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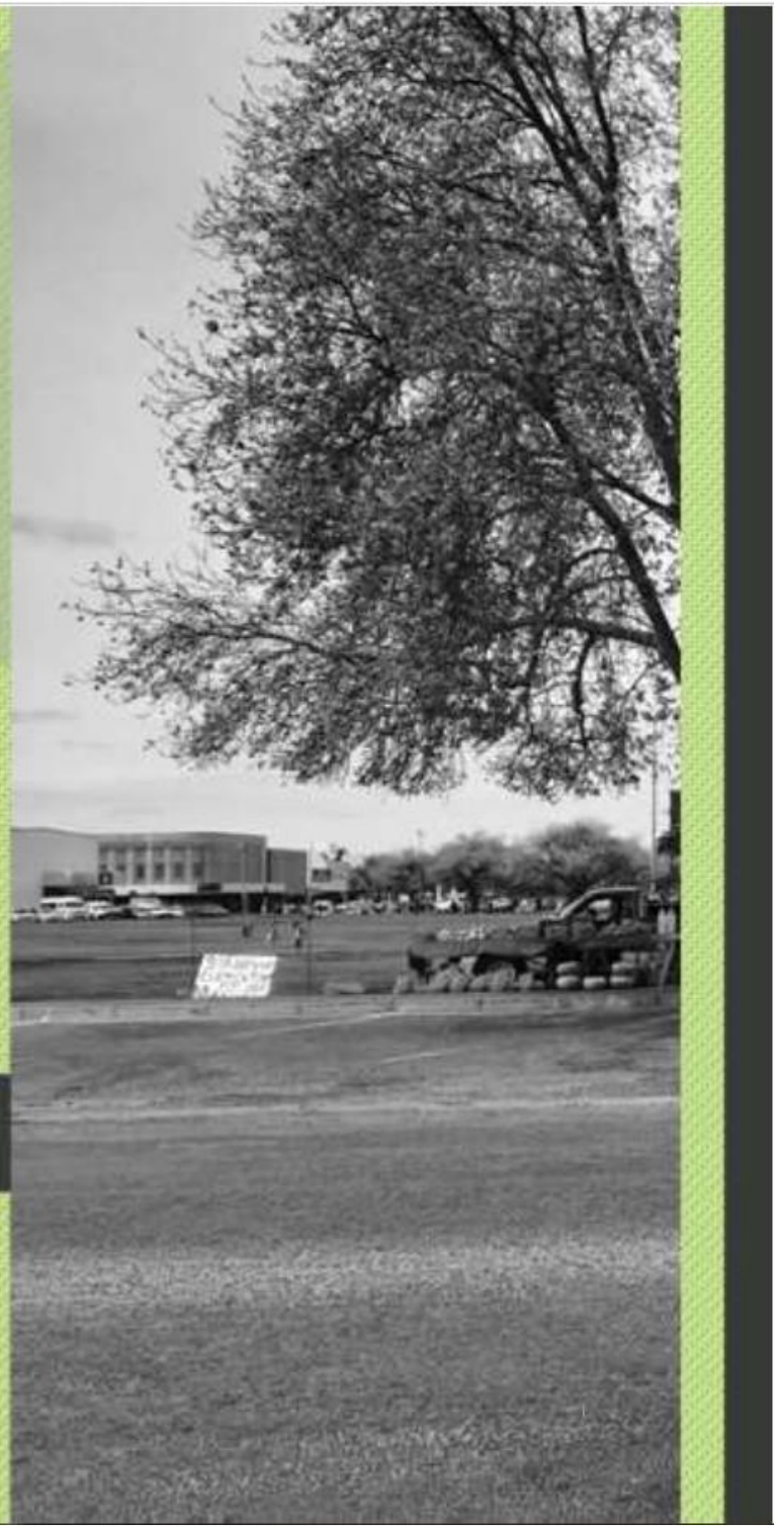
REVIEW OF THE SPATIAL DEVELOPMENT FRAMEWORK

BREEDE VALLEY MUNICIPALITY

SPATIAL DEVELOPMENT FRAMEWORK

FINAL

2018/19



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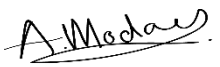
Author signature		Approver signature	
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Acronyms

CBA	Critical Biodiversity Area
CBD	Central Business District
CEF	Capital Expenditure Framework
CID	Central Improvement District
ESA	Environmental Sensitive Area
FAR	Floor Area Ratio
ONA	Other Natural Area
PNDA	Proposed New Development Area
PSDF	Provincial Spatial Development Framework
PT&NMT	Public Transport & Non-Motorised Transport
SDA	Strategic Development Area
SDF	Spatial Development Framework
SPC	Spatial Planning Categories
SPLUMA	Spatial Planning and Land Use Management Act
WCBSP	WCBSP Western Cape Biodiversity Spatial Plan
WWTW	Waste Water Treatment Works

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Tables

Annexure

1 INTRODUCTION

The vision for the Breede Valley Municipality is to create a local authority committed to sustainable development and improved quality of life for its people. This Spatial Development Framework (SDF) is a basic guide to actions and strategies proposed in working towards realising the vision. The first and a very central issue to consider is the fact that the municipality's ability to intervene and contribute is limited to its powers and functions. This reinforces the need for developing partnerships with the private sector, neighbouring municipalities, the district municipality and other organs of government.

The question that remains is: "How do we do it?" The following sections aim to lay the foundation to answer the question, by providing a set of building blocks to be used to restructure the municipal area, and to guide and facilitate growth and development where appropriate.

2 SPATIAL CONCEPT

2.1 Vision Statement

A Breede Valley dedicated to providing efficient **quality services** by working in partnership with its citizens and businesses to enhance the **quality of life** and to create a safe, healthy and vibrant community in which to **live**, **work**, **play** and **visit**

2.2 Strategic Objectives

The Spatial Planning and Land Use Management Act, 2013 (SPLUMA) came into effect on 1 September 2014. A key objective of this act is to provide a framework for spatial planning and land use management in South Africa. The act also:

- Specifies the relationship between the spatial planning and the land use management system and other kinds of planning;
- Ensures that the system of spatial planning and land use management promotes social and economic inclusion;
- Provides for development principles, norms and standards;
- Provides for the sustainable and efficient use of land;
- Provides for cooperative government and intergovernmental relations amongst the national, provincial and local spheres of government; and
- Redresses the imbalance of the past and to ensure that there is equity in the application of spatial development planning and land use management systems.

SPLUMA sets out five (5) development principles applicable to spatial planning that can be translated into a set of collective development objectives in accordance with the national agenda that forms the overarching objectives of the SDF, namely:

- Spatial justice;
- Spatial Sustainability;
- Efficiency (optimising the use of existing resources and infrastructure);
- Spatial resilience (allow for flexibility in spatial plans); and
- Good administration.

The development principles as stipulated in SPLUMA are described in more detail below.

Table 1 SPLUMA Development Principles and description

Development Principle	Description
Spatial Justice	The principle of spatial justice is geared towards redressing the past development imbalances by improving access to well-located land and through the promotion of integrated human settlements. Moreover, this development principle is geared towards realising housing rights of the disadvantaged communities in South Africa.
Spatial Sustainability	The principle of spatial sustainability promotes land development that is within the fiscal, institutional and administrative means of South Africa. It also promotes the protection of prime and unique agricultural land, complying with environmental laws and limits urban sprawl.
Efficiency	The principle of efficiency is pertinent in that it states that land development must optimise the use of existing resources and infrastructure and decision-making procedures must be designed to minimise negative financial, social, economic or environmental impact.
Spatial Resilience	The principle of spatial resilience promotes the accommodation of flexibility in spatial plans to ensure sustainable livelihoods and the ability to avoid and handle unexpected incidents or shocks in communities.
Good Administration	The principle of good administration is at the core of SPLUMA. It entails planned decision-making involving all relevant stakeholders and the following of an integrated approach towards spatial planning and land use management. It entails the setting of timeframes and ensuring that development occurs within these timeframes.

2.3 Development Principles

The vision has been grouped into six key development principles to provide a framework to address aspects relating to the urban environment. The development principles are the guiding factors that will endeavour to assist with the spatial structuring of the urban environment, which will further shape Breede Valley Municipality into a place where people can live, work, play and visit. The SDF will further be a tool for decision-making and the identification of priority projects.

- Economic Development
- Vibrant Local Tourism
- Enhanced residential character
- Accessible social and civic facilities
- Outdoor Lifestyle
- Sustainable cities and communities

Development Principle 1: Economic development

A diverse economic base attracts new business and investment. The Breede Valley Municipality promotes local talent and provides various opportunities for everyone to start and grow business ventures.

This development principle will be achieved through:

- The establishment of a secondary commercial hub;
- Identifying niche market opportunities;
- Revitalisation of the Central Business District (CBD; and
- The protection of agricultural land as an economic contributor.

Development Principle 2: Vibrant local tourism

The Breede Valley's natural landscape, biodiversity, culture and heritage provides a unique opportunity to promote its character and identity.

This development principle will be achieved through:

- The establishment of scenic tourism routes and activities;
- Enhancing or establishing welcome signage at entrance routes to the towns; and
- The protection and enhancement of heritage resources.

Development Principle 3: Enhanced residential character

Creating convenient, safe, vibrant and quality urban environments that provide opportunities for positive personal, social and economic development thus strengthening social cohesion.

This development principle will be achieved through:

- Providing a mix of residential opportunities;
- Facilitating infill development and containing sprawl;
- Providing sufficient housing opportunities; and
- Evaluating spatial imbalances.

Development Principle 4: Accessible social and civic facilities

Social and civic facilities play a vital role in improving the quality of life of the local community. Moreover, it is necessary that these facilities are easily accessible and contribute to creating functional and attractive urban spaces.

This development principle will be achieved through:

- The supplementation of additional facilities where required;
- The revitalisation of existing social and civic facilities; and
- The creation of places where people can connect and learn.

Development Principle 5: Outdoor lifestyle

Recreational areas such as parks and public squares contribute to the creation of a sense of place by providing valuable economic, health and biophysical benefits to the community.

This development principle will be achieved through:

- The creation of a network of integrated hard and soft recreational spaces;
- The creation of new play parks and sports facilities;
- The revitalisation of existing parks to create safe and visually appealing spaces; and
- The protection and conservation environmental and other sensitive features.

Development Principle 6: Sustainable cities and communities

Creating resilient and sustainable urban environments that promote the efficient use of resources requires a non-linear flow of materials, the reduction of carbon emissions and the protection of the environment which in turn creates self-sufficient communities and a green economy system. Resource efficiency requires the consideration of the utilisation of all resources and the resultant impact on the natural environment and the potential use of resources to contribute to the creation of a clean, green and environmentally friendly urban environment.

This development principle will be achieved through:

- The promotion of sustainable infrastructure provision via alternative financial models and a circular (closed loop) re-use should be promoted and prioritised;
- The reduction of carbon dioxide (CO^2) emissions;
- The promotion of locally sourced products thus resulting in the upliftment of the local economy and creating new value chains; and
- The promotion of waste diversion through reuse, recovery and recycling aiming to achieve diversion targets of 50% of organics by 2022, 100% diversion of organics by 2027 and 20% diversion of recyclables by 2019.

Table 2 Alignment of SPLUMA and Development Principles

	Spatial Justice	Sustainability	Efficiency	Spatial Resilience	Good Administration
Economic Development		• The protection of agricultural land as an economic contributor	• Revitalisation of the CBD	• The establishment of a secondary commercial hub; • Identifying niche market opportunities	
Vibrant Local Tourism		• The protection and enhancement of heritage resources		• The establishment of scenic tourism routes and activities • Enhancing or establishing welcome signage at entrance routes to the towns	
Enhanced Residential Character	• Providing a mix of residential opportunities • Providing sufficient housing opportunities • Evaluating spatial imbalances				• Facilitating infill development and containing sprawl

	Spatial Justice	Sustainability	Efficiency	Spatial Resilience	Good Administration
Accessible social facilities			• The creation of places where people can connect and learn • The revitalisation of existing social and civic facilities	• The supplementation of additional facilities where required	
Outdoor Lifestyle	• The creation of new play parks and sports facilities	• The protection of sensitive environmental features	• The creation of a network of integrated hard and soft recreational spaces • The revitalisation of existing parks to create safe and visually appealing spaces		
Sustainable Cities and communities		• The reduction of CO^2 emissions			• The promotion of sustainable infrastructure provision

2.4 Future demand approach

In terms of urban settlements, the majority of the land requirement is for the housing sector, particularly government aided affordable housing. With regards to other demands for land, in terms of provision of infrastructure, it is not considered to be a high consumer of land. After the provision of bulk infrastructure and other municipal services have been allocated, an additional feature that has an impact on spatial demand is the provision of a road infrastructure networks. It is important to take into consideration the future population growth and its impacts on spatial requirements. Future demand for land to accommodate publicly assisted, affordable housing, is informed by population growth expectations, changes in household dynamics, and socioeconomic means, as well as the current housing need.

Originating from the Conceptual Framework map and development principles set for the municipal area, three major issues were identified that align with the SPLUMA SDF guidelines. These include:

- **Protective initiatives**: Places and things that are to be protected and maintained to achieve the vision and spatial concept.
- **Change initiatives**: Are things that need to be changed, transformed, or enhanced to achieve the vision and spatial concept.
- **New development initiatives**: New development or initiatives to be undertaken to achieve the vision and spatial concept.

Table 3 illustrates some of the components within the municipal area that need to be protected, changed or where new development initiatives are to be undertaken.

Table 3 SDF Elements which require protection, change or new developments

	Strategic Focus	SDF Elements
Protective Initiatives	Natural/ ecological elements to be protected	Critical Biodiversity Areas (CBAs), Environmental Sensitive Areas (ESAs), Protected Areas and watercourses;
		Agricultural land; and
		Urban edge.
	Landscape and settlement elements to be protected	Scenic landscapes, scenic routes, and special places of arrival; and
		Historic and culturally significant precincts and places.
Change Initiatives	Areas or places to be upgraded	Informal settlements/ affordable housing areas.
	Areas for enhanced economic opportunity	Integration areas between informal areas / affordable housing areas and centres of commercial activity;
		Enhanced industrial accommodation;
		Focus area for public markets; and
		Areas for peri-urban agriculture.
	Areas for densification and infill	Residential infill and densification.
	Areas for efficient/ improved access to public services	Places for clustering public facilities.
	Improved landscaping	Streets or places where landscaping and tree planting should be focused.

	Improved public amenity	Public recreation places and amenity (e.g. ablution facilities).
	Green infrastructure	Incorporation of green infrastructure in new developments.
	National department of Human Settlement's Restructuring Zones	Worcester CBD (Esselenpark and Roux Park) as well as Transhex have been identified as Restructuring Zones.
New Development	New development of significant scale	New residential development; New commercial, tourism or public places; and New roads required to unlock new greenfield sites.

2.5 Spatial Concepts

The spatial framework is developed though an interrelated set of nodes, networks and surfaces. The essence of development in this system is the movement of people, goods and services that produces the basic impetus for developing functional relationships between otherwise independent and unrelated elements. The movement of people, goods, and services are channelled along specific routes that describe a ***network of interaction***. Where networks intersect the opportunity for people, goods and services develop to interact and this gives rise to activity nodes. The intensity of interaction gives rise to the development of a ***hierarchy of nodes*** of different sizes depending on the level of interaction taking place in a node. This one-dimensional system of networks and nodes are tied together through ***surfaces*** that fill the areas between the nodes and networks.

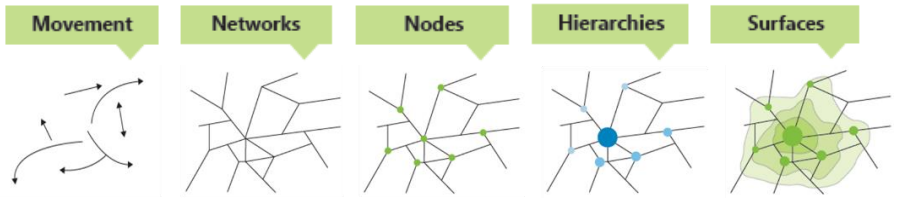


Figure 1 The development concept

A nodal system has the following characteristics with the subsequent implications for the SDF:

Table 4 A nodal system and the consequences for the SDF

Characteristics of a nodal system	Implications for the SDF
Movement sustains the system. If movement stops the system disintegrates, conversely the better or higher the volume of movement of people, goods and services are, the more vibrant and viable the system is.	A poor network of roads and low movement levels are experienced in most parts of the municipal area. The modes of transport, low transport volumes, and even the fact that households are not mobile or are constraint in their mobility, limits the options for the Municipality.
A change in the extent and intensity of movement causes changes in the shape and structure of the system. For example, increased road traffic creates the opportunity for better quality roads and business opportunities.	The best prospect for an improved spatial structure is in the areas subject to higher intensity of movement. The Municipality can do little to improve movement apart from continuously improving access to key areas and facilities.

Characteristics of a nodal system	Implications for the SDF
An open system tends to sustain its structure and form over very long periods.	The low energy levels in some parts of the system will make large scale structural changes difficult to achieve. The approach will rather be to consolidate, optimise, and adjust the functioning of the spatial system within its framework and parameters.
From varying starting points and conditions, systems with more or less the same type of energy inputs and organisation, develop similar end conditions and structures. Urban areas across the world have more or less the same structural characteristics notwithstanding diverse starting points and conditions.	The structural elements of the spatial system are recognised. The relative strength of the systems components, business, residential, industrial development and agriculture and so on, are determined by local economic growth imperatives.

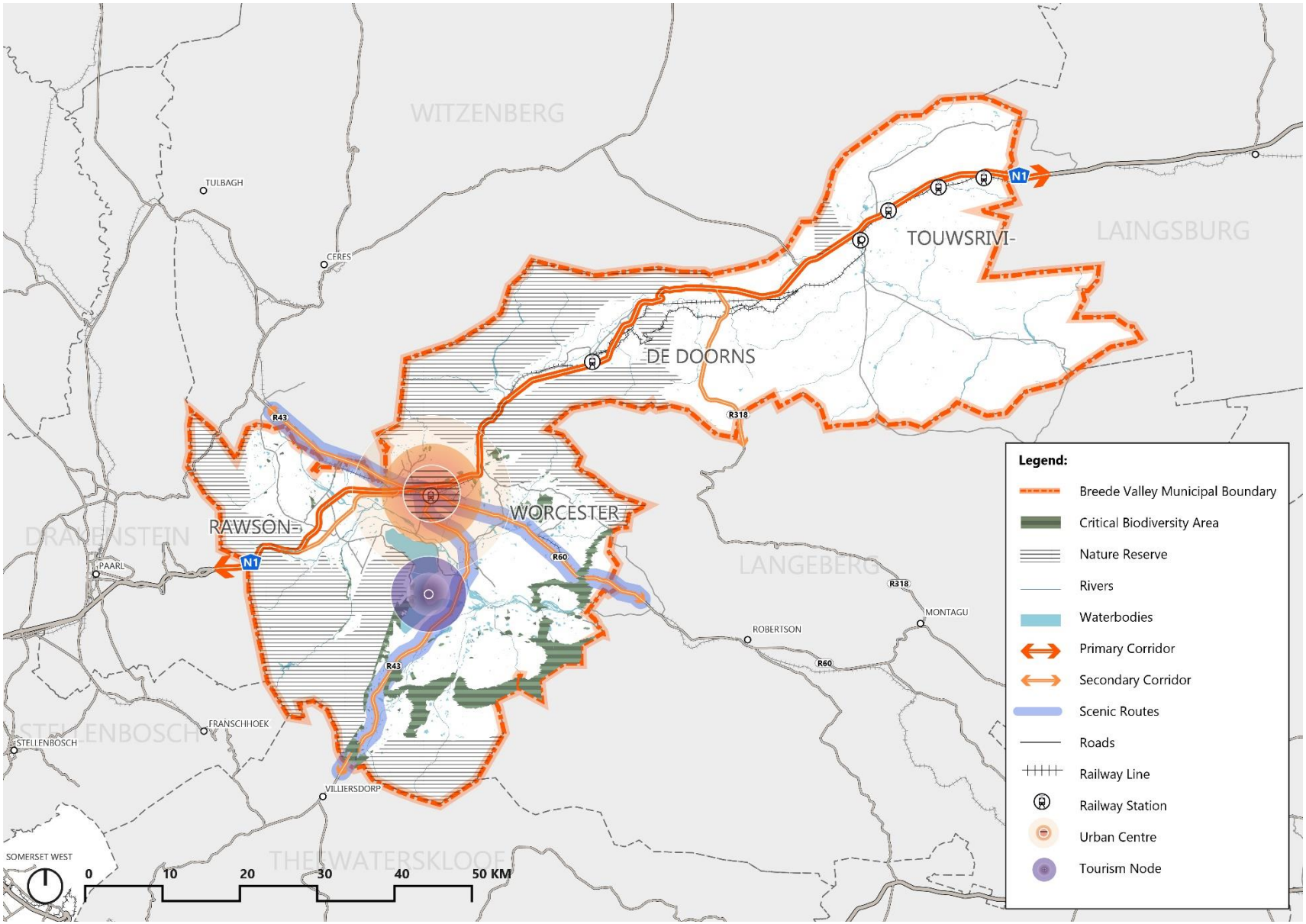
In order to address spatial issues and restructure development in the municipality, spatial restructuring tools are required. To ensure the alignment with provincial spatial policies, six spatial structuring elements have been identified and are proposed to guide future development in the municipality. These tools should be used in a practical manner to ensure sustainable high-quality settlements.

The key objective of the structuring elements is as follows:

- Contain urban sprawl;
- Promote urban and social integration;
- Promote higher densities;
- Create quality urban environments;
- Promote pedestrian friendly environments and movement patterns;
- Create a sense a place;
- Enhancement of investment opportunities; and
- Simplifying decisions-making regarding development applications.

The spatial tools used include:

- Primary nodes;
- Secondary nodes;
- Local service centres (nodes);
- Future nodal development; and
- Primary corridors.



Map 1 Concept Framework

3 SPATIAL STRATEGIES

3.1 Regional Plan

In formulating guidelines and proposals for development, the approach is to focus on a few critical issues rather than identifying a plethora of issues and needs. This means that, while taking into consideration current growth dynamics, it is better to make a few key development proposals that will focus development energy to areas where agglomeration advantages can be created, and a difference can be made in the spatial structure, as opposed to identifying every possible development opportunity and never reaching critical mass with any of those.

In the rest of this chapter, each of the spatial structuring elements or form giving elements will be dealt with in terms of the following two aspects:

- The identification of the structuring elements in the municipality; and
- Developing principles and guidelines for its implementation and management.

It should be kept in mind that the Breede Valley Municipal SDF remains a broad strategic planning framework due to the large geographic space that it covers. It cannot therefore make detail proposals for specific areas. For that purpose, the precinct plans must be drafted.

The spatial structuring elements include:

- Nodes;
- Corridors;
- Natural Open Space Systems;
- Agriculture;
- Culture and Heritage;
- Tourism; and
- Growth management.

3.1.1 Nodes

Nodes are concentrations of urban development located at accessible locations such as modal interchanges and the intersections of public transport routes. These nodes should create areas of agglomeration advantages that are able to attract business and economic developments to these areas. Well-functioning urban nodes are vibrant areas comprising shopping, work, social and cultural opportunities and public transport facilities in a high quality, safe public environments.

From an efficiency and functionality perspective, the clustering of community, social and business facilities in nodes around points of highest accessibility is of vital importance, i.e. -

- By clustering facilities, a high-quality node can be created that can serve as the heart of communities and promote social interaction;
- Multiple neighbourhoods can be served by social services in central points;
- The sharing of facilities between various services (e.g. buildings, logistics, parking etc.) can take place; and
- Central clusters ensure enhanced accessibility in the form of Public Transport and Non-Motorised Transport (PT&NMT) and convenience for residents.

It is proposed that the following general principles apply to the development and management of nodes:

- In order to support the effective development of the node in the municipality, the development of urban non-residential land uses, such as business, retail, community facilities, and social services should be restricted to nodal areas;
- Nodes should typically be located at the main access points in urban areas, typically at the intersection of a major mobility route and the major collector route;
- These nodes should show a large degree of public investment in infrastructure, public domain and social services;
- Nodes must be characterised by mixed-use, high intensity activity and higher density residential development;
- The manner in which parking in the nodal areas are treated is of importance. Large parking lots adjacent to streets should not be encouraged. Buildings should be placed as close to street boundaries as possible to facilitate pedestrian movement and to define and shape the public space. In areas earmarked for densification, parking requirements in such areas may be restrictive to such development, must be re-examined critically. Parking requirements are restrictive for densification as they may limit the degree to which an area may be densified, as the parking bays are a space intensive requirement of development.
- Site layouts and building designs of individual developments must take cognisance of and support public transport and pedestrian movement.

Key Typologies

- **Primary Nodes**: These are areas/towns of significance in terms of scale, location, impact, diversity and agglomeration of function (facilities, services and economic activities), which have a significant impact on the Western Cape Province as a whole.
- **Secondary Nodes**: This refers to the local settlements and public places. A node that has functional linkages with and impacts not extending beyond the borders of the Local Municipality in which it is located. Typically such a node will include: (1) the full spectrum of schools from primary to secondary; (2) a number of clinics offering basic health services; (3) a number of general health practitioners and dentists' offices; (4) a local police station; (5) a limited range of housing types, with the freestanding houses on separate stands, still the most dominant form; (6) a shopping area/district with many of the national chain shops and a number of take away shops and maybe a family restaurant; (7) branch offices of Banks; and (8) a few light industries, typically located in or around the central business district.
- **Local Service centres**: This order node is described as a node that serves its inhabitants, as well as those that can reach it by bicycle or by public transport in no more than thirty minutes. This node typically has a primary school, sometimes a secondary school, other social facilities such as clinics, and a mobile police office. This node also has some retail elements such as small shops and take-away restaurants.
- **Tourism node**: This node is described as a node catering for the tourism sector. The associated activities linked to the tourism node includes resorts, holiday accommodation, agri-tourism, restaurants, tourism related activities.

The following hierarchy of nodes can be found in or are proposed for the Breede Valley Municipality:

Strategy

Table 5 Proposal and guideline for the identified nodes

Proposal	Guidelines
Primary Node: Worcester	• Prime location for higher order office and small retail development; • A variety of goods, services and speciality products are offered; • Higher density residential development should form an integral part of the environment. However, residential development in the business area must comprise business development on ground floor; • Investment in the quality of the public environment and good urban management are key to retaining existing and attracting new high order business activities; • The Primary Node serves one or more neighbourhoods or areas in and around the node; • Nature of land uses are focused on local business development and the provision of local community and social services; • Higher density residential development should be provided around the nodes. • Focus should be on the creation of small business opportunities for local development; • Because this node is the focus centre in local neighbourhoods, they should also fulfil the function of centres of socialisation for the local population. As such, each node should be structured around a public open space such as a square or park; • The nodes should be integrated with public transport facilities and should as far as possible be located in such a manner that it is within walking distance for a large section of the local population; and • Main routes linking the nodes with the internal neighbourhood should have a strong pedestrian focus.
Secondary Nodes: De Doorns Touwrivier	• Investment focused on providing at least basic services; • Provide rudimentary public amenities and social services; • Discourage further extension of settlements; and • Focus on improved linkages.

Proposal	Guidelines
Local Service Centre: Rawsonville	• Nature of land uses is focused on local business development and the provision of local community and social services; • Higher density residential development should be provided around the nodes; • A focus should be on the creation of small business opportunities for local entrepreneurs; • Because these nodes are the focus centres in local neighbourhoods, they should also fulfil the function of centres of socialisation for the local population. As such, each node should be structured around a public open space such as a square or park; • The nodes should be integrated with major public transport facilities, and should as far as possible be located in such a manner that it is within walkable distance from a large section of the local population; and • Main routes linking the nodes with the internal neighbourhood should have a strong pedestrian focus.

3.1.2 Corridors

A development corridor can be defined as "… a linear strip of land or area, connecting large activity nodes, traversing urban or inter-urban areas, surrounding a major transport facility or facilities providing an appropriate regional level of mobility and accessibility to adjacent areas, and containing a high concentration of population and mixed land uses" and "… accommodate major linear transport routes like heavy and light rail and/or freeways, large shopping concentrations, social, cultural and sporting facilities as well as a large amount of residential accommodation".

The typical elements of a development corridor are:

- Major movement infrastructure such as a railway line or highway acting as the movement route of the corridor;
- Supporting movement infrastructure such as local access roads that will provide access for land uses situated adjacent to the main movement route (typically the main movement line provides a high level of visibility to land uses while adjacent roads provide access to land uses);
- The main movement route should preferably act as a conduit for public transport, with public transport facilities located along the corridor;
- Forces of attraction along the corridor, such as major destination points along the corridor, which creates the development impetus for eventual linear development along the corridor; and
- High intensity land uses along the length of the corridor.

What is important to understand is that the corridor needs not take the form of a continuous integrated band of activity. At points of highest access along the central corridor development will be more intense and of a higher order while at locations of lower access, lower intensity development or even part of a natural open space network may be found.

Key typologies

- **Primary and Secondary corridors**: These are areas of significance in terms of scale, location, impact, diversity and agglomeration of functions (facilities, services and economic activities), which have a significant impact in the Breede Valley Municipality.
- **Activity spine**: The activity spine must be linked to major public transport routes in order to support public transport. It must reinforce the strong urban linkages with the town and must connect to that activity network. There needs to be a functional relationship with the nodes in the municipality, with the nodes typically acting as destinations on the activity spines and the activity spines must have a degree of demonstrated development potential,

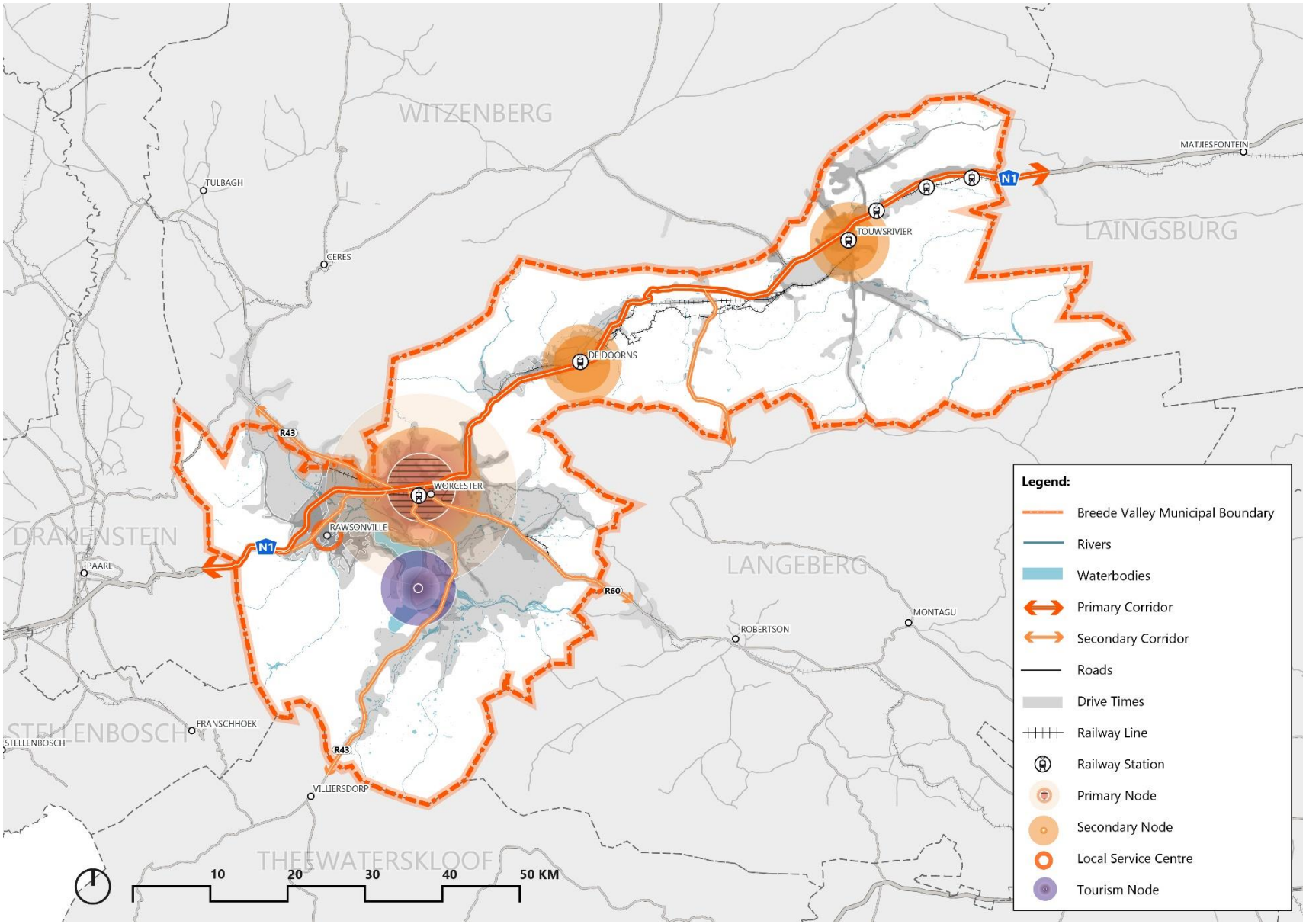
Table 6 Corridor strategy

Strategy

Proposal	Identified Corridors	Map icon	Guidelines
Primary Corridors:	N1		• A variety of goods, services and speciality products are offered; and • Higher density residential development should form an integral part of the environment. However, residential development in the business area must comprise business development on ground floor.
Secondary Corridor:	Old N1 Road (R101) R60 R43		• Investment focused on providing at least basic services; • Provide rudimentary public amenities and social services; • Discourage urban sprawl; and • Focus on improved linkages.

Figure 2 View along Hoogstraat in a westerly direction

Proposal	Identified Corridors	Map icon	Guidelines
Activity Spine:	**Worcester:** Hoog Street Baring Street Church Street **Rawsonville:** Van Riebeeck Street **De Doorns:** Voortrekker Street **Touwsrivier:** Jane Street Main Street		• High intensity, mixed land uses that are oriented towards the street space; • High density residential development, either directly adjacent to the street or within a distance of 500m from the activity spines; • The activity spines can be developed as continuous linear development areas or in the "beads-on-a-string" form. The nature of public transport and the length of the route should determine the development pattern. The longer the street and the less frequent stops are made by public transport, the more the development pattern should focus on the beads-on-a-string form. Shorter distances or where frequent stops are made by public transport are more conducive to continuous linear development; • Activity spines should show a large degree of public investment in infrastructure and the public domain; • Large parking lots adjacent to streets should not be permitted. Buildings should be placed as close to street boundaries as possible to facilitate pedestrian movement and to define and shape the public space. Land uses on the ground floor of buildings must have a façade out onto the public area (e.g. shops, restaurants etc.); • Site layouts and building designs of individual developments must take cognisance of and support public transport and pedestrian movement; and • Activity spines must achieve a balance between promoting access, creating pedestrian friendly environments, and accommodating mobility.



Map 2 Nodes and Corridors

3.1.3 Natural Open Space Systems

The protection and management of the municipality's natural environment is important for the following reasons:

- The ecological integrity of the natural open space is important in order to maintain natural systems and processes;
- The protection of the natural visual quality of the area increases the attractiveness, liveability, and investment potential of the area;
- The natural open space plays an important role in the social, mental, and physical well-being of residents; and
- The natural environment forms the basis for tourism in the Breede Valley Municipality and it is therefore imperative that the natural environment is conserved to ensure the long-term sustainability of the tourism industry in the municipality.

Key typologies

Natural open space consists of areas or physical elements that have valuable ecological characteristics and include:

- Mountains and ridges;
- Rivers and dams;
- Environmentally sensitive areas;
- Drainage lines; and
- Riparian zones.

Strategies

The natural open space system should be protected from intrusive, irresponsible and ad hoc developments that damage the ecological integrity as well as visual quality of these areas. These include rural development and mining activities.

A continuous open space system must be developed in the municipality. This means that in certain areas where natural open space is currently affected by undesirable activities, the municipality must intervene in order to ensure that these ecological corridors can be created and are able to function appropriately. Focus should be placed on and resources allocated to those consolidated natural open space areas where long term ecological sustainability can be achieved.

The table below identify prominent natural open space systems which impacts on the form and growth within the Breede Valley Municipality.

Table 7 Natural open space systems within the Breede Valley Municipality

Mountains and ridges	Slanghoek, Little Drakenstein, Elandskloof, Lemiet and Stettyns Mountain ranges, and the Du Toitskloof Mountains.
Rivers, riparian zones, drainage lines	Breederivier, Smalblaarrivier, Holsloot River, Hexrivier as well as any floodplains, wetland and river features.
Environmental sensitive areas	Fonteintjiesberg, Brandvlei, Bokkeriviere, Touw Local Authority Nature Reserves, the Elim Private Nature Reserve as well as other high lying and lower lying CBA and ESA areas.

Spatial Planning Categories

The Provincial Spatial Development Framework (PSDF) called for the review of the 2009 draft Western Cape Rural Land Use Planning and Management Guidelines to support and guide the implementation of the provincial spatial agenda in rural areas. The updated draft guideline incorporates the latest Western Cape Biodiversity Spatial Plan categories and associated guidelines and climate change corridor information and informs the delineation of Spatial Planning Categories (SPC) and the interpretation of the nature, scale and form of land uses that are suitable in each SPC as illustrated in Table 8.

Table 8 Sub-categories of each Spatial Planning Category (SPC) (Department of Environmental Affairs and Development Planning, 2018)

SPC	Description
Core 1	These include habitats classified as highly irreplaceable, critically endangered, or endangered terrestrial (land), aquatic (rivers, wetlands & estuaries) and marine habitats.
Core 2	Includes compromised areas in a degraded condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. These areas should be rehabilitated and only low-impact, biodiversity-sensitive land-uses are appropriate.
Buffer 1	Areas may be degraded but still play an important role in supporting the functioning of Protected Areas and Critical Biodiversity Areas and are essential for delivering ecosystem services. These areas should be restored and/or managed to minimize impact on ecological infrastructure functioning.
Buffer 2	This category includes areas designated as Other Natural Areas, located in an extensive and/or intensive agriculture matrix as the dominant land use.

SPC	Description
Intensive Agriculture	Includes areas comprised of a consolidation of the existing and potential intensive agricultural footprint. Significant or complete loss of natural habitat and ecological functioning has taken place.
Settlement	This includes existing cities, large and smaller towns, villages and hamlets.
Industry & Existing Mining	Areas are suitable for development but may still provide limited biodiversity and ecological infrastructure functions and should be managed in a way that minimises impacts on biodiversity and ecological infrastructure.

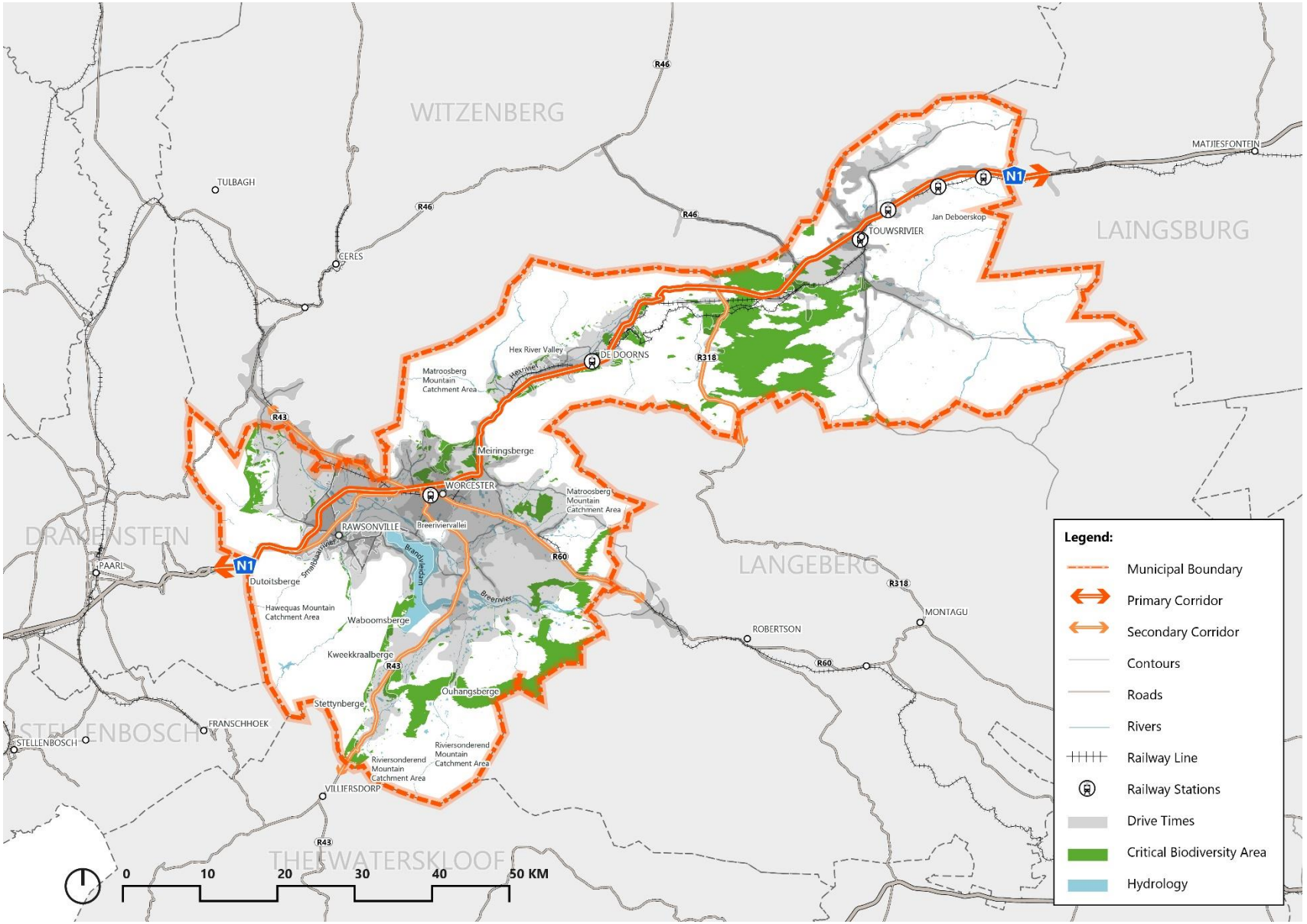
3.1.4 Agriculture

Historically agricultural land has not played a significant role in urban structuring. This is based on the need for agricultural production areas in close proximity to the settlements on account of cost advantages due to proximity to the market, direct and indirect employment opportunities for the inhabitants, stimulation of secondary business activities (e.g. marketing) and food security.

These areas should be reserved as prime agricultural land in the municipality and be protected from any development or land uses that may have a negative impact on the agricultural potential of the area.

Key typologies

- **Agriculture** - The cultivation of land for crops and plants or the breeding of animals or the operation of a game farm on an extensive basis on natural veld or land.
- **Agri-Industry and Agri-Processing** - An enterprise for the processing of agricultural products on a farming unit or within a rural area owing to the nature, and fragility of such agricultural products (e.g. abattoirs and farm pack stores).
- **Agri-Village** - A private settlement situated within an agricultural area and where residence is restricted to bona fide farm workers and their dependents of the farms involved in the development.
- **Agri-Tourism** - A type of tourism in which traveller's travel to rural areas to experience the activities and lifestyles of people living and working in the agricultural sector.



Map 3 Natural Open Space

3.1.5 Culture and heritage

Although cultural heritage is not necessarily always spatial in nature or are not necessarily always on the same scale as other components of the spatial development concept, it is necessary to address it as part of the spatial development proposals. It forms an important part of the spatial environment and development proposals can have a harmful impact on the area's cultural heritage.

South African National Heritage Legislation makes provision for the protection of all natural and man-made heritage objects and intangible heritage. This includes rare phenomena like interesting rock formations, mountains, vistas, trees, bio-spheres, buildings, ruins, roads, animal or man-made tracks, fields, drifts, dams and furrows, graves, artwork, marked or unmarked places of worship or other religious or cultural uses. It also includes intangible heritage like folklore, folk art, folk dances, traditions, written and aural history, place names etc.

In general, South African National Heritage Legislation stipulates that anything older than 60 years is regarded as of potential heritage value and may therefore not be destroyed or altered without written permission by the South African National Heritage Council. Even younger objects that the general public and/or the South African National Heritage Council may regard as of heritage value can be declared as Heritage Site/Objects with the same protection.

Strategies

- All new developments should consider heritage resources as part of the environmental impact assessment process;
- All developments that affect existing structures older than 60 years or those that have been afforded protected status must adhere to the provisions of the relevant legislation;
- All gateways should be maintained as significant features. Signage that restricts the sight along routes in the vicinity of gateways must be avoided;
- Major landmarks should be conserved; and
- Historical sites such as forts, battlefields, cemeteries should be well maintained.

Figure 3 Building constructed in 1922

3.1.6 Tourism

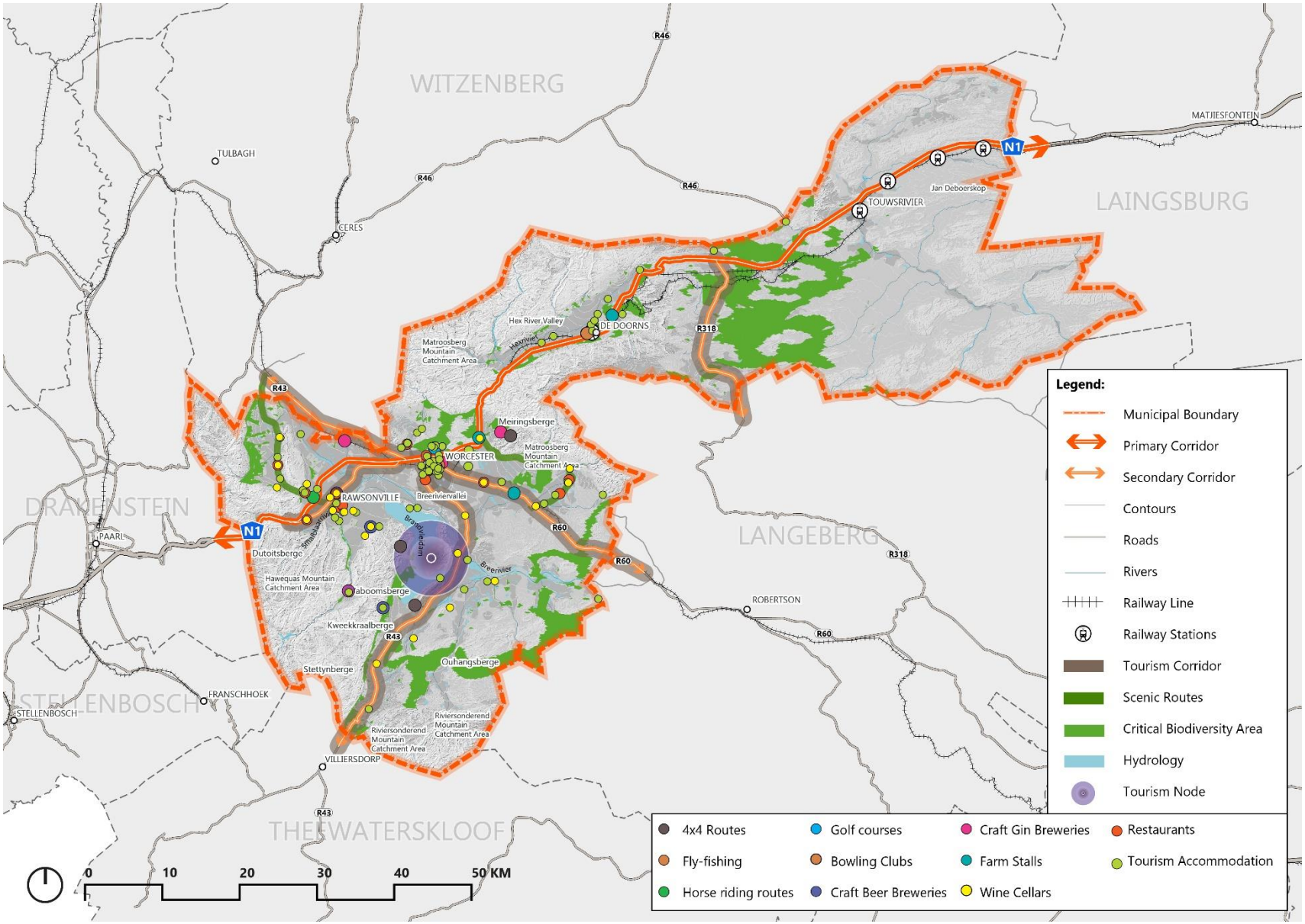
Two very important principles, which the tourism development areas must adhere to, are quality and accessibility. Quality refers to aspects such as environmental management, availability of essential engineering services infrastructure, land use management, development control and architectural standards. Accessibility refers to the availability of and quality of movement infrastructure such as roads and rail as well as the availability of transport services in the area.

Strategies

Linked to the presence of high quality natural environments in the municipality, one of the municipality's niche development areas is rural based tourism.

The following tourism sectors are active in the municipality -

- Heritage tourism;
- Eco-tourism;
- Outdoor recreation; and
- Agricultural tourism / game farming.



Map 4 Tourism

3.1.7 Growth management

Internationally, a sustainable approach to growth management aptly called "smart growth" is seen as the most efficient way of developing urban areas. Smart Growth is a collection of urban development strategies aimed at reducing sprawl and promoting growth that is balanced and fiscally, environmentally and socially responsible. Smart Growth tries to promote growth and development in areas with optimal opportunity and offers an antidote to the sprawl that has resulted from unlimited low-density development further and further away from the urban centres. Rather than simply restricting development, smart growth is focussed on how and where new development should be accommodated.

The principles of smart growth are:

- New growth and development must be leveraged to improve existing areas of opportunity;
- Redevelopment of existing areas must be promoted rather than abandoning existing infrastructure and facilities only to rebuild it farther out;
- Development must be "town-centre", transit and pedestrian oriented;
- Integrated, mixed-land uses must be promoted in strategic locations;
- Enhancement of ecosystem diversity;
- Protection of open spaces; and
- The use of green infrastructure.

Key typologies

The following key typologies governing the management of the Breede Valley Municipality are:

- Urban development areas;
- Rural development areas;
- Urban Edge;
- Infill and densification (strategic development areas); and
- Managed expansion areas.

Urban development areas

The urban development areas are areas within the urban area with strategic growth potential. It is accepted that growth will take place in these areas and that the largest provision of future integrated human settlements will be focused within these areas. It is also the priority areas for infrastructural and community service provision. Private sector investment is also encouraged in these areas.

Rural development areas

The rural development areas include settlements clustered relatively close to each other and surrounding the towns. The focus of interventions within the rural development areas focus on the provision of basic services and community facilities.

Urban edge

One of the major issues that affects the future development and spatial structure of the municipality is urban growth management. National and provincial policy directives demand of local authorities to compact urban areas and prevent continuous outward urban sprawl.

The urban edge is defined as an institutional boundary within the municipality with the sole purpose of containing physical development and sprawl and re-directing growth towards a more integrated, compact and efficient urban form.

Peripheral locations are faced with continuous outward development pressures and are typically seen as the perpetrators of sprawl. The delineation of an urban edge is vital for achieving an efficient and sustainable municipality through:

- Containment of urban sprawl;
- Intensification of development;
- Integration of urban areas;
- Protection of valuable agricultural, natural and cultural resources;
- The optimum use of existing resources in established urban areas, such as bulk service infrastructure, roads and public facilities; and
- Reducing the need for commuting as well as commuting distances.

The value of having a long term urban development boundary (urban edge) for the municipality is that:

- It enables long term, focused planning for infrastructure and services delivery;
- It provides certainty in the market; and
- It enables integrated, pro-active long term spatial planning which can direct and manage growth and development.

Strategic Development Areas (Infill and densification)

Densification is not an end in itself, but a means to achieve more efficient utilisation of transport, as well as the creation of the necessary population thresholds to support community and business facilities. To prevent low density outward expansion and development on valuable ecological and agricultural land, infill and densification is imperative. In the case of pedestrian-orientated communities like those in the Breede Valley Municipality, densification helps with improving access to key facilities and amenities in the town.

Aspects that may influence the level of densification in a particular local context include:

- Availability of infrastructure and services which can support higher density residential development;
- Heritage aspects;
- Socio-economic characteristics; and
- Topography.

General guidelines for densification can be summarised as follows:

- Promote average gross residential density of 30du/ha in urban settlements dependent on public transport;
- Densification must also take into account the cultural landscape of the specific town or area; and
- Promote average gross residential density of 15du/ha in small rural villages not dependent on public transport.

Densities should increase toward major access routes and strategic centres or cross roads as follows:

- Medium residential densities >15du/ha – 60du/ha within 1km of major transport route;
- High densities – will only be restricted by Floor Area Ratio (FAR), coverage and height: and should preferable be located in the CBD or urban core; and
- Mixed uses should be considered at higher densities.

Proposed New Development Areas;

Proposed new development areas refer to the gradual and incremental outward growth of a settlement (i.e. the so-called ripple effect), but within demarcated urban development boundaries (or urban edge), as opposed to leap frog developments that are not physically and functionally integrated with the main urban area. This approach is of particular importance for future urban development in the Worcester area. Because of the size of the area, it will take a number of years for development to fill this area. It is further fundamental that these areas are connected to existing PT&NMT to ease the move from the periphery to the core of town. What should not happen is a scattering of developments throughout the area which have no linkages with each other or the main urban activity areas. The Breede Valley Municipal Spatial Development Framework should therefore indicate the phased development of the area through an incremental development approach. Leap frog development should not be permitted in the area.

3.2 Land Use need and requirements

This section proposes a set of general guidelines or preferred patterns of land use which prescribes the nature and extent of land uses which may be permitted within the municipal area. It distinguishes between land uses for the different areas depending on their suitability / desirability in a specific area, and with the view to promote certain specialised uses in the expansion areas where agglomeration benefits exist and where it has a competitive advantage and may benefit the larger municipal area.

The general land uses illustrated should only serve as general guideline in those cases / areas where no other guideline exist or where any local area plan or precinct plan is absent, which may propose / prescribed different land uses as mentioned in these tables. This section will identify the land use mix associated with the spatial structuring elements, the classification of land uses as well as the housing toolkit which aim to guide the type of residential development with an indication of preferred location of these.

3.2.1 Land use matrix

The following matrix provides a guideline for the implementation and management of land uses in relation to the spatial structuring elements. The SDF is a high order framework as such the exact delineation of these areas should be described in local plans and precinct plans.

Land Uses	Priamry Node	Secondary Node	Local Service centre	Primary Corridor	Secondary Corridor	Activity Spine	Specialised Industrial Precinct	Natural Open Space	Agriculture	Culture and heritage	Tourism	Infill and Densification	Managed Expansion areas
Specialised Business	●			●									
General Business	●	●	●	●	●	●							
Services related business	●	●	●	●	●	●						●	●
Local Business	●	●	●	●	●	●						●	●
Noxious industry							●						
Light Industrial	○			○			●						
Service industry	○	○		○	○	○	●						
Resource oriented industry and mining							●						
Educational	●	●	●	●	●	●							●
Health	●	●	●	●	●	●							
Place of worship	●	●	●	●	●	●				●		●	●
Community Facility	●	●	●	●	●	●							●
Single Residential													●
Multiple Residential	○	○		○	○	●						●	●
Rural Residential									●				
Farmstead									●				
Farm									●				
Agri business									●				
Agri industry									●				
Nature Conservation								●			●		
Adventure tourism								●	○		●		
Tourism attractions and heritage sites	●	○	○	●	○	○			○	●	●		
tourism accomodation	●	○	○	●	○	●			○	●	●		
Open sapce and recreation	●	●	●	●	●	●				●		●	●

Figure 4 Implementation and management of land uses matrix

3.2.2 Classification of land use

The tables below provide a general guideline for each of the identified land uses.

Table 9 Classification of land uses

Business and retail		
Specialised Business	**General Business**	**Service Related business**
		
Purpose and description: To provide in the highest spectrum of retail trade in consumer, luxury and specialised goods as well as personal services, offices, both local and of regional importance and banking facilities (normally uses associated with CBD's).	**Purpose and description:** To provide in a higher spectrum of services to residents, normally limited to consumer goods and small portion of luxury goods and personal services. (normally associated with sub-urban shopping centres serving more than one neighbourhood)	**Purpose and description:** To provide in services incidental to the needs of a community and/or a specific market which cannot be classified as consumer goods or personal services or as service industries. It may also include manufacturing of curios, art etc.
Typical facilities: Shops, offices, restaurant, medical consulting rooms, banking, commercial use, conference facility, hotel, business tavern, places of amusement, public garage, vehicle sales lot, funeral parlour, social hall, place of instruction, institutions, dwelling units (high density)/flats, residential building, municipal purposes.	**Typical facilities:** Shops, offices, restaurant, medical consulting rooms, banking, places of amusement, social hall, municipal purposes.	**Typical facilities:** Bakery, dry-cleaner, filling stations, hand-craft and art studios/shops.

	Industrial	
Local Business	**Noxious industry**	**Light Industrial**
		
Purpose and description: To provide in a limited demand for consumer goods only.	**Purpose and description:** To accommodate industries with a health hazard and/or component of nuisance which can affect the environment and/or human lives and animal life. Normally classified in legislation as noxious or hazardous or just causing nuisance, smells etc.	**Purpose and description:** To provide in factories and uses for manufacturing, alteration, installation, mounting and repair of goods and products, which cannot be classified as a Noxious Industry.
Typical facilities: Shop or spaza/kiosk, rural general dealer.	**Typical facilities:** Noxious industries, panel beaters	**Typical facilities:** Commercial use, Bakery, dry-cleaner, funeral parlour, crematorium, industries, service industries. Warehouse, public garage, scrap yard, builder's yard.

		Community Services
Service Industry	**Resource orientated industry and mining**	**Education**
		
Purpose and description: To provide in services incidental to the needs of a community and/or a specific market. The emphasis of such uses is on maintenance and repair. No nuisance may be caused.	**Purpose and description:** To permit the processing and excavation, mining and prospecting of raw material and minerals found in the immediate area on the property or underground.	**Purpose and description:** To make provision for educational and training facilities/services for the community
Typical facilities: Tyre and exhaust fitment centres, servicing and repair of air conditioners, audio and video equipment, household equipment, upholstery.	**Typical facilities:** Mines and quarries.	**Typical facilities:** Schools, pre-schools, crèches, day-care centres and other training facilities.

Health Facility	Place of Public Worship	Community facilities
		
Purpose and description: To make provision for medical and health care facilities, as well as other institutional uses for the community.	**Purpose and description:** To make provision for religious places and places of public worship for the community	**Purpose and description:** To provide for municipal or other government services/land uses and facilities to serve communities. (excluding infrastructure)
Typical facilities: Institutions, hospitals, clinics, step-down facilities, medical consulting rooms, medical centres, old age homes, nursing homes.	**Typical facilities:** Churches and educational facilities	**Typical facilities:** Community halls, libraries, municipal offices, Thusong centres, fresh produce markets, show grounds, landfill sites, cemetery, etc.

Residential		
Single Residential (Low Density)	**Multiple (Medium density) Residential**	**Multiple (high density) Residential**
		
Purpose and description: To provide in single residential erven with Freehold Title tenure	**Purpose and description:** To provide in multiple (Medium density) residential erven with Freehold Title tenure	**Purpose and description:** To provide in multiple (high density) residential erven with Freehold Title tenure
Typical facilities: Single dwelling, Second dwelling, Second dwelling (Garage conversion), Semi-Detached	**Typical facilities:** Town house, Row house (1 - 2 Streys), Masonette, Court Yard Houses	**Typical facilities:** 3 Storey Block apartments, 2 Storey Block Apartments

	Agriculture and farming	
Farmstead	**Farm**	**Agri-business**
		
Purpose and description: To permit the necessary dwelling unit and subservient housing accommodation for employees on farms on agricultural land,	**Purpose and description:** To allow productive and subsistence farming and agricultural uses	**Purpose and description:** To allow agro-businesses directly associated with farming products produced on a productive or subsistence farm or in the immediate area
Typical facilities: Agriculture	**Typical facilities:** Productive and/or subsistence farm, crop growing, grazing, stock farm, game farm, fish breeding, equestrian centre and schools, vegetable gardens and forest plantations, etc., including necessary farm dwelling unit/s and outbuildings as well as farm stall for selling of goods produced on the farm.	**Typical facilities:** Butchery, nursery, fresh produce market, dairy, chicken hatchery and kennels.

	Recreation & Tourism	
Agri-industry	**Nature Conservation**	**Adventure Tourism**
		
Purpose and description: To allow agro-industrial uses directly associated with farming products produced on a productive or subsistence farm or in the immediate area	**Purpose and description:** To ensure protection of natural resources and the environment	**Purpose and description:** To provide for active outdoor recreation and enjoyment of natural resources.
Typical facilities: Packers, sawmill, canners, processing plants for agricultural products and an abattoir.	**Typical facilities:** Proclaimed Nature conservation areas and nature reserves, private nature conservation areas, and open spaces	**Typical facilities:** Hiking trails, mountain climbing, cycling trails, fishing sites, bush camps, 4x4 routes, game farms, hunting farms etc.

Tourism attractions and heritage sites	Tourism accommodation	Open Space and recreation
		
Purpose and description: To provide for tourism attraction sites, museums, heritage sites and other passive recreation.	**Purpose and description:** To provide for overnight accommodation facilities for visitors and tourists to nature conservation areas and areas of adventure tourism	**Purpose and description:** To provide for active and passive recreation within townships
Typical facilities: Heritage sites, historical places, museums, cultural historical sites and attractions, nature sceneries	**Typical facilities:** Lodges, overnight accommodation, guest houses, residential building, hotels, caravan parks and tent camps, game lodges, hunting lodges etc.	**Typical facilities:** Gardens, parks, sport fields, sport grounds, playgrounds, squares

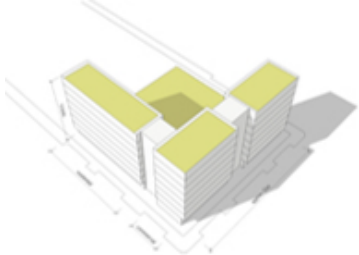
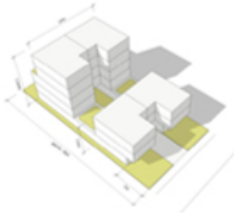
3.2.3 Housing Toolkit

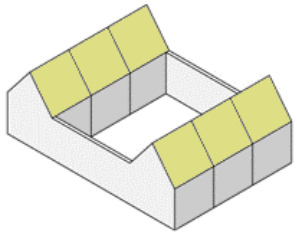
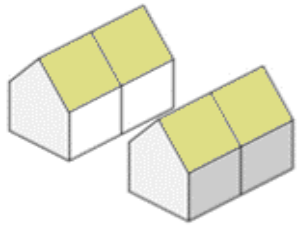
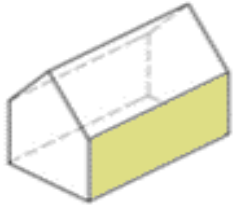
Urban areas should not be seen as areas that are static, but rather as areas that continue to grow and take shape with changes to human behaviour. Furthermore, few urban environments have an intrinsic quality that will see it retaining its value and condition over an extended period of time without focused interventions. Lastly, investment and redevelopment are required in order for property values to be retained or to grow. Residential development further follows the spatial form of urban development example high density development in the form of blocks of flats are found within the CBD and along activity corridors whilst low density development occurs within the neighbourhoods and towards the periphery of an urban area. This toolkit thus provides a framework to guide future residential development.

The residential areas within the Breede Valley Municipality have very low densities showing room for densification without losing spatial qualities. A diversification and consolidation of densities may be required from the redefinition of the residential typologies mix (single family, townhouse, mix use – mid-rise apartment buildings) with the consideration of live and workspace so that the current social and economic dynamics can be enhances

The following table illustrates the different development guidelines per density zone, including the dwelling units per hectare, building density and height, preferred densification options as well as housing typology.

Table 10 Housing toolkit

	Density (du/ha)		Building Height	Housing Typology	Housing Typology
Very High Density **(Located within the urban centre and key commercial areas)**	120	250	More than 3 Storeys	• Large Block • Large Block (Ground Floor Retail)	
High Density **(Typically located along activity corridors)**	100	120	Max 3 Storey	• 3 Storey Block	
Medium to High Density **(Located in areas with emerging centres of significance)**	80	100	Max 2 Story	• 2 Storey Block	

	Density (du/ha)		Building Height	Housing Typology	Housing Typology
Medium Density **(Located in areas near job opportunities e.g in close proximity to industrial areas)**	40	80	1 – 2 Story	• Court Yard Houses • Duplex Court Yard Houses • Town Houses • Row Houses (2 Storey)	
Medium to Low Density **(Residential neighbourhood and towards the periphery of town)**	15	40	2 Story	• Maisonette • Row House (1 Storey) • Court Yard Houses	
Low Density **(Residential neighbourhood and towards the periphery of town)**	1	15	1 Story	• Single Dwelling • Second Dwelling • Semi detached	

3.2.4 Land use demand

This section will review the allocation of supporting social and civic facilities (for example the provision of schools and health facilities). The most specialised land uses with the intention to serve the entire municipal area or larger region should be located at strategic locations within the primary nodes and the most rudimentary land uses and those necessary to serve the local market, locate in the secondary nodes and service centres. The Guideline for the provision of social facilities in South African settlements, 2012 provided by the CSIR, is a useful tool to identify the number and type of social and civic facilities based on the size of the population. Population growth projections are applied to determine the future demand for these facilities.

From this analysis it is clear that a number of additional facilities would be required within the Breede Valley Municipal area. The most pressing facilities are as follows:

- Mobile / periodic health clinic;
- Community halls (small to medium);
- Post offices;
- Social grant pay points;
- Secondary schools; and
- Primary schools.

Refer to Annexure A for a detailed breakdown of the required need.

Figure 5 Fire station located in De Doorns

3.3 Proposal per focus area

The following section provides an overview of the spatial elements (as discussed above), proposed land use management and housing demands for each of the towns within the Breede Valley Municipality.

3.3.1 Worcester

Worcester is the administrative centre of the Municipality, but also the regional service centre for the North Boland area (Environmental Affairs and Development Planning, Western Cape Government, 2014, p. 80), thus it's reach and impact extends far beyond the borders of the Breede Valley and as such it is expected to experience the highest growth rate within the Breede Valley Municipality compared to the other settlements. Worcester is surrounded by rich agricultural land and the Slanghoek, Little Drakenstein, Elandskloof and Lemiet Mountain ranges are located towards the northwest of the town the Stettyns mountain range to the southwest and the Du Toitskloof Mountains towards the west of Worcester.

The Breede Valley Municipality, as a whole, is also strategically located as it has adequate road connections to the N1, N2 and the N7 road networks. This characteristic makes it a gateway for connecting to the northern regions of the country as well as to the Cape Metropole.

Movement within the Breede Valley Municipality is largely facilitated by the N1 national road and the Cape Town to Gauteng railway line. The railway line northeast of Worcester follows the same alignment as the N1 freeway, transporting both freight goods and passengers.

Based on the CSIR guideline classification for settlements Worcester is currently categorised as a Category D settlement – small to medium town / regional service centre.

The 2011 census data indicates that Worcester had a population of 78 906 and the estimated 2018 population is approximately 97 044.

Worcester exhibits a number of heritage, cultural and architectural features in the form of monuments and historical buildings which should be protected to maintain the character of Worcester.

Worcester was initially developed according to a grid pattern with the main church, square and municipal buildings at its centre. Informal settlements are located along the periphery of town away from adequate job opportunities and social and civic facilities. Upper market development currently occurs along the N1 within the vicinity of the Mountain Mill Mall.

Several opportunities and challenges have been identified. The opportunities include:

- Attractive tourism routes and activities;
- Need for businesses specialising in niche products;
- Potential to link tourism opportunities within the agricultural sector;
- Worcester offers an accessible location with its proximity to the Cape Town metropole;
- Increase in property values; and
- Planning of the eastern-bypass could alleviate congestion in the Central Business District (CBD).

The challenges identified include:

- Pressure on the supply of basic infrastructure (for example the provision of electricity for new developments);
- Congested roads and trucks transporting goods through the CBD;
- High unemployment rates; and
- Dilapidated CBD.

Structuring elements and growth management

This section identifies the various structuring elements which impacts on the growth of Worcester and identify appropriate means to grow in the future.

Natural Open Space

Section 3.1.3 Natural open space systems identify the natural open space surrounding Worcester. The Environmental Resources Protection Plan for the Breede River Catchment in the Western Cape dated 2017 provides a guideline for the management and protection of these areas. Further to this, the following generic principles should apply to the natural open space systems:

- The natural open space system should be protected from intrusive, irresponsible and ad hoc developments that damage the ecological integrity as well as visual quality of these areas. These include urban development, mining activities and agriculture;
- A continuous open space system must be developed in Worcester. This means that in certain areas where natural open space is currently affected by activities the municipality must intervene in order to ensure that ecological corridors can be created and are able to function appropriately; and
- Focus should be placed on and resources allocated to those consolidated natural open space areas where long term ecological sustainability can be achieved.

New development should occur in a manner which promotes the protection of the bio-physical environment. It is recommended that the Breede Valley Municipality prepare an Environmental Management Framework which will indicate the nature and intensity of land uses that can be accommodated in these areas from an environmental perspective.

Parks and open space

The development of a planned, interlinked open space network provides the urban environment with variety, legibility and visual relief. It also provides residents with an opportunity to enjoy open space, recreation and general amenity without having to travel great distances. It also provides for flood attenuation, stormwater management and urban agriculture opportunities.

New development should thus occur in a manner that:

- Promotes a network of integrated hard and soft recreational spaces and biodiversity protection;
- Tree planting along routes and PT and NMT networks;
- Protects and promotes movement between the rich cultural and architectural heritage buildings, squares and national monuments;

- Maximise the use of public parks e.g. the use of parks for public markets, picnic facilities, braai areas and other activities which brings people together;
- Promotes the multi-use of parks to enable sport activities;
- Encourages urban food gardens especially in poorer communities;
- Redesign old decommissioned railway lines into greenways and food gardens;
- Revitalise public spaces through public and private investment creates attractive meeting places which fosters closer relationships, learner friendly atmospheres and reduces crime; and
- Enables market stalls and the spill over of shops and restaurants onto courtyards and public squares one maximises the use of these public spaces and in turn creates additional economic benefits to the local economy.

Agriculture

Worcester is surrounded by prime agricultural land which makes a significant contribution to the Regional Gross Domestic Product (RGDP). These areas should thus be reserved and protected from any development or land uses that may have a negative impact on the agricultural potential of the area.

Map 5 Worcester structuring elements

Nodes

Worcester is the administrative centre of the Municipality and as such has been identified as the primary node with the Breede Valley Municipality. Sub-centre nodes play a vital role in creating central points for social, civic and economic activity, therefore a number of sub-centre nodes have been identified at strategic intersections and along activity streets. These sub-centre nodes will stimulate growth and intensification along these corridors. It will further promote intensification along these corridors.

Gateway

Gateways are important in creating a sense of place for towns. These gateways should as such be maintained as significant features and signage in the vicinity of the gateways must be avoided.

Four gateways have been identified. Two are located along the N1 with the third along the R60 and the fourth along the R43.

Corridors

The N1 national road has been identified as the primary corridor due to the importance it plays in the movement of goods between Johannesburg and Cape Town. The secondary corridors include the R60, R43 as well as the proposed eastern by-pass as well as Roux Road leading towards the CBD. These roads are instrumental to provide access to Worcester. The following roads have been identified as activity spine:

- Mountain Mill Drive, Klue Street, Greenwood Avenue and De La Bat Road;
- Trappe Street;
- Riebeeck Street;
- High Street;
- Albatros Street;
- Mayinjana Avenue; and
- Mtwazi Street.

Map 6 Worcester nodes and corridors

Proposed areas for residential development

A number of strategic development areas have been identified. Human Settlement programs and projects should be implemented on a focused, strategic, coordinated and hierarchical basis with the biggest investments to benefit the largest number of people.

Development within the existing urban form should be promoted to enable optimal use of available infrastructure and thus protecting areas of agricultural, recreational and ecological significance.

In order to reduce sprawl, it is proposed that new development should be focused in closer proximity to the CBD with higher densities as well as the development of vacant and underutilised erven.

It is expected that the population of Worcester will increase to between 115 000 to 130 000.

Housing demand: The current housing backlog is 14 274 with the following qualifiers in these areas:

Avian Park - 5 031 (4 608 qualifiers);

Worcester – 7 794 (6 400 qualifiers); and

Zweletemba – 3 359 (2 159 qualifiers)

Housing supply: The Trans Hex development will provide a total of 8 840 housing opportunities. The other housing projects as indicated in the 2018-2019 IDP total 6 088 units.

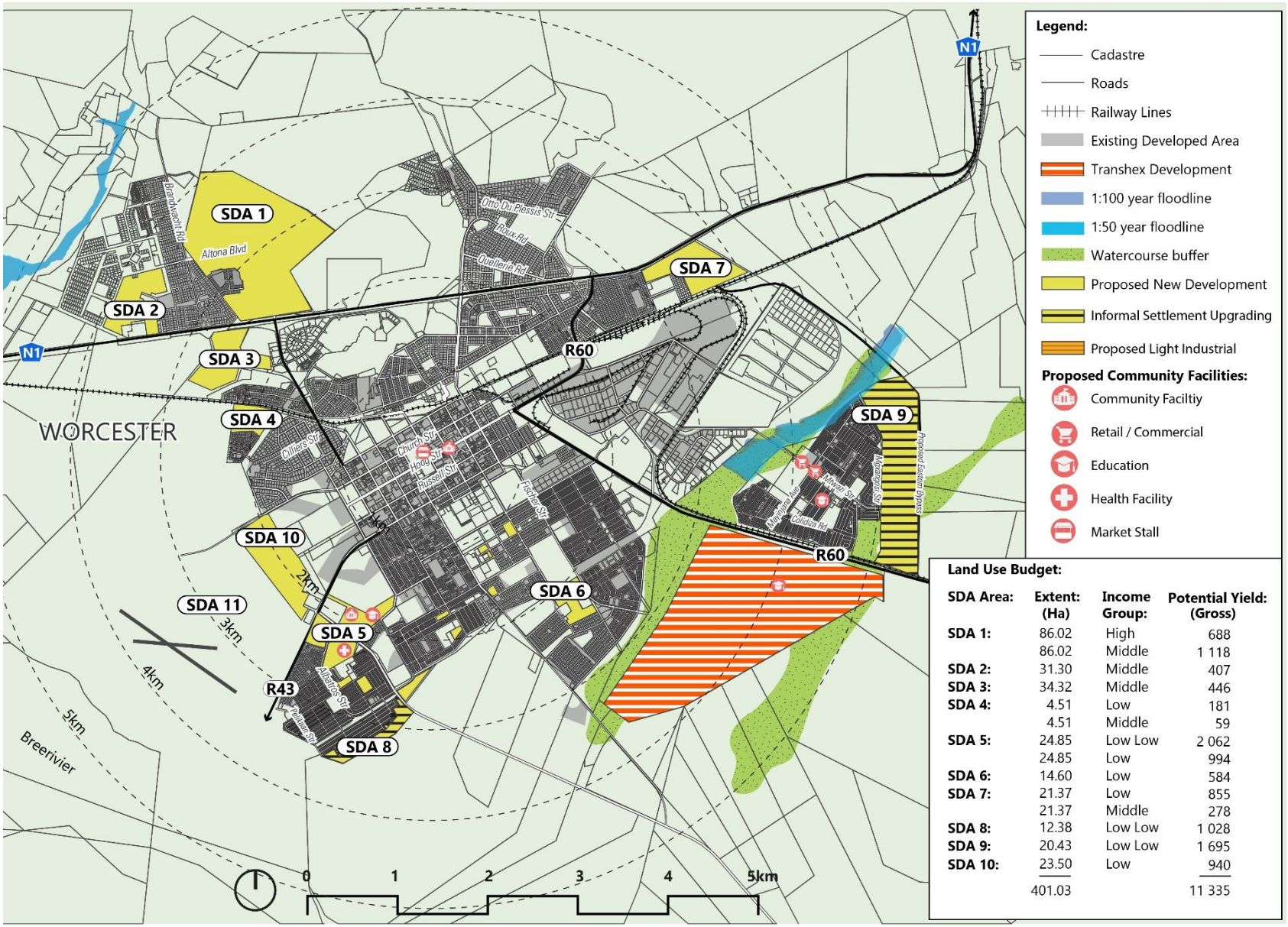
Proposed Development Areas (SDA): potential vacant and underutilised land throughout Worcester has been identified as proposed development areas. These SDA areas totals 386.53ha and a total of 10 395 units (gross) could be provided as illustrated in Map 7 below.

Public and community facilities

Worcester has a large number of public and community facilities, however with the increase in population growth a number of facilities would be required to contribute to creating functional and attractive urban spaces. Map 7 below identifies the general location for the additional community facilities.

Culture and Heritage

Worcester has a rich cultural and architectural heritage in the form of its buildings, squares and national monuments that should be preserved and promoted in a manner which attract visitors. An Architectural Walking Route has been created connecting 19 heritage significant sites. The old Gregorian and Victorian style houses should be preserved; however, these buildings can be converted to commercial and office buildings without compromising its architectural nature. The cultural and heritage precinct is illustrated in Map 8 below.



Land Use Budget:

SDA Area:	Extent: (Ha)	Income Group:	Potential Yield: (Gross)
SDA 1:	86.02	High	688
	86.02	Middle	1 118
SDA 2:	31.30	Middle	407
SDA 3:	34.32	Middle	446
SDA 4:	4.51	Low	181
	4.51	Middle	59
SDA 5:	24.85	Low Low	2 062
	24.85	Low	994
SDA 6:	14.60	Low	584
SDA 7:	21.37	Low	855
	21.37	Middle	278
SDA 8:	12.38	Low Low	1 028
SDA 9:	20.43	Low Low	1 695
SDA 10:	23.50	Low	940
	401.03		11 335

Map 7 Worcester proposed areas for residential development

Map 8 Worcester cultural and heritage precinct

Business and Commercial

Hoog Straat is the main road providing commercial opportunities in Worcester and it should remain the main commercial centre of the town. Numerous businesses have been established within the CBD for many years. However, the CBD and some buildings are run down, prone to criminal activity, the streets are congested, and street trading is taking place along many sidewalks which add to the congestion.

New commercial development is focused along the N1 near the Mountain Mill Mall.

New commercial development is focused along the N1 near the Mountain Mill Mall.

A number of businesses providing services to the high-income market are located along Church Street and Baring Street. The sense of place which has been created attracts entrepreneurs with a niche product offering who are willing to pay higher rent within idyllic locations. The expansion of this sense of place coupled with potential links with the heritage and cultural landscape could create new tourism and business opportunities in these areas.

Industrial development

An urban vision document for the Uitvlugt land earmarked for industrial development has been compiled in 2018. This document provides a framework for the development of the Uitvlugt Industrial Park. This site is the only expansion of the existing industrial area.

Tourism and Tourism Node

The promotion of existing tourism routes as well as the creation of new tourism and scenic routes and activities could maximise the competitive advantage of the region. Development should unlock the waterbodies as a sustainable underpinning of tourism and serve as a tipping point to invoke a sustainable iconic industry and promote development of critical mass.

A mixed-use tourism node is created at Brandvlei/Kwaggaskloof dam as illustrated in Map 4 (See Page 30). This node is created to enhance the comparative and competitive advantage of Worcester and Breede Valley as a region. These mixed uses should be accommodated within this node to create a unique mix of tourism, residential, business and agri-business uses. This node will have its own defined edge within which the development of freehold units should be allowed.

The Urban Edge

One of the key tasks of the SDF is to investigate the feasibility of the current urban edge and to make recommendations regarding an amendment to this edge to accommodate development pressure and long-term potential development needs. Future growth opportunities in the town were investigated to determine the availability of green fields for development. It is however proposed to redevelop and intensify before sprawling outward and extending the urban edge. A number of future development opportunities have been identified within the urban edge. This together with the anticipated housing demand it is recommended that the urban edge remain as it is.

Map 9 Worcester proposed areas for commercial and industrial development

Non-Motorised and Public Transport Network

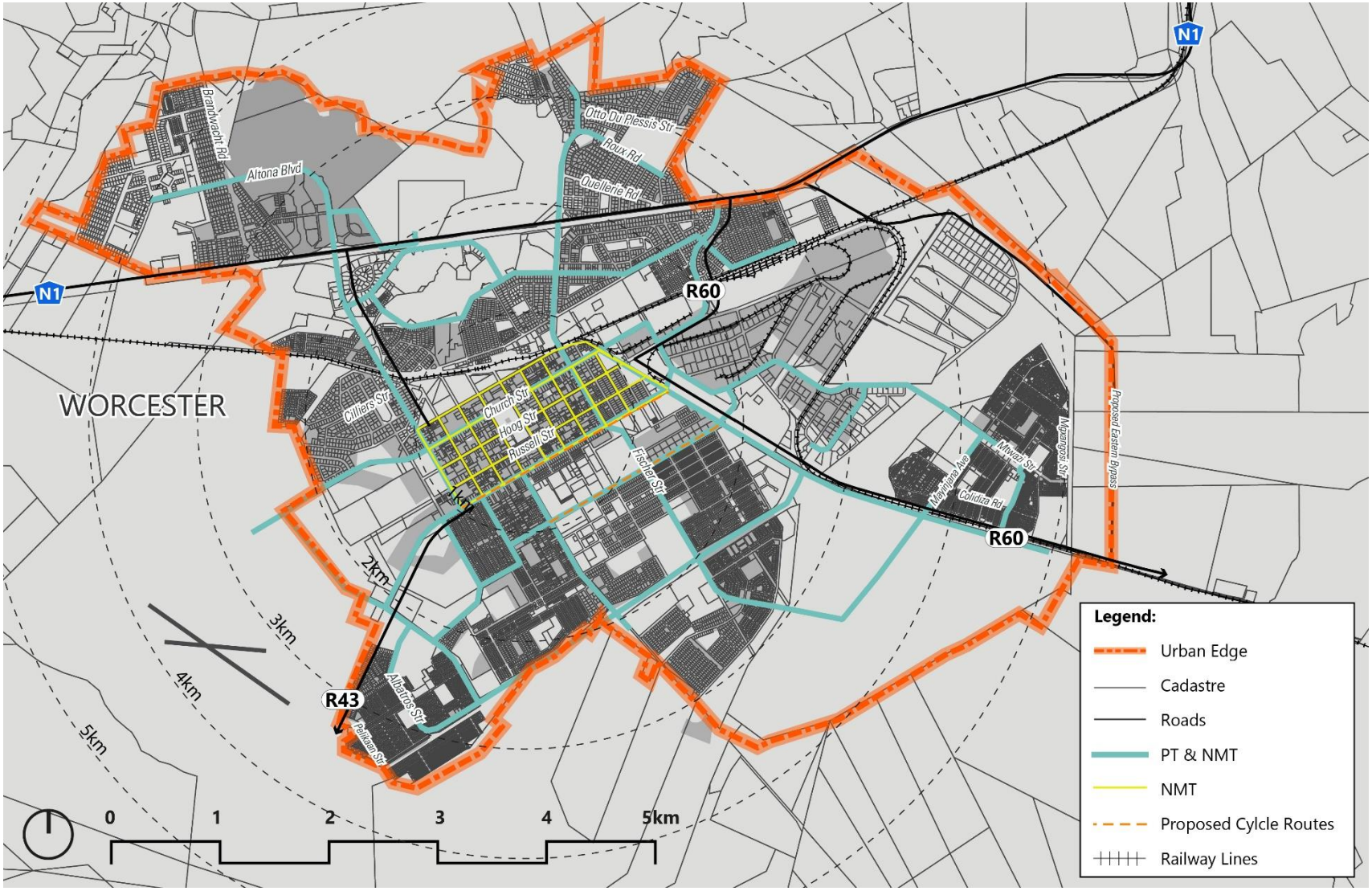
Public transport services are dominated by the minibus taxi, which is the primary mode of public transport within the Breede Valley Municipality. Rail and long-distance bus services are provided but limited.

In order to promote public transport usage, corridors should be created along key routes, providing public transport facilities and creating a connected network. These public transport routes will not only fulfil an important role in providing improved connectivity within the urban edge of Worcester but also connect commuters to outlying areas beyond the urban edge.

The primary grid of streets in the Worcester CBD and key corridor routes, connecting users to major nodes, should have cycle routes and improved pedestrian sidewalks to create continuous NMT routes. These routes should be safe, well maintained and universally accessible.

Development along major roads such as the N1 and R60 should make provision for safe crossing points for NMT users:

The proposed bypass route, between the R60 (Robertson Road) and the N1, will minimize the impact of heavy traffic through the Worcester CBD and enable the reclassification of the R60 (and other routes) to promote its function as PT&NMT route.



Map 10 Worcester Non-Motorised Transport and Public Transport Routes

Map 11 Worcester Spatial Development Framework

Infrastructure Response: Water

The existing residential demand is 12 595 kilolitres, which will increase to 17 611 kilolitres when the Trans Hex development is established. This will further increase to 25 042 kilolitres when SDA 1 to 9 is developed. The existing capacity in the reservoirs is 72 240 kilolitres per day which means that no additional reservoir capacity will be required to service the proposed residential areas. However, the non-residential demand needs to be assessed and compared against the current reservoir spare capacity to determine if any additional capacity is required. Table 11 below indicates the network capacity requirements in order to unlock SDA 1 to 9 and the Trans Hex development:

Table 11 Water requirements to unlock residential development

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 1	Distribution system items: 2 980m x 200mm Ø pipes, 1580m x 160mm Ø pipes Bulk supply items: 20l/s pump station to be constructed	7 037 877.06
SDA 2	Distribution system items: 1 600m x 250mm Ø pipes	2 516 752.90
SDA 3	Distribution system items: 2 980m x 200mm Ø pipes, 1 580m x 160mm Ø pipes Bulk supply items: 20l/s pump station to be constructed	7 037 877.06
SDA 4	Distribution system items: 775m x 160mm Ø pipes	779 954.56
SDA 5	Distribution system items: 6 925m x 500mm Ø pipes, 1 065m x 450mm Ø pipes	46 879 933.86
SDA 6	Distribution system items: 95m x 160mm Ø pipes	123 150.72
SDA 7	Distribution system items: 2 010m x 400mm Ø pipes, 920m x 315mm Ø pipes	8 458 401.95
SDA 8	Not accounted for in the current masterplan available - area will need to be assessed for the infrastructure requirements and associated cost.	-
SDA 9	Distribution System items: 1 780m x 250mm Ø pipes, 1605m x 315mm Ø pipe, 775m x 200mm Ø pipes, 75m x 160mm Ø pipe	9 925 948.03

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 10	Installation of a 1 700m Distribution and Construction of a new 20ml reservoir	37 159 920.00
Trans Hex	Distribution system items: 6 925m x 2 500mm Ø pipes, 425m x 450mm Ø pipe, 90m x 200mm Ø pipe Bulk supply items: 200 000m³ reservoir to install	83 626 802.56

With the current information available, the water supply network cost to unlock the SDA's proposed as well as the Trans Hex development is R1203 546 618.70.

Infrastructure Response: Sanitation

The existing residential flow is 8 214 kilolitres per day, which will increase to 13 480 kilolitres per day when the Trans Hex development is established. This will further increase to 18 326 kilolitres per day when SDA 1 to 9 is developed. The existing capacity at the waste water treatment works (WWTW) is 30 000 kilolitres per day which means that with the Trans Hex and SDA's being developed, there will still be a spare capacity to service the proposed developments' residential demand. However, the non-residential flow needs to be assessed and compared against the current WWTW spare capacity to determine if any further additional capacity is required. Table 12 below indicates the network capacity requirements in order to unlock SDA 1 to 9 and the Trans Hex development:

Table 12 Sanitation requirements in order to unlock residential development

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 1	Bulk main items: 5 044m x 525mm Ø pipes, 129m x 825mm Ø pipes, 734m x 750mm Ø pipes Collector pipe items: 1 731m x 200mm Ø pipes, 321m x 250mm Ø pipes, 1 161m x 315mm Ø pipes Reticulation pipe items: 741m x 160mm Ø pipes New flow diversion	32 854 852.80
SDA 2	Bulk main items: 5 044m x 525mm Ø pipes, 129m x 825mm Ø Pipes, 734m x 750mm Ø pipes Collector pipe items: 179m x 315mm Ø pipes Reticulation pipe items: 741m x 160mm Ø pipes New flow diversion	25 727 971.36

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 3	Bulk main items: 5 044m x 525mm Ø pipes, 129m x 825mm Ø pipes, 734m x 750mm Ø pipes Collector pipe items: 1161 x 315mm Ø pipes Reticulation pipe items: 741m x 160mm Ø pipes New flow diversion	28 836 594.08
SDA 4	Reticulation pipe items: 512m x 160mm Ø pipes	1 290 416.96
SDA 5	Bulk main items: 5 044m x 525mm Ø pipes, 129m x 825mm Ø pipes, 734m x 750mm Ø pipes Collector pipe items: 60 x 200mm Ø pipes, 922 x 250mm Ø pipes, 2120 x 315mm Ø pipes, 350m x 355mm Ø pipes Upgrade existing pump station x 2	7 365 985.76
SDA 6	Not accounted for in the current masterplan available - area will need to be assessed for the infrastructure requirements and associated cost.	-
SDA 7	Bulk main items: 129m x 825mm Ø pipes collector pipe items: 5m x 315mm Ø pipes	1 004 131.52
SDA 8	Upgrade existing pump station	249 233.60
SDA 9	Bulk main items: 88m x 525mm Ø pipes, 755m x 450mm Ø pipes	2 566 039.84
SDA 10	4 100m pipeline and upgrading of existing pump station	5 232 500.00
Trans Hex	Bulk main items: 1 243m x 525mm Ø pipes, 600m x 450mm Ø pipe, 129 x 825mm Ø pipe collector pipe items: 400m x 400mm Ø pipes, 200m x 355mm Ø pipes, 200 x 315mm Ø pipes, 200m x 250mm Ø pipes, 200m x 200mm Ø pipes reticulation Pipe Items: 200m x 160mm Ø Pipes	15 344 526.40

With the current information available, the sanitation network cost to unlock the SDA's proposed as well as the Trans Hex development is R120 472 252.30. Infrastructure costs in areas that are not covered in the current masterplans will need to be added to this amount once the relevant assessment is completed.

Infrastructure Response: Stormwater

In order to unlock SDA 1 for development, the stormwater network upgrades needed would entail approximately 16km of new stormwater pipes at an estimated cost of 120 million rand.

To unlock the Trans Hex development, the stormwater network upgrades needed would entail approximately 29km of new stormwater pipes at an estimated cost of 228 million rand.

SDA 2 to 4 are near the Worcester Dam and SDA 5 to 9 are near the Hex River. Stormwater infrastructure required would include a piped stormwater network within these SDA's as well as possible upgrades to the bulk stormwater line conveying runoff to the Worcester dam and Hex River. Proposed SDA's are not assessed for stormwater network requirements in the current stormwater masterplans and therefore the design and cost of this infrastructure would have to be assessed on a case by case basis.

Infrastructure Response: Waste

The existing waste generation in Worcester is estimated to be 29 594 tons per year. This is projected to increase to 47 054 tons per year with the development of SDA's 1 to 9. Including the Transhex development, the total waste generation is projected to be 60 654 tons per year. Worcester's current landfill is estimated to reach its capacity in 2019. The medium-term solution is the amendment of the height restriction for this landfill which will unlock 5 years of airspace. The long-term solution is the construction of a Cape Winelands Regional landfill site located in Worcester.

The construction of the new landfill site in Worcester is a critical waste infrastructure project which needs to be completed within the next 5 years. Since this is the main waste disposal site for the entire municipality, if this project is not completed in time then waste from all 4 main towns will need to be transported to disposal sites in adjacent municipalities which will be economically unfeasible.

Infrastructure Response: Energy

Electricity is distributed by BVM. The calculated demand is ± 30 MVA. The current spare capacity is 3 MVA.

SDA 1 may be fed from the Mountain Mill 66/11 kV Substation with the required 11kV network strengthening. However, it is subject to current Eskom strengthening projects at the Transhex development.

SDA 2, 3 & 4 can be fed from the Mountain Mill 66/11 kV Substation with the required 11kV network strengthening.

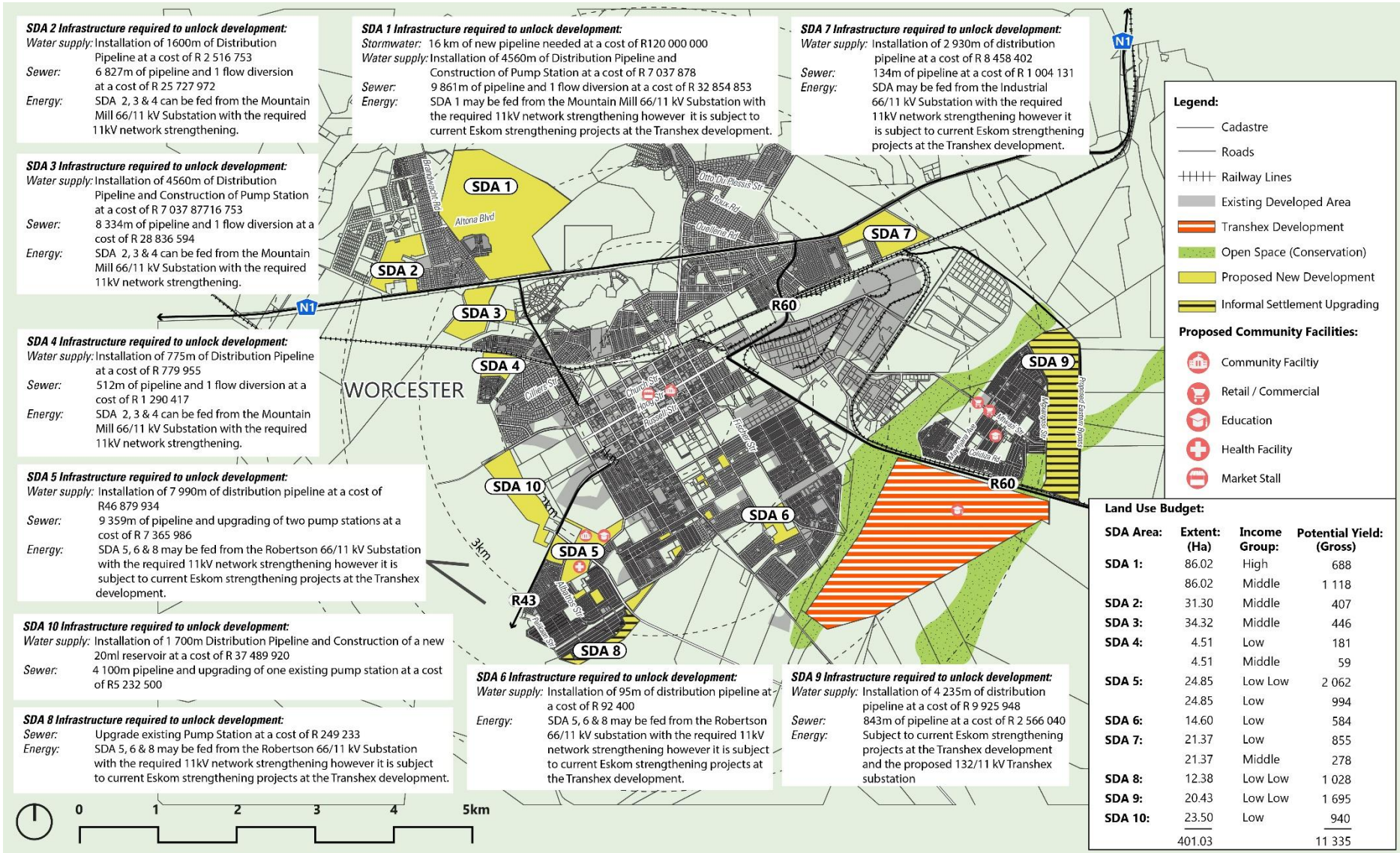
SDA 5, 6 & 8 may be fed from the Robertson 66/11 kV Substation with the required 11kV network strengthening however it is subject to current Eskom strengthening projects at the Transhex development.

SDA 7 may be fed from the Industrial 66/11 kV Substation with the required 11kV network strengthening however it is subject to current Eskom strengthening projects at the Transhex development.

SDA 9 is subject to current Eskom strengthening projects at the Transhex development and the proposed 132/11 kV Transhex Substation.

The following notes and assumptions are relevant in terms of the calculations for energy demand:

- The demand calculations are an overestimate and detailed calculations should be made once development layout has been compiled;
- The Electrical Masterplan for Worcester is outdated and does not align with the proposed developments;
- The proposed developments demands are an over-estimate of the town and requires more detailed analysis and feedback from the supply authority and Eskom in relation to the distribution; and
- Network feeder information is not available to determine possible upgrading.



Map 12 Worcester's infrastructure response

3.3.2 Rawsonville

Rawsonville is a small rural settlement located approximately 19km west of Worcester along the Old N1 Road (R101). Rawsonville is situated within the Breedekloof Wine Valley nestled between the Slanghok and Du Toits mountain ranges and the Hex River mountains. Rawsonville has an estimated population of 3 277 and a number of farm workers reside on the beautiful farms surrounding the settlement. According to an informal settlement survey conducted, the total number of informal structures / households is 348 with a population of 1 460 (Breede Valley Municipality, 2016).

Rawsonville is categorised as a remote village and functions as a low level rural service centre. The settlement was developed according to a grid pattern with mostly single residential properties. The businesses are located along Van Riebeeck Street and the residential areas are strewn with mature trees. Rawsonville is bordered on three sides by vineyards whilst De Nova is separated by the Smallblaarrivier. De Nova is a linear development which contains low and middle-income housing and two informal settlements (Hammat Pietersen Square east of De Nova and Geel Kampie west of De Nova)

The Breedekloof Wine Valley offers significant tourism opportunities in the form of wineries, restaurants, accommodation, and outdoors activities such as mountain biking, fly fishing (Breedekloof Wine Valley, 2018).

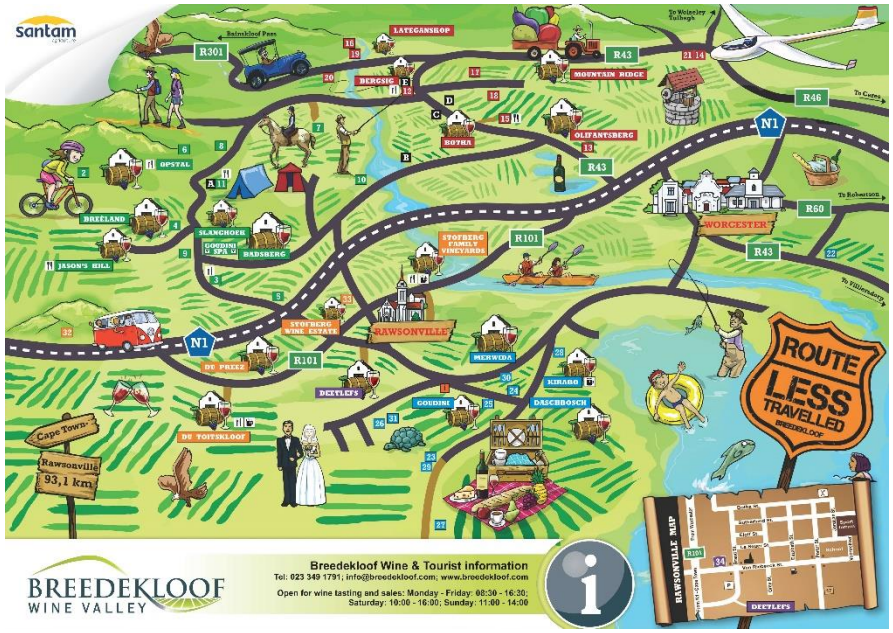


Figure 6 Breedekloof Wine and Tourist information map (Breedekloof Wine Valley, 2018)

Several opportunities and challenges have been identified. The opportunities include:

- Attractive tourism routes and activities; and
- Rural character of the settlement.

The challenges identified include:

- Availability of vacant land for future development; and
- Land for housing projects needs to be acquired by the Municipality.

Structuring elements and growth management

This section identifies the various structuring elements which impacts on the growth of Rawsonville and identify appropriate means to grow in the future.

Natural Open Space

Section 3.1.3 Natural open space systems are identified within the Rawsonville area and its surrounds. The Environmental Resources Protection Plan for the Breede River Catchment in the Western Cape dated 2017, provides a guideline for the management and protection of these areas. Moreover, the following generic principles should apply to the natural open space systems:

- The natural open space system should be protected from intrusive, irresponsible and ad hoc developments, and would mitigate damage and preserve the ecological integrity as well as visual quality of these areas. These include urban development, mining activities and agriculture;
- A continuous open space system must be developed in Rawsonville. This means that in certain areas where natural open space is currently affected by activities the municipality must intervene in order to ensure that ecological corridors can be created and are able to function appropriately; and
- Focus should be placed on and resources allocated to those consolidated natural open space areas where long term ecological sustainability can be achieved.

New development should occur in a manner which promotes the protection of the bio-physical environment.

In practical terms, this could be accomplished by means of bio-regional planning which can be implemented to achieve sustainable development by way of land use planning and management by distinguishing the association between, and by way of practical means, human well-being, economic efficiency as well as environmental integrity.

Agriculture

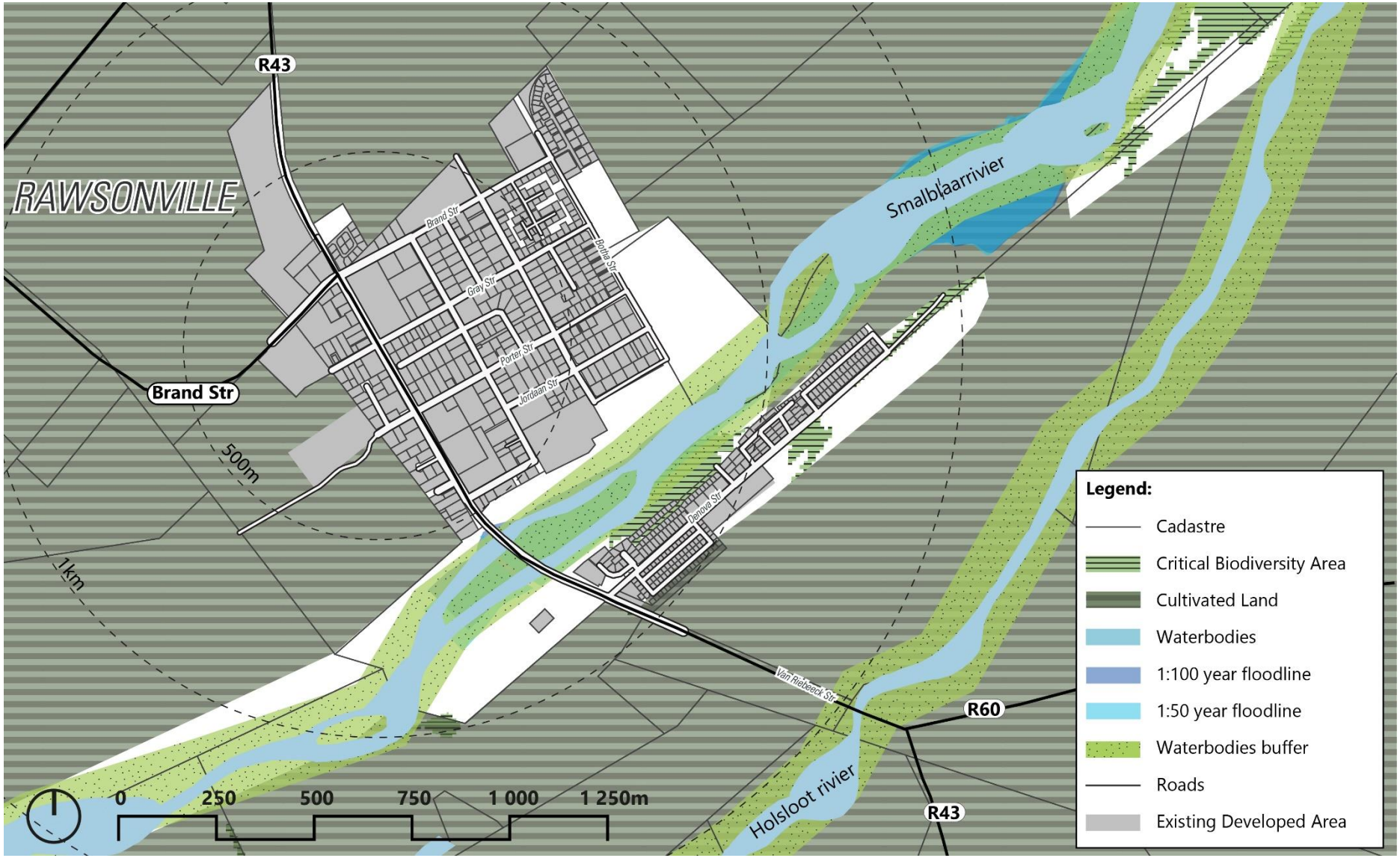
Rawsonville is surrounded by prime agricultural land which makes a significant contribution to the Regional Gross Domestic Product (RGDP). These areas should thus be reserved and protected from any development or land uses that may have a negative impact on the agricultural potential of the area.

Parks and open space

The development of a planned, interlinked open space network provides the urban environment with variety, legibility and visual relief. It also provides residents with an opportunity to enjoy open space, recreation and general amenity without having to travel great distances.

It also provides for flood attenuation, stormwater management and urban agriculture opportunities. New development should thus occur in a manner that:

- Promotes a network of integrated hard and soft recreational spaces and biodiversity protection;
- Tree planting along routes and PT and NMT networks;
- Maximise the use of public parks e.g. the use of parks for public markets, picnic facilities, braai areas and other activities which brings people together;
- Promotes the multi-use of parks to enable sport activities; and
- Revitalise public spaces through public and private investment creates attractive meeting places which fosters closer relationships, learner friendly atmospheres and reduces crime.



Map 13 Rawsonville structuring elements

Nodes

Rawsonville has been identified as a local service centre. Sub-centre nodes play an important role in creation central points for social, civic and economic activity. Due to the relative small size of Rawsonville only one sub-centre node has been identified. This node is located at a strategic intersection and along activity streets to stimulate growth and intensification.

Corridors

The Old N1 Road (R101) is instrumental in providing access to Rawsonville and has therefore been identified as a secondary corridor. Van Riebeeck Street has been identified as an activity spine and is critical for movement within and through Rawsonville.

Gateway

Gateways are important in creating a sense of place for towns. These gateways should as such be maintained as significant features and signage in the vicinity of the gateways must be avoided.

Three gateways have been identified. Two are located along the Old N1 Road (R101) the third being Van Riebeeck Street.

Proposed areas for residential development

A number of strategic development areas have been identified. Human Settlement programs and projects should be implemented on a focused, strategic, coordinated and hierarchical basis with the biggest investments to benefit the largest number of people.

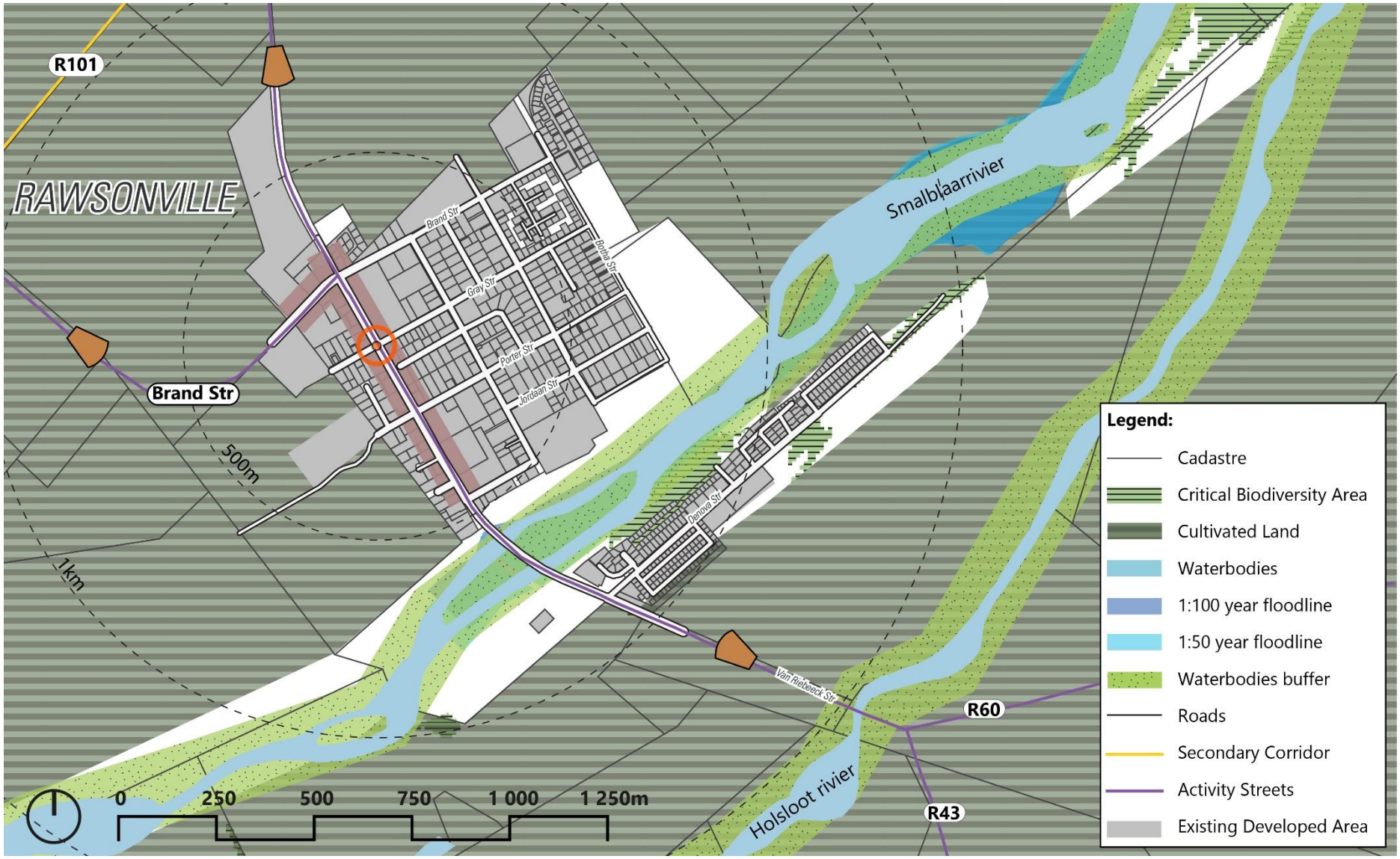
Development within the existing urban form should be promoted to enable optimal use of available infrastructure and thus protecting areas of agricultural, recreational and ecological significance.

In order to reduce sprawl and protecting the high potential agricultural land, it is proposed that new development should be focused in closer proximity to the CBD with higher densities as well as the development of vacant and underutilised erven.

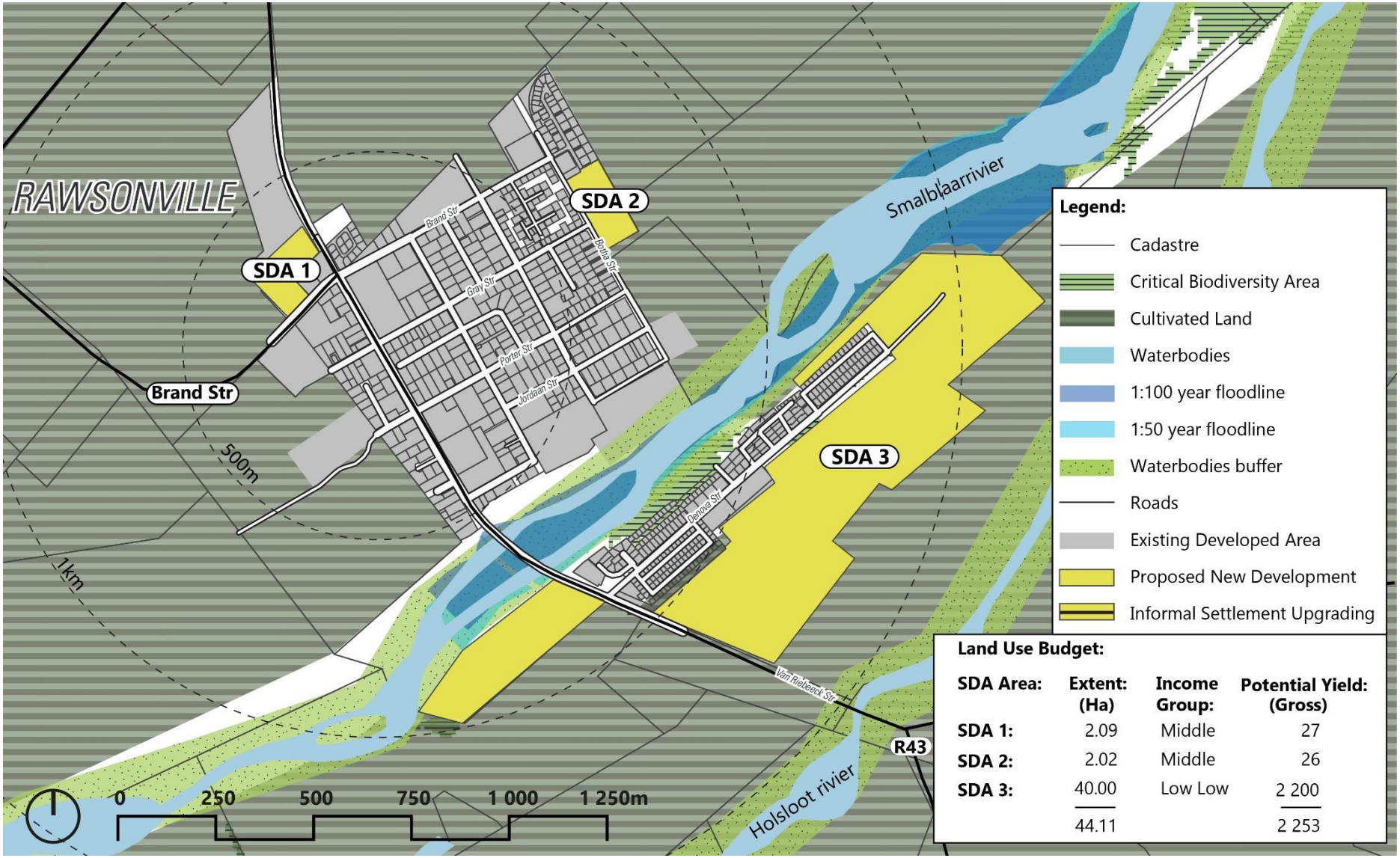
The population of Rawsonville is expected to increase to approximately 3 500 by 2024.

Housing demand: The current housing backlog is 1 051.

Housing supply: The area south of Da Nova has been allocated for the development of subsidy housing. Three other areas have been identified for future development. These areas are within the urban edge and a natural outward expansion. These areas measure 12.29ha and an estimate gross yield of 503 residential erven can be created. Map 15 illustrate the proposed new development areas.



Map 14 Rawsonville nodes and corridors



Map 15 Rawsonville proposed areas for residential development

Public and community facilities

Rawsonville has a variety of public and community facilities. Based on the anticipated population growth and the existing facilities, only a mobile clinic and fire bakkie pump would be required by 2024. Refer to Annexure A for the table indicating the required need.

Culture and Heritage

Rawsonville has a rich cultural and architectural heritage in the form of its buildings. Van Riebeeck Street is lined with some architecturally remarkable buildings These include:

- The Dutch Reformed Church;
- The Dutch Reformed Church Hall;
- The Post Office;
- The Police Station;
- The New Apostolic Church;
- The High School; and
- A number of residential buildings.

Most of these historic buildings are located in and around the centre of the town.

Business and Commercial

Rawsonville functions as a low level rural service centre and as such the predominant activities in and around the settlement is farming.

Commercial activities which stimulate the economy and provide job opportunities are clustered along Brand Street and Van Riebeeck Street. Typical shops found along these streets includes the KwikSpar, Kekkel en Kraai and Rawsonville Supermarket. Residents generally purchase their weekly or monthly supplies from the larger retail chain stores in Worcester.

One need which has been identified is the development of a market area where informal trading can take place.

Tourism

The promotion of existing tourism routes as well as the creation of new attractive routes and activities could maximise the competitive advantage of the town.

The Rawsonville area is known for the Breedekloof Wine Route with its 22 Cellars and Wine Estates and also hosts the annual Breedekloof extreme sports festival. Activities in the Rawsonville area include some of South Africa's best trout fishing spots along the Molenaars, Elandjacht and Smalblaar rivers.

It is envisaged that with the attraction of visitors to the wine routes, it would create an opportunity for the establishment of additional businesses in the form of resorts and other types of accommodation, thus having a positive impact on the local economy.

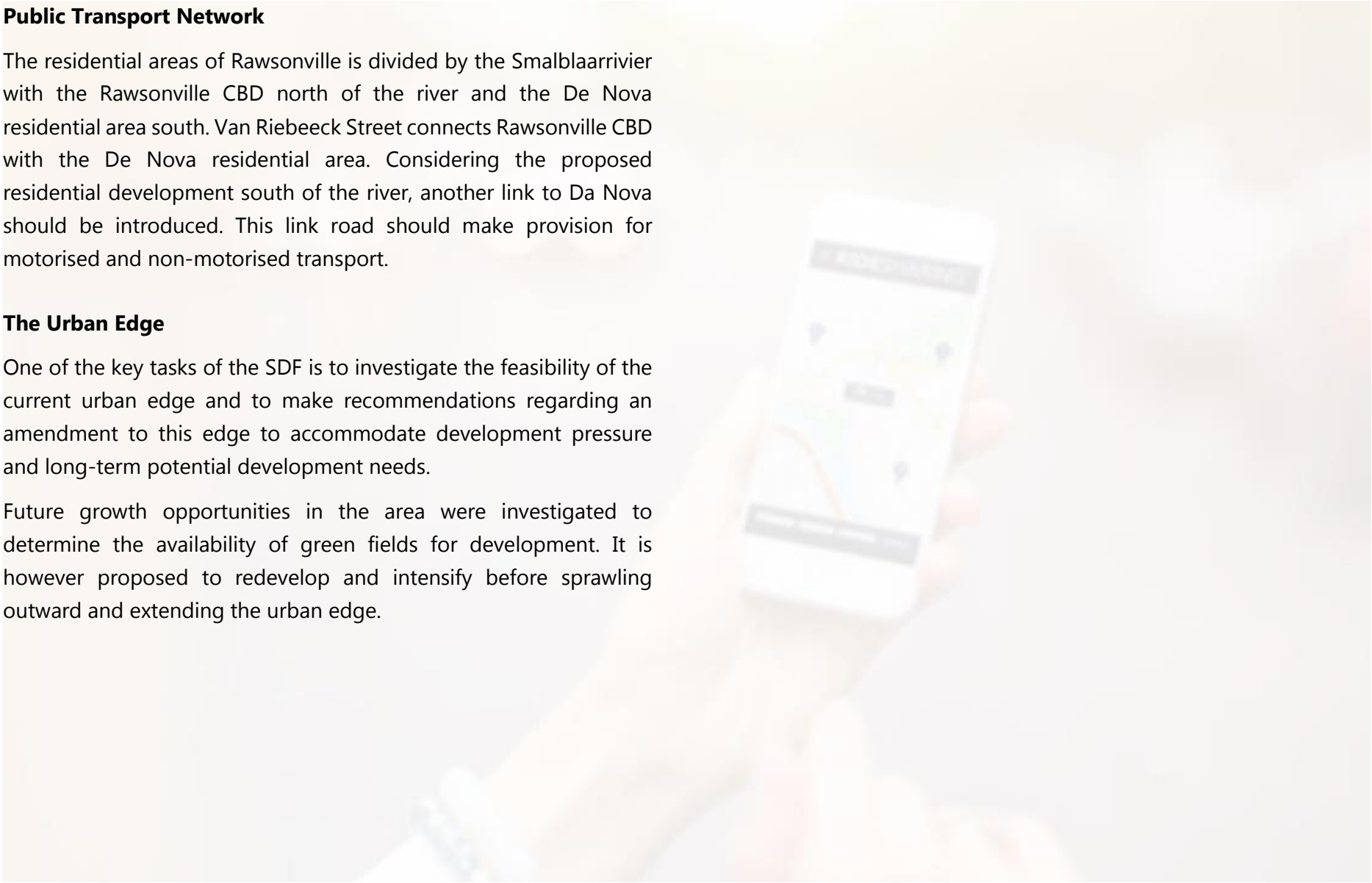
Public Transport Network

The residential areas of Rawsonville is divided by the Smalblaarrivier with the Rawsonville CBD north of the river and the De Nova residential area south. Van Riebeeck Street connects Rawsonville CBD with the De Nova residential area. Considering the proposed residential development south of the river, another link to Da Nova should be introduced. This link road should make provision for motorised and non-motorised transport.

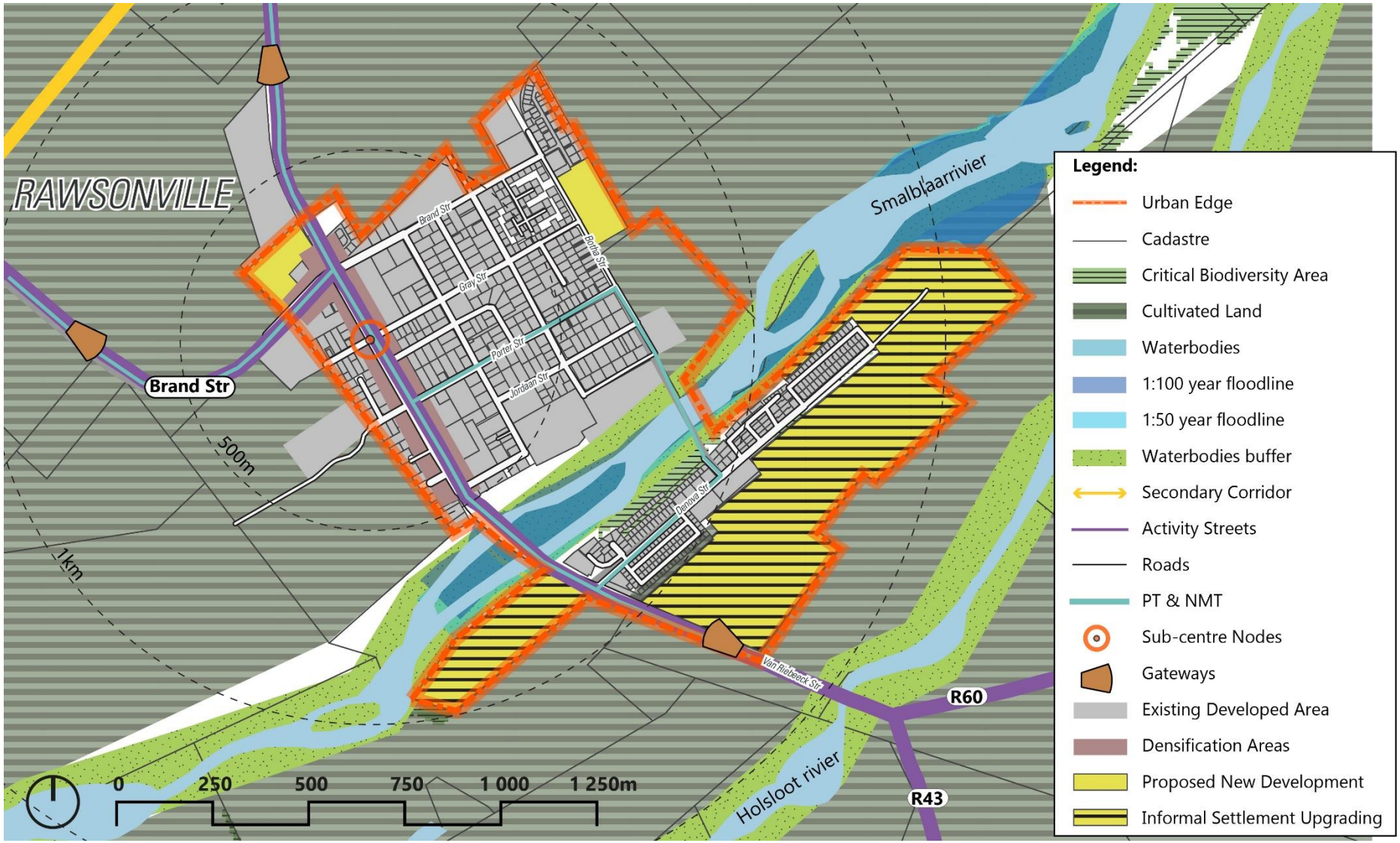
The Urban Edge

One of the key tasks of the SDF is to investigate the feasibility of the current urban edge and to make recommendations regarding an amendment to this edge to accommodate development pressure and long-term potential development needs.

Future growth opportunities in the area were investigated to determine the availability of green fields for development. It is however proposed to redevelop and intensify before sprawling outward and extending the urban edge.



Map 16 Rawsonville Public Transport Network



Map 17 Rawsonville Spatial Development Framework

Infrastructure Response: Water

The existing residential demand is 524 kilolitres, which will increase to 1 714 kilolitres when SDA 1 to 3 is established. The existing capacity in the reservoirs is 2 830 kilolitres which means that additional reservoir capacity of 600 kilolitres will be required to service the proposed residential demand (reservoir capacity should be 48-hour storage of the annual average daily demand in order to account for balancing and emergency storage requirements). In addition to this, the non-residential demand needs to be assessed and added to this additional reservoir capacity requirement. Table 13 below indicates the network capacity requirements in order to unlock residential development.

Table 13 Water requirements to unlock residential development

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 2	Distribution System items: 320m x 16mm Ø pipes	326 349.41

SDA 1 and 3 were not accounted for in the current masterplan available – these areas will need to be assessed for the infrastructure requirements and associated cost.

With the current information available, the water supply network cost to unlock the SDA's proposed is R326 349.00. Infrastructure costs in areas that are not covered in the current masterplans will need to be added to this amount once the relevant assessment is completed.

Infrastructure Response: Sanitation

The existing residential flow is 332 kilolitres per day, which will increase to 1 165 kilolitres per day when SDA 1 to 3 is developed. The existing capacity at the waste water treatment works (WWTW) is 250 kilolitres per day which means that additional WWTW capacity is needed to service the proposed residential flow. In addition to this, the non-residential flow needs to be assessed and added to this additional WWTW capacity requirement. The upgrade of one existing pump station also needs to be undertaken. Table 14 below indicates the network capacity requirements in order to unlock residential development.

Table 14 Sanitation requirements to unlock residential development

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 1	Collector pipe items: 1 288m x 250mm Ø pipes upgrade existing pump station	2 481 806.88

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 2	Collector pipe items: 1 288m x 250mm Ø pipes upgrade existing pump station	2 481 806.88

SDA 3 was not accounted for in the current masterplan available – these areas will need to be assessed for the infrastructure requirements and associated cost.

With the current information available, the sanitation network cost to unlock the SDA's proposed is R4 963 613.76. Infrastructure costs in areas that are not covered in the current masterplans will need to be added to this amount once the relevant assessment is completed.

Infrastructure Response: Stormwater

SDA 3 is located adjacent to the Smalblaar River. Stormwater infrastructure required would include a piped stormwater network within the SDA as well as possible upgrades to the bulk stormwater line conveying runoff to the Smalblaar River. Proposed SDA not assessed for stormwater network requirements in the current stormwater masterplans and would have to be assessed on a case by case basis.

Masterplans do not account for any SDAs proposed in this town - therefore a high-level cost must be derived after stormwater concepts are developed for the proposed SDAs.

Infrastructure Response: Waste

The existing residential waste generation in Rawsonville is estimated to be 1 400 tons per year. This is projected to increase to 5 378 tons per year with the development of SDAs 1 to 3. The waste from Rawsonville will be transported to the Worcester Landfill site. Worcester's current landfill is estimated to reach its capacity in 2019. The medium-term solution is the amendment of the height restriction for this landfill which will unlock 5 years of airspace. The long-term solution is the construction of a Cape Winelands Regional landfill site located in Worcester.

The construction of the new landfill site in Worcester is a critical waste infrastructure project which needs to be completed within the next 5 years. Since this is the main waste disposal site for the entire municipality, if this project is not completed in time then waste from all 4 main towns will need to be transported to disposal sites in adjacent municipalities which will be economically unfeasible.

Infrastructure Response: Energy

Electricity in Rawsonville is distributed by Eskom. The calculated housing demand is 5.8 MVA. The Rawsonville 66/11 kV Substation has two 10MVA transformers and is currently under n-1 contingency operating at capacity (10.3 MVA).

The Substation and network upgrading to be discussed with Eskom is as follows:

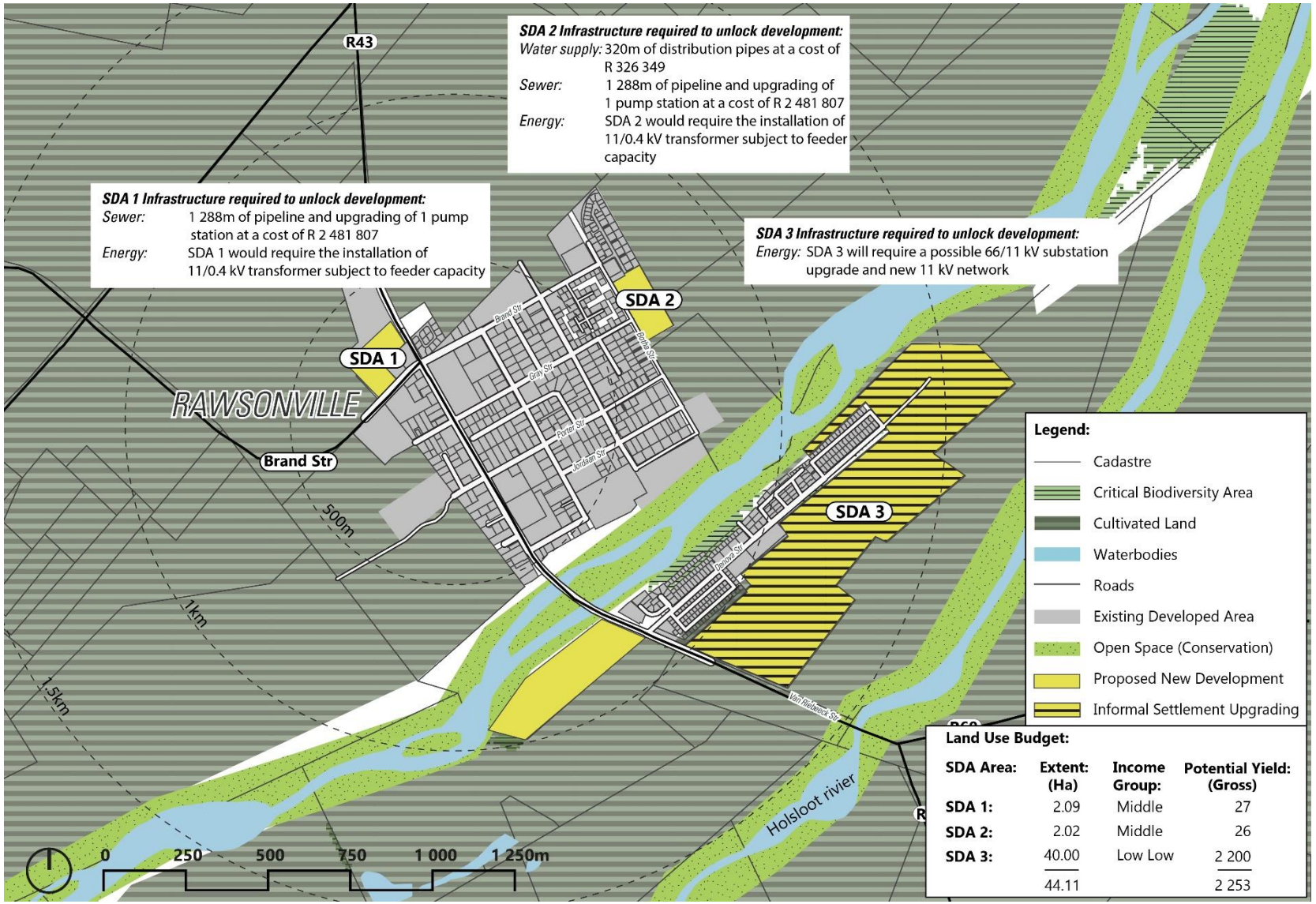
- Option 1 - operate without firm capacity
- Option 2 - upgrading of the 66/11 kV transformers as well as potential upstream strengthening

Energy requirements per SDA area:

- SDA 1 - requires the installation of 11/0.4 kV transformer subject to feeder capacity;
- SDA 2 - requires the installation of 11/0.4 kV transformer subject to feeder capacity;
- SDA 3 – potentially requires a 66/11 kV substation upgrade and new 11 kV network; and
- SDA 4 – potentially requires a 66/11 kV substation upgrade and new 11 kV network.

Notes and assumptions made in order to calculate energy demand:

- The demand calculations are an overestimate and detailed calculations should be made once development layout has been compiled;
- The Electrical Masterplan for Worcester is outdated and does not align with the proposed developments;
- The proposed developments demands are an over-estimate of the town and requires more detailed analysis and feedback from the supply authority and Eskom in relation to the distribution; and
- Network feeder information is not available to determine possible upgrading.



Map 18 Rawsonville's infrastructure response

3.3.3 De Doorns

De Doorns lies in the Hex River Valley only one and a half hours' drive from Cape Town, just off the N1 and 33 kilometres north of Worcester.

De Doorns is a town with a particularly impressive cultural heritage. The Hex River Valley is covered with vineyard upon vineyard, historical Cape Dutch homesteads, and snow-capped mountains during winter that combine to make it one of the most picturesque valley. Farms in De Doorns are nestled between the Hex and Quadou Mountains, which give rise to activities such as hiking, mountain biking and rock climbing.

De Doorns is classified as a secondary node. The settlement offers a range of service and commercial facilities and has become the business and shopping centre for the entire valley and surrounding settlements of Orchard and Stofland. The commercial activity, including all major banks, is clustered along Voortrekker Street. A number of small commercial business are also found along this street and the Spar is located on the corner of Piet Burger Street and Retief Street towards the outskirt of De Doorns.

The Hex River Valley offers a number of tourism opportunities in the form of wineries, restaurants, accommodation, and outdoors activities such as mountain biking and hiking. (Hex River Valley, 2018).

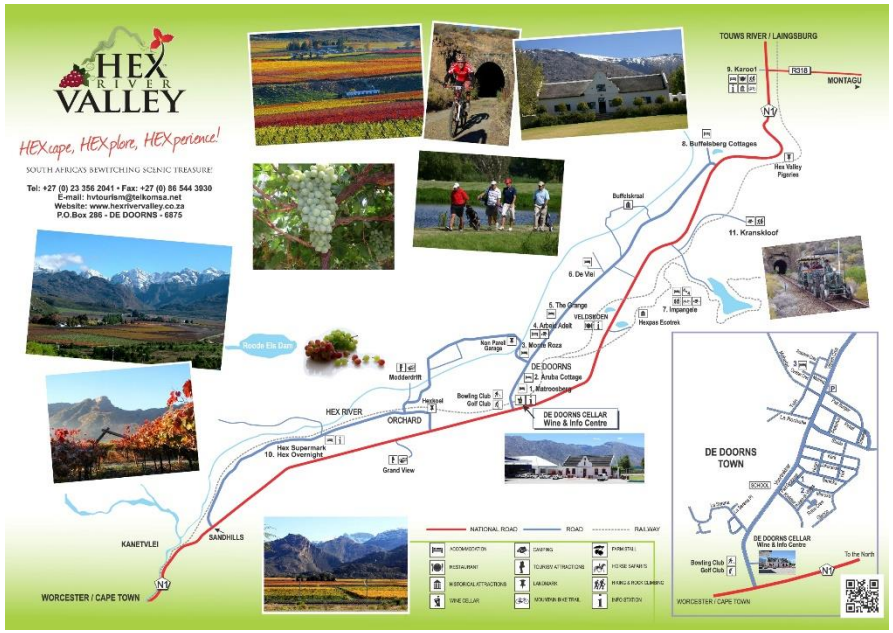


Figure 7 Breedekloof Wine and Tourist information map (Breedekloof Wine Valley, 2018)

Several opportunities and challenges have been identified. The opportunities include:

- Attractive tourism routes and activities; and
- Rural character of the settlement

The challenges identified include:

- Availability of vacant land for future development; and
- Land for housing projects needs to be acquired by the Municipality.

Structuring elements and growth management

This section identifies the various structuring elements which impacts on the growth of Rawsonville and identify appropriate means to grow in the future

Natural Open Space

Section 3.1.3 Natural open space systems identify the natural open space surrounding De Doorns. The Environmental Resources Protection Plan for the Breede River Catchment in the Western Cape dated 2017 provides a guideline for the management and protection of these areas. Further to this, the following generic principles should apply to the natural open space systems:

- The natural open space system should be protected from intrusive, irresponsible and ad hoc developments that damage the ecological integrity as well as visual quality of these areas. These include urban development, mining activities and agriculture;
- A continuous open space system must be developed in De Doorns. This means that in certain areas where natural open space is currently affected by activities the municipality must intervene in order to ensure that ecological corridors can be created and are able to function appropriately; and
- Focus should be placed on and resources allocated to those consolidated natural open space areas where long term ecological sustainability can be achieved.

New development should occur in a manner which promotes the protection of the bio-physical environment. It is recommended that the Breede Valley Municipality prepare an Environmental Management Framework which will indicate the nature and intensity of land uses that can be accommodated in these areas from an environmental perspective.

Agriculture

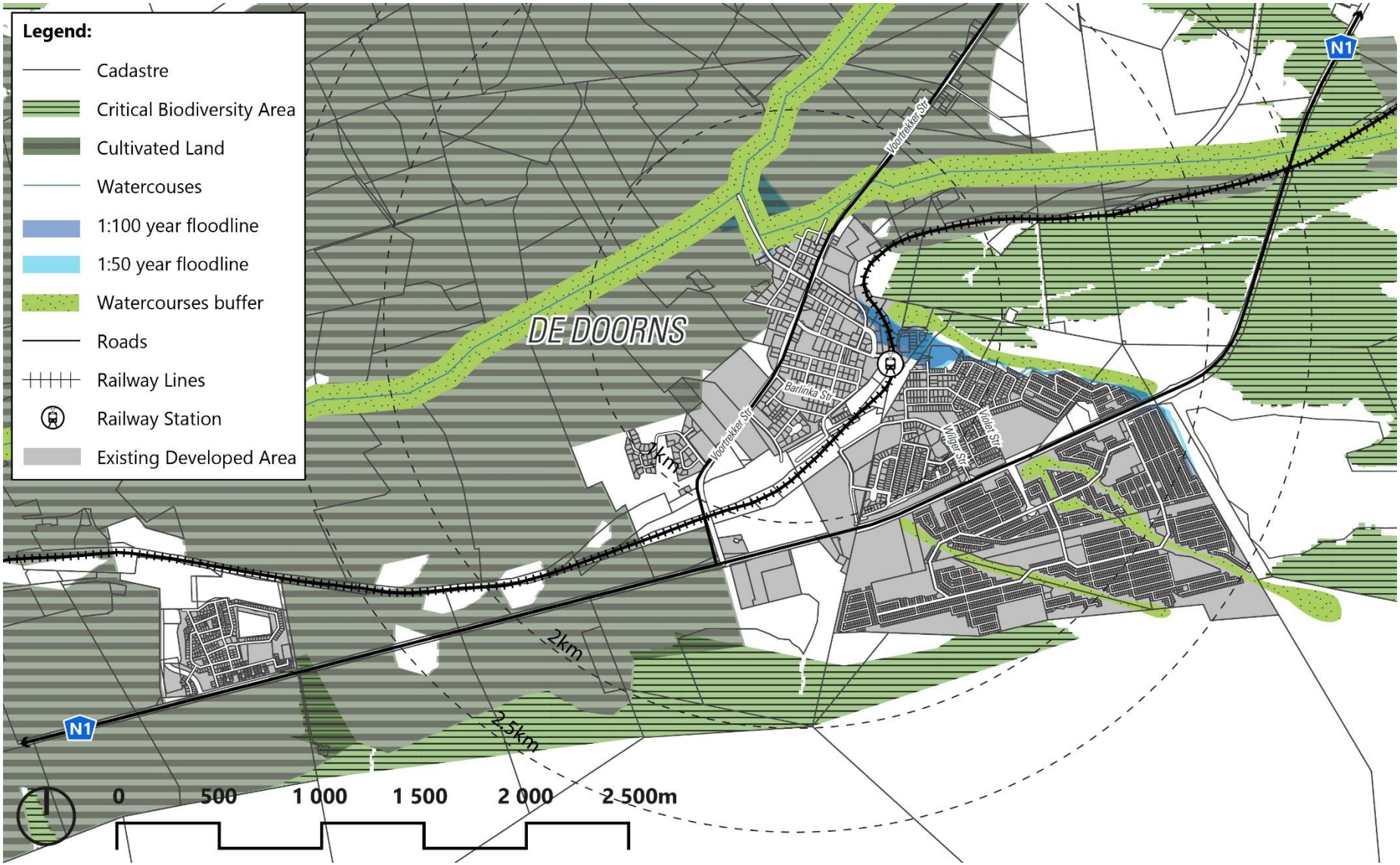
De Doorns is surrounded by prime agricultural land and as such should thus be reserved and protected from any development or land uses that may have a negative impact on the agricultural potential of the area.

Parks and open space

The development of a planned, interlinked open space network provides the urban environment with variety, legibility and visual relief. It also provides residents with an opportunity to enjoy open space, recreation and general amenity without having to travel great distances. It also provides for flood attenuation, stormwater management and urban agriculture opportunities.

New development should thus occur in a manner that:

- promotes a network of integrated hard and soft recreational spaces and biodiversity protection;
- tree planting along routes and PT and NMT networks;
- maximise the use of public parks e.g. the use of parks for public markets, picnic facilities, braai areas and other activities which brings people together
- promotes the multi-use of parks to enable sport activities; and
- encourages urban food gardens; and
- revitalise public spaces through public and private investment creates attractive meeting places which fosters closer relationships, learner friendly atmospheres and reduces crime.



Map 19 De Doorns structuring elements

Nodes

De Doorns has been defined as a secondary node.

These sub-centre nodes are located at strategic intersections and along corridors to stimulate growth and intensification.

Corridors

The N1 has been identified as the primary corridor connecting De Doorns with Cape Town in the west and Johannesburg in the north.

The following activity spine roads have been:

- Voortrekker street;
- Violet Street; and
- Wilger street.

These roads are critical for movement within Worcester.

Gateway

Two gateways have been identified; both along the N1 on either side of De Doorns.

Proposed areas for residential development

A number of strategic development areas have been identified. Human Settlement programs and projects should be implemented on a focused, strategic, coordinated and hierarchical basis with the biggest investments to benefit the largest number of people.

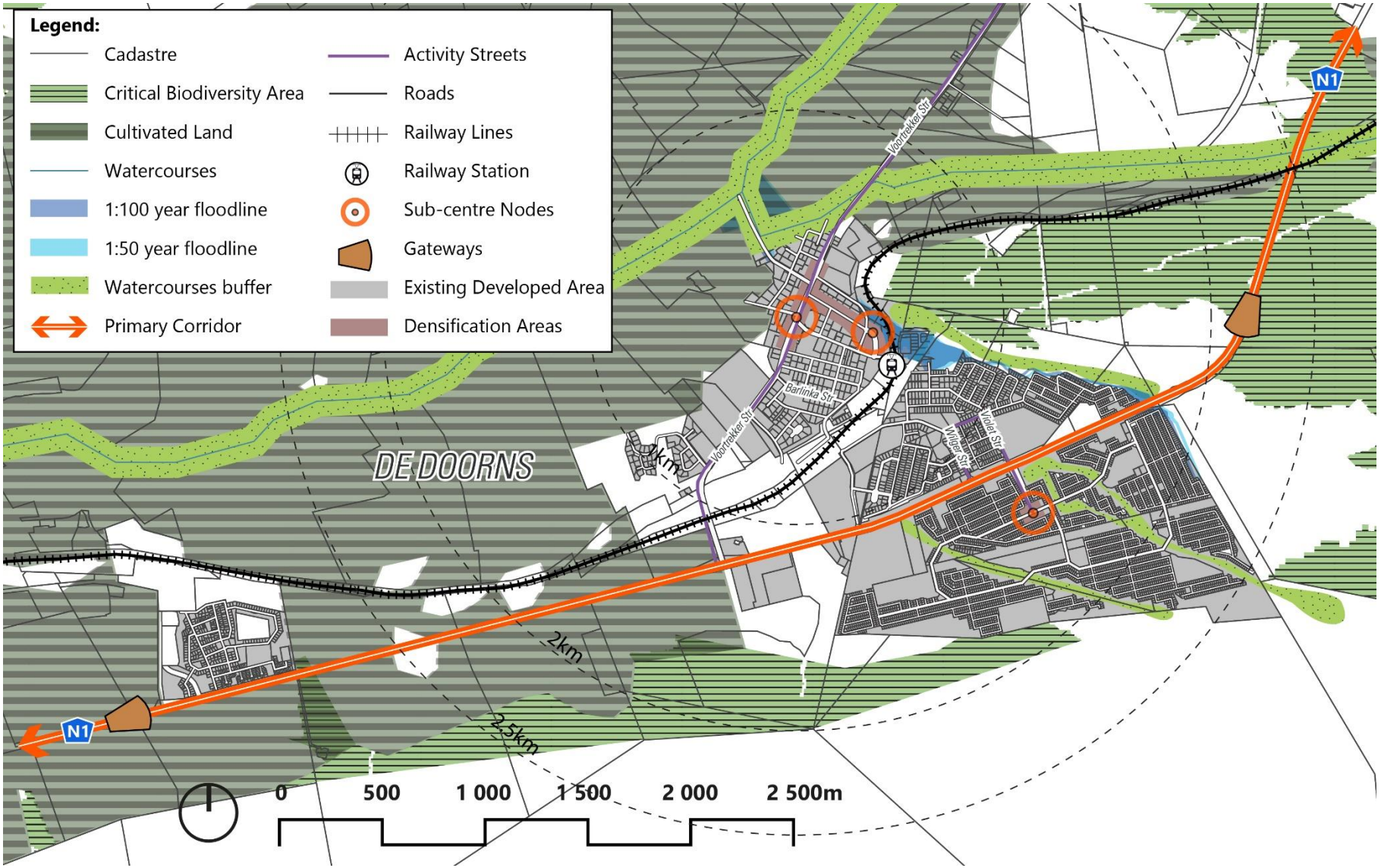
Development within the existing urban form should be promoted to enable optimal use of available infrastructure and thus protecting areas of agricultural, recreational and ecological significance.

Housing demand: The housing backlog for De Doorns is 5 010. The number of informal housing per settlement is listed below:

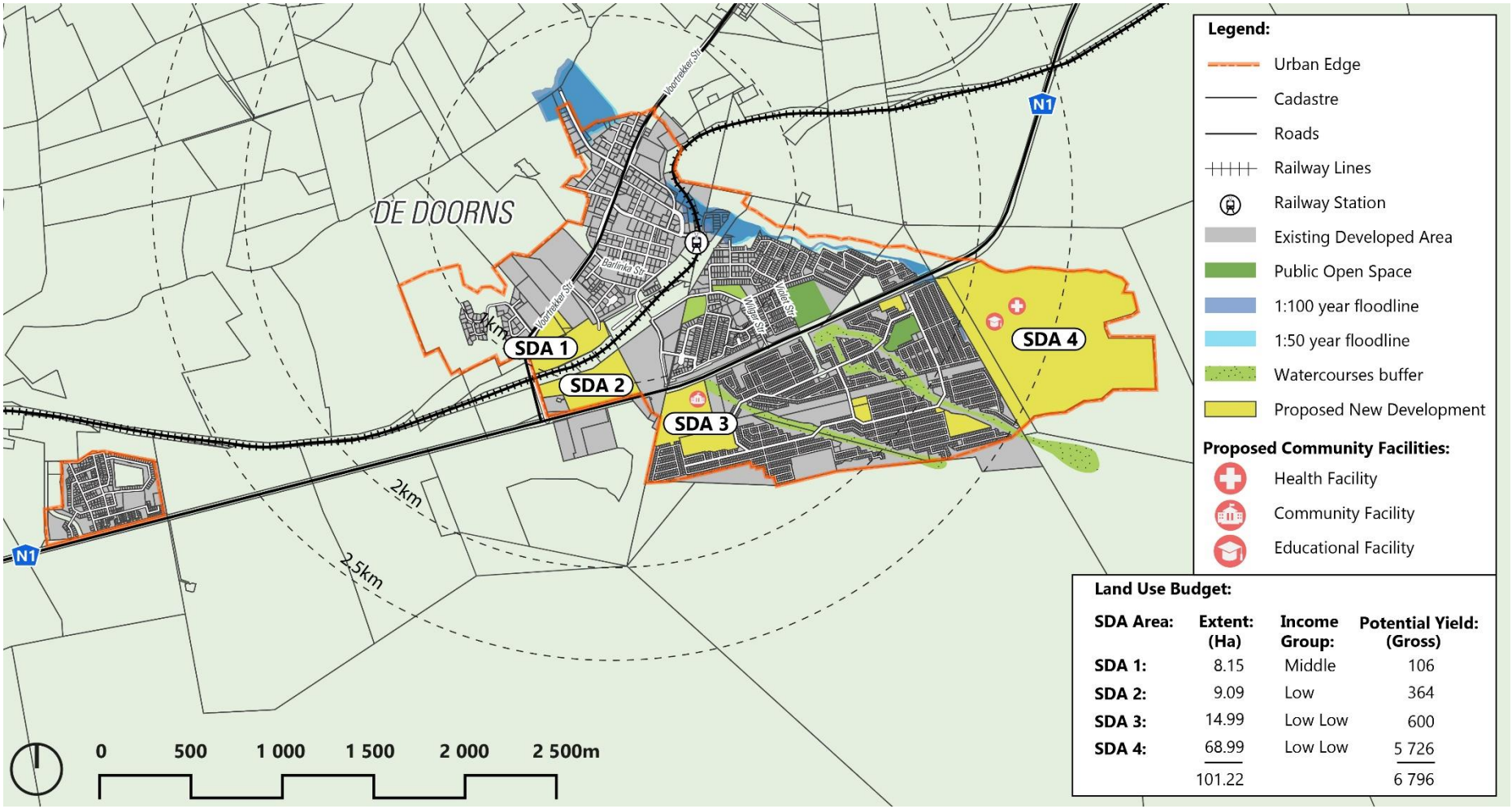
Housing supply: Completed projects includes:

- 2027/1056, De Doorns – 1 482 services and units;
- 2027(6), De Doorns – 1 400 services and units;
- 3242, De Doorns Sunnyside Orchards – 109 services and units;
- 2027, De Doorns Erf 825 – 327 GAP units;
- Remainder Erf 1099 and Voortrekker street, De Doorns – 230 services and units; and
- De Doorns North and South of the N1 – 760 services and units

Strategic Development Area (SDA): the SDA areas identified totals to 101.22ha and 6 796 units (gross) can be provided.



Map 20 De Doorns nodes, corridors and gateways



Map 21 De Doorns proposed areas for residential development

Public and community facilities

De Doorns has a variety of public and community facilities. Based on the anticipated population growth and pipeline projects, Map 21 above indicate indicative locations for future community facilities.

Culture and Heritage

De Doorns is located in the heart of the Hex Valley. The Cape Dutch style homesteads found in this area contributes to the culture and heritage of the Breede Valley.

Tourism

Agri and adventure tourism are being promoted in De Doorns and surrounds. De Doorns offers a number of accommodation options, agri-tourism and outdoor attractions. One example of this is the Hexpas Ecotreck which is utilised by both local and international tourists.

Business and Commercial

The settlement offers a range of service and commercial facilities and has become the business and shopping centre for the entire valley and surrounding settlements of Orchard and Stofland. The commercial activity, including all major banks, is clustered along Voortrekker Street. A number of small commercial business are also found along this street and the Spar is located on the corner of Piet Burger Street and Retief Street towards the outskirt of De Doorns.

Limited business and commercial opportunities exist within Stofland.

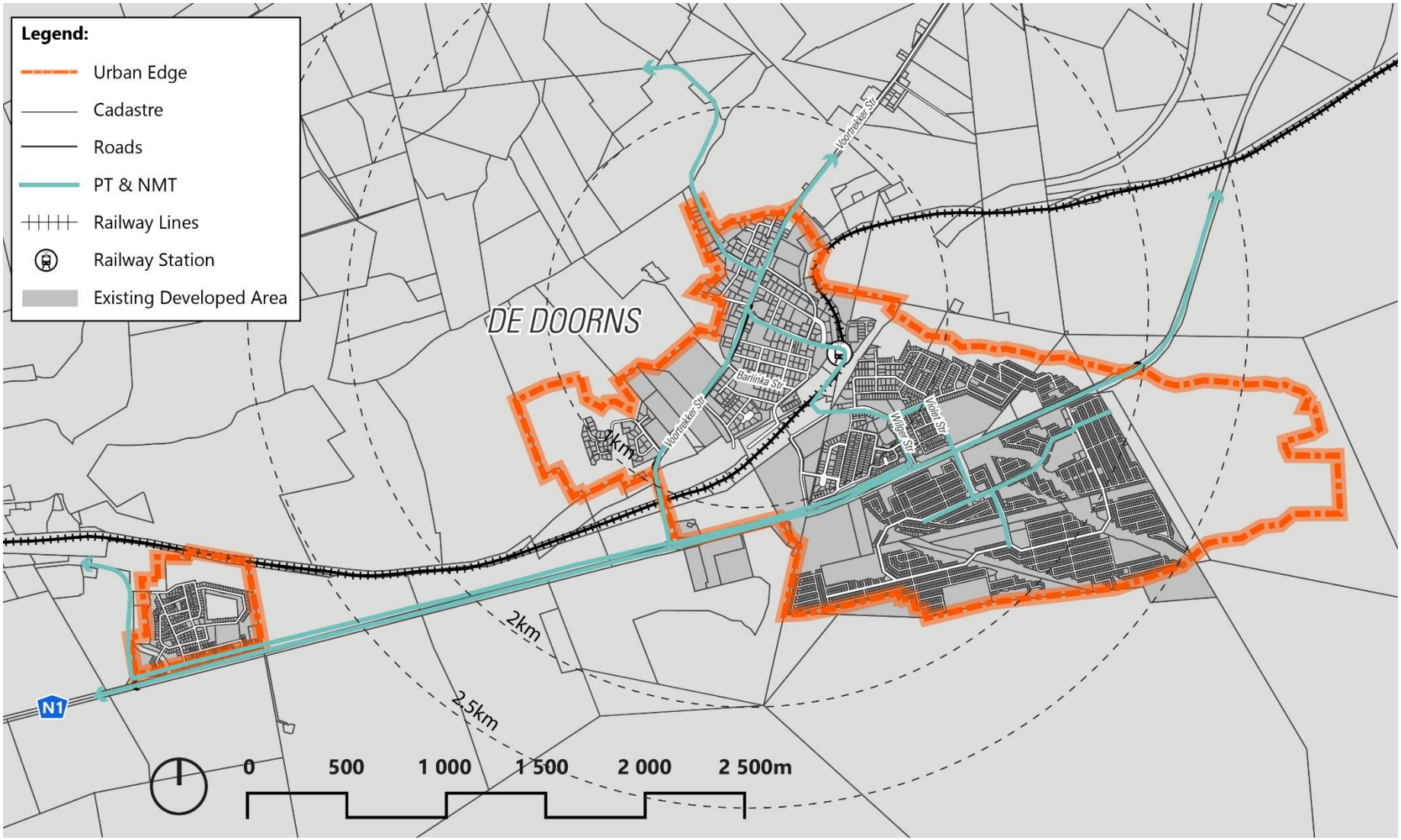
Transport Network

De Doorns is divided by the railway line (to the north) and the N1 (south), resulting in poor connectivity between De Doorns North and South. To improve and strengthen the links between North and South De Doorns, safe crossings across the railway line and N1 are required. These links must make provision for motorised and non-motorised transport.

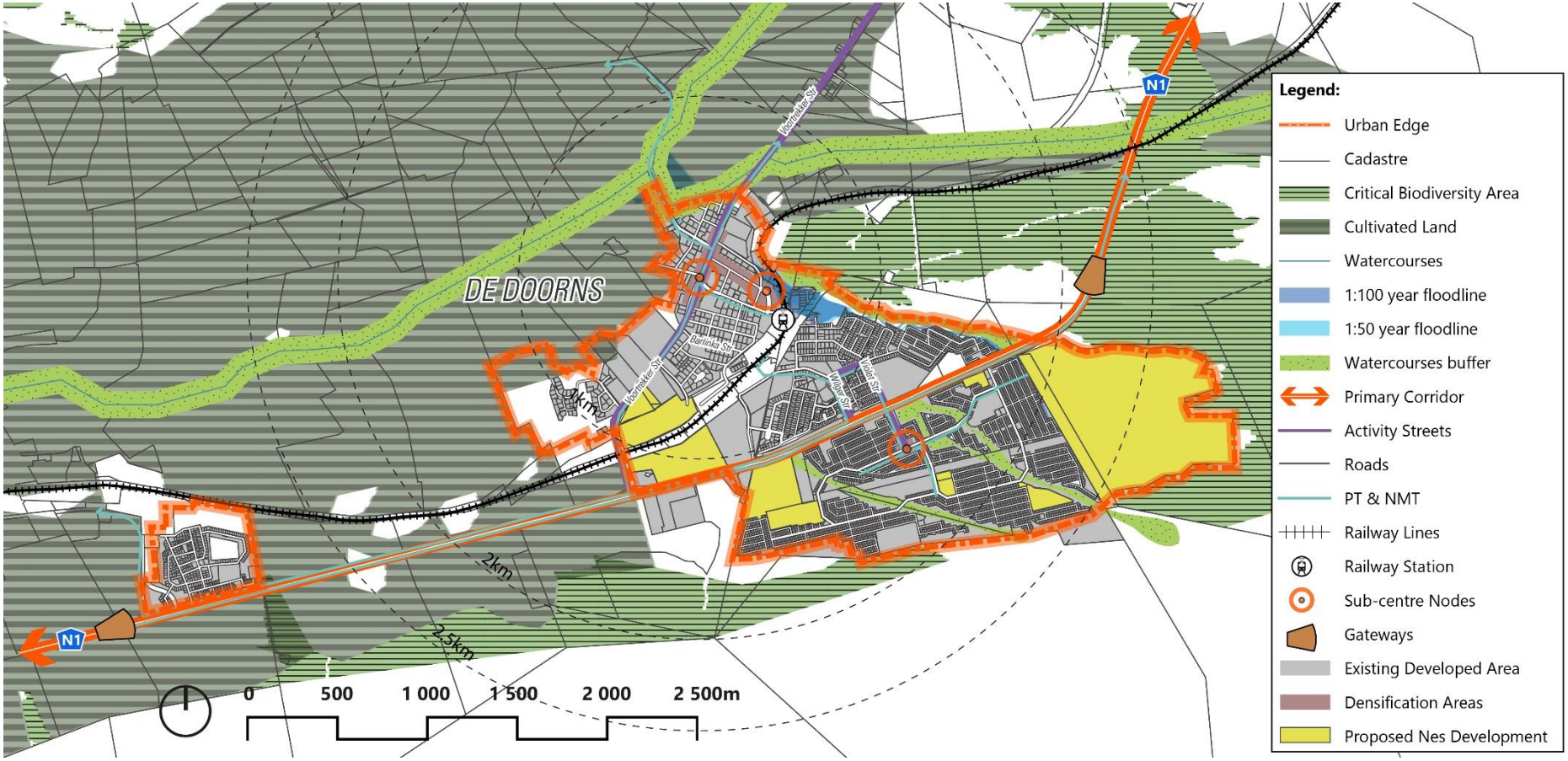
Urban Edge

One of the key tasks of the SDF is to investigate the feasibility of the current urban edge and to make recommendations regarding an amendment to this edge to accommodate development pressure and long-term potential development needs.

Very few green fields sites are available within De Doorns. Furthermore, the Stofland Housing Project south of the N1 has already encroached beyond the existing urban edge and therefore amendments would have to be made. Outward expansion of the urban areas should be limited, and densification of existing urban areas should rather be investigated for future development. Sandhills will not be formalised and therefore not be included within the urban edge.



Map 22 De Doorns Public Transport Network



Map 23 De Doorns Spatial Development Framework

Infrastructure Response: Water

The existing residential demand is 2 702 kilolitres, which will increase to 2 757 kilolitres when the SDA 1 to 5 is established. The existing capacity in the reservoirs is 8 788 kilolitres which means that no additional reservoir capacity will be required to service the proposed residential areas. However, the non-residential demand needs to be assessed and compared against the current reservoir spare capacity to determine if any additional capacity is required.

SDA 1 to 4 was not accounted for in the current masterplans. These areas will need to be assess for the infrastructure requirements and associated costs.

For SDA 5 the network infrastructure requirements include 145m of 250m diameter pipes at a cost of R268 880.00.

Infrastructure Response: Sanitation

The existing residential flow is 1 831 kilolitres per day, which will increase to 1,868 kilolitres per day when SDA 1 to 5 is developed. The existing capacity at the waste water treatment works (WWTW) is 2 345 kilolitres per day which means that with the SDA's being developed, there will still be a spare capacity to service the proposed residential areas' flow. However, the non-residential demand needs to be assessed and compared against the current WWTW spare capacity to determine if any further additional capacity is required.

Table 15 below indicates the network capacity requirements in order to unlock residential development.

Table 15 Sanitation requirements to unlock residential development

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 1	Not accounted for in the current masterplan available - area will need to be assessed for the infrastructure requirements and associated cost.	-
SDA 2	Collector pipe items: 11m x 250mm Ø pipes new flow diversion	90 630.40
SDA 3	Not accounted for in the current masterplan available - area will need to be assessed for the infrastructure requirements and associated cost.	-
SDA 4	Collector pipe items: 839m x 250mm Ø pipes	1 410 502.24
SDA 5	Not accounted for in the current masterplan available - area will need to be assessed for the infrastructure requirements and associated cost.	-

With the current information available, the sanitation network cost to unlock the SDA's is R1 501 132.00. Infrastructure costs in areas that are not covered in the current masterplans will need to be added to this amount once the relevant assessment is completed.

Infrastructure Response: Stormwater

SDA 1 to 5 are all located in a valley draining toward the Hex River. Stormwater infrastructure required would include a piped stormwater network within the SDAs as well as possible upgrades to the bulk stormwater line conveying runoff to the Hex River. Proposed SDAs not assessed for stormwater network requirements in the current stormwater masterplans and would have to be assessed on a case by case basis.

Masterplans do not account for any SDAs proposed in this town - therefore a high-level cost must be derived after stormwater concepts are developed for the proposed SDAs.

Infrastructure Response: Waste

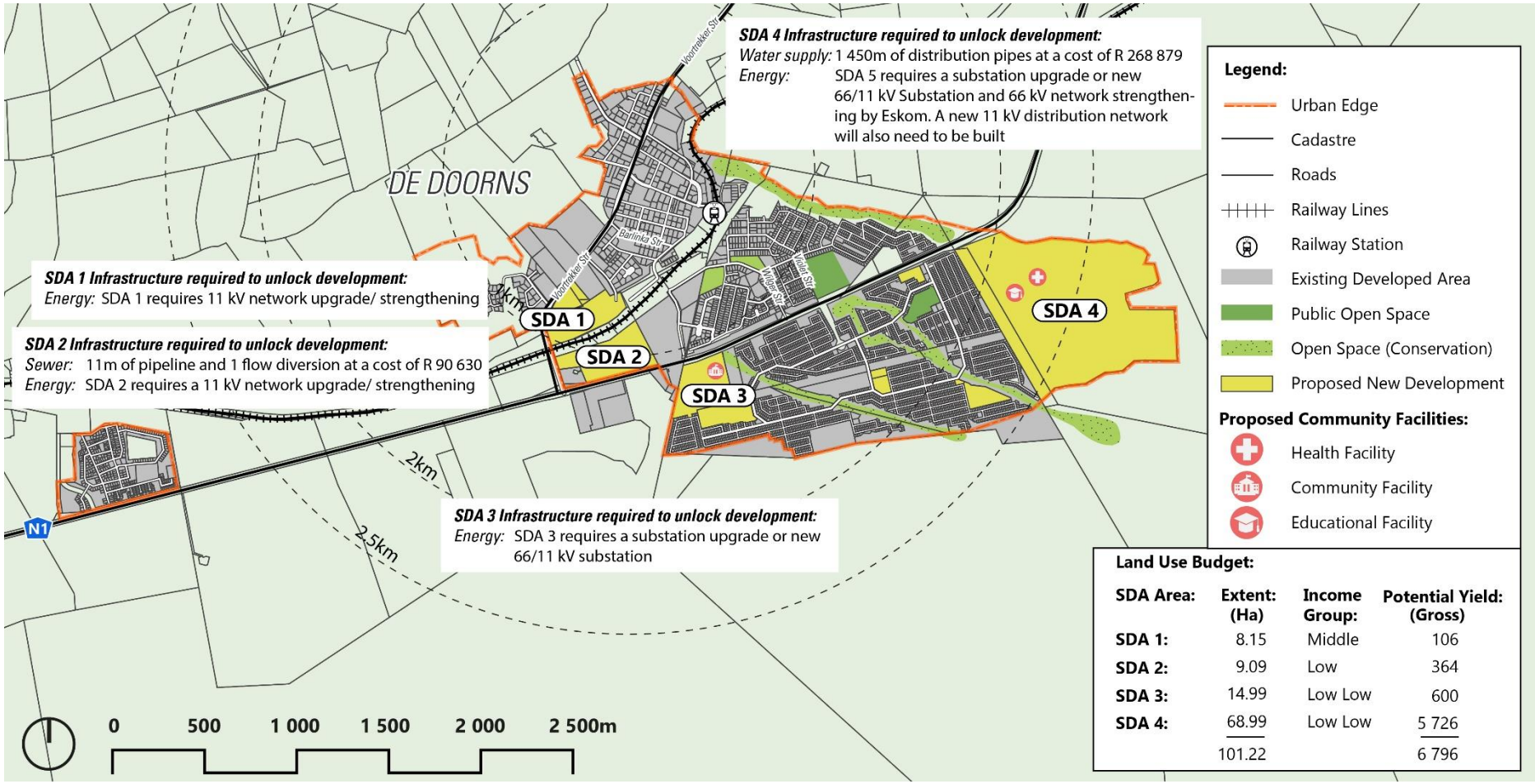
The existing waste generation in De Doorns is estimated to be 2 490 tons per year. This is projected to increase to 2 561 tons per year with the development of SDA's 1 to 5. The current landfill at De Doorns is scheduled for closure due to operational issues such as lack of cover material. The waste from De Doorns will be transported to the Worcester Landfill site. Worcester's current landfill is estimated to reach its capacity in 2019. The medium-term solution is the amendment of the height restriction for this landfill which will unlock 5 years of airspace. The long-term solution is the construction of a Cape Winelands Regional landfill site located in Worcester.

Infrastructure Response: Energy

Electricity for the proposed areas will supplied and distributed by Eskom. The calculated demand is 20 MVA. SDA 1, 2 & 4 will require 11 kV network upgrade/ strengthening. SDA 3 & 5 will require a substation upgrade or new 66/11 kV Substation and 66 kV network strengthening by Eskom. A new 11 kV distribution network will also need to be built.

Notes and assumptions made in order to calculate energy demand:

- The demand calculations are an overestimate and detailed calculations should be made once development layout has been compiled;
- The Electrical Masterplan for Worcester is outdated and does not align with the proposed developments;
- The proposed developments demands are an over-estimate of the town and requires more detailed analysis and feedback from the supply authority and Eskom in relation to the distribution; and
- Network feeder information is not available to determine possible upgrading.



Map 24 De Doorn's infrastructure response

3.3.4 Touwsrivier

The railway town of Touwsrivier is situated approximately 77km east of Worcester along the N1 Road.

Touwsrivier is set on the peripheries of the Klein Karoo, a valley situated between the Langeberg and the Outeniqua Mountains, which in turn separates the Little Karoo from the Garden Route's coastal strip. The town is further located on the banks of the Touws River.

Touwsrivier has been identified as a secondary node. Touwsrivier comprises of three areas.; firstly, the original Spoornet housing which is the original town; secondly, Topkamp is located east of the railway line and lastly Steenvliet which is located south of the original Spoornet housing. The commercial activity in Touwsrivier is clustered along Main Street. A number of small commercial business and shops are found along this street. The commercial activities in Steenvliet is centered around Dwars Street and comprise of a library, a number of shops and bottle stores. The Steenvliet CBD is dilapidated and redevelopment should be considered to create opportunities for the local community.

Touwsrivier area offers other interesting attractions such as a steam engine graveyard and the Loganda pillars, used for astronomical calculations in the late 1880's. To the north is the popular Kaggakamma reserve with ancient bushman painting sites which are approximately 6 000 years old. The nature reserve is also home to a variety of wildlife.

Several opportunities and challenges have been identified. The opportunities include:

- Available land for infill development;
- Regeneration of vacant and dilapidated Spoornet and Topkamp houses;
- Tourism opportunities in the form of game farms and rock climbing;
- The regeneration of the Steenvliet CBD to create job opportunities and stimulate local economy;

The challenges identified include:

- High unemployment rates;
- Lack of job opportunities; and
- Distance from larger towns with an established economic base.

Structuring elements and growth management

This section identifies the various structuring elements which impacts on the growth of Rawsonville and identify appropriate means to grow in the future.

Natural Open Space

Section 3.1.3 Natural open space systems identify the natural open space surrounding Touwsrivier. The following generic principles should apply to the natural open space systems:

- The natural open space system should be protected from intrusive, irresponsible and ad hoc developments that damage the ecological integrity as well as visual quality of these areas. These include urban development, mining activities and agriculture;
- A continuous open space system must be developed in Touwsrivier. This means that in certain areas where natural open space is currently affected by activities the municipality must intervene in order to ensure that ecological corridors can be created and are able to function appropriately; and
- Focus should be placed on and resources allocated to those consolidated natural open space areas where long term ecological sustainability can be achieved.

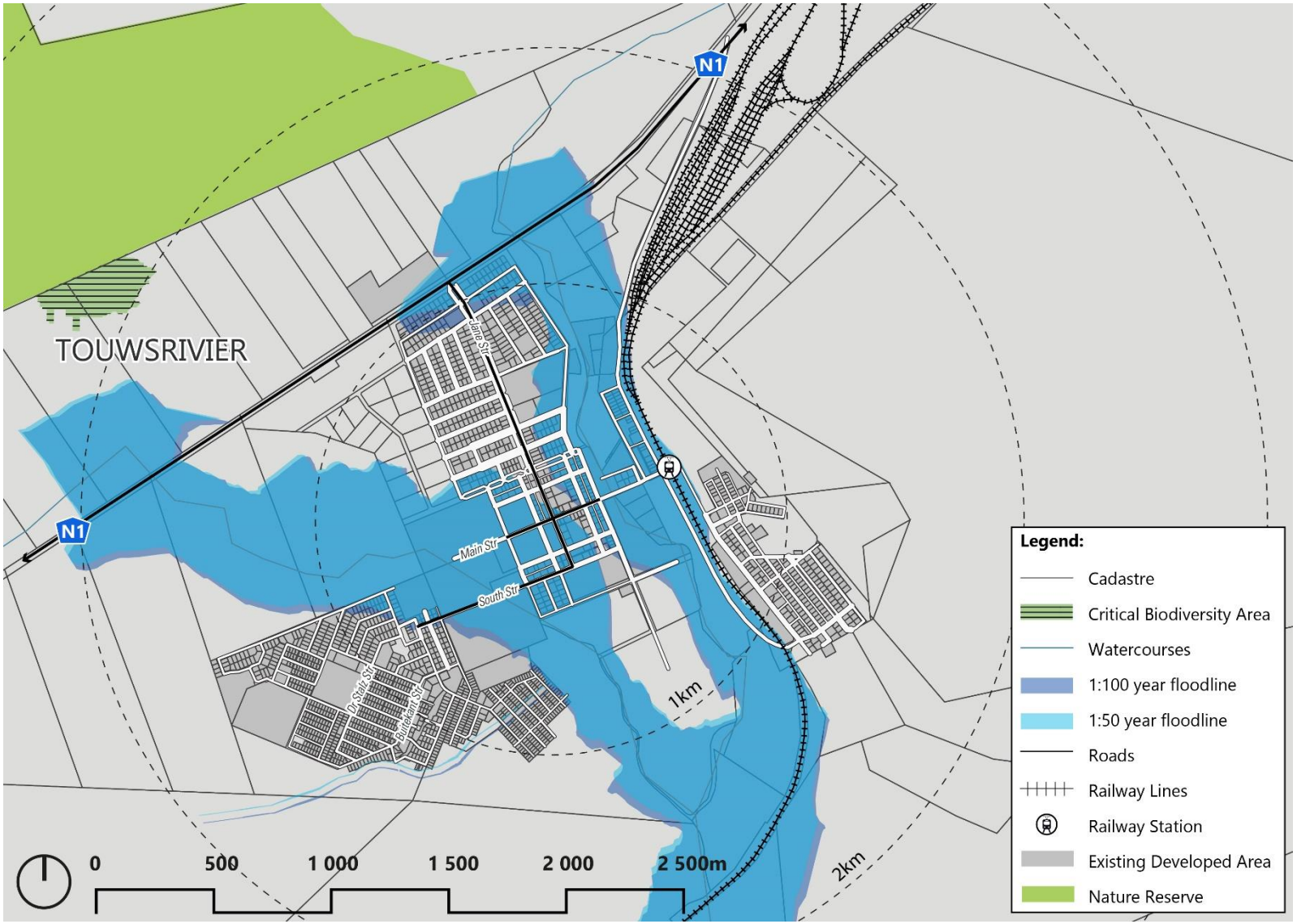
New development should occur in a manner which promotes the protection of the bio-physical environment. It is recommended that the Breede Valley Municipality prepare an Environmental Management Framework which will indicate the nature and intensity of land uses that can be accommodated in these areas from an environmental perspective.

Parks and open space

The development of a planned, interlinked open space network provides the urban environment with variety, legibility and visual relief. It also provides residents with an opportunity to enjoy open space, recreation and general amenity without having to travel great distances. It also provides for flood attenuation, stormwater management and urban agriculture opportunities.

New development should thus occur in a manner that:

- Promotes tree planting along routes and PT and NMT networks;
- Protects and promotes movement between the rich cultural and architectural heritage buildings, squares and national monuments;
- Maximises the use of public parks e.g. the use of parks for public markets, picnic facilities, braai areas and other activities which brings people together;
- Promotes the multi-use of parks to enable sport activities;
- Encourages urban food gardens especially in poorer communities; and
- Revitalises public spaces through public and private investment creates attractive meeting places which fosters closer relationships, learner friendly atmospheres and reduces crime.



Map 25 Touwsrivier structuring elements

Nodes

Touwsrivier has been identified as a secondary node with the Breede Valley Municipality. Two sub-centre nodes have been identified. These are the areas with highest economic opportunity within Touwsrivier.

Corridors

The N1 has been identified as the primary corridor connecting Touwsriver with Cape Town in the west and Johannesburg in the north.

The following activity spine roads have been:

- Jane street;
- South street; and
- Main street.

These roads are critical for movement within Touwsrivier.

Gateways

Two gateways have been identified. Both gateways are located along the N1.

Business and Commercial

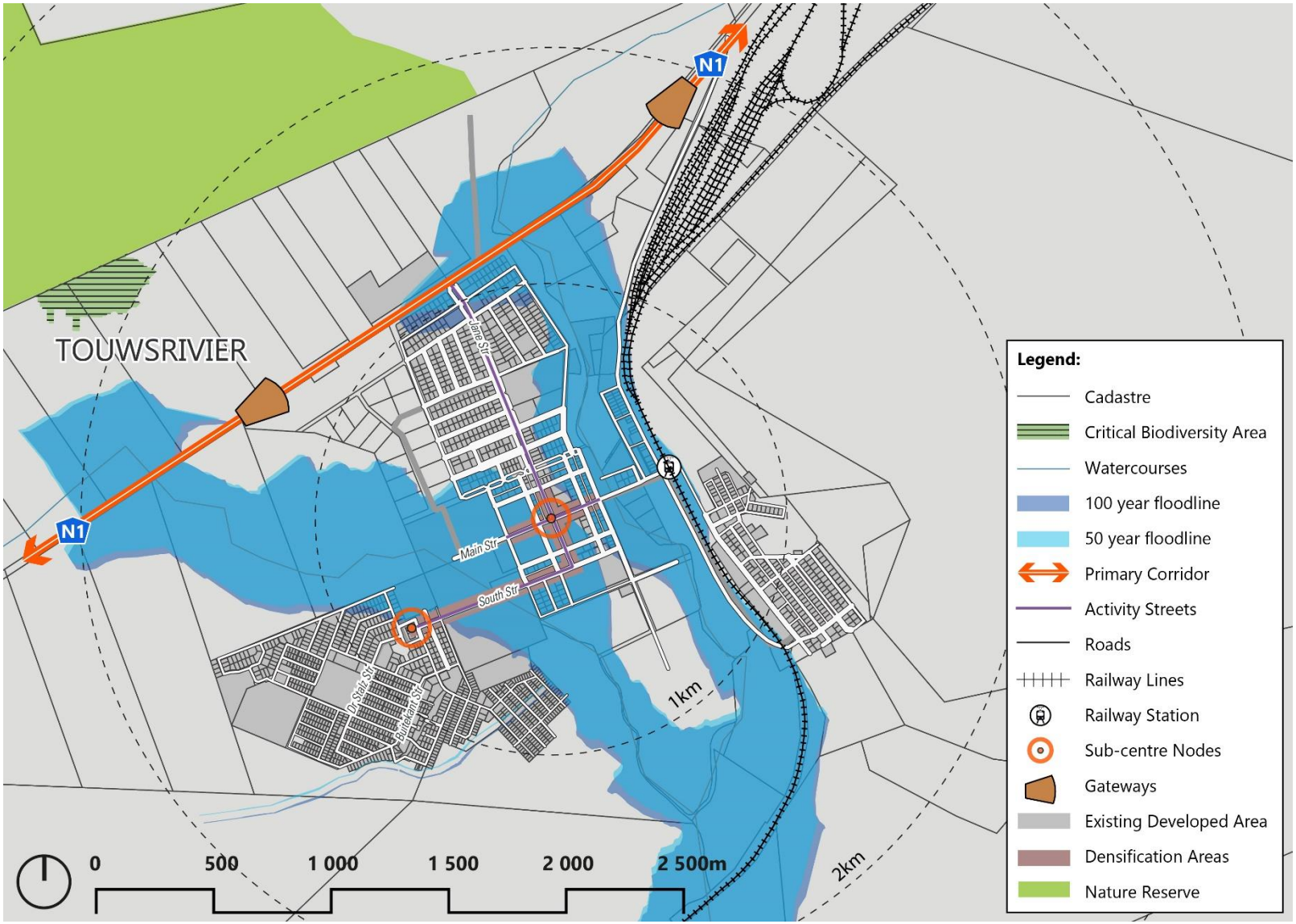
The commercial activity in Touwsrivier is clustered along Main Street. A number of small commercial businesses and shops are found along this street. The commercial activities in Steenvliet is centered around Dwars Street and comprise of a library, a number of shops and bottle stores. The Steenvliet CBD is dilapidated and redevelopment should be considered to create opportunities for the local community.

It is further proposed to create commercial activity opposite the BP Komkyk Motors focusing on the tourism sector. The site identified has good visibility from the N1 and is located in close proximity to the Touwsrivier Hotel.

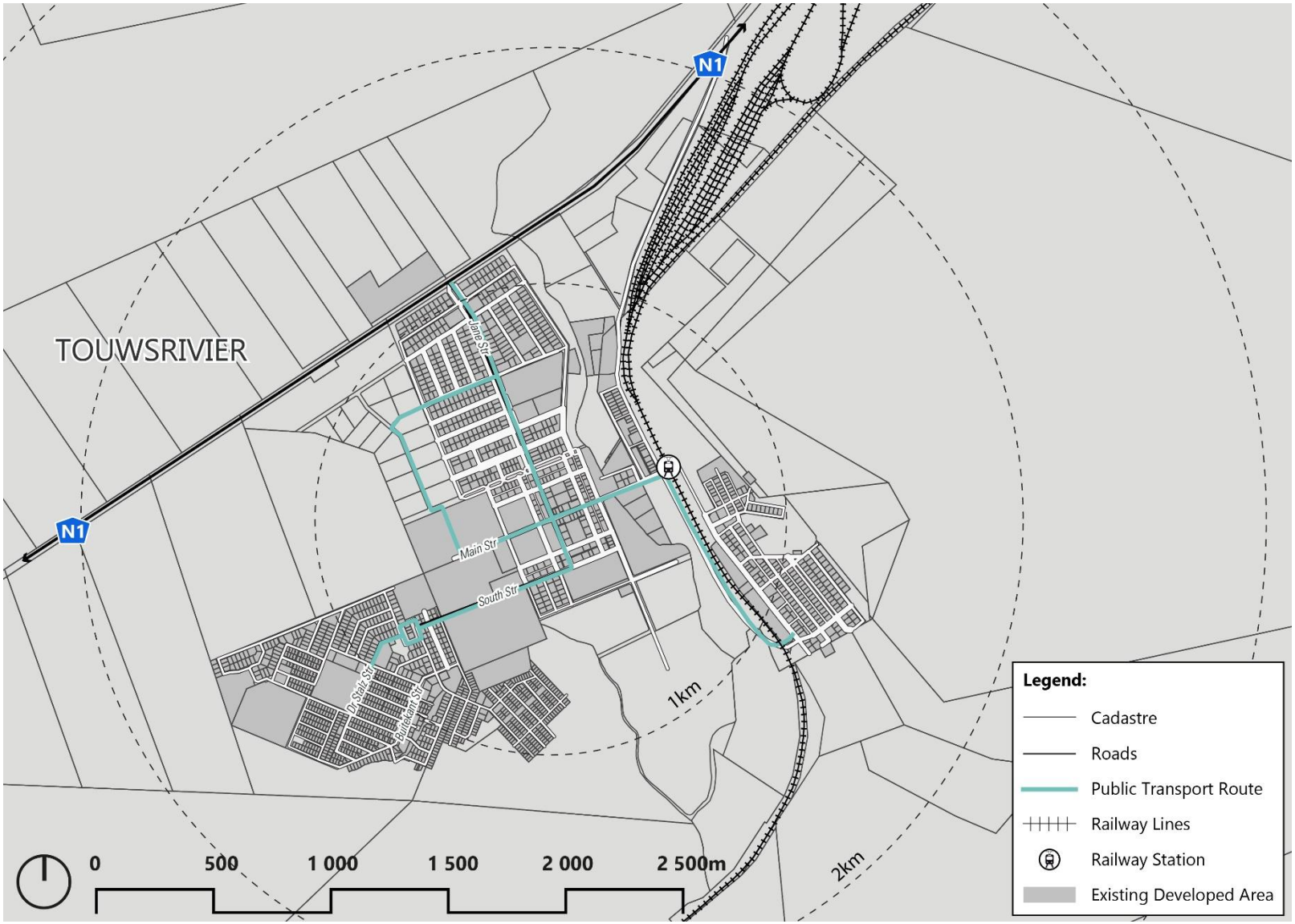
Transport Network

There is existing NMT routes along major corridors in the town of Touwsrivier as illustrated in Map 27. The existing NMT network should be extended to the proposed development areas to provide connectivity to important nodes such as the CBD, schools and clinics.

Should the development east of the river and west of the railway line realise (SDA6), an additional link should be provided across the river. Boy Muller street can be extended to provide access to this development. Furthermore, President Swart Street needs to be extended to provide access to the development south of the N1 (SDA 1).



Map 26 Touwsrivier Nodes, corridors and gateways



Map 27 Touwsrivier Public Transport Network

Proposed areas for residential development

A number of strategic development areas have been identified. Human Settlement programs and projects should be implemented on a focused, strategic, coordinated and hierarchical basis with the biggest investments to benefit the largest number of people.

Development within the existing urban form should be promoted to enable optimal use of available infrastructure and thus protecting areas of agricultural, recreational and ecological significance.

In order to reduce sprawl, it is proposed that new development should be focused in closer proximity to the CBD with higher densities as well as the development of vacant and underutilised erven.

It is expected that the population of Touwsrivier will increase to approximately 9200 in 2024.

Housing demand: The 2018-19 IDP indicates a total backlog of 1 618.

- BNG housing – 1 495;
- Informal housing – 78; and
- Rental housing – 45.

Housing supply: The area west of Hugo street has been earmarked for future development. Eighteen (18) properties have been created with an average size of 9 000 square metres per erf.

Strategic Development Area (SDA): the SDA areas identified totals to approximately 12.7ha and at a density of 30du/ha (gross) an average of 380 units could be provided.

It is thus required to develop the areas identified as PNDA as and when required.

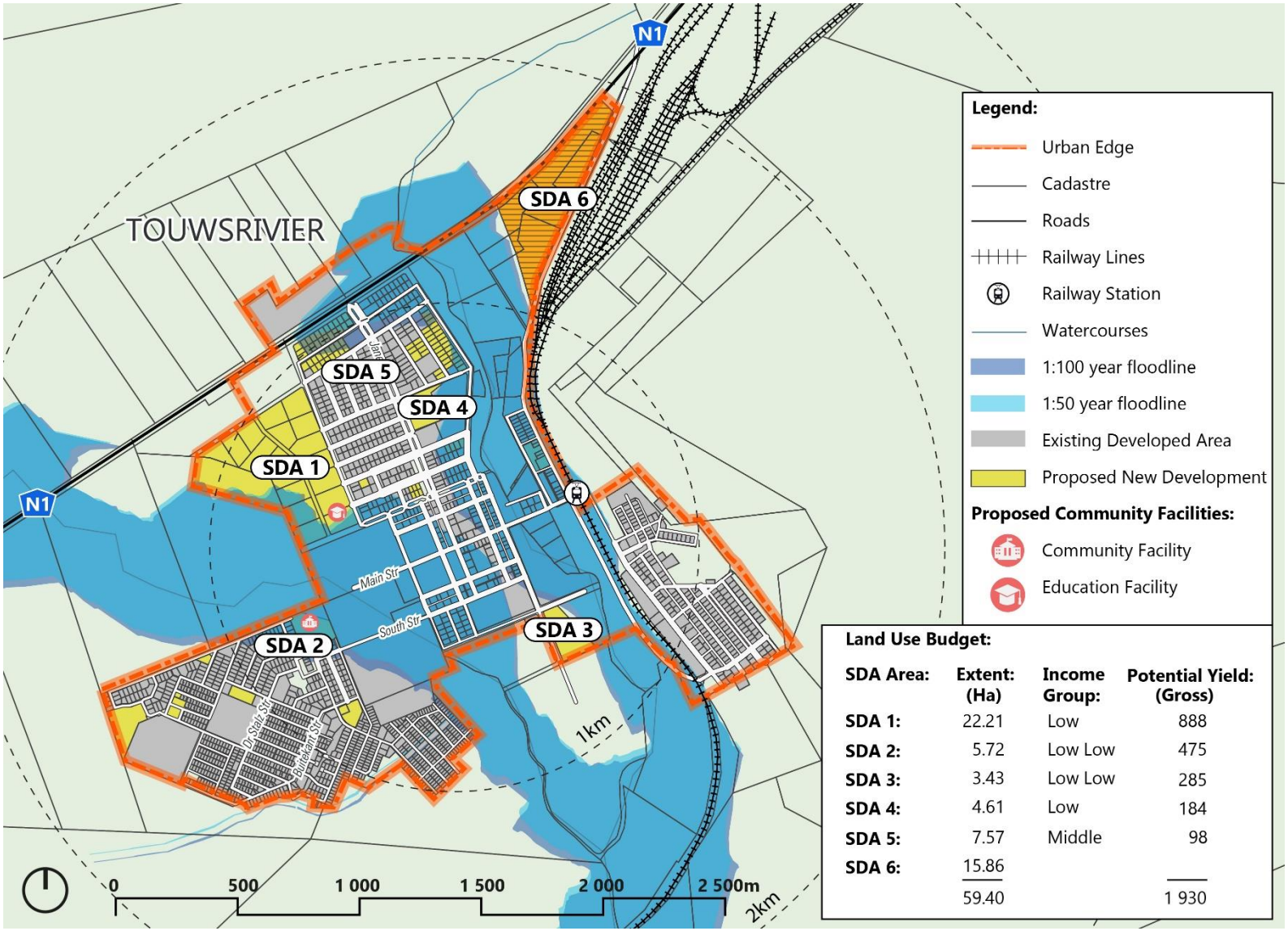
Public and community facilities

Touwsrivier has a variety of public and community facilities. Based on the anticipated population growth and the existing facilities, only a mobile clinic and fire bakkie pump would be required by 2024. Refer to Annexure A for the table indicating the required need.

Culture, Heritage and Tourism

Touwsrivier is located on the periphery of the Klein Karoo. The town offers interesting attractions such as a steam engine graveyard and the Loganda pillars, used for astronomical calculations in the late 1880's. To the north is the popular Kaggakamma reserve with ancient bushman painting sites which are approximately 6 000 years old. The nature reserve is also home to a variety of wildlife and bird species.

in the heart of the Hex Valley. The Cape Dutch style homesteads found in this area contributes to the culture and heritage of the Breede Valley.



Map 28 Touwsrivier New development areas

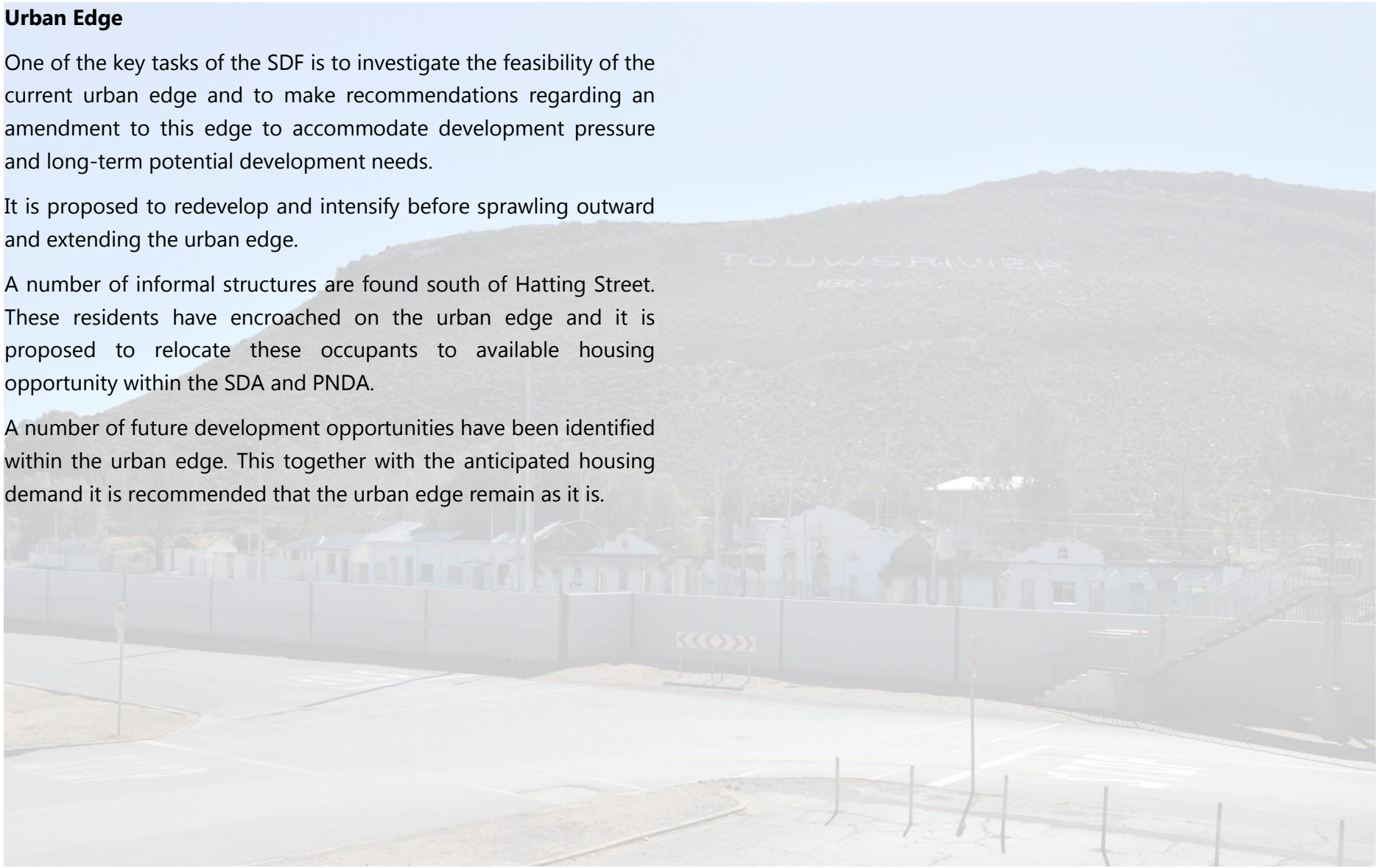
Urban Edge

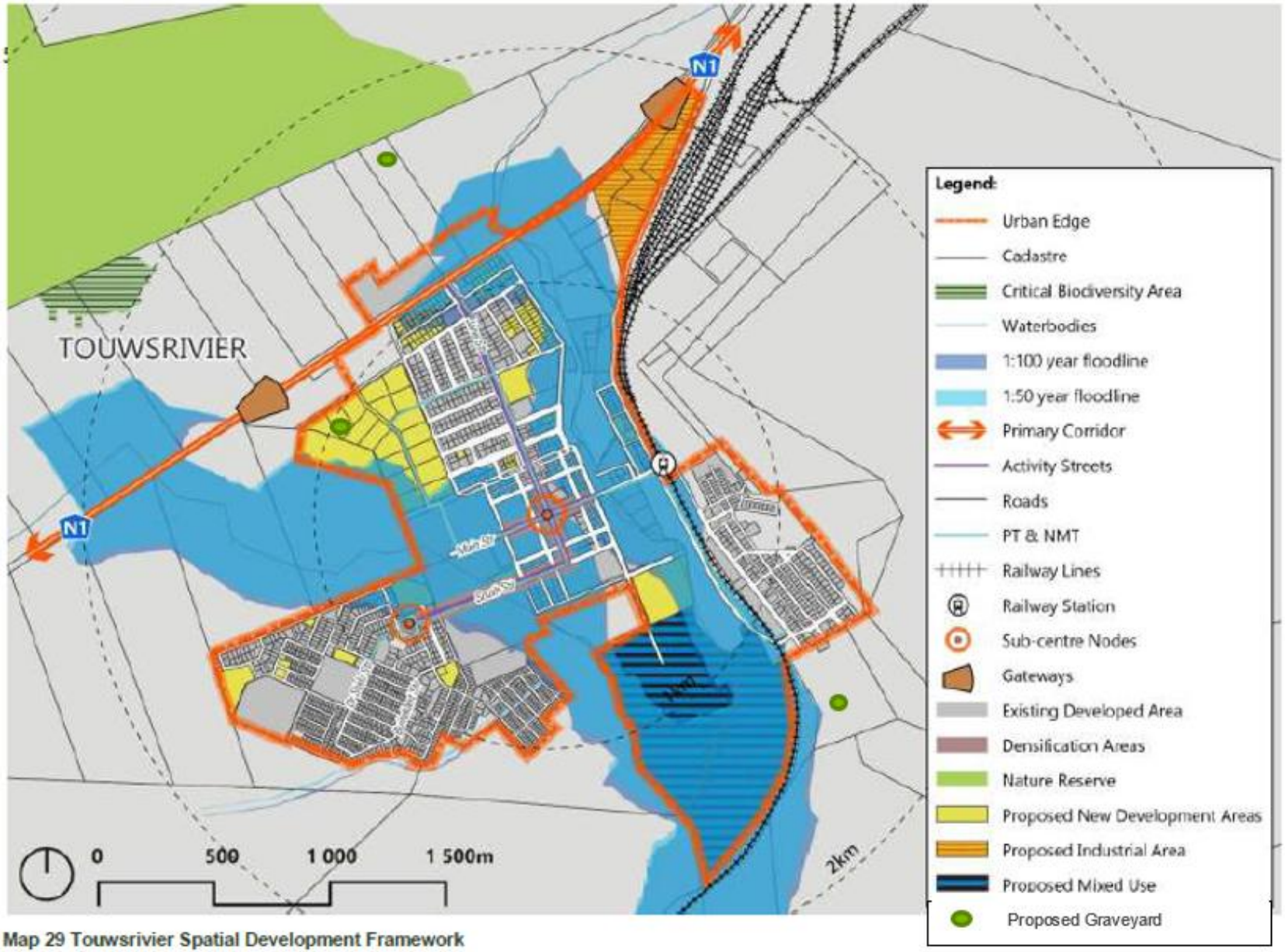
One of the key tasks of the SDF is to investigate the feasibility of the current urban edge and to make recommendations regarding an amendment to this edge to accommodate development pressure and long-term potential development needs.

It is proposed to redevelop and intensify before sprawling outward and extending the urban edge.

A number of informal structures are found south of Hatting Street. These residents have encroached on the urban edge and it is proposed to relocate these occupants to available housing opportunity within the SDA and PNDA.

A number of future development opportunities have been identified within the urban edge. This together with the anticipated housing demand it is recommended that the urban edge remain as it is.





Map 29 Touwsrivier Spatial Development Framework

Infrastructure Response: Water

The existing residential demand is 1,284 kilolitres per day, which will increase to 1 293 kilolitres per day when SDA 1 to 6 is established. The existing capacity in the reservoirs is 6 045 kilolitres per day which means that no additional reservoir capacity will be required to service the proposed residential demand. However, the non-residential demand needs to be assessed and compared against the current reservoir spare capacity to determine if any additional capacity is required. Table 16 below indicates the network capacity requirements in order to unlock residential development.

Table 16 Water requirements to unlock residential development

Proposed Area	Network Capacity Requirements	Estimated cost (ZAR)
SDA 1	Distribution system items: 500m x 200mm Ø pipes, 175m x 160mm Ø pipes	803 091.97

SDA 2 to 6 were not accounted for in the current masterplan available – these areas will need to be assessed for the infrastructure requirements and associated cost.

With the current information available, the water supply network cost to unlock the SDA's proposed is R803 091.97. Infrastructure costs in areas that are not covered in the current masterplans will need to be added to this amount once the relevant assessment is completed.

Infrastructure Response: Sanitation

The existing residential flow is 829 kilolitres per day, which will increase to 850 kilolitres per day when SDA 1 to 6 is developed. The existing capacity at the waste water treatment works (WWTW) is 840 kilolitres per day which means that additional WWTW capacity is needed to service the proposed residential flow. However, the non-residential demand needs to be assessed and compared against the current WWTW spare capacity to determine if any further additional capacity is required. In addition to this, two new pump stations need to be constructed and the upgrade of two existing pump station needs to be undertaken. Table 17 indicates the network capacity requirements in order to unlock residential development.

SDA 3 to 6 were not accounted for in the current masterplan available – these areas will need to be assessed for the infrastructure requirements and associated cost.

With the current information available, the sanitation network cost to unlock the SDA's proposed is R4 749 293.00. Infrastructure costs in areas that are not covered in the current masterplans will need to be added to this amount once the relevant assessment is completed.

Table 17 Sanitation requirements to unlock residential development

Proposed Area	Network Capacity Requirements	Estimated cost
SDA 1	Collector Pipe Items: 833m x 200mm Ø pipes reticulation pipe items: 209m x 160mm Ø Pipes new pump station	2 060 642.08
SDA 2	Collector pipe items: 1415m x 200mm Ø pipes reticulation pipe items: 447m x 160mm Ø pipes upgrade existing pump station	2 688 657.44

Infrastructure Response: Stormwater

The network requirements to unlock SDA's 1, 2, 4, 5 and you include the installation of 5.5 km of new stormwater pipe at a cost of 35 million rand. SDA 2 requires 1.5km of new stormwater pipe and 4km of upgrades to existing pipes at a cost of 14 million rand.

SDA 6 is located adjacent to the Touws River. Stormwater infrastructure required would include a piped stormwater network within the SDA as well as possible upgrades to the bulk stormwater line conveying runoff to the Touws River. Proposed SDAs not assessed for stormwater network requirements in the current stormwater masterplans and would have to be assessed on a case by case basis.

Infrastructure Response: Waste

The existing residential waste generation in Touwsrivier is estimated to be 1 960 tons per year. This is projected to increase to 1 976 tons per year with the development of SDA's 1 to 6. The waste from Touwsrivier will be transported to the Worcester Landfill site. Worcester's current landfill is estimated to reach its capacity in 2019. The medium-term solution is the amendment of the height restriction for this landfill which will unlock 5 years of airspace. The long-term solution is the construction of a Cape Winelands Regional landfill site located in Worcester.

The construction of the new landfill site in Worcester is a critical waste infrastructure project which needs to be completed within the next 5 years. Since this is the main waste disposal site for the entire municipality, if this project is not completed in time then waste from all 4 main towns will need to be transported to disposal sites in adjacent municipalities which will be economically unfeasible.

Infrastructure Response: Energy

Electricity is supplied and distributed by Eskom. The calculated future demand is 7.6 MVA

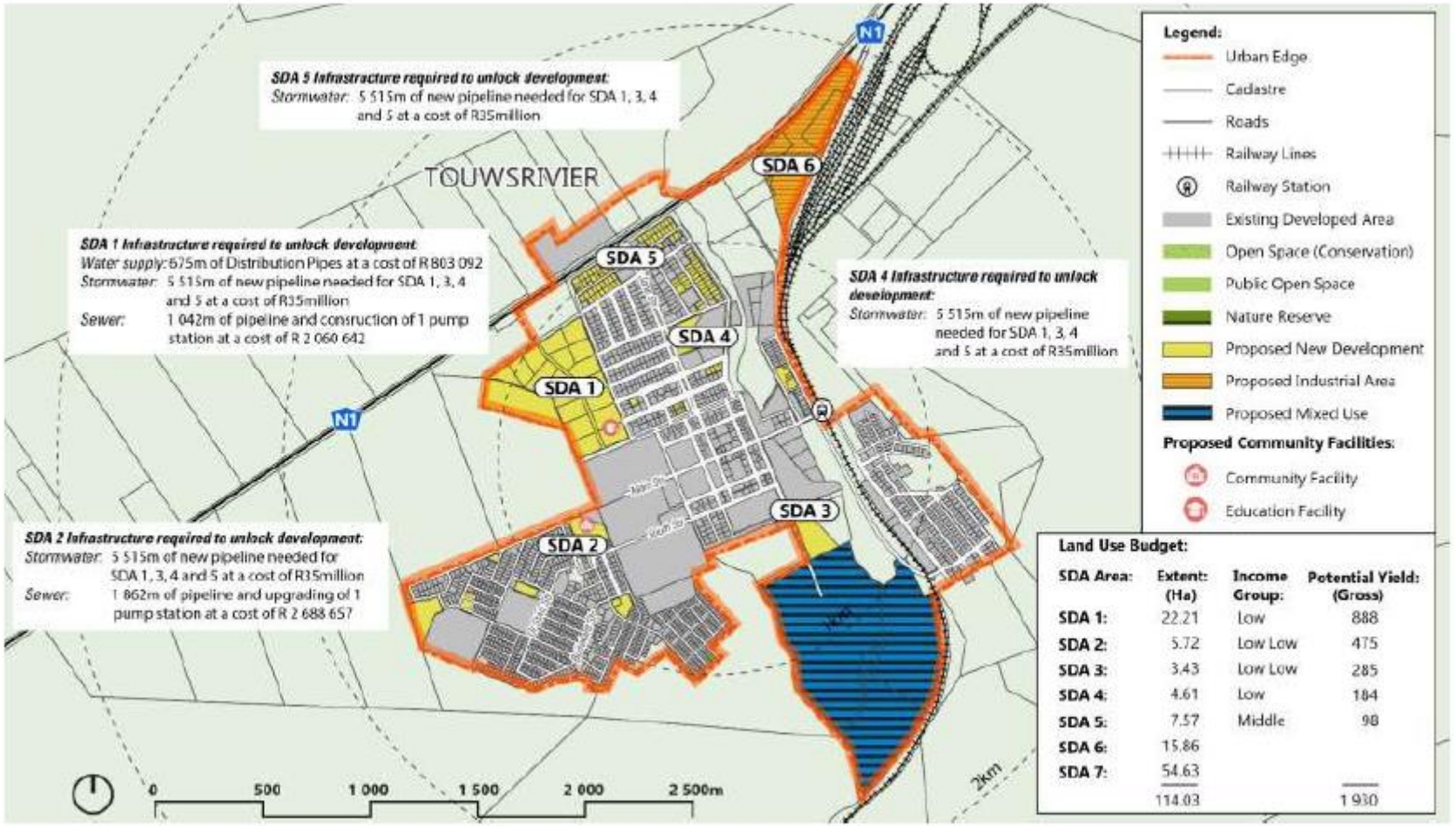
Existing demands:

- Upstream network: Feeder Hugo F2 has a spare capacity of 2.5 MVA; and
- Touwrivier network:
  - NMD 3.0 MVA;
  - Peak 2.2 MVA; and
  - Spare 0.8 MVA.

The existing Touwsrivier network, subject to network strengthening can accommodate an additional 0.8 MVA with a further 2.5 MVA available on Feeder Hugo F2 which implies that a total of 3.3 MVA is available before major upgrading is required.

Notes and assumptions made in order to calculate energy demand:

- The demand calculations are an overestimate and detailed calculations should be made once development layout has been compiled;
- The Electrical Masterplan for Worcester is outdated and does not align with the proposed developments;
- The proposed developments demands are an over-estimate of the town and requires more detailed analysis and feedback from the supply authority and Eskom in relation to the distribution; and
- Network feeder information is not available to determine possible upgrading.



Map 30 Touwsrivier's infrastructure response

Map 29 Touwsrivier's infrastructure response

4 IMPLEMENTATION PLAN

The implementation plan includes further guidelines, policies, programmes or projects for implementation of the strategies and recommendations contained in this SDF.

4.1 Spatial forward planning and the Land Use Scheme

It is important to understand the relationship between the SDF the Land Use Scheme and other plans (e.g. Precinct plans) in between. The SDF can be referred to as spatial forward planning whereas the Land Use Scheme is a tool used by municipalities to guide and management development according to the vision, strategies and policies of the IDP and the SDF, in the interest of the general public to promote sustainable development and quality of life.

Spatial forward planning, which is policy-led, is the prerogative of Council and the executive authority of the municipality. Spatial forward planning informs decision-making about development, and specifically decisions of land use change in terms of the Land Use Scheme. Hence, decisions made in terms of the Land Use Scheme should be informed by policy-led documents such as the SDF. In turn, the Land Use Scheme enforces the policies and strategies contained in spatial forward planning in order to reach the spatial vision and land use patterns envisaged by the SDF. As such, decisions in terms of the Land Use Scheme and the Land Use Scheme itself, has the force of law and is not just mere development guidelines. All development decisions made by policy makers should be in line with the stipulations of the relevant Land Use Scheme. Thus, where proposed development applications conform to the Land Use Scheme stipulations a favourable decision can be made, however where it does not conform the proposed development should be amended or reject.

In terms of spatial forward planning, there is a hierarchy of plans and different levels of detail, each with a specific goal.

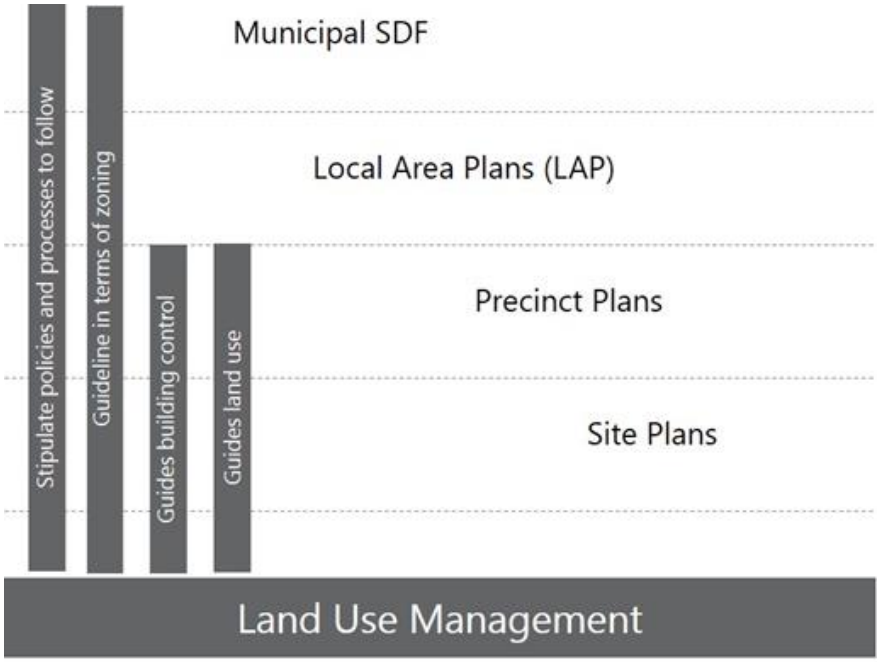


Figure 8 Hierarchy of plans and relationship with Land Use Management

The lower order spatial forward planning plans, closes the gap between the SDF which is strategic in nature, and the Land Use Scheme, which represent final development control.

Lower order plans:

Provides more detail and provide specific guidelines and proposals and is area specific.

Higher order plans:

These plans are strategic in nature and provides a framework to guide future development.

SDF's and strategic proposals are not produced at a scale which allows for detailed planning for local areas. Different areas also require different levels of planning on individual / site level. For example, one would go into much more detail in planning an area such as the CBD with complex land use and development challenges, that what is required to give development guidelines for the environmental protection areas. Typically, a CBD would require the development of a Precinct Plan, whilst other Strategic Development Areas may only require a Local Area Plan. All of these plans inform decision making in terms of the Land Use Scheme.

All the spatial forward plans inform one another, and there should be a continuous review (evolution process) and progressive influence on each other, striving to refine spatial patterns over time.

Lastly, should provisions in the Land Use Scheme fail to address the needs and strategies (policy) proposed in the spatial forward plans, the Land Use Scheme should be reviewed in order to give expression to these policies.

Together, all of these plans, including the Land Use Scheme, function as one Land Use Management System.

This SDF may propose and identify areas where lower order spatial forward planning is required (e.g. Local Area Plan for a Strategic Development Area), but is should not prevent the municipality to introduce such pans throughout the area and where it may be

required in future. Proposals in this SDF is a mere guide and only identified those most critical areas at this stage.

4.1.1 Land Use Management System guidelines

This section provides more detailed guidelines and proposals in order to ensure that the desired spatial patterns as illustrated in the SDF is realised over time, and to ensure that the latest trends in land use management are captured.

Land Use Scheme

There are currently two (2) Schemes in operation within the Breede Valley Municipality. Firstly, the Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985)" Scheme regulations in terms of section 7(2) and secondly, the Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985)" Scheme regulations in terms of section 8. Furthermore, development in Zweletemba is regulated by Section 26(1)(a) of the Black Communities Development Act, 1984 (Act 4 of 1984).

Section 7 regulations pertains to Worcester whereas the Section 8 is applicable to the rural areas including Rawsonville, De Doorns and Touwsrivier. It should be noted that the Municipality is in the process of preparing an integrated zoning scheme and this single zoning scheme will be applicable to all towns within the Municipal area.

Table 18 includes proposals for the amendment and improvement of the Land Use Scheme.

Table 18 Proposed amendments to the Land Use Scheme

Reference	Recommendation
SPLUMA Sect. 27(1)	In light of SPLUMA and the current age of the scheme, review the entire land use schemes within the new few years.
SPLUMA Sect. 25(2)	Review and update Scheme maps.
SPLUMA Sect. 27(1)	Implement a system to ensure that scheme maps are regularly updated – as new proclamations take place.
SPLUMA Sect. 24(2)(d)	Amend the provisions and density permitted in Residential Use zones to allow for increased densities in order to permit and promote affordable housing.
SPLUMA Sect. 35(1) and 36	Establish Municipal Tribunal to consider all applications for land use change, township establishment etc. as contemplated in the Act.
SPLUMA Sect. 35(2)	Delegate the decisions of certain land use type applications to an official (e.g. Planning Official).

SPLUMA Sect. 32(2)	Enforce the land use scheme and prevent uncontrolled development on land (including State owned land) by court order interdicting persons / owners to allow uncontrolled development.
SPLUMA Sect. 32(3)	Appoint a municipal official as inspector and to investigate non-compliance with the Land Use Scheme in order to assist with enforcement thereof.
SPLUMA Sect. 49	Review and update service contributions charges for development / land use change applications

General land use guidelines

This section of the plan includes general guidelines or preferred patterns of land use which prescribes the nature and extent of land uses which may be permitted within the municipal area. These guidelines should assist in land use management and evaluation of applications for land use change throughout the municipal area. These land uses should be used as a guideline for the proposed projects as indicated in Table 19, Table 20, Table 21 and Table 22.

It should be noted that these patterns of land use should only serve as a general guideline the preparation of the precinct plans and future development of the identified areas.

Worcester:

Table 19 Worcester implementation proposal for development area

	Project Description	Zoning	Purpose and Description	Typical Land Use
Project 1	Precinct planning along intensification corridors	Business and Retail	To provide in a higher spectrum of services to residents, normally limited to consumer goods and small portion of luxury goods and personal services.	Shops, offices, restaurant, wholesale trade, commercial use, public garage, vehicle sales, funeral parlour, social hall, place of instruction, consulting rooms, bakery, dry-cleaner, etc.
Project 2	Informal trading area	Business and Retail	To provide consumers with locally sourced products and or specialised goods.	Spaza / kiosk / public market.
Project 3	Recreational activity plan	Open Space and recreation	To provide for active and passive recreation for the community.	Gardens, parks, play grounds, braai facilities and picnic areas and ablution facilities.

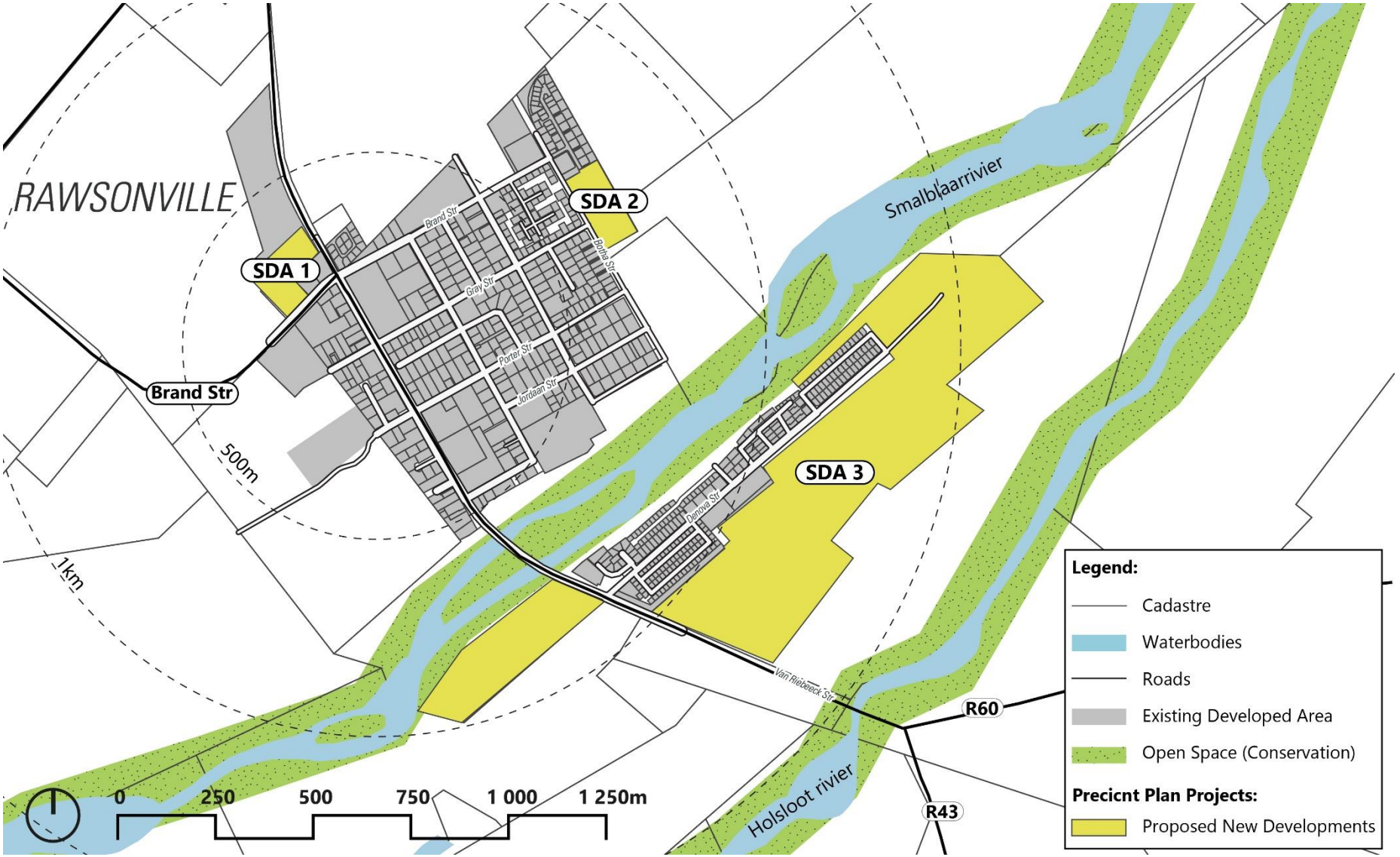
	Project Description	Zoning	Purpose and Description	Typical Land Use
Brandvlei/Kwaggaskloof	Tourism nodal development.	Tourism / Resort uses	Holiday and overnight accommodation facilities for visitors.	Hotels, Lodges, overnight accommodation, guest houses, camping sites, golf course.
		Adventure tourism	To provide for active outdoor recreation and enjoyment of natural resources.	Hiking trails, cycling trails, fishing sites, water sports, nature reserves.
		Residential	To provide for a mix of residential uses for different income groups	Residential buildings.
		Mixed use, commercial and Local business, Agri-business	To provide for the demand for consumer	Retail, conference facility, offices, handcraft and art studio and agri-business use.

Map 30 Worcester potential projects

Rawsonville:

Table 20 Rawsonville implementation proposal for development area

	Project Description	Zoning	Purpose and Description	Typical Land Use
SDA 1, 2 and 3	New development areas	Single residential.	To provide (medium – low density) single residential erven with mixed use activity along Brand Street.	Residential and shops.
SDA 4 and 5	New development areas	Single residential.	To provide (medium – high density) single residential erven supported by community facilities: open space, retail.	Residential, parks, playgrounds, spaza / kiosk.

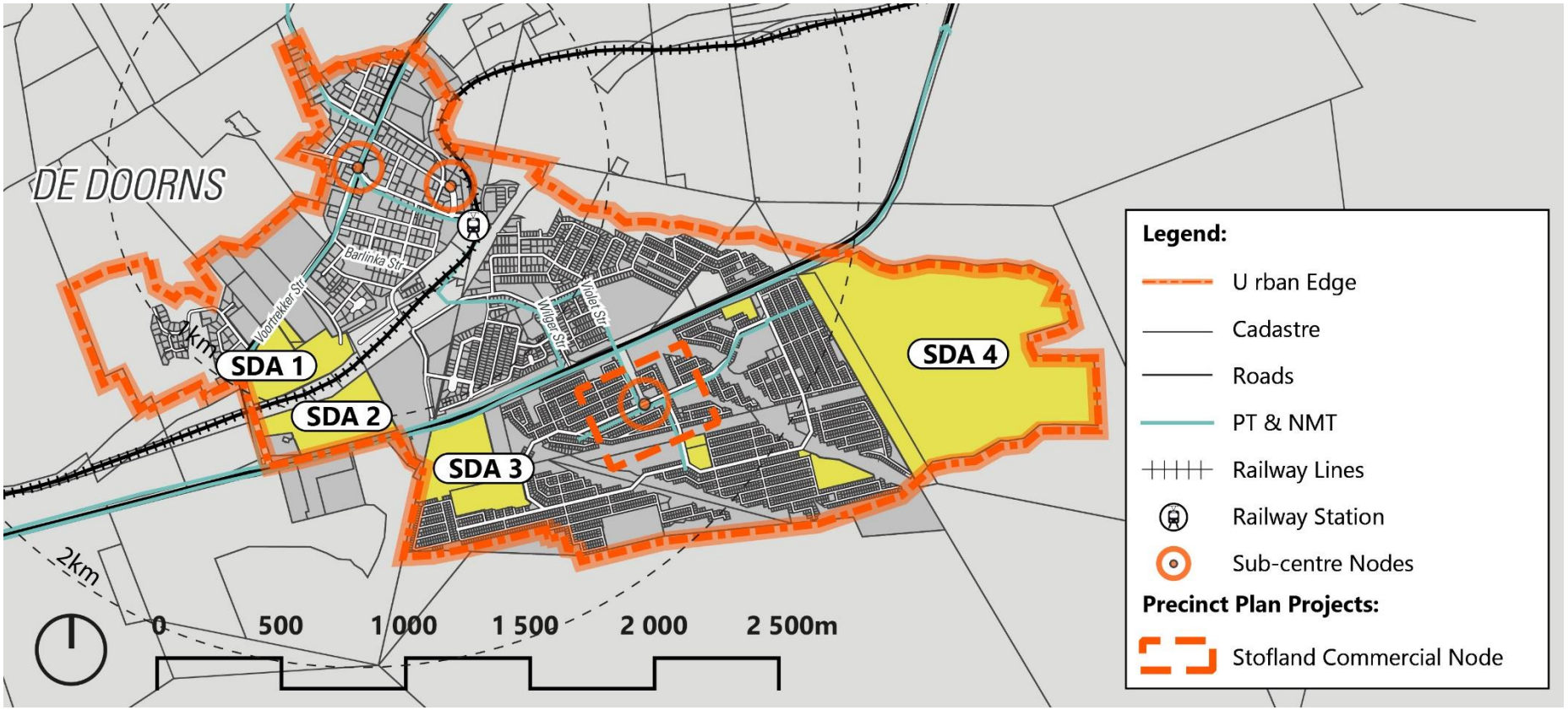


Map 31 Rawsonville potential projects

De Doorns:

Table 21 De Doorns implementation proposal for development area

	Project Description	Zoning	Purpose and Description	Typical Land Use
SDA 1 and 2	New development areas	Single residential.	To provide (medium – low high) single residential erven.	Residential.
SDA 3 and 4	New development areas	Single residential.	To provide (high density) single residential erven supported by community facilities: primary school and mobile clinic.	Residential, parks, playgrounds, spaza / kiosk.
Commercial Node	Stofland commercial node	Local business	To provide in a limited demand for consumer goods.	Shop or spaza / kiosk, rural general dealer.

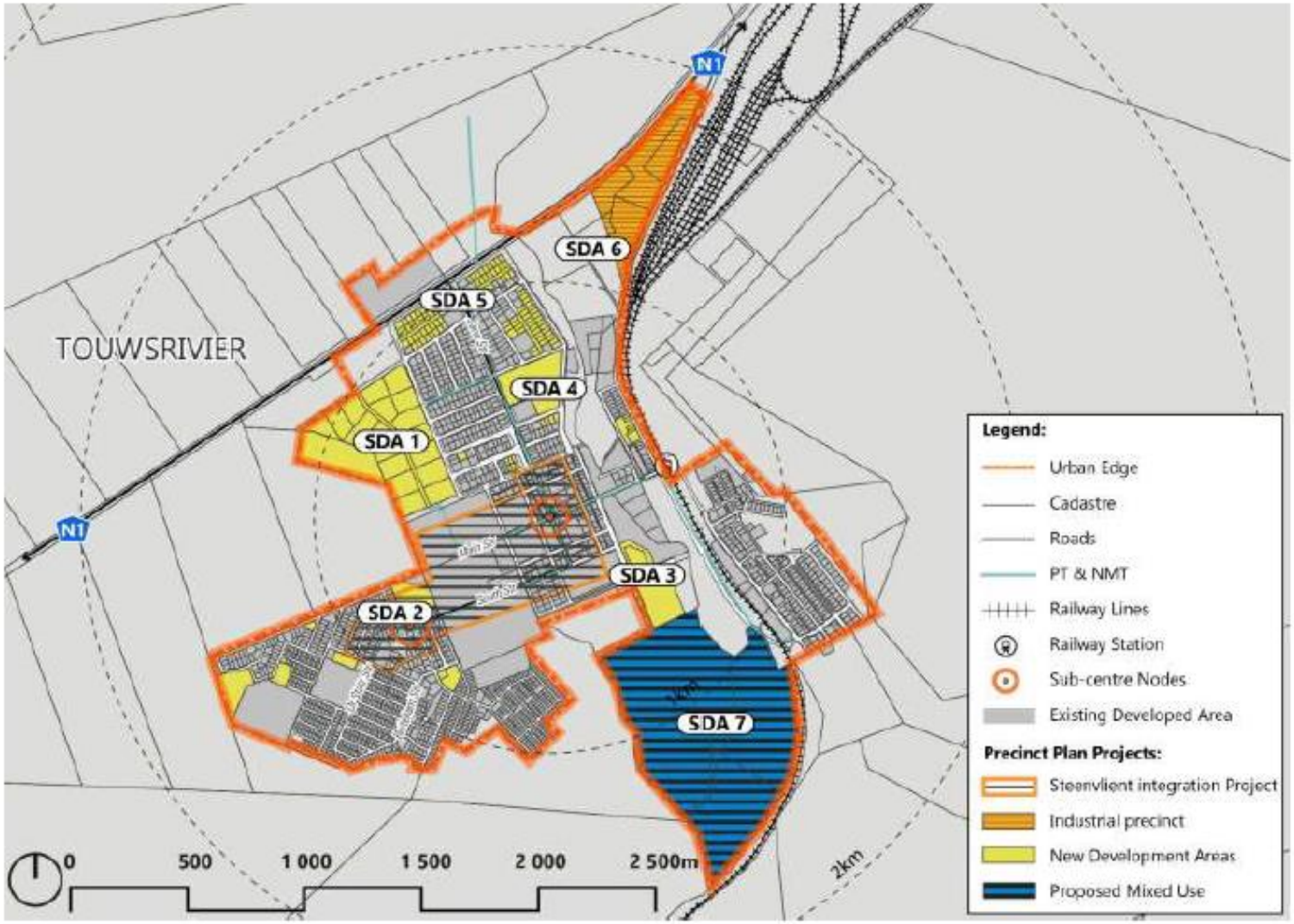


Map 32 De Doorns potential projects

Touwsrivier:

Table 22 Touwsrivier implementation proposal for development area

	Project Description	Zoning	Purpose and Description	Typical Land Use
SDA 1	New development areas	Single residential.	To provide (medium – low high) single residential erven.	Residential.
SDA 2, 3, 4, 5, 6 and 7	New development areas	Single residential.	To provide (medium - high density) single residential erven supported by community facilities.	Residential, parks / graveyard, playgrounds, spaza / kiosk.
Integration project	Steenvliet integration project	Mixed use	To provide new opportunities to integrate Steenvliet with the CBD.	Community facilities, gardens, play parks, walking routes, etc.
Industrial Precinct	Industrial expansion	Light industrial and commercial use	To provide warehouses and service incidental to the needs of the community and/or a specific market.	Commercial use, dry-cleaner, funeral parlour, crematorium industries, service industry, warehouse, public garage, scrap yard, abattoir.
Mixed Use Precinct	Mixed Use Precinct	Business zone, industrial zone	To provide supplementary light industrial and mixed use commercial activities.	Warehouse, light industry, offices, business premises, etc.



Map 33 Touwsrivier potential project

4.2 Capital Expenditure Framework

In terms of SPLUMA Section 21(n) a Capital Expenditure Framework (CEF) for the municipality's development programmes must be prepared. The Guide to preparing a Capital Expenditure Framework prepared by the Department: Cooperative Government defines a Capital Expenditure Framework:

"A Capital Expenditure Framework is a consolidated, high-level view of infrastructure investment needs in a municipality over the long term (10 years) that considers not only infrastructure needs but also how these needs can be financed an what impact the required investment in infrastructure will have on the financial viability of the municipality going forward" (Department: Cooperative Governance, 2017, p. 2)

Annexure B culminates the future demand for facilities as well as utilities as discussed in the previous chapters. Each of the towns were divided into the urban (development within the urban edge) and rural areas. More emphasis was placed on the urban areas since most investment will take place within the urban edge.

From the information illustrated in the images, provision is made for rural growth, however this is considered small and would be evaluated on a case-by-case basis.

4.2.1 Capital Projects

A few key capital projects have been extracted from the IDP (2017 – 2022) which would be required to unlock future development.

The estimated costs below have been determined based on available information (master plans and professional fee estimates). In some instances, such as electricity, the latest master plan was not available and hence capital cost estimates could not be provided. It also does not account for the projects identified in the IDP (2018-2019).

Table 23 Capital Expenditure Framework for Implementation

Sector or Sector Plan	Issue (Responsibility)	Description	Action or Project	Timeframe or specific date	Estimated cost
Spatial Planning	Prepare relevant precinct plans. (Local Municipality)	Ensure that detail concepts are prepared.	Compile Precinct Plans for the identified areas.	Short term	R2 400 000.00
Land Use Management Scheme	Land Use Management System. (Local Municipality)	Preparation of an Integrated Zoning Scheme	Review the current Land Use Management Scheme with focus on the scheme clauses and scheme maps, alignment to SPLUMA, SDF and By-laws.	Short to medium term	R1 500 000.00
Land Use Management	Development of SDA's as priority areas for residential development and housing provision. (Local Municipality)	Township establishment within the SDA's in order to accommodate the demand for residential development and housing demand.	Undertake township establishment in the following SDAs in order to provide the following number of housing opportunities: Worcester: SDA 1 – 1 806 SDA 2 – 407 SDA 3 – 446	 Medium – long term Medium – long term Medium term	tbc

Sector or Sector Plan	Issue (Responsibility)	Description	Action or Project	Timeframe or specific date	Estimated cost
			SDA 4 – 240	Medium term	
			SDA 5 – 3 056	Short to medium term	
			SDA 6 – 584	Short to medium term	
			SDA 7 – 1 133	Medium term	
			SDA 8 – 1 028	Short to medium term	
			SDA 9 – 1 695	Short to medium term	
			SDA 10 - 940	Long term	
			Rawsonville:		tbc
			SDA 1 - 27	Medium to long term	
			SDA 2 - 26	Medium to long term	
			SDA 3 – 2 200	Short to medium term	
			De Doorns:		tbc
			SDA 1 - 106	Medium term	
			SDA 2 – 364	Medium term	
			SDA 3 – 600	Short term	
			SDA 4 – 5 726	Short to long term	

Sector or Sector Plan	Issue (Responsibility)	Description	Action or Project	Timeframe or specific date	Estimated cost
			Touwsrivier: SDA 1 – 888 SDA 2 – 475 SDA 3 – 285 SDA 4 – 184 SDA 5 – 98		tbc
Land Acquisition	Acquisition of land for human settlement purposes (Local Municipality)	Acquire available land for township development	Negotiate with private land owners	Short to Medium	R6 000 000.00
PROJECTS FOR ALIGNMENT WITH OTHER SECTOR PLANS					
Housing Sector Plan	Housing demand and backlog (Local Municipality)	Ensure that the housing backlog is addressed	Compile an Integrated Human Settlements (Housing) Sector Plan that develop a housing delivery pipeline incorporating:	Short to medium term	R800 000.00

Sector or Sector Plan	Issue (Responsibility)	Description	Action or Project	Timeframe or specific date	Estimated cost
	SDA's and housing (Local Municipality)	Strategic Development Areas forms the focus areas for future development of residential areas, including housing provisions and expansion of townships	Ensure that SDA's are prioritised in the Integrated Human Settlements (Housing) Sector Plan as areas where integrated housing development initiatives are focussed.	Short to medium term	
LED Strategy	Rejuvenation of the Worcester CBD	Upgrading of buildings in the CBD	Investigate proposals and measures to rejuvenate the CBD and to make provision for local economic development.	Medium to long term	R250 000.00
Engineering services	Engineering services – Water, sanitation, stormwater, roads and energy. (Local Municipality)	Updating of current master plans	Review current master plans and incorporate SDA areas for future development.	Short term	R5 000 000.00
	Engineering services - Water.	Prioritise the SDA areas where infrastructure and	New distribution systems to unlock future development of SDA areas.	Medium to long term	R208 801 234.70

Sector or Sector Plan	Issue (Responsibility)	Description	Action or Project	Timeframe or specific date	Estimated cost
	(Local Municipality)	community services should be prioritised.			
	Engineering services - Sanitation. (Local Municipality)	Prioritise the SDA areas where infrastructure and community services should be prioritised.		Medium to long term	R142 572 871.30
	Engineering services - Stormwater. (Local Municipality)	Prioritise the SDA areas where infrastructure and community services should be prioritised.		Medium to long term	R135 000 000.00
	Engineering services - Waste. (Cape Winelands District Municipality)	New Cape Winelands Regional landfill site	Acquisition of land, detail design and construction	Medium to long term	tbc
	Bulk services demand – Provision of water (Department of Water Affairs)	Ensure that the required water demand can be supplied to the community	Review the WSP incorporating the estimated population growth from the SDF.		tbc

Sector or Sector Plan	Issue (Responsibility)	Description	Action or Project	Timeframe or specific date	Estimated cost
	Provision of energy (ESKOM and Local Municipality)	Investigate the provision of electricity to the SDA areas.	Energy demand and proposed solutions to be discussed with ESKOM	Short term	tbc
		Investigate alternative / sustainable measures for energy provision	Initiate specialist study to investigate alternative / sustainable energy sources	Short term	R1 000 000.00
Integrated Transport Plan	Strategic Link (Local Municipality and SANRAL)	Construction of the Eastern By-pass road.	Finalise discussions for the construction of the Eastern By-pass road.	Short to medium	R112 728 000.00[1]

[1] This cost estimate is based on layout plans of the preferred alignment provided by Aecom, the cost of structures (bridges over N1 and ramps) could significantly increase the cost of construction.

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