plan for RLM

The Integrated Master Plan for RLM follows the direction set by the Spatial Development Framework (SDF) which promotes integrated development plan for the whole RLM. Prepared by Rustenburg Local Municipality (RLM) in 2010, the SDF is a comprehensive long-term master plan for the region that is scheduled for review every 5 years.

The main purpose of this Integrated Master Plan for RLM is to create a long-term vision for the time horizon of 25 years (upto 2040). The Integrated master plan is intended to guide future development direction up to 2040, in a manner that creates sustainable growth well in line with the existing planning initiatives. The Integrated Master Plan also attempts to take a fresh look at RLM's regional development. The Integrated Master Plan will ultimately be adopted in preparation of SDF and will form part of the institutional framework to guide all future developments in the municipality.

The Integrated Master Plan for RLM provides an ideal platform to address the fundamental issues and challenges currently being faced by the RLM. It provides opportunity to plan for an economic transformation in the region that will create a sustainable growth and ensure the municipality's role as an key contributor to the regional and national economy.

Planning and development in the past has largely remained ad-hoc and piecemeal which often leads to inefficient and underutilisation of land. Hence the Integrated Master Plan working in-line with the direction set by the 2013 IDP (integrated development Plan) aims to create better horizontal as well as vertical integration of various authorities and stakeholders, both internally and externally.

Mining is the largest contributor to the economy and provides immense opportunities; however mining by their very nature of operations imposes various social and physical constraints to their surrounding lands. The Master Plan aims to work to align the interests of the mining stakeholders and the rest of RLM. As a result, the potential value of land, which is the single largest asset for the community can be realised.

The Master Plan aims to introduce a systematic approach towards spatial planning in order to optimise the use of land, inspire the community to uplift their living standards and create a bright and exciting future for the RLM. The master plan will become an exemplary model for the rest of North West Province to follow.

Visioning and Programming Report

The Integrated Master Plan for RLM is composed of three stages, which include:

1. Visioning and Programming Report
2. Regional Structure Plan
3. Land Use and Zoning Plan

The Visioning and Progamming Report stage of the Master Plan forms the first part of the Integrated Master Plan. This stage sets the long term vision and urban growth directions for the entire Master Plan. This report will study existing conditions, review the various planning documents, conduct socio-economic analysis and create an urban development framework. During this stage, workshops with various stakeholders were conducted where strategic development scenarios were discussed. These interactions formed the basis for the development of the vision for RLM. Based on this vision, the report will present key development strategies and programmes followed by two concept options.

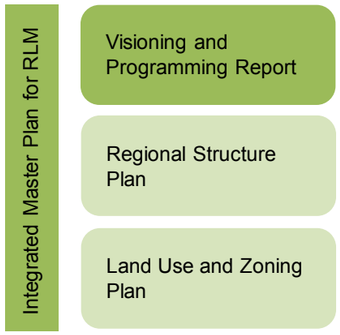
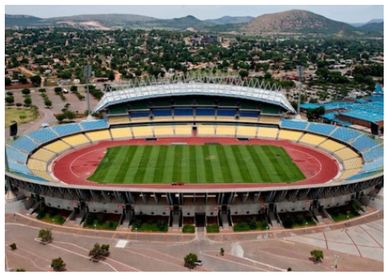


Fig.1.1 Reports Organisation of Integrated Master Plan For RLM

1.2 METHODOLOGY

To develop the vision and spatial development concepts that meet the aspiration of all stakeholders, in-depth analysis of various planning issues affecting the municipality have been undertaken. The process adopted during this report is elaborated below:

- Detailed analysis of existing social and physical context and provide future growth opportunities and constraints
- Review of existing and proposed planning documents to ensure that the master plan is integrated both vertically and horizontally with broader region's policies and initiatives
- Socio-economic and demographic analysis and projections to establish planning parameters for future land uses
- Establishing the Urban Sustainability Framework for RLM to address the key economic, social and environmental issues
- Benchmarking of city planning and management indicators with relevant and comparable cities
- Setting the development vision for RLM
- Establishment of the physical city development goals, objectives, strategies and programmes
- Preparation of two concept options for city development & identification of the preferred physical development direction of the city.



1.3 ORGANISATION OF THE REPORT

The Visioning and Programming Report of Integrated Master Plan for RLM consists of the following chapters:

Chapter 2: Existing Analysis

This chapter covers in-depth analysis of the spatial conditions of the municipality. The key sectors of analysis include location and connectivity, existing and proposed land use, tourism and heritage, nature and environment, housing and institution, transportation utilities and infrastructure.

The chapter also reviews key planning initiatives that have been undertaken in the Municipality, North West Province and South Africa. Following the analysis, key outcomes and finding are presented into opportunities and constraints map which form the basis for undertaking detailed physical planning for the RLM.

Chapter 3: Dimensions of Growth

This chapter profiles the short, medium and long term indicators for RLM's economic, employment & demographic growth. Acknowledging the need to diversify from mining, the targeted employment composition for 2040 looks to increase the share of industrial and service sectors. This data is the key input to estimate the quantum of land & resources that need to be prepared for and reserved to secure a planned future for the municipality. This section presents the key highlights of the socioeconomic study.

Chapter 4: Vision, Goals and Objectives

The Integrated Master Plan for RLM is guided by the triple-bottom line approach that balances economic, social and environmental priorities to ensure that the municipality will grow in an ecological sustainable manner. This approach would guide the overall planning direction and subsequently set the long-term development vision for the municipality. This vision not only addresses the existing context, but explores new grounds where RLM can embark new game changer projects to create a diverse and resilient economy. To help achieve this central vision, a series of sector specific goals, objectives, strategies and programmes are proposed for the municipality.

Chapter 5: Development Concepts

This chapter presents two development concepts for the municipality. The two concept options have been developed with each exploring different direction for future physical development of the Region and resulting in varying degree of investments, risks and returns.

2

EXISTING ANALYSIS

2.1 LOCATION AND CONNECTIVITY

2.1.1 Location and Geography

Rustenburg Local Municipality forms part of the North West Province that further forms part of the border between South Africa and Botswana. The North West Province consists of 4 District Municipalities and 21 Local Municipalities with a geographical area of 116,180 km^2.

Rustenburg Local Municipality is located in Bojanala District Municipality. The total geographical area is 3,423 km^2. The other municipalities falling under Bojanala District Municipality are Moretele Local Municipality, Local Municipality of Madibeng, Kgetlengrivier Local Municipality and Moses Kotane Local Municipality.

Within Rustenburg Local Municipality is the Royal Bafokeng Nation (RBN), the traditional tribal community of the region is a key stakeholder in RLM's future. RBN occupies over 1500 km^2 of land located north of RLM. Figure 2.1 shows the location hierarchy of RLM and RBN within the context of South Africa.

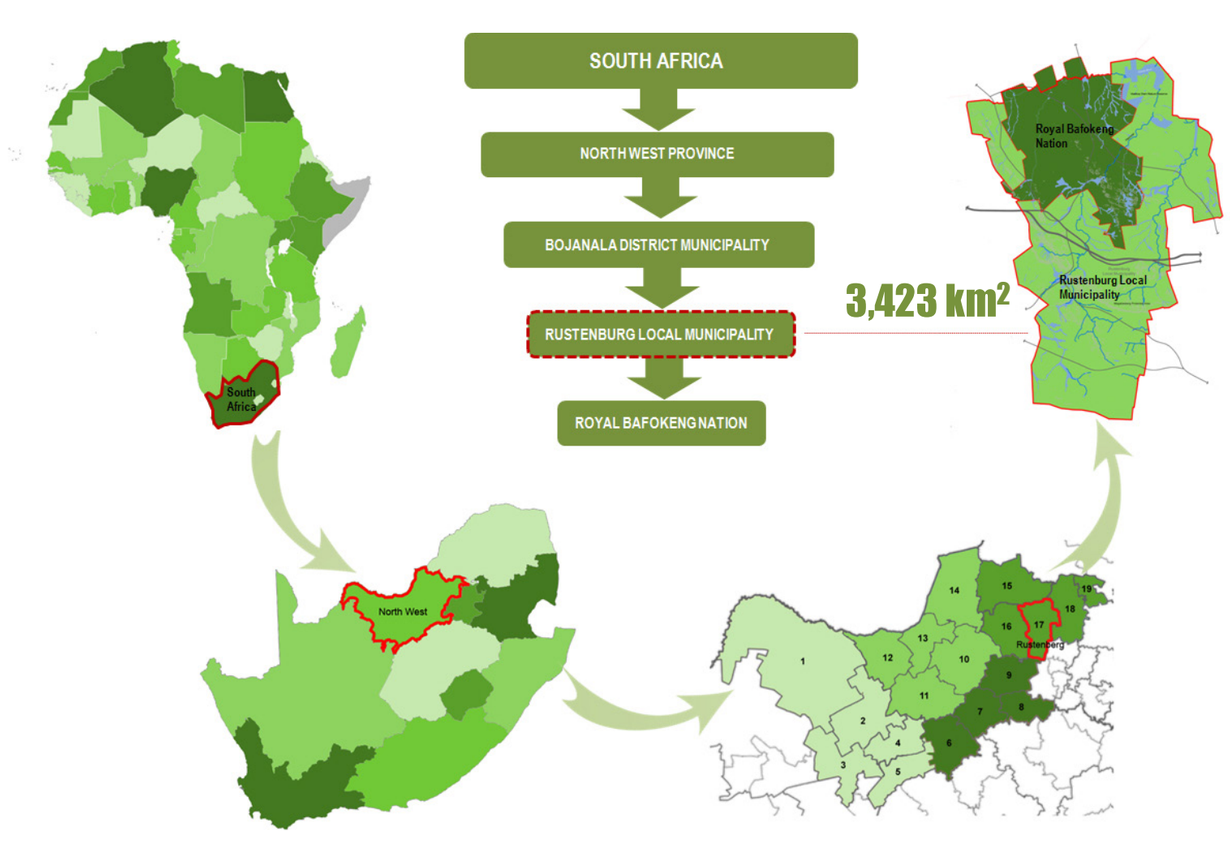


Fig.2.1 Location Map and Hierarchy

2.1.2 Connectivity

The Rustenburg Local Municipality is located in the eastern parts of the North West Province and is accessible to a number of major South African urban centres. These centres include Johannesburg and Tshwane, which are located approximately 120km from Rustenburg. Smaller centres surrounding Rustenburg are Madibeng, Mogale City, Brits, Lictenburg and Zeerust in the Ramotshere Moilwa Local Municipality. Rustenburg is linked to the above urban centres through an extensive regional road network. The most notable of these are the N4 Freeway or Platinum Corridor, which links Rustenburg to Tshwane in the east and Zeerust to the west. The R24 links Rustenburg to Pretoria to the east, Johannesburg in the south and the Pilanesberg to the north.

Within the municipality:

- The Rustenburg/Sun City road R565 links Rasimone, Luka and Phokeng to Rustenburg.
- The Rustenburg/Thabazimbi road (R510) links Tlaseng, Kanana and Boitekong to Rustenburg.
- The provincial road R556 links Pilanesberg to the N4 toll road east of Marikana.

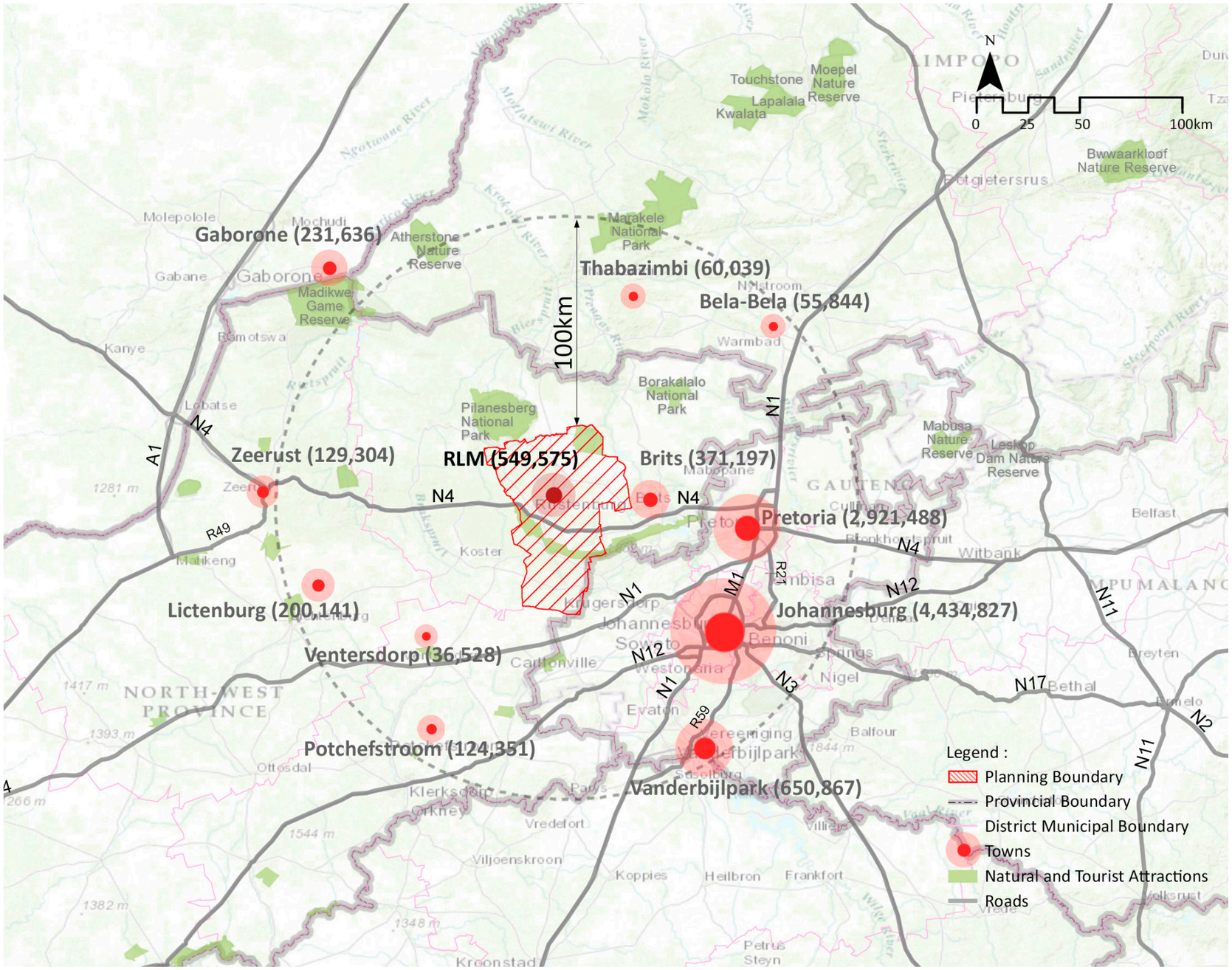


Fig.2.2 Regional Location and Connectivity Plan

2.2 ROLE IN THE REGIONAL AND NATIONAL CONTEXT

The country has established the Settlement Classification system in order to position correctly different areas and cities. The areas are recognised as: city regions, cities, regional service centres, service towns, local and niche settlements, clustered and dispersed settlements. They are classified based on:

- Concentration or population density
- Settlement size
- Number and range of services
- Conditions of accessibility

In terms of Rustenburg's positioning in national context, it has been recognised as a regional service centre.

In the North West Province Plan, the functional urban areas are classified as a hierarchy of nodes depicted in Figure 2.3. The development corridors link majority of the identified primary urban nodes in the province. In the plan, Rustenburg is identified as a primary node and is located along the platinum corridor, one of the three key provincial development corridors referred to as Spatial Development Initiatives (SDI's). Rustenburg's strategic location offers potential to become the next primary urban destination in the province.

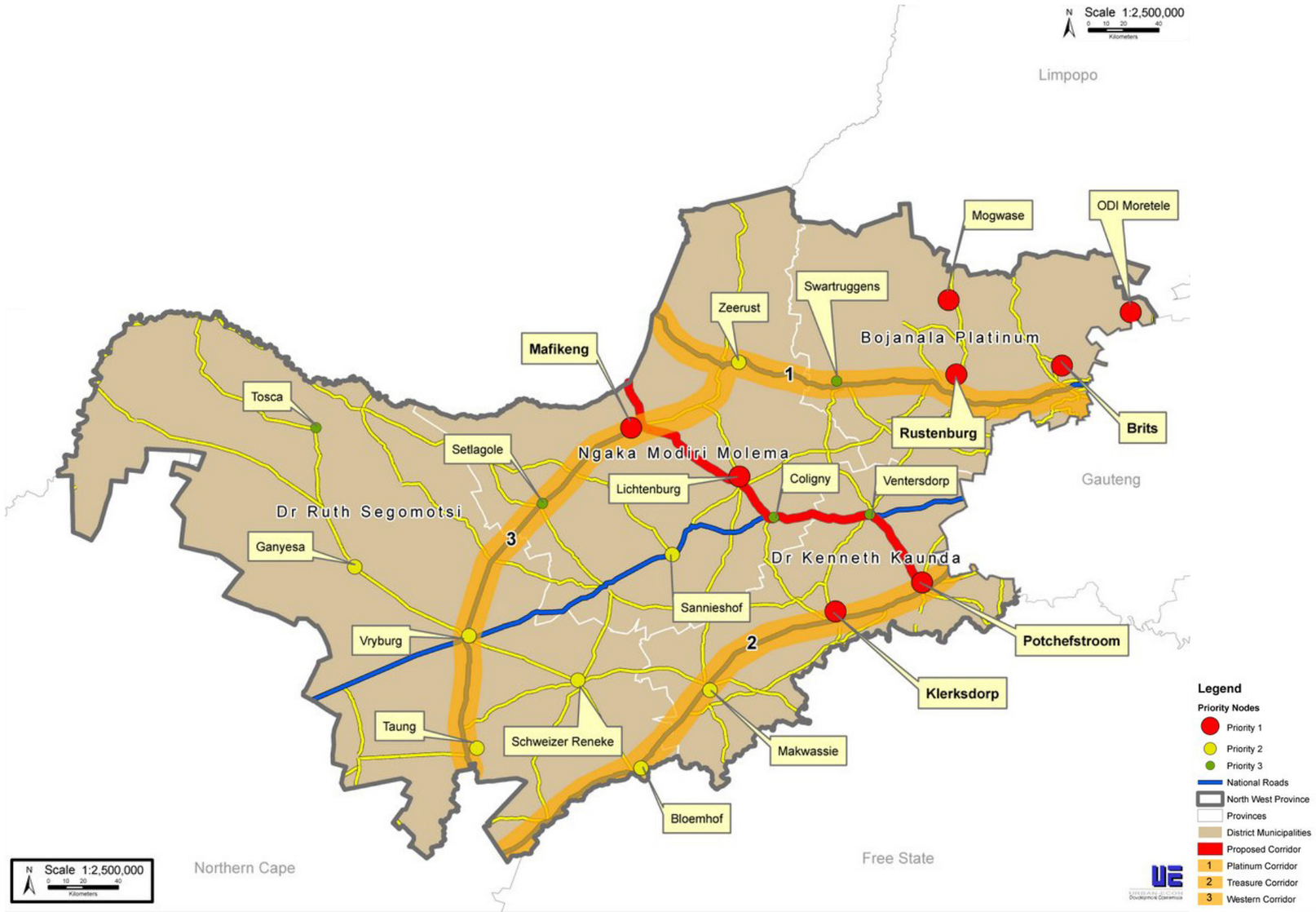


Fig.2.3 North West Province Spatial Development Framework (Source: NWPDP)

2.3 PLANNING AREA AND ADMINISTRATIVE DIVISION

The Rustenburg Local Municipality is a category B municipal council consisting of 38 wards, with a total planning area is 3,423 km^2. Figure 2.4 shows the planning area of Rustenburg Municipal Area as depicted in the Spatial Development Framework (SDF).

As per the SDF review of 2010, three administrative bodies operate and have jurisdiction within the Rustenburg Municipal Area. These are the Bojanala Platinum District Municipality, the Rustenburg Local Municipality and the Royal Bafokeng Administration.

Bojanala Platinum District Municipality

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

Royal Bafokeng Administration

A third administrative entity operates legally within certain parts of the Rustenburg Municipal Area. Bafokeng remains a legal entity in its own right, capable of contracting, incurring debts and obligations and owning land. They also fulfil certain local government functions. The Bafokeng Council has fulfilled many local, provincial and national government functions, such as providing social infrastructure, road infrastructure and municipal infrastructure in tribal areas.

Rustenburg Local Municipality

The Local Municipality of Rustenburg is responsible for the planning and administration of infrastructure and development located within the boundaries of the Municipality. This includes the preparation of all legally required documents for the planning, provision and control of infrastructure and spatial development. These include the preparation of a Spatial Development Framework and Integrated Development Plan.

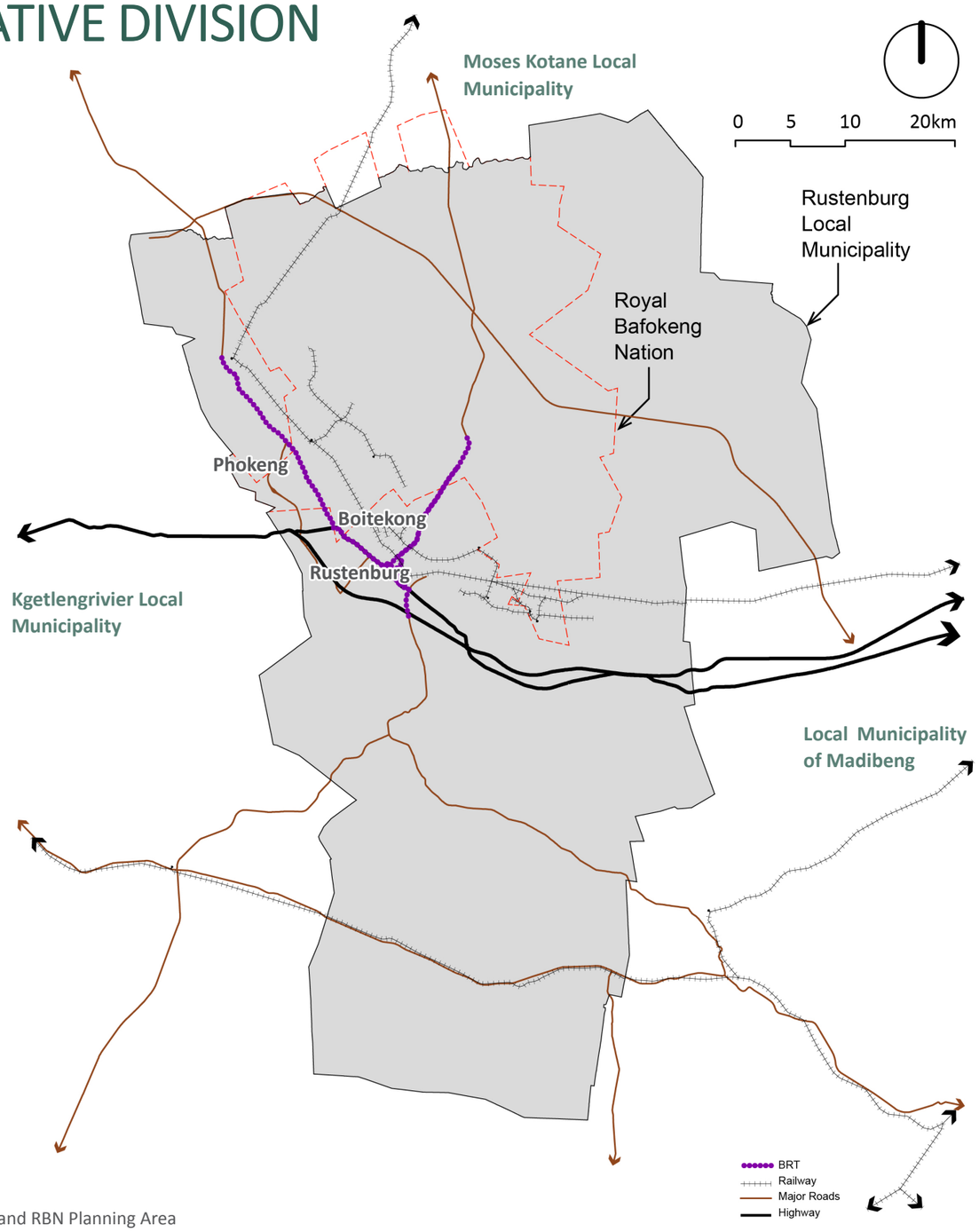


Fig.2.4 RLM and RBN Planning Area

2.4 EXISTING POLICIES AND INSTITUTIONAL FRAMEWORK

2.4.1 Spatial planning and land use management act 2013

The Spatial Planning and Land Use Management Act 2013 (SPLUMA) provides a framework for spatial planning and land use management system (LUMS) in the Republic of South Africa.

According to SPLUMA, the spatial planning system in the Republic consists of the following components:

1. Spatial development framework to be prepared and adopted by national, provincial and municipal spheres and government
2. Development principles, norms and standards that must guide spatial planning, land use management and land development
3. The management and facilitation of land use through mechanism of land use schemes
4. Procedures and processes for preparation, submission and consideration of land development applications and related processes

2.4.2 Current Institutional Set-up

The municipality operates within an Executive Mayoral System under the leadership of Executive Mayor Clr M E Khunou, who was appointed as per section 55 of Municipal Structures Act, act 117 of 1998, per item 99 of 01 June 2011. The council of RLM is constituted by 76 Councillors, with 38 wards and 38 proportional representative Councillors. The Mayoral Committee consisting of ten members. Ward Councillors chair ward committees which are responsible for discussing local concerns.

The Municipal Manager is the head of the Administration and Accounting Officer, supported by Line Function Directors and Managers. The overleaf diagram in Figure 2.5 depicts the Top Management Structure of the RLM.

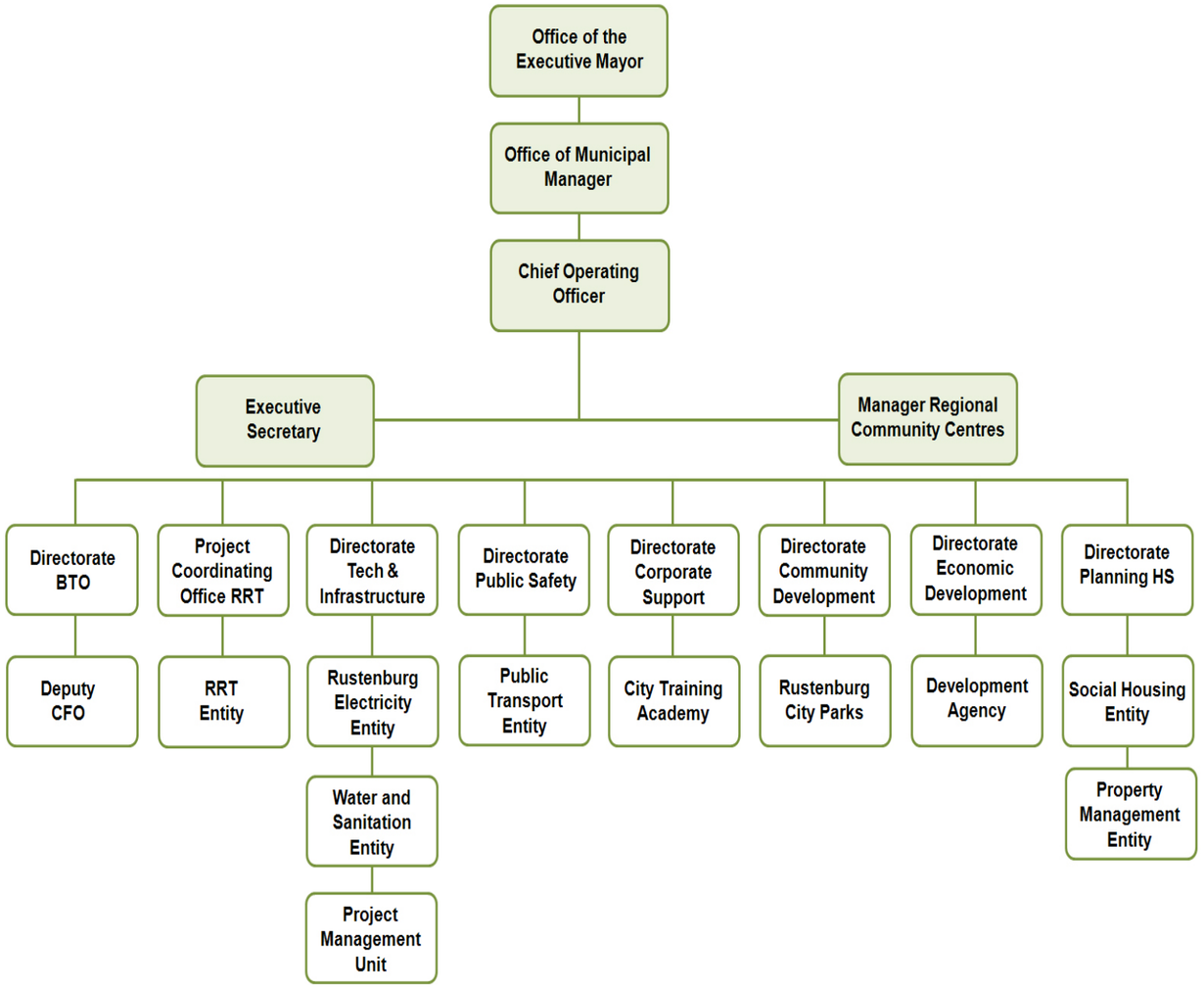


Fig.2.5 Top Management Structure of Rustenburg Local Municipality (source: IDP)

2.5 KEY PLANNING INITIATIVES & THEIR IMPLICATIONS

As government's long-term strategy to facilitate sustainable growth, numerous planning documents were developed by national and local authorities. This section will analysis the following key planning initiatives and their implications:

- National Development Plan 2011
- North West Provincial Development Plan 2013
- Rustenburg Spatial Development Framework 2010
- Integrated Development Plan 2013
- City Development Strategy 2006
- Housing Sector Plan 2012
- Environment Management Framework 2011
- Spatial Tourism Plan for Rustenburg Municipal Area 2006
- Informal Settlement Plan 2012
- Rustenburg Airport Master Plan 2014
- Rustenburg Rapid Transit Plan 2013
- Water Master Plans
-

2.5.1 National Development Plan 2011

The National Development Plan (NDP) is a broad country strategic development framework, prepared by the Presidency of the Republic of South Africa. It sets out a coherent and holistic approach to confronting poverty and inequality as main objectives for 2030. The plan is also one of the first long-term development plans in South Africa that looks beyond 15 years into the future.

The NDP prioritises social wellbeing and standard of living as the key objectives of 2030, which includes:

ELIMINATE INCOME POVERTY

- Reducing the proportion of households with a monthly income below R419 per person (in 2009 prices) from 39% to zero.

DOUBLE GDP per CAPITA

- Increase GDP per capita from about R50,000 per person in 2010 to R110,000 per person in 2030 in constant prices. This requires average annual GDP growth of 5.4% over the period.

REDUCE UNEMPLOYMENT

- Increase employment from 13 million in 2010 to 24 million in 2030. Unemployment rate should fall from 24.9% (2012) to 6% (2030), and proportion of adults working should increase from 41% to 61%.

REDUCE INEQUALITY

- Reduce income inequality (using the Gini Coefficient measure) from 0,69 to 0,6.

INCREASE TRADE ACTIVITIES

- Increase Intra-regional trade in from 7% to 25% by 2030, while the trade with regional neighbours should increase from 15% to 30%.

2.5.2 North West Province Development Plan 2013

The North West Province Development Plan (NWPDP) was developed to align provincial objectives with the National Development Plan.

The key objectives of NWPDP include:

- Achieve annual GVA growth of 5.4%
- Increase total employment (in NW) from 748,000 to 1,563,000
- New employment/growth sector to focus on manufacturing, construction & infrastructure and agriculture
- Reduce the % of people living in poverty to 0

In the NWPDP, the two most prevailing changes is the industry and housing sector. In 2030, the manufacturing sub-sector will produce 21.9% of the province's total GVA, overtaking mining as the main GVA contributor. Also by 2030, all informal housing should be formalised to improve people's standard of living.

The plan acknowledges that achieving the targets and sustainable developments will require structural changes and new ways of thinking and working in all dimensions of development including economic, social, institutional, physical (infrastructure and spatial), and environmental.

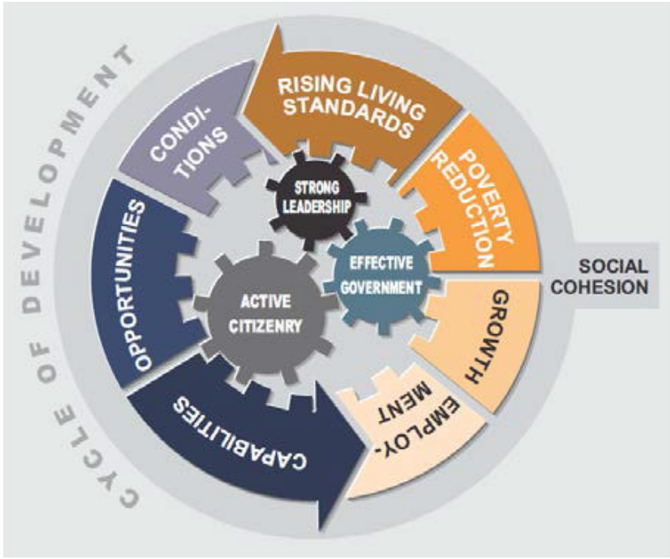


Fig.2.6 An Approach to Change, NDP 2030 (Source: NWPDP)

Fig.2.7 Elements of a Decent Standard of Living, NDP 2030 (Source: NWPDP)

2.5.3 Rustenburg Local Municipality Spatial Planning Framework 2010

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

The difference between SDF and Land Use Management System (LUMS) is that the SDF have the flexibility to change its priorities, whereas the LUMS should be tighter and only amended where required for a particular development. The SDF is reviewed approximately once every 5 years, indicating that the next SDF should be scheduled to release in year 2015.

Key Planning Strategies

- Introduce urban edge around all settlements to contain urban sprawl, the land use plan controls urban settlements to 13% of total land area.
- Focuses on sustainability by identifying environmentally sensitive areas and further develop environment management strategies
- Propose settlement pattern & urban development in 4 levels of order, with Rustenburg at the very top.
- Proposed 3 development corridors to facility economic and urban developments along key growth corridors. They include N4 corridor, Rustenburg-Kanana-Thlaseng corridor and Phokeng-Robega corridor.

Proposed Land Use Distribution

Table 2.1 SDF 2010 land use table (Source: SDF)

SDF Category	Area (%)
Urban Development Footprint	13.4
Open Space	38.7
Mining	10.3
Agriculture	28.2
Conservation	9.4
Total Municipal Area	100.0

Planning Implications

- The SDF has introduced different layers of nature conservation plans in RLM. To enforce managements, detailed urban development framework should be established for each zone that clearly depicts compatible and incompatible land uses.
- The SDF lacked detailed projection of future population and employment to justify its land use distributions. The socioeconomic conditions need to be reviewed with an optimistic and longer term approach towards 2040 and beyond. This will then help determine and justify the land use requirements of the master plan.
- The land use plan should further address the industrial sector, where developing manufacturing and construction sector is one of the top priorities of the NWPDP.
- The three development corridor only focused on linking existing settlements. Given the population growth and new economic developments, new growth nodes should be explored in green field areas with good infrastructure provision.

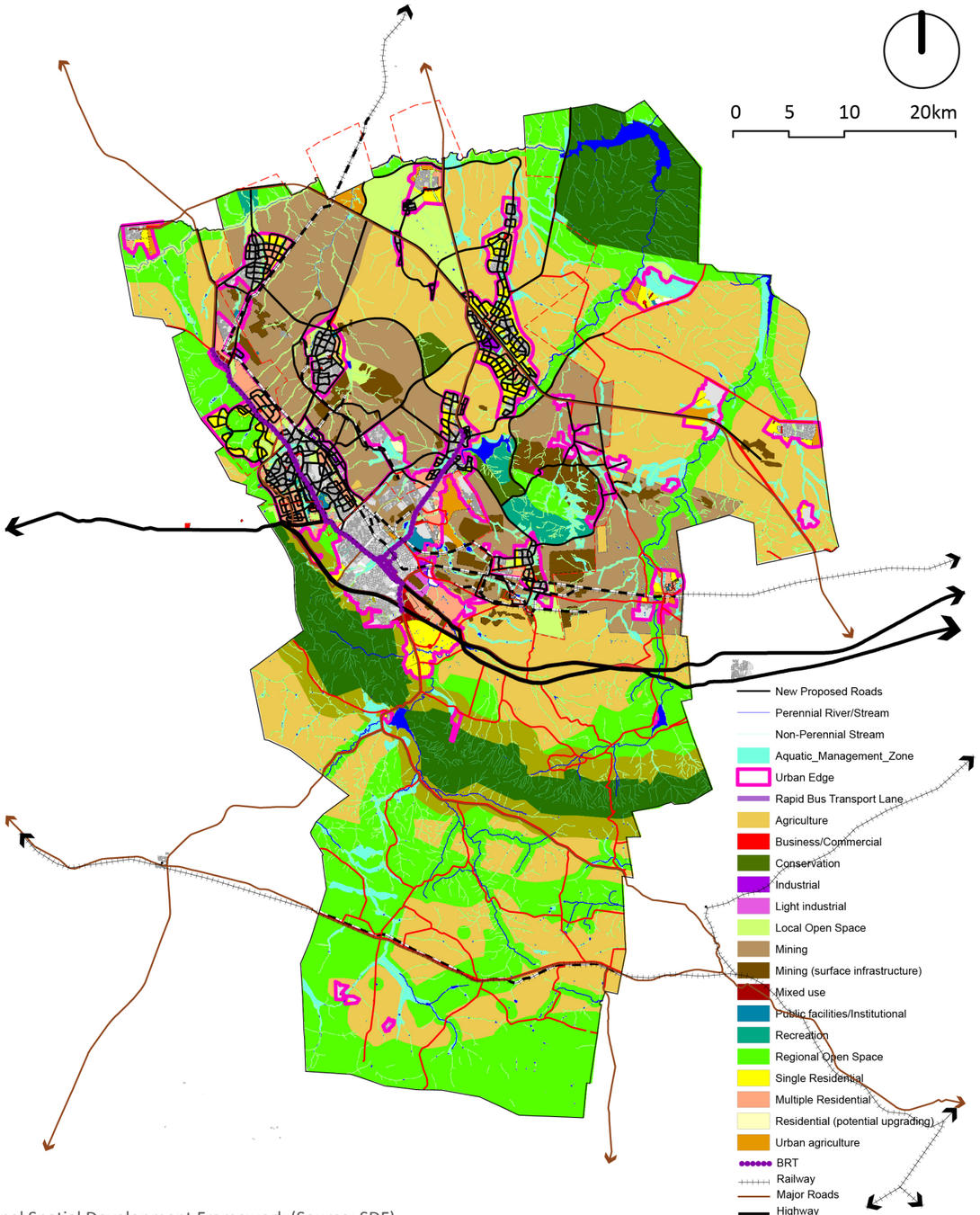


Fig.2.8 Municipal Spatial Development Framework (Source: SDF)

2.5.4 Integrated Development Plan 2013

The Integrated Development Plan (IDP) is a process through which municipalities prepare a strategic development plan that extends over a five-year period. It is a principal strategic planning instrument that guides and informs all planning, budgeting, management and decision making processes in a municipality.

Key Planning Strategies

IDP Vision:

"A successful Rustenburg for the benefit of all"

- Ensure good service & infrastructure provision.
- Drive diversified economic growth and ensure financial viability.
- Maintain sustainable municipal and rural environment.
- Uphold good governance and capacity building.

Planning Implications

- The IDP has provided clear and detailed development framework for RLM. It highlighted the need for a logical and well planned spatial structure supported by high quality infrastructure where citizens can enjoy high quality of life. This indicates that the spatial master plans must have structured road network where public facilities are well distributed to local residents.

2.5.5 City Development Strategy 2006

Initiated by the IDP at the municipality level, a series of sector plans such as the Strategic Environmental Assessment, Spatial Development Framework, Housing Strategy, LED Plan and others were subsequently developed. The City Development Strategy (CDS) aims to integrate and streamline these plans to complement each other towards a common long term development vision.

Key Planning Strategies

- Develop on 6 key vision components including diversified economy, well-planned structure, skilled labour force, high quality of life, sustainability and decisive leadership
- Identify strategic thrusts with short and long term actions.
- Identify relative stakeholders and potential flagship projects.

Planning Implications

- The CDS assessed RLM's performance in four city components including productive city, inclusive city, sustainable city and well governed city, where the analysis focused only on positive aspects. The analysis should also address the challenges of each components to justify its strategic implementation plans
- The CDS depicted several strategic thrusts for implementation. The first strategic thrust highlighted on the development of strong manufacturing, service and hi-tech industries to diversify economy and create new employments. This is an important and challenging objective for RLM that would require the city to delivery large-scale and "structured" industrial developments in strategic locations.

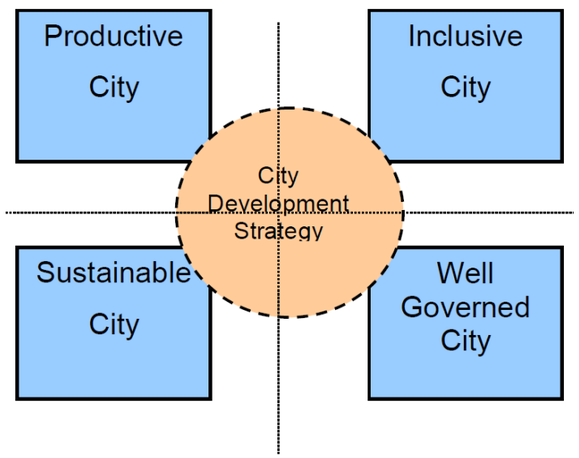


Fig.2.9 State of City Analysis (Source: South African Cities Network)

2.5.6 Housing Sector Plan 2012

With high migration rates and escalating number of people living in urban areas, the RLM has to respond to the increased demand in housing and supporting service provisions. The Local Government needs to ensure that housing is of the highest quality, located in the right place, with the necessary infrastructure and support. The Housing Sector Plan (HSP) includes the development of a housing development framework that will guide the Municipality towards a more strategic and effective housing delivery that will benefit not only the Municipality and its communities but also mining sector.

Key Planning Strategies

- Ensure that housing is of the highest quality, located in the right place with the necessary infrastructure and support.
- Make the best use of existing housing stock.
- Plan and commission housing support services.
- Have working partnerships for housing management.

Planning Implications

- The HSP identified immediate housing demands in the RLM, but should also look into medium and long term housing needs based on future employment nodes as depicted in the SDF.
- Faced with the challenges to improved informal settlements, the HSP could provide comprehensive planning guidelines for integrated residential township projects.

2.5.7 Environmental Management Framework 2011

The Environmental Management Framework (EMF) is a guiding tool that will ensure that the expansion of the municipality as well as development associated with this expansion happens in a sustainable manner. Analysis of Status Quo and the Desired State was used to determine four Environmental Management Zones that include:

- The Conservation Management Zone
- The Aquatic Management Zone
- The Agricultural Holdings Management Zone and
- The Built-up Area Management Zone

Each Management Zone are provided with management framework including compatible and incompatible land uses.

Key Planning Strategies

- Establish Spatial plans for environmental management.
- Promote conservation of biodiversity and aquatic systems.
- Sustainable management of water, waste and air quality.
- Securing sustainable utilization of agricultural land.
- Manage mining activities.
- Manage industrial and urban land uses.
- Densify urban areas to limit the overall footprint of development on the environment.

Planning Implications

- According to the Status Quo Report, Rustenburg Local Municipality is an area rich in biodiversity with a large network of aquatic systems, but the aquatic features are not well utilised to promote social, tourism and economic activities. The EMF should identify possible strategies to integrate some of the aquatic system with built-up areas.
- To manage natural areas, The plan identified four environmental management zones in RLM, and established guidelines for compatible and incompatible land uses. In the guidelines table, industrial developments are strictly controlled in all four zones to protect biodiversity and natural environments. Since growing the industrial sector is the major priority of the NWPDP, potential locations suitable for industrial developments should be reviewed to permit specific type of industrial land uses.
- The implementation of the different strategies should be accompanied by monitoring and corrective measures every 3 to 5 years to ensure continuous improvement.

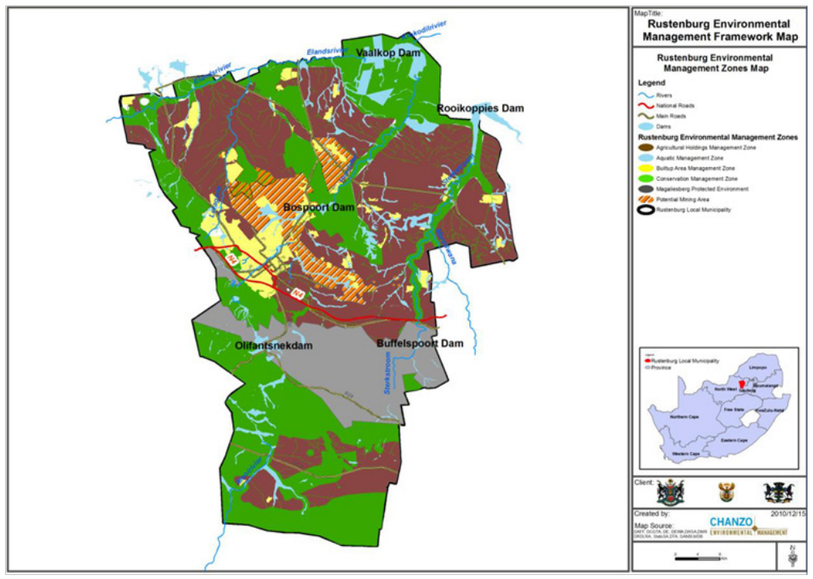


Fig.2.10 Rustenburg EMF Map (Source: EMF)

2.5.8 Spatial Tourism Plan for Rustenburg

The Spatial Tourism Plan for Rustenburg provides implementation strategies at key focus areas for future tourism and open space planning and development, based on a situational analysis exercise.

Key Planning Strategies

- Ensure tourism in RLM becomes a recognised economic pillar.
- Use the mining belt to brand Rustenburg as the Platinum City of the North.
- Establish heritage corridor connecting Sun City to Cradle of Humankind.

Planning Implications

- The Plan states that Rustenburg is extremely well positioned as a tourism destination due to its diverse natural attractions and location next to Gauteng.
- To promote Rustenburg as a popular tourism destination, the Spatial Tourism Plan acknowledges the need to link different tourism nodes through an integrated system to enhance their values. However, the system need to be controlled to a sizable scale to cater for tourists planning for short stays.

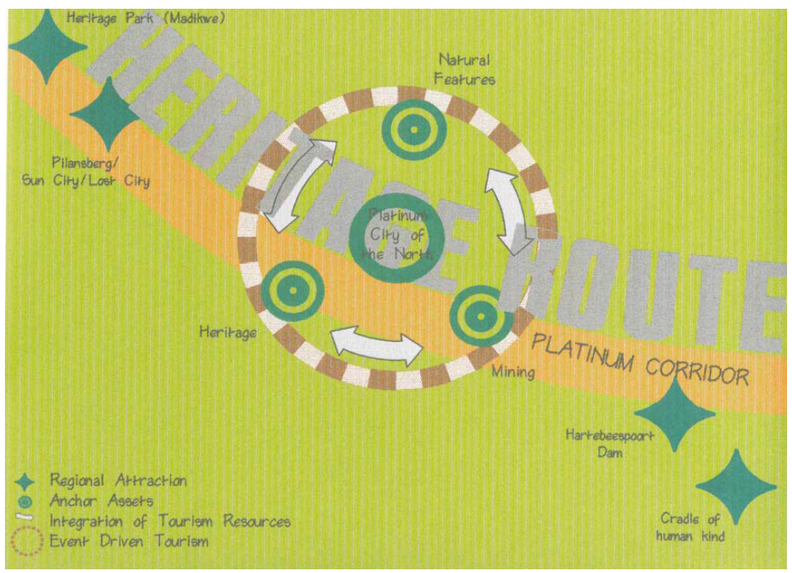
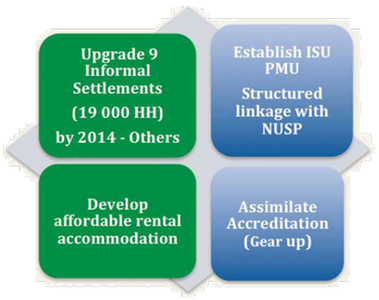


Fig.2.11 Rustenburg EMF Concept Map (Source: Spatial Tourism Plan for Rustenburg)

2.5.9 Informal Settlement Plan 2012

The Informal Settlement Plan (IFP) aims to align national targets to accelerate the upgrading of all informal settlements within the Rustenburg Local Municipal area in a manner that meets and serves the needs of resident communities.

Key Planning Strategies



Prioritised Informal Settlements

Table 2.2 Prioritised Informal Settlements (Source: Informal Settlement Plan)

Informal Settlements	Area (ha)
NKANENG	124
IKEMELENG	131
ZAKHELE	47
FREEDOM PARK	116
POPO MOLEFE	55
MBEKI SUN	30
IKAGENG	25
YIZO YIZO	12
MMADITLHOKWA	30

2.5.10 Rustenburg Airport Masterplan 2014

Rustenburg Airfield is located in the vicinity of Rustenburg Local Municipality. It has a 1225m long, 15m wide runway mainly catering for small planes and local tourists.

As part of the vision for Rustenburg to be a world class city, the plan have been developed to upgrade and improve this airport. The overall goals of the master plan are to improve the existing airport and to ensure developments in the surrounding area are aligned with the future vision of the airport.

KEY STRATEGIES

Under the Rustenburg Airfield master plan, the existing airfield facilities such as the runway, taxiway, internal roads, terminal buildings etc will be improved. The upgrading works will be done in 3 phases and is expected to start in 2014 and be finished by 2034. The phasing are as follows:

- Phase 1 – Improve the runway and provide sufficient capacity to cater for passenger, flying club members and skydiving activities;
- Phase 2 – Realign the airport facilities to the new runway ensuring space for future expansion and attracting potential new business and users to the airport; and
- Phase 3 – Further improve the runway and internal roads.

This will improve the efficiency and capacity of the airport to meet the bigger vision of the airport's potential and forecast demand.

PLANNING IMPLICATIONS

Under the Rustenburg Airfield master plan, the existing airfield is planning to make improvements for main facilities including the runway, taxiway, internal roads, terminal buildings and also related facilities. The timeline of the 3 phases are as follows:-

- Phase 1 – 2014 to 2019
- Phase 2 – 2019 to 2024
- Phase 3 – 2024 to 2034

The main works required to meet the improvement plans are shown in Table 2.3.

Table 2.3 Rustenburg Airfield Improvement Plan (Source: Rustenburg Airport Master Plan)

Phases	Time	Improvement			
		Runway	Taxiway	Road	Terminal Building
Phase 1	2014 - 2019	• Widening from 15m to 30m; • Length to be extend to 1668m; • Upgrade to category 2C classification;	• Distance between the centerline of taxiway and runway to be a min of 93m; • 8000m² taxiway to be constructed	-	A 500m² terminal building to cater for 25k pax/year.
Phase 2	2019 - 2024	-	-	-	Additional 1000 m² to be required for total of 135k pax/year
Phase 3	2024 - 2034	Length to be extend to 2500m;	-	Additional 1500m of internal roads to be constructed to support the commercial development.	-

2.5.11 Rustenburg Rapid Transit 2013

The Rustenburg Rapid Transport (RRT) system is part of a municipality-wide plan for the full implementation of an integrated Rapid Public Transport Network (IRPTN). This is in line with the national policy by the Department of Transport and the Integrated Transport Plan (ITP) for the Rustenburg Local Municipality (2008).

The RRT system has been approved and is currently being finalised for construction. Detailed plans for the phases have been reviewed and the key strategies were included in this report.

KEY STRATEGIES

The RRT network is planned with three main route types as listed below:

- Main routes – 6 routes
- Feeder routes – 26 routes
- Direct route – 19 Routes

There are a total of 51 routes planned, and these routes are projected to serve 500,000 passenger trips daily. The main routes form the major transport corridors within Rustenburg and extends from the CBD to Chaneng, Tsitsing and Galuka. The feeder routes serve as the feeder services to the main routes. They link surrounding suburban areas to the main RRT routes, which therefore promotes cross-city travel by public transport. The direct routes, which will be mostly implemented in the final phases, will then link the suburban areas directly.

The RRT system is expected to utilise a total of 854 buses, including:

- 99 articulated buses
- 640 standard buses
- 115 midi-buses

The main infrastructure needed to build for RRT, include:

- 2 transfer terminals
- 4 depots and holding areas in the CBD
- 31 stations and 1 central station
- Transport Management Centre (TMC)
- Segregated bus lane
- Intelligent Transport System (ITS) and Automated Fare Collection (AFC)
- Bus stops on feeder and direct routes

PLANNING IMPLICATIONS

The RRT system project is planned to be built under 4 phases. It is planned to start in 2015 and finished in 2023. The details and scope for all these phases are listed below:

Phase 1

Phase 1 will cover the areas of Tlhabane to the CBD and Boitekong to the CBD. These will be constructed between 2015 and 2016.

The RRT system will then be able to serve 225,000 daily passenger trips. 12 routes will be opened upon completion of this phase, including 2 main routes, 9 feeder routes and 1 direct route. A total of 260 buses (34 articulated buses and 226 standard buses) will be commissioned for this phase.

Main infrastructure which will be built include the following:

- 2 depots

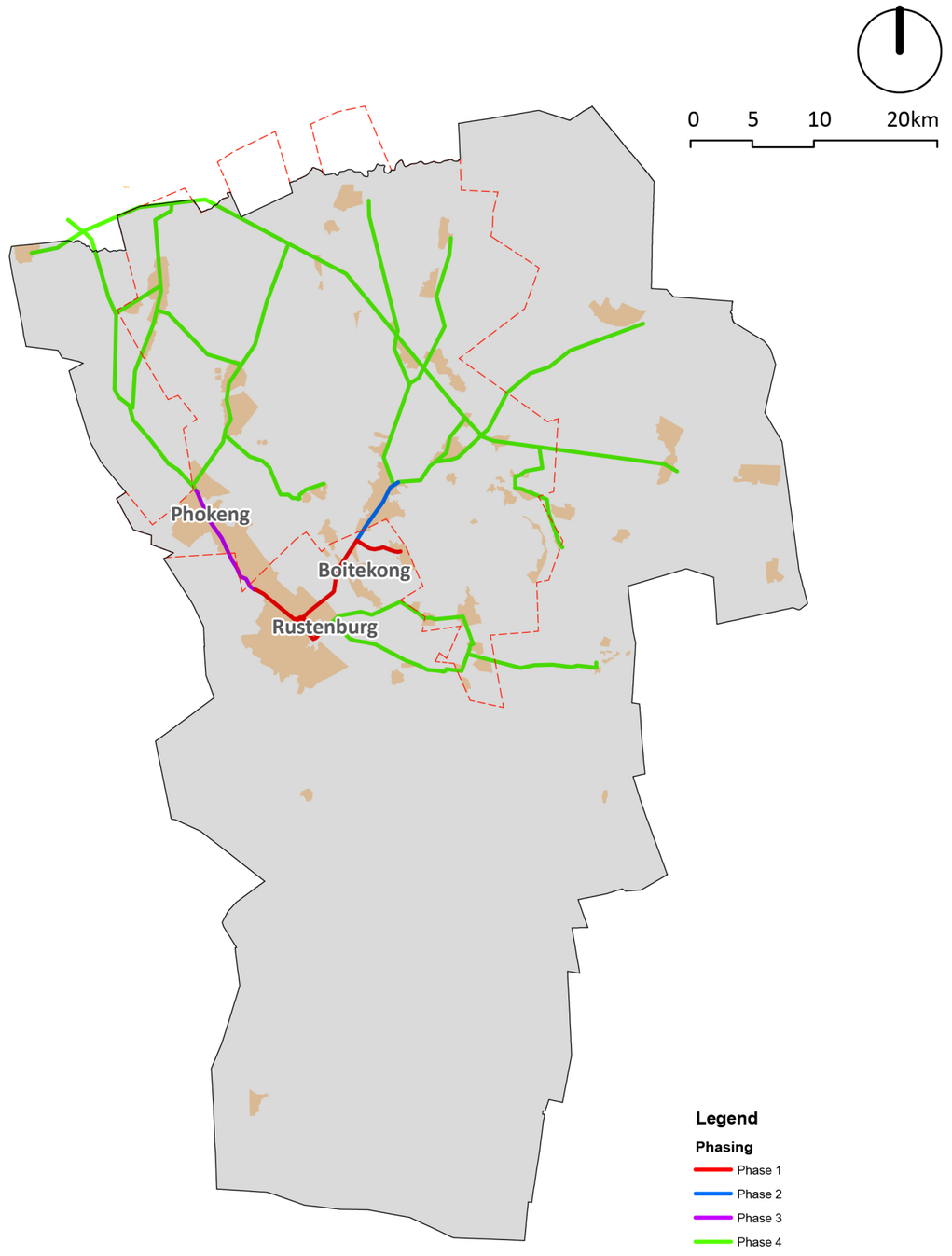


Fig.2.12 RRT Phasing Plan (Source: Rustenburg Rapid Transit System)

- 13 stations, including 1 central station
- Segregated bus lanes
- Intelligent Transport System (ITS) and Automated Fare Collection (AFC)
- Temporary Control Centre to be located at the Central Station
- Bus stops on feeder and direct routes

Phase 2

Phase 2 will cover the areas of Kanana, Meriting, Freedom Park, Feehoutpark to Meriting, Industrial Estate to CBD, Karlienpark and Zininaville. This will be constructed between 2016 and 2017.

The RRT system will then be able to serve an additional 75,000 daily passenger trips. 5 routes will be opened upon the completion of this phase, including 1 main route, 1 feeder route and 3 direct routes. A total of 97 buses (20 articulated buses and 77 standard buses) will be commissioned for this phase.

Main infrastructure which will be built include the following:

- 1 depot
- 5 stations
- Segregated bus lanes
- Transport Management Centre (TMC)
- Intelligent Transport System (ITS) and Automated Fare Collection (AFC)
- Bus stops on feeder and direct routes

Phase 3

Phase 3 will cover the areas of Pudunong, Mosonthal, Lemenong, Lesung, Tshwara, Freedom Park, Saron, Masosobane and Dithabane, Phokeng, Lefaragatlha and Tlhabane West, and will be constructed between 2019 and 2020.

The RRT system will then be able to serve an additional 34,000 daily passenger trips. 9 routes will be opened upon the completion of this phase, including 1 main route and 8 feeder routes. A total of 54 buses (46 standard buses and 8 midi-buses) will be commissioned for this phase.

Main infrastructure which will be built include the following:

- 1 depot
- 13 stations
- Segregated bus lanes
- Intelligent Transport System (ITS) and Automated Fare Collection (AFC)
- Bus stops on feeder and direct routes

Phase 4

Phase 4 will cover the remaining areas in Rustenburg and will be constructed between 2022 and 2023.

The RRT system will then be able to serve an additional 166,000 daily passenger trips. 27 routes will be opened upon the completion of this phase, including 3 main routes, 8 feeder routes and 14 direct routes. A total of 458 buses (45 articulated buses, 306 standard buses and 107 midi-buses) will be commissioned for this phase.

Main infrastructure which will be built include the following:

- 2 transfer terminals
- Segregated bus lanes
- Intelligent Transport System (ITS) and Automated Fare Collection (AFC)
- Bus stops on feeder and direct routes

2.5.12 Plans on Water Sensitive urban Design

Four reports were reviewed to understand the key strategies that have been proposed in each report. They are:

1. Rustenburg Local Municipality Water Service Development Plan Draft (WSDP Revision 3) [completed in 03/03/2009];
2. Bojanala Platinum District Municipality District Water Master Plan Report [completed in 09/11/2010];
3. Rustenburg Local Municipality Integrated Development Plan 2014-2015 [completed in 30/05/2014]; and
4. Water Sensitive Urban Design (WSUD) for South Africa Framework and Guidelines [completed in April 2014].

KEY STRATEGIES

Reducing Non-Revenue Losses

Unaccounted water loss (UAW) is a serious problem for RLM, with 32% UAW in the urban area and up to 50% in rural townships. It is caused by two major components, namely, water leakage and unrecorded water consumption. The key strategies to solving the issues are as follows:

- Water leakage management
  Water leakage can be categorised into passive leak and proactive leak. Passive leak can be reduced through pressure management and leak detection. Proactive leak can be improved through operation & maintenance (O&M) of the water supply network. Preventative maintenance along with network rehabilitation strategies, provide an opportunity to prolong the lifespan of existing infrastructure and improve system performance with regards to water leakage.
- Keeping track of the water consumption.
  Unrecorded water consumption is usually caused by inaccuracies in meter readings and illegal connections. This requires replacing inaccurate meters and conducting regular inspection to check for illegal connections. As suggested in WSUD framework report, the first method is using software to identify anomalies in consumption data that could point to inaccurate meters or illegal connection. The second method is responding to consumer feedback on suspected meter errors that emerge from the billing cycle.

Reducing Water Wastage

- Formulation of water conservation regulation
  Compulsory regulation, water restrictions and policy development around water conservation can provide strong legislative supports for the implementation of water demand management strategies and drive the progression towards sustainable water management.
- Implementation of an informative billing system with equitable tariffs and incentive schemes
  Pricing incentives in the form of rising block tariffs can be adopted. This approach ensures a basic level of consumption to all customers and promotes a stronger incentive for conservation at high levels of discretionary use. In addition, the billing system could be more informative, such that it provides costumers with information that includes summary of the customer's water usage trends over a given period, comparisons with the municipal average and possible savings from reduced consumption.

Development of Alternative Water Resouce

- Wastewater Reuse
  Wastewater can be treated and reused for non potable use. RLM produces large quantities of wastewater on a daily basis. Half of them is collected and treated in STW and is discharged into the existing water bodies. Instead of discharging the treated effluent into water bodies, it could be reused to significantly reduce non potable water demand. The treatment level required is dependent on the quality of the wastewater collected and its intended end use.
- Rainwater Harvesting
  Rainwater harvesting presents significant potential as an alternative water supply within urban areas that can be reused for non potable use. There are various method to collect rain water, such as tank storage for small catchment, open storage for big catchment, managed aquifer recharge (MAR) to recharge the aquifer by using infiltration pond or constructed wetland, etc.

Digitising the Existing Water Supply and Sanitation Infrastructure Inventory

An electronic data base must be set up for all bulk water infrastructure and reticulation infrastructure. It should be

structured under institutional status (owner and operator), asset assessment (construction date, expected lifespan, estimated replacement value), type and capacity. Meter readings can be recorded in an electronic format for ease of reference.

Sustainable Drainage System (SuDS)

SuDS offer an alternative approach to conventional drainage system by adapting the natural hydrological cycle, often through a number of sequential interventions in the form of a 'treatment train'. The key objectives of SuDS are management of stormwater runoff quantity and quality, beautification of the surroundings and preservation of the biodiversity value. Example of SuDS are swales, detention pond, green roof, constructed wetlands, etc.

Groundwater Management

Groundwater is an important source of water supply and it can be used as a form of water storage. To protect the ground water quality, following key strategies shall be implemented:

- Prevent leakages from underground water pipelines;.
- Groundwater recharge;
- On-going monitoring of the ground water quality; and
- Development of ground water management plans.

PLANNING IMPLICATIONS

Implementation of the key strategies would cause the following planning implications:

- Upgrading the existing bulk water infrastructures, such as reservoirs and water treatment works would require review of the existing site. Sufficient land has to be set aside for future expansion;
- RLM has to review its existing water tariff system and water supply regulation regularly;
- In term of water re-use and recycling, it is essential to ensure water of different qualities are available depending on the intended use. Water balance and treated effluent quality classification has to be established as a guideline for the STW operation;
- Prior to digitising the data base of water supply infrastructure, field trip or detailed study is required to capture the necessary details.
- Prior to the design of the sustainable drainage system, there is a need to carry detailed local hydrological cycle analysis and ground condition classifications;
- Any proposal to construct constructed wetland, infiltration pond or something similar would affect the land use master plan as it would usually require a big plot of land to be reserved;
- Regular inspection of the sewer pipe has to be conducted to prevent sewage from leaking into the ground water; and
- The quality of water to be injected into the aquifer has to be monitored so that it does not contaminate the existing ground water.

2.6 EXISTING AND APPROVED LAND USE PLAN

2.6.1 Approved Land use Distribution

The urban area in RLM today is largely concentrated around Rustenburg, Phokeng and Boitekong on the northern side of N4 highway. Although the historic agglomeration of the City is clustered around the City Centre (Rustenburg), numerous townships are developing in outer areas to support the boom mining activities in the platinum mining belt.

The main employment areas in the City comprise of the Rustenburg CBD and two industrial zones located just east of the CBD and north of Tlhabane.

Table 2.4 depicts the approved land use distribution of RLM as provided by Land Use Management Scheme (LUMS). According to LUMS, only 11% of the total land is zoned for urban developments where the remaining area is zoned for agriculture and natural protected areas.

Figure 2.13 shows the approved land use distribution within the urban areas, where over 53% are zoned for residential uses and 24% for public roads. Only 7 hectares, 3% of urban land area is zoned for business and industrial uses which is well below the average of other cities around the world. In addition, only 8% of urban land is provided for public open space.

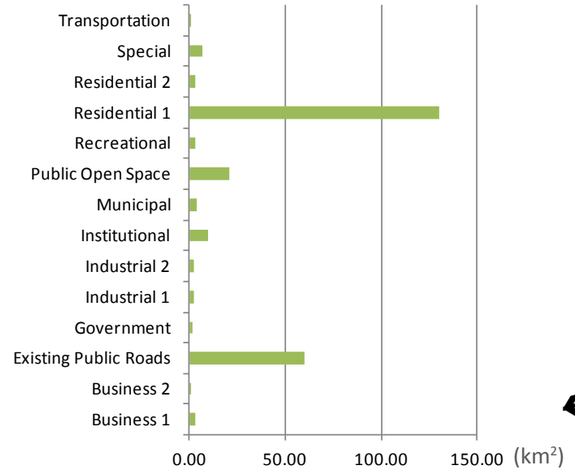


Fig.2.13 Existing Land Use Distribution in Urban Areas (Source: LUMS)

Table 2.4 Overall Existing Land Use Distribution Table (Source: LUMS)

ZONING	Area_(km²)
Agricultural	2573.61
Business 1	3.05
Business 2	0.25
Conservation	30.24
Existing Public Roads	60.26
Government	1.83
High Potential Agriculture	252.68
Industrial 1	2.22
Industrial 2	2.04
Institutional	9.31
Mining and Quarrying	122.68
Municipal	4.01
Pans and Dams	19.07
Protected Areas	178.36
Public Open Space	20.82
Recreational	2.67
Residential 1	129.95
Residential 2	3.18
Special	6.63
Transportation	0.48

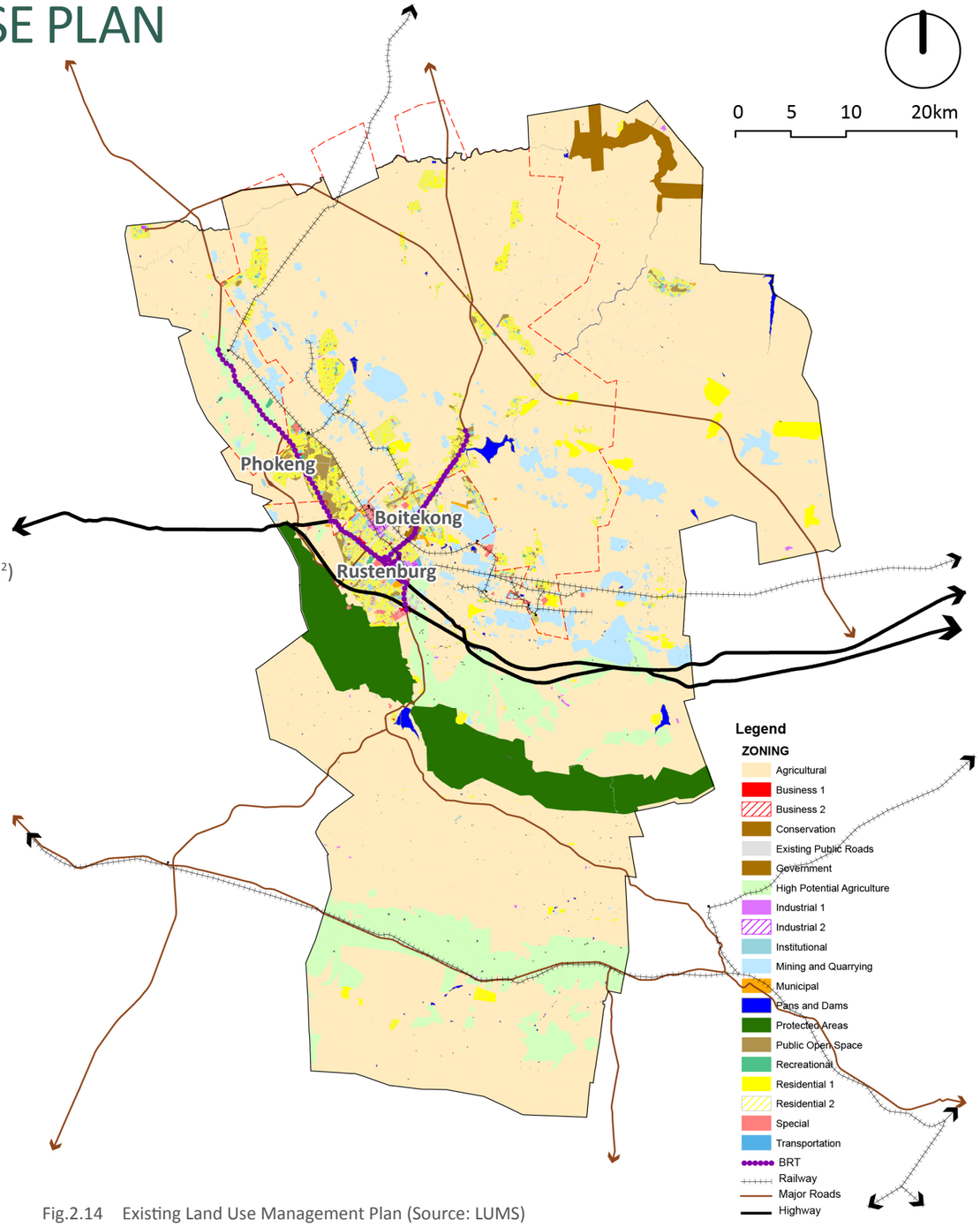


Fig.2.14 Existing Land Use Management Plan (Source: LUMS)

2.6.2 Built-up areas & Density Distribution

The existing built up areas are primarily distributed around Rustenburg, N4, and the mining belt north of Magaliesberg Nature Reserve. The total built-up area in the municipality is 178 km².

The urban density map depicts high concentration of population in Rustenburg, Phokeng or Boitekong. These areas combine only 3% of RLM's total land area but houses 70% of the total population.

Despite high population concentrated around Rustenburg, the overall population density of RLM is only 370 people per km². This figure is relatively low when compared to other developed metropolitan areas around the world. This is largely due to urban sprawl and the culture of single storey developments throughout the municipality. However, both SDF and HSP are now emphasising on reducing urban sprawl to lower infrastructure and service cost.

In additional to policies to encourage infill developments, the proposed RRT system could facilitate higher density developments in Rustenburg, Boitekong and Phokeng. Despite inexpensive land cost, Rustenburg should explore design guidelines for 3 to 4 storey developments in city areas to create vibrant streetscapes and promote social interactions.

Population Density Comparison

Singapore

7,300/km²

Johannesburg

2,900/km²

Rustenburg Local Municipality

370/km²

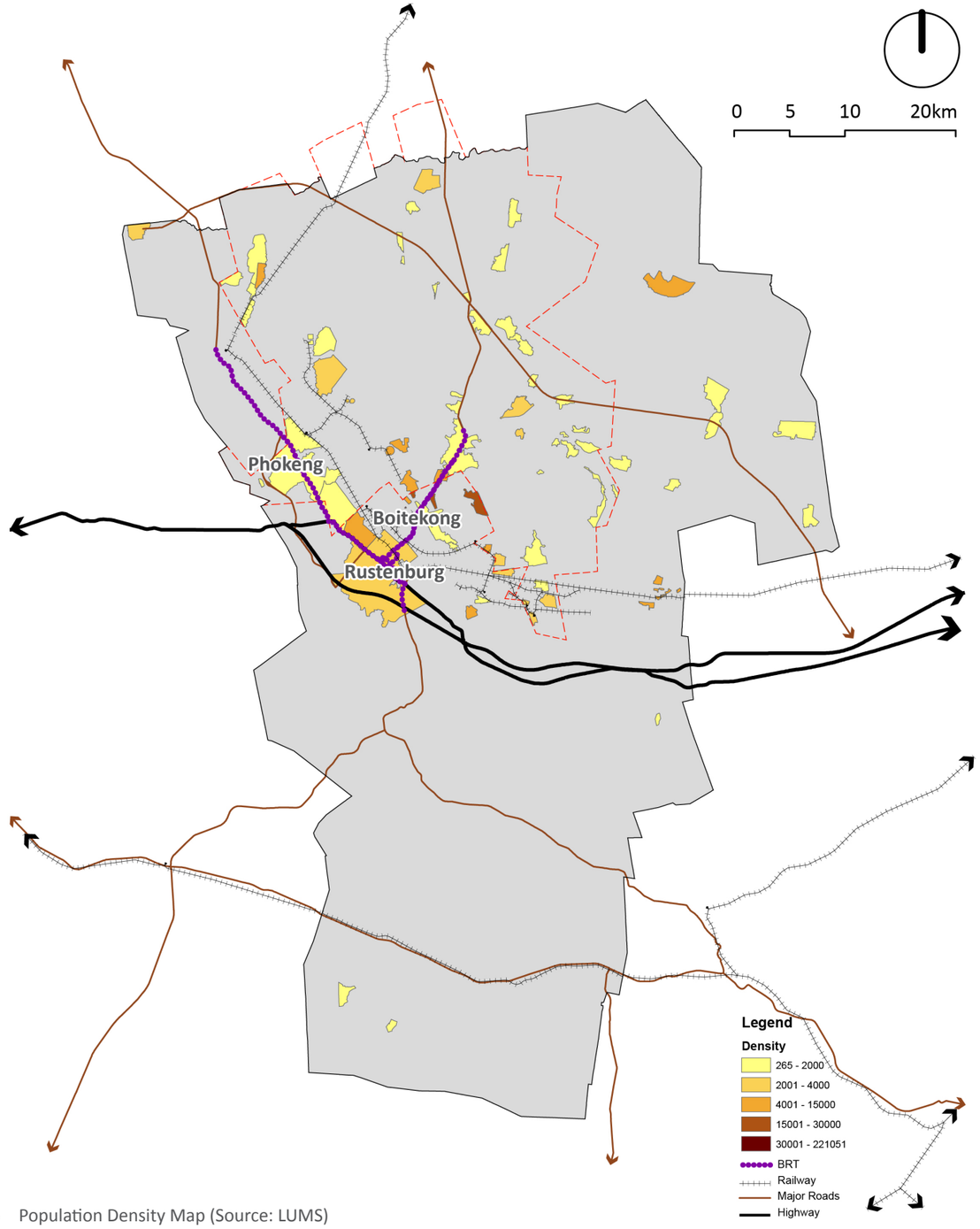


Fig.2.15 Population Density Map (Source: LUMS)

Key Nodes

Business Node:
The existing Rustenburg CBD(Central Business District) is located in the heart of Rustenburg City. But unlike most other cities, the Rustenburg CBD is not the dominant regional centre due to low density developments as well as safety and security issues.

Shopping Node:
The largest shopping complex in RLM is the Waterfall Mall located along N4 and R24. It is a major retail and service centre in the municipality that have facilitated large-scaled residential developments in adjacent areas over the years.

Sports Node:
The Royal Bafokeng Sports Palace is a football, rugby and athletics stadium located in Phokeng. It was built by the Royal Bafokeng Nation and expanded in 2009 to host 6 games at the 2010 FIFA World Cup. However, it is under utilised since when compared with the Olympic Park located in Rustenburg. Recently, the sports palace is expanding again to add addition sports and retail facilities to become a major sports hub in the municipality.

Industrial Nodes:
There are only 2 industrial nodes in the municipality which is located in the city of Rustenburg. In addition to the SEZ which is under negotiation, a 100 ha mining industrial park is proposed to be located near the Tabak Station east of Rustenburg.

Fig.2.16 Key Nodes Maps

Rustenburg CBD

Waterfall Mall

Bafokeng Sports Palace

2.6.3 Housing Distribution and Typologies

According to IDP, there are a total 197,488 dwelling units in RLM. The dwellings units in RLM are primarily single storey detached houses of which only 60% is classified as formal housing. The remaining 40% of housing stock are either informal dwellings, shacks, or squatter settlements. This is largely a resultant of the mining sector as it attracts large sum of single family workers from regions outside of RLM. As depicted in figure 2.17, most of the informal settlements are situated in mining towns within the platinum belt.

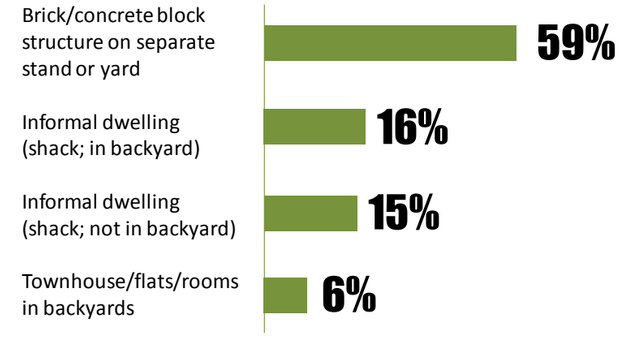
According to HSP, most of the housing demand in RLM are concentrated in Rustenburg and Boitekong, the two most populous areas in the municipality. This indicates for potential large scaled integrated residential township projects around these areas. Such projects could be aligned to the anticipated first phase of the proposed BRT corridor.

Housing Challenges

Some of the key issues regarding the the present situation of housing sector in RLM are:

- High demand for formal and affordable housing
- Lack of adequate provision of public facilities and services within walking distances due to urban sprawl
- Unpredictable housing subsidy allocation from the Department of Human Settlement, Public Safety and Liaison.
- Lack of suitable land for housing development due to land ownerships.
- Illegal occupation of houses
- Lack of housing related infrastructure.

RLM Housing Distribution



Formal Townhouse

Formal Concrete Blocks

Informal Settlements

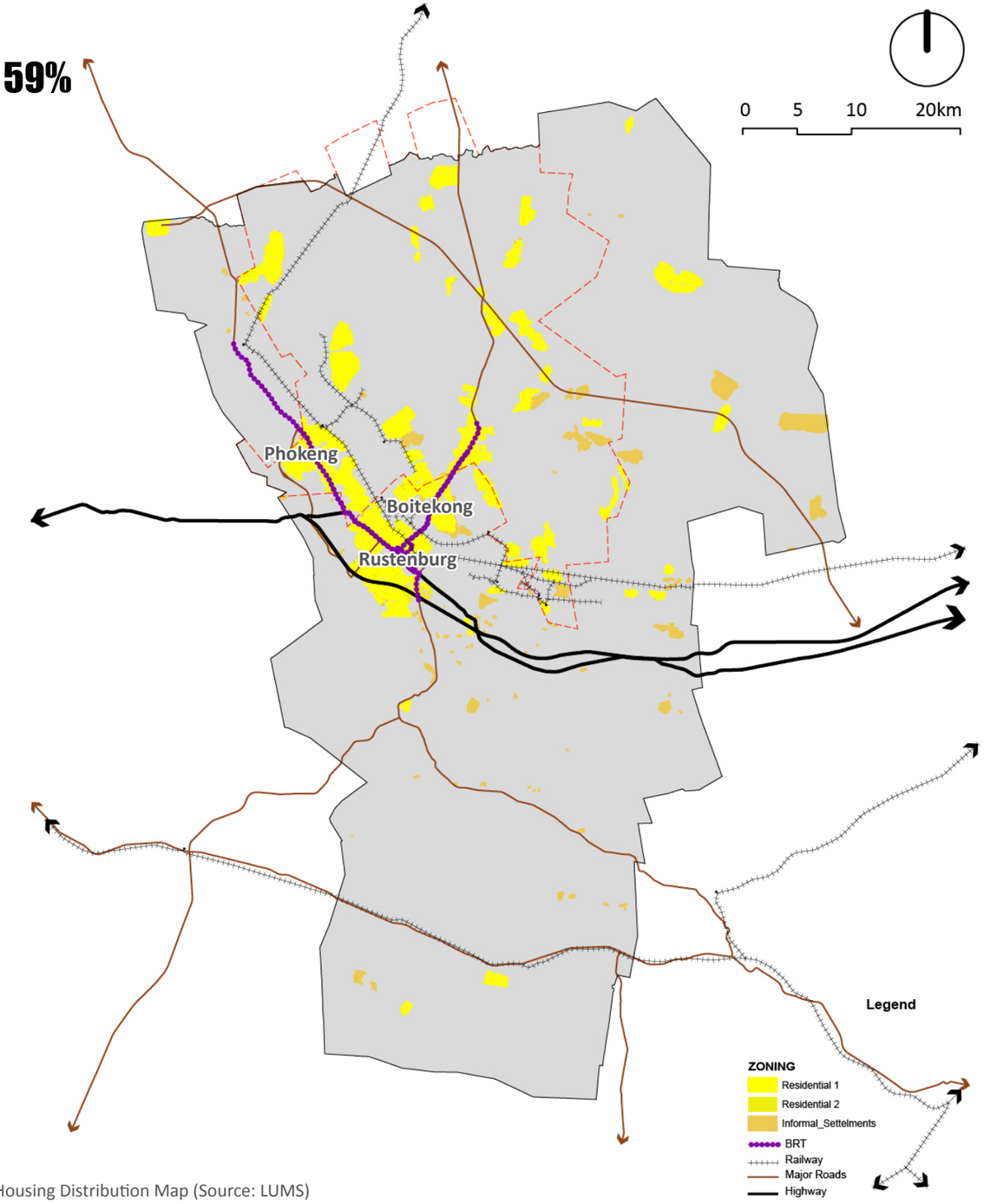


Fig.2.17 Housing Distribution Map (Source: LUMS)

2.6.4 Social Infrastructure Provision

Education Facilities

The overall level of education has increased significantly in RLM over the years. There is good provision of primary and secondary schools in most urban settlement areas. The School of Excellence or Lebone II is a leading independent preparatory and secondary school in South Africa.

Even with adequate provision in the number of schools, transportation cost remains an issues in RLM, especially for those living in outlying and rural areas. According to CSIR guidelines for the provision of social facilities in South African settlements, a primary and secondary school should be provided within 5-10 km to all residents.

When comparing the level of education with North West Province and South Africa, RLM has much higher proportion of population with higher education. This indicates that many of the population are educated migrant from outer regions. This is also reflected on the high GVA per capita of the municipality.

But despite the high level of education in RLM, there is a significant mismatch between the education and available jobs in the municipality. There are currently no university campuses in RLM. Only ORBIT FET College and few small higher education campuses are available in the City of Rustenburg.

There is currently high demand for higher education schools in RLM. Municipality governments should seek partnerships with foreign/local universities or tertiary education institutes. The development of the capability of local residents is critical to provide skilled workforce to support the industrial and business sectors transformation.

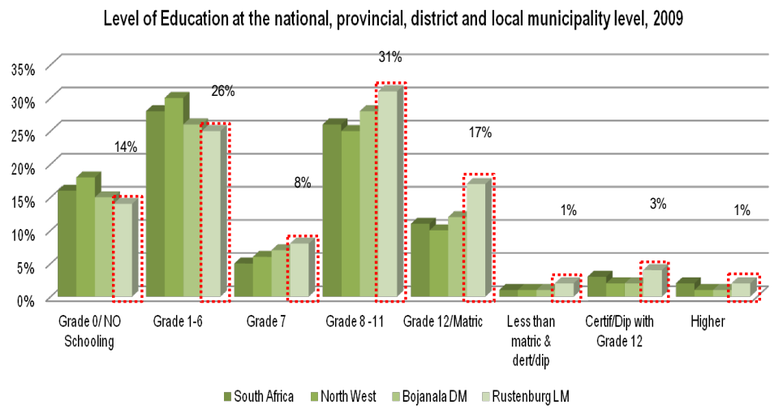


Fig.2.18 Comparative Study of RLM's Education Level (Source: Quantec Research)

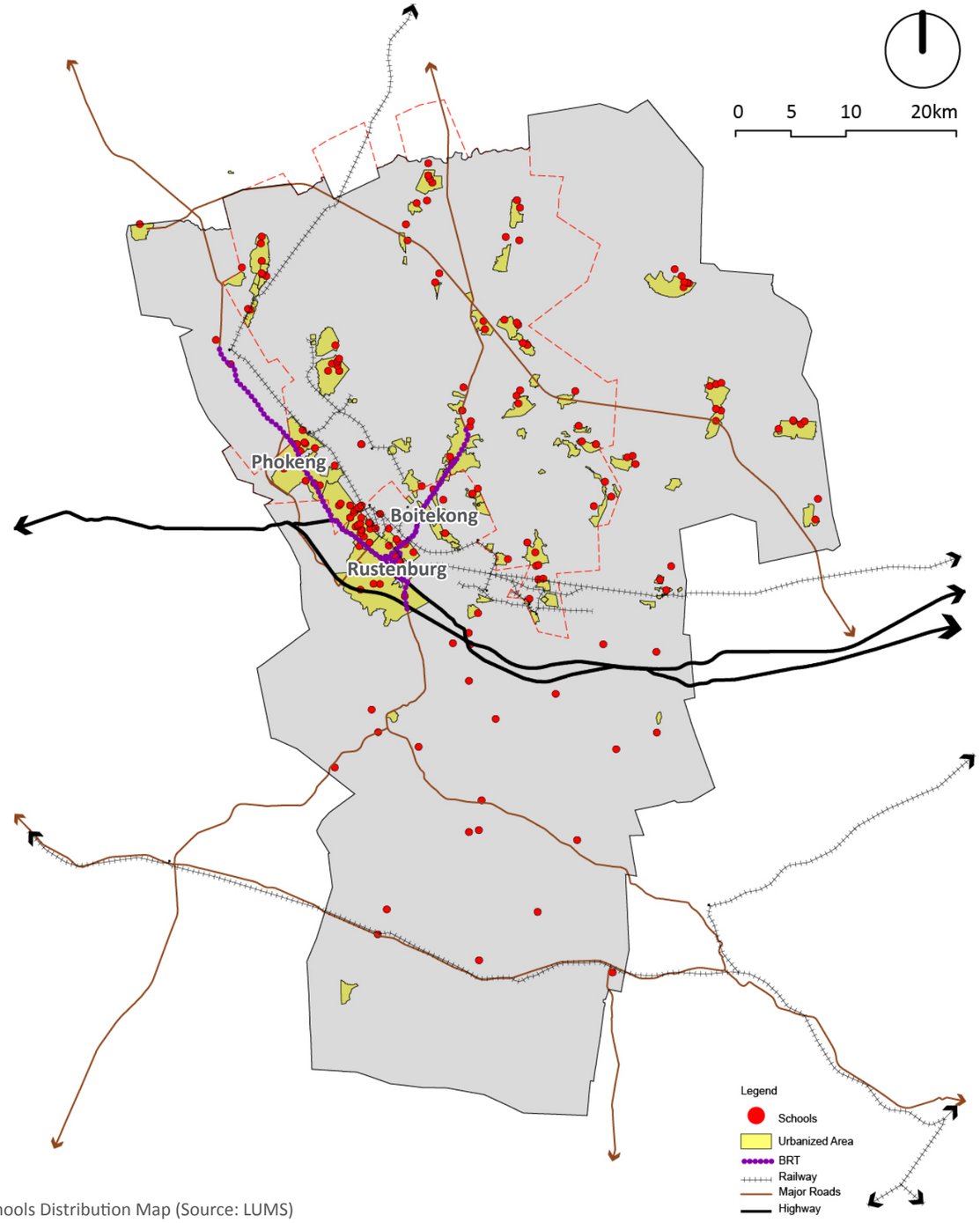


Fig.2.19 Schools Distribution Map (Source: LUMS)

Health Facilities

RLM has 21 clinics that render Primary Health Care services in thirty eight 38) wards. Four clinics are under the control of the municipality while 17 are under the control of the Provincial Health Department. The health facilities include:

- 1 Level 2 Provincial Hospital: Job Shimankana Tabane Provincial Hospital (316 beds)
- 5 Hospitals: Impala Platinum Mines Hospital (252 beds), Rustenburg Platinum mines Hospital, Life Pegrelae Hospital (159 beds), Netcare Ferncrest Hospital (163beds), Andrews Saffy Memorial Hospital (70beds)
- 3 Primary Health Centres
- 16 Health Clinics
- 7 Mobile Clinics

There is currently no level 1 provincial hospital in the municipality. As one of the primary regional service centres in the North West Province, there are great potentials for major or specialised hospital developments along the N4 corridor, which could subsequently attract patients from the outer regions. Currently, there is a tertiary hospital with over 400 beds proposed near the school of excellence in Phokeng. This hospital will specialise in neo surgery, plastic surgery, trauma and nuclear medicine. This provides opportunities for the concept of medical hub to position Rustenburg as a centre for medical tourism.

The provision of health facilities at the local level is well distributed in most part of existing urban areas. But many new mining villages are established each year as new mining shafts open. This require regular reviews of the healthcare provision to ensure mining related injuries can be quickly taken care of.

According to CSIR guidelines for the provision of social facilities in South African settlements, 90% of population should be served within 5km from primary health clinic.

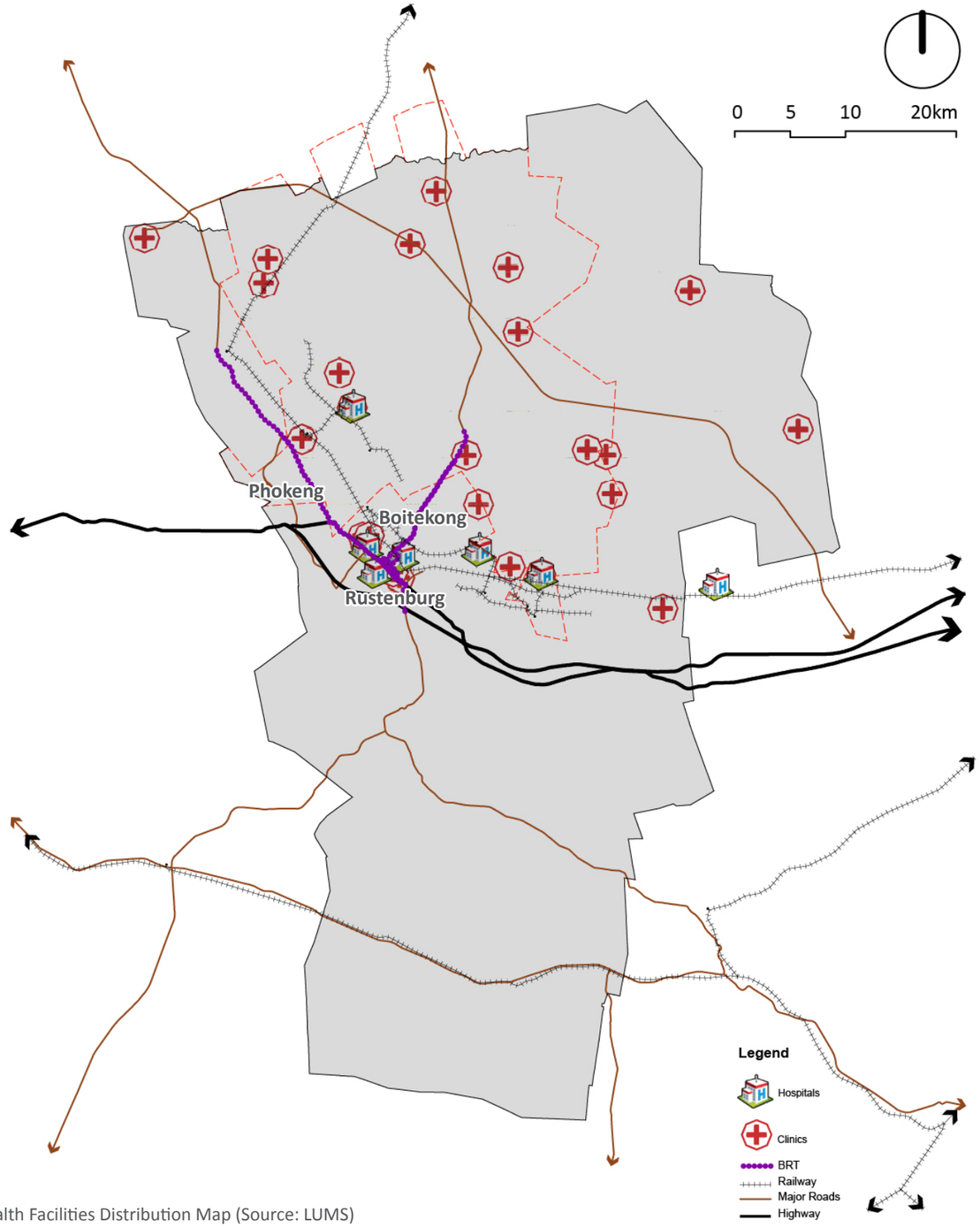


Fig.2.20 Health Facilities Distribution Map (Source: LUMS)

2.6.5 Tourism and Heritage

Local and Regional Attractions

The Rustenburg municipal area is host to more than 160 tourism products with almost 7,000 beds and more than 1,000 campsites. Primary tourism areas and facilities located within the municipal area are as follows:

- Rustenburg Town
- Kgaswane Game Reserve
- Vaalkop Dam Nature Reserve
- Kroondal
- Bafokeng Sport Palace
- Buffelspoort Dam

However, the most prominent tourist destination for visitors coming into Rustenburg is the Sun City and Pilansburg National Park just north of the RLM boundary along R556. Also outside the RLM border include the Cradle of Humankind and Madikwe Game Reserve. Rustenburg is ideally situated as a gateway to many of these regional tourist destinations.

Rustenburg Tourism Potentials

The typical Bushveld climate and vegetation, as well as the unique topography of the Magaliesberg creates many opportunities for tourism developments. From regional and municipal policies and framework, It is clear that the National Government, the North West Provincial Government and the District Municipality recognise the exceptional tourism potential of the Rustenburg region and the significant role that it can and should play in facilitating economic growth and social activities in the region.

The Rustenburg Local Municipality acknowledges the importance of tourism as reflected in their SDF. The following policies and strategies guide tourism and open space planning and development:

- The Regeneration Study for Rustenburg CBD provides opportunities for functional and attractive streets with a 24 hour Pedestrian Boulevard
- "Gateway" projects are recommended by the Rustenburg Regeneration Study that will enhance the city entrances and can be expected to have a substantial impact on the quality of the tourist experience of Rustenburg
- The Rustenburg Local Economic Development envisages tourism to be part of the economic thrust for Rustenburg. Tourism opportunities mentioned include cultural, sport, theme park, educational and big game type products.

In addition to the policies and strategies established by the municipality authorities, Rustenburg must embark on major projects to distinguish itself from other municipalities in South Africa. The projects cannot be small or isolated from key nodes or transport corridors.

With the platinum belt and the Sun City as magnets for tourists, there is great potential to take on large scaled projects to integrate with these themes to brand Rustenburg as a national or even international tourist destination.

Fig.2.21 Regional Tourism Map

2.6.6 Existing and Approved Transportation and Linkages

Previous reports were reviewed to understand the key strategies that have been proposed. The list is shown below:

- Rural Transport Strategy for South Africa;
- Rustenburg Municipality Integrated Transport Plan (ITP) 2007 – 2012;
- Rustenburg Local Municipality City Development Strategy;
- Analysis & Development Programme For Royal Bafokeng Nation Master Planning;
- Rustenburg Rapid Transit Presentations; and
- Phokeng City Master Plan.

Road Network

South Africa has left hand side traffic, as do all the bordering countries.

The National Route system in South Africa is a class of roads and freeways connecting the major cities (refer to Fig.2.22). Rustenburg is located along National Route N4 west of Johannesburg. This road links Rustenburg westbound to Lobatse, Botswana, and eastbound to Johannesburg, Pretoria and further east to Maputo, Mozambique. The N4 is important to Rustenburg as it provides Rustenburg with a east-west strategic connection to both Botswana and Mozambique.

The Provincial roads R565, R510, R104 and R30 and R52 link Rustenburg northwards to Thabazimbi, eastwards to Harbeespoort, southwards to Ventersdorp, and westwards to Swartruggens (refer to Fig.2.23 for the existing R510).

Included in previous studies are plans to upgrade the R565 stretch from Phokeng to Sun City from a 2-lane single carriageway road to a 4-lane dual carriageway road.

The roads in Rustenburg follow the road classification system as used by Rural transport Strategy for South Africa.

- Primary Distributor;
- Regional Distributor;
- District Distributor;
- District Collector;
- Access Roads; and
- Non motorised Access Ways.

Refer to Figure 2.23 for the existing road network in RLM.

Fig.2.22 National Road of South Africa (Source: Wikipedia)

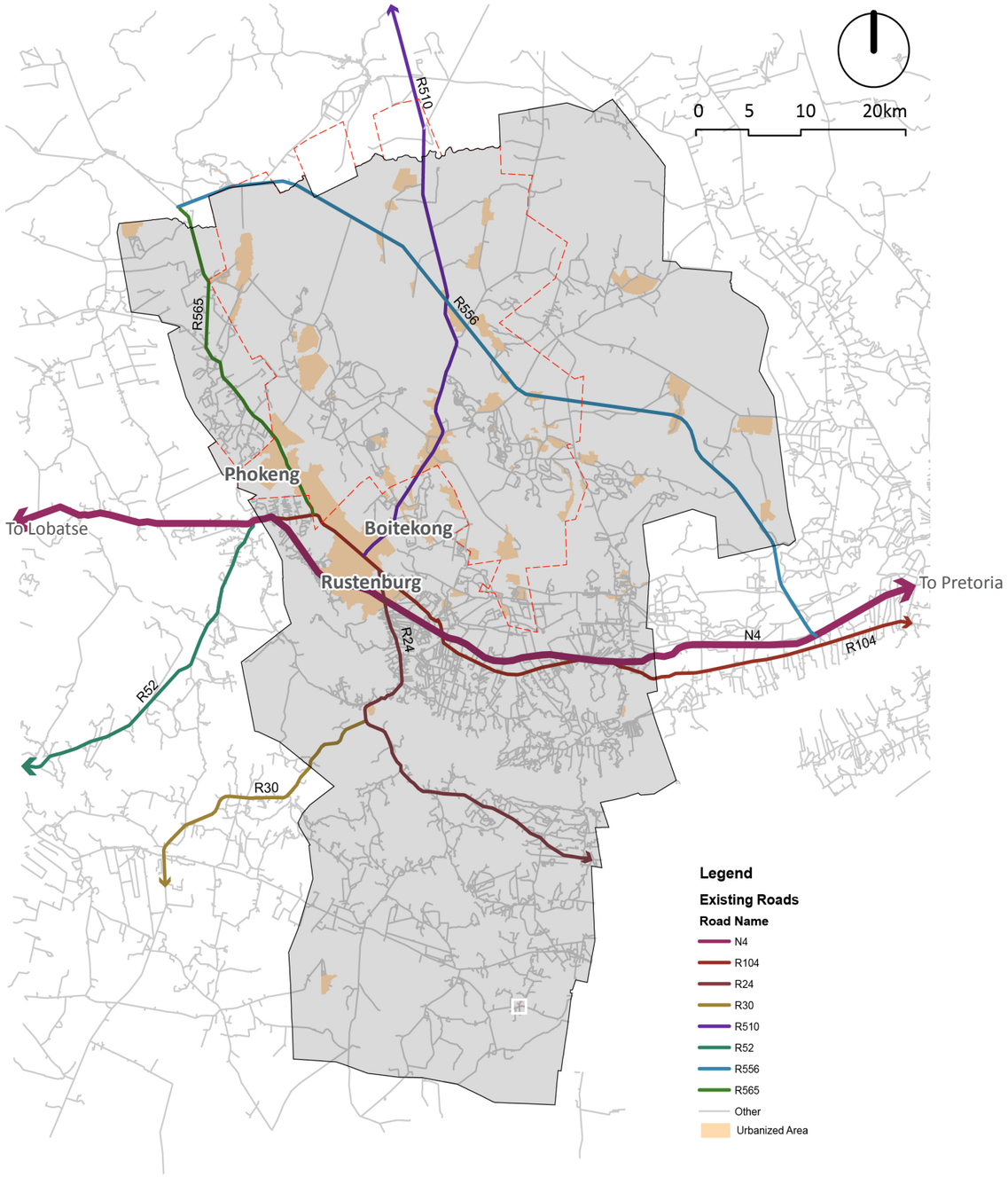


Fig.2.23 Existing Roads Map (Source: GIS)

Fig.2.24 Existing Road (R510)

Fig.2.25 Existing Road (N4)

Rail Network

There are two interprovincial rail lines crossing Rustenburg. One is in the middle part of Rustenburg, connecting Rustenburg northwards to Thabazimbi and eastwards to Brits. The other rail line runs through the east part of Rustenburg, connecting it westwards to Koster and eastwards to Krugersdorp. Both lines are currently only being used for freight transport (refer to Fig.2.27).

Previously, the railway lines served long distance passengers previously, but now are only for the use of transporting ores of platinum and chrome to the smelters. Spoornet is operating as the only freight train service operator in the Rustenburg Municipality.

Fig.2.26 Existing Rustenburg Railway

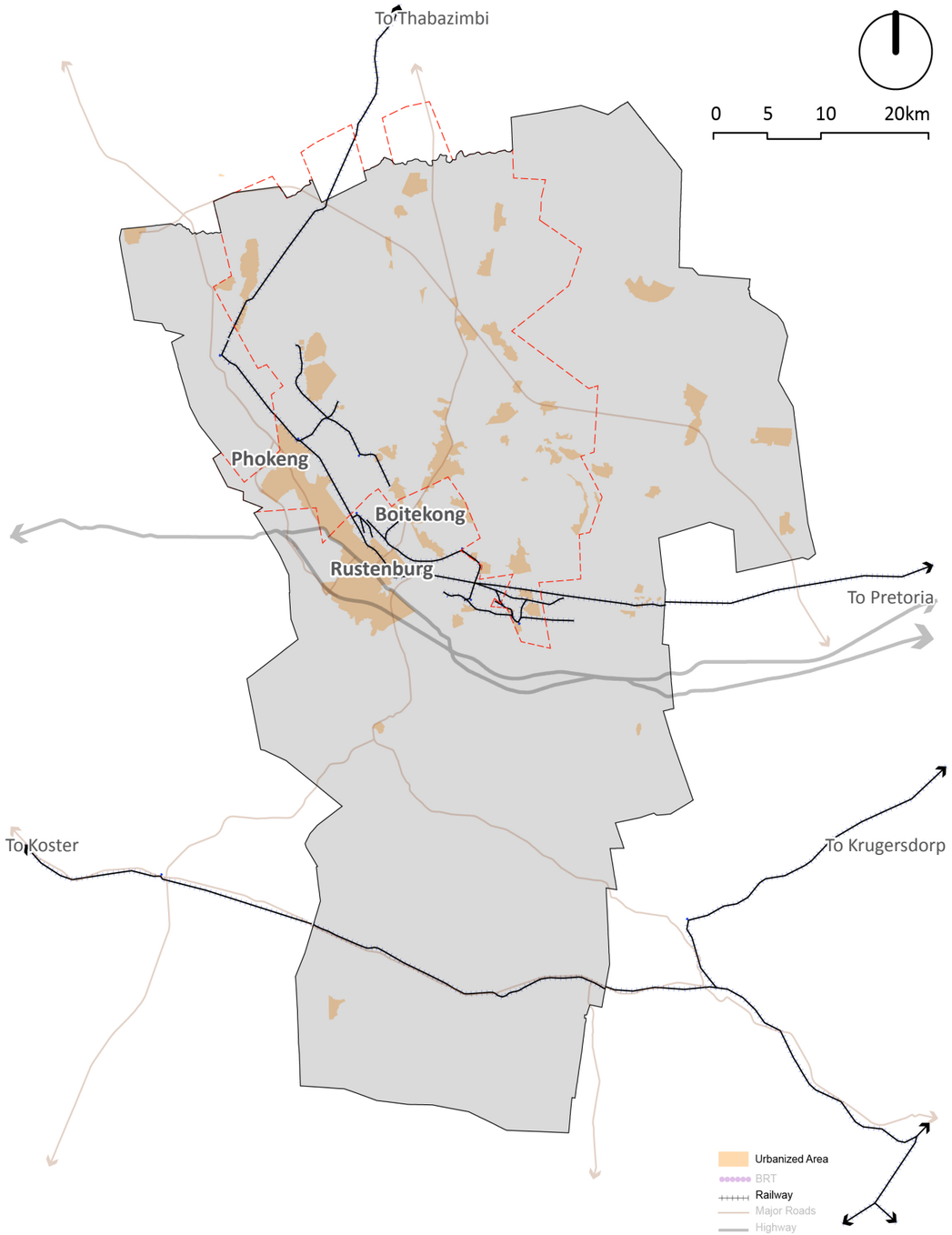


Fig.2.27 Existing Railway Map (Source: GIS)

Airports

The nearest international airport of Rustenburg is O.R. Tambo International Airport which is located at the east of Johannesburg, which is a 2-hour drive from Rustenburg. Currently international travellers to Rustenburg come predominantly via O.R. Tambo International Airport.

There are two local airports around Rustenburg. The Pilanesberg International Airport is located at 50 km to the north of RLM. However it is mainly serving tourists visiting Sun City and does not have regular scheduled flights. It has a 2750m long and 30m wide runway, and is handling about 8000 passengers per year. Rustenburg Airfield is located in the middle part of Rustenburg. It is a small airfield serving small planes for skydiving and parachuting. It currently has a 1225m long and 15m runway.

Fig.2.28 Existing Rustenburg Airport

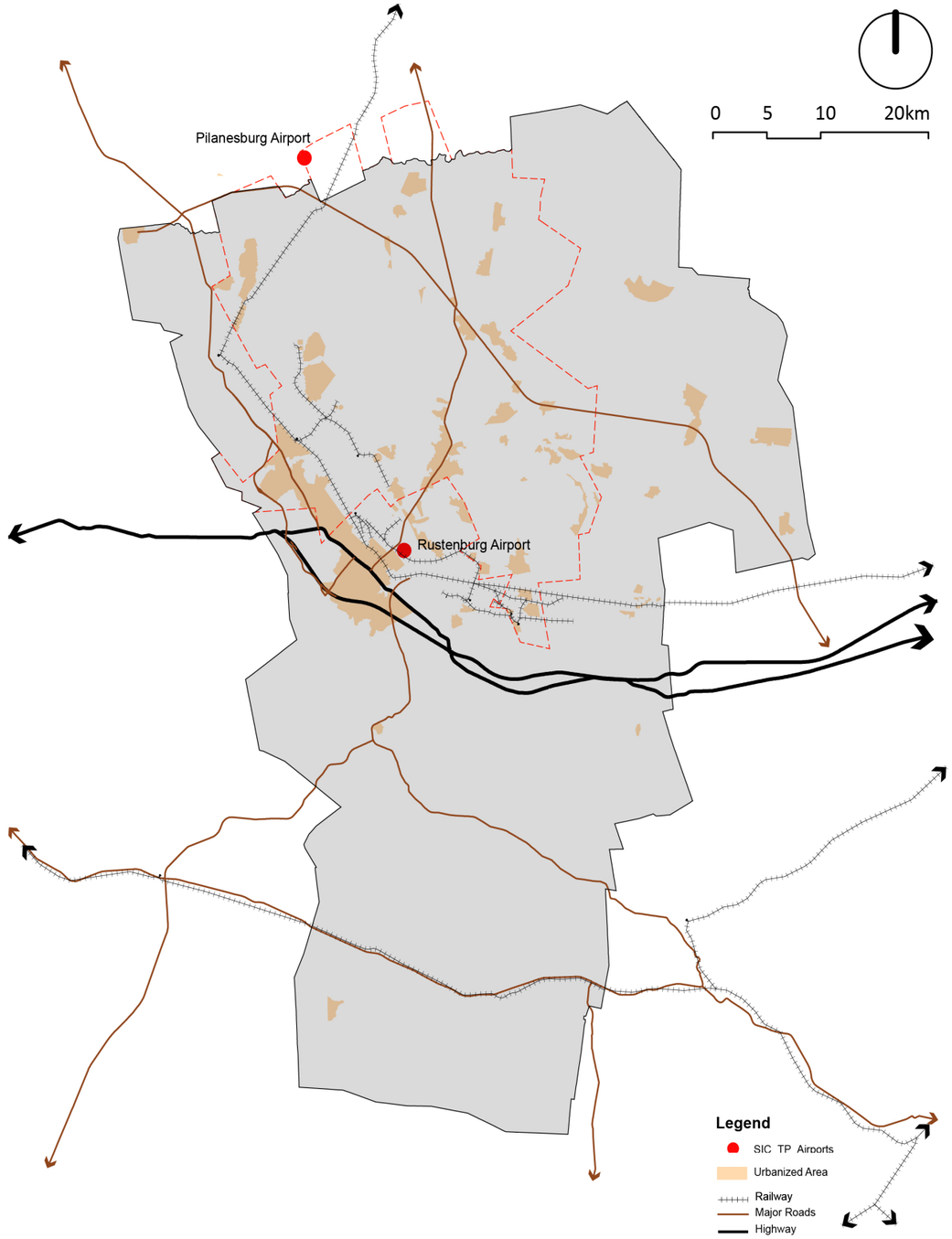


Fig.2.29 Existing Airport Location Map

Public Transport

In Rustenburg, there are two main forms of the public transport, public buses and mini bus taxis (refer to Fig.2.30 and Fig.2.31). According to the public transport survey from the Integrated Rapid Transport Network (IRPTN) for Rustenburg report, the modal split for private transport and public transport in RLM is 21% to 79%. From the data of RLM, about 93% of the total public trips are made by mini bus taxis, while 7% are made with public buses.

Public Bus Service

The Bojanala's Company and Thari Bus Company are the two main public bus operators in Rustenburg. The public bus services cater for the both the urban and rural mining areas. These companies receive ticket subsidies through the government bus subsidization scheme. All the buses from these two companies are operating on fixed schedules and routes with set stops along the route.

Mini Bus Taxi Service

The mini buses services are well developed in Rustenburg. Mini bus taxis are operating by privately companies, and they organise themselves into Local Taxi Associations that form Local Taxi Councils.

For both public bus and mini bus taxi services, the routes are classified into two types, internal routes and regional routes. For internal routes, there are 16 bus routes and 49 taxi routes in Rustenburg. For regional routes, there are 30 bus routes and 50 taxi routes.

Currently, public transport facilities in Rustenburg are mainly bus stops and taxi ranks. Most of the bus stops along the roads or in villages are only with a sign post without shelters. For Taxi ranks, are both formal and informal and can located on street / off street.

Non-motorised Transport

For pedestrians, the pedestrian path was set for most of the CBD area in Rustenburg (refer to Fig.2.32 and Fig.2.33). But the plight of people living with disabilities has been identified as a matter of concern. For most of the area outside CBD, no proper pedestrian facilities are present.

For cycling, no provision of related facilities was identified in Rustenburg.

It was noted that facilities design predominantly tailor their infrastructure to car users.

Fig.2.30 Existing Bus Taxis

Fig.2.31 Existing Public Bus

Fig.2.32 Existing Pedestrian Crossing in Car Parks

Fig.2.33 Pedestrian Crossing in City

2.6.7 Existing and Approved Utilities and Infrastructure

Water Supply

Water Service Providers

There are three Water Service Providers (WSP) serving RLM. They are:

- Rand Water Board
  Rand Water Board supplies water to the mines and RLM mainly via Barnardvlei system and Vaalkop system. It owns and operates Barnardvlei system and purchase water from Magalies Water Board via Vaalkop system.
- Magalies Water Board
  Magalies Water Board supplies water to the mines and RLM via Vaalkop system. It owns and operates Vaalkop system and manages all the dams within RLM except Olifantsnek Dam.
- Rustenberg Water Services Trust
  The trust is a service entity owned by the Rustenburg Local Municipality that was established as a ring-fenced business entity. The main focus of the trust is to develop RLM's own water supply resource to reduce RLM's dependency on external water supplies. It operates Bospoort and Kloof Water Treatment Works.

Royal Bayokeng Nation (RBN) buys water from Rand Water and Magalies Water. It is considered as a separate WSP as it manages and maintains its own water supply network.

Water Supply Resource

Two main water supply source in RLM are as follows:

- Surface water
  Rivers, such as Vaal River, Hex River, Crocodile River, Elands River, Sterkstroom River and Dorpspruit River were dammed up to create six dams. They are Vaal Dam, Bospoort Dam, Olifanstnek Dam, Vaalkop Dam, Buffelspoort Dam and Kloof Dam. Vaal Dam, located at the border of Gauteng and Free State, is the only dam that is located outside RLM.
- Ground water
  Ground water is commonly used in remote farming areas and mining industries. RLM has borehole water scheme systems that have been recently upgraded in Maumong, Molote City and Mathopestad. The boreholes are operated by the Tribal Authorities (Mathopestad) and the CPA (Molote city).

Water Supply Network

RLM has an extensive network that consists of water treatment works, service reservoirs, pumping stations and water pipeline. 83% of RLM population have access to the municipal water supply network. The remaining 17% utilise boreholes, spring water, water tanker, river water, etc for their water supply.

There are four Water Treatment Works (WTW), built next to the existing four dams. They are Zuikerbosch WTW (Vaal Dam), Vaalkop WTW (Vaalkop Dam), Bospoort WTW (Bospoort Dam) and Kloof WTW (Kloof Dam). There is no WTW at Buffelspoort Dam and Olifantsnek Dam, as the water is mainly used for irrigation water.

Treated water are stored in nine primary reservoirs within RLM (refer to Fig.2.34). These reservoirs would supply water to approximately 50 secondary reservoirs and towers. Some of the secondary reservoirs are cross connected to each other for back up supply.

CBD, the mining area and some parts of the rural areas are serviced by the municipal water network. However, only 35% of the costumers have access to piped water within their property, while the remaining have to get supply from communal point.

Water reuse has slowly been adopted in RLM as part of Rustenberg Water Services project. 80% of the treated effluent is supplied to the mining industries while the remaining 20% is used for irrigation.

Key Issues

- Lack of integration in the water supply planning among RLM, RBN, and the mines;
- Lack of maintenance of the existing infrastructure;
- High un-accounted water loss, 32% in the urban area and up to 50% in rural townships. High water loss are mostly caused by illegal tapping, leaking pipes due to aging water infrastructure and unrecorded usage as some houses are not installed with bulk meter;
- High number of customers without pipe connection within their property; and
- Operational issue such as low pressure and unsatisfactory water quality.

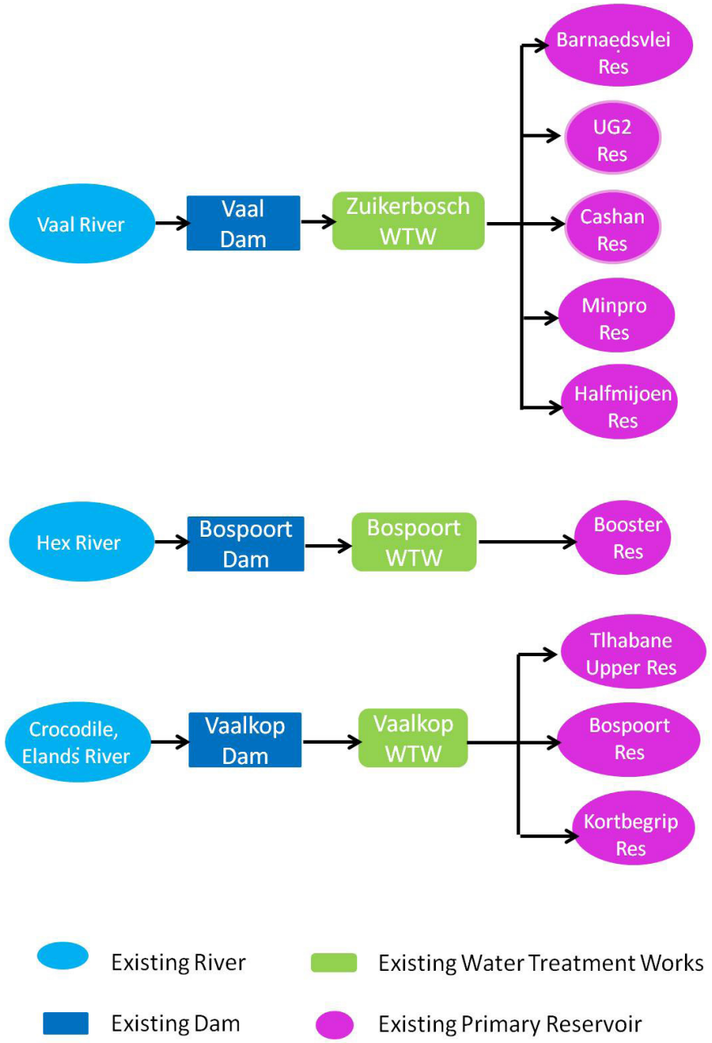


Fig.2.34 Overview of RLM Existing Water Supply Network (Source: WSDP)

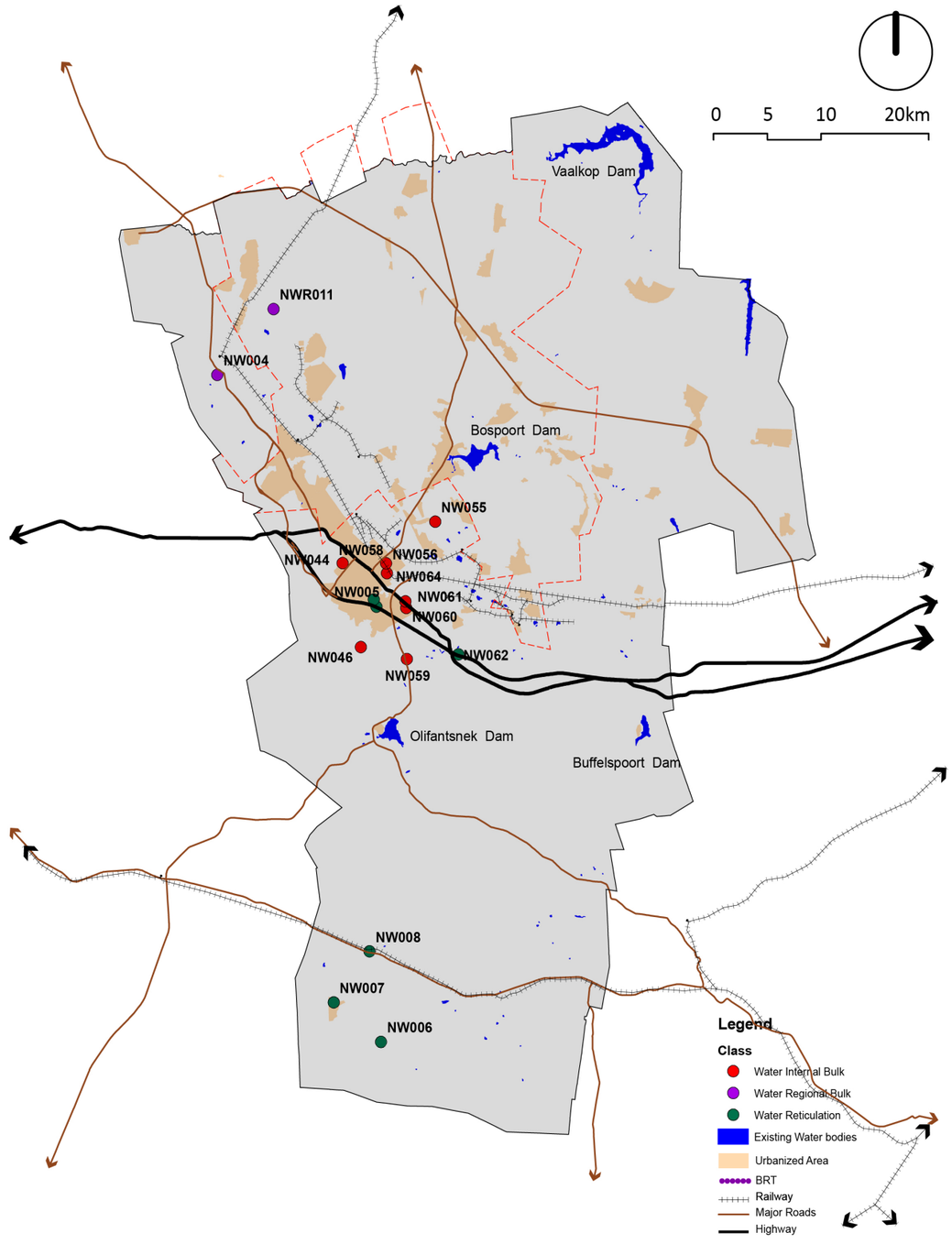


Fig.2.35 Existing Water Resources and Approved Projects Map (Source: Department of Water Affairs)

Proposed Projects

Increasing population and growing mining industry is expected to increase the future demand. To solve the existing issues and ensure adequate supply for future demand, a number of water augmentation projects and upgrading works of the existing infrastructure have been proposed and approved by the municipality. Refer to Table 2.5 for the compiled list.

Fig.2.35 shows the existing water reservoir in RLM and all the approved projects location.

Table 2.5 List of Approved Water Supply Projects (Source: Department of Water Affairs)

Project Number	Project Name	Project Owner	Project Description	Project Category	Project Status
NW004	Boshoek - Bulk Water Supply	Rustenburg	Boshoek-Bulk water supply	Water Regional Bulk	Feasibility
NW005	CBD Reticulation	Rustenburg	Refurbishment of CBD Reticulation system (4.5 km)	Water Reticulation	Awaiting Funding
NW006	Molote Water Supply	Rustenburg	Upgrading of water supply to Molote City & Environs by local groundwater resource development and bulk storage.	Water Reticulation	Conceptual
NW007	Mathopestad Water Supply	Rustenburg	Upgrading of water supply to Mathopestad & Environs by local grroundwater source development and bulk storage.	Water Reticulation	Conceptual
NW008	Boons Water Supply	Rustenburg	Upgrading of water supply to Boons & Environs by local grroundwater source development and bulk storage.	Water Reticulation	Conceptual
NW044	Tlhabane West Reservoir	Rustenburg	Upgrading of Tlhabane West Reservoir	Water Internal Bulk	Awaiting Funding
NW046	Tierkloof Reservoir	Rustenburg	Upgrade capacity to 5ML	Water Internal Bulk	Feasibility
NW055	Boitekong Bulk Water Supply	Rustenburg	Upgrade 18.035km pipeline ; New pipes 23.9km	Water Internal Bulk	Conceptual
NW056	Half Miljoen Pipeline	Rustenburg	Bulk pipeline to Half miljoen reservoir	Water Internal Bulk	Awaiting Funding
NW058	Booster Pipeline to Rand Water reservoir	Rustenburg	Construction of booster pipeline to Rand Water reservoir	Water Internal Bulk	Feasibility
NW059	Boschfontein Water Supply	Rustenburg	Source development and water supply to Boschfontein	Water Internal Bulk	Conceptual
NW060	Delta Area Pipelines	Rustenburg	Construction of bulk pipelines to serve the Delta Area East of Rustenburg for private development (49.915 km)	Water Internal Bulk	Conceptual
NW061	Delta Area Reservoirs	Rustenburg	Construction of 5 nos of 20 ML reservoir at Stokkiesdraai	Water Internal Bulk	Conceptual
NW062	Maanhaarrand Water Supply	Rustenburg	Upgrading of water supply to Maanhaarrand & Environs by local grroundwater source development and bulk storage.	Water Reticulation	Conceptual
NW064	Vlakdrift Water Supply	Rustenburg	Upgrading of water supply to Vlakdrift & Environs by local grroundwater source development and bulk storage.	Water Reticulation	Conceptual
NWR011	Bakwena BWS	Rustenburg	Bulk Water Supply to Bakwena Mine and Boschoek and Environs	Water Regional Bulk	Feasibility

Waste Water

Sewerage Treatment

There is an existing sewer network in RLM. It services 52.7% of the population in RLM. The other commonly used treatment methods are as follows:

- Septic tank: 3. 5%;
- Chemical toilet: 1. 2%;
- Pit toilet with ventilation: 8. 1%;
- Pit toilet without ventilation: 28. 9%;
- Bucket toilet: 0. 6%;
- None: 3. 9%;
- Other: 1. 1%

Sewage Treatment Work

There are eleven Sewage Treatment Works (STW) operating in RLM. They belong to various entity such as RLM, RBA and mines (refer to Table 2.6). RLM's STW are managed by Rustenberg Water Services Trust and operated by Magalies Water. The treated effluent is used for mining and irrigation. RBA owns and operates two STW. Several mines manage their own STW and reuse the treated effluent for mining activities.

Treated effluent from RLM's municipal STW, mainly from Rustenberg STW, has been supplied to the mines by Rustenberg Water Services Trust. A small portion of the treated effluent is reserved for the City's use.

Key Issues

- No centralised body to oversee and coordinate sewerage planning among RLM, RBA and the mines;
- Only half of the population is connected to the sewer network;
- Difficulty to provide centralised sewerage system for villages due to the sprawling development and presence of shallow rock outcrop;
- Difficulty to implement Ventilated Improved Pit Latrines (VIP) in rural areas with high clay content and
- Insufficient capacity of the existing STW.

Proposed Projects

More waste water would be generated as RLM's population and mining industry is expected to grow in the future. Some of the existing STWs, such as Boitekong STW, Monnakato STW, have been operating at full capacity and would not be able to handle the future flow. To solve this, STW upgrading projects have been proposed and approved by the municipality (refer to Table 2.7).

Fig.2.36 shows the existing STW in RLM and all the proposed and approved projects location.

Table 2.6 List of Existing STW in RLM (Source: WSDP)

STW	Owner	Current Capacity (ML/d)
Boitekong	RLM	8.7
Rustenburg	RLM	25
Lethabong	RLM	0.5
Monnakato	RLM	0.9
Waterval	Anglo Platinum	1.8
The Townlands	Anglo Platinum	N/A
Frankshaft	Anglo Platinum	N/A
Boschfontein	Anglo Platinum	N/A
Paardekraal	Anglo Platinum	N/A
Brakspruit	Anglo Platinum	0.5
Kroondal	Kroondal Platinum Mine	
Olifantsnek	Olifantsnek Water Board	0.5
Karee	Karee Mine	1
Wildebeesfontein	unknown	1
Bafokeng North	unknown	0.6
BRPM	Bafokeng Rasimone Platinum Mine	0.5
Phokeng	RBA	0.5
Thekwane	RBA	1

Table 2.7 List of Proposed and Approved Sewerage Projects in RLM (Source: WSDP)

STW	Owner	Project Description	Project Status
Boitekong	RLM	Extend the 375mm outfall sewer to 1500m; upgrade capacity to 16ML/day	Approved
Rustenburg	RLM	To be upgraded by additional 25ML/day	Approved
Lethabong	RLM	To be upgraded to 3ML/day	Approved
Monnakato	RLM	To be upgraded to 2ML/day	Approved
Townlands	Anglo Platinum Mine	To be upgraded	Proposed
Boschfontein	Anglo Platinum Mine	to be decommisioned and replaced with sewage pumps to transfer sewage to Townlands STW	Proposed
Frankshaft	Anglo Platinum Mine	to be decommisioned and replaced with sewage pumps to transfer sewage to Waterval STW	Proposed
Paardekraal	Anglo Platinum Mine	to be decommisioned and replaced with sewage pumps to transfer sewage to Waterval STW	Proposed
Brakspruit	Anglo Platinum Mine	to be pumped to the Klipfontein pump station from where it will be transferred to the Waterval STW.	Proposed
Kroondal	Kroondal Platinum Mine	New STW	Proposed
Karee	Karee Mine	New STW	Proposed
Phokeng	RBA	Upgrade to 1.5ML/day	Approved
Tanahana	N/A	New STW	Proposed
Mogajane	N/A	New STW	Proposed
Mabitse	N/A	New STW	Proposed
Go-Luka	N/A	New STW	Proposed
Kanana	N/A	New STW	Proposed
Tlpapa	N/A	New STW	Proposed

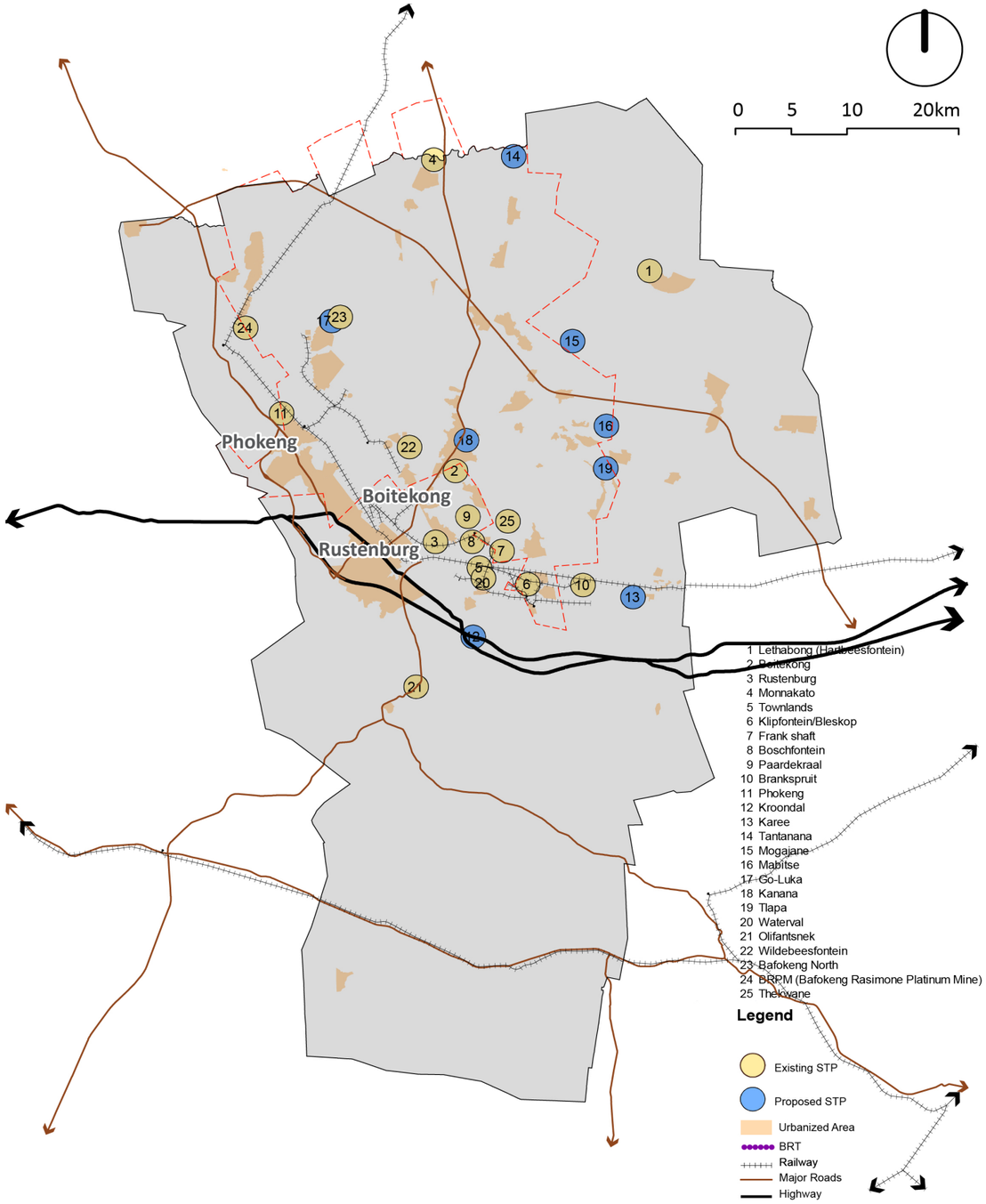


Fig.2.36 Existing STW and Proposed Projects Map (Source: WSDP)

Storm Water

Annual Rainfall

RLM's annual rainfall is highly variable. Oer the period 1993 to 2004, it varied between 230 mm and 917mm. Mean rainfall over the 12-year period was 536 mm per annum.

Catchment Area

The topography of the RLM shapes the hydrology of the areas. The largest part drains in a north-easterly direction towards Vaalkop Dam. The catchment area within RLM is part of the Crocodile River catchment area (refer to Fig.2.31). It comprises of the following 4 sub-drainage systems:

1. Elands River and Vallkop Dam;
2. Hex River, Olifantnek Dam and Bospoort Dam;
3. Leragane River; and
4. Gwalthe River, Rooikoppies Dam and Buffelspoort Dam.

Due to insufficient topographical data, the catchment area of the most southern part is not available.

Drainage Network

Most of the urban areas and the mining areas are served by piped drain laid along the main roads.

The drain collects storm water before discharging it into the low-lying open areas. Open channel drains can be found along certain stretches of the provincial roads. However, most villages are not served by any storm drain network. Only local access road are equipped with gutter for collection and discharge of stormwater.

According to the records over the years, the flooding issues occur infrequently due to the low annual rainfall. However, since no flooding control is provided, it is still a potential threat that the flash floods occur in low-lying areas with insufficient drainage, especially in the villages.

Key Issues

- No integrated storm water management and centralised coordination in the storm water drainage planning amongst RLM, RMB, and the mines;
- Lack of proper storm water pipeline network in the villages;
- No maintenance for storm water drainage is provided in the region;

Proposed Projects

There has been plans to build more drainage network in RLM, however the exact locations has not been identified.

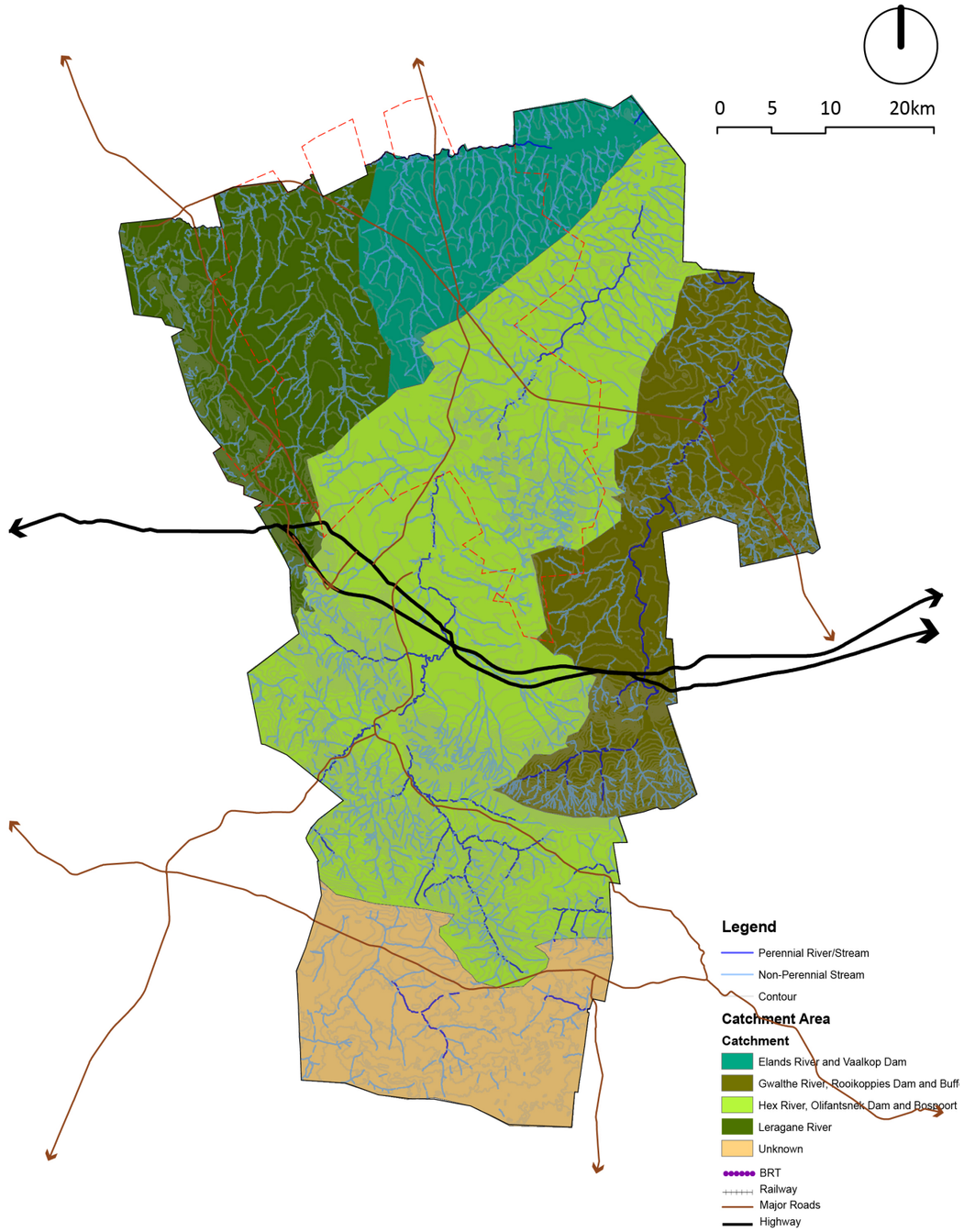


Fig.2.37 Existing Drainage Catchment in RLM (Source: WSDP)

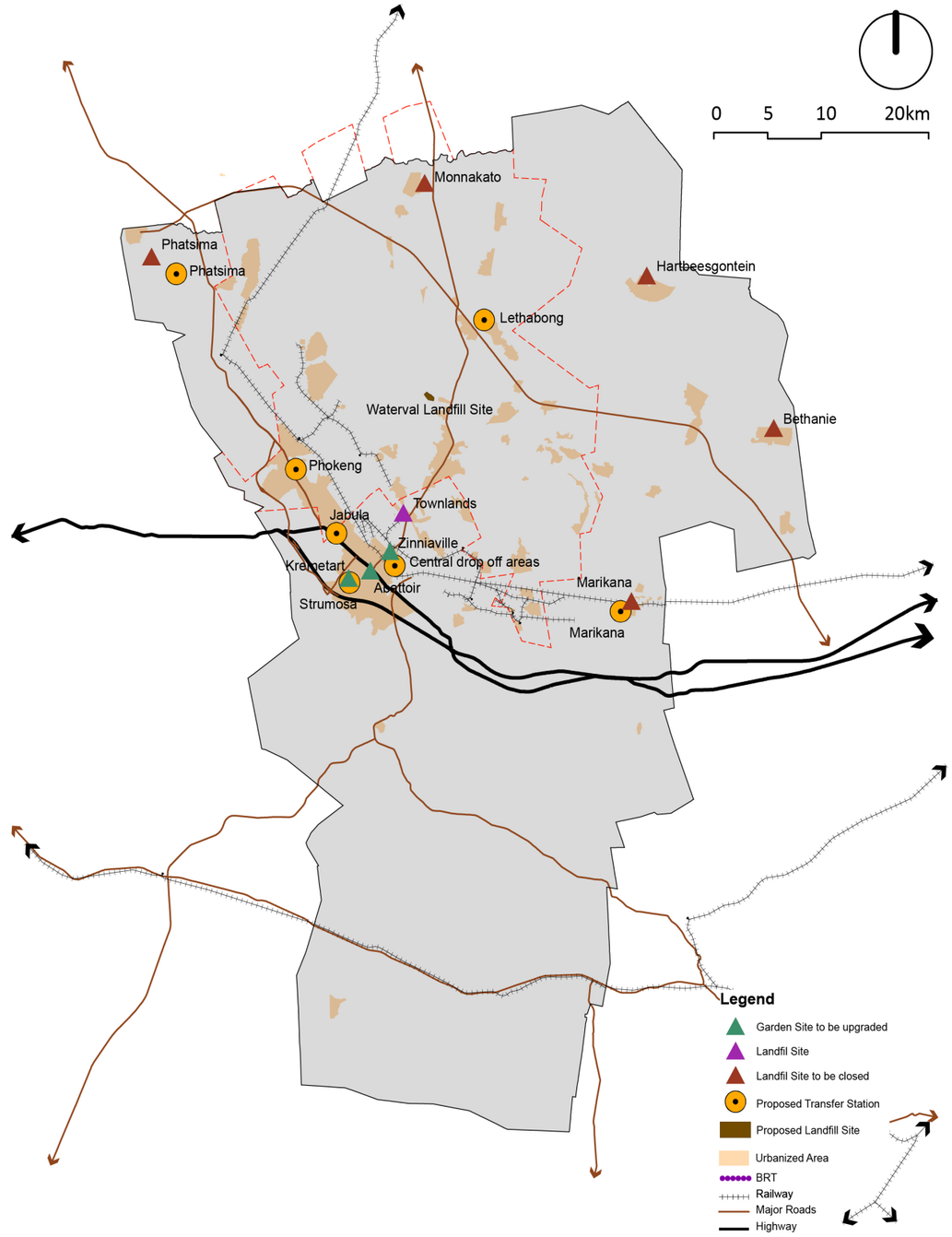


Fig.2.38 Existing Waste Disposal Facility and Proposed Projects Map (Source: WSDP)

Solid Waste

Waste Collection

Approximately 77% of waste collected in RLM is domestic and garden waste. The remaining waste is industrial waste and building rubble. Out of the 41,000 tonnes of domestic waste collected annually, the municipality only collects 28,000 tonnes through door-to–door collection. The remainder is collected by service providers (C&D Plastics and Millennium Waste), sub-contracted by the RLM. Only 2,800 tonnes of exclusive commercial waste is collected by the Municipality, particularly from Thlabane where the commercial and industrial centres are located. Industrial waste as well as the mining waste are exclusively dealt with in-house.

Waste Disposal

Six landfills are operational within the municipal area, where general waste is disposed of, namely Townlands, Monnakato, Hartbeesfontein, Bethanie , Marikana and Phatsima. Most of them do not have permits and are therefore operating illegally. Townsland landfill is the only existing legal landfill sites within RLM. It receives the majority of municipal waste from RLM, however it is reaching its full capacity.

RLM operates three garden sites, Kremetart, Abattoir and Zinniaville, which act as public drop-off areas, where the public and private sector can drop-off garden waste.

Mines such as Impala Platinum, Rustenburg Platinum, Rasimone Platinum and Karee Mine have their own private landfill sites.They do not accept waste from the RLM. However, the mines do accept domestic waste from communities which they service.

Key Issues

- Non-integrated and fragmented solid waste management planning;
- Lack of services in certain areas contributes towards pollution of the water bodies due to illegal dumping;
- Lack of industrial and mining waste generation data because these companies dispose of their own waste;
- Potential contamination of ground water from non-engineered landfills;
- Existing landfill that is reaching its design capacity; and
- Burning of domestic waste in open fire in the backyard of villages contributes to air pollution.

Proposed Project

The list of the approved and proposed projects is summarised in Table 2.8. The locations are indicated in Fig.2.38.

Table 2.8 List of Proposed and Approved Solid Waste Projects in RLM (Source: IDP)

Location	Status	Progress
Waterval Landfill	Approved	Funding has been approved. Awaiting Environmental Authorisation. The waste facility will comprise of a landfill site, recycling and composting facilities.
Phokeng Transfer Station	Proposed	Land issues have not yet been resolved with RBN
Lethabong Transfer Station	Proposed	Land issues have not yet been resolved with RBN
Marikana Transfer Station	Proposed	Environmental Authorisation received. Awaiting the approval of the rezoning of the site for construction to commence.
Phatsima Transfer Station	Proposed	Not yet commenced
Jabula Mini Transfer Station	Proposed	Licence application submitted awaiting environmental authorisation
Strumosa Transfer Station	Proposed	Environmental authorisation for the site approved.Project will commence apon availability of funds
Central drop off areas	Proposed	N/A

Power Supply

The electricity supply is shared between ESKOM and RLM. These institutions are supplying electricity in the entire Rustenburg area. The municipality is responsible for maintenance and capital projects from its own revenue sources and also makes provision of the Municipal Infrastructure Grant (MIG) and through the NER. Electricity tariffs are been determined by the National Electricity Regulator (NER) and further adjusted by the RLM based on the budget provisions.

Eskom is the energy provider for the South Africa and responsible for the power generation and transmission network for the whole country. In Rustenburg, it does not have a license to distribute electricity but worked as the agent to supply electricity to consumers under the license of the Rustenburg Local Municipality.

Existing Network

The table below indicates the capacity of the existing main substation 88/33kv and 88/11kv for Rustenburg area.

The current capacities of the existing main substations are almost fully utilized. The RLM has planned to install Waterkoof substation, a new 88/33kv sub-station on the Eastern side of Rustenburg with 2 x 40 MVA transformers in order to meet the constant growth in electricity demand. The electrification rate of the Rustenburg is about 76% which covered most except the rural area and in informal settlements. Lack of funding is the main obstacle to extend the electrical network to these areas. Affordability is the concern as the public feels the tariff is high.

In turn of renewable energy sources, Rustenburg has solar farm RustMo1 which has a 7Mw peak generation capacity currently connected to grid. In future, they are looking to build another solar farm, RustMo2 which has 17Mw peak generation. Another potential renewable energy source is the bio fuel / biomass.

Solar and wind power is intermittent where the source is not reliable. The power need to connect to grid as the backup if the source is not available. To meet the growing electricity demand of the region (Rustenburg and nearby districts), Eskom has built new Melupi power station that boost the transmission demand by 1400MW.

Table 2.9 Existing Substations Transformer Capacity (Source: RLM Master Plan)

Main substation	Transformer capacity
Voltaire 88/11kV Intake Substation	40MVA
Kroondal 88/11kV Intake Substation	20MVA
Industries 88/33kV Intake Substation	160MVA

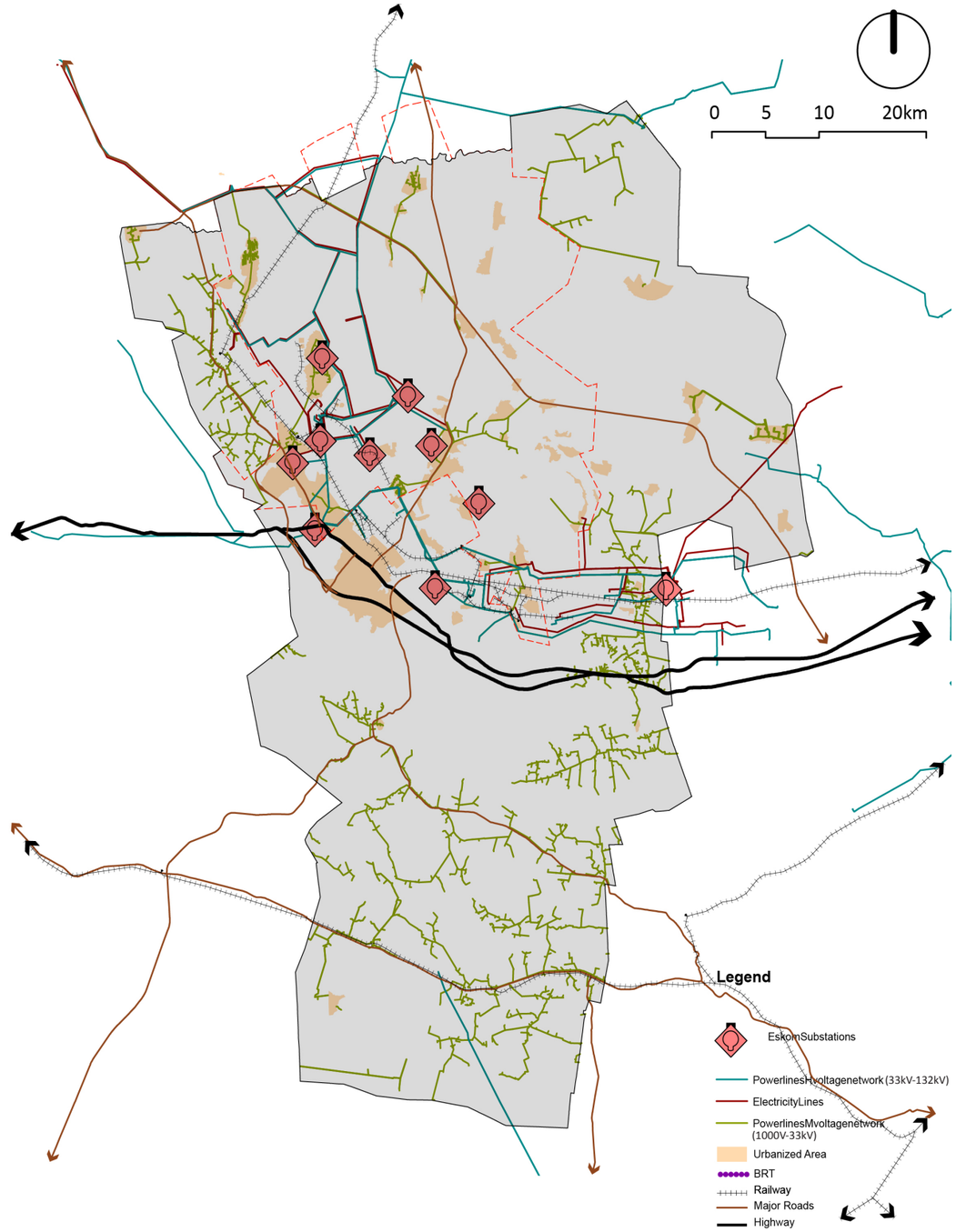


Fig.2.39 Existing Power Supply Infrastructure and Proposed Projects (Source: RLM Master Plan)

2.7 DEVELOPMENT CONSTRAINT AND OPPORTUNITIES

The purpose of this exercise is to identify suitable land for future developments based on existing context anaylysis. The analysis identifies RLM's development constraints and opportunities to understand the site constraints that are required to be respected as given site conditions, and to optimise the potentials offered by the site which shall be considered for the new city Master Plan.

2.7.1 KEY DEVELOPMENT CONSTRAINTS

ENVIRONMENTAL SENSITIVE AREAS

The SDF has identities several biodiversity areas or layers need to be conserved to ensure sustainable growth in the municipality (Refer to appendix A.5 for all the layer maps).

Critical Biodiversity Areas

346 km² of RLM is classified as Critical Biodiversity areas. Most of these areas are located north of Phokeng and south of Magaliesberg Natural Reserve.

Protected Areas

The protected areas consist of Magaliesberg Natural Reserve and Vaalkop Dam in the far north. They combine to a total area of 309 km².

Prime Agriculture Land

Over 244 km² of land is identified as prime agriculture land which is mostly situated around Magaliesberg Natural Reserve and in south of RLM.

Protected Buffer Areas

171 km² of land is identified around Magaliesberg Natural Reserve as protected buffer areas. Only low rise housing developments are permitted in this zone.

Environmental Sensitive Areas

35 km² of land is identified as environmental sensitive areas around Bospoort Dam.

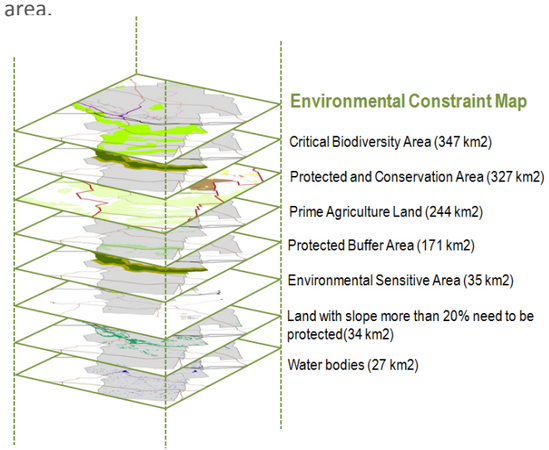
Slopes Greater than 20%

34 km² of land are slopes greater than 20%. They are mostly situated in Magaliesberg Natural Reserve, south of N4 near Marikana, and in Beestekraal.

Water Bodies

RLM only consist of 27km² of water bodies. The four large catchments are Vaalkop Dam, Bospoort Dam, Olifantsnek Dam and Buffelspoort Dam. Three of the Dams are connected by the Hex River.

Fig.2.40 shows the combined layers into a single map to illustrate all environmental sensitive areas, which occupies over 35% of RLM's total land area.



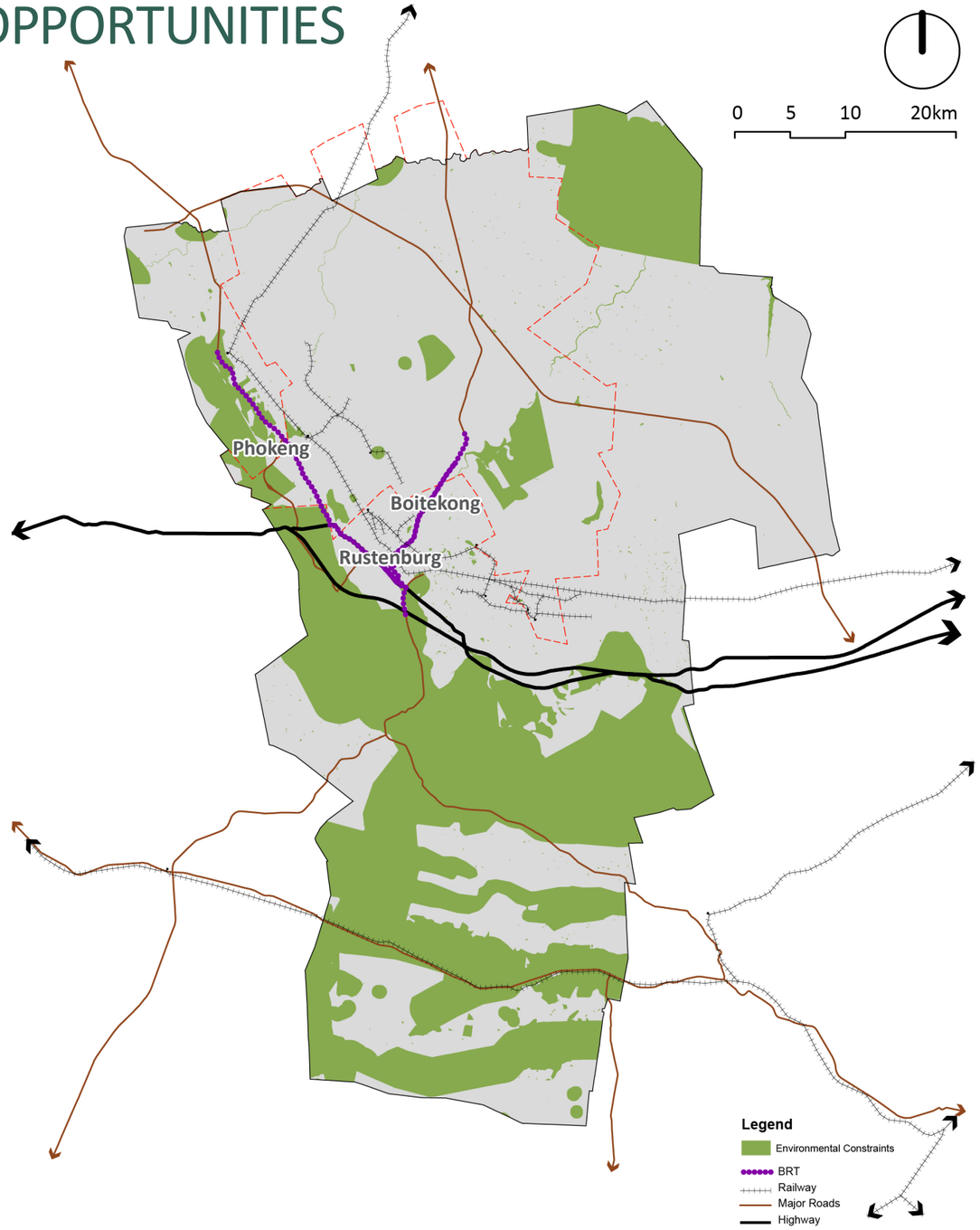


Fig.2.40 Environmental Constraint Map (Source: SDF)

Urban Settlement

From figure 2.35, approximately 178 km² or 5% of RLM's total land area is occupied by urban settlements, which is mostly concentrated in Rustenburg, Phokeng and Boitekong.

Within the 178 km² of urban settlements:

- 98km² are in RBN land; and
- 80 km² are in RLM land

The existing settlement areas are limited to urban expansion and new township developments but some areas can be densified to promote transit orientated development and reduce urban sprawl.

Mining Areas

Mining is the most important source of revenue and employment generator in RLM. From Figure 2.36, the mining belt is located north of the N4 highway and occupies 555 km² or 16% of RLM's total land area.

Within the mining belt, urban developments are permitted in areas if no mining reserves are identified from the surface to 260 metres underground.

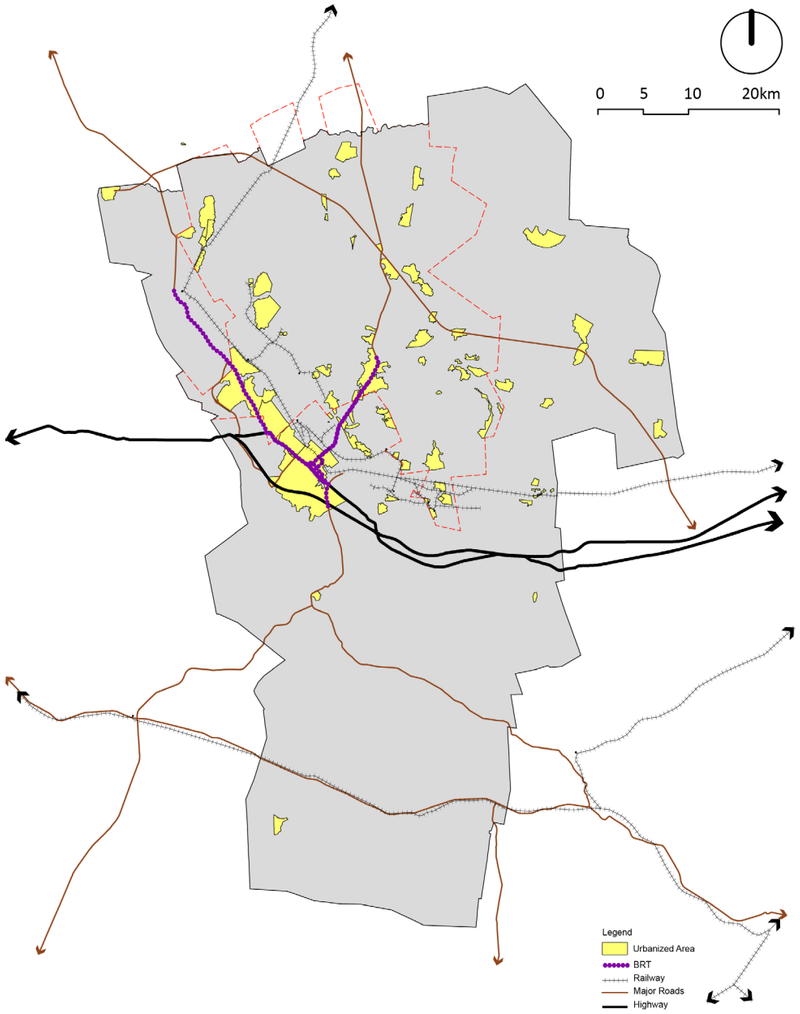


Fig.2.41 Urban Settlement Map

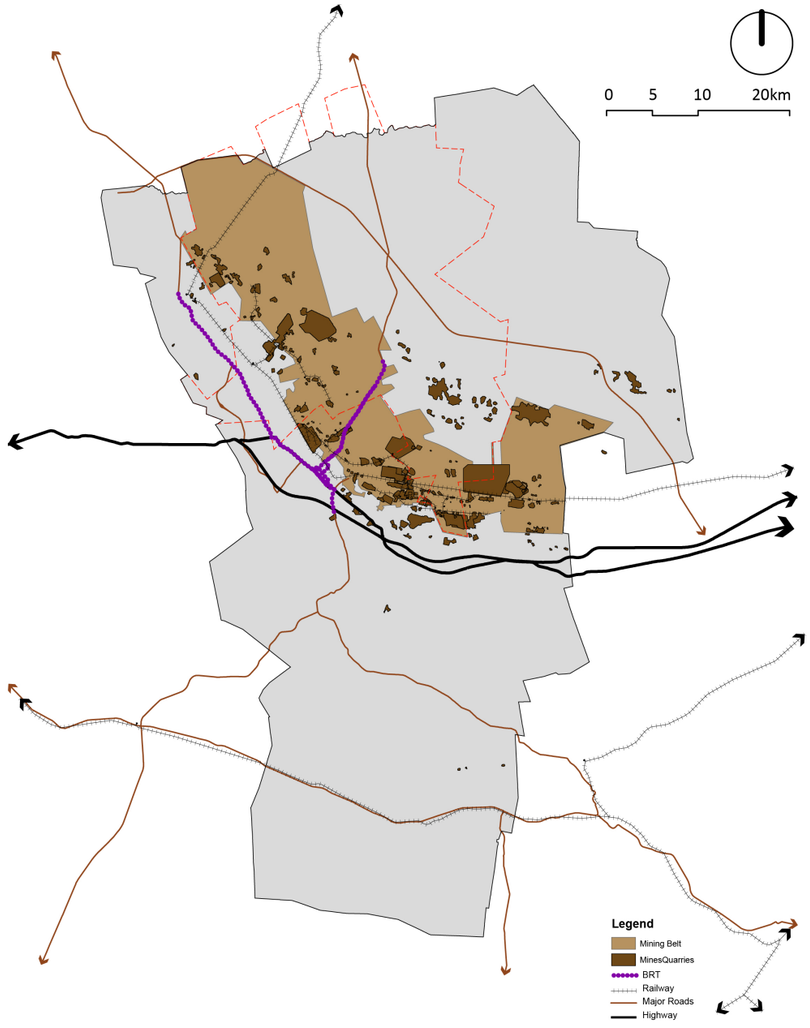


Fig.2.42 Mining Areas Map

2.7.2 Key Development Opportunities

The municipality is blessed with the scenic nature landscape of Magaliesburg and a pleasant salubrious climate. There are sizeable areas of land available for urban expansion which does not have any development constraints, noticeably located in the north of Magaliesburg Natural Reserve.

Green Field Areas for New Township Developments

- Over 1500 km², or 40% of the municipality's total land area is green field available for urban expansion.
- Available green fields in immediate areas of Rustenburg, which includes the area identified as Rapid Growing Area along the N4 highway connecting to Marikana.
- Large areas of sizeable green field available north of the platinum belt along R556.

Redevelopment of Existing Urban Settlements

- Unplanned settlements and low density urban areas have the potential to be redeveloped as the comprehensive and self-sustaining township with integrated public facilities and infrastructure services.
- Opportunity for social projects in established mining towns to serve surrounding rural communities.
- Opportunity for redevelopment projects of medium density along the proposed RRT corridor.

Revitalization of Central Business District

- The existing Rustenburg CBD is mostly low density with many locations feasible for high density developments, which could rebrand the heart of Rustenburg as a vibrant place for live, work and play.
- There is a possibility of upgrading the existing Rustenburg Rail Station to better cater for passengers.
- Opportunity for sub-regional centres to facilitate the business and service sector.

Immense Potential for Recreation and Tourism

- Hilly areas in Magaliesberg Natural Reserve have potential for recreation & tourism developments. The steep slope areas also offer potential opportunities for upper class resorts and villas.
- Open green fields available around Boshoek for big tourism projects, which can complement the adjacent Sun City to create a major tourist destination in South Africa.
- Opportunity for green corridor development linking the Kgaswane Nature Reserve to Bospoorts Dam, which can be further extended to Vaalkop Dam Nature Reserve. This provides a rare opportunity to introduce the eco-system into the city of Rustenburg and Boitekong, which are two of the most populous areas in the municipality.

Despite vast opportunities for urban expansion, developments must be strategically planned at the spatial level to reduce sprawl and promote sustainable growth. Many challenges must be considered during the planning process including population growth, land ownership, infrastructure provision such as water and power grid, transportation corridors and the area's potential to attract investments.

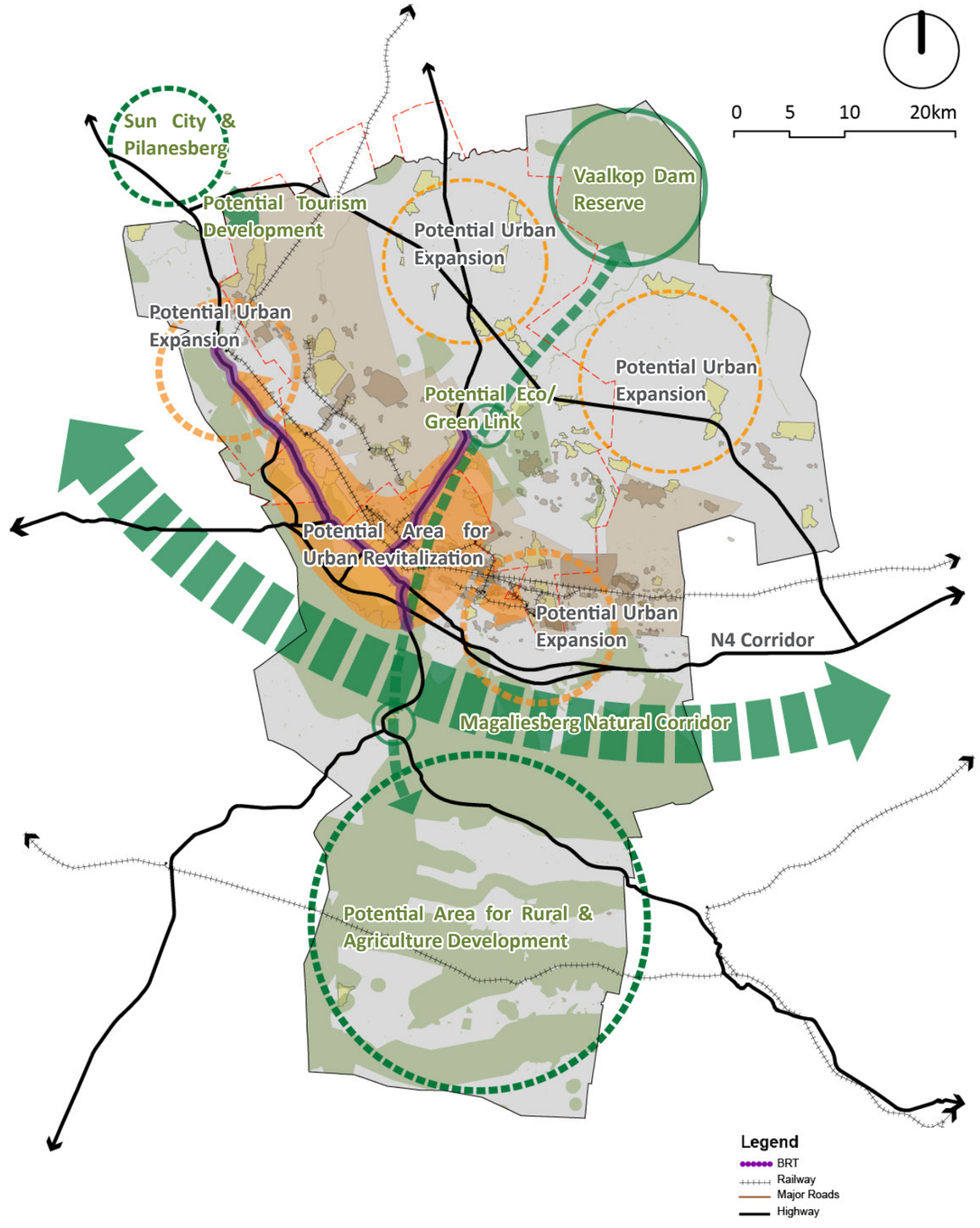


Fig.2.43 Development Opportunities Map

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3

DIMENSIONS OF GROWTH

3.1 SOCIO-ECONOMIC & DEMOGRAPHIC STUDY

Rustenburg Local Municipality has approximately 500,000 population and is one of the fastest growing city with the highest GDP per capita than any other cities in south Africa. This is created by the mining sector, which dominates the economy with more than 70% contribution to its total GVA .

However, the mining sector is projected to last only for another 30 – 40 years. As such economic diversification is critical for Rustenburg to sustain past the mining era. (Refer to Fig.3.1 and Fig.3.2)

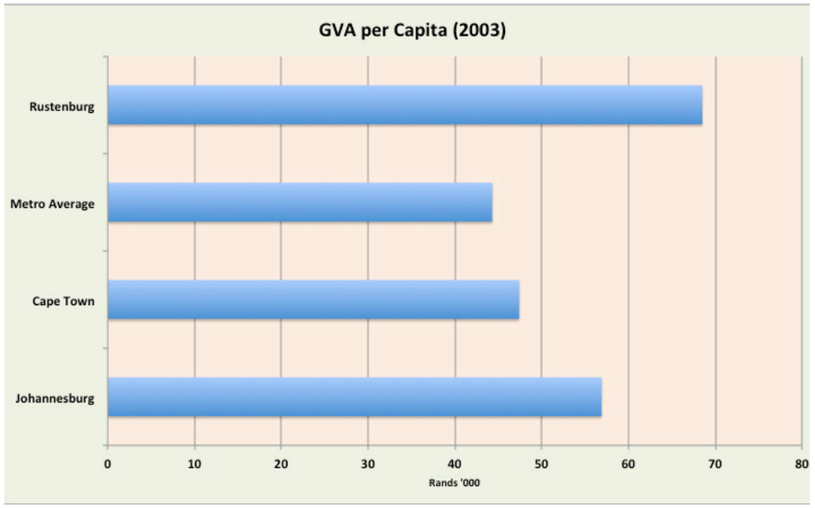

Fig.3.1 GVA Comparision of South African Cities (Source: LED 2011)

3.1.1 Projected Population Growth

The population in the Rustenburg Local Municipality is projected to grow to more than 1 million population by 2040, based on an annual growth rate of 2.1%. This population growth is driven by both the natural growth as well as the in-migration considering that Rustenburg is the economic hub of the North-West province.

Considering the different needs of residential land, we have split the population projection for the Bafokeng and for the rest of the Rustenburg Local Municipality population. The population distribution will depend on the locations of the new employment generating activities, such as the new industrial park and commercial centres etc. The population growth projection are as shown in the figure 3.3.

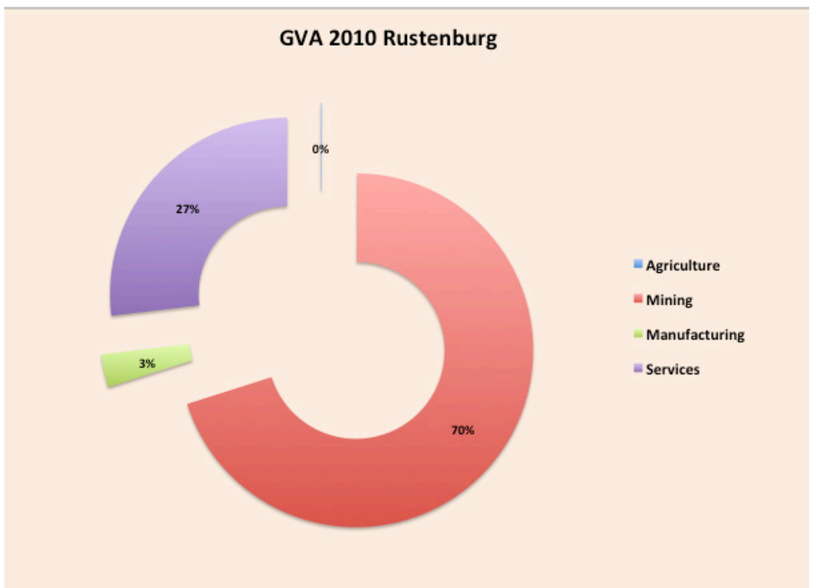

Fig.3.2 Rustenburg GVA 2010 (Source: IDP Review 2014-2015)

3.1.2 Local Economic Development Plan

Considering the long term economic sustainability of Rustenburg, the government has initiated economic diversification and has elaborated it in its Local Economic Development Plan. In the LED report, new economic drivers have been identified to anticipate the weakening of mining sector in 30 years time. Tourism and manufacturing has been singled out to take a lead in the economic transformation in Rustenburg Local Municipality (RLM).

Manufacturing was identified considering that this sector will create sufficient employment to offset the slow down in mining sector in the future. In addition, there are also a number of manufacturing processes required to support the mining industry. Hence the Rustenburg Local Municipality has decided on creating a 100 ha "Mining Supply Industrial Park" , which is expected to attract industrialist supporting existing mining activities in RLM. The Mining Supply Industrial Park is expected to spearhead industrial development in RLM in the future. The overall strategies for economic diversification is as shown in the following 4 boxes in Fig.3.4.

Referring to Fig.3.5, tourism and mining related industries are the "low hanging fruits", which Rustenburg Local Municipality (RLM) could straight away develop, while the development of Green technology cluster and the Mining Forward Link cluster will need clearer strategies to bring it "on board" as there is no clear benefit or business environment for those 2 industrial sectors to take root in RLM.

Due to higher GDP per capita, RLM is not the most ideal place to develop industries as land and labour cost may not be cheaper as compared to Johannesburg or Pretoria. However, proximity to Johannesburg, the existing mining activities in Rustenburg and the government support to ensure economic sustainability of Rustenburg past the mining era will position Rustenburg to be one of the future industrial hub in South Africa. Favorable economic policies, such as granting "Special Economic Zone" status for Rustenburg with tax incentives etc., will attract industrialists to set-up their manufacturing facilities in Rustenburg.

Local Economic Development report projected around 4.2 % annual economic growth. With such an economic growth, the total GVA in 2040 is expected to grow to exceed 100 billion ZAR from the current GVA of around 40 billion ZAR. This is assuming that the mining will continue to grow slightly up to the year 2040. This growth projection is however still below the growth projection from the North-West province Development Plan, which project the economy in the North-West Province to grow at an average of 5.2% annually.

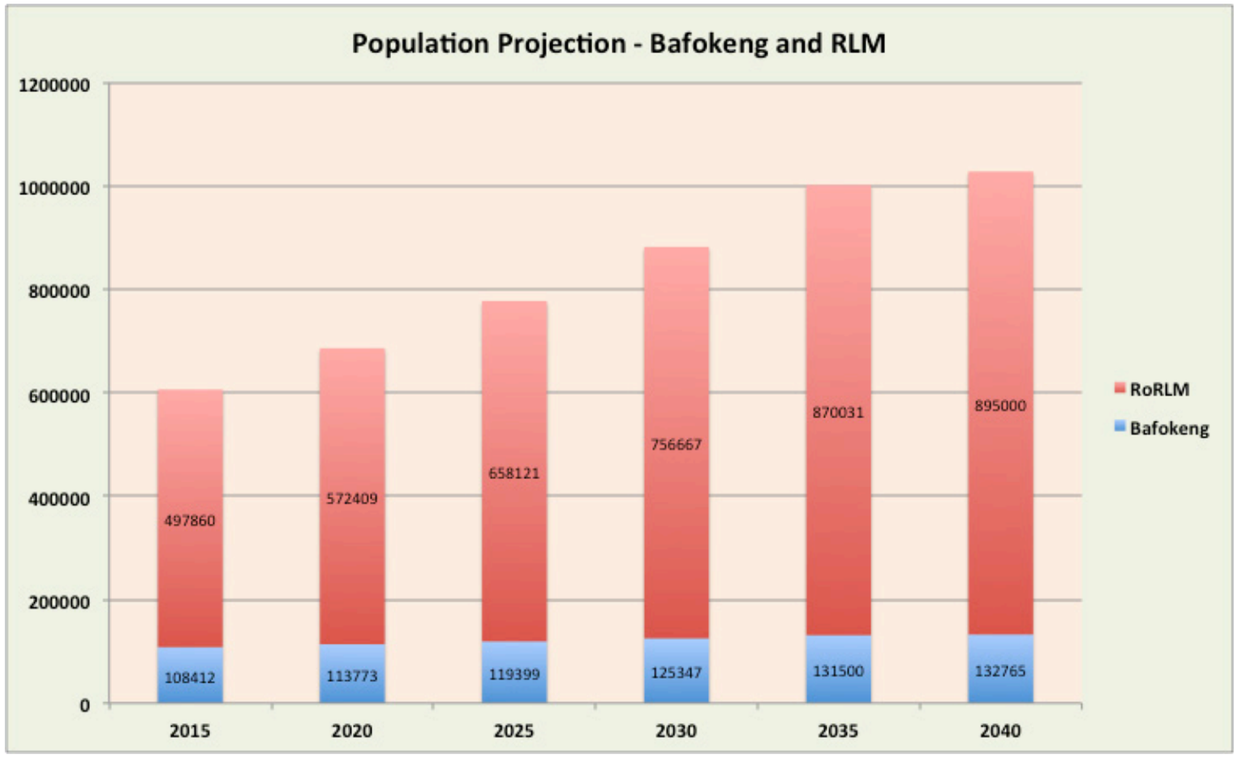

Fig.3.3 Population Projection for Bafokeng and RLM (Source: Sreekumar Siddique Analysis)

MINING RELATED	MINING FORWARD LINKED
Grinding Balls Protective clothing, equipment Spares Office Supplies Reagents…	Auto catalysts Fuel cells Granite/marble Jewellery Stainless Steel…
GREEN TECHNOLOGY	**TOURISM**
Recycling Solar cells/heaters Clean water…	Eco-adventures Mining tours Cultural tourism Museums Rustenburg Show

Fig.3.4 Pillars of Economic Diversification (Source: LED 2011)

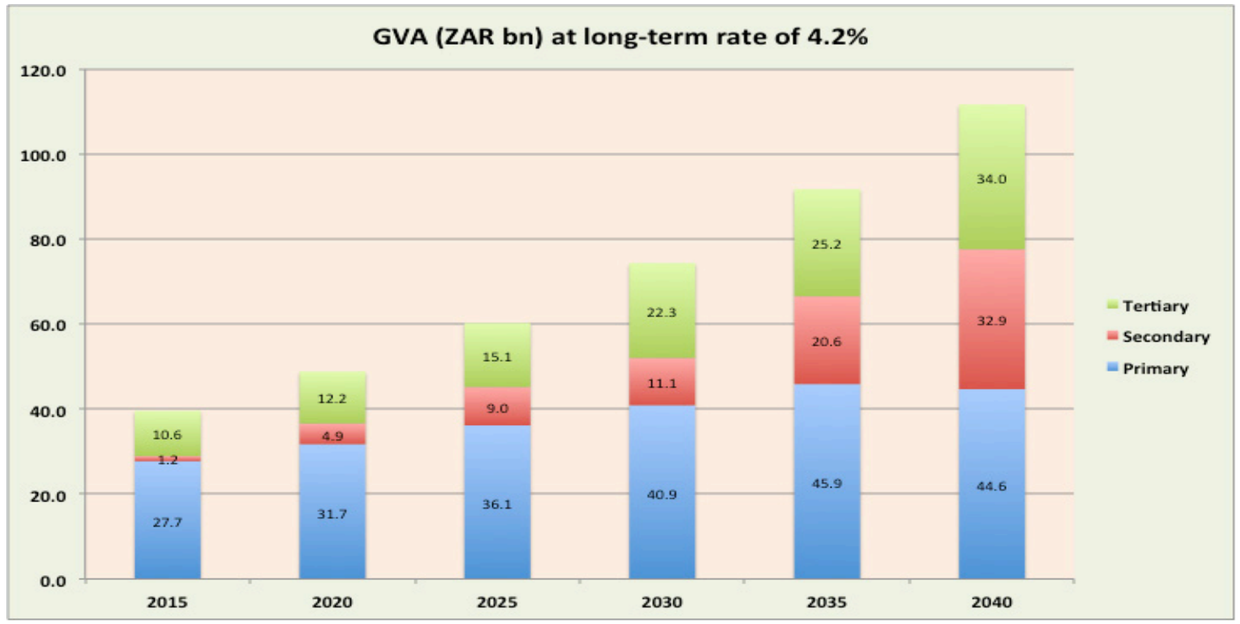

Fig.3.5 Projected GVA Growth as per Sector (Source: Sreekumar Siddique Analysis)

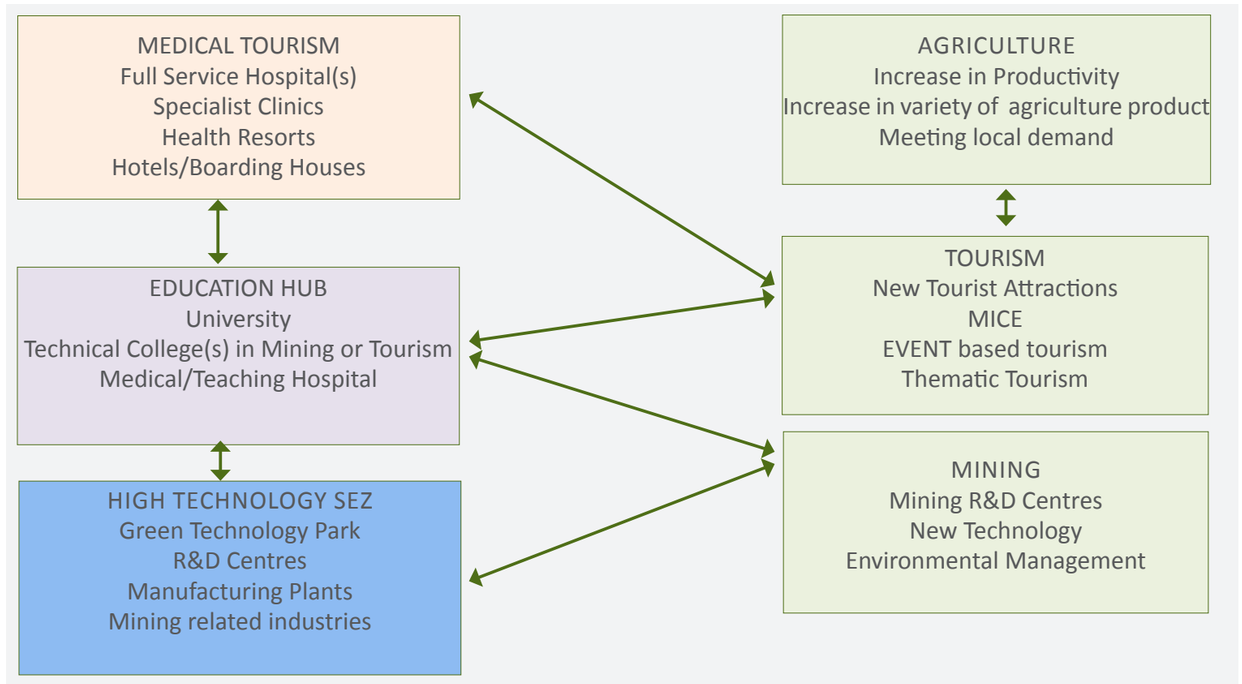

Fig.3.6 Key Economic Game Changes

3.1.3 Finding New Game Changers

As per the planning approach for the economic diversification, finding new "game changers" in addition to the tourism and manufacturing industries is critical to help RLM to further diversify and strengthen its economy. In this regards, 2 other sectors are proposed to be the new game changers, based on the following considerations:

Medical Tourism

This game changer is proposed considering:

- South Africa is already one of the six global hubs or destinations for medical tourism.
- Rustenburg is also considered an international tourism destination in South Africa with Sun City and Pilanesberg National park in its vicinity.
- RLM still does not have a tertiary hospital and all special medical case are currently sent to Pretoria. With the increasing population to 1 million in 2040 and strong economic growth, it is only right to develop tertiary hospital to serve not just Rustenburg and North-West province but also the neighbouring countries in Southern Africa.
- Due to mining operation, most RLM hospitals must have already acquired specialty in mining related injuries. This specialty will support the establishment of tertiary hospital to serve many mining operations in Southern Africa.

Education

This game changer is proposed considering:

- Rustenburg/RBN has established new benchmark in education by setting up the school of excellence in Phokeng.
- Currently the main universities are in Pretoria, Potchefstrom and Mafikeng, and none in Rustenburg where the real and vibrant economic activities are happening. It is good to also establish tertiary education taking advantage from the mining sectors as well as the tourism sector.
- There are still no foreign university operating in South Africa. A new breed of Joint venture between local and new university providing niche subject of studies will complement the existing set-up and enrich the tertiary education in South Africa.
- Apart from tertiary education, polytechnic and skilled training should also be established to take advantage of the strong mining and tourism operations in RLM.

With the addition of the two new game changers, the future key economic drivers for RLM is as shown in the following chart Fig.3.6. In the chart, we also added the agricultural sectors, which may not generate high GDP for the municipality but important as Rustenburg is traditionally an agricultural area, and that there are still rooms to improve the agricultural sector to meet future demand and to ensure food security in this region.

The game changers will create multiplication effect on the overall economy, especially in the business and services sectors and are expected to boost the economic growth and improve the growth projection to hit 5.4 %, which is in-line with the economic growth projection of the North-West province. In the best case scenario, the

economy may also grow to an annual growth rate of 6.9%.

With these higher annual growth rate the economy and the number of employment are expected to growth in a very healthy ranges as shown in the following chart. Such growth is in line with the objectives of the long term national and regional level plan to reduce the unemployment. In the most likely scenario of moderate growth, the economy will grow to around 150 billion ZAR and the employment will grow to reach around 500,000 employment, which is about 50% of the total projected population indicating smaller number of unemployment in RLM.

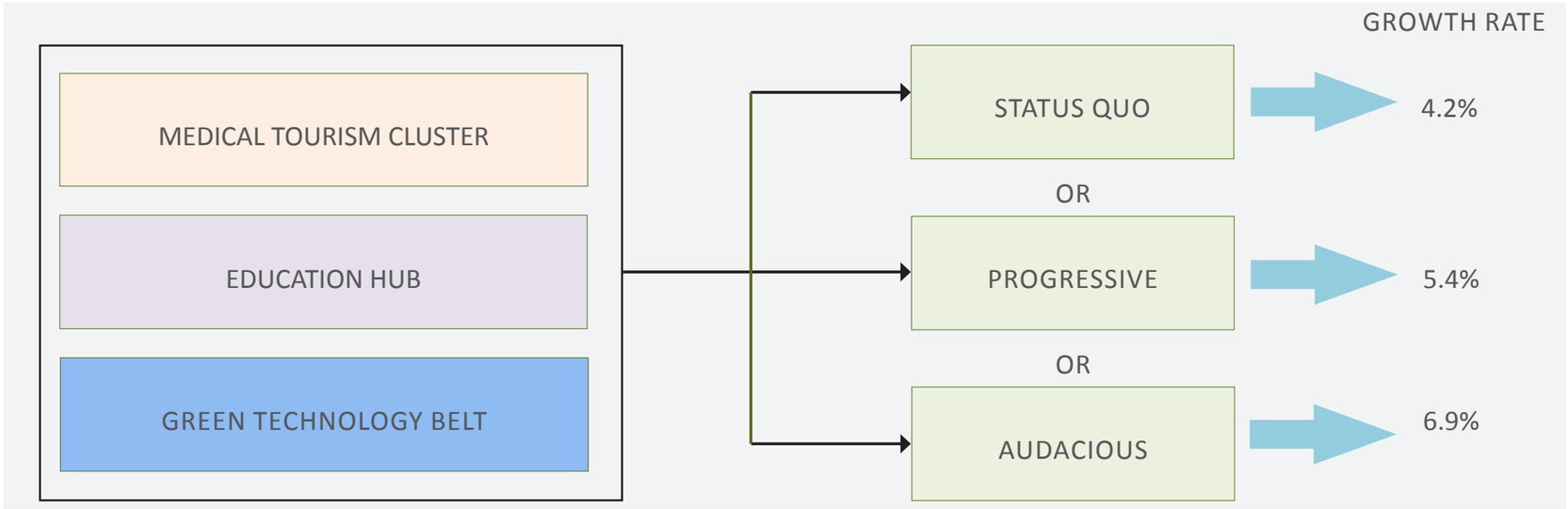

Fig.3.7 Scenarios for Economic Growth Rate with Game Changers (Source: Sreekumar Siddique Analysis)

Most important of these economic and employment growth is the composition of employment, which is shifting from the mining sector dependent economy to a new composition where the combined secondary and tertiary sector employment will take at least 60 % of the total employment by 2040.

This is the expected composition at the time when the mining sector will start to decline in 2040. In the process of economic adjustment past the mining era, the number of employment in mining sector is expected to drop gradually. The total population of the mining community will also drop gradually but the majority of employment created by the game changer projects will be able to cushion the impact of slowing economy.

As shown in the figure 3.9, based on the most likely scenario, mining and agricultural sector employment will grow marginally, while the employment

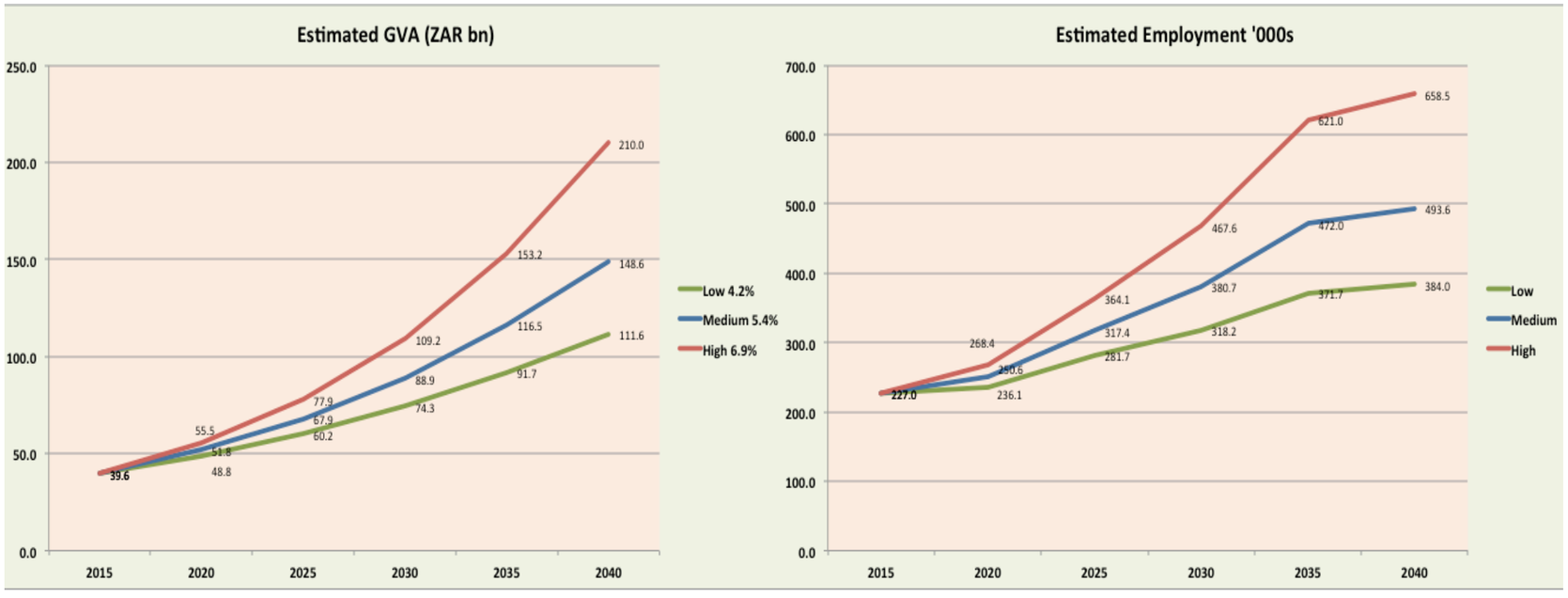

Fig.3.8 Projected Economic Growth (left); Estimated Employment Growth (right)
Source: Sreekumar Siddique Analysis

in manufacturing (secondary sector) will jump from 16,000 currently to 130,000 and the services sector will grow from 75,500 to 172,200 in 2040.

3.1.4 Making Sure of the Economic and Employment Growth in RLM

Steep Growth in services sector will be driven by tourism, medical tourism, education and financial services, while the growth in secondary sector will be driven by the different industrial clusters proposed for Rustenburg, including the mining support industry cluster, green industry cluster, agricultural processing industry and other new industrial clusters.

While the growth in tourism, medical tourism, education and mining related industries are low hanging fruits, the industrialization of the RLM plays a key role in the economic transformation of the RLM.

Without strong industrial development, the economy in RLM will still be dominated by mining sector and will not be able to sustain when the mining sector leave the Municipality. As such, it is a priority to seek the support from the central and provincial government to grant the Special Zone status for some industries in RLM to allow industrial economy to flourish in RLM in the next 10 – 15 years. Once it is successful, the industrialization will continue its development in RLM.

The growth on secondary and tertiary sectors will also need the strong support from the educational sector in preparing the younger generation with the appropriate skills to take on the jobs opportunities in the manufacturing, tourism and medical tourism and other supporting services.

The master plan will identify projects necessary to create the number of employment and capture the land requirements needed for such development and project to take place in RLM.

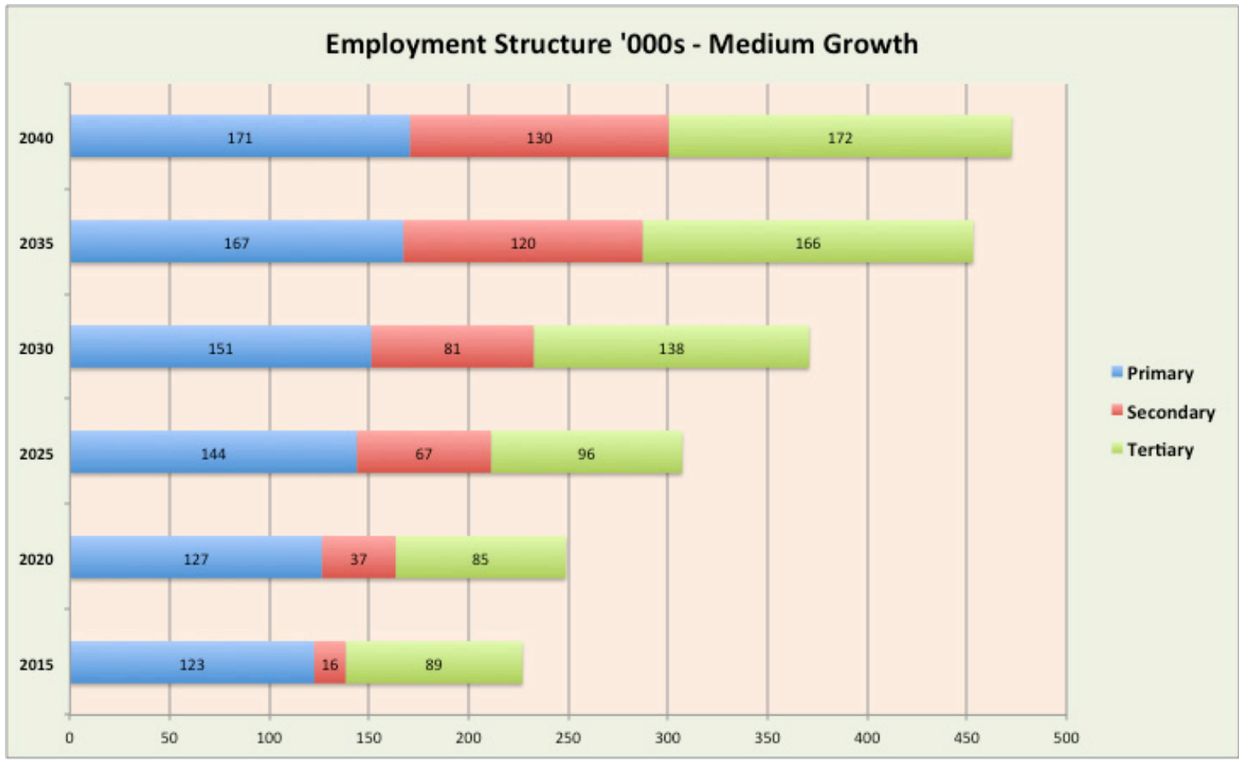

Fig.3.9 Estimates based on Moderate (5.4%) GVA Growth
(Source: Sreekumar Siddique Analysis)

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4

VISION, GOALS AND OBJECTIVES

4.1 NEED FOR A CLEAR VISION:

Building on the intentions of the Spatial Development Plan (SDF) and Integrated Development Plan (IDF) the Integrated Masterplan for RLM provides the opportunity to develop an integrated vision for the municipality. The visioning and the master planning process is intended to be inclusive in its development and ensures both horizontal and vertical integration of all related authorities, development programmes, activities, and other master plans, both internally and externally. The Integrated Master Plan is an ideal platform for a diverse group of stakeholders with local expertise and global outlook to have a dialogue in developing a visionary blue print for the future of RLM.

The vision of the Rustenburg Local Municipality as described in the 2009/10 IDP is defined as “A successful Rustenburg for the benefit of all”. Similarly, as per the 2013/2014 IDP, the vision of the Rustenburg Local Municipality reads: “A world class city where communities enjoy a high quality of life”.

If Rustenburg is to transform itself to emerge as a truly sustainable, economically vibrant, thriving and future ready city of South Africa when its natural resources have reduced, then we need to collectively think beyond business as usual. There is a need to have key economic as well as social game changers that will drive this transformation. A sustainability framework supported by a bold vision with clear goals, objectives and strategies will drive the masterplan to achieve this transformation.

4.2 WHAT WE WANT TO ACHIEVE

NEXT 5 YRS → **UP TO YR 2030** → **UP TO 2040**

IMPROVE

Over the next 5 years, RLM will have:

- Upgraded the level of public services
- Efficient operational & policy reforms
- Strategic investments in tourism, tertiary education, infrastructure and value added mining related and supportive industries
- Focus on developing quality and affordable new housing and facilities
- Develop city branding

TRANSFORM

In mid-term horizon, RLM will have:

- Start rolling out game changers such as new industrial developments, green industries & city centre redevelopment to create more jobs
- Reduced unemployment and new educated youth will come into the workforce
- Completed transportation & infrastructure upgradings
- Established identity and brand

SUSTAIN GROWTH

In long-term horizon, RLM will have:

- Achieved the industrial transformation for a sustainable and vibrant economy with robust and innovative secondary and tertiary sectors.
- High quality of life that is well connected and safe, with vibrant communities and ample open spaces and nature..

4.3 ENSURING SUSTAINABLE FUTURE

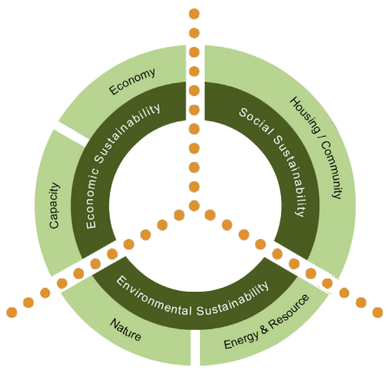


Fig.4.1 Addressing the triple bottom line

Based on the specific and pressing issues in RLM such as the quality of life in for the mining workers within the settlements as well as other communities; a need for diversification of economy; and conservation of its environment and nature for future generations, an Urban Sustainability Framework (USF) is established. The USF will help to address these issues by providing the guiding principles for the subsequent planning processes that will ensure the long term sustainability of Rustenburg.

This framework acts as the main guiding tool that governs the planning and implementation strategies for the municipality. These recommendation will be translated into the RLM's Master plan for the time horizon of twenty five years and beyond to provide appropriate planning solutions for shaping a healthy and progressive future for Rustenburg. In the context of RLM, specific issues are identified that will form the basis for Urban Sustainability Framework.

Environmental Issues

- Need for better and more sustainable water and waste management
- Increasing pressure on resources and Carbon footprint

Social Issues

- Need to increase quality of settlements & ensuring adequate provision of social amenities
- Need to increase safety and security within the communities

Economic Issues

- Pressing need for expanding the skilled workforce
- Need for diversify the economy from mining oriented economy
- Need for attracting and directing investments.

The key strategies and recommendations to tackle the above mentioned issues as well as the challenges are highlighted in Table 4.1

Table 4.1 Urban Sustainability Framework for RLM

Components	Key Issues	Direction	Challenges	Recommendation
ENVIRONMENT Nature, Resources and Carbon Footprint	NATURE AREA • Fragmentation of ecological systems and loss of biodiversity • Decline in water quality of rivers due to upstream encroachments • Wetlands in the area are impacted on by informal settlements, mining and agricultural activities	• Conserve and maintain natural resources	• Relocation of encroachment and introduction of infrastructure would have cost implications	• Conserve all wetlands and nature areas • Introduce relocation schemes for settlements in sensitive areas • Strategies to integrate ecological and biodiverse systems
	RESOURCES & CARBON FOOTPRINT • Sprawling low rise development • Expanding urban areas • Need for better and efficient infrastructure • Increasing carbon footprint • Poor air quality	• Compact city development	• Cost of densification in existing areas could be an issue	• Reduce urban sprawl and promote higher density mixed use and zones • Compact city to optimise infrastructure and transportation usage and reduce investment and maintenance cost • City greening to reduce carbon footprint, urban heat island effect and air pollution • Limit urbanization areas and reduce unplanned settlements
SOCIAL Living Conditions	• Large disparity in quality of living environment • Lack of housing choices • Poor quality of housing in the informal settlements and backyard dwellings • High crime rate	• Provide good quality affordable housing for all	• Preference for more spread out developments	• Introduce rental housing as well as and other public housing schemes • Ensure quality facilities at walking distance and increase quality of life for all
ECONOMY Employment	• Lack of well-serviced attractive areas for investment • Need for more employment opportunities for the increased natural and migrant population. • High dependence on mining economy, lack of other secondary and tertiary economy	• Develop more economic generators in the secondary and tertiary economic sectors that will create more opportunities and diversify the economy	• Could require to make strategic land acquisitions or amalgamations which could have issues	• Initiate economic catalyst projects to help diversify the economy new create new job opportunities • Safeguard land for economic expansion and for new economic drivers • Distribute economic drivers and integrate them with the communities so that jobs are closer to homes

4.4 A VISION FOR RUSTENBURG

4.4.1 Development Vision for Rustenburg

The recent 2013/2014 IDP, envisions Rustenburg Local Municipality to be: "A world class city where communities enjoy a high quality of life". Building on this vision, several vision workshops were conducted with key stakeholders to review the options to create a bolder and clearer vision that would guide the transformation of RLM.

Three options for the vision were developed for the stakeholders to decide on the final vision. As RLM is currently conducting a city branding exercise, its inputs would feed into developing the final vision for the city which will ensure a strong city brand. To achieve a Vision that focuses on economic transformation and sustainable growth, five key goals are identified. RLM needs to focus on achieving the global standards in the following five key sectors.

City of Vibrant & Diversified Economy &

Rustenburg aspires to be a mining hub of excellence, while exploring new game changer economic drivers. New economic opportunities such as high tech industrial, green technology and smart city are being seen as potential sectors for growth. RLM's scenic and productive agricultural communities are assets with potential to be further strengthened though value added agriculture and agro-processing technologies. New sectors such as medical tourism hub is also conceptualised to create new growth sectors.

City of Identity

The interaction of landscape, built form, history, people and their local culture gives Rustenburg a distinct identity. This continuance of the local character gives the people a sense of belonging while enhancing community life. This distinctness is attractive to tourists as well as investors, providing the city a competitive edge by virtue of its unique identity. RLM's strong identity has immense potential for the tourism sector, which is already a key economic contributor in Rustenburg.

City of Excellence in Sport & Education

For a large scale economic transformation there will be a need to produce a new workforce to drive the change. With RLM as a centre of education excellence there is immense opportunities to develop variety of tertiary and vocational education institutes to address all populations. Similarly, with Rustenburg hosting the FIFA World Cup, the city already has a good track record of being a sports destination and has the opportunity to be a Centre of Excellence in Sports.

City of Smart Homes

Besides the natural population of the municipality, the large mining population has created a demand for affordable housing for the migrant population. In the future with more economic generators such as manufacturing sectors and service sector jobs, more migrant and talents will be attracted to RLM seeking jobs and life. Improving the quality of life in RLM to make it an attractive place to live work and play is a key objective of the vision. There is immense opportunity for RLM to be a leader in quality affordable housing and smart homes provision. The strategies for provision of homes in RLM is explained in detail in page 56. Promoting Green Transport is also key objective of ensuring a livable RLM. It focuses on:

- Private Transport
- Public Transport
- Non- Motorised Transport

City of Sustainable Resource Management

There is also opportunity for RLM to position itself as a leader in sustainable resource management by adopting the best practices in sustainable development. It should focus on developing its water resources and management, waster management and energy management.

The options presented were:

Rustenburg 2040: World Class City
Where Community Enjoys High Quality of Life

Sustainable Rustenburg 2040
Platinum City of Excellence

Rustenburg 2040
Vibrant, Smart, Livable

4.5 BENCHMARKING SUCCESSFUL URBAN TRANSFORMATIONS

Benchmarking Criteria

The criteria for selection of the benchmarked cities was that these cities are formerly resource-based cities that have undergone successful economic transformation. A comparative analysis of these cities will help to better understand the strategies adopted for their economic transformation.

Benchmarked Cities

Based on the above mentioned criteria, the following four cities have been studied;

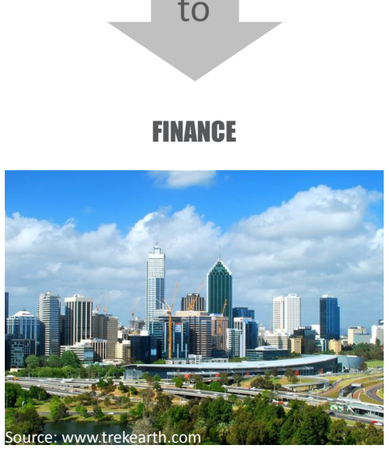
- Perth, Australia
- Essen, Ruhr, Germany
- Pittsburgh, USA
- Birmingham, UK

Source: ancestrysearch.wordpress.com

MINING

to

FINANCE



Source: www.trekearth.com

PERTH, AUSTRALIA

City Area: 6,418 km^2

Population: 1.7 million

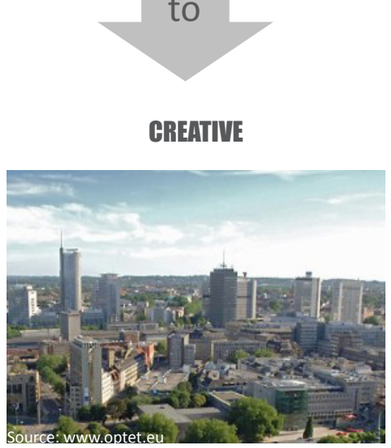
GDP per capita
US$ 38,800

Source: en.wikipedia.org

COAL

to

CREATIVE



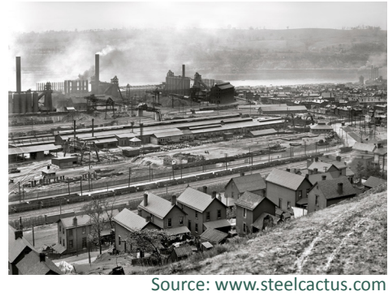
Source: www.optet.eu

ESSEN, RUHR, GERMANY

City Area: 210 km^2

Population: 0.57 million

GDP per capita
US$ 27,400



Source: www.steelcactus.com

STEEL

to

TECHNOLOGY

Source: buyapittsburghhome.com

PITTSBURGH, USA

City Area: 151 km^2

Population: 0.31 million

GDP per capita
US$ 38,600

Source: en.wikipedia.org

COAL

to

INDUSTRY

Source: en.wikipedia.org

BIRMINGHAM, UK

City Area: 268 km^2

Population: 1.07 million

GDP per capita
US$ 27,800

Perth, Australia

Perth has historically transformed itself from a mining community to one of the fastest growing cities in Australia. Perth's residents have traditionally enjoyed the highest standard of living amongst Australia's main cities.

All of the usual knowledge based high skilled jobs associated with a big city are available in Perth.

Many large mining and mineral companies have their headquarters in Perth. Mining itself is carried on outside Perth but the city is home to many support industries employing engineers and scientists. Agriculture and tourism are also large players in the Perth region's economy.

Source: www.telegraph.co.uk

Source: upload.wikimedia.org

Pittsburgh, USA

Pittsburgh was historically known as the Steel City. But with an unemployment rate nearly 2 percentage points lower than the national average, 1,600 technology companies and a growing population — the city has largely moved on from its industrial roots.

By the early 1980s, the steel era came to an end due to policy and regulatory changes. Then, Carnegie Mellon and the University of Pittsburgh became powerhouses in computing, robotics and biotechnology. Companies were spun off, and these sectors started replacing steel. This is an example of how premier education institutions can lead the transformation.

Source: www.visitpittsburgh.com

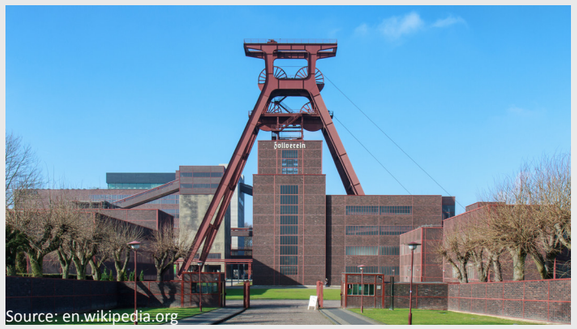
Source: www.visitpittsburgh.com

Essen, Ruhr, Germany

For over two hundred years the Ruhr Area was the heart of German coal and steel manufacturing. In the mid-1900s the coal and steel industry began to decline. Instead of tearing the structures down people decided to do something different, they gave them a new purpose. Now, you can go rock climbing on the side of an old factory, watch a concert in an old board room, listen to a symphony or go to an art exhibition in a coal mine. In fact, the region boasts cultural activities unmatched in any other area of Europe.

The Ruhr has evolved into a cultural magnet with a multifaceted urban landscape. It was named the "European Capital of Culture 2010".

Source: de.wikipedia.org



Source: en.wikipedia.org

Birmingham, UK

In the 19th century, Birmingham's growth and prosperity was based upon metalworking industries, of which many different kinds existed.

Birmingham became known as the "City of a thousand trades" because of the wide variety of goods manufactured there — buttons, cutlery, nails and screws, guns, tools, jewellery, toys, locks, and ornaments were amongst the many products manufactured.

Due to over-dependence on manufacturing, the economy collapsed in the 1970's, which led to further diversification of the economy to services and tourism.

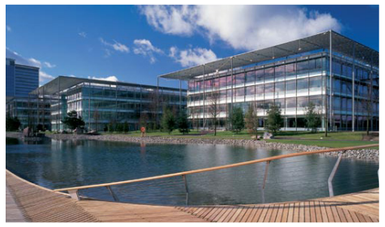
Source: www.indymedia.org.uk

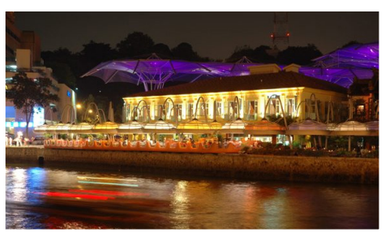
Source: birminghampost.co.uk

4.6 VISION FRAMEWORK

Vision Framework

Key goals were identified to achieve the economic and social transformation of Rustenburg. These sectoral goals are elaborated recommending the key objectives, strategies, and programmes that the City will need to adopt to realise the vision.





4.6.1 City of Vibrant & Diversified Economy

Table 4.2 Goals and Strategies for City of Vibrant & Diversified Economy

OBJECTIVES	STRATEGIES	Programmes
• 114,000 total new employment in manufacturing • 83,000 total new employment in trading, tourism and services	Expand and structure commercial centres	• Additional 1,000,000 m^2 or around 100 ha of commercial spaces to absorb 40,000 employment.
	Set up SEZ and develop local industries	• Total of 1140 ha new industrial areas to include but not limited to: • Local industry and agro processing clusters • Green industry cluster • Mining support industry cluster • Mining related manufacturing cluster
	Develop new Medical Cluster	• 20-30 ha medical cluster to include tertiary hospital, community hospital, hospice and old age home.
	Develop New Tourism Clusters riding on existing attractions	• 100 – 150 ha tourism cluster to have mini theme park and additional 2000 hotel rooms • City tourism cluster with 1000 additional hotel rooms • Strengthen sport and medical tourism cluster with additional 500 rooms
	Promote new types of agriculture to meet local demands	• New commercial agriculture, horticulture zone or aquaculture zone to meet local demands

4.6.2 City of Identity

Table 4.3 Goals and Strategies for City of Identity

OBJECTIVES	STRATEGIES	PROGRAMMES
• Creation of distinctive city scale icon for Rustenburg • Creation of platinum city branding	Creation of New City Scale Icon & Destination in Rustenburg	Creation of "mega" Integrated complex at the heart of Rustenburg to incorporate • City square (1 ha minimum) • Shopping and dining facilities (150,000 m2 floor area) • City hall and city gallery • Convention and conference centre • Hotels with at least 1000 rooms • Transport Hub (1.5 ha) • Complementary and unique facilities (platinum museum, indoor theme-park)
	Rejuvenation of Rustenburg CBD into a touristic destination	• Creation of pedestrianised shopping street in Rustenburg CBD for shopping, dining and entertainment.

4.6.3 City of Smart Homes

Table 4.4 Goals and Strategies for City of Smart Homes

OBJECTIVES	STRATEGIES	PROGRAMMES
• 90% home ownership • Min. 70% of units employing home automation for security, energy saving and comfort.	Development of 90,000 quality affordable and rental housing In a well planned township	• Estimated total of 9000 ha land for new residential townships to accommodate 100,000 affordable homes, 10,000 rental homes including comprehensive social amenities and infrastructure
	Improve Existing residential area, especially the informal settlement and the villages	• Formalise or relocate the informal settlement • Integrate villages when possible to enjoy better shared community facilities.
	Develop IT Infrastructure to lay the ground for the development of Smart Homes in Rustenburg	• Smart City Infrastructure
• Promote green transport	Private Transport • Provision of real time transport information systems • Control the in plot parking especially in CBD area • Reduce HGV numbers in built up areas	• Amalgamate ITS systems and centralise control to main corridors • Provision of demand controlled traffic signals to all new junctions in CBD • Provision of off street car parking facilities for all new developments • Develop Freight Routes avoiding the urban areas
	Public Transport • Ensure all residents in urban areas are with 400 metres walking distance to public transport stations • Provision of integrated ticketing systems • Formalisation of bus/taxi services with planned routes	• Develop bus network servicing all urban areas • Standardise public transport ticketing systems and provide real-time passenger information • Regulate fully public transport including taxi services • Formalise the mini bus companies and services
(Refer to Appendix A1 for further details)	Non-motorised Transport • Provision of facilities to ensure all residents in urban areas are within 800 metres walking distance to schools, service and healthcare facilities • Improve cycling facilities	• Provision of dedicated pedestrian facilities including pedestrian facilities for disabled people and children • Provision of bicycle stands at BRT stations and dedicated cycle paths

4.6.4 City of Excellence in Sports and Education

Table 4.5 Goals and Strategies for City of Excellence in Sports and Education

OBJECTIVES	STRATEGIES	PROGRAMMES
• Place of Choice for "niche" tertiary education system (promotes differentiation in the education clusters) • Known Centre for sport events & development in the region	Set up University in partnership with top foreign/local universities	• 5 - 10 ha land for university
	Set up series of industry related technical colleges and training centres	• 5 - 6 ha technical colleges for mining, tourism and health related study
	Complement existing sport facilities for education and R&D	• Develop 5 - 10 ha Sport College or Sport University to complement existing sport facilities
	Expand existing facilities to set new benchmark	• Redevelop the existing stadium into an attractive recreational "destination"

4.6.5 City of Sustainable Resource Management

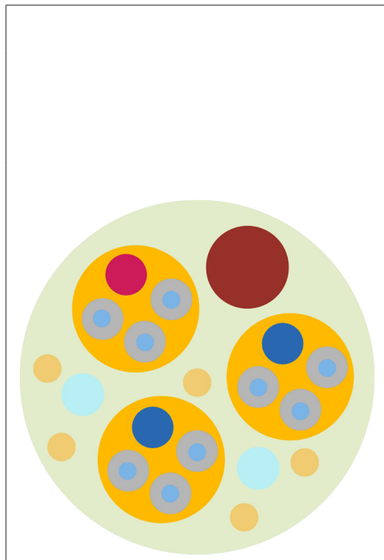
Table 4.6 Goals and Strategies for City of Sustainable Resource Management

OBJECTIVES	STRATEGIES	PROGRAMMES
• Adequate water resource for sustainable future development with quality life style	Reduce the urban unaccounted for water loss from 32% to 15%	• Rehabilitate all the old and leaking pipes in urban areas, especially pipes that is 50 years old and above. • Install real time leakage detection system. • Inspect the water mains periodically, especially pipes with diameters more than 400mm. • Install water meter in households without one, starting from the Urban area where the existing water network is the most extensive
	Increase the use of recycled water by mining industries from 17% to 35%	• Make it mandatory for industry operator to pre-treat its waste water before discharge. • Propose incentive for industries that recycle its wastewater such as tax rebate. • Increase the treated effluent production capacity from the municipal STW. • Set an attractive treated effluent tariff for mining and industrial use.
	Increase the access to piped water within individual housing from 36% to 75%	• Expand the water supply distribution network and infrastructure especially at the Urban area
(Refer to Appendix A2 for further details)	Enhance the existing water body i.e. Bospoort Dam to function as water reservoir and water recreational centre	• Develop Bospoort Dam clean-up program to rehabilitate the water quality. • Build water recreational centre or water theme park next to Bospoort Dam. • Upgrade the existing water treatment works.

OBJECTIVES	STRATEGIES	PROGRAMMES
• Protection of the environment through integrated waste management and responsible usage of the resources	Implementation of 3Rs concept by targeting 20% recycling rate by 2040	• Promote public education on 3Rs (Reduce, Reuse and Recycle) concept and strategies, to be compulsory in schools and offices. • Provide at least one recycling bin at every community centres and residential clusters in the Urban area. • Develop door-to-door recyclable collection in the Urban area. • Develop an integrated waste management facility that house one engineered landfill, material recovery facility and recycling plant. • Develop landfill gas recovery system at soon-to-be decommissioned Townsland landfill to produce electricity. • Set up a committee to oversee both the municipal and mining waste management.
(Refer to Appendix A2 for further details)	Eliminate all the illegal dumping site	• Proper closure of illegal dumping site. • Legislate against illegal dumping
• Smart energy management	Promote the usage of renewable energy source	• Develop pilot project on solar farm and wind farm (to be connected to national grid in the future) • Develop the incentive program to encourage building owner to install solar PV or other renewable energy sources at their building
(Refer to Appendix A2 for further details)	Promote energy conservation	• Install the smart grid system (the consumer will know energy consumption of their premises instantly and control the usage if necessary) • Work together with green building council SA on the incentive program to the developer or operator of the premises to participate or go for the certified green building rating • Promote the usage of energy efficient /saving appliances such as LED light, energy star product, solar water heater system, etc

4.7 DEVELOPMENT PROGRAMME

Table 4.7 Proposed Urban Hierachy



Urban area hierarchy		Population	Corresponding commercial centre	
	Municipality	+1 million		Rustenburg cbd
	Town/city	40,000-150,000		Regional centre
				Town centre
	Neighbourhood	15000-20,000		Neighbourhood centre
	Mining town	upto 30,000		
	Rural Settlements	upto - 15000		

4.7.1 Introduction

Currently, 5% of the land in RLM is urbanised.[1] As the population of RLM grows, there will be more development pressures on the existing land. Naturally, the growth will happen in the areas adjacent to the existing urban areas (peri-urban areas) as well as in rural areas. If uncontrolled, it could lead to more sprawl and unplanned settlements resulting in overstretched infrastructure and unevenly distributed facilities and services.

The growth needs to be controlled and managed. Hence, the SDF recommends the future urbanised areas to be maintained at 13% of the land in RLM. By limiting the urbanised areas the environmentally sensitive areas like the ecologically sensitive and bio-diverse areas, wetlands, and water bodies will be respected and protected from future urbanisation.

To determine the broad land use requirements planning standards, and socio-economic projections are used to obtain the projected population and economic growth while maintaining the environment. The South African planning standards set by the various government agencies are adopted to guide the master plan. Based on this a broad land use requirements are generated which shall guide the development of the concept options.

1 LUMS 2013

4.7.2 Hierarchy of Planning Area:

The integrated Masterplan is a visionary masterplan which looks at a time horizon upto 2040. Based on detailed study of existing urban patterns, existing developments, current issues, growth drivers and trends as well as administrative setup and previous master plan proposals (SDF & IDP), the Integrated Master Plan organises RLM into a hierarchy of planning areas for planning purposes. This is similar to the Nodes and Settlement Hierarchy of SDF where 4 levels or orders of settlements were identified in RLM.

The proposed urban hierarchy use quantitative measures to guide the distribution of population, employment spaces, parks, and other public facilities within the city and guide the setting up of the requirements for the broad land use. The urban hierarchy is explained in Table 4.7.

4.7.3 Broad Land Requirements

As per Census 2011, the population of RLM is 549,575. Based on the socio-demographic projections, RLM needs to be organised to accommodate upto 1.03 million population by 2040. As per the economic projections, RLM will have a total formal employment of approximately 473,000. Based on these projections, land use requirements for the new residents, assumption of household and land, and additional land to be safeguarded in Rustenburg 2040 are developed. These projections will guide the development of the master plan. It is projected the new population of approximately 480,000 residents will require 5400 ha of residential land. Assuming 40% (3600 ha) of additional land is safeguarded for roads and other amenities, RLM will require total of 9000 ha of new residential land for future urbanisation.

Land Requirements for New Residents

Projecting the amount of residential land required to cater for the future population growth will help to identify the potetial area for future residential growth. RLM's population is divided into two categories:

- Bafokeng Population
- Rest of RLM Population (RoRLM)

Bafokeng Population: The projected Bafokeng population caters for the natural growth of the current Bafokeng population. It is projected to grow by another 27,200 by year 2040. There will be a requirement of 9065 new dwelling units within RBN land for the Bafokeng population. This translates to 800 ha of land, which represents 15% of the overall residential land required in RLM. The household size of the Bafokeng population is assumed to stabilise at around 3 per household. The size of the stands in the suburban areas of RBN will be maintained at 1000 sq m per stand. However, in the urban areas like Phokeng, the stand size will be maintained at 800 sq m per stand to optimise the value of the land. The overall housing density in RBN is projected to be 10 DU/ Ha.

Rest of RLM Population (RoRLM): the population in RoRLM consists of natural population and the migrant population. It is broadly categorised into:

- High Income Group (HIG)
- Medium Income Group (MIG)
- Low Income Group (LIG)

RoRLM Population (HIG): As per the socio-economic study, the higher income group is assumed to represent 15% of the RoRLM population in 2040. The segment of the population is projected to grow by approximately 64,000. The average family size of this segment is assumed to be 3 per household, and each dwelling unit is assumed to take up 600 sq m of land. The housing density is assumed to be 17 DU / Ha. It is projected by 2040 there will be requirement of 21,000 DUs within this category which will uptake 1300 ha of residential land. This represent 24% of the total residential land.

Table 4.8 Land Required for New Residents

	Bafokeng Population	RoRLM Population (High Income Group) Assumed to be 15% of new Population	RoRLM Population (Medium Income Group) Assumed to be 35% of new Population	RoRLM Population (Low Income Group) Assumed to be 50% of new Population
Population	27,194	63,714	148,665	212,379
Housing Needs (Dwelling Units) in ha	9065 DUs	21,238 DUs	55,061 DUs	106,190 DUs
Land Requirements for Residential (assumption: 60% of total land area) in Ha	800 ha (15%)	1300 ha (24%)	1650 ha (31%)	1600 ha (30%)
Total Land Requirement for Residential in Ha				5400 ha
Land Requirement for Road & Other Amenities (assumption: 40% of total land area) in Ha				3600 ha
Total Land Requirement for new Urbanisation in ha *(doesn't cater for densification of existing areas)				9000 ha*

Table 4.9 Assumption of Household and Land

	Bafokeng Population	RoRLM Population (High Income Group) Assumed to be 15% of new Population	RoRLM Population (Medium Income Group) Assumed to be 35% of new Population	RoRLM Population (Low Income Group) Assumed to be 50% of new Population
Population/ Household	3	3	2.7	2
Housing Needs (Land Size)	1000 m^2 / DU in suburban areas 800 m^2/ DU in urban areas	600 m^2 / DU	300 m^2 / DU	150 m^2 / DU
Housing Density	10 DU / Ha	17 DU / Ha	33 DU / Ha	66 DU / Ha

Table 4.10 Rustenburg 2040: Additional Land to be Safeguarded

Land Use	Exisitng Land (Ha)		Additional Land (Ha)	Remarks
Housing and Facilites (RoRLM outside RBN)	13320	1050	7500	
Housing and Facilities (within RBN)	6900	380	500	Distributed in different villages
Industrial Land	420	910	1140	To be developed in few industrial clusters
Business (Commercial)	340	650	100	To be distributed in different areas
Business (Tourism)			150	Resort Cluster and Theme Park
Institutional (Total)	240	750	25	Medical Cluster
			10	University
			5	Sports College/ University
Infrastructure	115	NA	35	Integrated Waste Management
		NA	30	Integrated Water Processing Plant

Source: LUMPS 2012, SDF 2011

9000 HA NEW RESIDENTIAL LAND

1140 HA NEW INDUSTRIAL LAND

100 HA OF NEW COMMERCIAL LAND

RoRLM Population (MIG): The middle income group is assumed to makeup 35% of the new RoRLM population. The household size is assumed at 2.7 with an overall population in this segment projected to be approximately 149000. The average dwelling size for this segment is assumed to be 300 sq m and the housing density is assumed to be slightly denser at 33 DU/Ha. The 55000 new dwelling units will require 1650 ha of new land, which represents 31% of the overall new residential land.

RoRLM Population (LIG): The low income group forms the largest segment (50%) of the new RoRLM population. The housing size is assumed to be lower at 2 per household as it is assumed a large portion of this population will consists of migrant workers. The dwelling size is also assumed to be lower at 150sqm/ DU as this segment will consist of more affordable housing units. As affordability will be a criteria, it is assumed that the density will be higher at 66 DU/ha with more multi family housing and rental housings. There will be requirement for 106000 such new dwelling units which will take up approximately 30%(1600 ha) of residential land.

Additional Land Requirement

Besides the additional 8000 ha (1000 ha is already reserved in the current SDF) of new residential land in overall RLM, we need to safeguard land for new industries (1140 ha), commercial land for new businesses (100 ha), and land for new tourism destinations (150 ha). Additional land for institutions such as medical cluster (25 ha), new university (10 ha), a sports college (5 ha), and land for 70 ha land for infrastructure will have to safeguarded for the future. Refer for details Table 4.10.

5

DEVELOPMENT CONCEPTS

5.1 DEVELOPMENT STRATEGIES

EMBODYING THE ASPIRATIONS set by the Vision 2040, strategic key moves are intended to "transform RLM". In response to the anticipated economic transformation and demographic growth in the next 25 years, the development concept for RLM must be visionary and bold enough to set a new dimension for future physical development of RLM.

Various urban strategies are proposed to ensure RLM's future growth prospects while improving its attractiveness and liveability. These strategies will ensure the sustainability of RLM environmentally, socially and economically. To meet this challenge RLM must focus on 'ensuring a diverse economy for RLM', as well as a 'balanced urban growth strategy'.

5.1.1 ENSURING A DIVERSE ECONOMY FOR RLM

A variety of economic game changers are proposed to ensure RLM's transition for a mining dominant economy to a more balance and diverse economy with more seconday and tertiary sector employment. After benchmarking and analysis, some key economic game changers with potential in RLM have been identified.

The Tertiary Sector will be a major contributer to the economy in 2040 and is projected to cater up to 170,000 new jobs. This sector will consist of services related jobs. Besides retail and offices, some of the key game changers will focus on:

CREATING NEW TOURISM CLUSTERS

Rustenburg has a variety of cultural, heritage and nature related tourism attractions. It is also adjacent to Sun City, one of the largest tourist attractions in South Africa. As per the tourism master plan, RLM has potential to create 20000 jobs in the tourism sector with upto 5000 hotel rooms. RLM can focus on further developing:

- Urban tourism by redeveloping its CBD with a new iconic identity e.g. integrated resorts
- Mining related tourism by developing key attractions like them mining theme parks and resorts
- Develop medical tourism.

COMPLEMENTING EDUCATION FACILITIES

Rustenburg already has a number of quality education centres. However in the overall population, the higher education rate is only 8.5 % (IDP 2014), and 29% at the secondary level. Between 2001-2010, the overall level of education has increased, with less individuals that have no schooling to Grade 6.

For a successful economic transformation RLM will require skilled workforce. Hence, it is necessary to establish specialised regional education hubs focused on green technology, medical, mining, resource, R&D and training.

RLM can focus on developing:

- New Specialised Tertiary Universities to strengthen existing education centres: 5,000 new employment in education sector from 2 new universities (8,000 students) focusing on specialised sectors e.g. Medical, Service Sector
- Colleges close to new economic sectors: 2 colleges (20,000 students) to attract new talent and support economy
- Technical Colleges close to new industrial sectors: 4 Technical colleges to support the upcoming industrial transformation
- Develop primary school at walking distances within communities and more secondary schools.

Developing Specialised Medical Clusters

Currently RLM has one level 2 Provincial Hospital and 5 other private hospitals. There are also several Primary Health Centres and Clinics distributed through out RLM.

Besides uplifting the general health facilities, there is potential to develop Medical Tourism in RLM. This would create a new jobs and attract talent to RLM. To develop Medical Tourism RLM should focus on:

- Develop Tertiary Medical Centre to cater +1 million population: 2 - 600 beds tertiary hospitals with cluster of supportive medical facilities to position Rustenburg as medical hub
- Develop Health Clusters with Level 1 Provincial Level Hospital, Specialised Hospitals, Hospices, Old age Homes focused at geriatric care+medical tourism: 4 - 200 beds community hospital to cater to the new populations
- Develop wellness focused medical tourism close to the Maliesburg eco-corridor.

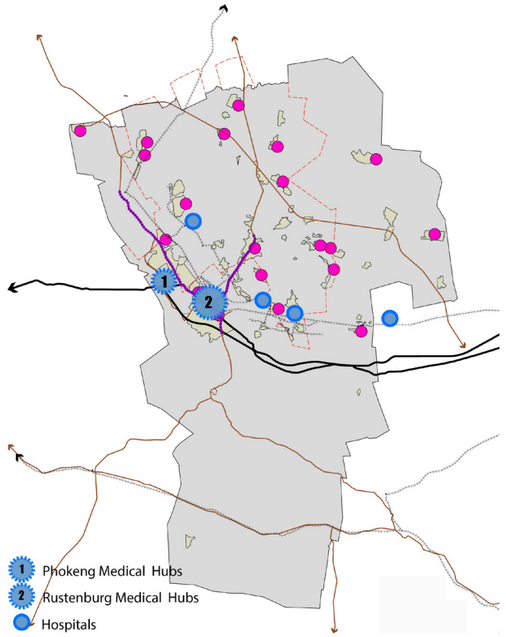
Distributing Variety of Industrial Clusters

The biggest economic game changer for RLM will be the new industrial clusters proposed in the integrated masterplan, which will shift RLM from a mining dependent to a more diverse economy. The proposed industrial transformation for RLM will consist of :

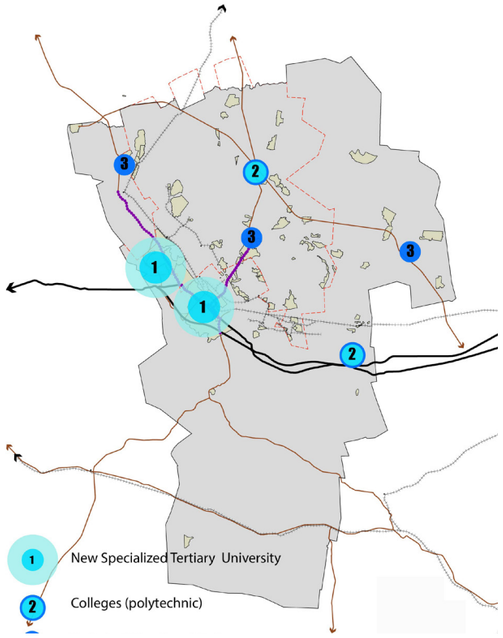
- From 16,000 jobs in secondary sector in 2015 to 130,000 in secondary sector by 2040
- More industrial clusters related to secondary sector (manufacturing)
- High value manufacturing clusters focused at green industry, high-tech, waste water and energy management, SEZ etc

The possible industrial types to accommodate the 130,000 new employment are as follows:

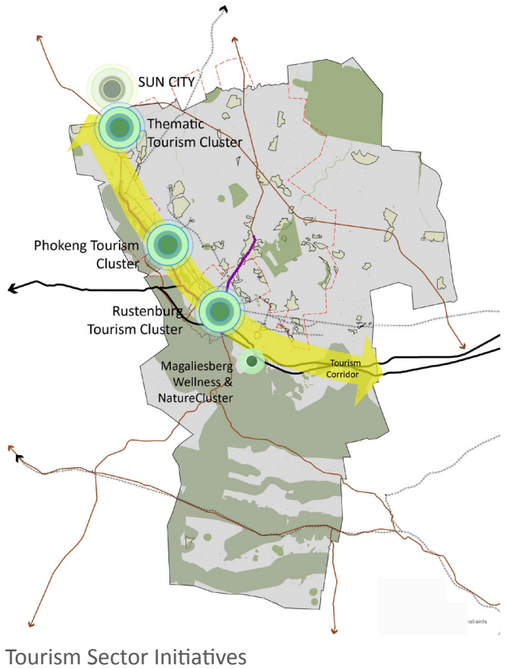
- 20,000 new employment from local light industries
- 20,000 new employment from new green industries
- 20,000 new employment in mining support industries
- 20,000 – 30,000 new employment from new mining related industries
- 20,000 new employment from construction industries
- 20,000 – 30,000 new employment from new types of industries



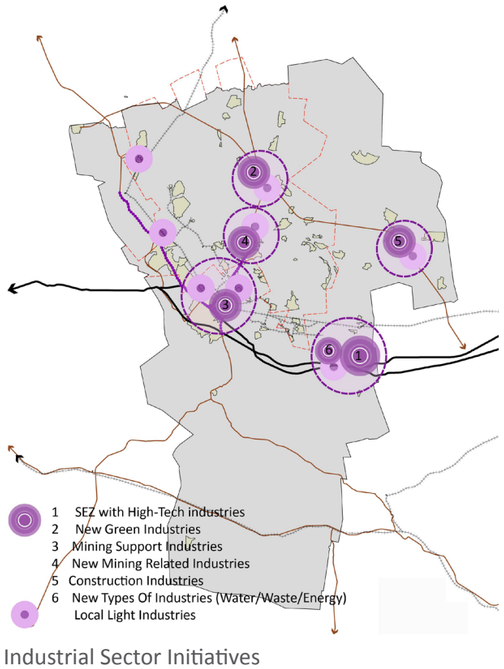
Health Sector Initiatives



Education Sector Initiatives



Tourism Sector Initiatives



Industrial Sector Initiatives

Fig.5.1 Potential Economic Game Changers

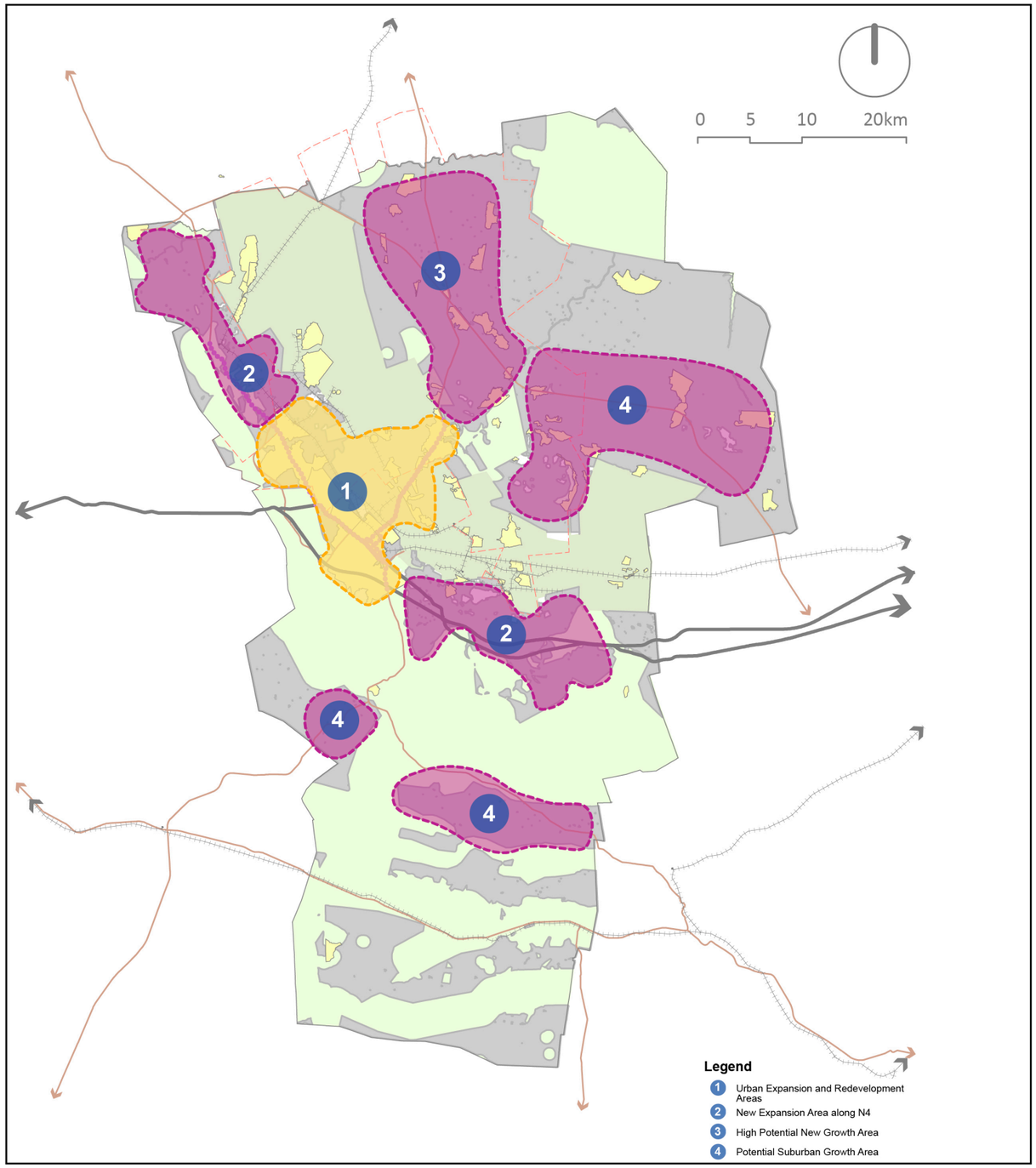


Fig.5.2 Potential Areas for Urban Growth

5.1.2 Balanced Urban Growth Strategy

Currently only 5% (178 km²) of the total land is utilised for urbanisation. Of this 98 km² (3%) of the urbanisation is in RBN land and 80 km² (2%) of it is in the rest of RLM. As per the SDF, 105 km² of new residential areas is proposed in RLM of which 38 km² areas will be in RBN. The Integrated Master plan proposes a slightly more compact urban pattern with total of 90 km² of land to be urbanised of which 54km² is proposed to be residential land.

Balanced urban growth will ensure well distributed living and working areas through out RLM and will ensure jobs closer to homes for all. It is important that the employment and industrial centres are strategically distributed close to residential communities to minimise unnecessary long journey-to-work. Similarly, a wide range of amenities and services would have to be distributed so as to reduce commuting trips.

After analysis of the existing constraints such as prime agricultural land, mining areas, nature and ecological areas, and upcoming projects, key potential areas for future urban growth were identified. The areas identified for potential growth are:

Urban Intensification Areas:

- Transit Oriented Growth along the BRT corridors
- Rejuvination and intensification to optimise areas around already dense urban growth i.e. Rustenburg, Phokeng, Boitekong, Kanana

Potential New Growth Areas

- Potential to develop these green field areas to establish new growth nodes along the N4 corridor.
- Estabish areas around Waterkoof and Marikaana as potenial new growth centres

RBN Development Corridor:

- Deveopment of urban corridor from Phokeng to Sun City e.g Sports CIty
- Develop areas adjacent to Chaneng as tourism themed cluster to capitalise on its proximity to Sun City
- Redevelop areas in the north of RLM served by R510 and 556 roads.

Potential Suburban Growth:

- Develop better connectivity with potential new growth areas in suburban areas with existing population.

Low Intensity Growth Area:

- Areas occupied by rural and agriculture activities, with requirement for more localised services and amenities

Besides employment and urban growth areas, the integrated masterplan will also focus on developing better connecitivity through-out the region, and ensure a more integrated approach to management and improvement of the environment.

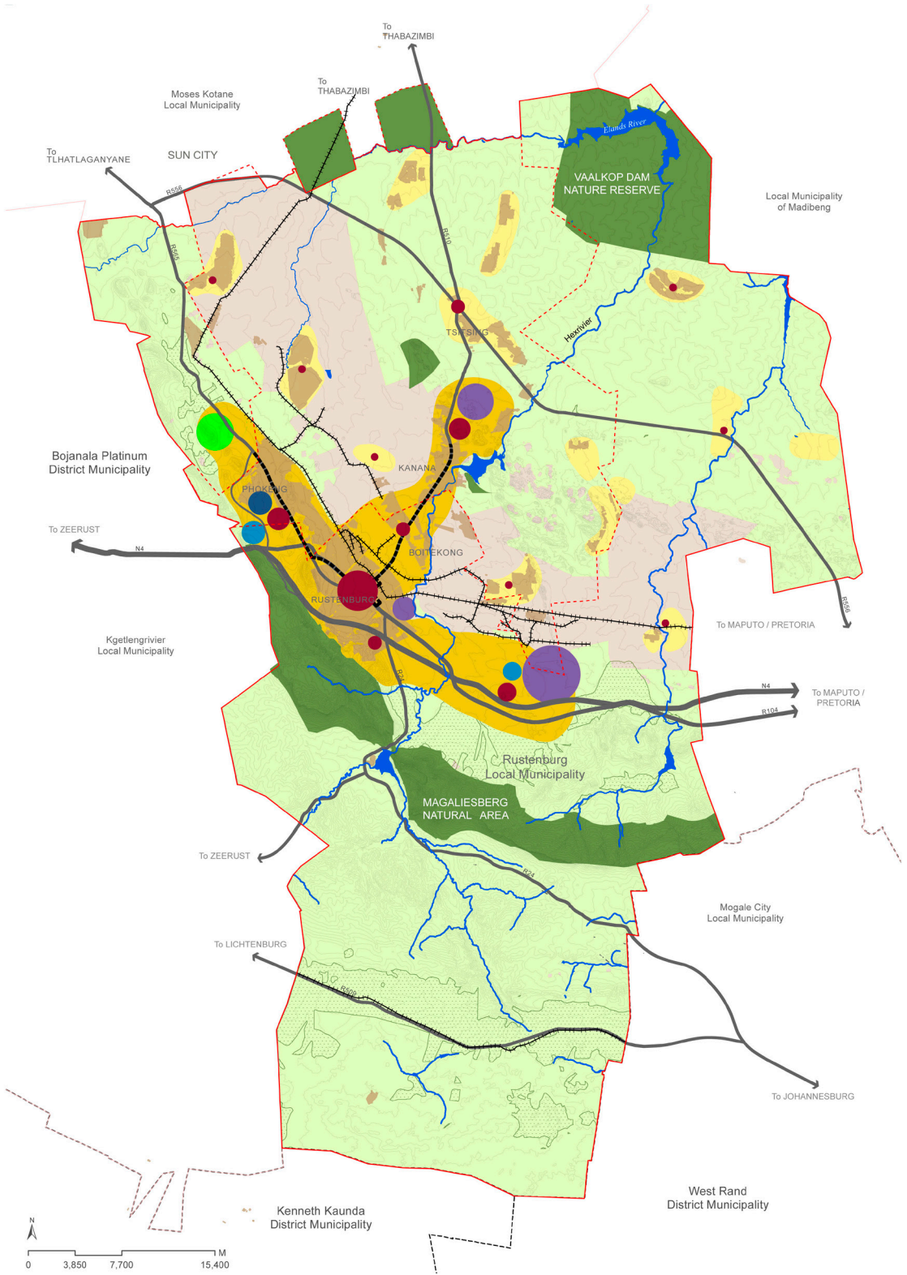


Fig.5.3 Concept Option 1: Compact City

5.2 DEVELOPMENT CONCEPT

Guided by the above strategies, two concept options have been developed with each exploring different direction for future physical development of the Region and resulting in varying degree of investments, risks and returns. The two concept options are presented below:

5.2.1 Concept Option 1:

Compact City

The 'compact city' concept looks at the opportunity to further strengthen the existing urban areas and ensure a compact urban growth along the key transit corridor. The new growth will be organised along the three distinctive clusters.

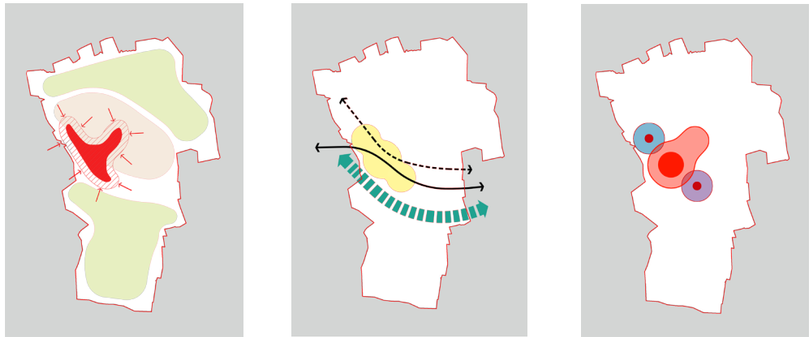


Fig.5.4 Concept 1: Compact Growth (left); Corridor Growth (mid); Cluster Growth (right)

Compact Growth

- Reduce urban sprawl
- Reduce infrastructure cost
- Reduce commuting time

Corridor Growth

- Develop existing transport corridors
- Enhance natural corridor
- Strengthen regional trade routes

Cluster growth

- 3 distinctive clusters: Knowledge Cluster, Economic Cluster, Innovation Cluster
- Thematic growth
- Distinct identity

Key Proposal of Concept 1:

Concept option 1 is developed considering the current development trend of RLM. Existing urban areas are intensified through redevelopment and new developments are proposed for the immediate peri-urban areas. The key proposals are as follows:

Strengthening the Existing City Centre

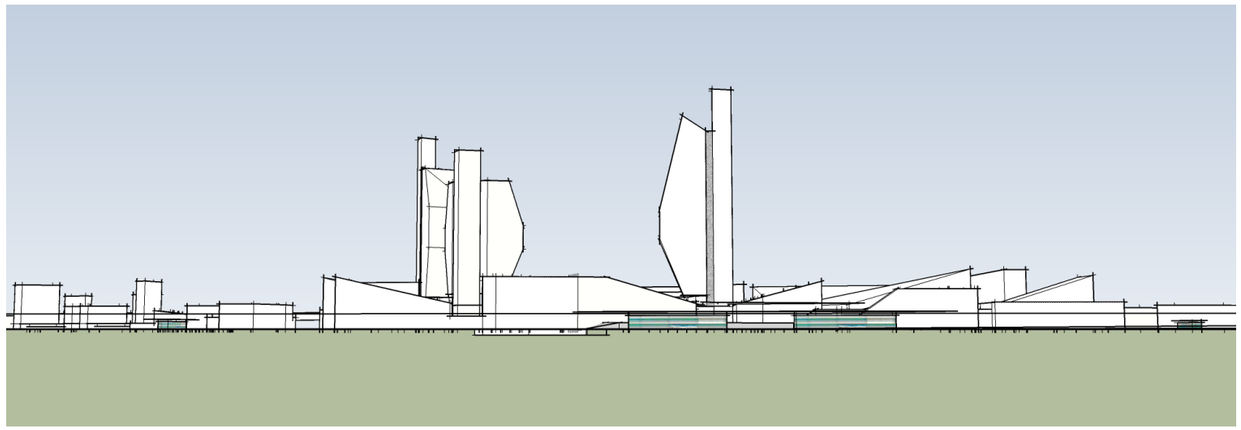
The option focuses on development of the city centre to have a more attractive urban identity. The CBD redevelopment will ensure a stronger sense of place and an urban iconic landmark for Rustenburg. A new thematic tourism development is also proposed at the city centre to establish Rustenburg as a tourism destination. A medical cluster is also proposed at the edge of the city centre close to the nature areas.

Expanding Along the RRT Corridor

Building on the proposed RRT corridor, the option focuses on further strengthening and even expanding this corridor up to Kanana and Marikana. Phokeng and Boitekong are proposed to be further strengthened as commercial centres to cater to the future growth. Phokeng is also proposed to be the Knowledge hub with the tertiary education centre and the medical centre.

Developing New Growth Centres at Marikana and Kanana Region

This option explores the potential of two new growth centres at Kanana and Marikana. These new growth centres are proposed to have large industrial parks. An SEZ park is proposed for Marikana while Kanana is proposed to have a Green Industrial Park. These industrial clusters will provide large number of employment to support growth in the areas. New commercial centres are also proposed within these centres to support the growing population. The higher education colleges are proposed to ensure ready workforce for the industries. The co-location of the colleges and the industry is intended to create better partnership between the industries and education centres.



Simulation of Possible Redevelopment of Rutenburg Business District (Skyline)

Development along the Transit Lines

New Green Industrial Parks

New Industrial Parks

New Medical Clusters

Fig.5.5 Concept Option 1: Key Proposals

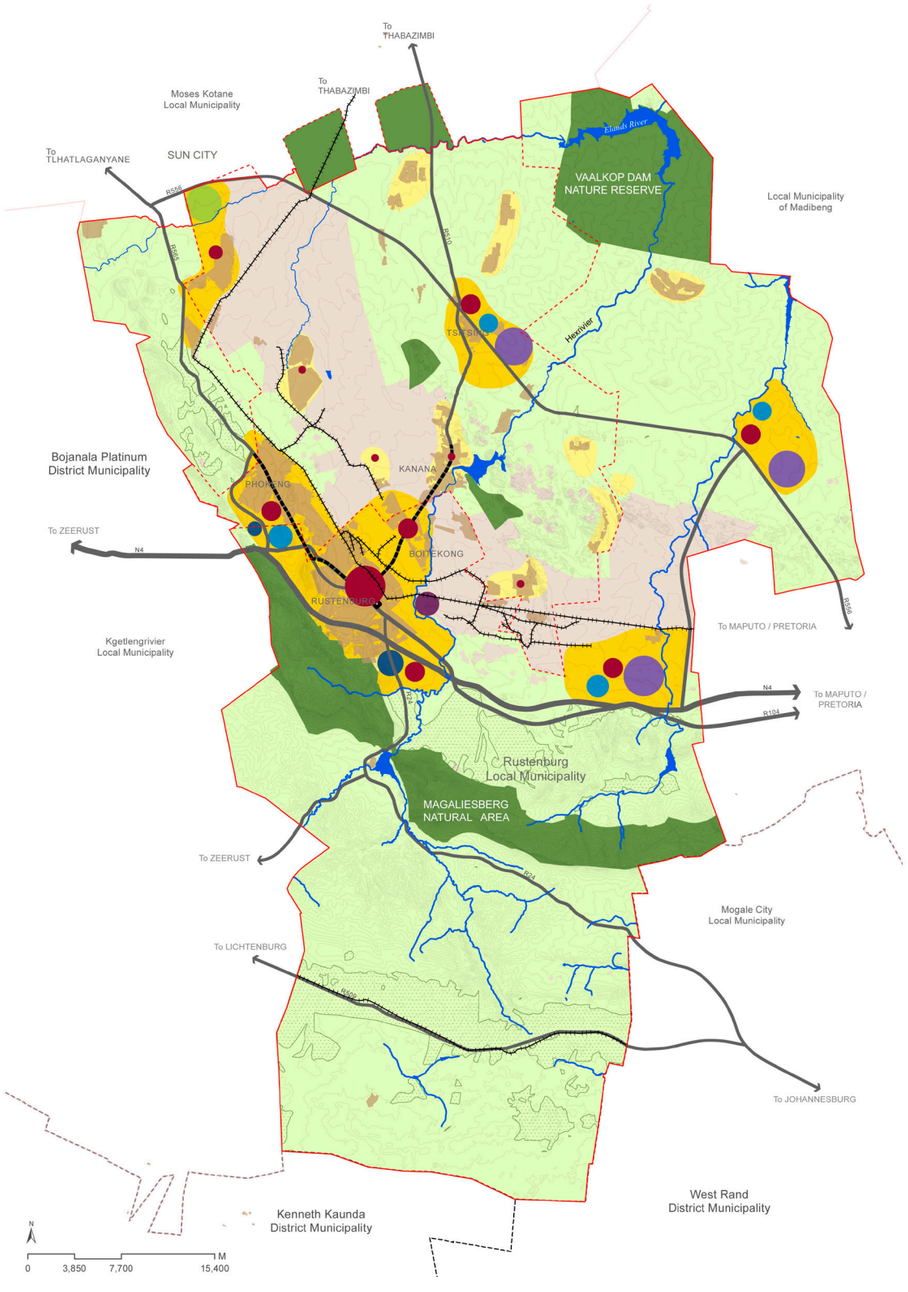


Fig.5.6 Concept Option 2: City of Cities

5.2.2 Concept Option 2:

City of Cities

The 'city of cites' concept looks having several thematic developments within RLM; and ensures a well distributed growth allowing RLM to have polycentric growth.

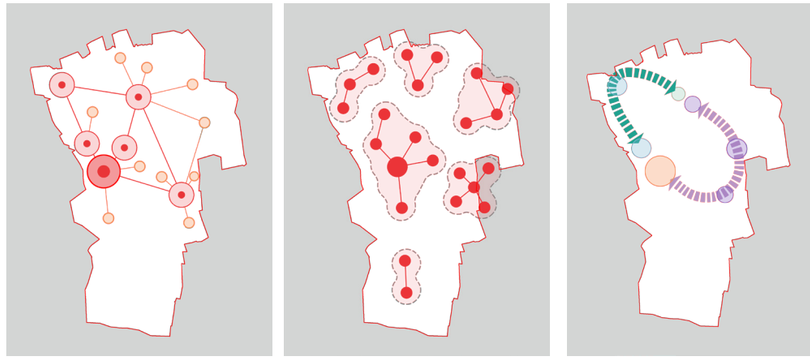


Fig.5.7 Concept 2: Multiple Hubs (left); Decentralised services (mid); Distinctive Belt (right)

Multiple Hubs

- Reduce congestion in the centre
- Multiple economic zones
- Create specialised hubs

Decentralised services

- Self-sustained satellite clusters
- Bring service closer to communities (rural, mining, etc)
- Create local jobs closer to homes

Distinctive Belts

- 2 distinctive development corridors: Tourism belt, industrial belt

Key Proposal of Concept 2:

Concept option 2 is developed considering a new direction of growth for RLM, where there is distributed growth throughout the region. The key proposals are as follows:

Creating a New Image for City Centre

Similar to option one the City Centre will have new developments to ensure a better identity. An integrated resort development that combines MICE, commercial, retail, and entertainment is proposed to be the catalyst new development to spur redevelopment of the current business district.

Establishing Regional Centres

Three new regional centres are proposed in RLM. Phokeng, Boitekong and the Waterkloof areas are proposed to be developed as the regional centres. This will help to decongest and relieve the pressure from the current business district. Phokeng is also proposed to have specialised tertiary medical centre and education hub with a new university.

Developing New Growth Centres at Marikana, Tsitsing, Bethanie Area, and Chaneng

This option explores the potential of three new growth centres at Kanana and Marikana. These new growth centres are proposed to have employment generators to sustain their development.

Marikana is proposed to be the largest new centre with the SEZ; Tsitsing is proposed to have the Green Industrial Park and another industrial development is proposed for Bethanie. Chaneng area is within close proximity to the Sun City and is proposed to be developed as a tourism hub with an iconic theme park and resorts. Similar to option 1, Technical education colleges and commercial centres are proposed to support the growing population.

Integrated Resort as a Iconic Landmark

Vibrant New Regional Centres

Theme Park at Chaneng

Integrated Waste Management

New Tertiary Education Hub

Fig.5.8 Concept Option 2: Key Proposals

5.3 COMPARISON OF CONCEPTS

Table 5.1 Comparative Analysis of Options

Evaluation Criteria		Compact City	City of Cities
Development Opportunity	City Centre	Development of one regional centre at Marikana area	More distributed commercial centres
	Tourism Cluster	Single tourism node at vicinity Rustenburg City	Multiple Tourism Nodes, Rustenburg as well as Theme Park at Chaneng
	Industries	2 large cluster of industrial developments (Marikana, Kanana)	4 specialised industrial clusters at Tsitsing, Marikana, Bethanie and Rustenburg
	Education & Medical Cluster	Clustered in the existing development corridors i.e. Phokeng, Marikana, and Rustenburg	More distributed. Specialised education centres close to related industrial clusters
	Infrastructure & Roads	Requires less new infrastructure and as more compact will be better optimised	As developments are largely greenfield will require more new road and distributed infrastructure
Environmental Impact	Prime Agriculture Areas	More compact development hence less likely to uptake agricultural areas	New industrial areas and urban developments could impact agricultural area
	Ecological Areas	Will be maintained	Will be maintained
Ease of Implementation	Rezoning and Redevelopment of Existing Areas	Large redevelopment of existing urban areas could be a complicated process and delay projects and developments	Developments are largely in greenfield areas, could require acquisition and amalgamation strategies

5.3.1 Comparative analysis of Concepts

To enable selection of the most suitable development concept for RLM, the two concept options are compared and evaluated against the following three assessment criteria, as illustrated in Table 5.11.

- Development opportunity
- Environmental impact
- Ease of implementation

Concept 1 (Compact City)

This concept is a more conservative proposal with minimal impact on the environment as the development is largely concentrated around the existing urbanised area. The option capitalises on existing high capacity corridors and reduces infrastructure cost and commuting time.

The limitation of this concept are:

- Difficulty could arise in redeveloping large parts of existing urban areas
- Longer commuting for outlying settlements
- Risk of increasing congestion in core city areas

Concept 2 (City of Cities)

This concept is bolder, as it promotes multiple economic nodes in currently undeveloped areas requiring new infrastructure and investments. However, the decentralised employment and services will benefit communities outside core urban areas. There is opportunity for the expansion of the city and creation of new growth areas. It also focuses on bringing jobs closer to homes.

The limitation of this concept are:

- Greater environmental alterations and risk to reduction of prime agriculture land
- Increased investment on infrastructure and facilities

5.4 RECOMMENDED OPTION

5.4.1 Preferred Concept Option

On September & November 2014, the vision and the two concept options were deliberated by the Steering Committee which expressed its preference to Option 2 as the long-term concept option for future RLM based on the following considerations:

- Option 2 allows for decentralised growth and better integration with the various communities
- Provides for more distributed growth opportunities and access to facilities and jobs closer to home and is more inclusive
- Is politically a more viable option as it incorporates more communities
- The visions were discussed, and the goals were agreed upon. However the final vision will be incorporated with the city branding exercise currently underway.

Fig.5.9 Various Steering Committee Workshops conducted during the Visioning and Programming stage.

5.5 WAY AHEAD

The selected planning concept option sets the macro planning directions and the regional structure of RLM. This concept, however, is not cast in stone; a deeper planning analysis will be undertaken in the subsequent “Regional Structure Plan” to refine the concept before the Integrated Master Plan is finalised.

The Stage 2 will involve defining specific planning parameters such as individual land use quantum and locations, development densities, zoning profile, hierarchy of roads and rails and their specific scale and corridors, housing strategies, environmental strategies, urban designs and identification of key catalyst projects etc.

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6

APPENDIX

A.1 PROMOTE GREEN TRANSPORT

Private Transport

Provision of Intelligent Transport Systems (ITS): Currently, the ITS system is not well-developed in Rustenburg. The signalised junctions are controlled individually. There is also lack of traveling information boards to provide drivers with real-time driving information such as accidents or congestion.

During peak hours, traffic congestions was observed for busy roads (refer to Fig.1.14). It is proposed that the existing signalised junction systems be upgraded and amalgamated with an integrated ITS to help the drivers make their route decisions and improving the whole performance of the traffic system. This can then provide centralised traffic control to main corridors in Rustenburg.

Control the in-plot parking especially in CBD area: According to the Phokeng City Master Plan, there are insufficient parking spaces located within the city, and many of the existing available parking are not convenient for CBD use. During the site visit at Rustenburg, lots of on-road parking were observed (refer to Fig.1.15). It is proposed that all new developments within the CBD provide off-street car parking and also related facilities, and for developments within the city, strict guidance should applied.

Managing the heavy construction traffic in built up areas: Many construction works are currently happening in Rustenburg, which will generate lots of construction vehicle and Heavy Good Vehicles (HGVs) traffic. These will make the traffic condition significantly worse unless well-managed. It is proposed that freight routes be developed to avoid the CBD, and construction traffic movements be shifted to non-peak hours so that congestion within the CBD due to construction and HGV traffic can be minimised.

Public Transport

Public Transport Coverage: As the RRT is currently under construction, the public transport system will be improved tremendously in the future. It will give a maximum capacity of 500,000 passenger trips per day in 2023. The public transport network will continue to be improved for a wider area. In the masterplan, it is proposed that all the residential plots would be located within 400m walking distance from public transport stations or stops. This will ensure that these stations/ stops are walkable and easily accessed by the public.

Integrated Ticketing System: Public transport system in Rustenburg mainly consists of public bus service and mini bus taxi service. It will be convenient for the passengers to have a standardised public transport ticketing system, which will efficiently connect all the public transport systems together. At the same time, the system can also collect travel data from the passengers, which can help the authorities have a better understanding of the demand and provide better service.

Public Transport Services: Currently, there are many public transport companies operating public bus and also mini bus taxi services in Rustenburg.

There is a lot of potential problems in terms of safety, servicing and coordination between these companies. It is strongly proposed that the authorities regulate all public transport modes including taxi

Fig.6.1 Traffic Congestion at Rustenburg

services. It is also recommended that the mini bus companies and services be regulated as they form a large portion of existing public transport.

Non-motorised Transport

Pedestrian Facilities: To make Rustenburg a liveable city, it is very important to provide dedicated pedestrian facilities which also cater for disabled people and children.

In Rustenburg, the pedestrian facilities have been provided to most of the urban areas. However, in the masterplan, we will also ensure that all residents in urban areas are within 800 metres walking distance to critical services, schools and healthcare facilities, and any connecting roads will need to have pedestrian facilities.

Cycling: Cycling is viewed as the primary mode of future sustainable transport, and therefore should be promoted to the residents of Rustenburg.

The existing infrastructure is not sufficient to cater for cycling, and significant improvements would need to be made to ensure that this mode of transport stays relevant in Rustenburg. It is proposed that the local authorities future-proof and improve the existing cycling facilities, including cycling path and bicycle stands at bus stops and stations so that cycling can be promoted as a major non-motorised transportation in Rustenburg.

There is also opportunity for RLM to position itself as a leader in sustainable resource management by adopting the best practices in sustainable development.

A.2 CITY OF SUSTAINABLE RESOURCE MANAGEMENT

Johannesburg, Durban and Cape Town were used during benchmarking exercise as they are South Africa's most developed city.

Adequate water resource for sustainable future development with quality life style

Reduce the urban unaccounted for water loss from 32% to 15%

RLM's current unaccounted-for water (UAW) loss is 32% for the Urban area. This is slightly ahead to Durban's and Johannesburg's UAW loss of 35.35% and 38.4%. However it is far behind the Cape Town's UAW loss of 18.5%. To be one of the water supply management leaders in South Africa, RLM has to reduce its UAW loss to 15% by 2040. To achieve this, the following measures has to be implemented:

- Rehabilitate all the old and leaking pipes in the Urban areas, especially pipes that is 50 years old and above.
  To decide which pipes are to be repaired first, several factors have to be considered such as pipe material, soil condition, age of pipe, maintenance history, frequency of break down, etc.
- Install real time leakage detection system.
  This system would be able to pinpoint the location of leaking pipes so that the repair team could act on it quickly.
- Inspect the water mains periodically, especially pipes with diameters more than 400mm.
  Bigger diameter water mains shall be prioritized. Smaller diameter pipes could be inspected whenever there is a break down or leakage. Continuous review and analysis has to be carried out for pipes with break down history.
- Install water meter in households without one, starting from the urban area where the existing water network is the most extensive

Increase the use of recycled water by mining industries from 17% to 35%

Mining industry in RLM consume half of RLM's total water consumption. Approximately 17% of the mining water consumption is offset by recycled water. A portion of the recycled water comes from the mine's own onsite STW and supplied by Rustenberg Water Services Trust. Currently not all mines recycle their waste water. Moving forward, there should be an effort to increase the use of recycled water by mining industries from 17% to 35% by 2040. To achieve this, the following measures has to be implemented:

- Make it mandatory for industry operator to pre-treat its waste water before discharge.
- Propose incentive for industries that recycle its wastewater such as tax rebate.
- Increase the treated effluent production capacity from the municipal STW.
  Rustenberg Water Services Trust could build STW that are located near the City and the mines to save cost on laying of the treated effluent supply pipe, upgrade the capacity of the existing STW that has been supplying treated effluentto the mines, etc.
- Set an attractive treated effluent tariff for mining and industrial use.
  The tariff should be enough to cover the operation and maintenance of the STW but not higher than the potable water supply cost to encourage them to switch to treated effluent.

Increase the access to piped water within individual housing from 36% to 75%

Although RLM's existing water supply network are accesible to 83.4% of the population, only 35.8% have direct pipe connection within their dwelling unit. This is relatively low compared to Durban, Cape Town and Johannesburg. Approximately 60.2% of Durban population have pipe connection within their dwelling unit. The percentage for Cape Town and Johannesburg are at 64,7% and 75%, respectively. Considering the development time frame of 25 years till 2040, it is expected that 75% of RLM's population should have access to piped water within their dwelling unit by 2040. The key strategy to achieve this is:

- Expand the water supply distribution network and infrastructure especially at the Urban area.
  The expansion effort is focused on the Urban area as this is where the main bulk of the people are living and the future growth is expected. The expansion shall be planned progressively according to the future growth direction.

Enhance the existing water body i.e. Bospoort Dam to function as water reservoir and water recreational centre

Bospoort Dam covers a surface area of 379 ha at full supply level. Bospoort Water Treatment Works (WTW) was constructed at the dam to provide potable water for the City. The water quality in the dam however has been deteriorating rapidly due to algal bloom. Hence the WTW has not been operating at its full capacity. Its central location within RLM makes it attractive to develop water recreation centre or theme park next to it. Vaalkop Dam will not be suitable as the water is heavily harvested for potable water and it would be more difficult to maintain the water level in the Dam for water recreational activity. The following programs can be developed to achieve this goal:

- Develop Bospoort Dam clean-up program to rehabilitate the water quality.
  This program could take at least 5 - 10 years to complete. For comparison, Singapore completed Singapore River clean-up program in 10 years while New York's Hudson River Clean Up project is in the 12th year of its expected 15 years program. Full commitment from the municipality and 3P participation are the key factors to make this program a success.
- Build water recreational centre or

water them park next to Bospoort Dam.
The construction could start few years before the estimated completion of the clean-up program. This would ensure that the recreational centre is operational after the completion of the clean-up program.

- Upgrade the existing water treatment works.
  The WTW could provide back-up supply to the existing Vaalkop system or augment the existing water supply system in lieu of the growing demand.

Implement Water Sensitive Urban Design for flood control and alternative water resource

- Formulate regulations to implement WSUD features for all new development in the Urban Area. Due to space and cost constraint, it could be more difficult to implement WSUD feature in the existing development. Therefore the implementation should focus on all new developments in RLM. The selected WSUD features has to be customised to suit the site requirement. One element that has to be implemented within every development would be storm water harvesting. This is to be in line with the vision to develop sustainable water resource and quality life style (flood-free) in RLM.

Protection of the environment through integrated waste management and responsible usage of the resources

Treat all waste water before discharge into the water body

RLM's sewer system only services 52.7% of its population at the moment, mostly in urban areas. In comparison the sewer system coverage in Durban, Cape Town and Johannesburg is 63.4%, 88.2% and 87.1% respectively. To protect the water quality, RLM has to ensure that only treated wastewater are discharged into the existing water body.

The key programmes to achieve this are:
Increase the STW coverage to 100% in urban area
It is crutial that the urban areas are fully sewered as they generate most of RLM's domestic wastewater.

Construct on-site STW for rural areas
In rural areas where the development is more sparse and less populated, decentralised sewerage treatment has to be adopted. On-site STW in forms of small package plant could be installed.
Regulate industrial waste water discharge into the waterbody

A set of discharge guideline has to be formulated and circulated among the industries, especially mines. Strict monitoring and fine system could be in place to implement this.

Implementation of 3Rs concept by targeting 20% recycling rate by 2040

The well-known concept of "3R" in solid waste management refers to Reduce, Reuse and Recycle. It is particularly referring to waste production and resource consumption. It calls for waste reduction by using less resource and energy, resource reuse by extending the life span of resource and utilizing waste and finally increasing ratio of recyclable materials against the total waste collected. In RLM context, this concept should be applied for both municipal and mining waste.

The recycling rate of the municipal waste in RLM is unknown. Among the big cities in South Africa, Durban has the highest recycling rate of 8%, followed by Johannesburg at 7%. In Cape Town, a pilot project that provides free door-to-door recyclable collection has been activated in selected residential and business area. Recyclable drop off centres have been built in Johannesburg and Cape Town. Mines in RLM take care of their own waste recycling program however there is no data on the recycling rate.

Based on the benchmark against the Cities in South Africa, it was envisioned that RLM should be recycling 20% of its waste by 2040. To achieve this target, the following programmes were proposed:

- Promote public education on 3Rs (Reduce, Reuse and Recycle) concept and strategies, to be compulsory in schools and offices.
- Provide at least one recycling bin at every community centres and residential clusters in the Urban area.
- Develop door-to-door recyclable collection in the Urban area.
  The approach of this system would be to make it convenient for the recident to participate in recycling program and eliminate the need to build many recycling drop off facility in the City.
- Develop an integrated waste management facility that house one engineered landfill, material recovery facility and recycling plant. It is recommended to house all the facilities in one location to streamline the collection, treatment and disposal processes. RLM has planned to construct an integrated waste management facility in Waterval to replace the existing Townlands landfill. 125ha of land has been provided by Anglo Mine for this project.
- Develop landfill gas recovery system at soon-to-be decommissioned Townsland landfill to produce electricity.
  This is in addition to the landfill closure measures that need to be implemented upon its closure.
- Set up a committee to oversee both the municipal and mining waste management.
  The planning and implementation of mining waste management could be left to the mining operators, however RLM could act as the regulator to ensure that the mining waste management plan comply with the Environment Conservation Act.

Eliminate illegal dumping site:
Any waste disposal site that does not comply with the Environment Conservation Act has to be properly closed. Some of the concerns arising from these sites are the health hazard that it poses to the residents within their vicinity and environmental contamination by the leachate and landfill gasses. The key strategies to achieve this are:

- Proper closure of illegal dumping site.
  Measures such as final cover placement, use of geomembranes to restrict water from seeping into the site, turfing, installation of groundwater monitoring instrument etc has to be in place to ensure that they are not contaminating the surrounding environment.
- Legislate against illegal dumping.
  Strict penalties has to be enforced for people/entity that dispose waste at undesignated dumping site.

Smart Energy Management

A smart energy management or smart grid is a modernized electrical grid that uses analogue or digital information and communications technology to collect and act on information, such as information about the behaviours of suppliers and consumers, in an automated fashion to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity.

The benefits associated with the Smart energy management system include:

- More efficient transmission of electricity
- Quicker restoration of electricity after power disturbances
- Reduced operations and management costs for utilities, and ultimately lower power costs for consumers
- Reduced peak demand, which will also help lower electricity rates
- Increased integration of large-scale renewable energy systems
- Better integration of customer-owner power generation systems, including renewable energy systems
- Improved security

A.4 SWOT ANALYSIS (INFRASTRUCTURE)

Table 6.2 SWOT Analysis Table (Infrastructure)

	Water Supply	Sanitation	Stormwater Drainage	Solid Waste	Power Supply
Strength	• •83% of the population has access to water supply • •Water Service Providers are state owned enterprise, funding is supported by the Government • •Use of treated wastewater effluent for mining to minimise potable water use (approximately 17% of the total consumption) • •Surplus of water (35 ML/d)	• Availability of sewerage system to pre-treat the sewage before discharge into water bodies. The system includes STW, pump stations and outfall sewers • Easier coordination and management of the municipal sewerage system, as it is solely the property of RLM • 84% of households are serviced with sanitation, including sewer systems, septic tanks and VIP.	• Availability of storm water network in town areas and mines. • Lower risk of flooding due to low annual rainfall	• Availability of sanitary landfill sites in RLM. • Availability of existing waste collection services: approximately 120,000 service points of which approximately 70,000 as well as the CBD area is serviced by contractors. • Adequate service profile level: Removed by local authority/private company at least once a week: 69.2%	• Power supply generation and transmission is by Eskom which is one of the most established power companies in Africa. • National and city leader is keen on increasing the uses of renewable energy sources such as solar and wind farm to replace fossil power plant • Majority of the area (except rural area) have accessibility to electricity.
Weakness	• High un-accounted water loss from illegal tapping, leaking pipes and aging water infrastructure • Only 35.8% of population has piped water within the house, some houses do not have bulk meter • Lack of maintenance of existing infrastructure • Lack of integration in the water supply planning among RLM, RBN, and the mines	• Only 52.7% of population is serviced with flush toilet connected to the sewerage system. • Difficulty to provide centralised sewerage system for villages due to the sprawling development and shallow rock outcrop • Difficulty to implement Ventilated Improved Pit Latrines (VIP) in rural areas • Lack of integration in the sewerage planning amongst RLM, RBN, and the mines	• Lack of proper storm water network in the villages • High evaporation rates resulting in moisture deficit in the region • Lack of coordination in the storm water drainage planning amongst RLM, RBN, and the mines • Lack of storm water network maintenance.	• Most waste disposal sites do not have permits and are therefore operating illegally • Lack of services in certain areas contributes towards pollution of rivers, streams and land due to illegal dumping. • Lack of data in terms of how much waste is generated by industrial and mining companies because these companies dispose of their own waste	• High energy cost contribute to high tariff • Lack of funding and other difficulty to extend the electrical network to the rural area. • Land acquisition for new transmission network. • Electricity demand is higher than supply where load shedding need to be applied occasionally.
Opportunities	• Opportunity to introduce the frame and guideline of WSUD including water conservation and water demand management strategies • Opportunity for expansion and upgrading of water supply infrastructure, as proposed in Water Services Master Plan • Opportunity to develop a “Sectorization Program” in the RLM, by breaking areas up into manageable areas where volumes can be monitored for spikes in consumptions and possible leaks	• Availability of various sanitation options for urban and rural areas • Wastewater reuse/recycling, mainly for industrial and mining usage	• Opportunity to introduce and implement WSUD features in view of the relatively low storm water runoff • Opportunity to improve the river water quality by treating the storm water runoff coupled with proper sewerage disposal • Opportunity to implement rain water harvesting in urban areas • Opportunity to improve monitoring and forecasting systems for floods and droughts-develop links with water research institutes	• Opportunity to introduce the initial step of formalizing the informal sites to comply with Department of Water Affairs “minimum requirements for waste disposal by landfill third edition 2005” • Opportunity to introduce the 3R (Reduce, Reuse and Recycle) at national, provisional and local government levels • Proper closure of the existing landfill that has reached its full capacity	• Opportunity to introduce solar farm within the state of Rustenburg • Opportunity to introduce energy savings program to encourage building user to use energy saving feature equipment/ system
Constraints	• Potable water demand is catching up to the current water supply. It is estimated that potable water demand will grow from 90 MD/d to 200 ML/d by 2030 • Growing mining industry would increase water demand further in the future • Change of weather due to global warming may reduce rainfall	• Groundwater contamination and waterborne diseases spreading due to discharge of raw sewage, at areas where there is no sewerage system	• Drought due to high variation in rainfall amount and distribution • Flash flood in low lying areas with insufficient drainage due to unusual storm event • Deterioration of storm water runoff quality due to pollution from raw sewage discharge and illegal dumping	• Existing Townland landfill is near full capacity • Fine particles from the waste dumps in the mines, may cause air pollution and respiratory problem to surrounding community • Potential contamination of ground water by leachate from non-engineered landfills	• High and increasing mineral resources cost contributes to high power generation cost. • Renewable resources such as solar and wind source is intermittent which is not reliable. The nation still very much depends on the fossil and nuclear power plant as electricity sources.

A.5 SWOT ANALYSIS (INFRASTRUCTURE)

Table 6.3 SWOT Analysis Table (Transport)

	Roads	Rails	Airport	Public Transport
Strength	• Connected to major road corridors • • Well-developed road network at urban area • Road expansion supported by tourism & mining Industry • Positive Driving Habits • Grid road network facilitates traffic distribution	• Availability of rail network for freight from Pretoria to Thabazimbi through Rustenburg • Rail development supported by mining Industry	• 2 existing airports to connect to Johannesburg and other major cities in South Africa • Proximity of airports to town centre and Sun City • Airports used for tourism, skydiving and parachuting	• Connected to major regional bus routes • RRT to be in operational in 2015 • Supported by tourism & mining industry
Weakness	• Poor infrastructure in sub-urban area • Riding quality of some roads is poor due to lack of maintenance • Long and straight roads lead to speeding and fatal accident	• Freight-focused instead of passenger-focused	• Local airport (Rustenburg Airfield) not used for interregional travel • Only small aircrafts can land at the existing airports due to short runways • Lack of capacity and facilities	• Mini bus taxi service is not consistent in terms of routes and services • Accessibilities for buses to some locations are poor, especially in rural area.
Opportunity	• Roads have been planned to be upgrade in previous master plans	• Potential of future commuter service • Rail service is a very effective public transport mode for both commuter and also travelling between regions.	• Master plan has been done to upgrade the Rustenburg Airfield.	• RRT will promote the development of integrated transport hubs • The success of Rustenburg Rapid Transport (RRT) will increase the mode share of public transport
Threat	• Deterioration of National and Provincial Roads due to HGV traffic • Inadequate funding for road maintenance, expansion and upgrading • Traffic growth causing congestion	• Lack of high density developments around rail stations and corridors to provide sufficient ridership to sustain the rail services • High Cost of construction for new lines due to hostile terrain	• Lack of demand for airports	• Car-driving culture • Non-coordinated bus services will reduce the attractiveness of public transport as a choice mode

A.5 RLM ECONOMIC SECTOR ANALYSIS

According to IDP, economic growth is important in improving the local communities' quality of life. It is therefore important that the improvement of service delivery and the reduction of poverty run hand in hand with local economic development initiatives.

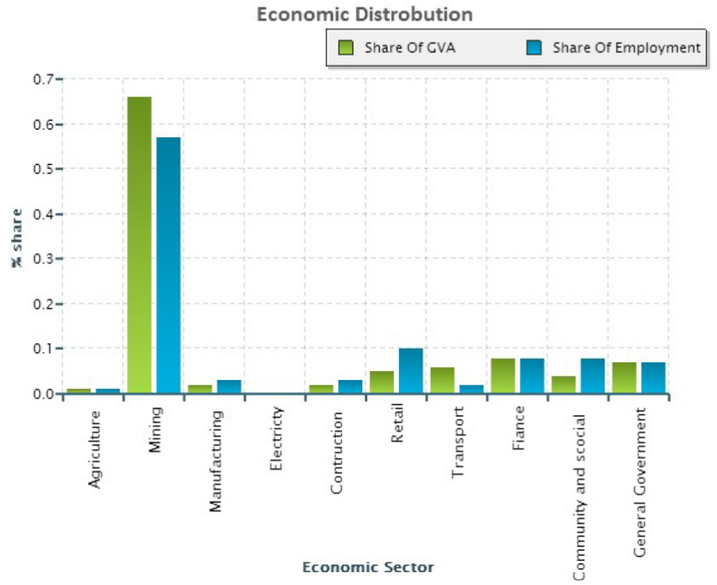
The LED strategy provides a better understanding of the RLM economic features and development strategies that will lead to sustainable economic growth within the Municipal area. The result of the LED strategy is used to inform this sub-section on the economic situation of the RLM.

The overall trend on both national and local level is more or less the same, except for some exceptions where the RLM outperformed national GDP growth in 2003 and achieved 17.6% contribution. An ultimate low was furthermore experienced during 2009 where RLM achieved a negative growth of -3.5%.

The following sub-section provides an overview of the opportunities identified within the RLM. The opportunities are identified within their ability to develop the economy of the local municipality and improve the socio-economic conditions of residents within the municipality. This sub-section covers the following economic sectors:

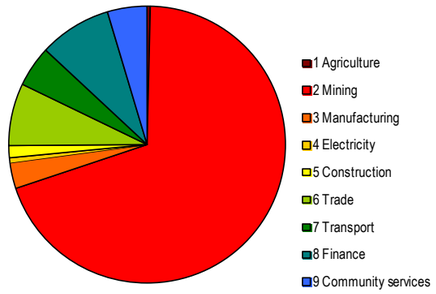
- Agriculture
- Mining
- Manufacturing
- Utilities
- Trade
- Transport, Storage and Communication
- Finance
- Community and Personal services
- General Government Services
- Tourism.

economic sector & strength



ECONOMIC CONTEXT

- Mining sector makes the most significant (approx 67%) contribution towards the GVA in 2010
- More than 50% of the people are employed in mining sector
- Approx. 65% Labor participation
- GDP Growth rate 4.8% (2010)



Source: IHS Global Insight Regional explorer version 588

Fig.6.4 Economic Sector and Strength (Source: IHS)

Table 6.5 Bojanala Platinum District Municipality LED Strategy, 2009 (Source: BPDM)

Key Thrusts	
Thrust 1	Develop an effective LED system to improve the local economy through four major initiatives
Thrust 2	Establish effective partnerships to pursue pro-poor growth
Agriculture sector strategic thrust:	Diversify and develop a strong Agriculture and agro-processing sector strategic thrust:
Tourism sector strategic thrust:	Develop RLM as a tourism destination linked to mining, agriculture & cultural heritage
Manufacturing sector strategic thrust:	Focus on mining cluster establishment to enable growth in the beneficiation of local resource
Retail sector strategic thrust:	Develop the retail sector to meet needs of mining, agriculture and tourism sectors
Services sector strategic thrust:	Develop the services sector to meet the needs of mining, agriculture and tourism sector
Transportation sector strategic thrust:	Develop a highly effective and diversified transport hub for the municipality

Potential for RLM

The Rustenburg LED Strategy contains a number of opportunities and recommendations that are still relevant to the local municipality and thus will form the basis of the document.

A.6 ENVIRONMENTAL LAYERS

The following environmental layers are identified by the SDF to protect and management the natural environment in RLM. Each layer represent important biodiversity assets of the municipality and will be incorporated for future land use plans. The layers were combined to form the overall environmental constraint map in section 2.7.

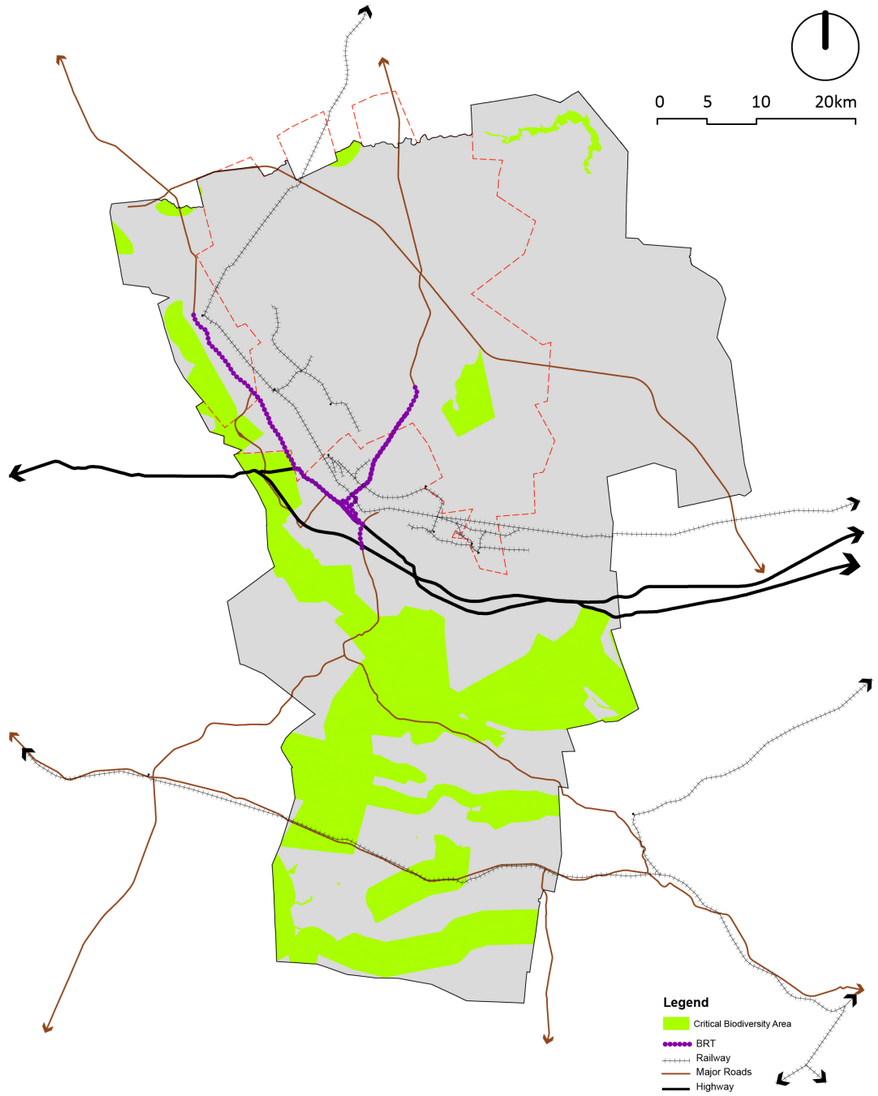


Fig.6.6 Critical Biodiversity Areas Map (Source: SDF)

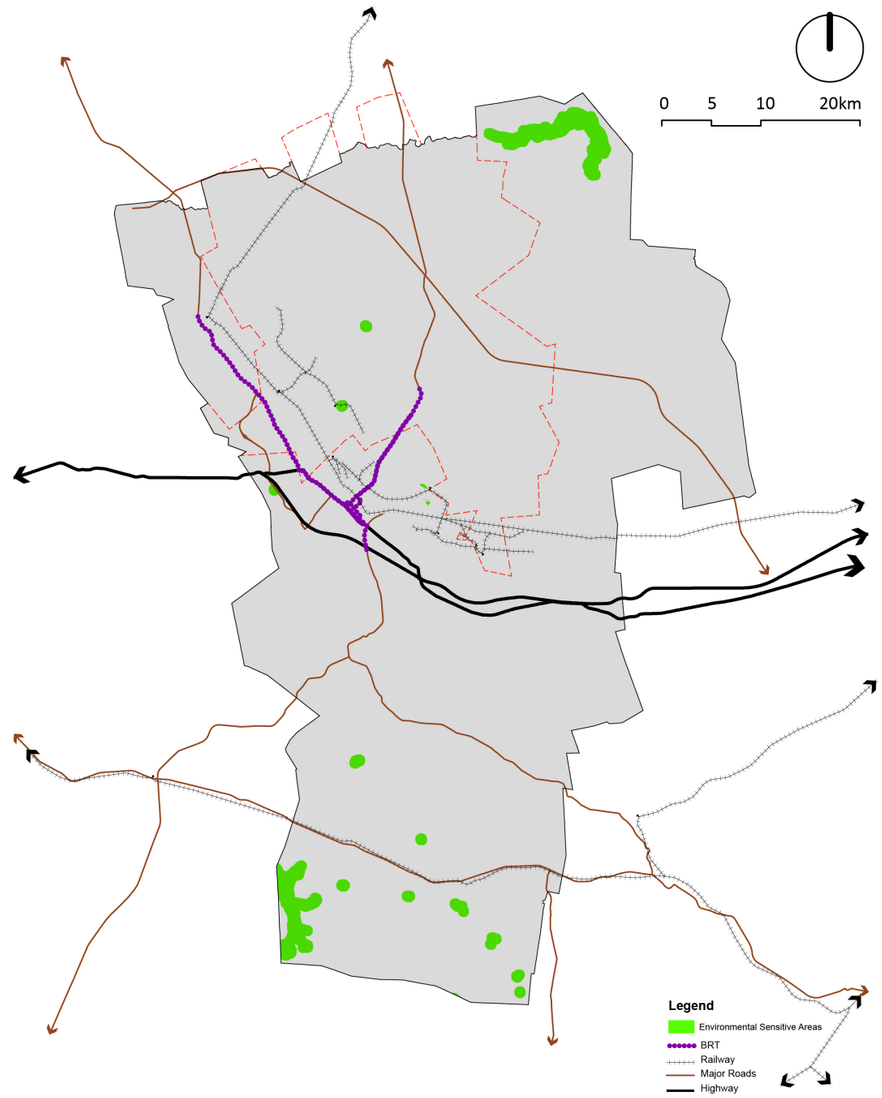


Fig.6.7 Environmental Sensitive Areas Map (Source: SDF)

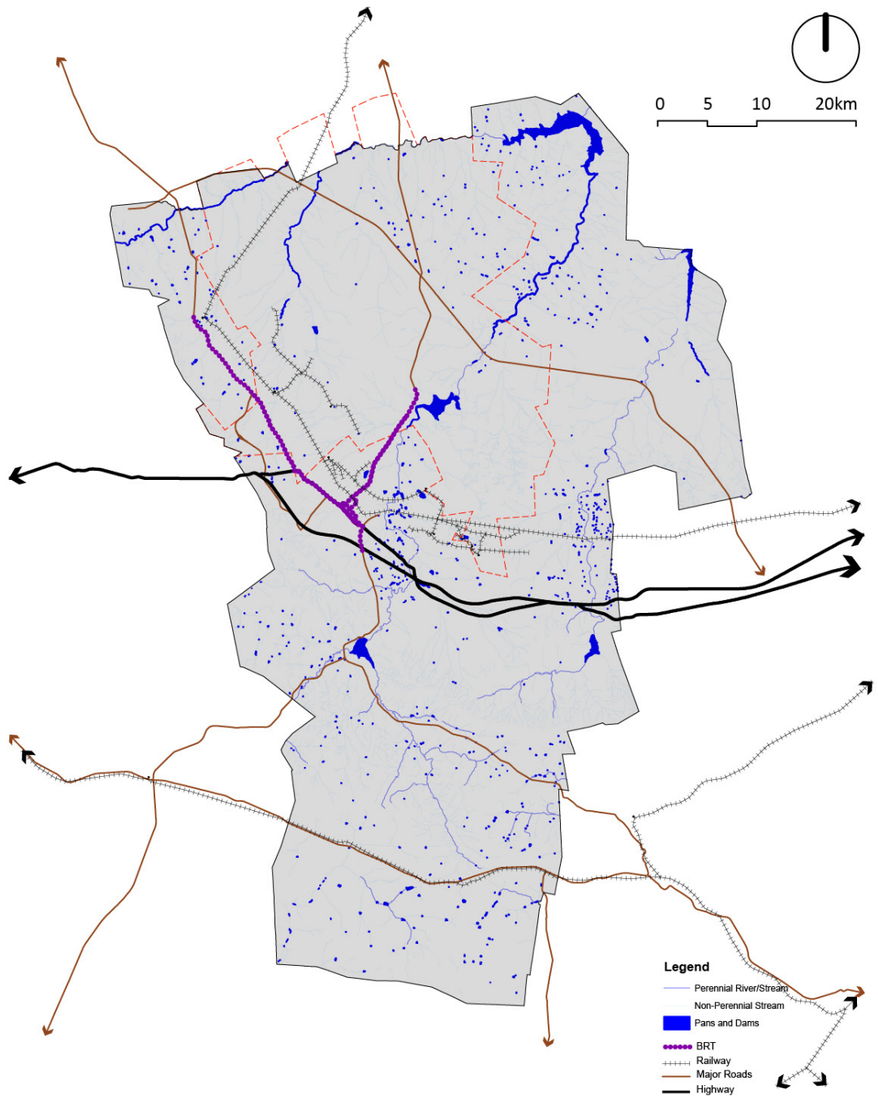


Fig.6.8 Pans and Dams/Water Body Areas Map (Source: SDF)

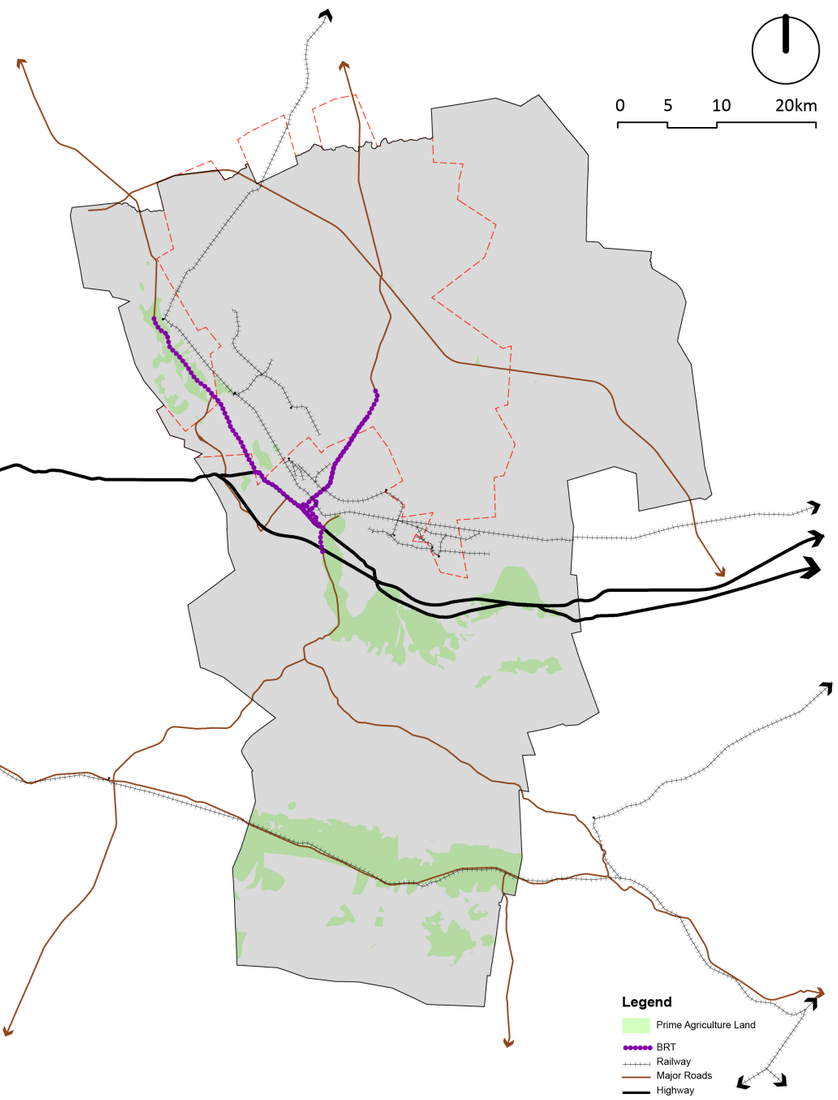


Fig.6.9 Prime Agriculture Areas Map (Source: SDF)

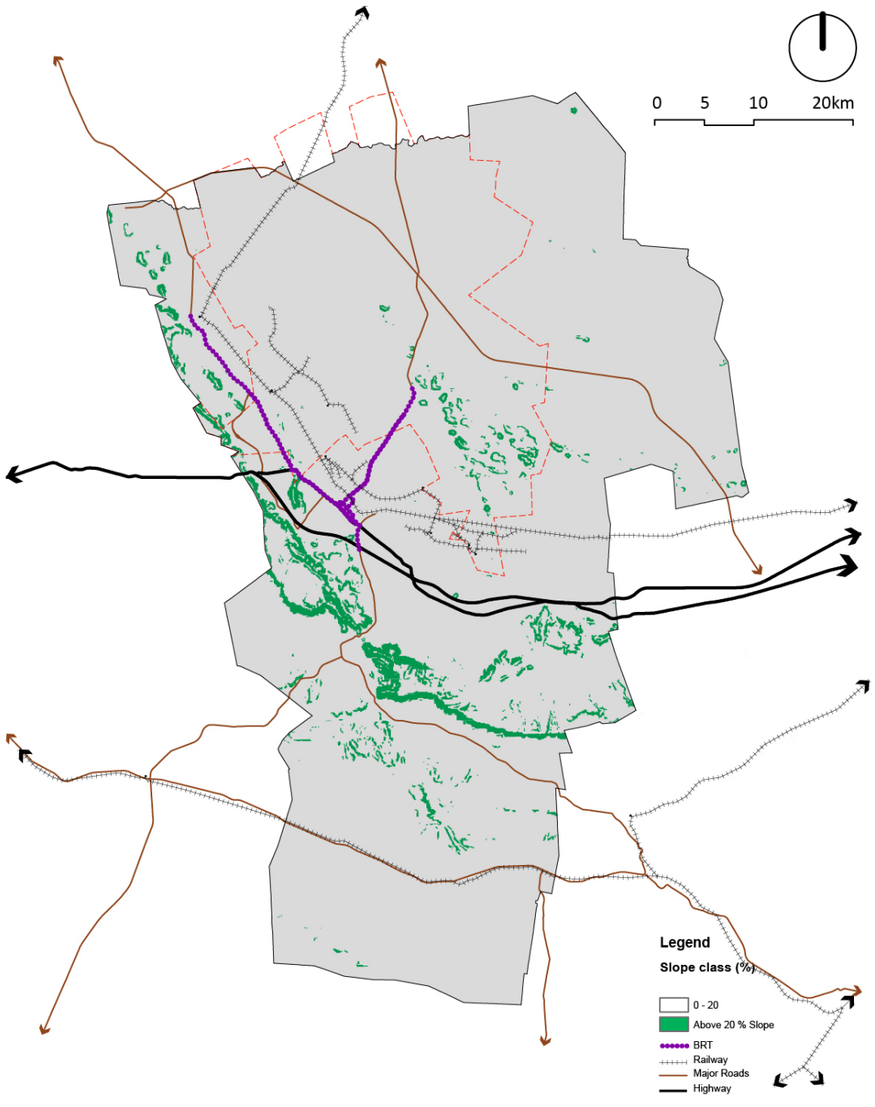


Fig.6.10 Areas with Slope Greater than 20% Map (Source: SDF)