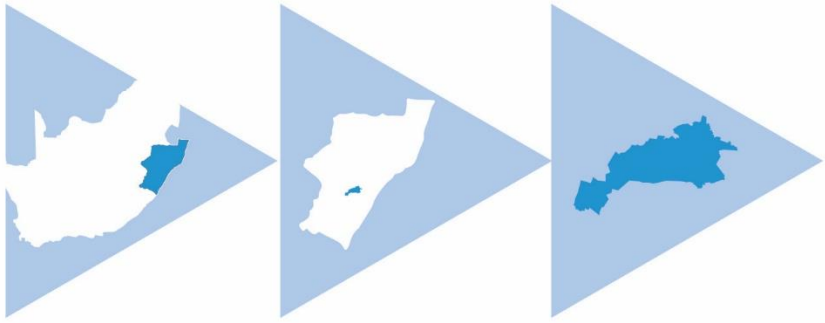
Msunduzi Municipality
Spatial Development Framework

Draft Spatial Development Framework report



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Appendix

Appendix A: Population and household growth projections

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Abbreviations

ABM	:	Area Based Management
BRT	:	Bus Rapid Transit
CBAs	:	Critical Biodiversity Areas
CBD	:	Central Business District
CDS	:	City Development Strategy
CEF	:	Capital Expenditure Framework
CIF	:	Capital Investment Framework
CPTR	:	current public transport records
CSIR	:	Council for Scientific and Industrial Research
DDM	:	District Development Model
DOHS	:	Department of Human Settlements
DRDLR	:	Department of Rural Development and Land Reform
EMF	:	Environmental Management Framework
ESAs	:	Ecological Support Areas
GDP	:	gross domestic product
GEDI	:	Greater Edendale Development Initiative
GEVDI	:	Greater Edendale Vulindlela Development Initiative
GVA	:	gross value added
ICT	:	information and communications technology
IDP	:	Integrated Development Plan
IGR	:	Intergovernmental relations
IRPTN	:	Integrated Rapid Public Transport Network
IUDG	:	Integrated Urban Development Grant
LED	:	local economic development
MoA	:	memorandum of agreement
MYPE	:	Mid-Year Population Estimates
MTREF	:	Medium Term Revenue and Expenditure Framework
NEMPAA	:	National Environmental Management Protected Areas Act (Act 57 of 2003)
NMT	:	non-motorised transport
NSDF	:	National Spatial Development Framework
PDWF	:	Peak Dry Weather Flow
PGDS	:	Provincial Growth Development Strategy
PHSHDA	:	Priority Human Settlements and Housing Development Area
PSDF	:	Provincial Spatial Development Framework
SDAs	:	Strategic Development Areas
SDF	:	Spatial Development Framework
SIP	:	Strategic Integrated Project
SOEs	:	state-owned enterprises

SPLUMA	:	Spatial Planning Land-Use Management Act (Act 16 of 2013)
SPV	:	Special Purpose Vehicle
ULTRA	:	Upgrading of Land Tenure Rights Amendment bill
UNS	:	Urban Network Strategy
VIPs	:	Ventilated improved pit
WCWDM	:	Water Conservation and Water Demand Management
WHO	:	World Health Organisation
WMU	:	Waste Management Business Unit
WWTP	:	wastewater treatment plant
WWTW	:	wastewater treatment works

1 Introduction

Cities are constantly changing and growing. Their growth inevitably results in development pressures which requires a strategy to inform public and private development to enable the best possible outcome for its residents. It is the Msunduzi Municipality's goal, amongst other things, to protect and enhance its key economic, social, and environmental resources, and subsequently to extend these resources to all its residents. The Msunduzi Municipality is also compelled to meet the policy and legislative requirements to spatially transform the city from its current apartheid spatial form to a more compact city that is more inclusive, productive and sustainable.

In accordance with the requirements of the Municipal Systems Act (Act 32 of 2000) (MSA), the Msunduzi Municipality embarked on the process to review its Municipal Spatial Development Framework (SDF) approved in 2015, and to prepare an updated SDF that is aligned with the provisions set out in the Spatial Planning and Land Use Management Act (Act No. 16 of 2013) (SPLUMA). The review process further aims to incorporate the changes and recommendations that were made when the 2015 SDF was partially reviewed in 2017. Moreover, the goal is to further refine the SDF to ensure that it:

- Depicts a spatial vision that is aligned with the vision for the Msunduzi Municipality.
- Guides the Msunduzi Municipality in making decisions, and exercising discretion, relating to spatial planning and land use management systems, and addressing historical spatial imbalances in development.
- Provides information to the public and private sectors in relation to areas of investment, identifies long-term risks of spatial patterns of growth and development, and provides suitable mitigation measures.
- Provides direction for strategic developments and infrastructure investment, taking into consideration environmental management measures.

The overall purpose of the Msunduzi SDF is to support the restructuring and transformation of the city by providing a framework that will guide and help manage urban growth. This will be done by putting in place long-term mechanisms that enable a coherent development trajectory that will inherently shape the structure and spatial form of the municipality as a whole. The future growth path needs to underline the importance of sustainable future development. Therefore, the proposed development path must be flexible and adaptive, and must consider the unpredictable economic, environmental, and social forces that make it difficult to accurately determine how fast the municipality will grow.

1.1 Purpose of Spatial Development Framework

A SDF is a strategy that seeks to influence the overall spatial distribution of current and future land use in a municipality in order to restructure and transform the city to be more compact, productive, inclusive and sustainable. It assists the municipality in realising its vision by spatially articulating the vision and informing the municipality's Integrated Development Plan (IDP). In terms of the MSA, a SDF "must include the provision of basic guidelines for a land use management system for the Municipality."

The Msunduzi Municipality's SDF covers the area that falls within the Municipality's jurisdiction and will reflect a 30-year planning horizon (2020–2050). Section 21 of the SPLUMA sets out the contents of a municipal SDF. These requirements underpin the review and approach in developing the Msunduzi Municipal SDF, and stipulate that the SDF must:

21 (a) give effect to the development principles and applicable norms and standards set out in Chapter 2;

21 (b) include a written and spatial representation of a five-year spatial development plan for the spatial form of the municipality;

21 (c) include a longer term spatial development vision statement for the municipal area which indicates a desired spatial growth and development pattern for the next 10 to 20 years;

21 (d) identify current and future significant structuring and restructuring elements of the spatial form of the municipality, including development corridors, activity spines and economic nodes where public and private investment will be prioritised and facilitated;

21 (e) include population growth estimates for the next five years;

21 (f) include estimates of the demand for housing units across different socio-economic categories and the planned location and density of future housing developments;

21 (g) include estimates of economic activity and employment trends and locations in the municipal area for the next five years;

21 (h) identify, quantify and provide location requirements of engineering infrastructure and services provision for existing and future development needs for the next five years;

21 (i) identify the designated areas where a national or provincial inclusionary housing policy may be applicable;

21 (j) include a strategic assessment of the environmental pressures and opportunities within the municipal area, including the spatial location of environmental sensitivities, high potential agricultural land and coastal access strips, where applicable;

21 (k) identify the designation of areas in the municipality where incremental upgrading approaches to development and regulation will be applicable;

21 (l) identify the designation of areas in which –

(i) More detailed local plans must be developed; and

(ii) Shortened land use development procedures may be applicable and land use schemes may be so amended;

21 (m) provide the spatial expression of the coordination, alignment and integration of sectoral policies of all municipal departments;

21 (n) determine a capital expenditure framework for the municipality's development programmes, depicted spatially;

21 (o) determine the purpose, desired impact and structure of the land use management scheme to apply in that municipal area; and

21 (p) include an implementation plan comprising of –

(i) Sectoral requirements, including budgets and resources for implementation;

(ii) Necessary amendments to a land use scheme;

(iii) Specification of institutional arrangements necessary for implementation;

(iv) Specification of implementation targets, including dates and monitoring indicators; and

(v) Specification, where necessary, of any arrangements for partnerships in the implementation process.

A SDF also leads a municipality's policy-driven land use management system. It will thus provide the framework for making long-term spatial decisions in terms of the Msunduzi Municipal Spatial Planning and Land Use Management By-Law, 2016. Based on the above, the SDF should be understood as a powerful framework for future city development.

1.2 Role of Municipal SDF

A SDF has a greater role to play than merely the spatial representation of the sector plans of the IDP. The SDF needs to articulate the long-term vision through a spatial strategy. In terms of Chapter 4 of SPLUMA: "A Municipal SDF must assist in integrating, coordinating, aligning and expressing development policies and plans emanating from the various sectors of the spheres of

government as they apply within the municipal area". Therefore, it is critical that there is alignment between sectors, spheres of government as well as the public sector in order to achieve the vision and spatial strategies as per the Municipal SDF. The Municipal SDF furthermore provides guidance for decision making in terms of the Single Land Use Scheme for Msunduzi Municipality which is currently being prepared. It is important to note that a SDF does not provide or remove land use rights, but rather guides decisions associated with the management of such rights. When deciding on an application, the Municipal Planning Tribunal, or any other authority required or mandated to make a land development decision, must do so in a way that is consistent with the SDF.

1.3 Structure of this report

The approach and methodology for preparing the SDF and this report follows the guidelines set out by COGTA and is represented graphically in Figure 1. This report, the Draft SDF, thus includes the policy context, vision directives, spatial challenges / opportunities and the proposed spatial proposals. The Implementation Framework or Capital Investment/Expenditure Framework are not included into this report but will form part of the Final SDF to be approved by Council.

In line with the guidelines, the typical structure of the Final SDF is indicated in Table 1. This report constitutes the first draft of the first four components that make up the SDF, as illustrated in the table.

Table 1: Typical Structure of the final SDF

i: Background and purpose of the SDF (Section 1 & 2 in this report) This section outlines the background and requirements for the preparation of a municipal spatial development framework. It further provides an overview of the Msunduzi Municipality.
ii: Spatial challenges and opportunities (Section 3 & 4 of this report) This section provides a brief overview of the key issues that the Msunduzi Municipality currently faces and their spatial implications. The scoping of these developmental issues will have to be addressed to ensure the sustainable management of resources and future growth in the municipal area.
iii: Spatial vision, concept, and strategies (Section 5 & 6 of this report) The 2030 spatial vision, developed in a participatory exercise, is presented in this section. The conceptualisation of the vision into an overarching development concept and theory of change that will support the spatial development vision.
iv: Msunduzi Spatial Development Framework (Section 7 of this report) For each of the spatial focus areas, a spatial concept, together with development strategies and proposals, key interventions, and the investment priorities of the focus area, is presented.
v: Implementation framework **This chapter sets out the policies and guidelines for development as well as the capital investment plan and the capital expenditure framework. It further describes institutional arrangements and partnerships to implement the identified projects. Moreover, it contains a discussion of the monitoring and review section of the report that details how SDF proposals must inform the priorities, performance indicators, and targets of the IDP and of other relevant sector plans.**

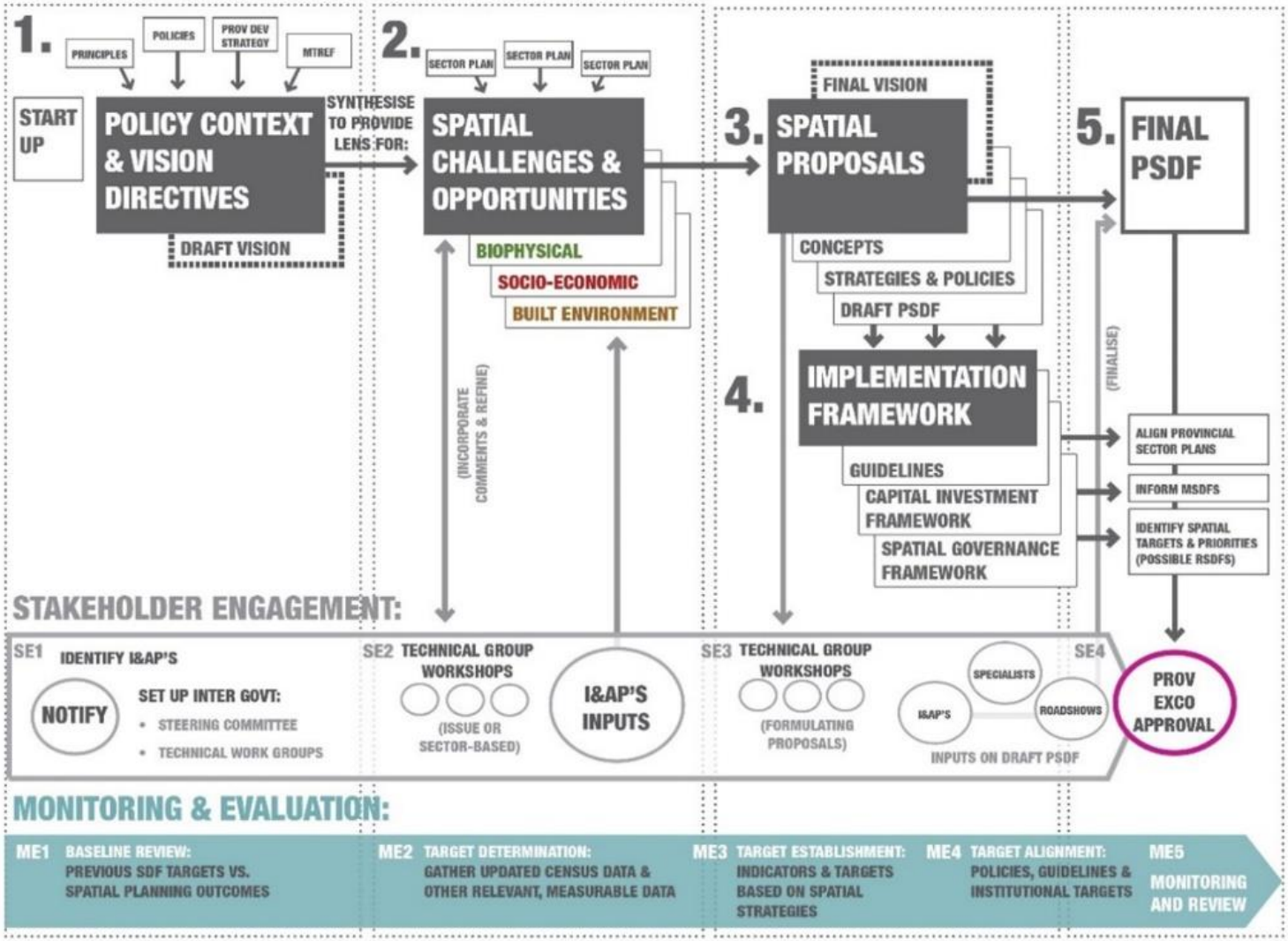


Figure 1: The elements and structure of an SDF report (DRDLR, 2017)

2 Overview of Msunduzi Municipality

2.1 Locational context

The Msunduzi Municipality is located within the uMgungundlovu District Municipality and lies approximately 85 km west of the Durban Port. The city of Pietermaritzburg, situated in the Msunduzi Municipality, is the second-largest city in the KwaZulu-Natal province and the fifth-largest city in South Africa. It is the capital of KwaZulu-Natal, and the main economic hub in the uMgungundlovu District Municipality and the Midlands. The N3 national highway (corridor) and the R56 provincial arterial route run through the municipality in an east–west and a north–south direction respectively. The municipality shares boundaries with the Mkhambathini Municipality to the east, Richmond Municipality to the south, Impendle Municipality to the south-west, uMngeni Municipality to the west, and uMshwathi Municipality to the north.

Managerially, the municipality is divided into four Area Based Management (ABM) areas, namely:

- Vulindlela
- Greater Edendale / Imbali
- CBD / Ashburton / Eastern Areas
- Northern Areas

ABM is implemented in a softcore manner, which implies that, although the departments are still centralised, the approach to development is coordinated through community-based planning.

The Greater Edendale Development Initiative (GEDI) was established in 2004 to facilitate the integrated and holistic development of the Edendale area. In 2013, GEDI was extended to include the Vulindlela tribal authority area. In 2016 Ward 39 was included and all are now collectively recognised as the Greater Edendale Vulindlela Development Initiative (GEVDI). GEVDI seeks to unlock the development potential of the Edendale–Vulindlela Complex and see its transformation into a functional and well-planned space as an integral component of the Msunduzi Municipality's spatial structure and order, based on a thorough understanding of the existing profile of the area.

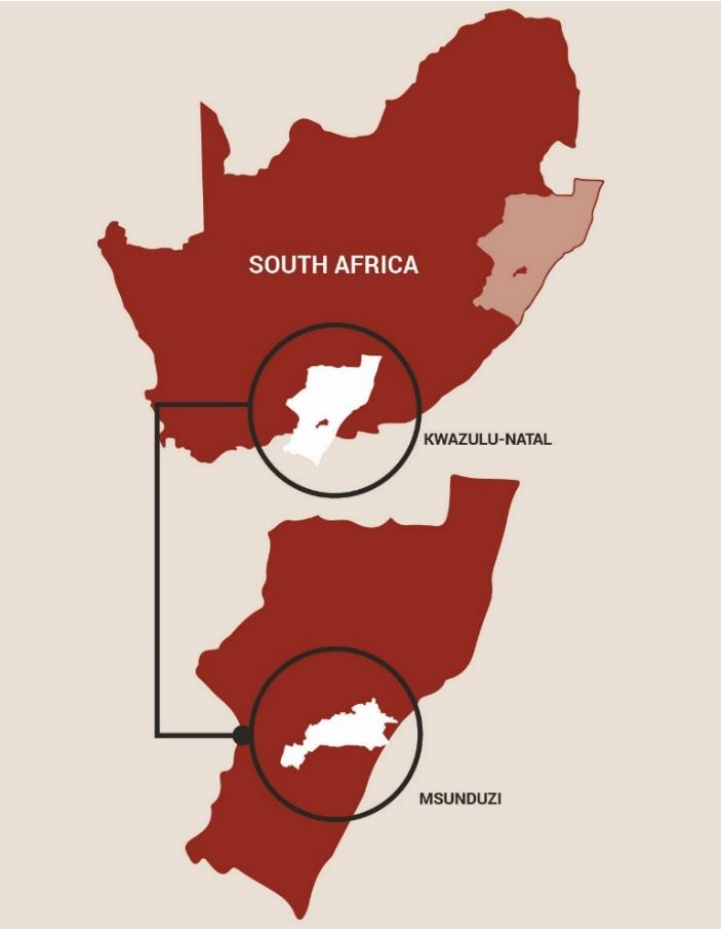


Figure 2: Location of Msunduzi Municipality in KwaZulu-Natal, South Africa

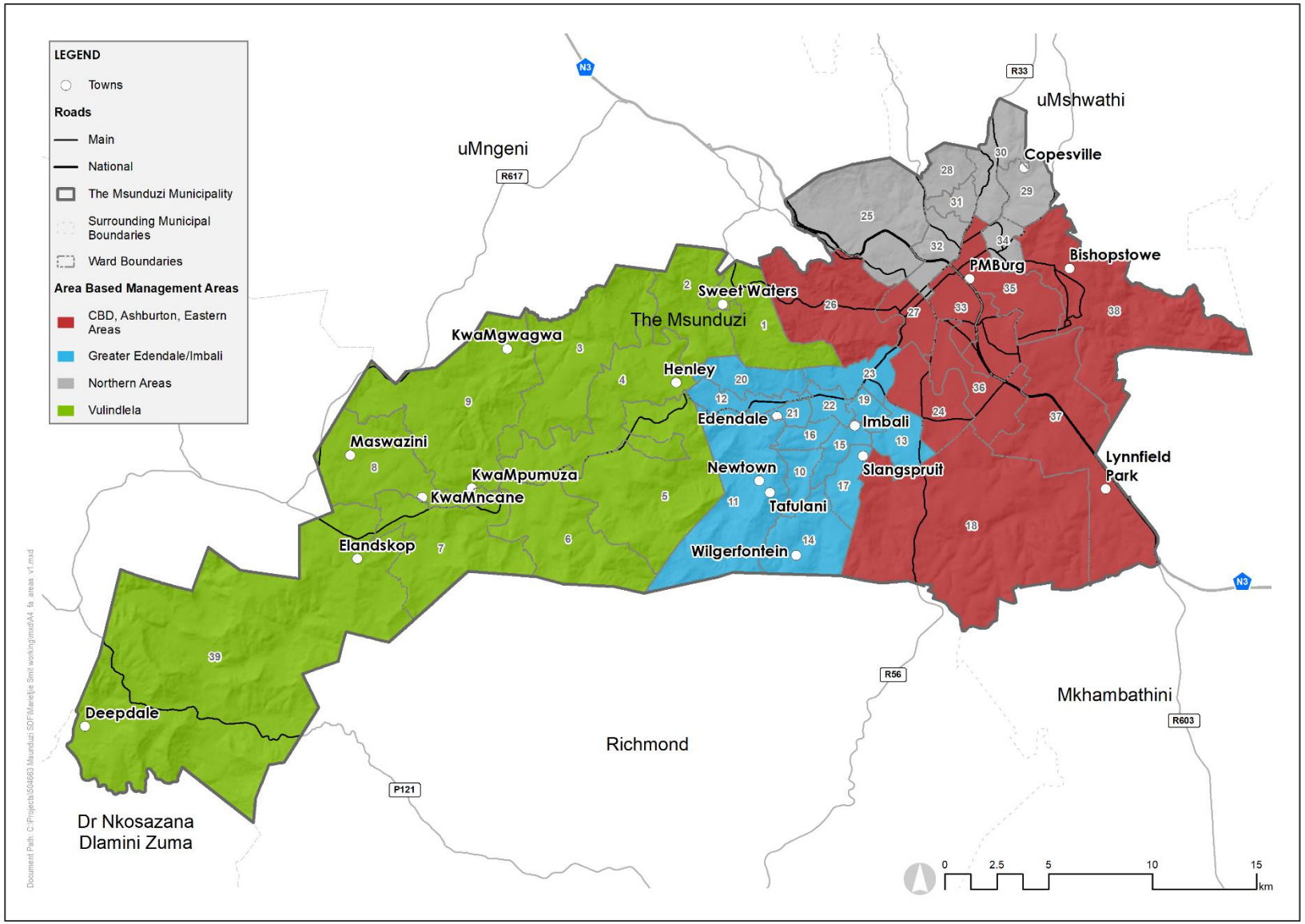


Figure 3: ABM boundaries

2.2 District, Regional, Provincial and National Context

The section considers Msunduzi Municipality's role within the district, regional provincial and national setting. The Msunduzi Municipality plays a significant role at all levels and spheres.

The Msunduzi Municipality accounts for approximately 61.1% of the District's population. It is a primary node in the uMgungundlovu District and fulfils a dominant role in the economy of the District, accounting for between 75% and 80% of its economy. It is viewed as a regional urban centre with potential for economic development and further growth. It is classified as a service economy.

The Msunduzi Municipality, and it's link to the eThekwini Metropolitan Municipality, makes it part of a city region, although there is currently no legislative or regulatory classification of a "city region." In other words, the economies of the two cities are functionally and directly linked and they collectively play a dominant role in the provincial economy. The Municipality thus plays a significant role in the provincial space economy as part of the web of national and provincial corridors and nodes.

At a provincial level, Msunduzi is home to the second-largest urban centre in KwaZulu-Natal, namely Pietermaritzburg. Pietermaritzburg is the administrative and legislative capital of KwaZulu-Natal. It accounts for 38.9% of the province's population. It has a total municipal population of approximately 679,039, an increase from 618,536 in 2011. Significantly, the Msunduzi Municipality is the third most populated, non-metropolitan municipality in South Africa.

Pietermaritzburg is located between the economic powerhouses Durban and Johannesburg with an onward link to Pretoria in Gauteng. The N3 link also provides access to the central parts of the country and into the Western and Northern Cape as well as the North West Province. Its location along the N3, a national development corridor strengthens its regional, provincial and national connectivity. The N3 corridor was declared as national strategic infrastructure project, SIP 2, under the guidance of the Presidential Infrastructure Coordinating Committee (PICC). The National Infrastructure Plan identifies 36 SIPs in total. SIP 2 (Durban–Free State–Gauteng logistics and industrial corridor) is focused on strengthening the logistics and transport corridor between South Africa's main industrial hubs and has national significance. Through the SIP 2 the Municipality is linked to several key provincial and interprovincial transportation routes, thus strengthening its regional, provincial and national connectivity and role.

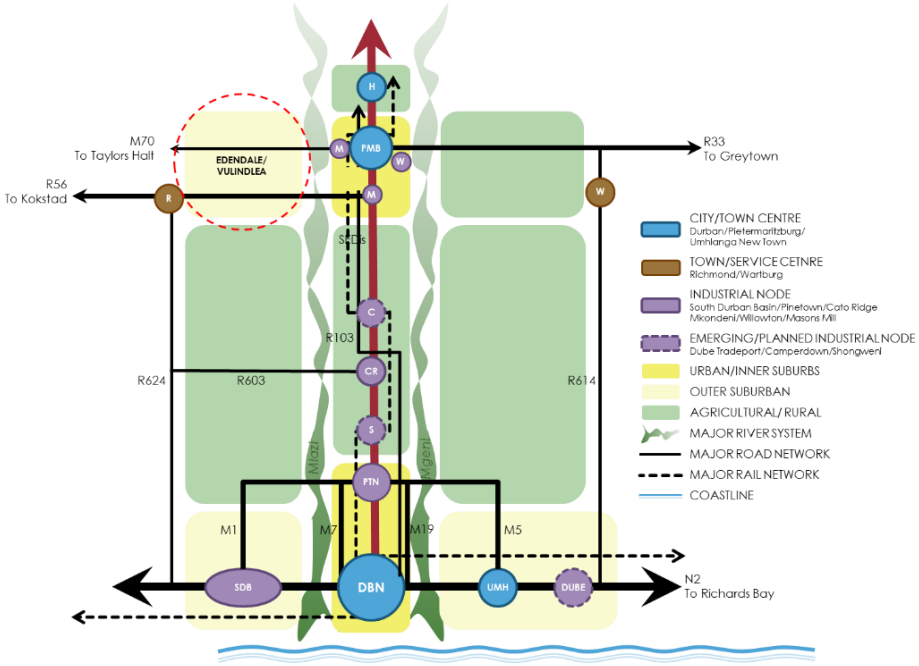


Figure 4: Regional connectivity

The Municipality's status as the administrative centre as well as the major link between the coast and the hinterland affects its economy in a number of ways which generate opportunities. The city has many parastatals and national government service delivery agencies such as the Supreme Court, Deeds Office and Surveyor Generals office.

Msunduzi sits at a critical point of change. As the second-largest metropolitan complex in KwaZulu-Natal, it aspires towards achieving metropolitan status. It is for this reason that a very different SDF is required, one which breaks from the conventions of frameworks driven by land use, and the paralysis of processes based on an extensive status quo analysis, which has caused many SDFs to become nothing more than a reflection of what exists. The IDP vision forecasts the emergence of a metropolitan complex that gives the form and function in which the structures of spatial relations are emphasised towards a unified political spatial economy. At the very least it is most likely to be part of a city region with the port city of eThekwini as the anchor.

The N3 corridor is a relatively recent addition to the movement infrastructure of the Msunduzi Municipality, coming into service only around the 1970s. Spatial planning back then, together with the movement infrastructure of that period, guided the spatial economic development of the city. Higher-order activities were generally located along routes of national and regional significance, with these routes originally passing through the Pietermaritzburg CBD.

As a result of its geographical location, the Msunduzi Municipality enjoys easy access to the N3 and thus to major harbours and airports. It thus has the potential to become well connected in the global economy. The Municipality also provides connectivity and growth opportunities to surrounding municipalities and towns across various sectors, including tourism and agriculture. It is therefore essential that the physical connectivity between the different municipalities and towns be further improved to stimulate the economic linkages between them.

The Msunduzi Municipality and its surrounds are an important area of economic activity along the N3 corridor to the country's economic heartland in Gauteng. Being less than an hour's drive from Durban, the Msunduzi Municipality, centred on Pietermaritzburg, is often seen as being relatively well integrated in the province's economic hub. This view is supported by the many varied business linkages (e.g. automotive supply businesses) and by the high level of commuter traffic (growing volumes of private vehicle, and freight transport) and the different passenger transport modes (taxis and busses) in the area.

The SIP 2 assists in identifying further specialised development opportunities along the N3 corridor as a result of its advantage in terms of its location between the Port of Durban, Cato Ridge, and the N3 corridor, which links the Gauteng province with the Port of Durban. The Municipality's strategic location has supported the establishment of a very strong industrial base. Mkondeni is the primary industrial node in the Msunduzi Municipality. With the emergence of industrial nodes along the N3 at Camperdown (the Mkhambathini Municipality) and Cato Ridge and Hammersdale (eThekwini), the locational importance and the role the Msunduzi Municipality could play in the regional context has become more pronounced. The N3 Corridor Development Plan locates the city as part of the KZN Industrial and Logistics Hub highlighting the significance of manufacturing and industrial sectors located along the N3 between Pinetown / New Germany and Pietermaritzburg for the regional economy. The plan proposes that existing industrial nodes within Pietermaritzburg be further developed and enhanced ie. industrial areas Mason's Mill & Pentrich be explored, and Mkondeni expanded to the south and east.

In this regard, it is useful to point out that the Msunduzi Municipality has duly aligned itself to such a development opportunity by advocating the case for upgrading the Msunduzi Airport, establishing a Msunduzi technology hub, and strengthening accessibility to such facilities through proposed interchange points along the N3.

Many modern businesses and industries are attracted to high visibility and connectivity along major movement infrastructure. The N3 spine provides just such an opportunity for linking to a wider network and reinforces appropriate local and global connections. Currently, limited infrastructure along the route, in the form of multiple, full interchanges at key intervals, hinders the ability of new industry to develop and the use of space. Improving connectivity along the N3 by introducing new interchanges and upgrading existing interchanges will allow Msunduzi to grow and engage at a regional level.

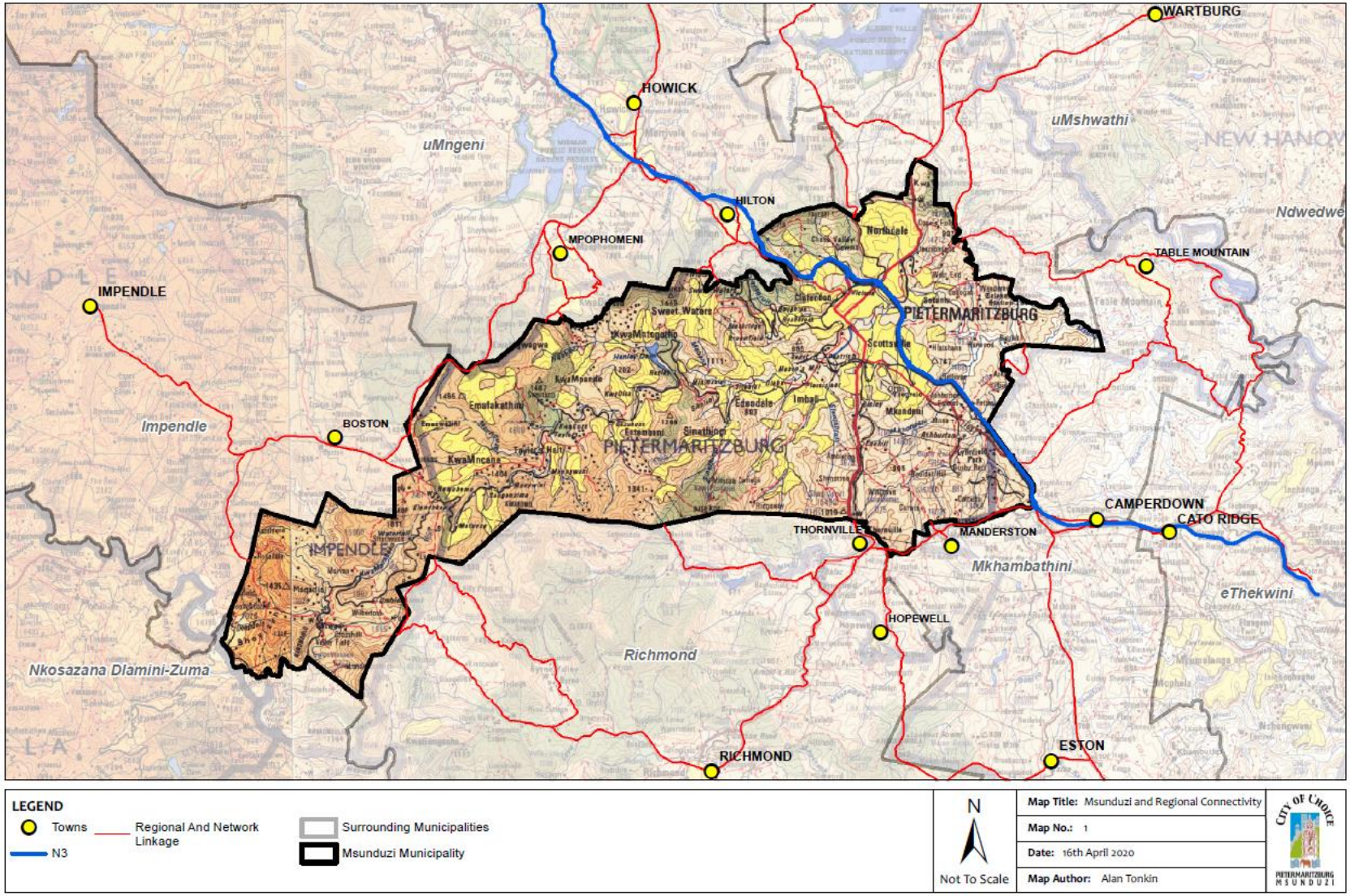


Figure 5: Msunduzi regional connectivity

3 Spatial challenges and opportunities

This chapter is a summary of the Status Quo report and provides a synthesis of the key spatial challenges and opportunities in the Msunduzi Municipality. This summary was derived through an analysis of the biophysical, socio-economic, and built environment, along with input from stakeholders. The key spatial issues identified in this section have informed the spatial strategies that make up the Msunduzi Municipality's SDF.

3.1 Biophysical environment

An analysis of the biophysical environment emphasises the importance of natural resources to economic and social well-being and to development in the Msunduzi Municipality, as it provides for the basic needs of the Municipality's residents and of those in the broader context. Currently, 46.3% of the land in the Msunduzi Municipality is classified as natural open space, which includes critical biodiversity areas (CBAs), ecological support areas (ESAs), critical linkages, high agricultural potential land, threatened eco-systems, and protected areas.

The SDF should aim to support areas classified as irreplaceable and optimal CBAs to ensure that the area is maintained in its natural state, with no or limited biodiversity loss. In addition to this, ESAs are required to support and sustain the ecological functioning of CBAs. For terrestrial and aquatic environments, these areas are functional but not necessarily pristine natural areas. They are required, however, to ensure the persistence and maintenance of biodiversity patterns and ecological processes in the CBAs and contribute significantly to the maintenance of ecological infrastructure. In total, the critical natural open spaces requiring preservation measure 28,881 ha or 38.45% of the total area of the municipality. More specifically:

- Significant stretches along the uMsunduzi and Richmond local municipal boundaries, as well as along the south-western parts of the Msunduzi Municipality, are earmarked as CBAs, as shown in Figure 6.
- The Msunduzi river and its tributaries play a critical role within the region. Whilst the entire river system should be preserved from an ecological standpoint, particular attention will be given to the ESA and CBA in the eastern part of the Municipality that runs along the Msunduzi river and the Mkhondeni Spruit.
- In terms of CBAs, ESAs, and critical linkages for landscape corridors, it is clear that Ward 39 contributes significantly to the functioning of the biophysical environment.

Figure 7 illustrates the areas which have been identified as protected areas. Within the municipal area, the areas that have been identified as requiring protection and continuous intervention have been grouped into three broad areas:

- The first is the nature reserve and protected area located in Ward 39 near Ncwadi (south-western boundary of the municipality). This area forms part of a larger nature reserve located in the Impendle Municipality.
- Along the southern municipal boundary (Wards 6, 7 and 11) is an area earmarked as bird species (ESA). This also forms part of a larger ESA located in the Richmond Municipality.
- The largest component of protected areas is located in and around Pietermaritzburg (the western parts of the CBD / Ashburton / Eastern Areas ABM), stretching along the N3.

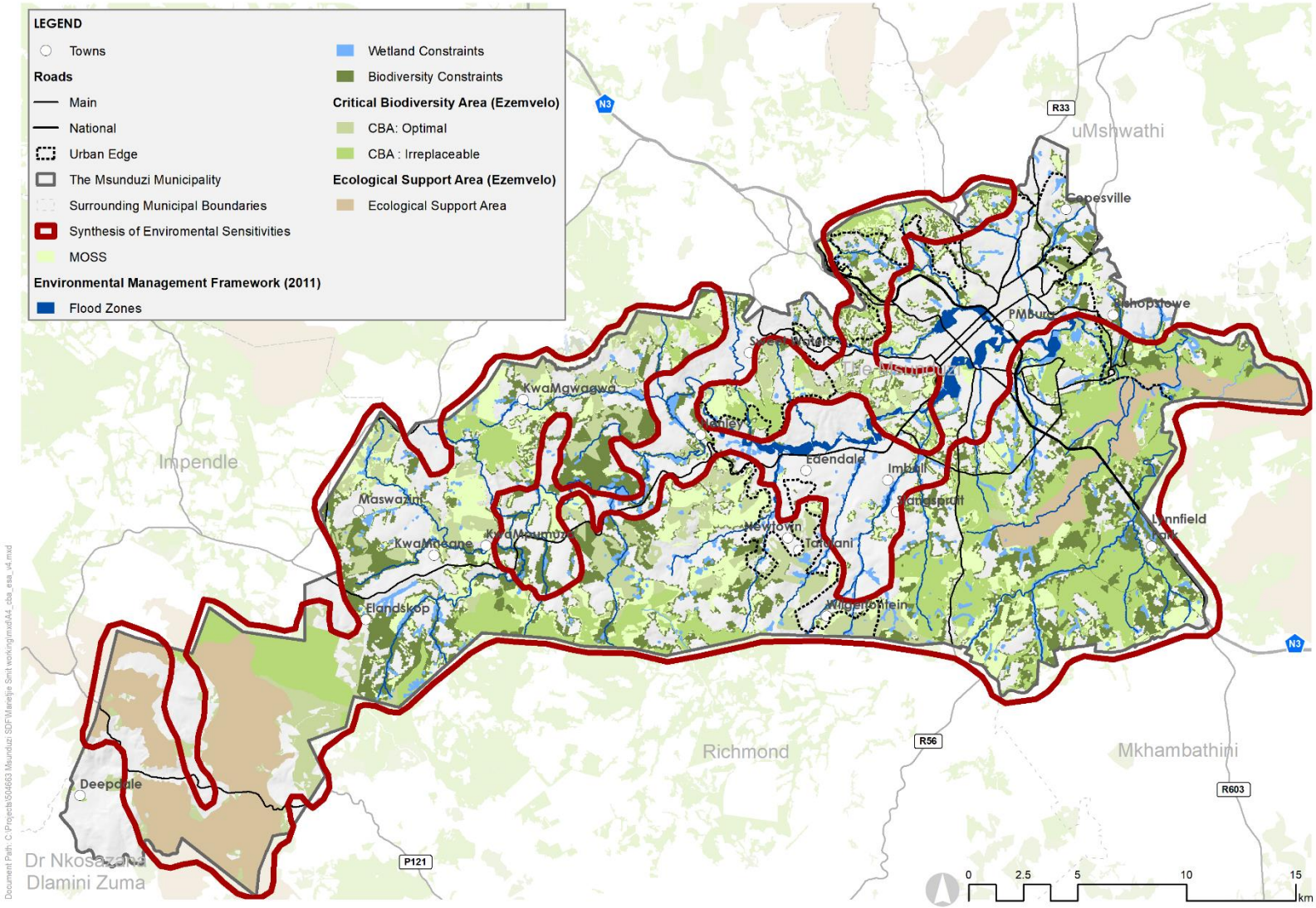


Figure 6: Environmental sensitivities

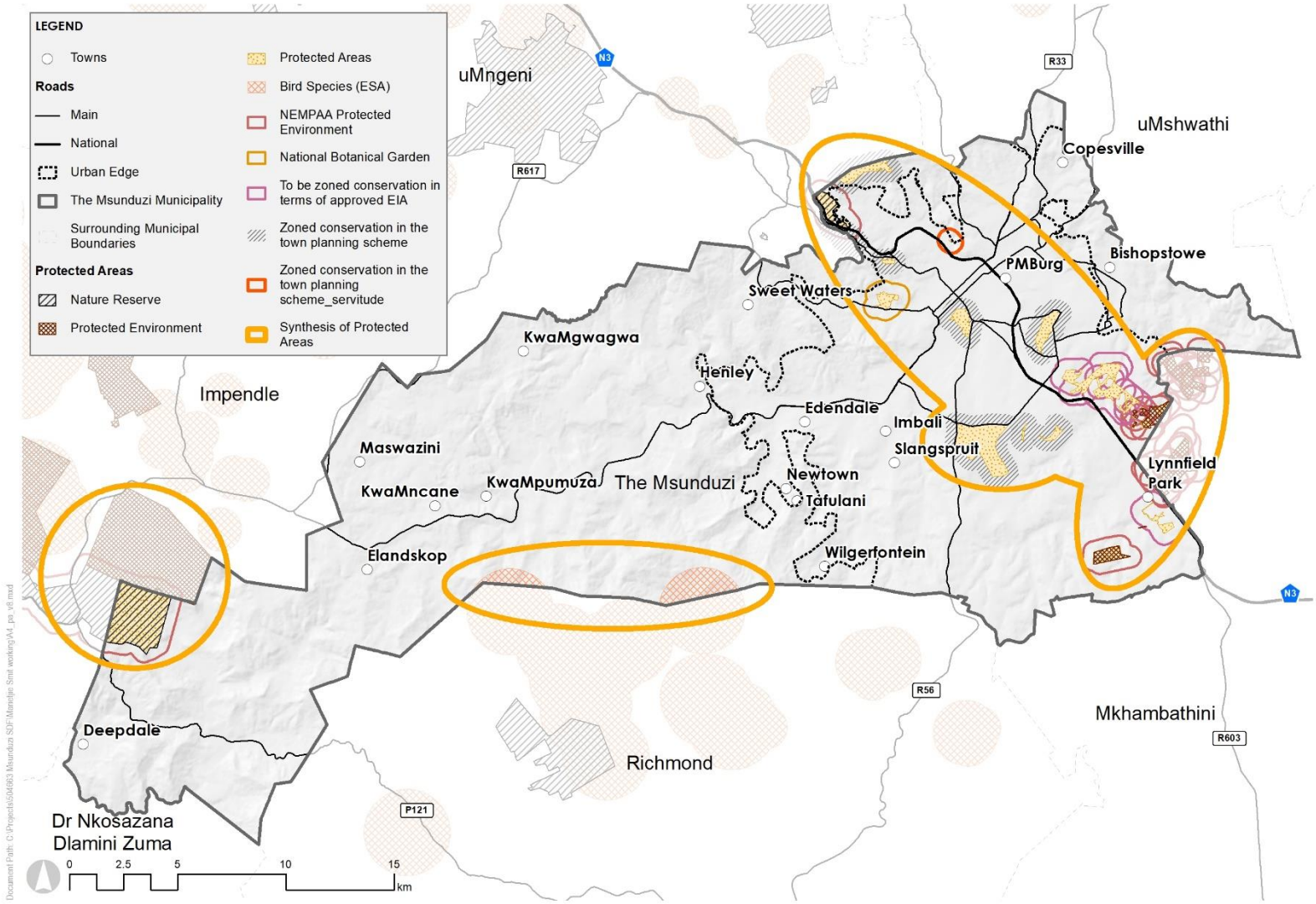


Figure 7: Protected areas

The Msunduzi Municipality has a high level of environmental vulnerability due to conflict between preserving the natural environment and land use changes that will allow for the growth of the population, urbanisation, and economic development. Increasing vulnerabilities can also be attributed to poor air quality and poor environmental governance. These environmental vulnerabilities will result in an increase in the occurrence of environmental disasters such as flooding, wildfires, heatwaves, and droughts. It is essential that climate change and resilience considerations form part of the spatial strategy going forward.

The topography is characterised by the presence of many steep slopes unstable soils, rocky areas, and shale (approximately 16.5% of the municipality has a slope steeper than 1:4 degrees or 25%). The steep and rocky terrain negatively affects the development potential in certain areas and has a considerable effect on development patterns, resulting in higher costs for infrastructure and service provision. The steep slopes that affect development are predominantly located in Wards 25, 2, 20, 12, 11, 3, 9 and 39. These unfavourable environmental conditions are less suitable for development or tend to make potential development more expensive, to the point of being unfeasible. The mountainous topography has limited expansion potential and has acted as a physical buffer, particularly in isolating the CBD and Ward 39. Integrating the urban fabric, when faced with physical barriers such as slope, remains a major challenge for the Msunduzi Municipality. This is particularly relevant in the case of Ward 39, which is physically separated from the rest of the municipality by mountainous slopes and whose primary access route from the CBD goes through the Impendle Municipality.

The largest river that flows through the Msunduzi Municipality is the uMsunduzi River and its associated tributaries. The tributaries that pass through the Msunduzi Municipality form part of the strategically important water catchment for the critical water supply dams of the Pietermaritzburg–Durban urban development region. The abundance of urban and industrial effluents in the water has caused the river's water quality and aquatic health to be poor. Most of the wetlands in the municipality are small, with an average size of approximately 1 ha. Despite their small scale, their continued existence is still threatened by rapidly expanding formal and informal development. Increased development activity coupled with insufficient waste removal continue to increase water pollution and stormwater run-off and have resulted in poor quality water that is regarded as unsuitable for human consumption.

Urban expansion in the Municipality has also led to the degradation of large areas of land with high agricultural value. Unregulated and unsustainable land development has resulted in land degradation and increased water and soil contamination. Land degradation has also led to an increase in invasive alien vegetation, which has resulted in the loss of local landscape and scenic value. High agricultural potential land where existing commercial agriculture activity currently occurs is predominantly located towards Manderston and around Bishopstowe. These commercial agricultural activities include sugar cane production, livestock production, and game farming. Some subsistence dryland agricultural production occurs to the west of the Msunduzi Municipality, whilst commercial timber farming can be found towards the high-lying areas in the north as well as in the vicinity of Taylor's Halt.

There are three areas in the Municipality classified as land of high and good agricultural potential (Figure 8), as classified by the Department of Agriculture, Land Reform and Rural Development. These areas are on the periphery of the existing urban development, towards the northern and eastern municipal boundaries, as well as along the R56 and along the Msunduzi, Richmond, and Mkhambathini municipal boundaries. Lastly, Ward 39 has large tracts of valuable potential agricultural land.

In total, the valuable agricultural land (Category A and B) comprises 15.88% of the total area of the Municipality. Significant high agricultural potential areas outside the urban edge have been permanently transformed (approximately 23.49% of the area of the municipality). This is especially evident around the areas of Sweetwaters, Maswazini, and KwaMncane. Areas not deemed high potential agricultural that will be suitable for development are areas along the M70 near KwaMpumuza and areas around Deepdale (near the western municipal boundary), and around Ashburton. A total of 16.11% of the land is identified as suitable for development.

High-potential agricultural land should be retained for agricultural purposes in order to support the national food security goal. The high agricultural potential land situated within close proximity to the CBD could play a prominent role in improving Msunduzi Municipality's resilience around food production and security. It is therefore critical that the Msunduzi Municipality play an active role in protecting any high potential agricultural land. The SDF and other strategic plans should delineate the areas that have been identified as having high agricultural potential. Urban development and land use changes on this land should be considered only under special circumstances. It is recommended that the Municipality must, insofar as far as possible, prevent the subdivision of high potential agricultural land for human settlement developments. There is currently no municipally adopted policy that guides the subdivision of agricultural land within the jurisdiction of the Municipality. This is a gap that needs to be addressed by the Municipality.

When considering the various environmentally sensitive areas discussed in earlier sections (as illustrated in Figures 6 – 8), it is evident that, the northern, eastern, and western areas of the Municipality are impacted significantly and that future development in these areas should be carefully considered and guided in order to reduce the loss of sensitive environments. Future development should rather be encouraged in the central parts of the municipality. Furthermore, policies and strategies should be developed to protect and enhance valuable agricultural land, which could contribute significantly towards job creation.

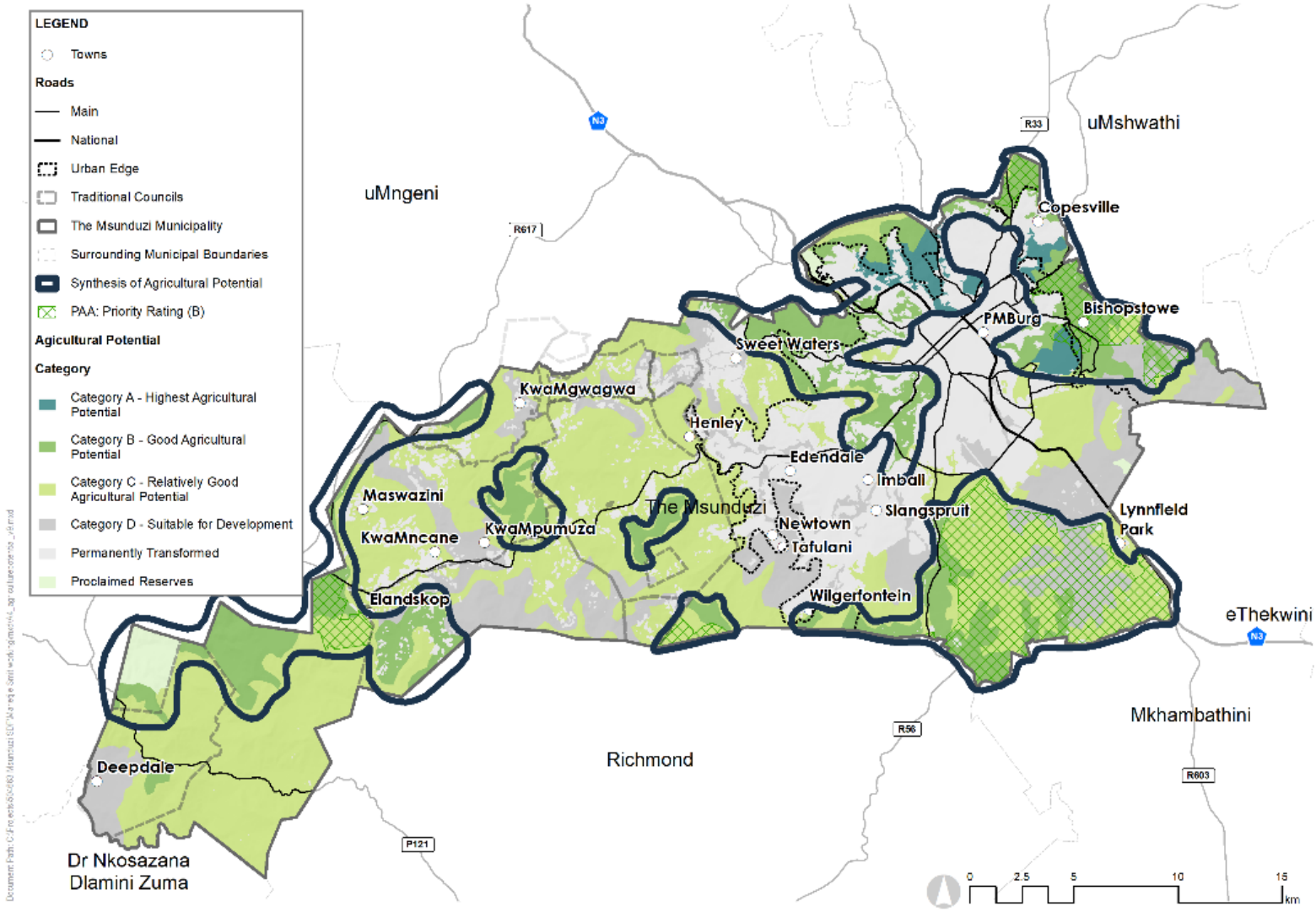


Figure 8: Agricultural potential

3.2 Socio-economic environment

3.2.1 Demographic profile

According to the IDP (2020/21), the population of the Msunduzi Municipality is expected to grow by 1.1% per annum between 2016 and 2021 and is expected to reach 702,865 people in 2021. The wards with the highest population density are wards 1 in the Vulindlela ABM, wards 11, 13, 15 and 17 of the Greater Edendale and Imbali ABM, ward 18 in the CBD / Ashburton / Eastern Areas ABM and wards 29 and 30 located in the Northern Areas ABM. The Greater Edendale / Imbali ABM accounts for 34.3% of the total population. High population densities are also found in wards 2, 3, and 5. Significantly, these wards are located outside the existing urban edge.

During 2019/2020, the Msunduzi Municipality experienced a mortality rate of 4%, which is significantly lower than the average South African mortality rate of 9.435%. Although the mortality rate is relatively low, the current cemeteries are nearing capacity, which means that additional burial capacity is required. During the same period, the municipality also experienced in-migration, with people seeking housing opportunities, education, and jobs.

The Msunduzi Municipality has a very young population, the two highest age groups being 0–4 and 25–29. It also has notably, more women than men. A high percentage of the overall population is under the age of 29. It is expected that the young population group will move into the employment sector within the next 10 to 20 years. The younger population puts pressure on the provision of schooling, dependency on the municipality and requirements for health care. Whilst less than 2% of the population lives with disabilities, it is acknowledged that the infrastructure required to support people those who are disabled needs improvement.

Employment levels increased between 2011 and 2016 with nearly 66% of the population employed in 2016. The sectors with the greatest employment include community services, trade, manufacturing and finance. The ageing population over the next 10 to 20 years could potentially place strain on the economy if sufficient employment opportunities are not created.

3.2.2 Population and household projections

Population projections are critical in the development of an SDF as they guide future planning in terms of aspects such as new job opportunities, housing requirements, infrastructure demand and recreational spaces. Section 21(e) of SPLUMA requires the SDF to include population growth estimates for the next five years. However, the Msunduzi SDF intends to take a long-term view and therefore the population projections will be extrapolated until 2050 using a growth model. The purpose of the growth model is to illustrate the change in population throughout the Municipality since changes in population affect the spatial dynamics within each ABM.

In order to develop credible population and household projections it is important to review existing information together with past and current trends at a provincial, district and local level. Furthermore, the ABM areas have different social and economic compositions. These factors play a role in determining the future population growth in the designated ABM areas. The following sources were consulted:

- 2020 Mid-Year Population Estimates (MYPE), municipal level data, Statistics South Africa (StatsSA)[1]
- Community Survey 2016, municipal level data, StatsSA

[1] *The MYPE 2020 estimates cover all the residents of South Africa at the 2020 mid-year point and are based on the latest available information. Estimates may change as new data become available. The new estimates are accompanied by an entire series of revised estimates for the period 2002–2020. On this basis, comparisons between this model and previous ones should not be made.*

- Census 2011, ward level data, StatsSA
- *The Green Book: Adapting South African settlements to climate change (2019)* by the Council for Scientific and Industrial Research (CSIR), which provide population growth data from 2011 to 2050 on settlement and municipal level

The population and household indicators of the Msunduzi Municipality for the period 2011 to 2025 is summarised in Table 3. The following can be concluded:

- From 2011 to 2016 the average annual growth rate of both the population and households was 1.8%.
- The municipal population's average annual growth rate from 2011 to 2016 of 1.8% is expected to decrease to 1.4% for the period 2016 to 2025.
- The change in household size from 2011 to 2016 is insignificant from 3.77 to 3.76.
- Indications are that the number of households will grow at a more significant rate per annum than the population from 2016 to 2025 (1.9% compared to 1.4%). The implications being that the average household size decreases. Reasons for this include an increase in single-headed households or migrants in search of employment opportunities.

The 2020/2021 IDP gives guidance on the anticipated growth rate scenarios whilst the CSIR Green Book's population estimate (medium growth scenario) is used for the Municipality's 2030 and 2050 population estimates. These scenarios are given in Table 2 and modelled against population figures in Figure 9.

Table 2: Growth model scenarios

Scenario	Implications
Low-growth scenario	Population and economic growth rates achieved between 2011 and 2016 continue into the future. The expected population growth rate is expected to be similar to the South African growth rate of around 1% per annum. The economic growth rate of 0.1% is similar to the South African GDP rate in 2021.
Medium-growth scenario	The population and economic growth rates are expected to be around 2% (African Development Bank Group, 2020) mainly due to a recovering economy post Covid-19.
High-growth scenario	The optimistic investor sentiment is similar to economic conditions in 2014, with an anticipated population and economic growth rate of around 3%. This high growth rate is due to major investments made in infrastructure as well as a booming agricultural and manufacturing sector (African Development Bank Group, 2020).

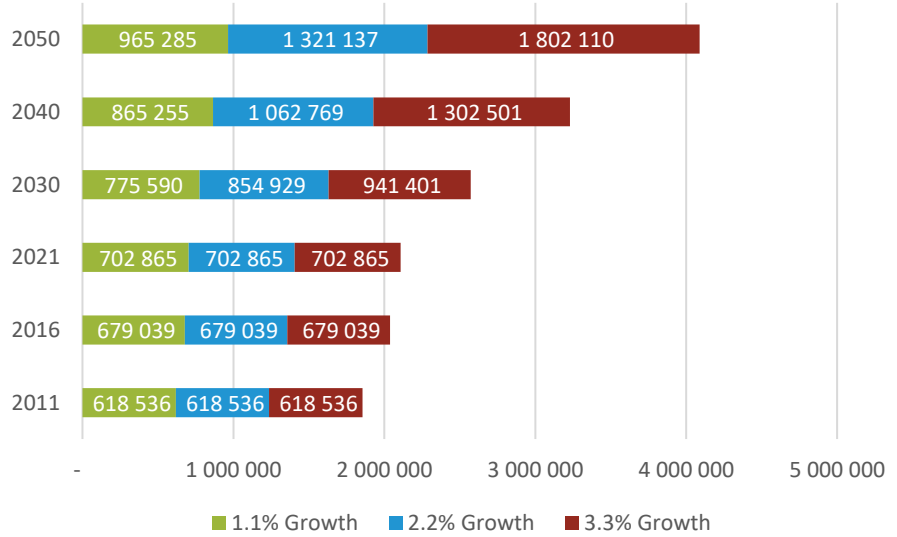


Figure 9: Msunduzi population growth projections based on the three scenarios

It is estimated that Msunduzi Municipality's population will increase to more than one million people in 2050, which is an increase of 386,631 people from 2025 to 2050. The population and household estimates for the period 2016 to 2050

is depicted in Table 4. Household income data is only available for 2011 (Census 2011) as indicated in Table 5.

The household growth and the household growth per income group provides an indication of the future residential need in the various income groups and subsequent land demand. The household growth is more complex to calculate since household sizes in the traditional areas are generally larger than that in the urban areas. Based on the Stats SA census (2011) the urban areas have an average household size of 3.4 whilst the traditional areas have an average household size of 5 persons per household.

The total population per ABM was calculated based on ward level data, which is only available for census 2011 data. According to the census 2011 data, the population distribution per ABM is shown in Figure 10. The population estimates for the four ABM areas was calculated by dividing the total population proportionally, assuming that this proportion remains constant.

The CSIR Green Book however does not include household estimates. The household growth was calculated by dividing the total population by the average household size. The average household sizes take into consideration the local (and national) trend of decreasing household sizes. In 2011, the average household size of urban and traditional areas was 3.4 and 5.0 respectively. Average household sizes for urban and traditional areas therefore decreased by -0.5% which is the average annual growth rate of the household sizes from 2016 to 2025.

In terms of household income and according to the municipal household levels (2011) provided in Table 5, it is evident that the number of low income households (earning between R0 to R 3,200 per month) is consistently higher than middle- and high-income households, based on both monthly and annual income. In 2011, 60.7 % of households were categorised as low -income, whereas only 8.1% were high-income households. More importantly, households with no income accounted for 16.4 % of the total population. The same trend is discerned in municipal household estimates per income bracket statistics in Table 6. Of the total population, 112,307 (60.7%) of households are categorised as low-income in 2016 and 209 002 (60.7%) of households are still categorised as low-income by the year 2050. This trend also indicates that the number of indigent households are not likely to decrease decades from now.

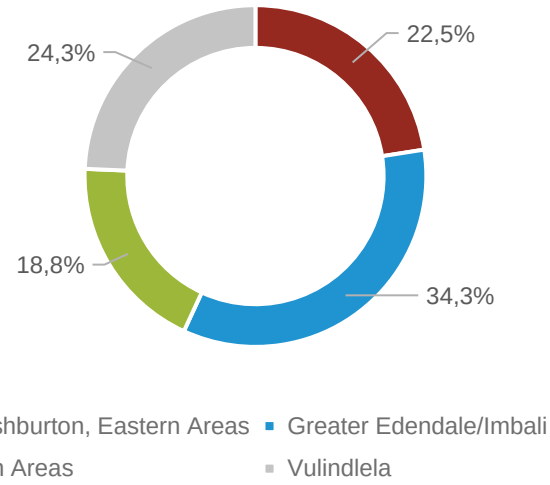


Figure 10: Population distribution per ABM, 2011

The following section will disaggregate the population and income data per each ABM.

Table 3: Municipal population and household indicators 2011 - 2025

	2011	2016	2025	AAGR 2011 - 2016	AAGR 2016 - 2025	Increase in numbers 2011 to 2016	Increase in numbers 2016 to 2025
Population	621,793	679,039	769,167	1.8%	1.4%	57,246	90,128
Households	164,772	180,469	213,882	1.8%	1.9%	15,697	33,413
Average Household Size	3.77	3.76	3.60	-0.1%	-0.5%	na	na

Source: StatsSA Census 2011, Community Survey 2016 and MYPE 2020

AAGR: Average annual growth rate (AAGR) is the average increase of a value over the period of a year.

Table 4: Municipal population and household estimates 2016 - 2050

	Total					Growth in numbers			
	2016	2025	2030	2040	2050	2016 to 2025	2025 to 2030	2030 to 2040	2040 to 2050
Population	679,039	769,167	874,329	965,270	1,065,670	90,128	105,162	90,941	100,400
Households	185,034	219,265	255,569	296,655	344,345	34,231	36,304	41,086	47,691
Average household size	3.7	3.5	3.4	3.3	3.1	na	na	na	na

Source: Own calculations based on the MYPE 2020, StatsSA and The Green Book: Adapting South African settlements to climate change (2019), CSIR

Table 5: Municipal household income levels, 2011

Income Bracket	Annual Income	Monthly Income	Number of households 2011	Percentage of Households 2011	Percentage of Households 2011
Low Income: Households earning between R0 and R3,200	**No income**	**No income**	27,883	16.4%	60.7%
	R 1 - R 4,800	**R 1 - R 400**	7,979	4.7%	
	R 4,801 - R 9,600	**R 401 - R 800**	11,713	6.9%	
	R 9,601 - R 19,200	**R 801 - R 1,600**	27,436	16.2%	
	R 19,201 - R 38,400	**R 1,601 - R 3,200**	27,931	16.5%	
Middle Income: Households earning between to R3,201 to R25,600	**R 38,401 - R 76,800**	**R 3,201 - R 6,400**	21,101	12.4%	31.2%
	R 76,801 - R 153,600	**R 6,401 - R 12,800**	17,213	10.1%	
	R 153,601 - R 307,200	**R 12,801 - R 25,600**	14,627	8.6%	
High Income: Households earning between R25,601 and higher	**R 307,201 - R 614,400**	**R 25,601 - R 51,200**	9,467	5.6%	8.1%
	R 614,401- R 1,228,800	**R 51,201 - R 102,400**	2,927	1.7%	
	R 1,228,801 - R 2,457,600	**R 102,401 - R 204,800**	756	0.4%	
	R2,457,601 +	**R 204,801 +**	571	0.3%	
	Unspecified/Not applicable		150	0.1%	0.1%
	Total		**169,754**	**100%**	**100%**

Source: StatsSA Census 2011, Community Survey 2016 and MYPE 2020

Table 6: Municipal household estimates per income bracket 2016 - 2050

		Low Income	Middle Income	High Income
Monthly household income	**Total households**	**R0 to R3,200**	**R3,201 to R25,600**	**R25,601 +**
Percentage of households (2011)		60.7%	31.2%	8.1%
Year	**Total households**			
2016	**185,034**	112,307	57,757	14,969
2021	**202,571**	122,952	63,232	16,388
2025	**219,265**	133,084	68,443	17,738
2030	**255,569**	155,119	79,775	20,675
2040	**296,655**	180,056	92,599	23,999
2050	**344,345**	209,002	107,486	27,857
Increase 2025 to 2050	**125,080**	75,918	39,043	10,119

Source: Own calculations based on the Household Income Levels as per Census 2011, household estimates of the MYPE 2020, StatsSA and the population estimates of The Green Book: Adapting South African settlements to climate change (2019), CSIR

3.2.2.1 CBD / Ashburton and Eastern ABM

The CBD / Ashburton and Eastern ABM areas has a significant amount of commercial activity located in the CBD and industrial activity to the west of the N3 and R56. Ashburton, on the other hand, is characterised as a low-density residential neighbourhood. Over the years, the CBD has become stagnant, with ageing infrastructure and experiencing urban decay with limited investment by private developers or local government. As a result, many businesses have relocated to other nodes and suburbs. The 2014 Local Area Plan identified a number of strategic interventions aimed at regenerating the area. These interventions will have a positive impact on the area as well as associated property values, should they be implemented timeously. These interventions could also lead to private development and investment, which will further boost the ABM area.

As indicated previously, commercial and industrial activities are required to stimulate investment and, ultimately, the local economy. Given that most of these activities are located in the CBD / Ashburton and Eastern Areas ABM areas, it is expected that the economic growth rate of 3.46%, as reported in the 2015 SDF, may not be achieved. This is compounded by the impact the Covid-19 pandemic has had on businesses. It is therefore reasonable to expect a lower growth rate for this ABM area. The population and household growth projections for the period 2016 to 2050 are illustrated in Table 7. The table further indicates the estimated household growth per income bracket.

In total it is anticipated that the total number of households in the ABM will grow by 34,664 households between 2021 and 2050. Nearly 50% of households residing in the CBD / Ashburton and Eastern ABM areas fall within the low-income category, followed by middle income and the high-income households accounts for nearly 16% of the total households. Notably, most of the municipal high-income households are located within this ABM, however they are expected to grow with only 5,401 households between 2021 and 2050 whilst the middle-income households will grow by 12,872 households and the low-income households is anticipated to grow by 16,393 households.

The anticipated increase in low-income and middle-income households has a significant spatial implication within the ABM. Future housing strategies and housing typologies should be focused around social, affordable, inclusionary and gap housing options. Ideally low-income earners should reside in close proximity to employment opportunities. Location, economic activity and job opportunities within this ABM are factors that have the potential to attract residents from other parts of the region and Msunduzi. Future housing/human settlement projects within the ABM should therefore focus on the provision of housing opportunities for lower-income groups.

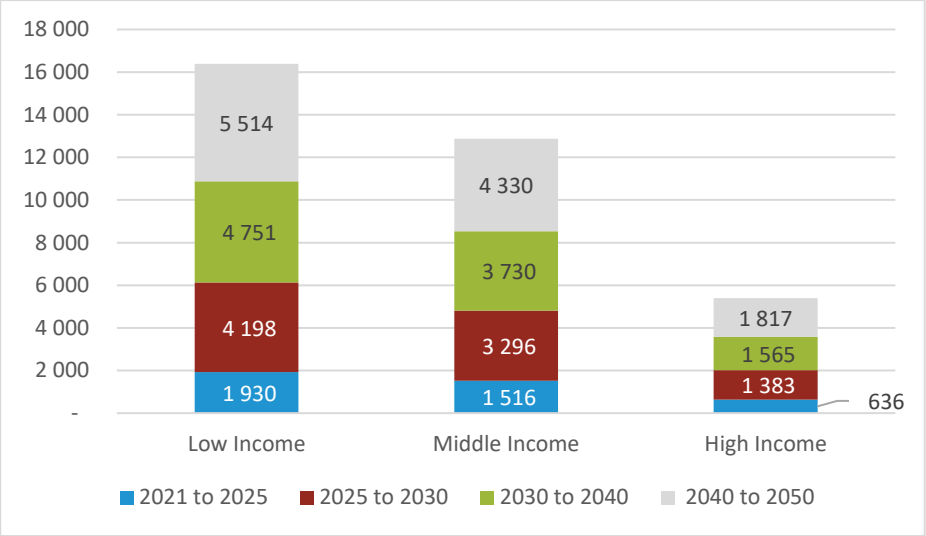


Figure 11: CBD/Ashburton and Eastern Areas ABM household growth (2021 - 2050)

Table 7: CBD / Ashburton and Eastern Areas ABM population and household projections and estimated growth, 2016 to 2050

Year/Period	Population	Households			
		Total	Low Income	Middle Income	High Income
			47.3%	37.1%	15.6%
2016	152,971	45,242	21,395	16,798	7,049
2021	163,325	49,530	23,423	18,390	7,717
2025	173,275	53,611	25,353	19,906	8,353
2030	196,965	62,488	29,551	23,201	9,736
2040	217,452	72,533	34,301	26,931	11,301
2050	240,070	84,194	39,816	31,261	13,118
Estimated growth 2021 to 2025	9,950	4,082	1,930	1,516	636
Estimated growth 2025 to 2030	23,690	8,876	4,198	3,296	1,383
Estimated growth 2030 to 2040	20,487	10,046	4,751	3,730	1,565
Estimated growth 2040 to 2050	22,618	11,661	5,514	4,330	1,817
Total estimated growth 2021 to 2050	76,745	34,665			

3.2.2.2 Greater Edendale and Imbali ABM

The urban form of the Greater Edendale and Imbali ABM area is heavily influenced by the topography of the area and the river corridors. As a result, the majority of the population is located towards the east and south-east of Edendale Road. Formalised, high-density residential areas are located towards the northern parts of the area in close proximity to the Edendale centre. The GEVDI operates in the ABM area and as a result of proposed initiatives, a significant number of urban regeneration projects have been identified in the area. It is expected that these projects will attract public and private investment.

With the number of catalytic projects currently underway in the ABM area, it is reasonable to assume that new investment will be attracted and that existing businesses may choose to relocate from other areas of the municipality. Furthermore, the area has been earmarked as a priority housing development area and is therefore a priority for integrated human settlements and infrastructure investment. The population and household growth projections for the period 2016 to 2050 are illustrated in Table 8. The table further indicates the estimated household growth per income bracket.

Figure 12 illustrates the household growth with in the Greater Edendale and Imbali ABM. The household growth in this ABM will predominantly occur within the low-income bracket with an increase of approximately 38,387 households between 2021 and 2050 compared to 13,283 middle-income households and 1,185 high-income households during the same timeframe. Future housing/human settlements project within this ABM should focus on providing ample housing opportunities within the lower-income groups. Therefore, strategies for social housing and other grant funding like FLISP, CRU (rental) and UISP should be considered to accommodate these residents. The Edendale town centre is anticipated to attract significant investment and employment opportunities which could be a pull factor for future residential demand.

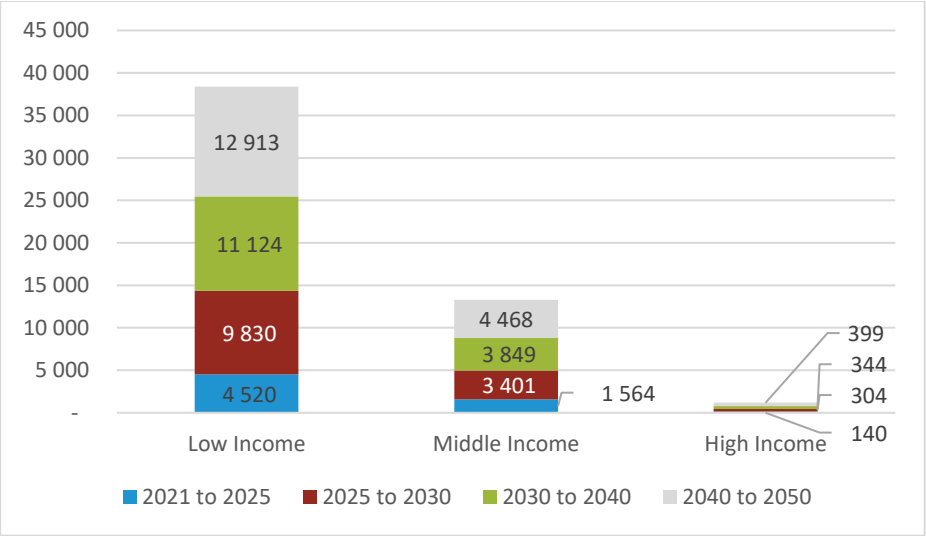


Figure 12: Greater Edendale and Imbali ABM household growth (2021 - 2050)

Table 8: Greater Edendale and Imbali ABM population and household projections and estimated growth, 2016 to 2050

Year/Period	Population	Households			
		Total	Low Income	Middle Income	High Income
			72.6%	25.1%	2.2%
2016	233,245	68,983	50,100	17,336	1,547
2021	249,032	75,521	54,848	18,979	1,694
2025	264,204	81,745	59,368	20,544	1,833
2030	300,326	95,279	69,198	23,945	2,137
2040	331,564	110,597	80,322	27,794	2,480
2050	366,051	128,376	93,235	32,263	2,879
Estimated growth 2021 to 2025	15,172	6,224	4,520	1,564	140
Estimated growth 2025 to 2030	36,122	13,535	9,830	3,401	304
Estimated growth 2030 to 2040	31,238	15,317	11,124	3,849	344
Estimated growth 2040 to 2050	34,487	17,780	12,913	4,468	399
Total estimated growth 2021 to 2050	117,019	52,856			

3.2.2.3 Northern Areas ABM

The Northern Areas ABM area is characterised by a variety of land uses. High-density residential areas are located in areas with flatter topography, whilst commercial activities are located in and around the Pietermaritzburg CBD. An industrial area is located towards the east of the ABM area. Furthermore, large tracts of environmentally sensitive areas can be found towards the south, north-west, and north-east of the ABM area.

The population and household growth projections for the period 2016 to 2050 are illustrated in Table 9 and Figure 13. Figure 13 illustrates the household growth amongst the different income groups. Future household growth is predominantly anticipated within the lower-income groups. The middle-income group is also expected to grow significantly. In total it is expected that these income groups will grow by 25,295 households between 2021 and 2050. After the CBD / Ashburton / Eastern Areas, this ABM houses the second largest number of high-income households within the Msunduzi Municipality (12.5%).

The Northern Areas ABM is relatively built up and outward expansion is limited by environmental sensitivities, topography and plantations. Densification through infill should be considered within this ABM especially along major transport routes and corridors, the Raisethorpe public transport interchange and near the Pietermaritzburg CBD and the industrial areas to ensure adequate housing opportunities in close proximity to employment opportunities.

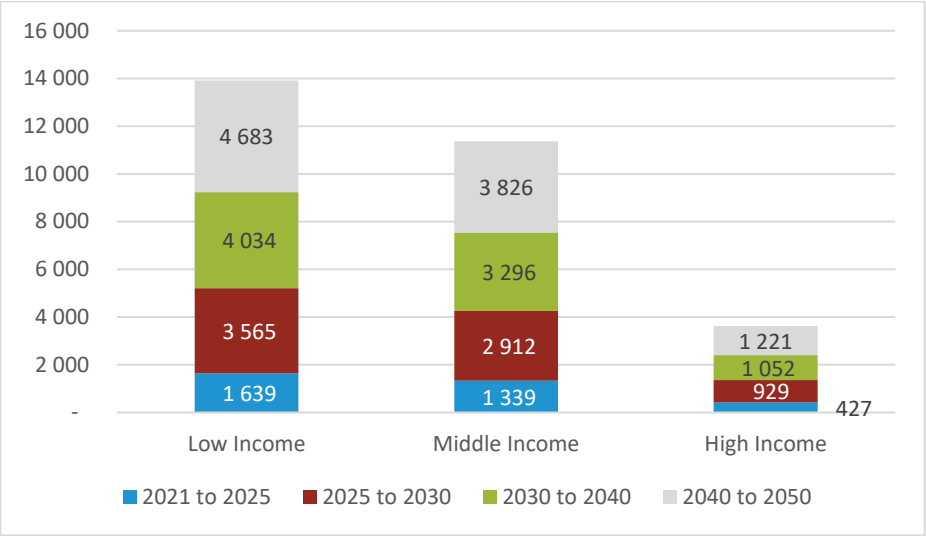


Figure 13: Northern Areas ABM household growth (2021 - 2050)

Table 9: Northern Areas ABM population and household projections and estimated growth, 2016 to 2050

Year/Period	Population	Households			
		Total	Low Income	Middle Income	High Income
			48.1%	39.3%	12.5%
2016	127,639	37,750	18,170	14,843	4,737
2021	136,278	41,327	19,892	16,250	5,186
2025	144,580	44,733	21,531	17,589	5,613
2030	164,348	52,140	25,096	20,501	6,542
2040	181,442	60,522	29,131	23,797	7,594
2050	200,314	70,251	33,814	27,623	8,815
Estimated growth 2021 to 2025	8,302	3,406	1,639	1,339	427
Estimated growth 2025 to 2030	19,767	7,407	3,565	2,912	929
Estimated growth 2030 to 2040	17,094	8,382	4,034	3,296	1,052
Estimated growth 2040 to 2050	18,872	9,730	4,683	3,826	1,221
Total estimated growth 2021 to 2050	64,035	28,925			

3.2.2.4 Vulindlela ABM area

The Vulindlela ABM area is located in the western parts of the Municipality. The area is characterised by rural, peri-urban, and relatively low-density residential areas. The urban form is significantly impacted by the undulating terrain. Furthermore, significant portions of the ABM area comprise arable agricultural land, which should be protected against human settlements. The population and household growth projections for the period 2016 to 2050 are illustrated in Table 10 and Figure 14.

Figure 14 illustrates the household growth in the different income groups. Very little growth is anticipated within the high-income group and minimal growth in the middle-income group. Future household growth is predominantly expected within the low-income group. This is predominantly due to the great distance these settlements are from the Municipality's economic centres.

The Traditional leaders should be approached to discuss potential housing strategies in light of the significant growth of low-income households.

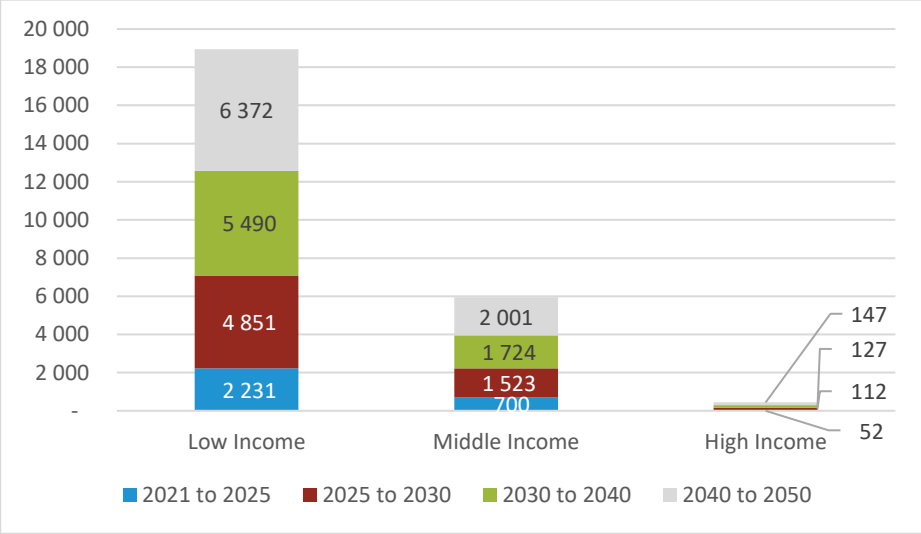


Figure 14: Vulindlela ABM household growth (2021 - 2050)

Table 10: Vulindlela ABM population and household projections and estimated growth, 2016 to 2050

Year/Period	Population	Households			
		Total	Low Income	Middle Income	High Income
			74.8%	23.5%	1.7%
2016	165,184	33,060	24,724	7,764	572
2021	176,364	36,193	27,067	8,500	626
2025	187,108	39,176	29,298	9,200	678
2030	212,690	45,662	34,148	10,724	790
2040	234,812	53,003	39,638	12,448	917
2050	259,236	61,524	46,010	14,449	1,064
Estimated growth 2021 to 2025	10,745	2,983	2,231	700	52
Estimated growth 2025 to 2030	25,582	6,486	4,851	1,523	112
Estimated growth 2030 to 2040	22,122	7,341	5,490	1,724	127
Estimated growth 2040 to 2050	24,423	8,521	6,372	2,001	147
Total estimated growth 2021 to 2050	82,872	25,331			

When comparing household incomes across the various ABMs, it is evident that Greater Edendale and Imbali, and Vulindlela ABM areas have the highest proportion of low-income households compared to the other ABMs, accounting for 72.6% and 74.8% respectively. The CBD / Ashburton and Eastern ABM areas as well as the Northern Areas ABM, on the other hand, has a considerably high proportions of middle- and high-income households compared to other ABMs.

Population growth estimates indicate that the predominant growth will occur in the Greater Edendale and Imbali ABM with an estimated growth of 52,856 households between 2021 and 2050 followed by the Vulindlela ABM which is anticipated to grow by 82,872 households for the same time period.

3.2.3 Social facilities

The Msunduzi Municipality has a number of institutions that offer higher education learning, including the University of KwaZulu-Natal, universities of technology, FET colleges, and technical colleges. The municipality is also home to a host of both private and government-owned institutions of primary and secondary education. Its primary and secondary schools are located predominantly in the Greater Edendale and Northern Areas. Primary and secondary schools are scattered throughout Vulindlela. Physical barriers such as topography, rivers, etc. should be considered during the identification of new educational facilities.

The spatial distribution of social facilities and subsequent catchment area analysis have been performed. Refer to Appendix B for detailed analysis. The geographic distribution of the levels of education per ABM area indicates higher levels of education in the CBD, Ashburton, and eastern areas than in Vulindlela. Because the Msunduzi Municipality has a very young population, sufficient educational facilities should be provided throughout the municipality. The spatial analysis indicates the greatest need for social facilities are as follows (per ABM):

- CBD / Ashburton / Eastern Areas:
    - Clinics;
    - Health centres;
    - Primary schools; and
    - Secondary schools
- Greater Edendale / Imbali:
    - Health centres;
    - Libraries;
    - Post offices; and
    - SASSA offices
- Northern Areas:
    - Health centres; and
    - Secondary schools
- Vulindlela:
    - Home Affairs office;
    - Fire stations;
    - Health centres;
    - Hospitals;
    - Libraries;
    - Post offices;
    - SASSA offices; and
    - Community halls

The healthcare facilities in the Msunduzi Municipality are concentrated in Edendale, the CBD, and the Northern Areas. Vulindlela is the most deprived area, with only six clinics. The CSIR Guidelines for the Provision of Social Facilities in South African Human Settlements, 2012 (reprint November 2015) can be used as a guideline to guide the provision of healthcare facilities. However, it is critical to consider locational aspects in order to provide basic services to as great a number of people as possible. It is fundamental that new healthcare facilities be located in close proximity to residential areas so that they can be accessed by foot.

Whilst it is acknowledged that distribution and location of the various social facilities throughout the municipal jurisdiction needs improvement in certain areas, the quality of these facilities and the service that they offer remains a challenge. The poor quality of services has been raised by the communities and should be addressed as a matter of importance.

3.2.4 Economy

Major contributors to the local economy include the government and community social and personal services, finance, insurance, real estate, business services, and manufacturing. There has been a decline in most of the sectors. However, the Msunduzi Municipality is busy implementing projects such as the proposed Government Precinct, the Ibhubesi Light Industrial Park in Ashburton, and various precinct plans in the Greater Edendale / Imbali ABM area to provide new opportunities for growth and investment. The majority of employment opportunities emanate from the CBD and Ashburton areas and as a result, the highest levels of unemployment occur in the Greater Edendale / Imbali area, followed by Vulindlela.

Pietermaritzburg has a diverse economy with a robust manufacturing sector that is excelling in exports to markets as diverse as aluminium products, cut

flowers automotive components and furniture. The main economic activity may be summarised as follows: -

- Industrial - Aluminium, footwear, textiles, furniture, wood products, electronics, motor components.
- Agriculture - Timber, beef, dairy, sugarcane, citrus, exotic fruit, cut flowers.
- Business - Major service centre for the KwaZulu-Natal Midlands area, legal services.
- Tourism - Parks and Gardens, historical buildings and architecture, dams

The city achieved unprecedented growth in economic activity for a while during 2003 until about 2009, with business confidence very high at that time. The property and retail sectors grew substantially during this time and resulted in development such as the Liberty Midlands Mall, the Golden Horse Casino and Hotel, 'Motor City' - a zone of all the established motor dealerships and the Victoria Country Club Golf Estate.

The Council had, at one stage, a multi-disciplinary Investment Facilitation Team, a 'one stop shop' for investors and provided business incentives such as: -

- Rates: 100% rebate on rates on buildings in the first year, decreasing by 33% thereafter.
- Electricity: 20% discount on standard tariff for 5 years. No charge on basic service connection.
- Water: No charge on connections.
- Refuse removal for Small factory - free service for 5 years.
- Refuse removal for Large factory - free removal of one 1,75m³ container for five years.
- Building plans: Refund of 'Building Plan Approval' fee.
- Effluent Treatment: Volume rebates negotiable.

The COVID-19 pandemic and national lockdown had a significant impact on local businesses as well as imports and exports. The pandemic furthermore impacted on the ability of businesses to trade, employ new staff, and retain staff. As such, more people are dependent on government grants and require institutional support. Although the Msunduzi Municipality developed a number of policies and strategies to stimulate economic growth and job creation, physical hinderances impact on the future growth and employment opportunities, including poor road conditions and a lack of roads in some areas, a lack of electricity or high associated costs, and high service charges.

The regional space-economy of the Msunduzi Municipality and its surrounds is predominantly focused on key infrastructure projects outside disadvantaged or marginalised communities and rural areas, which will reinforce existing spatial inequalities. The implementation of ICT infrastructure in rural areas and previously disadvantaged communities remains a challenge as a result of the geography and terrain of these areas. Climate change events will have a major impact on infrastructure. However, this may also be viewed as an opportunity for the Municipality to ensure the inclusion of climate-change adaptation and mitigation in infrastructure plans, which is currently lacking.

In addition to the above, the economy of the Msunduzi Municipality is dependent on a number of major sporting and cultural events. These events have a positive impact on local tourism establishments. To strengthen business tourism, the informal and small business sector, to be supported so it can begin to play a more prominent role and contribute to the local economy. Infrastructural improvements will also boost the overall tourism economic contribution.

3.3 Built environment

The impact of colonial and apartheid spatial development policies is still seen today in the spatial segregation and inequality that is evident in built form of the Msunduzi Municipality, including that of the city of Pietermaritzburg.

Each of the four main cultural groups (i.e. Afrikaans, British, Indian, and African) contributed to the architecture of Pietermaritzburg, giving the city a unique architectural style. Some archaeological resources date back to the Stone Age (roughly 200,000 years ago). Historical and cultural resources in the Msunduzi Municipality include cemeteries, places of worship, and botanical gardens. Despite this rich heritage, there is a lack of formally recognised historical and cultural heritage resources of traditional African, Coloured, and Indian origin. In addition to this, the high demand for space for new developments is altering and even destroying some of the existing heritage resources. If such development without consideration for the cultural heritage are allowed to continue, the character of Pietermaritzburg and its surrounding areas that contain heritage resources could be altered and in so doing lose its cultural heritage and sense of place of the neighbourhoods. Furthermore, the development constraints posed by refurbishing historical buildings affect efforts to regenerate the declining CBD node. The urban form of Vulindlela is vastly different from that of Pietermaritzburg, the Greater Edendale, Imbali, and the Northern Areas. Housing typologies include those of traditional dwellings and, more importantly, Vulindlela lies under the Ingonyama Trust, which means that development will be managed by a joint municipal–traditional structure. Settlements in Vulindlela are relatively small and have a low density, with limited retail and commercial activities currently taking place in the centres.

There is currently no rural development strategy in place for the Msunduzi municipal area. However, the GEVDI plays a central role in unlocking the development potential of the Edendale–Vulindlela Complex and thus enabling spatial transformation.

The focus of spatial transformation interventions is towards the two delineated Priority Human Settlements and Housing Development Areas (PHSHDAs) of Edendale and Msunduzi North and East Development Areas. As a result, the Greater Edendale area is currently the prime focus for land acquisition to facilitate mixed-use development as part of changing the apartheid landscape and improving tenure security. The Msunduzi Municipality is also implementing the title deed restoration programme as part of the national drive to address the backlog in title deed registration to beneficiaries. In terms of the Upgrading of Land Tenure Rights Amendment Bill, 1,412 properties will be upgraded in 2020 and title deed restoration will be completed between 2019 and 2022. The GEVDI is focused on reconfiguring and changing the development approach and the delivery of housing at scale by ensuring that it results in the creation of sustainable human settlements. Improved housing and economic opportunities provided by the GEDVI are expected to encourage investment, increasing access to finance and marketing models, and ensuring that property can be accessed by all and used as an asset for wealth creation and empowerment.

With support from the DRDLR, great progress has been made in the Edendale–Vulindlela area in respect of the upgrading of tenure, resolution of tenure conflict and tenure insecurity, and conveyancing. In terms of spatial planning, land ownership and in particular communally owned land has a major influence on land use and land management, which, in turn, affect the future economic potential of an area and the institutional arrangements necessary for sustained development.

According to the Human Settlement Sector Plan of 2020, the estimated housing backlog in the Municipality is 44,263. Although there has been an increase in home ownership between 2011 and 2016, from 17.42% to 57.2%, a significant portion of the population still lives in undesirable housing conditions. It is estimated that there are 23,613 backyard dwellers predominantly in townships. The 70 informal settlements in the Municipality account for 20,000 households and these settlements are concentrated in the Greater Edendale and northern areas. The settlements in Northdale, Woodlands, and Eastwood (Northern) areas Areas) are located along steep slopes, watercourses, and wetlands. Some informal settlements in Edendale are located on privately owned land and organised invasion has been occurring on municipal land in the Shenston–Ambleton area. A total of 18 plans have been prepared for the upgrading of

these informal settlements. Although the number of people in tented accommodation decreased from 42,505 in 2011 to 27,460 in 2016, the IDP 2020/21 indicates that there are still between 13,000 and 14,000 applications for social housing on the waiting list that illustrate the growth housing demand in the gap market segment.

Student accommodation is required in the Scottsville area due to the proximity to the University of KwaZulu-Natal (UKZN) and the Durban University of Technology (DUT). The Slangspruit Buffer is in the process of being transformed from low-cost housing to lower-middle-income suburb. Other areas that are becoming rapidly occupied include Thornview, Signal Hill, Lincoln Meade, and the area along the R56, which are being invaded.

In terms of the middle-upper-income housing market, there was a spike in building plans passed for flats and townhouses in 2014. However, these units had not been completed when the number of completed units was reviewed in 2017. Applications in this market segment indicate that low-density developments are approved but there is a significant delay between the timeframe from when building plans are passed until units are completed, as indicated in Figure 15 and Figure 16.

Rural housing projects in Vulindlela will deliver 25,000 units and a total area of 385 ha is allocated for the Henley Dam upmarket residential development. The Vulindlela Rural Housing Project is nearly complete. However, the number of households has increased significantly over the last few years. There are 45 housing projects in detailed planning stage, with an estimated yield of 43,463 housing opportunities over three years. These projects are located predominantly in the Greater Edendale area.

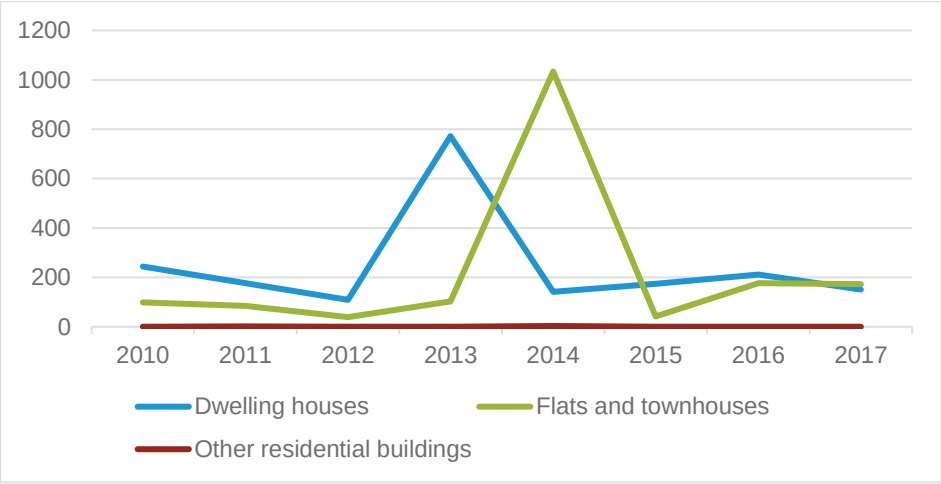


Figure 15: Residential building plans passed between 2010 and 2017

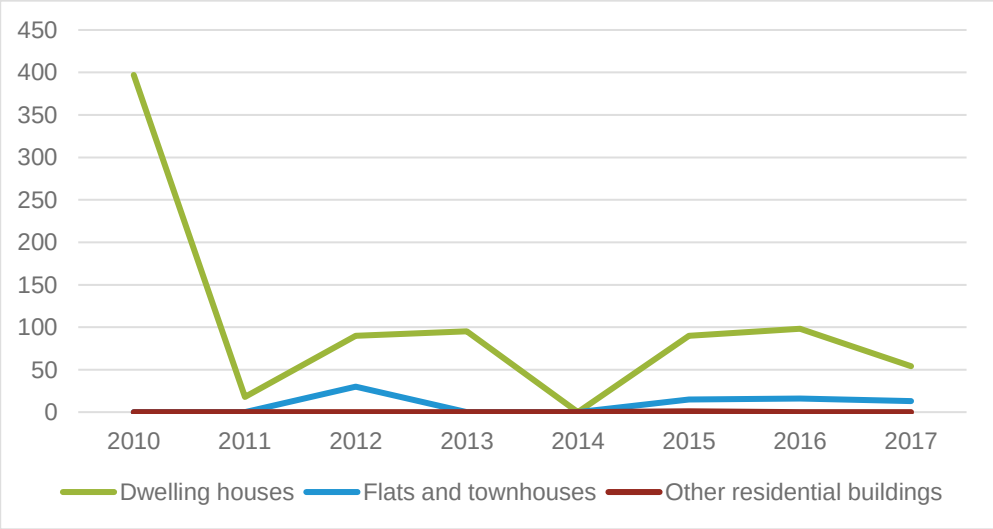


Figure 16: Residential buildings completed between 2010 and 2017

There are 21 housing projects in implementation stage. These projects are intended to address the old housing stock in the Greater Edendale area and northern areas and are estimated to yield 5,590 housing opportunities. The social housing projects are in various stages and are estimated to yield 6,107 units. Approximately 17,102 rental or social housing units will be provided in the Greater Edendale area.

The Msunduzi Municipality is in the beginning stages of implementing its integrated rapid public transport network (IRPTN). The IRPTN will be focused on the five modes of transportation, namely rail, bus, minibus taxi, metered taxi, and non-motorised transport. Although there has been a significant focus on motorised transport, such as the establishment of bus rapid transit (BRT) routes, there is still room for improvement with regard to non-motorised transport (NMT), as a large percentage of the population still depends on NMT.

Acting as the Water Services Authority, the Municipality purchases water in bulk from Umgeni Water (UW), the Water Services Provider, and distributes it to its consumers. Raw water is abstracted from the Midmar Dam, from where it is pumped to the Midmar water treatment plant (WTP), after which it gravitates to the DV Harris WTP, both of which are owned and operated by UW, the bulk services provider.

Ageing infrastructure is a key challenge for Msunduzi Water. Real losses in 2017/18 accounted for 32% of bulk water purchases. Such losses were only marginally fewer in 2018/19 at 30%. Approximately 65% of the Municipality's operational expenditure for water is made up of bulk water purchases from Umgeni Water, which leaves little for spending on water asset maintenance after other costs such as depreciation and departmental charges are subtracted from the remaining 35%. A comprehensive water conservation and water demand management plan for the next five years has been completed and is being actively worked upon with the funds allocated, but more funding will need to be allocated to operating expenditure in order to bring down this real loss percentage. Of course, this wastage has a direct impact on the municipality's raw water resources (the Midmar and Spring Grove dams), which are already oversubscribed, and the water demand growths of the Msunduzi Municipality and of eThekwini Metro will exacerbate the situation in years to come.

UW operates the Darvil wastewater treatment plant (WWTP), whilst the Msunduzi Municipality owns, operates, and maintains the sewer reticulation and outfall. The Darvill WWTP serves the towns of Edendale and Pietermaritzburg mainly via waterborne sanitation. Vulindlela has no waterborne sanitation; it has only ventilated improved pit toilets (VIPs), whilst the Ashburton area has mainly conservancy tanks, with one small WWTP (0.2 Mℓ/d) currently serving Lynnfield Park.

Given the Darvill WWTW's current design capacity of 65 Ml/day, upgrades will have to be implemented to increase its capacity to an anticipated 120 Ml/day in order to facilitate new development in the regions that feed Darvill. Looking further into the future, with the ultimate Peak Dry Weather Flow (PPDWF) estimated at 213 Ml/day, a sizeable upgrade at Darvill and a new works at Ashburton to help service Ashburton and Lynnfield will be required.

There are three components to solid waste management in the municipality, namely solid waste collection and removal, solid waste disposal and, as of more recently, waste minimisation and diversion. The Msunduzi Municipality's Waste Management Business Unit (WMU) is responsible for these functions and provides the following services:

- Solid waste collection and transportation to the landfill site
- Management of garden sites (Prestbury, Link Road, Grange, Richie Road, Sobantu, South Road, Woodlands, and Eastwood)
- Street sweeping
- Maintenance of public conveniences (e.g. public toilets in the CBD)
- Collection of illegally dumped waste
- Education and awareness
- Waste minimisation and diversion from the New England Road Landfill Site (a new initiative).

The Msunduzi Municipality has one waste disposal facility, namely the New England Landfill Site. The site stretches across an area of 44 ha, of which 29 ha are currently being landfilled. The Municipality has recently adopted a waste minimisation and diversion strategy to extend the lifespan of the landfill site. Because the anticipated lifespan of the New England landfill is only five years,

an alternative plan needs to be prioritised urgently in order to ensure that sufficient solid waste capacity is made available to facilitate new development throughout the Msunduzi Municipality. This should include new landfill options and diversions from landfill considerations that can also facilitate job creation in the municipality.

The Msunduzi Municipality's Electricity Department has its power supplied by Eskom and distributes it across the region via a network of substations, most of which were noted as ageing and in need of upgrading in the 2017 Primary 132 kV Network Development Plan, Revision 4, by Nkanyezi Consulting (Pty) Ltd.

In the 2017 Network Development Plan Revision 5, recommendations were made by the consulting company that all three 132 kV networks should be reconfigured to provide alternative 132 kV network feeds, based on a firm (9n-1) failure criteria. Eskom was engaged in discussions to cover all in-feed options. Substations such as Archbell Street, Pine Street, Crossways, and Masons Mill were required to be prioritised due to the age of the network and its equipment, and due to the strategic importance of these particular substations. Without the necessary upgrades, limitations will be placed on the potential for new development in the municipality. It is anticipated that the total increase in future demand for electricity supply across the four ABMs in Msunduzi will be approximately 320MVA over the next 30 years, with the following expected values per functional area:

Table 11 Anticipated future demand for electricity supply per functional area

Function Area	Future Demand (MVA)
CBD / Ashburton / Eastern Areas	215MVA
Greater Edendale / Imbali	18MVA
Northern Areas	33MVA
Vulindlela	48MVA

3.4 SWOT analysis & Synthesis of Key Issues

A SWOT diagram has been prepared to summarise the main issues and opportunities identified in the preceding sections – see Table 11.

From a biophysical perspective, 46% of the land in the municipality is natural open space including a critical water catchment area, with 16% being high potential agricultural land and another 16% suitable for development. If the natural open space, water catchment area and high potential agricultural land is maintained and the quality improved, Msunduzi Municipality would be a very sustainable and resilient city.

Having only 16% of the land available for development should not pose a challenge since development should be dense and intense enough to make the most efficient use of the built environment infrastructure and a compact urban form. The implication for development is that the higher costs associated with higher density development should be offset by lower costs of providing public transport.

From the perspective of the perspective of the socio-economic environment, the current deprived ABM of Greater Edendale/Imabali which has 34% of the population will grow more than other areas in terms of the number of people. Moreover, the number of households are expected to increase, but with less people per household. It is concerning that currently 60,7% of households in the municipality earn less than R3 200pm with 31,2% of households earning between R3 201 – R25 600pm. Poverty and inequality is prevalent and spatially evident. Unless there is economic growth that translates into employment opportunities and allows those currently employed to earn better salaries, poverty and hardship will continue – this will not contribute to the sustainability of the city.

From the perspective of the economy, the city should focus more on the productive part of the economy rather than the consumptive part of the economy. The city should protect the high potential agricultural land for increased agricultural produce and employment opportunities. Furthermore, the city should strengthen and expand its industrial and manufacturing base, including business and tourism. Plans to develop the government precinct further will only have value if the government services provided are high quality services. The CBD regeneration must be able to retain and grow the industrial, manufacturing and commercial and retail base and grow it. Given the proximity to the N3 Corridor, and the central role it plays in the district, regional and provincial context, the city should service the surrounding agricultural areas by providing agri-business services and access to markets and leverage the N3 logistics and transport opportunities. Economic growth should have the impact of increasing the quality of life of people in the city by proving employment and better incomes.

From the perspective of the built environment, the provision of infrastructure should be prioritised to service under-serviced and deprived areas as well as economic nodes. Existing infrastructure should be well maintained and repaired or upgraded to sweat the asset for as long as possible given the scarcity of finances. New infrastructure development should only be provided where it can contribute to a more compact city or where it is serving previously deprived areas. The IRPTN could be scaled down to be more financially feasible. The waste water treatment works and solid waste service should be prioritised, as should the roll out of ICT infrastructure.

Table 12: SWOT analysis

STRENGTHS	WEAKNESSES
• The existing agri-business should be exploited to create new job opportunities and to create a value add for the municipality (e.g. the creation of a fresh produce market). • There is a variety of food production opportunities available. • Pietermaritzburg is strategically located along the N3 and has good physical and non-physical connectivity. • SIP 2: Durban–Free State–Gauteng logistics and industrial corridor enables focused investment in projects that strengthen the N3 logistics and transport corridor and enhance regional connectivity. • The location of Pietermaritzburg and the Oribi airport along the N3 provides a gateway to global markets. • The Msunduzi Municipality has a strong cultural heritage. • There are very high secondary education levels, which will aid in entrepreneurship and job skills levels. • The existence of the IRPTN is beneficial to the Municipality – Phase 1 is currently in its implementation stage. • There is a large population within the municipal boundary (third-largest non-metropolitan area). • The two Priority Human Settlements and Housing Development Areas of Edendale and Msunduzi North and East Development Areas, promote investment in integrated human settlements and infrastructure with the intended outcome of spatial transformation. • There are many open spaces and natural resources. • The soil is highly fertile. • The Msunduzi Municipality's location within the Midlands Meander tourism route.	• Spatial transformation and spatial restructuring have not realized as planned. • Undulating terrain is prevalent throughout the municipality, which limits developable land and increases housing and infrastructure costs. • Expanding urban areas impact on sensitive terrestrial biodiversity. • The educational and health facilities require maintenance and renovation. • The boundaries of the ABM areas are not conducive to effective implementation as they are not designated according to urban functionality • The boundaries of the ABM areas do not adequately fit the requirements of functional areas. • There is a lack of waste water treatment measures and waste is being dumped in the watercourses and biodiversity areas. • Very little and poor infrastructure is within the rural areas (ICT, paved roads, energy, etc.). • High in-migration to the municipality impacts on the capacity of social facilities, infrastructure, services, and job availability. • The low skills development of migrants impacts on the local economy. • Most social facilities are clustered around Greater Edendale / Imbali and Pietermaritzburg. • Social facilities are not easily accessible by people with disabilities. • The slow rate of housing provision results in growing illegal occupation of land. • Financial constraints and declining fiscal budgets. • There is a lack of land under municipal ownership to facilitate development. • There is a lack of funding to acquire the land required for urbanisation and transformation; • Physical hinderances impact on the future growth. • The current electricity network does not allow Eskom feeds to be interconnected, with no diversity between intake points.

OPPORTUNITIES	THREATS
• Fully utilise agricultural land to improve local food security and increase local economic development opportunities. Stimulate food production and expand value chains, as the soil in the area is ideal for arable agriculture. • Encourage more resilient crops and practices to create a competitive advantage and enhance productivity. • Increase tree plantations for agriculture and food production and counter the anticipated increase in annual temperature. • Integrate the strong cultural heritage to create job opportunities and new tourism opportunities focused on business tourists. • Enhance tourism opportunities by including wetlands and the natural biodiversity and create open space networks and corridors. • Strengthen the informal economy and provide opportunities for entrepreneurs along the commercial ladder. • Regenerate the CBD and Slangspruit to retain and attract businesses. • Identify alternative forms of housing and higher-density development to quicken housing delivery. • The undulating topography and location along the Midlands Meander. • The focus of government investment in human settlements is moving away from top structure BNG housing delivery to integrated delivery of housing opportunities in the form of serviced sites, enhanced peoples housing process and social housing. • Synchronise SDF review with the DDM One Plan and the compilation of the KZN SDF to allow for the better alignment of strategies. • Edendale Urban Hub's contribution to SIP 7. • There are opportunities for student accommodation in Scottsville. • Upgrading of the Msunduzi airport. • Establishment of the Msunduzi Technology Hub. • Proposed interchange points along the N3. • Prioritisation and upgrade of electricity Substations to ensure long-term source of supply and network stability	• High-potential agricultural land is being developed to accommodate low-density residential developments. • An increase in veldfires will destroy the soil structure and seed banks. • Threatened ecosystems should be protected against urbanisation. • Watercourses should be protected against illegal dumping in order to enhance water quality. • Climate change causes extreme rainfall, which results in floods, increased run-off water, and soil erosion. • The lack of energy supply threatens the longevity of businesses contributing to the local economy. • There are high unemployment levels especially in Greater Edendale and Imbali. • The high crime rate, especially in the CBD, discourages new business ventures and contributes to the deterioration of the CBD. • There is a lack of funding for housing investment further impacted by Covid-19. • The degradation of the CBD and the Municipality's ability to refurbish the CBD is threatened due to heritage preservation requirements. • Fiscal constraints and declining fiscal budgets, exacerbated by the impact of Covid-19. • The physical barriers presented by the area's topography impede spatial transformation and mobility. • Planning alignment and coordination impact on the ability to deliver effectively. • Inter-governmental relations and the ability to align priorities (both within the municipality and other spheres of government). • Irregular/unauthorised expenditure and maladministration. • The uncontrolled land invasion and lack of law enforcement. • Lack of accessibility to Ward 39 and potential lack of integration due to isolation.

4 Strategic issues and opportunities

In the preceding section of the report, overarching developmental trends and issues that have an impact on urban spatial form were described. In this section of the report, the more overarching and strategic aspects to spatial development are discussed in relation to their role that they play in the implementation of the SDF.

4.1 Rethinking urban practices

Spatial restructuring and transformation require the need to reassess current urban practices so that it can be adapted or enhanced to meet the SPLUMA principles and objectives.

Practice in developing SDFs, have for many years, used the delineation of the urban edge to determine areas for investment in relation to areas for little or no development, and thus areas of less or no investment. In most, if not all cases, the delineation of the urban edge has not been effective in producing a more compact urban form.

Another recent development in South African cities has been the development of mixed-use and/or commercial and retail nodes beyond the CBD core, however the CBD core retains its prominence, especially as the primary transport intermodal facility and as the location of high order services. In other words, cities are becoming polycentric. At the same time, there are less financial and other resources available to government to maintain and service all these growing nodes while previously deprived areas and informal areas deteriorate further. This has occurred in a context where most areas in the cities retain their mono-functional land use and racial characters.

The National Treasury's Neighbourhood Development Programme and Urban Development Zone tax incentive established more than a decade ago sought to redress the situation outlined above. The Msunduzi Municipality adopted the Neighbourhood Development Programme and Urban Network Strategy (UNS) in 2014.

The UNS is a transit-oriented investment planning, development and management approach. Its focus is on strategic spatial transformation that optimises access to social and economic opportunities for all and especially the poor. It aims to work towards a more efficient urban environment that creates an enabling environment for economic growth and development. It enables spatial targeting at a sub-municipal level, identifying the largest (in terms of population size) under-served township to the CBD core and the transit corridor that is used by most people daily. The UNS results in the identification of an Integration Zone that includes the under-served township/s and CBD showing the linkages to economic nodes/hubs, marginalised areas and informal settlements. The planning methodology or approach then proceeds to other levels of planning and development which is not outlined in detail here. Focusing on the most deprived areas of the city and its connectivity to the rest of the city begins to redress apartheid planning by including these areas as an important part of the city for development, and as a priority for development. The Msunduzi municipality approved its's UNS in 2014 and has subsequently refined and updated the UNS as depicted in Figure 17 below.

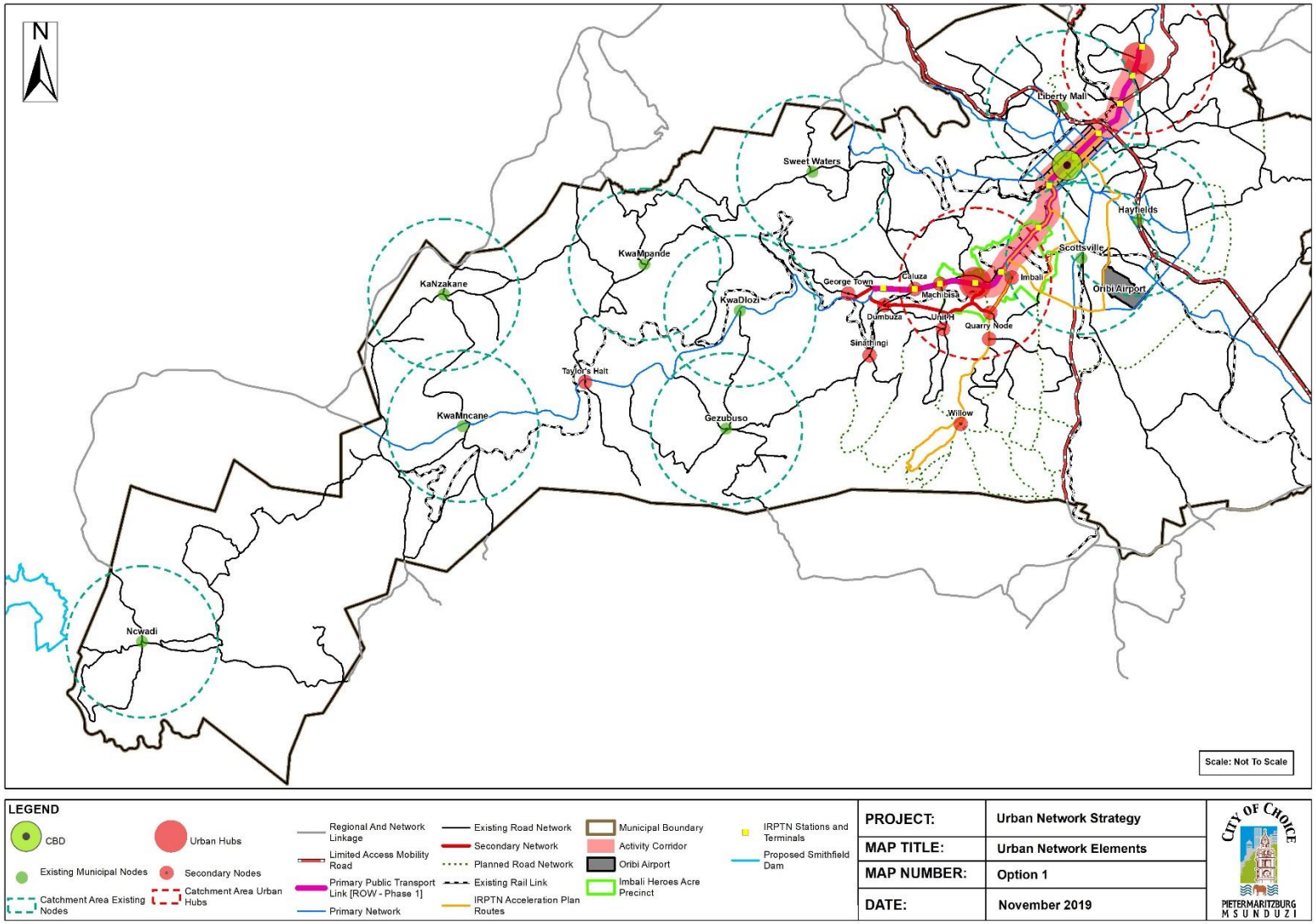


Figure 17: Msunduzi Urban Network Elements

Source: Msunduzi Municipality (2021)

Edendale and Raisethorpe were identified as the key underserviced areas with Edendale being the largest underserviced area. Edendale and Vulindlela are interlinked areas with people residing in Vulindlela having to pass through Edendale to access the CBD and other areas in the city, and accessing higher order services not found in Vulindlela, in Edendale. Raisethorp is better serviced than Edendale and Vulindlela, but it is nonetheless the second most under-serviced and deprived area in the city. These areas and the transit spines that link the areas to the CBD, if prioritised for development, will have the impact of improving the lives of most of the deprived people in the city. These areas thus become the priority development areas in the city and should be the focus of all stakeholders who contribute to development in the city, both government and private sector. Sustained focus and investment in these areas are likely to promote inclusivity, one of the five principles of SPLUMA.

4.1.1 GEVDI

GEVDI is a sub-business unit within the municipal structure, where its composite function is cross-cutting and unique. Much like a Special Purpose Vehicle (SPV), GEVDI is responsible for planning, approving, implementing, and monitoring projects undertaken, however it does not have a legal standing and status. Like an SPV, GEVDI is also a fixed focused approach formed for a special purpose.
Its position allows it to command access to municipal resources and to channel and direct social capital investment into the Edendale and Vulindlela areas. Accordingly, it is responsible for using public reserves to leverage private-sector investment or creating a climate conducive to development within a clearly defined inclusive and integrated development agenda. The nature of its agenda and consequent urban practice (urbanism and place-making) and its way of functioning (as a system and a form of governance) demystify its definition and inner workings.

Moreover, GEVDI recognises the important role that fixed investment in general and public investment in particular play in achieving a sustainable city, where public-sector capital formation is an important contributor towards aggregate fixed investment and where there is a need to make choices about where to invest scarce resources in order to maximise the social and economic returns on investment.

GEVDI and the introduction of the Intergovernmental Strategic Committee call for a significant reorientation in approach in existing legislative parameters to public policy, development planning, and management within a context of new and emerging sets of realities, expectations, norms, values, and organisational practices, all of which describe the local “institutional culture” of significance to GEVDI and the post-apartheid transformation of Edendale–Vulindlela and Msunduzi. With the aforementioned in mind, GEVDI progressively seeks to refine its approach to incorporate area-specific issues, identify localised development opportunities, refocus its development programs, and advance a coherent land use management scheme.

The SDF recognises the success of GEVDI as a special-purpose delivery mechanism and an innovate urban practice that has enabled implementation.

4.2 Intergovernmental coordination, partnerships, and leveraging

The CBD, Edendale-Vulindlela and Raisethorpe are the priority development areas of the Msunduzi municipality as outlined above and should therefore be the key focus of all intergovernmental co-ordination, partnerships and leveraging. This does not mean that other areas in the municipality do not get any resources at all. The other areas still have to be maintained and new development is permitted, although not at the expense of the priority development areas. For intergovernmental co-ordination, partnerships and leveraging to materialise, the municipality should provide the enabling infrastructure, the required level of urban management, that is level of services, to attract investment from other stakeholders. The municipality will not be able to attract investment if issues of crime and grime persist, or there are many service interruptions. Additional initiatives to attract investment centre on the ability of the municipality to prioritise turnaround times for development applications, connections to water and electricity and registering title deeds – if the turnaround

times for these services are drastically improved in priority development areas such as the CBD, Edendale and Raisethorpe, then investment and development will proceed faster.

To achieve the objectives set out in SPLUMA, an SDF must provide an integrated spatial direction for municipalities that is outcomes-led and makes explicit connections with budget prioritisation and implementation. An SDF must synthesise what is required to connect the investments of sectors (public and private) in space (who should invest where, and why) to achieve spatial transformation and inclusive growth. This requires joined-up thinking and genuine intergovernmental coordination. It is in this context that opportunities can be created for integrated solutions. Based on an outcomes-based approach, an SDF should demonstrate the spatial implications of divergent objectives and unintended impacts of one sector on another and highlight the catalytic potential of spatially coordinated efforts. It is widely accepted that a lack of coordination causes one sector's policies, funding regimes, and practices to exacerbate affordability challenges for other sectors (e.g. housing projects may burden municipal infrastructure or public transport viability). While an SDF cannot address the institutional, political, and resourcing aspects that underlie these practices, it must reflect on the spatial consequences of these aspects and frame an appropriate spatial response.

To be effective and transformative, an SDF needs to connect with all stakeholders investing and planning in municipal space and establish the spatial platform for integration and collaboration across spheres and departments. This need for intergovernmental coordination in planning, budgeting, and reporting has been identified as one of the most important benefits of the SDF process.

SPLUMA and the 2014 SDF Guidelines require that municipalities incorporate the plans and projects of all spheres of government into their SDFs. This typically requires municipalities to negotiate and confront the divergent and sometimes conflicting logics that propel various stakeholders at times.

All stakeholders operating within municipal boundaries need to be reminded that the constitutional mandate for spatial planning and land use management lies with municipalities. Municipalities should not have to solicit cooperation from these agencies, but instead, all sectors, spheres, and agencies planning, budgeting, and implementing projects should be required to report to, and obtain approval from, municipal authorities before funds are allocated to them.

4.2.1 Fiscal impact of development

The disconnect between SDF proposals and the fiscal and institutional capacity of the state is one of the central weakness of spatial planning and often the reason that such proposals remain paper products with little or no impact on investment decisions made by the state and private sector.

One element of the implementation of the Integrated Urban Development Framework (IUDF) is the introduction of a consolidated infrastructure grant and all 39 intermediate city municipalities are eligible for the grant from 2019/20. Section 21 of SPLUMA introduced the concept of a capital expenditure framework (CEF), which was described merely as the spatial depiction of a municipality's development programmes. With the establishment of the IUDF, the Department of Cooperative Governance issued a guide to preparing a CEF.

Most notably, the IUDG and the CEF guidelines move towards a programmatic approach, using the CEF as a basis for monitoring the IUDG. The key intentions for the CEF are therefore to:

- ensure that priorities identified in the SDF are translated into capital programmes
- promote long-term infrastructure planning for all infrastructure the municipality is responsible for that requires municipal funding
- promote infrastructure planning that is better integrated across sectors and spheres and within space
- promote a more integrated approach to planning within municipalities that brings together technical, financial, and planning expertise.

While the spatial proposal in an SDF must be ambitious in its objectives if the goals set out in SPLUMA are to be achieved, the implementation framework

needs to recognise fiscal constraints and implementation capacities, and accommodate more strategic, inclusive, and incremental approaches to achieving these outcomes. Whether large-scale and catalytic, or strategic and incremental, the long-term financial impact of spatial proposals must be fully understood.

4.2.2 Rural development and land reform

The development of rural land is a vital matter that requires urgent and focused intervention in the SDF. The majority of land that lies outside the urban edge is owned by the Ingonyama Trust Board. The beneficiary traditional councils are responsible for land allocation procedures (which include long-term commercial leases), while the Msunduzi Municipality is responsible for the management of land use (through adopting land use schemes) and for the coherence of the urban environment. This division of authority in respect of allocation and land management has exacerbated the inappropriate expansion of development.

The Municipality adopted land use schemes (LUSs) for Msunduzi and Ashburton on 20 June 2018 and 4 October 2018 respectively in terms of SPLUMA, read together with Section 43 of the Msunduzi Municipality Spatial Planning and Land Use Management By-law, 2016. The Msunduzi LUS, 2018, includes the areas of Pietermaritzburg, Greater Edendale, and Sobantu, whilst the Ashburton LUS, 2018, includes Ashburton only. On 30 January 2019, the municipality adopted the “Land Use Management Policy for the areas outside the scheme”. This policy is an interim measure to deal with land use management in areas not currently covered by any land use scheme. The policy is aimed at encouraging sustainable development and redressing the socio-economic imbalances of the past and is considered a definite approach to beginning to introduce a land use management scheme (LUMS) until a wall-to-wall LUS can be adopted.

There are significant challenging practical implications when introducing one overarching LUMS in an administrative jurisdiction that suffers from the high degree of spatial inequality and disparity found in Msunduzi. This is not a simple matter, particularly when there is little correlation between the scheme and practical realities on the ground. In an effort to acknowledge traditional authority and any associated customary systems of land allocation, SPLUMA includes provisions in its regulations to give traditional authorities the choice to continue allocating land in the areas that they govern. This provision is meant to facilitate a collaborative relationship between traditional leaders and municipalities.

To respond to the challenges presented by inappropriate land development, and to fast-track land reform, GEVDI was established with the purpose to secure and advance the development of an inclusive, liveable, productive, and sustainable Edendale–Vulindlela complex as both an integral and an integrated component of the Msunduzi Municipality and the city landscape. As a kind of SPV, GEVDI has made large strides towards improving Msunduzi’s advancement of rural development and land reform.

4.2.3 District Development Model

In his 2019 Presidency Budget Speech (2019), the President identified the “pattern of operating in silos” as a challenge that has led to a “lack of coherence in planning, budgeting and implementation and has made monitoring and oversight of government programmes difficult”. Consequences of these challenges are the inefficient delivery of services and a reduced impact on poverty, inequality, and employment.

In response, Cabinet approved and adopted the District Development Model (DDM) on 21 August 2019. According to the President, the DDM will serve as a unique form of social compacting that involves all key players in every district and metro space to unlock development and economic opportunities. It builds on the White Paper on Local Government (1998), which identifies the role of local government as critical in “rebuilding local communities and environments as the basis for a democratic, integrated, prosperous and truly non-racial society”.

The objectives set out in the DDM are to improve cross-boundary infrastructure planning, ensure the better integration of a wider network of human settlements, and support the sharing of economic assets to secure economies of scale.

The DDM also uses and enhances the Intergovernmental Relations Framework Act (Act 13 of 2005) by facilitating joint planning, budgeting, implementation, monitoring, and evaluation between and amongst all spheres of government. To this end, the successful functioning of local government is critical to the DDM but insufficient on its own without more cohesive governance and overall government coordination and functioning. The DDM is aimed at enhancing state capacity and institutional powers and functions, including the ability to work cooperatively so that there is greater cohesion and positive development impact.

In giving effect to the vision of a joined-up government that positively impacts lives at local level, the DDM is premised on institutionalising a programmatic approach to intergovernmental relations (IGR). It has four key strategic objectives:

- To improve integrated planning across government through the formulation and implementation of single joined-up plans for 52 IGR impact zones
- To enable streamlined and effective local government capacity-building by consolidating and strategically coordinating capacity-building initiatives and programmes at district level
- To ensure that municipalities are enabled to perform their mandated functions and duties effectively and efficiently by mobilising and making available expertise, key skilled personnel, and systems that can be shared between district and local municipalities as needed
- To monitor the effectiveness of government and the spatial and developmental impact of effective government on communities in the 52 IGR impact zones.

Therefore, the DDM is expected to be a practical IGR mechanism that will enable all spheres of government to work jointly with communities and stakeholders so they can plan, budget, and implement together.

4.2.4 Disaster and risk management

After being reported in December 2019, COVID-19 expanded rapidly to a global phenomenon, impacting countries around the world. The World Health Organization (WHO) declared it a pandemic on 11 March 2020, and the South African government declared a national state of disaster on 15 March 2020. A 21-day lockdown was enforced across South Africa, starting 27 March 2020, followed by a slow easing of restrictions at rates that varied by district and metropolitan area in five stages. After the 21-day period, the country was moved to Level 5 of the lockdown for 35 days. The country was then moved in quick succession to Level 4 on 1 May 2020, Level 3 on 1 June, Level 2 on 18 August 2020, and Level 1 on 21 September 2020. The national state of disaster was extended to 15 December 2020.

The pandemic brought with it social and economic crises that required urgent intervention through emergency measures. This necessary response placed additional stress on the municipality's already strained economy and labour markets.

At a national level, the President announced an ameliorating package of R501 billion, R370 billion of which was meant to be a fiscal stimulus to mitigate the expected contraction in the economy of between 6% to 8% in this year.

At a local level, the recommended methodology for the development of the Post-Lockdown Recovery Plan was that local government should focus both internally and externally on ways to provide a streamlined, coordinated, and systemic approach and thus to ensure uninterrupted service delivery to the communities.

In keeping with the recommended methodology, the Msunduzi Economic Recovery Plan:

- Proposes a range of measures to stimulate economic activity, restore investor confidence, and reduce unemployment
- Addresses the urgent challenges that affect the lives of vulnerable community members

- Supports a liveable, safe, and resource-efficient city that is socially integrated, economically inclusive, and globally competitive, and where residents can actively participate in urban life.

In this plan, the municipality has revised its approach to local economy by adopting two distinct plans:

- A 12-month economic recovery plan
- A 5-year plan.

As part of the 12-month plan, the Municipality will ensure its financial sustainability while investing in the joint economic future. The 5-year plan will be focused on reviewing and implementing the Msunduzi City Development Strategy. Due to the immense impact that COVID-19 will have on society and business, it is necessary to review the City Development Strategy.

In its response plan, the Msunduzi Municipality focused on the rural, township, and informal economy, taking into account that this economy is the cornerstone of the survival of the people living in the rural areas and the townships. The Municipality is attempting to create a more holistic integrated and inclusive development framework for the post-apartheid reintegration and development of the region. This will be done by creating an extra-ordinary environment for construction and infrastructure development. The Municipality aims to achieve this by:

- Waiving all development application fees until 30 June 2021
- Developing a bold investment incentive scheme to be brought to Council
- Reducing time taken to release strategic land and time taken to process catalytic projects, focusing on high-impact projects
- Accelerating the implementation of government projects
- Mandating the Sustainable Development and City Entities Portfolio Committee to convene webinars with developers to provide information and support as part of a series of webinars organised by the Municipality
- Identifying projects that need to move to construction within 10 months
- Prioritising and supporting high-impact development in line with the recovery plan through an expedited measure to grant land use rights and municipal infrastructure provision

The Economic Recovery Plan provides a renewed focus on decisive interventions to ensure accelerated and shared economic growth, poverty alleviation, improved service delivery, and the eradication of historical inequalities such as spatial inequalities. It also stimulates public interest in, and action towards, agreed future outcomes, including a platform for development dialogue.

In setting out the objectives for Msunduzi's economic recovery, the plan has clear implications for the SDF:

- Call for a clear, shared spatial vision
- Urgency to put frameworks in place to respond appropriately and mitigate socio-economic effects as far as possible
- Policy and Structural transformation: for Msunduzi this means changes in the economy that will generate higher productivity
- Determined action is required to reverse the deterioration of the public finances by narrowing the budget deficit, containing debt and growing the economy faster and in a sustainable manner. Municipalities to exercise caution when they prepare their 2020/21 MTREF budgets to ensure synergy with national economic and fiscal prudency.
- Focusing on releasing strategic land that will result in high impact projects and development.
- Focus on Access to core services
- focus on improving access to affordable housing and public space like upgrading more informal settlements in place.
- Integrated Green and Blue spaces: planning should bring open spaces, watersheds, forests and parks into the heart of how we think about and plan our cities.
- Increased regional planning.

- More City-Level, Granular Data: To help cities harness the power of big data – in response to this crisis but also other long-term sustainability and equity challenges

4.2.5 Cross-border alignment

Each municipality has its own individual role to play within the broader regional context, however, it still needs to function and contribute towards coherent and cohesive regional development. Municipalities are dependent on one another and should co-operate to establish a consistent approach to key elements to ensure that their systems' functionality is maintained and managed sustainably and is resilient. There is an increasing focus for municipalities to understand the implications that development within their boundaries will have from a broader context.

From this perspective, the spatial considerations contained in the SDFs of neighbouring municipalities will not only inform, but also impact on the Msunduzi Municipality's SDF proposals, particularly with regards to:

- Maintaining and managing the integrity of linear green or open spaces
- Understanding the regional settlement hierarchy and positioning of major nodes and their sustainable growth in relation to one another
- Managing alien invasive species to reduce the risk and spreading of fires and to enhance water supply as a shared resource
- Managing disasters and risks to the environment
- Managing land use
- Protecting and aligning cultural, tourism, and scenic landscapes, routes, and passes
- Protecting cultures and values across borders
- Enabling trade linkages, especially along the N3, to ensure the cross-border movement of goods and people
- Cooperating with other municipalities to ensure good service delivery (e.g. joint fire and emergency responses in outlying areas, and agricultural benefits and programmes)
- Sharing access to social and community facilities, especially in outlying areas
- Protecting raw resources (water, minerals, etc.).

4.2.5.1 Mkhambathini Municipal SDF (2019)

The Mkhambathini Municipality borders the Msunduzi Municipality in the east. The N3 connects Pietermaritzburg with Camperdown and thus offers major development opportunities for the Msunduzi and Mkhambathini municipalities. The proposed Umlaas interchange will have a positive effect on development along the R338, drawing traffic off the N3 to serve other areas of these municipalities, and possibly resulting in investment opportunities. The area that lies east of the N3 is categorised as a CBA area as well as scattered protected areas and there should be alignment in the Msunduzi SDF in order to protect the sensitive environment.

The Msunduzi Municipality offers a much wider range of commercial, social, and professional services than the neighbouring area of Mkhambathini, which relies on job opportunities the Msunduzi Municipality provides. Co-operation between the Msunduzi and Mkhambathini Municipalities is required to promote the proper management of the Umlaas interchange and the Lion Park turn-off to ensure that economic opportunities benefit both municipalities.

Manderston is earmarked as a satellite or incipient municipal development node and lies within close proximity to the Msunduzi Municipality. Alignment between the municipalities should take place and, where possible, Manderston should provide social, civic, and commercial activities to Msunduzi's outlying areas.

SDF alignments:

- Sensitive environmental areas and high potential agricultural land along the border should be protected;
- Collaboration on development along Umlaas road – proposed development should focus on service and light indistry only;

- Corridors should aim to strengthen growth opportunities between Msunduzi LM and Mkhambathini LM;
- Collaboration on tourism and scenic routes between Msunduzi LM and Mkhambathini LM;
- Msunduzi LM to align with infill development and service delivery uses proposed between Camperdown and Umlaas road node;
- Umlaas road and Lynnfield park is considered growth points for Mkhambathini LM; and
- Alignment of uses at Lynnfield park – focus on commercial development, rather than industrial.

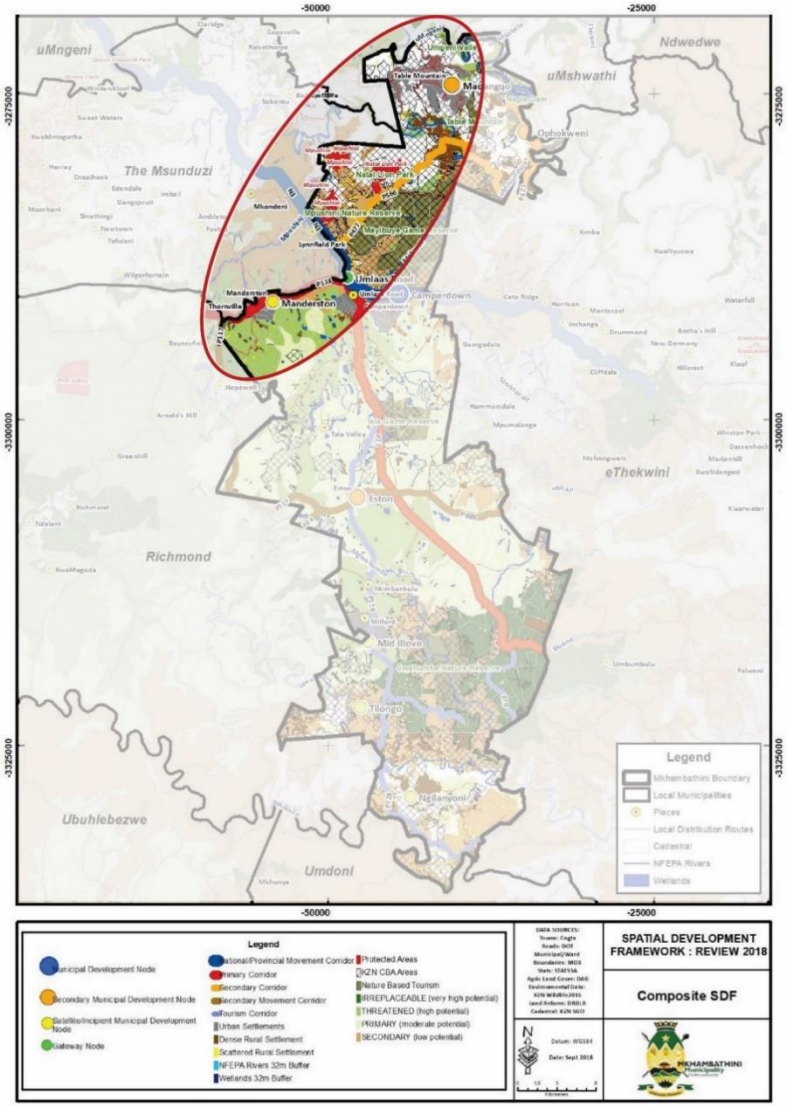


Figure 18: Mkhambathini Composite SDF (2018)

(Adapted from: (Mkhambathini Municipality, 2019, p. 85)

4.2.5.2 Richmond Municipal SDF (2016)

The Richmond Municipality borders the Msunduzi Municipality in the south. Thornville is located along the border between the Msunduzi and Richmond municipalities and is earmarked as a community development node. The R56 connects Thornville and Pietermaritzburg and is earmarked as a primary corridor. The Richmond Municipal SDF indicates that this is an area of opportunity for agri-business or commercial uses.

The SDF indicates a tertiary corridor west of Sevontein, which connects Richmond with the Msunduzi Municipality. The area around Sevontein is earmarked as a tertiary development area and alignment between the municipalities is required to unlock the full potential as envisioned in the SDF. Furthermore, the area between the Msunduzi and Richmond municipal borders is predominantly agricultural, with some heritage assets and CBA areas scattered throughout.

The SDF of the abutting Richmond Municipality presents the area as a secondary node, and this facilitates a potential wall-to-wall land use designation.

SDF alignments:

- Sensitive environmental areas and high potential agricultural land along the border should be protected;
- Collaboration on the sprawling of towards the Msunduzi and Richmond municipal boundary; and
- Collaborate on strategies to protect the conservation zone.

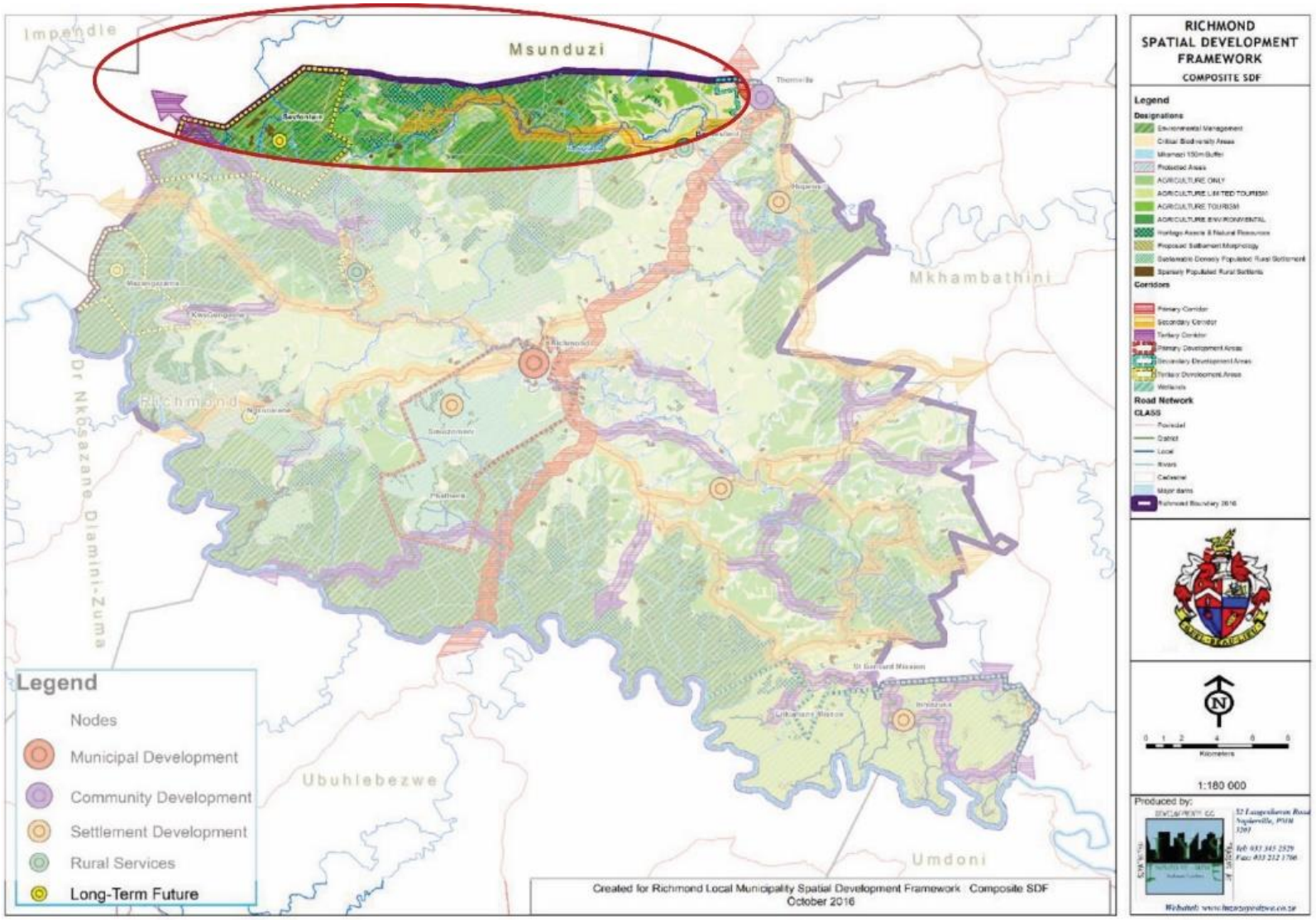


Figure 19: Richmond Composite SDF (2016)

(Adapted from: (Richmond Municipality, 2019, p. 30)

4.2.5.3 Impendle Municipal Spatial Development Management Plan (2018)

The Impendle Municipality is located to the west of the Msunduzi Municipality. Impendle is the main urban development node within the municipality which is connected to Msunduzi Municipality via the R617. The R617 is classified in the Impendle Municipal SDF as a regional access corridor. This road and its role as a regional corridor plays a critical function from Msunduzi's perspective as it is the only linkage between Ward 39 and the rest of Msunduzi Municipality. The implication of Ward 39 having only one access point to the main economic nodes of the Msunduzi Municipality is that strong alignment must be fostered to with Impendle Muncipality to avoid any further isolation of Ward 39.

Impendle has also indicated that money flows out of the municipality, towards and into Msunduzi Municipality. The implication is to anticipate not only economic flows, but also in-migration of people from Impendle to Msunduzi looking for economic opportunities.

SDF alignments:

- Sensitive environmental areas and high potential agricultural land along the border should be protected;
- Corridors should aim to strengthen growth opportunities between Msunduzi LM and Impendle LM;
- Collaborate on service provision for Ward 39;
- Collaborate on strategies to protect and preserve the conservation and integration zone.
- Strengthen tourism and scenic routes between Msunduzi LM and Impendle LM; and
- Collaboration on the sprawling of towards the Msunduzi and Impendle municipal boundary.

4.2.5.4 uMngeni Municipality

The uMngeni Municipality is located to the north of the Msunduzi Municipality. Within the Municipality, Howick has been identified as a primary node and is connected to Musunduzi Municipality via the N3. The N3 has been identified as a provincial corridor. Furthermore, the R617, which is located along the northern border of the Msunduzi Municipality, is classified as a primary corridor that carries regional importance. .

The uMngeni Municipality's interface with the Msunduzi Municipality can be considered in an urban linkage along the N3, the Old Howick Road, and the Sweetwaters area. There is a proposed commercial node at the Msunduzi–Sweetwaters intersection (along Dennis Shepstone Drive). It is anticipated that the traffic from Edendale to Hilton and Howick will increase dramatically due to this proposal.

Traditional areas in the Vulindlela area, to the south-east of the uMngeni Municipality, have strong linkages with Mpophomeni. There are rural linkages into the Claridge area. The evidence of urban settlement along the southern boundary of the uMngeni Municipality thus reflects the possibility that rural residents who reside in the northern region of the Msunduzi Municipality are dependent on the services provided in the nearby urban settlements of the uMngeni Municipality. The existing urban areas are located along the main routes and the areas towards the outlying areas are predominantly agricultural with some eco-tourism that takes place.

SDF alignments:

- Sensitive environmental areas and high potential agricultural land along the border should be protected;
- Corridors to strengthen growth opportunities between Msunduzi LM and uMngeni LM;
- Collaborate on tourism corridors between Msunduzi LM and uMngeni LM;
- Old Howic road is an important road link between uMngeni and Msunduzi LM;

- Some properties and plantations in ownership of Msunduzi LM is located within the uMngeni scheme; and
- Msunduzi LM provides services (especially electricity) within the uMngeni LM.

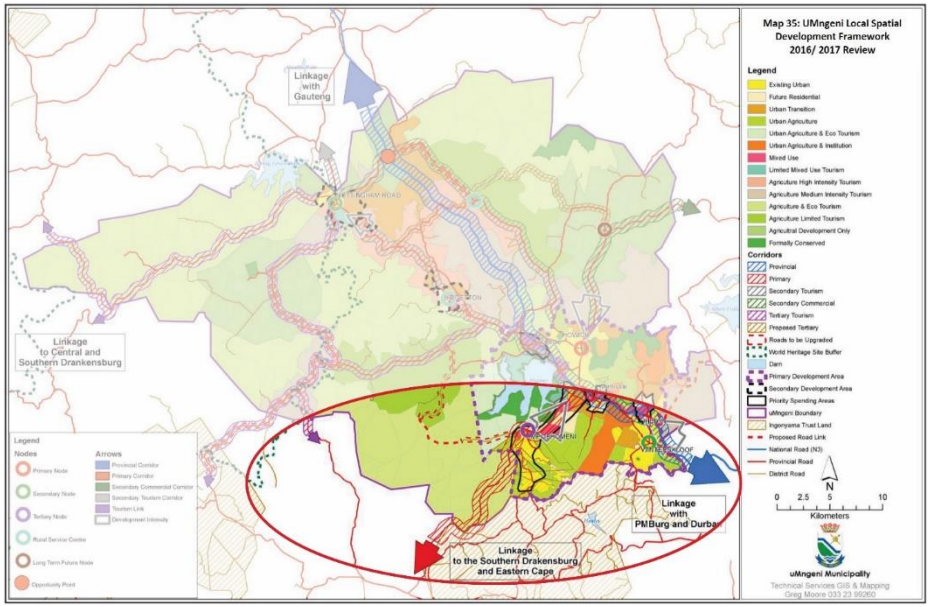


Figure 20: uMngeni Local Spatial Development Framework SDF (2016/2017 Review)

(Adapted from (uMngeni Municipality, 2016, p. 110)*)*

4.2.5.5 uMshwathi Municipality

The uMshwathi Municipality is located towards the north of the Msunduzi Municipality. Two primary service nodes have been identified in the uMshwathi Municipality. These nodes are connected to the Msunduzi Municipality via the R614 and the R33. The R33 is classified as a primary corridor and the R614 as a secondary corridor.

The consideration for cross border alignment with the uMngeni Municipality is focused primarily on the Albert Falls area. The location of the Albert Falls Dam node (AFD) is located in the south-western part of the uMshwathi Municipality and is bordered by the uMngeni Municipality to the west and the Msunduzi Municipality to the south. To strengthen this link, the District SDF proposes a tourism link road upgrade along the P9.

It is important to note that a portion of land south-west of the Albert Falls Dam is located within the uMngeni Municipality. This area was included because it forms the immediate catchment for the Albert Falls Dam, and the dam is recognised as a strategic asset to the uMshwathi Municipality and to the uMngeni Municipality in terms of its value for tourism and recreation and to the province in terms of its role as a water storage facility. Alignment of development initiatives in the interface area will be critical for the sustainable development of the area.

SDF alignments:

- Sensitive environmental areas and high potential agricultural land along the border should be protected;
- Alignment of corridors (R33 and R614); and
- Corridors to strengthen growth opportunities between Msunduzi LM and uMshwathi LM.

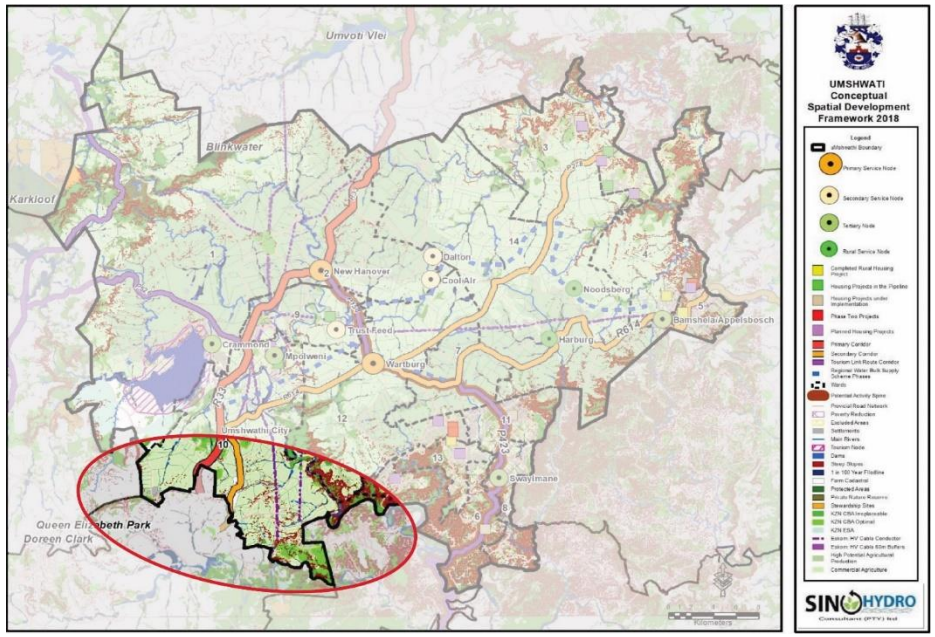


Figure 21: uMshwathi Conceptual Spatial Development Framework (2018)

(Adapted from: (uMshwathi Municipality, 2020, p. 271)*)*

4.2.5.6 Dr Nkosazana Dlamini-Zuma Municipality

The area between the Msunduzi Municipality and the Dr Nkosazana Dlamini-Zuma Municipality is predominantly agricultural. Whilst settlements exist up to the furthermost extents of Vulindlela, large ridges fragment the villages from the agriculturally dominated land uses surrounding them in the adjoining municipality.

SDF alignments:

- Ward 39 still lies within the Dr. Nkosazana Dlamini-Zuma LM scheme;
- Collaborate on the protection and preservation of the environmental corridor and other environmental sensitivities;
- Sprawling settlements towards the Dr. Nkosazana Dlamini-Zuma boundary; and
- Collaborate on strategies to protect and preserve the conservation zone.

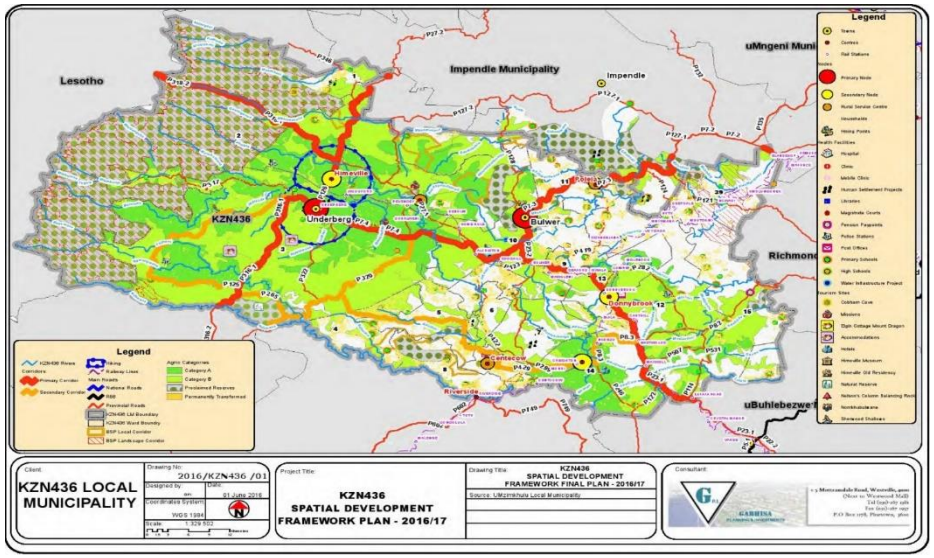


Figure 22: Dr Nkosazana Dlamini-Zuma Municipal Spatial Development Framework Plan 2016/17

(Dr. Nkosazana Dlamini-Zuma Municipality, 2020, p. 375)

4.2.5.7 Alignments with Msunduzi Municipality

The implications of the surrounding SDFs and their proposals are demonstrated conceptually in Figure 23.

Key areas for alignment includes:

- Integrated strategies to manage environmental sensitive areas as well as high potential agricultural land;
- Strategies to manage sprawl towards the municipal boundaries;
- Aligning strategies and plans for development along corridors which will strengthen and growth opportunities;
- Stronger tourism opportunities can be created with aligned tourism corridors, routes and strategies; and
- Review and consolidation of infrastructure plans to identify areas where services are provided to another municipal area.

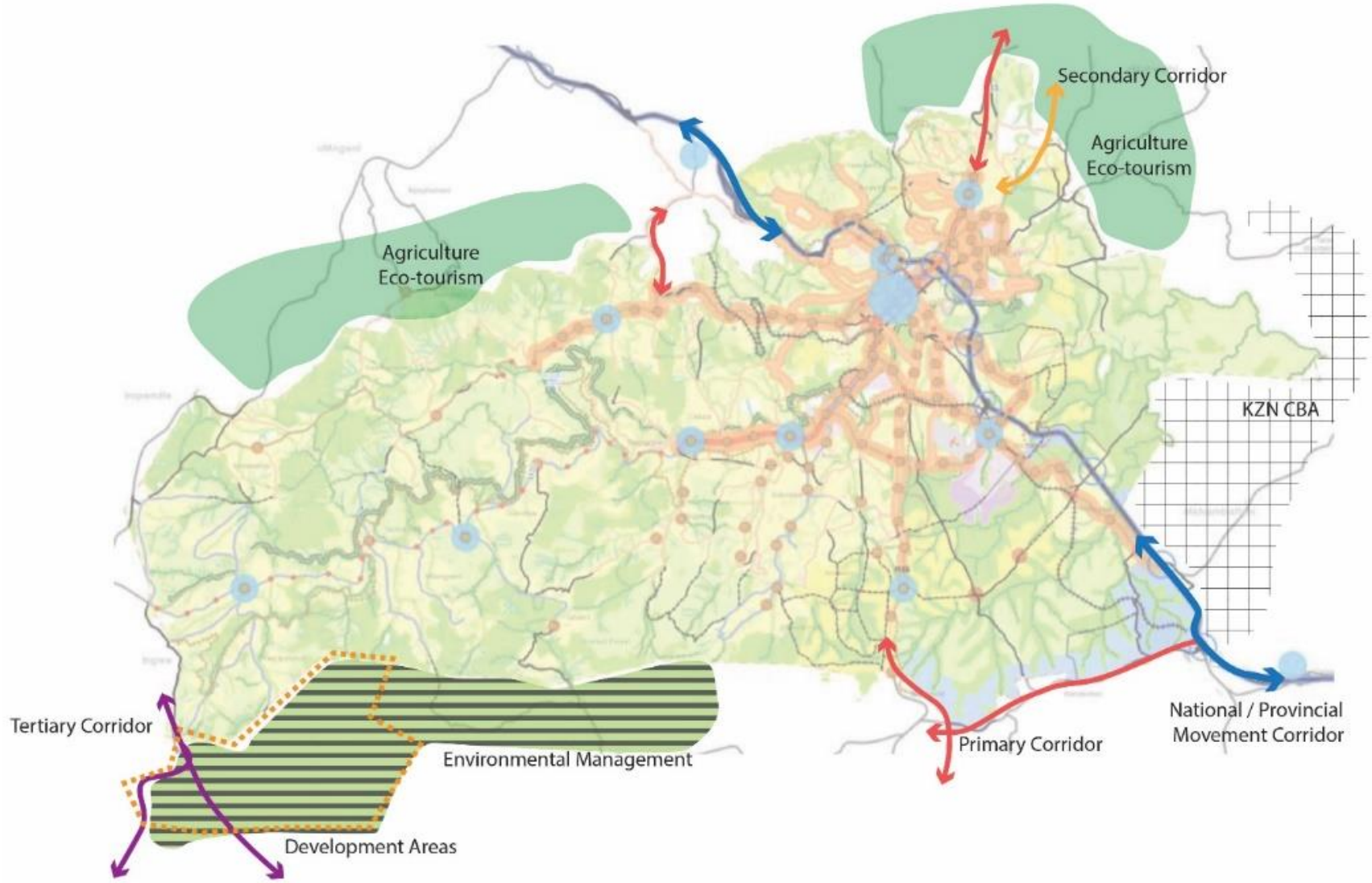


Figure 23: Municipal alignment

5 Spatial vision

5.1 Vision directives

The SDF is not a document that stands in isolation. It should consider the objectives of national, regional and local visions and translate them into a spatial strategy for Msunduzi Municipality. The vision and principles of the Msunduzi Municipality should not only embrace the development principles of SPLUMA but also promote a future-oriented approach to planning and service delivery in order to realise its vision of becoming a “City of Choice, Second to None”.

This section of the report highlights the key policy directives that have informed the vision of the SDF.

5.1.1 SPLUMA principles

SPLUMA reinforces and unifies the National Development Plan’s vision and policies in respect of using spatial planning to create conditions that are conducive to promoting social and spatial cohesion and reducing poverty and inequality. SPLUMA has set out normative principles that are intended to guide all land development, planning, and decision-making to ensure that it is coherent. The formulation of this SDF is therefore guided by these normative principles (Table 13).

Table 13: SPLUMA development principles (adapted from SPLUMA, 2013)

SPLUMA principle	Description
Spatial justice	Past spatial and other development imbalances must be redressed through improved access to, and the use of, land by previously disadvantaged communities and individuals.
Spatial sustainability	Spatial planning and land use management systems must promote the principles of socio-economic and environmental sustainability.
Efficiency	Land development must optimise the use of existing resources and the accompanying infrastructure, while development application processes and timeframes must be efficient and streamlined in order to promote growth and employment.
Spatial resilience	Sustainable livelihoods must be ensured in communities that are likely to suffer the impacts of economic and environmental shocks.
Good administration	All spheres of government must ensure an integrated approach to land development and all departments must provide their sector inputs and must comply when preparing or amending SDFs.

5.1.2 IDP 2020/21

With the introduction of SPLUMA, the relationship between an SDF and the IDP has been redefined. The SDF is no longer just a spatail articulation of the IDP. The expectation is that the SDF now guides (from an evidence and spatial targeting based approach) what the long term vision of a municipality should be and that the IDP then becomes a five year implementation plan of the SDF to mobilise financial and human resources. Msunduzi Municipality's IDP is still considered to be the document that gives direction to the municipality. It is therefore imperative to consider the vision and outcomes of the IDP to ensure alignment, where appropriate.

The IDP has outlined a strategic approach that will help determine the direction in which the Municipality is moving. In assessing the status quo and performance of the municipality, the IDP has identified key issues in the following areas:

- basic service delivery
- local economic development
- municipal transformation and institutional development
- good governance
- financial viability and management
- cross-cutting interventions.

In addressing these challenges, the vision set out in Msunduzi's IDP is to "**develop a safe, vibrant city in which to live, learn, raise a family, work, play and do business"**. To achieve this vision, the IDP sets out six strategic city-wide outcomes that the Msunduzi Municipality should deliver. These outcomes are shown in Table 14.

Table 14: IDP's six strategic city-wide outcomes for Msunduzi Municipality

Outcomes	Focal areas
A well-serviced city (for all citizens)	Water and sanitation service delivery Energy supply provision Implementation of waste management
An accessible, connected city	Roads construction and maintenance Transport management Human settlement development Telecommunications connectivity Social infrastructure distribution.
A clean, green city	Renewable energy supplies Public open space creation Urban renewal Greening promotion
A friendly, safe city	Social cohesion Safety and security
An economically prosperous city	Job creation
A financially viable and well-governed city	Financial viability Good governance

Further to the above, the following planning and development principles underpin the Msunduzi IDP and should inform the SDF strategies:

- A compact urban form is desirable.
- Urban sprawl should be discouraged by encouraging settlement at existing and proposed nodes and settlement corridors, whilst also promoting densification.
- Future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to, or that link, the main growth centre.
- New development should be directed towards logical infill areas.
- Development and investment should be focused on localities of economic growth and economic potential.
- Planning and subsequent development must strive to provide the highest level of accessibility to resources, services, and opportunities.
- Basic services (water, sanitation, access, and energy) must be provided to all households.
- There must be a balance between urban and rural land development and the two should complement each other.
- Prime and unique agricultural land, the environment, and other protected lands must be protected and land must be used safely.
- If there is a need for low-income housing, it must be provided in close proximity to areas of opportunity.
- The principle of self-sufficiency must be promoted. Development must be located in a way that reduces the need to travel, especially by car, and enables people, as far as possible, to meet their needs locally.

5.1.3 City Development Strategy

Msunduzi's City Development Strategy (CDS) is developed in a complementary manner to support the SDF and IDP. It is not a comprehensive plan but is instead a selection of strategic or catalytic thrusts that are intended to address key problems and contribute towards achieving the Msunduzi Municipality's vision, as set out in the SDF and IDP. It is therefore critical that the SDF adopts the strategic and catalytic thrusts as proposed in the CDS in order to ensure alignment.

The CDS identifies eight strategic priorities that underpin the strategy, the first four being necessary conditions for setting the scene to create an enabling environment (priorities 1 to 4 in Figure 24). The last four levers (priorities 5 to 8) allude to conditions that are required for creating an improved environment within the Msunduzi Municipality that allows for a happier, safer, cleaner, and greener city.

Figure 24: Overview of Msunduzi CDS Strategy

5.2 Spatial development vision

In considering the key issues and challenges faced by the Municipality it is clear that achieving spatial transformation remains a key focus. The key spatial transformation and development challenge is to restructure the city from a typical apartheid city to one that is more compact, spatially just and inclusive, and more productive, sustainable and resilient.

However, before the Msunduzi Municipality can fully address the dire need for spatial transformation, there is first a need to reclaim and stabilise the City in order to address the issues of maladministration and uncontrolled land development. Once the Municipality has taken back control of the city, it can then focus on strengthening and high-performance growth. To guide this development agenda, the SDF needs a strong and clear spatial vision to steer it. The following two-part spatial vision has been formulated to support Msunduzi Municipality's spatial transformation objectives.

Figure 25: Msunduzi spatial development vision

5.2.1 Theory of change

To help the Msunduzi Municipality achieve its vision, the SDF must be underpinned by a strong and measurable change management strategy. The SDF thus proposes a theory of change that lends itself to an outcomes-led planning approach that will support spatial targeting and enable investment coordination. The theory of change is indicated in Figure 26.

To achieve the vision, the SDF will set out to firstly Reclaim the City over the short term (year 1 - 10) and thereafter Take the City Forward (year 10 - 20). These two phases will be focused over the short and long term, respectively, but will are not mutually exclusive and may also occur with some degree of overlap.

The strategic drivers for the first 10 years of the SDF, to help the Msunduzi Municipality to **Reclaim the City,** are focused on improving the **functional** governance to manage the **transformation**, **regeneration** and **restructuring** of the urban and rural areas. Once this base has been established, the long-term goal to **Take the City Forward** can be realised. The strategic drivers to support this will be focused on improving Msunduzi Municipality's **performance**, **efficiency**, **attractiveness** and **management of urban growth**. Both of these phases are underpinned by the principles of having a **people-centred** approach that supports **cohesive** urban and rural development.

In a programmatic approach, each of the strategic drivers is underpinned by proposed actions that will contribute towards achieving the vision. The actions will be translated into specific strategies at the ABM level of the SDF. The full breakdown of strategic drivers supporting the theory of change are detailed in Table 15.

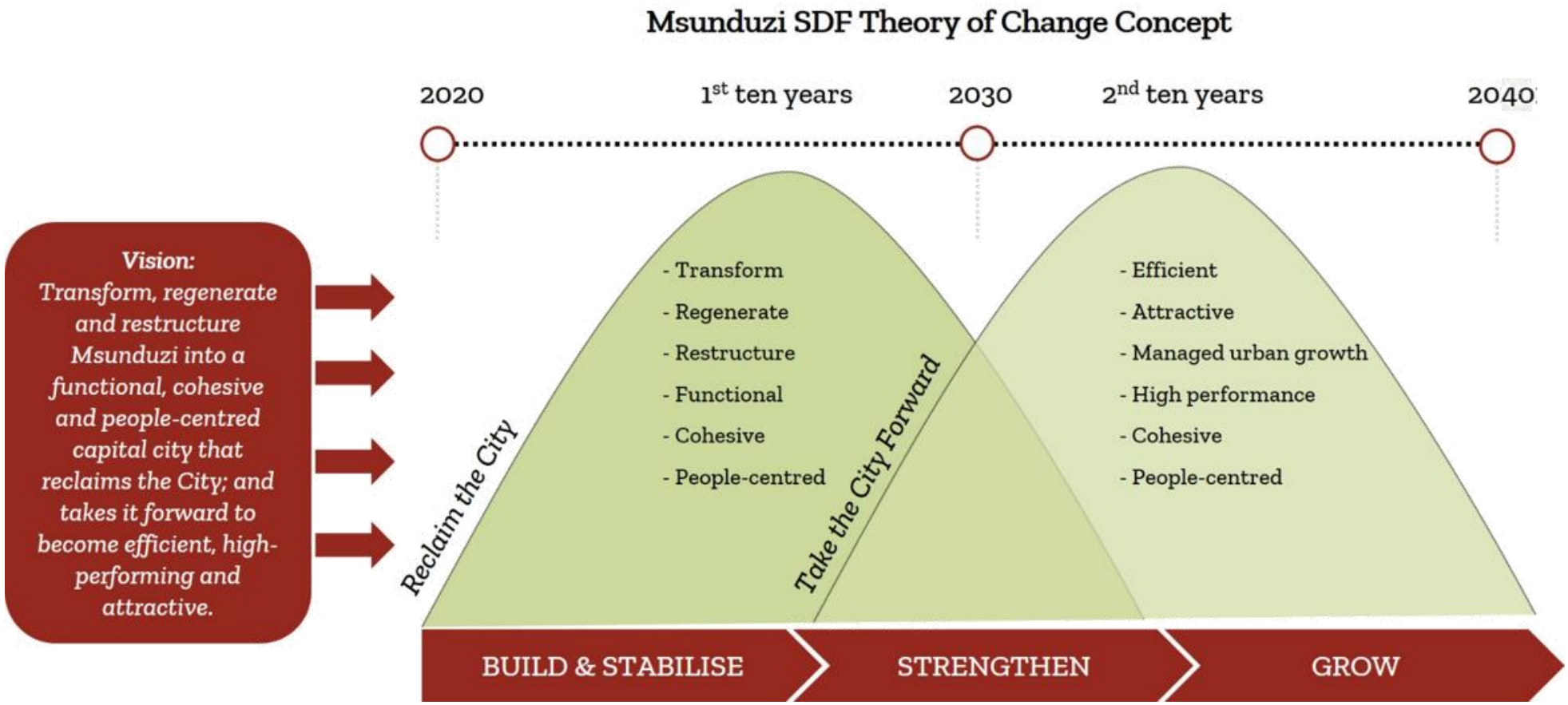


Figure 26: SDF Theory of Change

Table 15: Strategic drivers supporting the theory of change

Reclaim the City (build and strengthen)		Take the City forward (grow)	
Strategic drivers	**Action**	**Strategic drivers**	**Actions**
Transform	• Reinvent or reimagine the City, its function regionally, and the function of its nodes internally; • Uplift marginalised areas; • Effect economic growth transformation; • Reinforce Msunduzi as a dominant economic space; • Reinforce Msunduzi's capital city and government sector status; • Plan and implement with environmental sustainability and climate change in mind; • Improve the resilience of the Msunduzi Municipality and its residence.	Efficient	• Promote resource and energy efficient practices; • Encourage smart technologies and installation of ICT; • Advocate for greater financial sustainability; • Plan and implement with environmental sustainability and climate change in mind; • Consider revenue enhancement initiatives.
Regenerate	• Revitalise investor interest and confidence in the CBD; • Create more liveable environments for communities; • Create vibrant urban spaces • Encourage and support the reinvestment and maintenance of brownfields and infrastructure over greenfields; • Conserve and regenerate the municipality's cultural heritage; • Support recycling or upcycling.	Attractive	• Undertake public–private partnerships; • Improve inter-governmental relationships; • Attract CBD investment; • Secure new investment into the municipality.
Restructure	• Address spatial inequality and injustice; • Ensure a well-connected city; • Enhance regional or global connectivity; • Improve rural and urban integration; • Manage sprawl and informality; • Support growth through a compact poly-centric city model.	Managed urban growth	• Support resilient urban development; • Support densification or intensification.
Functional	• Strive towards a well-governed municipality; • Support environmentally sustainability; • Improve urban areas through quality place-making; • Consider (and improve) disaster & risk management.	High performance	• Advocate and support good governance; • Promote efficient urban management practices; • Support and enforce good administration; • Encourage transparency; • Enforce accountability; • Be uncompromising on financial viability.

Reclaim the City (build and strengthen)		Take the City forward (grow)	
Strategic drivers	**Action**	**Strategic drivers**	**Actions**
Cohesive	• Support development that enables better integrations; • Support development that is sustainable; • Support development that is resilient.	Cohesive	• Support development that enables better integrations; • Support development that is sustainable; • Support development that is resilient.
People-centred	• Create a city that is more equitable; • Improve access to jobs, social & basic services, economic opportunities; • Encourage development that is more inclusive; • Encourage participative planning; • Adopt Community Based Action Planning.	People-centred	• Create a city that is more equitable; • Improve access to jobs, social & basic services, economic opportunities; • Encourage development that is more Inclusive; • Encourage participative planning; • Adopt Community Based Action Planning

5.3 Concept Framework

The SDF concept is based on the clear need to restructure the city to transform the urban space from being a typical apartheid city to one that is more compact, spatially just and inclusive, and more productive, sustainable and resilient.

Poorer people should not continue to bear the brunt of the long daily commutes that are expensive relative to their incomes, having no choice but to use unsafe and unreliable transport - this is unjust. Richer people should not contribute to urban sprawl simply because they can use private transport to travel to where they need to work because this contributes to a larger carbon footprint that is ultimately unsustainable. Urban sprawl requires an ever-expanding development of new infrastructure which is increasingly inefficient. It would be more efficient to invest in additional economic infrastructure rather than basic services infrastructure to support low density housing since economic infrastructure would enable the city to be more productive and address high unemployment.

The vision for a restructured city is based on the SPLUMA principles outlined in Figure 13 and as expanded below.

Application of the principle of **Spatial Justice** in Msunduzi:

Past spatial and other development imbalances can be redressed through improved access to, and the use of, land by previously disadvantaged communities and individuals in the Greater Edendale and Vulindlela area, Raisethorpe and informal settlements. These areas should be the priority development area since it will provide focus for redress of the most vulnerable communities and thus make the city more inclusive.

Economic opportunities need to be provided in these priority development areas, not just commercial and retail but more productive economic opportunities such as manufacturing. Higher order economic nodes such as Scottsville, Alexandra Park and Liberty Mall in the vicinity of the CBD should be maintained, consolidated and expanded where possible with new economic nodes developed so that there are more job opportunities created to reduce unemployment. Mobility and access to these job opportunities in the economic nodes should be quick, affordable and reliable. This will make the city more productive.

Application of the principle of **Spatial Sustainability** in Msunduzi

Spatial planning and land use management systems must promote the principles of socio-economic and environmental sustainability.

Previously deprived areas such as Edendale, Vulindlela, Raisethorpe, and informal settlements need to be transformed from its dormitory character to providing a range of functions and services such as retail, commercial and essential government and health services thereby also providing local job opportunities as far as possible. There should be adequate basic services, health and educational facilities in Edendale and Vulindlela to improve quality of life and levels of education so that people living in this area are employable in the economic sectors in the city.

Biodiversity areas and other environmental sensitive areas near Ncwadi in Ward 39 and along the Msunduzi River (between Pietermaritzbug and Scottsville) and Mkhondeni Spruit (between Ashburton and Mkondeni).

Application of the principle of **Efficiency** in Msunduzi

Land development must optimise the use of existing resources and the accompanying infrastructure, while development application processes and timeframes must be efficient and streamlined to promote growth and employment.

Existing low densities in residential areas and the predominance of mono-functional land use indicates the inefficient use of infrastructure assets. Furthermore, it will render public transport financially unfeasible since most

commuters would only travel during the morning and evening peak hours with insufficient business between the peaks until Msunduzi can restructure and transform the city to having more mixed-use areas (areas identified for intensification of land uses) and increase residential densities to the extent that public transport is more financially viable.

Urban regeneration and redevelopment as well as new development will require improved, speedy turnaround times for the processing of development applications. Priority development areas such as the CBD, economic nodes, intensification zones, priority hubs such as Edendale, settlements identified for in-situ upgrading, etc. should be guaranteed the quickest turnaround timeframes for development applications, and the land use management scheme should enable mixed and intensified land use rather than requiring individual applications. The precondition of ensuring sufficient infrastructure capacity in the priority areas is key to guide and unlock development.

Application of the principle of **Spatial Resilience** in Msunduzi

Sustainable livelihoods must be ensured in communities such as Edendale, Vulindlela, Raisethorpe and informal settlements that are likely to suffer the impacts of economic and environmental shocks. This does not mean that the livelihoods of all other communities are not important, rather that priority focus is provided to the most vulnerable communities.

Hence high potential agricultural areas should not be used for ever-sprawling residential development, but be protected and maintained for increased agricultural productivity that provides employment and food security. Economic nodes require uninterrupted supply of basic services and urban management e.g. safety and security. The prudent use of environmental goods and services such as water should be a applied across the municipal jurisdiction. Risk identification and management is crucial to mitigate natural disasters.

Application of the principle of **Good Administration** in Msunduzi

All spheres of government must ensure an integrated approach to land development and all departments must provide their sector inputs and must comply when preparing or amending SDFs. The Msunduzi theory of change to Reclaim the City and Take the City Forward, that is increased institutional capability and capacity, is required to provide clear and unambiguous guidance to all spheres and entities of government as well as the private sector and communities. It is a precondition for restructuring and transformation of the city, without which all the other SPLUMA principles will be unlikely to materialise. Spatial restructuring and transformation requires sustained guidance and action in the longer term, relentlessly staying on course in the face of political and economic uncertainty.

The spatial Development Framework vison is a longer-term vison and strategy with an implementation framework and Capital Expenditure Framework that works had in glove with the city development strategy to inform the IDP. It provides the rationale and guidance to realise longer-term outcomes providing continuity against the reality of five-year political cycles.

5.3.1 Spatial Concept & Logic

The spatial concept and logic are predicated on the need to **restructure and transform** the Msunduzi municipality from the typical apartheid urban form to one that embraces the stated outcomes of our new democratic era.

The Msunduzi Municipality adopted a **spatial targeting approach** in 2014 that identified an **Integration Zone** as the priority development area in the city that linked the most deprived area of Edendale to the CBD Core, as well as Raisethorpe (also a deprived area but less deprived than Edendale). The logic underpinning this concept centres on improving connectivity of people, places and services to as many people as possible, densifying the Integration zone, and intensifying the mix of land uses in the integration zone to make it as

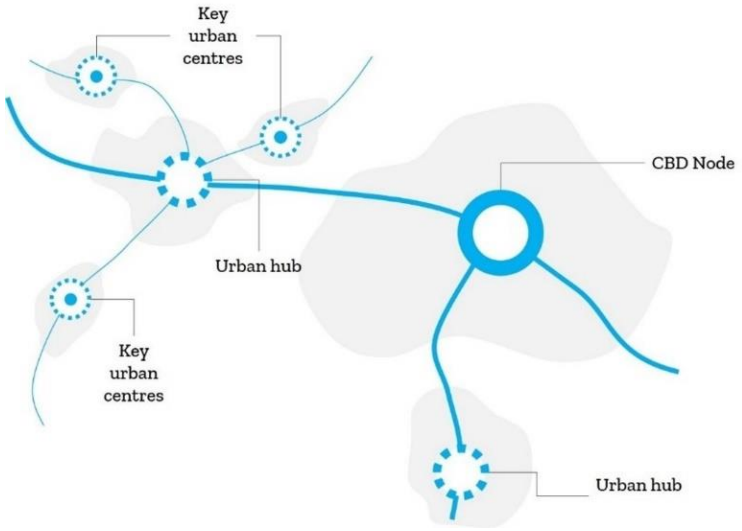
efficient as possible. If this Integration Zone is prioritised for development, it will benefit most people in the municipality. This does not mean that the rest of the areas in the municipality are ignored or not developed – rather that scarce resources first get allocated to the Integration Zone before being allocated to other areas, and that the Integration Zone becomes the primary focus of all stakeholders from the private and public sectors. The higher order nodes and corridors of the city would ideally be found in the Integration Zone.

The areas falling outside the Integration Zone would be developed as a second priority to the Integration Zone, but development will nonetheless occur. It may not be as resource (financial and human) intensive as the Integration Zone and rely much more on statutory planning processes and regulations and/or private sector and community initiatives. It relates more to **growth management** rather than restructuring. It will be the focus on intensifying land uses and increasing the mix of land uses, as well as densification but to a lesser extent than in the Integration Zone. It is still part of the functional area of the city and will fall into one of four **Area Based Management Areas**.

The two-pronged focus on restructuring and growth management as outlined above will support the emerging polycentric urban form. However, care will be needed to ensure that the result over the longer term is a **compact polycentric city** rather than contributing to a more sprawling urban form.

A compact polycentric model aims to increase density and promote diversity, economic opportunities and accessibility thereby reducing travel distances and associated costs. Msunduzi Municipality is a prime example of an urban environment where the compact core (Pietermaritzburg) and its surrounding areas of economic potential (i.e. Edendale and Northern Areas) are connected via a strong public transport network. These areas should furthermore be strengthened and supported by high density residential areas and lower densities should be located further from the economic centres. Figure 23 provides and illustration of the compact polycentric model and the relationships and connectivity between the hierarchy of nodes.

Figure 27: Hierarchy and connectivity of nodes



6 Spatial structuring elements

The following section will expand on the spatial structuring elements identified to give effect to the strategic drivers which are geared toward improving Msunduzi Municipality's performance, efficiency, attractiveness and management of urban growth.

6.1 Nodes

A node is an area in which economic activities are concentrated to service the surrounding population. Urban development should, as far as possible, be clustered in and around nodes. Ideal locations for nodes are along major mobility routes, at modal interchanges and where similar activities are clustered

together to provide maximum accessibility. Nodes should create areas of agglomeration advantages that are able to attract business and economic developments. Well-functioning urban nodes are vibrant areas that comprise shopping, work, social and cultural opportunities and public transport facilities in high-quality, safe public environments. Furthermore, nodes should encourage mixed-use development and high-intensity activities. Nodes are characterised or ordered based on their function and prominence and the level of activity and investment in them. This interaction and connectivity between nodes are illustrated in Figure 24.

It is imperative that the nodal designations proposed by the Msunduzi SDF be aligned with the strategic direction of the Provincial SDF (PSDF), the District SDF and other documents like the Urban Network Strategy.

The PSDF classifies Pietermaritzburg as a Level 2 node, whilst the District SDF lists it as a city node. The following hierarchy of nodes can be found in or are proposed for the Msunduzi Municipality.

Table 16: Nodal Typology

CBD node	**Function / Role**	This node is the economic hub and the prime location for higher order office, commercial uses at high intensity town centres and where a variety of goods, services and speciality products are offered. It should be an environment that contains industry and stimulate innovation for local business development. High density and high-rise residential development with densities between 100 - 180[2]du/ha should be promoted, and it should be the host for the predominant health, education and other community facilities. Public transport should be a focus within this node and offer facilities and amenities within walking distance to the public.		
	Town / Settlement	Pietermaritzburg		
Urban hub	**Function / Role**	Is a precinct within a previously historically disadvantaged area that is at the point of maximum connectivity, clustered around a transport hub (intermodal interchange). These are envisaged to serve as town centres to the townships in which they are located. These nodes are characterised by high density residential development with densities between 80 – 100du/ha. These nodes furthermore comprise of vibrant centres fostering commercial investment, shared spaces, safe and active non-motorised transportation networks and hosts a variety of community facilities.		
	Town / Settlement	Edendale; Northdale; and Taylor's Halt/Eshowe		
Key urban centres	**Function / Role**	A strong linkage should exist between the key urban centres and the urban hub and the CBD node. This node should offer strong economic base for industry and serve the neighbouring suburbs as well. It should contain a high-level of community facilities which are accessible by public transport facilities. High density residential development with a density target between 60-80du/ha should be promoted.		
	Town / Settlement	Liberty Mall/Chatterton Rd Athlone Circle Ibhubesi/Lynnfield Park	Scottsville Hayfields Cascades	Umlaas Rd Hillcove/Market Rd

2

Urban centres	**Function / Role**	Urban centres provide services at a more local level and business opportunities for entrepreneurs should be encouraged. Strong public transport linkages should connect the urban centres to the key urban centres. Residential densities between 60 – 80du/ha should be encouraged.		
	Town / Settlement	Quarry/Copesville	Dumbuza	Brewery
		Ezinketheni	George Town	Willow
		Northway mall	Quarry node	Sweet Waters
		Southgate mall	Thwala Rd	KwaMncane/KwaZinqamu
		Ambleton/France	Sinathingi	Ncwadi
		Archie Gumede	Unit H	Ethembeni
		Mayors Walk	Machibisa	Ashburton
		FJ Sithole	Caluza	
Emerging centre	**Function / Role**	The emerging centres are characterised by emerging development with a peri-urban or rural character and as such provide basic services and community facilities to the local community. Higher density (40-80du/ha) development trends are emerging within these centres. Facilities should be within walking distance.		
	Town / Settlement	R56/Thornville		
		Gezubuso		
		KwaDlozi		
		KwaMpande		
		KaNzakane		
Specialised Precincts	**Function / Role**	The Specialised Precincts are characterised by one or more specialised uses which are considered a significant development important to distinguish the functioning of the Municipality.		
	Town / Settlement	Government precinct		
		Airport precinct		
		Educational precinct		

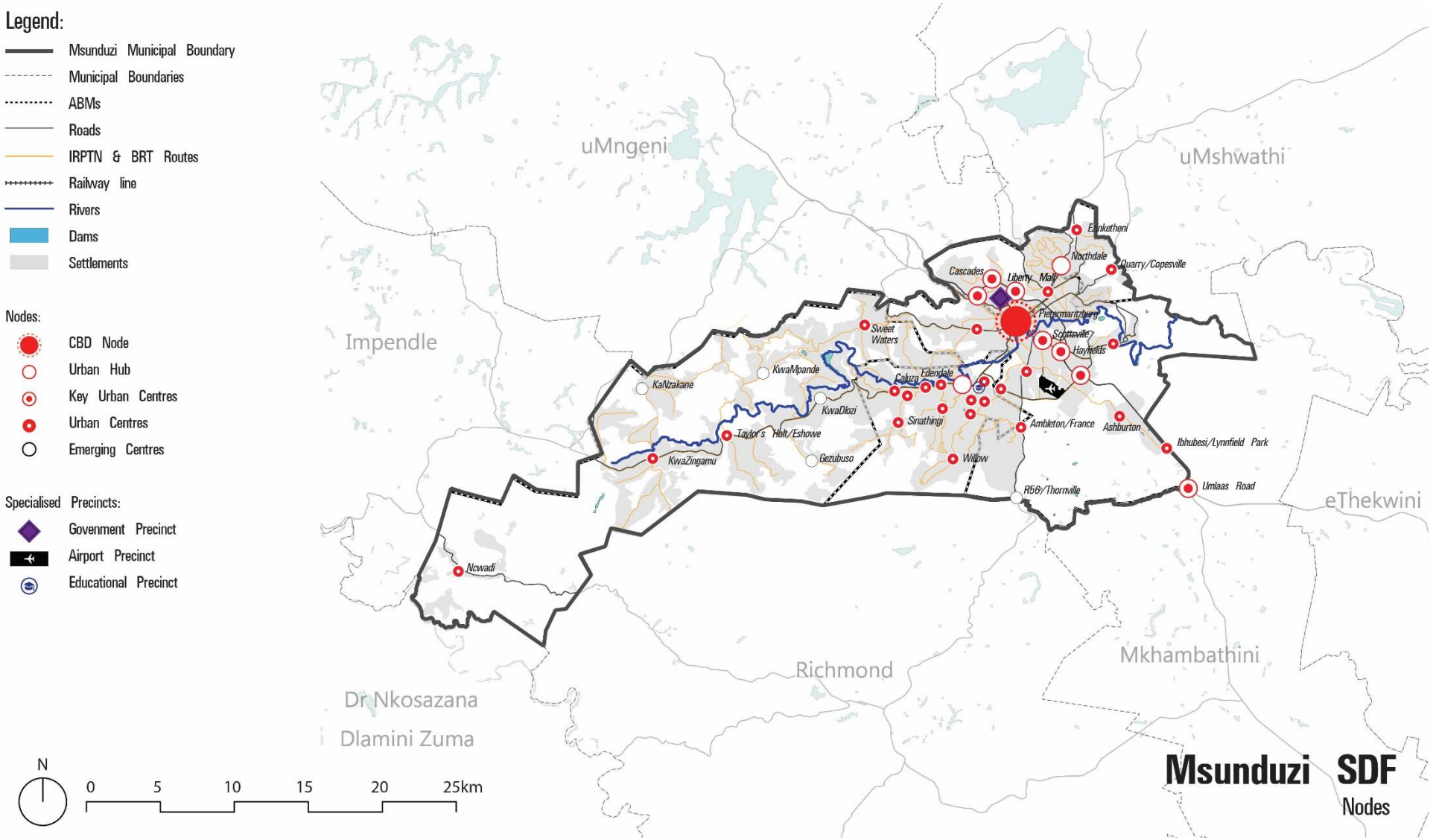


Figure 28: Nodes

6.2 Corridors

Higher-order nodes are generally connected via corridors. Corridors facilitate the ease of movement of people, goods, and services between nodes. Main corridors should act as a conduit for public transport (IRPTN), with public transport facilities along the corridor to connect the various urban areas. Higher-order corridors often cross municipal boundaries and therefore require joint planning to enable the effective allocation of budget and expenditure to create a positive development impact and cohesive urban environment. Furthermore, corridors are characterised or ordered based on their function within the urban environment.

Just like nodes, corridors should be aligned with the strategic direction of the PSDF and the District SDF. The PSDF identified the following corridors:

- The N3 is classified as a primary corridor with national importance.
- The R33 and the R56 between New Hanover and Richmond are classified as regional corridors.
- The R617, the road connecting Pietermaritzburg and Impendle is classified as a regional corridor.

The District SDF identifies the N3 Corridor, a Tourism Corridor and an Alternative Development Corridor within Msunduzi Municipality.

In considering the PSDF, the District SDF, the surrounding municipality's SDF proposals and the findings from the Status Quo, five corridors have been identified within Msunduzi Municipality.

Table 17: Corridor typology

Corridor typology	Function / Role	Identified Corridor
Primary Corridor	The main function of the primary corridor is to serve as a major movement system for the transportation of goods and services at a national level.	N3
Regional Corridor	Regional corridors connect Msunduzi Municipality on a regional level with the surrounding municipalities. These routes promote development into areas that exhibit strong growth potential and offer attractive conditions for public–private partnerships.	Edendale Road (M70), Richmond Road (R56) and New Greytown Road (R33).
Emerging Corridor	Currently lower order roads connecting nodes. The movement along these corridors will increase as the node gains momentum. These corridors are characterised by (or starting to experience the emergence of) mixed uses, commercial activity and higher density residential development.	Caluza road and Sweetwaters Main road connecting Caluza, Sweetwaters, KwaMpande and Taylors Halt. Willowfountain road connecting Edendale, Thwala Road, Quarry Node and Willow.
Environmental Corridor	Vast tracts of environmentally sensitive areas are located near Ncwadi. For this reason, an environmental corridor has been identified along which these environmental sensitivities should be protected through targeted interventions.	P121; and P8-2.
Alternative Development Corridor	Unregulated development along Msunduzi's central northern boundary has become seamless with development in the surrounding municipalities. The movement of people, goods and services along this corridor has it to be identified as an area for priority investment in order to formalise and further catalyse economic growth and development.	P334, Edendale Road M70, R617, D174, D16 and D156.
Tourism Corridor	A tourism corridor connects the culturally significant places in Pietermaritzburg with those in uMngeni. This corridor, one of the routes making up of the Midlands Meander, connects regional tourist attractions such as trails, scenic routes, and historical sites.	Old Howick Road R103, Dennis Shepstone Drive M80, District Drive P367 and Zeederberg Road R617

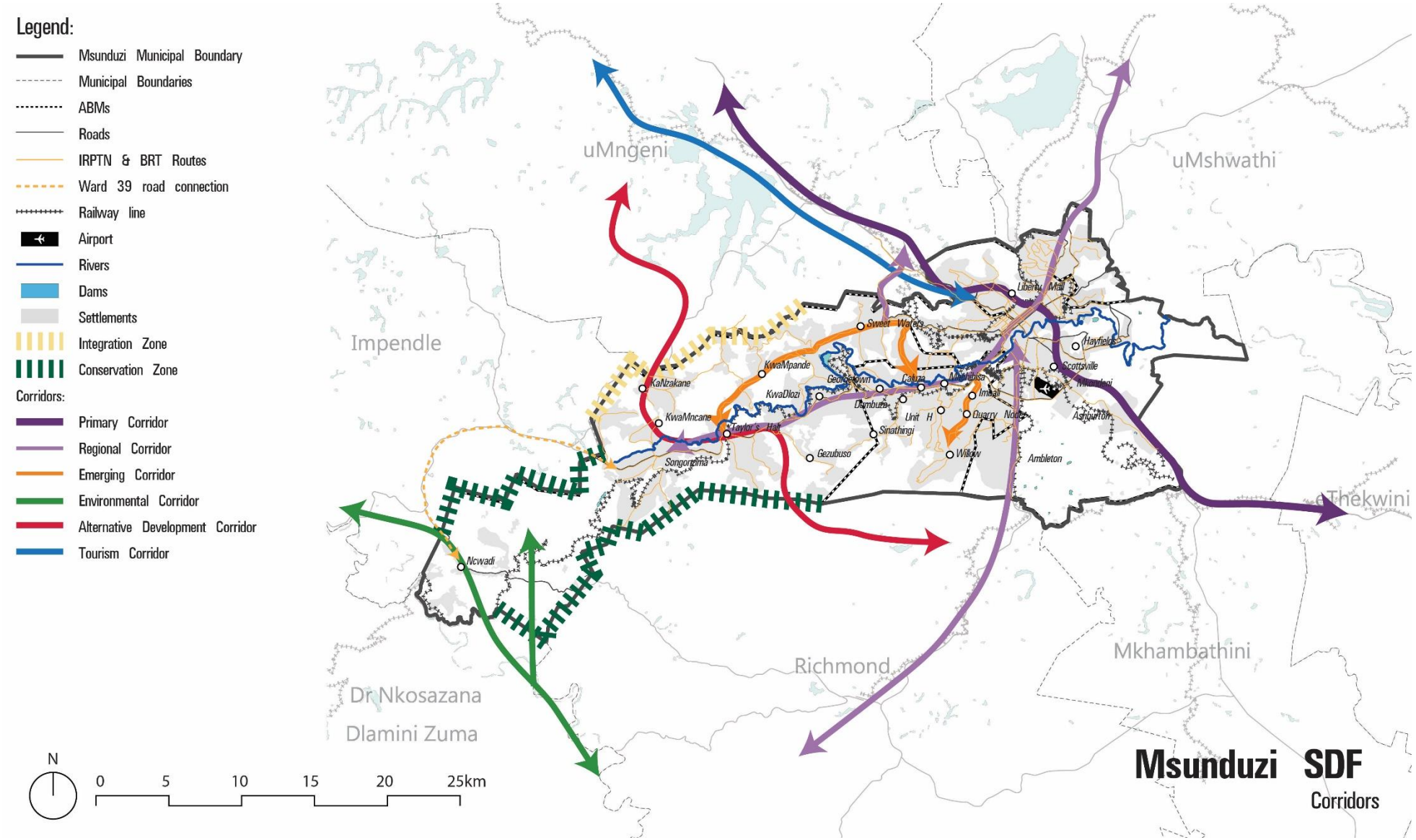


Figure 29: Corridors

6.3 Surfaces

Surfaces refer to the natural open spaces and include mountains and ridges, rivers and dams, environmentally sensitive areas, and nature reserves. These surfaces play a critical role in the ecological functioning of the municipality's biodiversity and should therefore be protected against intrusive, irresponsible, and ad hoc development. These surfaces furthermore play a critical role in the local economy (important to industry, food security, water provision for human consumption, etc.). An ecological corridor is located along the Msunduze river and should be preserved for optimal functioning of the biodiversity and ecology.

The conversion of the natural open spaces for residential and economic activities should be limited and strategies like high density development should rather be promoted in order to protect the ecological functioning of the natural open spaces. Furthermore, alternative development technologies should be adapted to build resilient and socio-ecological settlements that are able to adapt to environmental and climate change. The Broad Provincial Spatial Planning Categories (BPSPCs) provides a guideline in terms of what type of development can occur within the SPCs.

Table 18:Broad Provincial Spatial Planning Categories and land use guideline

Spatial Planning Category	Broad Intended Land Use and Interventions
Conservation Corridors	Proposed regional critical conservation areas which are linked in a continuous system of ecosystems and bioregions traversing the province between the Drakensberg and the Indian Ocean. These areas were identified combining existing environmentally protected areas as well as conservation corridors proposed by Ezemvelo KZN Wildlife, through combining extensive environmental research into bio-resources throughout the province as part of the formulation of a Critical Biodiversity Plan for the province. These Conservation Corridors are not suggested as absolute "no-go" areas, but rather highlighted as areas of environmental significance to the sustainable development of the entire province. Where economic opportunity (such as tourism development) and high social need exist within these Conservation Corridors, it implies both that the rich natural environment should contribute to the address such needs and potential, and further that any interventions in these areas need to consider the impact on such important regional ecological corridors. These corridors are however perceived as areas where extensive densification would be discouraged, and sensitive development promoted.
Biodiversity Priority Areas	Areas with a significantly high biodiversity value expressed in the number of species and sensitive environments as identified through extensive research by Ezemvelo KZN Wildlife. These areas are most often located in close proximity to the identified Conservation Corridors and may serve as an additional buffer to these corridors. These areas too are not (at a provincial level) proposed as absolute "no-go" areas but are identified to indicate areas where extensive densification would be discouraged, and sensitive development promoted.
Areas of Economic Value Adding	The key economic centres and areas where all of the variety of economic sectors (Agriculture, Tourism, Manufacturing, Services) are prevalent and perceived to have good potential to be further expanded on. These areas are visibly linked to high accessibility areas with existing bulk infrastructure and relatively high population densities which would both contribute to the economic expansion and benefit from interventions in these areas. Due to these factors, further economic processing and value adding at a provincial level, are mainly proposed within these identified areas.
Areas of Economic Support	A number of regions resembled areas of good economic potential in more than just one of the key provincial economic sectors. Due to the fact that these areas represent a larger distribution across the entire province

	than the core areas of economic value adding, these zones are considered important areas of Economic Support. Typical interventions in these areas would include economic prioritisation of development, labour force interventions (e.g. skills development), key economic infrastructure investment and area promotion.
Areas of Agricultural Development	Relatively high agricultural production areas, which are not located within biodiversity areas of combined with other potential economic sectors are highlighted by this category to identify and promote areas with the potential to make a significant contribution through agricultural production. Although successful farming practices are already occurring on some of these areas, it is proposed that underutilised agricultural land within these zones are more effectively utilised for sustainable agricultural production. Associated interventions may include agriculture specific infrastructure, skills development, market access interventions etc.
Areas of High Social Need	The highest ranges of combined social need when considering the population density, dependency ratio as the provincial index of multiple deprivation is illustrated by this category of high social need. These areas broadly the areas where the most intensive social interventions area required, and this category is further overlayed above all other categories to provide a spatial reference to the types of interventions which might be pursued towards addressing the concentrated social need within these areas. As example where high social need is identified within an area earmarked as a conservation corridor, this firstly provides a reference to the fact that social conditions of communities will need to be addressed if any conservation is to be promoted within such areas. Further it suggests that the effective utilisation of the high biodiversity within such areas might be harnessed towards addressing social need through example conservation tourism.
Mandated Service Delivery Areas	The areas which are not representative of any of the above-mentioned categories are classified as undifferentiated areas. It is acknowledged that these areas also have communities residing on them with economic potential and environmental resources, however, based on the approach followed these areas weren't differentiated to the same degree as the identified preceding categories. It is therefore important that this category is not neglected from public and private interventions and as the various departmental programmes are inclusive in nature, these areas should also benefit from it. It is anticipated that the intensity of such programmes and the total portion of resource allocation to these areas would be less than the identified categories as well as the key intervention areas identified previously.

Source: Provincial Spatial Development Framework, August 2011

The Msunduzi Final Draft Environmental Management Framework dated May 2010 identified environmental management zones and provides guidelines for land management as summarised below.

Table 19: Environmental Management Zone and land use guideline

Environmental Management Zone	Guideline for land use
Wetland Conservation and Buffer Zones	Wetland are deemed to be no-go areas in terms of development. Specialist investigations including wetland delineation and functionality assessments must be undertaken to inform any proposed development application process on or within a reasonable distance of any wetland area. A 20-meter wetland buffer is delineated and proposed development within this buffer should be accompanied by specialist studies.
Biodiversity Conservation Zones	Any development within protected areas is subject to an EIA. High biodiversity constraint areas have a very high development constraint and care should be taken to ensure that large scale transformation does not occur and that the ecological functioning of these sites is not lost. Any development proposed within this zone must be subject to a pre-feasibility assessment. Biodiversity resources on-site should be identified within biodiversity development constraint areas before development occurs to determine the impact of the proposed development.
Flood Risk Zone	A detailed flood line assessment and hydrological and ecological assessment should be conducted where development is proposed within a flood zone and precautions should be made to protect the infrastructure and people of the proposed development. Care must be taken to ensure that the functioning of the flood zone areas is not compromised. A flood risk assessment should be conducted for proposed developments within close proximity to a drainage line or small stream. No development which would alter the flow of water into a catchment system should be allowed.
Agricultural Zone	Areas with **high agricultural potential** should be reserved for agricultural production and food security as such these areas should not be sub-divided and care should be taken so that it does not loose viability for sustainable agricultural production. These areas should, therefore, not be developed for purposes other than agriculture. Extensive agriculture such as grazing or subsistence gardening may occur within areas with **low agricultural potential**.
Slopes	No development should occur on **extremely steep slopes** (greater than 26.6 degrees) and land use should focus on open space and aesthetic appeal. Development within **steep slopes** (18.43 to 26.6 degrees) should only occur if it is deemed safe and is necessary. Agricultural practices should be avoided and any development that will increase potential erosion and run-off impacts. Therefore, only up-market development that can demonstrate how these aspects will be mitigated should be allowed. Some development may occur on **moderate slopes** (10 to 18.43 degrees) once geotechnical studies have been conducted. Cultivation should be avoided and where large areas are cleared the measures for rehabilitations should be provided.

	Development is not constrained on **gentle slopes** (o to 10 degrees), however, a geotechnical study should be conducted to ensure the land can accommodate the proposed development.
Water Quality	Development (future and present) within **high water quality constrained catchments** should demonstrate how they intend to improve water quality within the catchment. Activities in these catchments are severely constrained and only activities that would result in positive impacts to water quality should be undertaken. Development within **medium water quality constrained catchments** should not add to cumulative water quality impacts. Development within **low water quality constrained catchments** should maintain the current state of the catchment. This catchment provides opportunities for development such as water-based recreation and tourism.
Air Quality	A Tier 3 Air Quality Assessment should be undertaken in **high air quality constrained areas** before any development may occur. Developments that will result in unacceptable air pollutant emissions should not be allowed. Social facilities such as schools and hospitals, sensitive to poor air quality are also not recommended for this area. A Tier 2 Air Quality Assessment should be undertaken in **medium air quality constrained areas** before any development may occur. Developments or social facilities that may be very sensitive to poor air quality should not be placed in the **medium air quality constrained areas**. Development sensitive to air quality such as schools and hospitals should be encouraged in the **low air quality constrained areas**. A Tier 1 Air Quality Assessment should be undertaken for proposed developments.
Cultural Heritage Zones	Developments taking place within a **cultural heritage zone**, must take care not to detract from or negatively impact on the cultural heritage of the zone and Amafa aKwaZulu-Natali should be consulted. The existence of archaeological sites does not preclude development of an area but any earth moving activities will need to be managed to ensure that cultural artefacts are not lost. Cultural heritage assessments must be undertaken in accordance with the requirements of the KZN Heritage Resources Act. Amafa aKwaZulu-Natali should be consulted prior to any transformation of buildings older than 60 years.
Service Delivery Zones	New developments in the **low service delivery zone** must ensure that bulk service requirements are met prior to development occurs. High density development should not be supported until sustainable basic services can be provided. New developments within the **medium service delivery zone** must ensure that bulk service requirements are met prior to development occurs and upgrading of existing services should occur where required. High density development should not be supported until sustainable basic services can be provided. Services within the **high service delivery zone** may require upgrading of existing services. Services within the **very high service delivery zone** may require upgrading of existing services. Land use is therefore not limited by the existence of basic services but rather by their capacity.

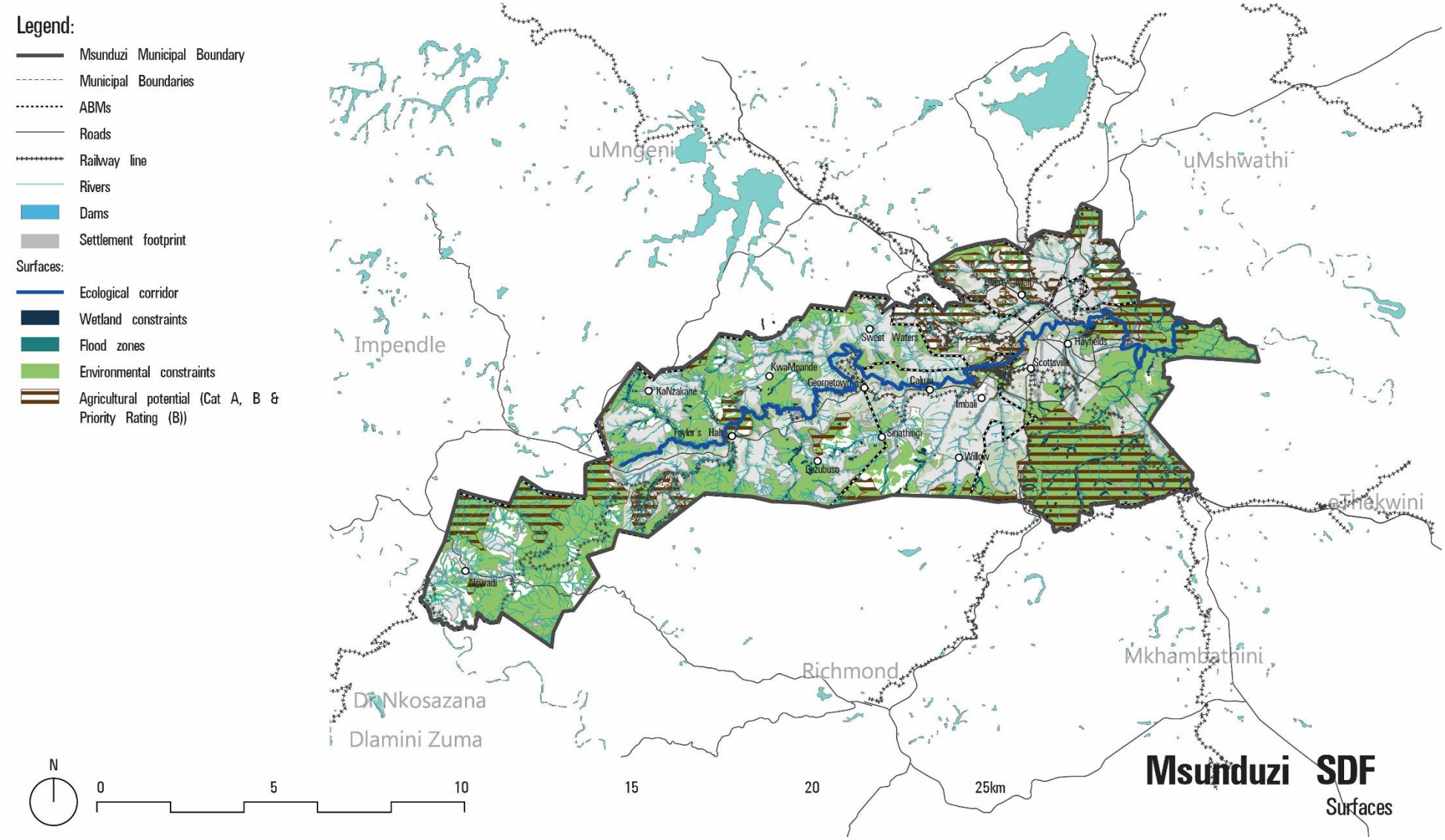


Figure 30: Surfaces

6.4 Tourism and 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, biospheres, 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.

Msunduzi Municipality is rich in tourism and cultural heritage and is described as a 'tourism staging post, positioned to take advantage of the growing trend of event-driven tourist' (Local Economic Development Strategic Plan, 2014, p. 14). From a tourism perspective, Pietermaritzburg has re-branded as an events city focusing on sporting, agricultural and artistic events. A tourism strategy has been developed for the Msunduzi Municipality and the approach has a wider focus than improving the available tourism products and services by addressing the efficient functioning of the tourism industry as a whole.

The tourism and cultural heritages places form an important part of the spatial environment and development proposals can, if not managed, have a negative impact on the sense of place. The tourism and cultural heritage places can be enhanced when it is quality places, easily accessible and forms part of a larger network of places. Additionally, the tourism sector plays an important role in job creation and aids economic growth. Msunduzi's natural and cultural strengths include:

- Historical tourism – Msunduzi has more than 50 national monuments;
- Cultural and heritage tourism - township tourism, especially in relation to the struggle for liberation and the historic input made by the Indian community and pioneering Boers and colonial British (Tourism Sector Strategy, 2013, p. 28);
- Event based tourism – includes activities like the Comrades Marathon, Duzi Canoe Marathon, the Mountain Bike World Cup, etc.;
- Government related tourism – Msunduzi is the seat of Provincial Government;
- Scenic tourism – Msunduzi has beautiful botanical gardens and is the gateway to the Midlands and the Drakensberg routes. It also has a variety of fauna and flora. The Snathing Forest and the New Politique plantation south of Edendale is an ideal opportunity to boost eco-tourism within the municipality.

In order to protect the sense of place of these tourism and cultural heritage within Msunduzi Municipality it is proposed that new developments should consider heritage resources as part of the environmental impact assessment process, buildings and objects older than 60-years old should be protected, conserved and maintained. It is further suggested that linkages between tourism destinations should be created to strengthen the tourism attraction within the Municipality.

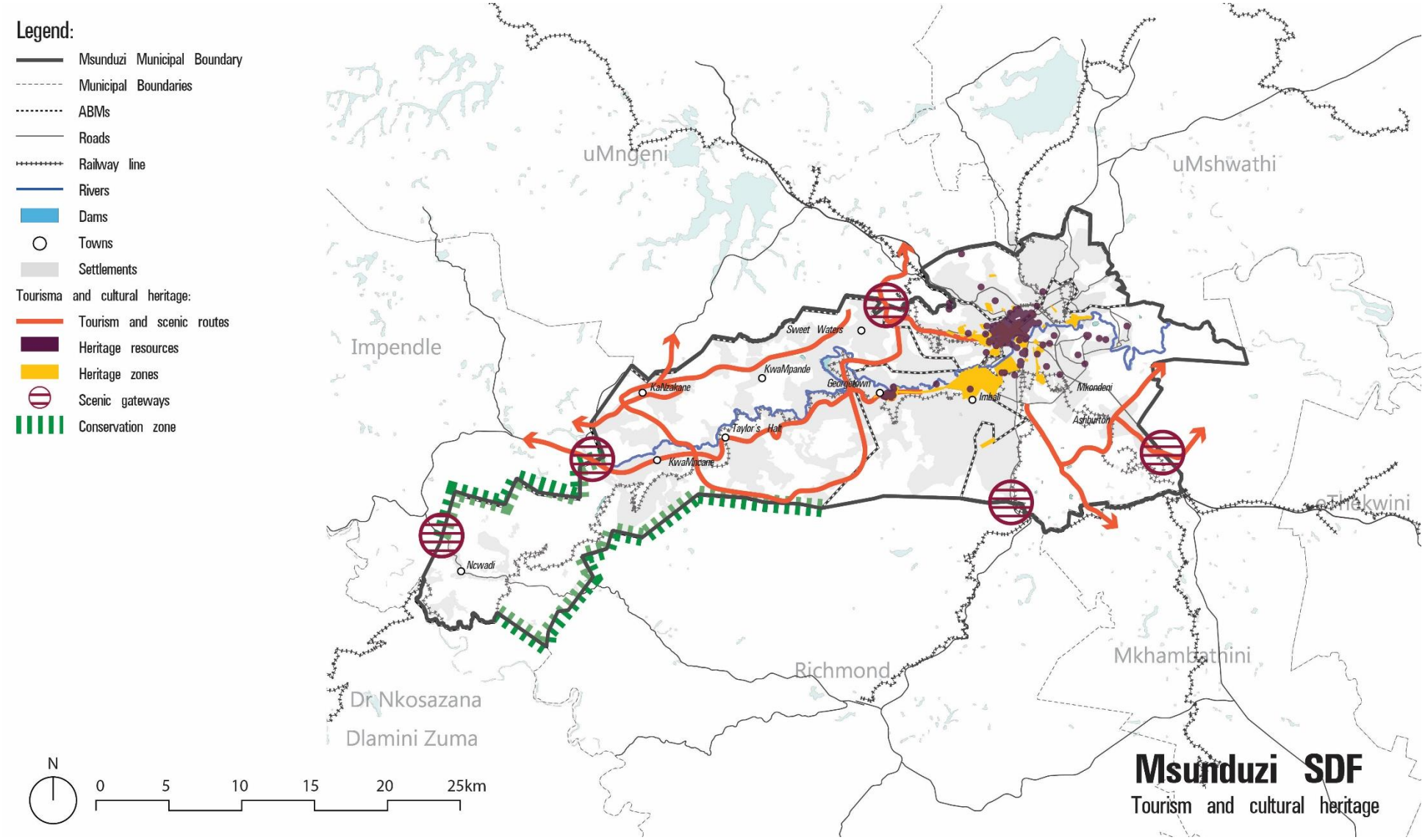


Figure 31: Tourism and cultural heritage

6.5 Concept framework

The SDF concept framework is a visual representation of the SDF's vision. The concept framework aims to reinforce the vision of transforming, regenerating and restructuring of Msunduzi to create a Municipality that is efficient and attractive. Furthermore, the concept framework is underpinned by the strategic drivers that will reclaim the city.

Spatial structuring elements will ultimately give effect to the strategic drivers. If these structuring elements provides structure and order to Msunduzi Municipal spatial realm: hierarchy of settlements and nodes which direct investment, corridors which aid in the movement of people and goods, identification of natural environments which should be protected, etc. Each of the spatial structuring elements will be discussed in more detail in the following section.

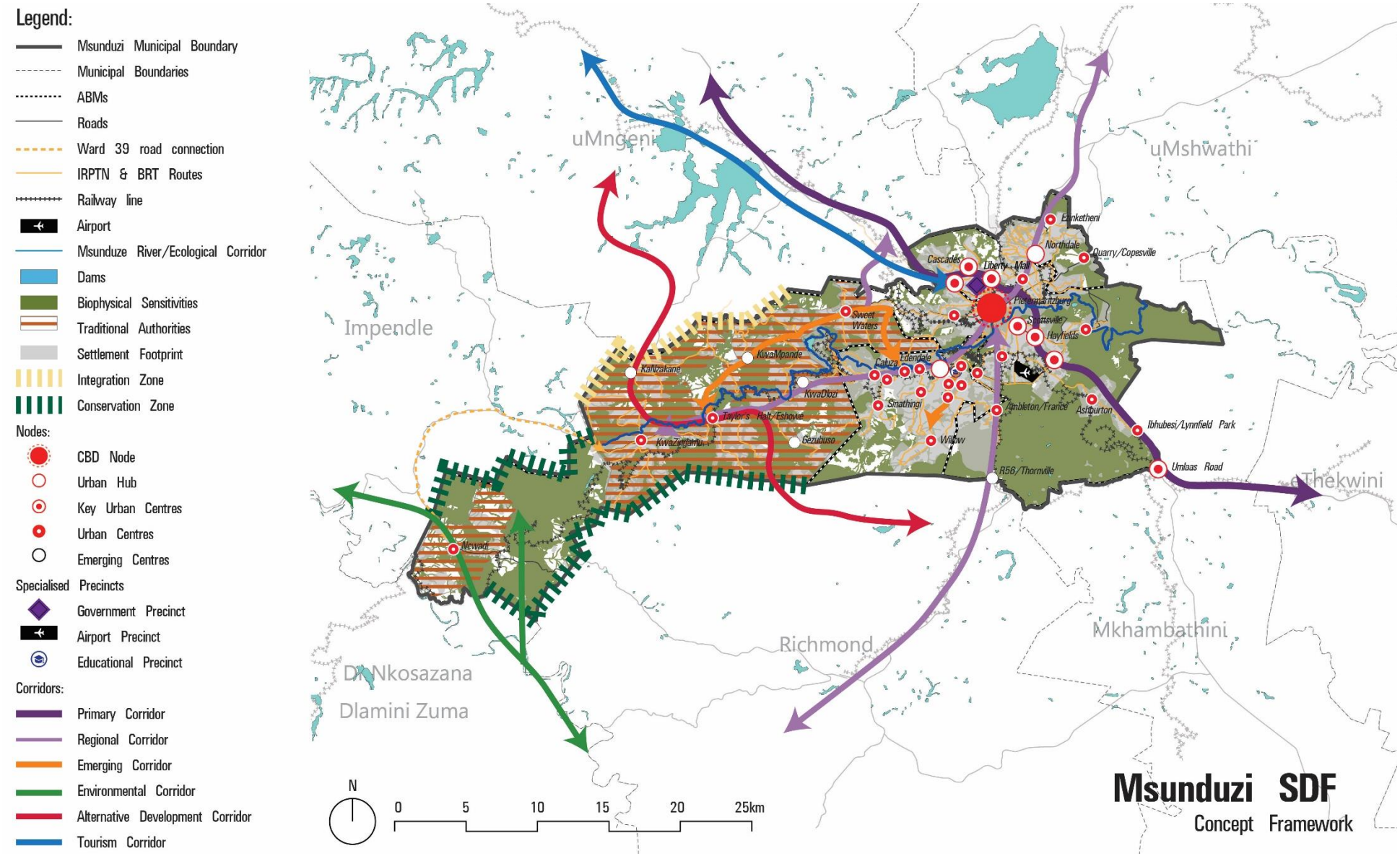


Figure 32: Concept Framework

6.6 Land use budget analysis

A land use budget analysis is performed to project the anticipated land required for residential, social facilities, commercial, retail and agricultural facilities. This land demand is extrapolated from the population and household growth and provides an indication of additional land required by 2050. This land requirement will be allocated based on strategic locations and where there is the highest need for the various facilities.

6.6.1 Residential

The following section provides an overview of the housing demand up to 2050.

6.6.1.1 Demand for housing units

The housing demand or demand for housing units must be determined as a requirement of SPLUMA. The housing demand is determined considering the existing housing backlog (total number of inadequate dwellings) together with the estimated growth in household numbers. Inadequate dwellings include the following as per StatsSA categories included in Census 2011 and Community Survey 2016:

- Traditional dwelling/hut/structure made of traditional materials
- Informal dwelling/shack in back yard
- Informal dwelling/shack not in back yard, e.g., in an informal/squatter settlement or on farm
- Caravan or tent

The housing demand will further take the supply of public and private developments into consideration, where information is available.

The total housing backlog (total number of inadequate dwellings as per StatsSA Community Survey 2016 and as included in the Msunduzi HSP 2020) is an estimated 35,094. The Municipality's housing backlog decreased by 6,083 dwellings from 41,176 in 2011 (Census 2011). Table 20 indicates the dwelling types (adequate and inadequate) per income group for the Municipality for 2011. The income group of households is an indicator whether a household may potentially qualify for housing subsidy. From the table it is evident that the majority (82.6%) of households that reside in inadequate dwellings falls within the low-income bracket earning below R3,200 and can potentially qualify for subsidy based on their income. Not all households residing in inadequate dwellings are low-income earners, with 16.3% falling in the middle-income and 1.1% in the high-income bracket. A large portion of middle-income households in rural areas could potentially fall within the gap market (households earning between R3,200 and R22,000 per month) and may access the Finance Linked Individual Subsidy Program (FLISP) and social housing opportunities in urban areas. The gap market households on rural land (farms) and on communal owned land may not have access to FLISP and social housing options.

In terms of the distribution of the inadequate dwellings per ABM (refer to Table 20), Census 2011 data indicates that the largest portion, almost half, of inadequate dwellings, of the housing backlog, is located within the Vulindlela ABM (43.2%). It should however be noted that almost all (97.8%) the inadequate dwellings within the ABM comprise traditional dwelling/hut/structure made of traditional materials (refer to Figure 34).

Table 20: Dwelling types per income group, 2011

Dwelling Type	Adequate		Inadequate		Other/Unspecified/NA	
Income Bracket	**Households**	**Percentage of Total**	**Households**	**Percentage of Total**	**Households**	**Percentage of Total**
Low Income	63,314	52.3%	34,005.95	82.6%	5,622	77.0%
Middle Income	44,802	37.0%	6,697.30	16.3%	1,442	19.7%
High Income	13,008	10.7%	472.84	1.1%	240	3.3%
Total	121,124	100%	41,176	100%	7,304	100%

Source: Census 2011, StatSA

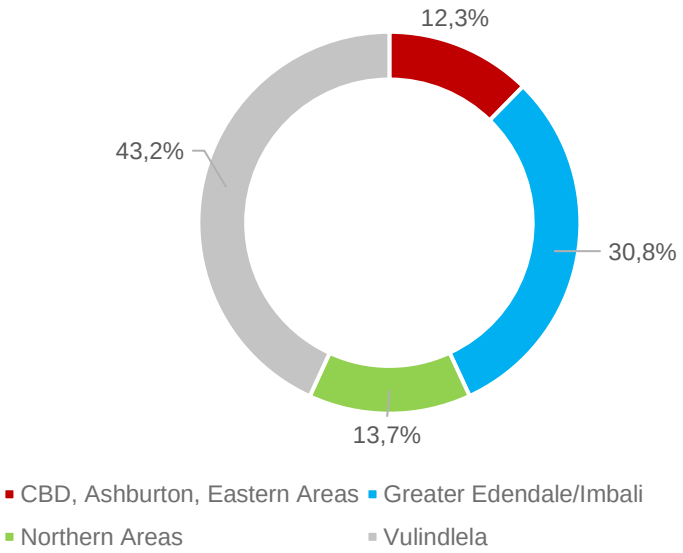


Figure 33: Distribution of inadequate dwellings per ABM as a percentage of the Municipal total, 2011

Source: Census 2011, StatSA

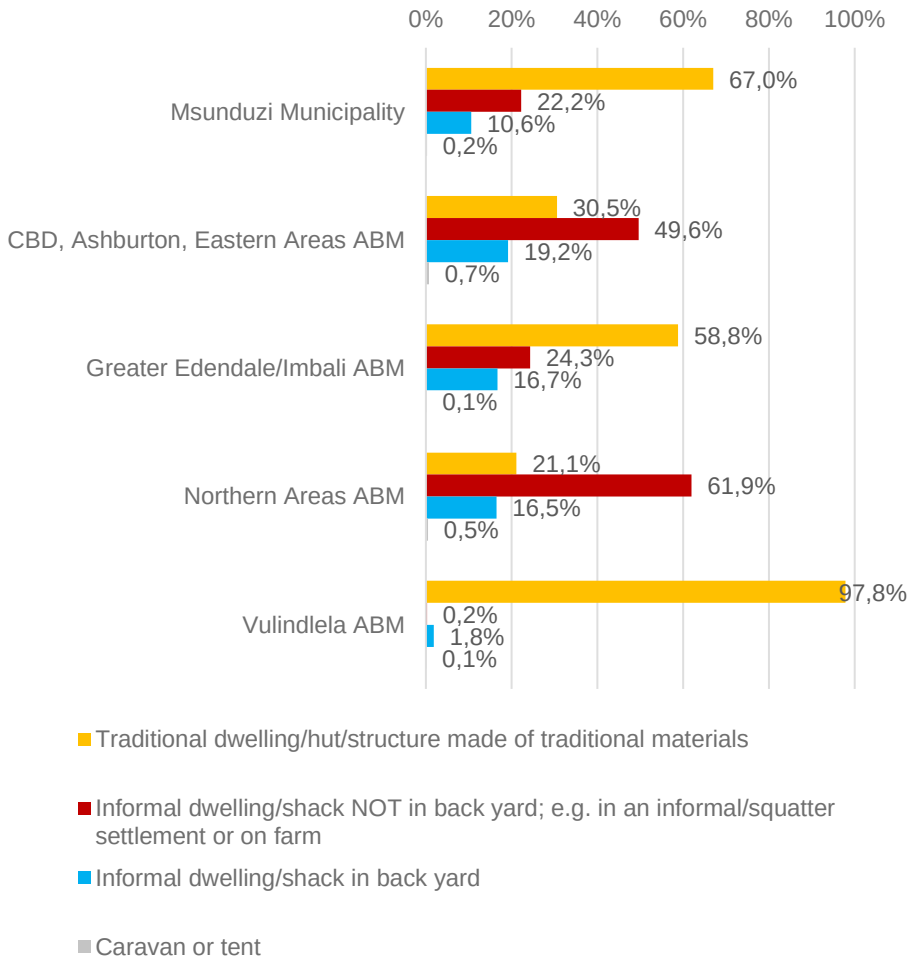


Figure 34: Municipal and ABM distribution of inadequate dwelling types, 2011

Source: Census 2011, StatSA

The estimated land requirements to address the housing backlog is 1,053ha across the entire municipality, shown in Table 21. The average density applied to calculate the estimate size of land required to alleviate the housing backlog is proposed as 300m^2 per dwelling unit (an average gross density of 33 dwelling units per hectare). The following weaknesses regarding the land requirements to address the housing backlog should be noted:

- The housing backlog figure is based on StatsSA Community Survey 2016 data and housing units have been constructed since then. These units should be deducted from the land requirements.
- The land budget relates to the land required for the backlog or inadequate dwellings. Currently the land budget reflects the land required if all inadequate dwellings, or the total backlog, required land. There may be inadequate dwellings located on land already procured for land development, therefore no additional land will be required to upgrade these households. Land will only be required if inadequate dwellings are to be relocated or the land that they occupy needs to be assembled.

Table 21: Municipal and ABM housing backlog estimated land requirements

	Total Inadequate Dwellings 2016/Housing Backlog 2021	Land Requirements for Housing Backlog (ha) – (average 33du/ha)
Msunduzi Municipality	**35,094**	**1,053**
CBD, Ashburton, Eastern Areas ABM	4,330	130
Greater Edendale/Imbali ABM	10,795	324
Northern Areas ABM	4,825	145
Vulindlela ABM	15,143	454

Table 22 indicates the land requirements for household growth per income bracket over the various planning terms. The land requirements for household growth per income bracket were calculated as follow:

- **Low income: Households earning between R0 and R3,200:** 300m^2 per dwelling unit (an average gross density of 33 dwelling units per hectare)
- **Middle income: Households earning between R3,201 and R25,600:** 450m^2 per dwelling unit (an average gross density of 22 dwelling units per hectare)
- **High income: Households earning R25,601 and higher:** 500m^2 per dwelling unit (an average gross density of 20 dwelling units per hectare)

These average densities do not provide for ancillary land uses such as streets, social facilities, parks etc and should, where possible be reduced to protect land as a scarce resource.

The Municipality has commenced with a number of subsidised housing projects which are in various phases. It is assumed that the projects in **Pre-Feasibility and Feasibility phases** will be constructed between 2030 and 2040 whilst the projects currently in **implementation phase** will be available between 2021 and 2030. The **rental/social housing projects** are currently in the planning phase and is expected to be constructed around 2030. Furthermore, it is expectant that the remaining 18.3% of the **Vulindlela Rural Housing project** will be completed between 2021 and 2030. The Human Settlement Sector Plan indicates that approximately 20,000 households live in **informal settlements**.

Note: * No yield calculation has been provided for some identified projects.

Table 22: Estimated land requirements for Municipal household growth, 2021 to 2050

Income bracket	Estimated household growth							
	2021 to 2025		2025 to 2030		2030 to 2040		2040 to 2050	
	Increase in household numbers	Land Requirements (ha)	Increase in household numbers	Land Requirements (ha)	Increase in household numbers	Land Requirements (ha)	Increase in household numbers	Land Requirements (ha)
Low Income	10,132	304	22,035	661	24,937	748	28,946	868
Middle Income	5,211	234	11,332	510	12,825	577	14,886	670
High Income	1,351	68	2,937	147	3,324	166	3,858	193
Total	16,694	606	36,304	1,318	41,086	1,491	47,691	1,731

6.6.2 Social facilities

The estimation of the demand for community and social facilities is calculated using population projections as a baseline. The land use requirements for community and social facilities are based on the following assumptions:

The total land use requirements are set out for residential; community and social services and business/retail as follows:

- The total land required to address the current backlog and accommodate the future required social and community facilities as per the Council for Scientific and Industrial Research (CSIR) "The Neighbourhood Planning and Design Guide: Creating Sustainable Human Settlements" (2019). Section H of the Red Book, "Housing and social facilities" also provides population thresholds and access distances for typical facilities social and community services, but not according to population size of an area. The Red Book states: "Some government departments provide specific guidance on relevant facilities, e.g. the Department of Sport and Recreation's Norms and Standards for Sport and Recreation Infrastructure Provision and Management and the Department of Basic Education's National Minimum Uniform Norms and Standards for School Infrastructure. The CSIR Guidelines for the Provision of Social Facilities in South Africa (2015) breaks down the required provision of community and social services based on an area's total population, thus per Metropolitan Cities/Regions, Large Cities/Small Metros, Large Towns/Regional Service Centres, Small-Medium Towns/Regional Service Centres, Small Towns/Isolated Regional Service Centres, Dense Dispersed Settlements, Villages and Remote Villages. As such, more detail is also provided in the CSIR Guidelines for the Provision of Social Facilities in South African Settlements and the Department of Rural Development and Land Reform's Social Facility Provision Toolkit" and therefore this Guideline which breaks the provision of facilities down per population was used in this exercise. The CSIR Red Book was also consulted to ensure alignment.

    - In terms of the rural areas (which consist of various rural nodes spread across the municipal area), the access to community and social facilities considered accessibility and the catchments areas to a larger extent than population thresholds.

The access to health and emergency facilities (hospitals, clinics and community health centres) are based on the Guidelines for the Provision of Social Facilities in South Africa (CSIR, 2015) and Section H of the Red Book (CSIR, 2019).

Table 23: Threshold indicators for health and emergency facilities

Facility	Average Threshold (Population)	Acceptable Travel Distance (km)
Hospital	300,000 to 900,000	30km
Primary Health Care clinics	5,000 – 60,000	5 – 10km
Community Health Centres	60,000 to 150,000	10km
Clinics	24,000 to 70,000	5km
Fire Station	60,000 to 100,000 Context-dependent	The response times for fire stations are specified in SANS10090:2003 Edition 3. It ranges from 8 minutes for high-risk land uses (including informal settlements) and CBD areas to 13 minutes for conventional brick residential areas and 23 minutes for rural areas.
Police Station	10,000 – 60,000 (dependent on context and crime rates)	8km urban area, 16km peri-urban and 24km other.

		Note: in the rural context, many areas are more than 24km from a police station or contact point but due to the low incidences of crime a closer spacing is not relevant.

Accesses to educational facilities is based on the South African Schools Act, 1996 (Act No. 84 of 1996) Norms and Standards. At full implementation of the Norms and Standards, every school will be required to have a catchment area (area to be served by a school) with a radius of up to 3km (45 minutes walking time). A total walking distance to and from school will then be 6km (1.5 hours/90 minutes walking distance time).

Table 24: Threshold indicators for educational facilities

Facility	Average threshold (Population) (CSIR Guidelines)	Acceptable travel distance (km) (South African Schools Act)	Required area (ha)
Primary School	7,000	3km (45 minutes walking time)	2.4ha
Secondary School	12,500	3km (45 minutes walking time)	4.6ha

The access to social and civic services are based on the CSIR Guidelines for the Provision of Social Facilities in South Africa (2012).

Table 25: Threshold indicators for social and civic services

Facility	Average Threshold (Population)	Acceptable Travel Distance (km)	Required area (ha)
Municipal Offices	1 per local municipality	30km	
Local Library	20,000 to 70,000	8km to 10km	
SASSA offices (for registration and administration of grants)	30,000 – 120,000	15km (urban) 40km (rural)	
Social grant pay points	200 or more grant recipients	5km Beneficiaries can also use various merchants, bank ATMs, or the Post Office to withdraw their funds.	
Community Hall (Large)	60,000	10km	1ha
Community Hall (Medium/Small)	10,000 to 15,000	15km	0.5ha
Cemetery (Medium)	8.8ha/50,000	15km	8.8ha
Cemetery (Small)	4.4ha/25,000		4.4ha

The access to recreation facilities is based on the CSIR Guidelines for the Provision of Social Facilities in South Africa (2012). Where possible open space and parks should be linked to reduce maintenance costs and increase the extent of “green lungs”

Table 26: Threshold indicators for recreation facilities

Facility	Average Threshold (Population)	Acceptable Travel Distance (km)	Required area (ha)
Sports stadium - high order	200,000 - 300,000	15km	3ha
Sports Complex (grouping of fields and/or sports complexes)	60,000	10km	2.5ha
Grass Field (2 football fields equivalent) with 500-seat stand	30,000	5km	2ha
Grassed Surface (2 football fields equivalent)	15,000	3km	2ha
Local/Neighbourhood Park (equipped)	3,000 – 15,000	1km	1.2ha

The tables on the following pages illustrate the land use / facility with the associated population threshold and existing number of facilities, the number of facilities required by 2050 as well as the area requirements. Refer to Appendix B for the catchment area analysis performed on the social facilities.

Table 27: Social Facilities future planning (Municipal Wide)

Msunduzi Municipal Wide					
Facility	**No. existing facilities**	**Future requirement in number of facilities and area in addition to existing supply**			
	2016	**Short term (2016 – 2030)**	**Medium term (2031 – 2040)**	**Long term (2041 – 2050)**	**TOTAL**
Hospitals	6	5	3	3	**11**
Community health centres	33	4	3	4	**11**
Fire Station	3	6	4	2	**12**
Police Station	8	4	2	2	**8**
Primary School	148	12	11	23	**46**
Secondary School	44	16	13	13	**42**
Social Services (SASSA) – Pay Point	3	9	8	4	**21**
Municipal offices	1	0	0	0	**0**
Cemetery	197.45ha	-	100ha	-	**100ha**
Local Library	9	41	43	24	**108**
Community Hall	27	14	13	15	**42**
Sports stadium - high order	5	-	-	-	**-**
Sports Complex (grouping of fields and/or sports complexes)	9	2	3	3	**8**
Grass Field (2 football fields equivalent) with 500-seat stand	No data	-	-	-	**-**
Grassed Surface (2 football fields equivalent)	No data	-	-	-	**-**
Local/Neighbourhood Park (equipped)	No data	-	-	-	**-**

Table 28: Social Facilities future planning (CBD / Ashburton / Eastern Areas)

CBD / Ashburton / Eastern Areas									
Type of facility	**No. existing facilities**	**Future requirement in number of facilities and area**							
		Short term		**Medium term**		**Long term**		**TOTAL**	
	2021	**2021 – 2030**	**Area requirement (ha)**	**2031 – 2040**	**Area requirement (ha)**	**2041 – 2050**	**Area requirement (ha)**	**Number facilities**	**Area requirement (ha)**
Hospitals	2	-	-	1	1.5ha	-	-	**1**	**1.5ha**
Primary health clinic / health centre	7	-	-	1	0.5ha	1	0.5ha	**2**	**1.0ha**
Fire Station	1	1	1.2ha	1	1.2ha	-	-	**2**	**2.4ha**
Police Station	4	-	-	-	-	-	-	**-**	**-**
Primary School	32					1	2.4ha	**1**	**2.4ha**
Secondary School	13	1	4.6ha	2	9.2ha	2	9.2ha	**5**	**23.0ha**
Municipal Offices	1	-	-	-	-	-	-	**-**	**-**
Muni Social Services (SASSA) – Pay Point	0	2	0.02ha	2	0.02ha	1	0.01ha	**5**	**0.05ha**
Local Library	2	10	0.3ha	12	0.36ha	13	0.39ha	**35**	**1.05ha**
Community Hall	4	4	2.0ha	4	2.0ha	3	1.5ha	**11**	**5.5ha**
Sports stadium - high order	3	-	-	-	-	-	-	**-**	**-**
Sports Complex (grouping of fields and/or sports complexes)	4	-	-	-	-	-	-	**-**	**-**

Table 29: Social Facilities future planning (Edendale / Imbali)

Edendale / Imbali									
Type of facility	**No. existing facilities**	**Future requirement in number of facilities and area**							
		Short term		**Medium term**		**Long term**		**TOTAL**	
	2021	**2021 – 2030**	**Area requirement (ha)**	**2031 – 2040**	**Area requirement (ha)**	**2041 – 2050**	**Area requirement (ha)**	**Number facilities**	**Area requirement (ha)**
Hospitals	2	1	1.5ha	1	1.5ha	1	1.5ha	**3**	**4.5ha**
Primary health clinic / health centre	10	-	-	2	1.0ha	2	1.0ha	**4**	**2.0ha**
Fire Station	1	2	2.4ha	1	1.2ha	1	1.2ha	**4**	**4.8ha**
Police Station	1	2	2.0ha	1	1.0ha	1	1.0ha	**4**	**4.0ha**
Primary School	28	5	12.0ha	9	21.6ha	9	21.6ha	**23**	**55.2ha**
Secondary School	8	7	32.2ha	7	32.2ha	6	27.6ha	**20**	**92.0ha**
Muni Social Services (SASSA) – Pay Point	1	2	0.02ha	2	0.02ha	3	0.03ha	**7**	**0.07ha**
Local Library	2	13	0.39ha	12	0.36ha	12	0.36ha	**37**	**1.11ha**
Community Hall	12	3	1.5ha	4	2.0ha	4	2.0ha	**11**	**5.5ha**
Sports stadium - high order	1	-	-	-	-	-	-	**-**	**-**
Sports Complex (grouping of fields and/or sports complexes)	3	-	-	1	2.5ha	1	2.5ha	**2**	**5.0ha**

Table 30: Social Facilities future planning (Northern Areas)

Northern Areas									
Type of facility	**No. existing facilities**	**Future requirement in number of facilities and area**							
		Short term		**Medium term**		**Long term**		**TOTAL**	
	2021	**2021 – 2030**	**Area requirement (ha)**	**2031 – 2040**	**Area requirement (ha)**	**2041 – 2050**	**Area requirement (ha)**	**Number facilities**	**Area requirement (ha)**
Hospitals	2	0	0.0ha	0	0.0ha	1	1.5ha	**1**	**1.5ha**
Primary health clinic / health centre	8	-	-	-	-	-	-	**-**	**-**
Fire Station	1	1	1.2ha	0	0.0ha	1	1.2ha	**2**	**2.4ha**
Police Station	0	1	1.0ha	1	1.0ha	1	1.0ha	**3**	**3.0ha**
Primary School	30	-	-	-	-	-	-	**-**	**-**
Secondary School	2	4	18.4ha	4	18.4ha	3	13.8ha	**13**	**59.8ha**
Muni Social Services (SASSA) – Pay Point	2	1	0.01ha	0	0.0ha	1	0.01ha	**2**	**0.02ha**
Local Library	5	10	0.3ha	10	0.3ha	4	0.33	**31**	**0.93ha**
Community Hall	10	-	-	1	0.5ha	1	0.5ha	**2**	**1.0ha**
Sports stadium - high order	1	-	-	-	-	-	-	**-**	**-**
Sports Complex (grouping of fields and/or sports complexes)	2	-	-	-	-	1	2.5ha	**1**	**2.5ha**

Table 31: Social Facilities future planning (Vulindlela)

Vulindlela									
Type of facility	**No. existing facilities**	**Future requirement in number of facilities and area**							
		Short term		**Medium term**		**Long term**		**TOTAL**	
	2021	**2021 – 2030**	**Area requirement (ha)**	**2031 – 2040**	**Area requirement (ha)**	**2041 – 2050**	**Area requirement (ha)**	**Number facilities**	**Area requirement (ha)**
Hospitals	0	1	1.5ha	1	1.5ha	1	1.5ha	**3**	**4.5ha**
Primary health clinic / health centre	8	0	0.0ha	0	0.0ha	1	0.5ha	**1**	**0.5ha**
Fire Station	0	1	1.2ha	1	1.2ha	1	1.2ha	**3**	**3.6ha**
Police Station	1	1	1.0ha	1	1.0ha	-	-	**2**	**2.0ha**
Primary School	58	-	-	-	-	-	-	**-**	**-**
Secondary School	21	-	-	-	-	-	-	**-**	**-**
Muni Social Services (SASSA) – Pay Point	No data	2	0.02ha	2	0.02ha	2	0.02ha	**6**	**0.06ha**
Local Library	No data	12	0.36ha	12	0.36	13	0.39	**37**	**1.11ha**
Community Hall	1	6	3.0ha	5	2.5ha	5	2.5ha	**16**	**8.0ha**
Sports stadium - high order	0	-	-	-	-	-	-	**-**	**-**
Sports Complex (grouping of fields and/or sports complexes)	0	1	2.5ha	1	2.5ha	1	2.5ha	**3**	**7.5ha**

6.6.3 Commercial and retail demand

The land use budget for future commercial or retail opportunities (2050) was calculated by using 0.4m²/capita for the lower order shopping centres such as Local Convenience Centres with a maximum size of 5,000m² leasable floor area providing convenience goods. For the larger centres such as Neighbourhood, Community and Regional Shopping Centres as well as shops in the original central business districts, providing specialised goods, the guideline of 0.6m²/capita was used.

The estimated land use budget for future business or retail opportunities and industrial for Msunduzi Municipality is indicated in Table 32 below.

Table 32: Land use budget for commercial, mixed use and industrial land uses

	Lower order shopping centres	Larger centres
Population growth (2016 – 2050)	386,631	
Per capita	0.4m²/capita	0.6m²/capita
Future supply based on population growth	154,652 m² / 15.46ha	231,978 m² / 23.20ha
Land area requirement	1-2ha	10-20ha
Total facility demand	10-15	1

This analysis indicates that there will be a future demand for a maximum of 15 lower order shopping centres and one larger centre.

6.6.4 Industrial demand

A desirable location for industries and industrial development is where a concentration exists. It should be close to and accessible to labour markets, sources of materials (in terms of type, quantity and delivery costs) and product markets. The sites must be accessible from main transport routes (savings on transport, increased labour market, accessibility of product and visibility), while a location near rail facilities or an airport, would be an asset.

Within the above context, the trade development potential in the market is subsequently determined, based area specific econometric considerations. The demand for space depends on the production function of a market area.

As a result of the above, the land use budget for future industrial use (2050) across the municipal area is based on current demand. This is calculated by reviewing the existing and approved development application approvals, if available.

In addition to this, it is acknowledged that there are however conducive conditions that exist that would encourage industrial development within the Msunduzi Municipality. In particular, the N3 corridor that runs through the municipality and is in close proximity to the CBD is ideal to provide opportunities for industrial development. These opportunities could then be located in proximity to a national transportation route, along the SIP 2 corridor connecting the Durban Harbour and major markets within Gauteng and offer high visibility to industries.

6.7 Growth management

Human settlement development within the Msunduzi Municipality extends far beyond the 2015 urban edge. A new approach to growth management is required. A spatially targeting and incremental growth management model aligned with the theory of change is a method which aims to address spatial transformation, fragmented urban form and reducing inefficiencies. This model focuses on the investment rational which carefully considers where investment should occur and aims to reduce unsustainable capital and operational expenditure as a result of fragmented peripheral development.

The growth management model comprises of three zones delineated across the Msunduzi Municipality. These zones are not a static delineated line (an urban edge), but the boundaries of the zones can change as the strategic drivers of the theory of change are achieved and the City moves from "reclaiming the city" to "taking the city forward". The three zones will furthermore direct investment, new development, infrastructure provision, guide land uses and consider the fiscal budget associated with new investment.

These zones are:

- Urban Core (UC);
- Incremental Growth (IG); and
- Natural Areas (NA).

6.7.1 Urban Core Zone

The focus of the Urban Core (UC) is on spatial targeting investment, incentivising private sector investment, incremental upgrading and maintenance of infrastructure (especially where it restricts development), urban regeneration and intensification, prioritise budgets to support investment and support land acquisition for inclusionary housing projects.

Development is encouraged within this zone. The following section provides an overview of the desired land uses which should be promoted within the UC Zone.

- High density residential development within intensification areas. Densities up to 100du/ha should be encouraged;
- Promotion of 2nd dwelling and micro-unit development on erven larger than 750m^2;
- Promotion of high-density mixed-use development along IRPTN corridors and within nodes;
- Development for mono-functional and single storey public sector buildings should be discouraged;
- Encourage inclusionary housing projects;
- Discourage any development within environmentally sensitive areas;
- Redevelopment of vacant and underutilised properties;

It is assumed that all properties within the UC Zone typically has access to basic infrastructure provision (although quality and reliability of the access is not guaranteed). The following relates to infrastructure in the UC Zone:

- The existing infrastructure should incrementally be upgraded to attract new investment opportunities in the form of public and private sector investment.
- Infrastructure maintenance plans should become a high priority and implemented to facilitate urban regeneration.
- Green and sustainable infrastructure measures should be encouraged.
- Promotion of public access to ICT infrastructure at public sector buildings e.g. libraries, municipal offices, etc.
- Safe non-motorised networks within the Pietermaritzburg CBD, etc.

6.7.2 Incremental Growth Zone

The Msunduzi Municipality is committed to service the human settlement areas within the Incremental Growth Zone (IG). Msunduzi Municipality will focus on providing base infrastructure services to all communities and, over time, incrementally upgrade the services to provide better quality of life. No infrastructure will be provided to illegal occupation of private land. Furthermore, the Municipality will have a strong maintenance focus within this Zone and therefore aim to reduce current backlogs.

The Municipality will support co-investment opportunities between public and private sectors especially in respect of residential development for low-income residents, high density development within nodes and opportunities which will reduce spatial inequalities.

6.7.3 Natural Areas Zone

Msunduzi Municipality will not support urban development that is located within the Natural Areas Zone (NA). The Natural Areas Zone comprise of protected, environmental sensitive areas as well as high potential agricultural land and should therefore be preserved for optimal of ecology and biophysical environment. Limited eco-tourism and commercial farming activities will be considered within in this Zone. Human settlement development activities are highly discouraged.

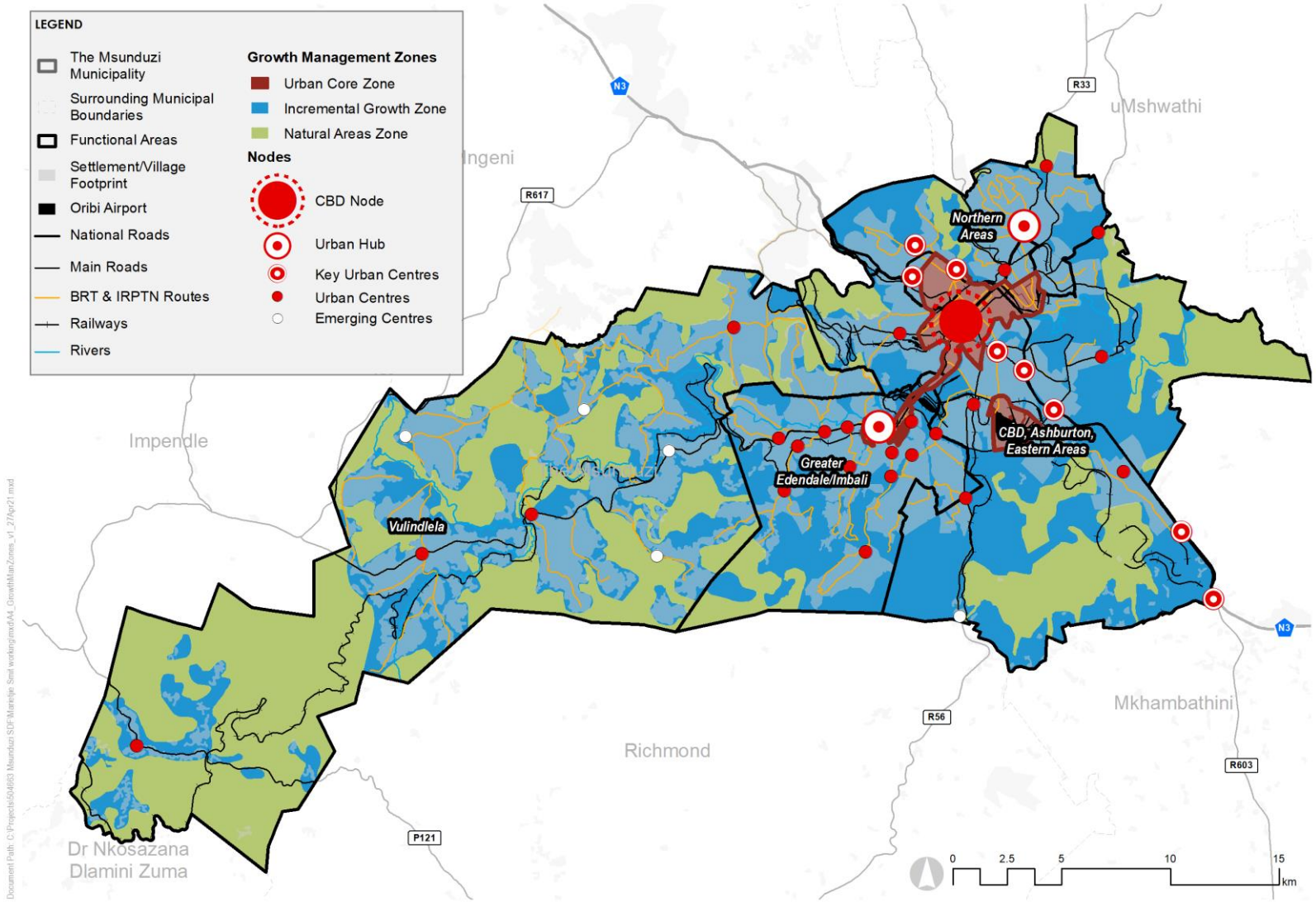


Figure 35: Growth Management Zones

6.7.4 Strategic Development Areas

Strategic development areas include the development of urban and rural areas with economic, human settlement and private sector investment. This development can occur in the form of brownfield and greenfield development. However, due to the availability of land for urban development, it is fundamental to promote infill development and the densification of existing urban areas.

Furthermore, infrastructure and community service provision are to be prioritised in these areas.

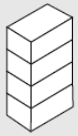
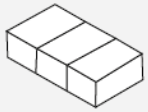
General guidelines for densification:

- Densification prioritized within the CBD, urban hubs and key urban centres with target density of 100 - 180 du/ha;
- Densification along IRPTN and BRT (up to 100m from IRPTN and BRT route with a target density of 100 du/ha and 100 – 200m from IRPTN and BRT route with a target density of 80 du/ha and 200-300m from IRPTN and BRT route with a target density of 60du/ha);
- Mixed-use to be considered at high densities.

6.8 Housing toolkit

A housing toolkit has been prepared to provide a framework to guide future residential development. Urban areas continuously grow and take shape with changes to human needs and behaviours. The toolkit also provides a snapshot of various housing densities and typologies which applied with appropriate urban design guidelines has the potential to create vibrant, unique and liveable urban spaces which in turn has a positive effect on land value and inward investment.

Table 33: Housing typology

Housing typology	Description	Density	Typology example
Apartment	High density 2+ storey apartment building. Located within the CBD, urban hub and along public transport networks	80-180 du/ha	
Row housing	Medium density 1-2 storey duplex, row houses, maisonette buildings. Located near job opportunities.	40-80 du/ha	
Semi-detached housing	Medium density 1-2 storey semi-detached buildings. Located near job opportunities and established residential neighbourhoods.	30-50 du/ha	
Single residential	Low density 1-2 storey detached single residential house. Located in established neighbourhoods and towards the periphery.	20-30 du/ha	
Mixed use	High density 1-6 storey buildings. Located within the CBD, urban hub and along public transport networks. Commercial and retail activities on ground level, offices on 2-3 storey and apartments on 3-6 storeys.	100 - 180 du/ha	

7 Spatial proposals

7.1 Proposals per Focus Area

The guide to preparing a CEF for the purpose of the IUDG requires that the municipal area should be divided into Functional Areas (FA). The Business Plan submission should illustrate the spatial transformation agenda and investment framework developed per FA in order to achieve the IUDG outputs. An FA is defined as follows:

A functional area is intended to break the complex urban environment into smaller areas for purposes of analysing population growth with development strategies that tends to provide some similarities from a developmental and service demand perspective. Functional areas can be defined by any criteria as long as it assists with the reconciliation of population growth and costing of development programmes. A functional area should therefore be clearly defined as a single contiguous geographic area. (COGTA, Guide to preparing a Capital Expenditure Framework – Draft Document Version 10)

Ideally the FA's arrangement should primarily be based on the grouping of areas / towns / villages based on similarities in their built form. For example, all formalised urban areas should be grouped while other formal or relatively formalised towns / villages should be grouped and remaining rural areas should be grouped together. FAs should be continuous as such even if areas / towns / villages have a similar built form and similar characteristics but are located great distances from one another; they have to be given separate FAs.

The FAs for Msunduzi Municipality are arranged in line with the existing ABMs which are boundaries and delineations the sectoral departments are well acquainted with.

Within the Msunduzi context it is recommended that the ABMs should be relooked at to align with the definition of FA before the next SDF review.

The Msunduzi Municipal FAs are as follows:

- FA 1 – The CBD / Ashburton / Eastern Areas
- FA 2 – Greater Edendale / Imbali
- FA 3 – Northern Areas; and
- FA 4 – Vulindlela.

In terms of population distribution within the four FAs, the largest concentration of the population resides in Functional Area 2: Greater Edendale / Imbali. FA 2 is estimated to house 39.83% of the Municipality's population by 2050. Furthermore, it is expected that this Functional Area will experience the highest growth rate (an annual growth rate of 1.5% from 2021 to 2050). Therefore, there is significant pressure for investment and development within this area.

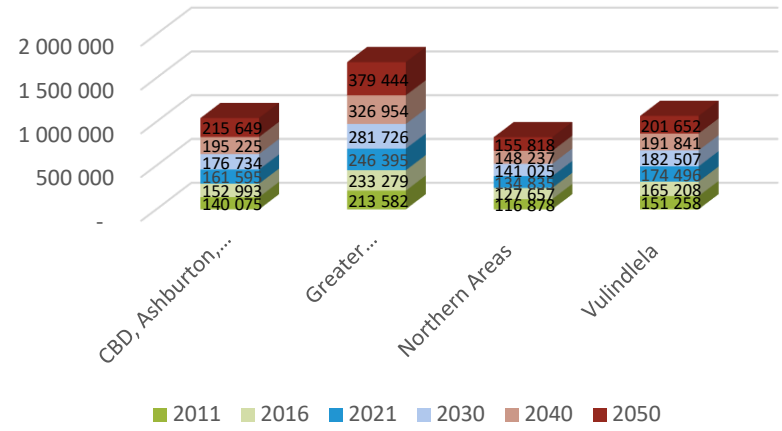


Figure 36: Population analysis per functional area

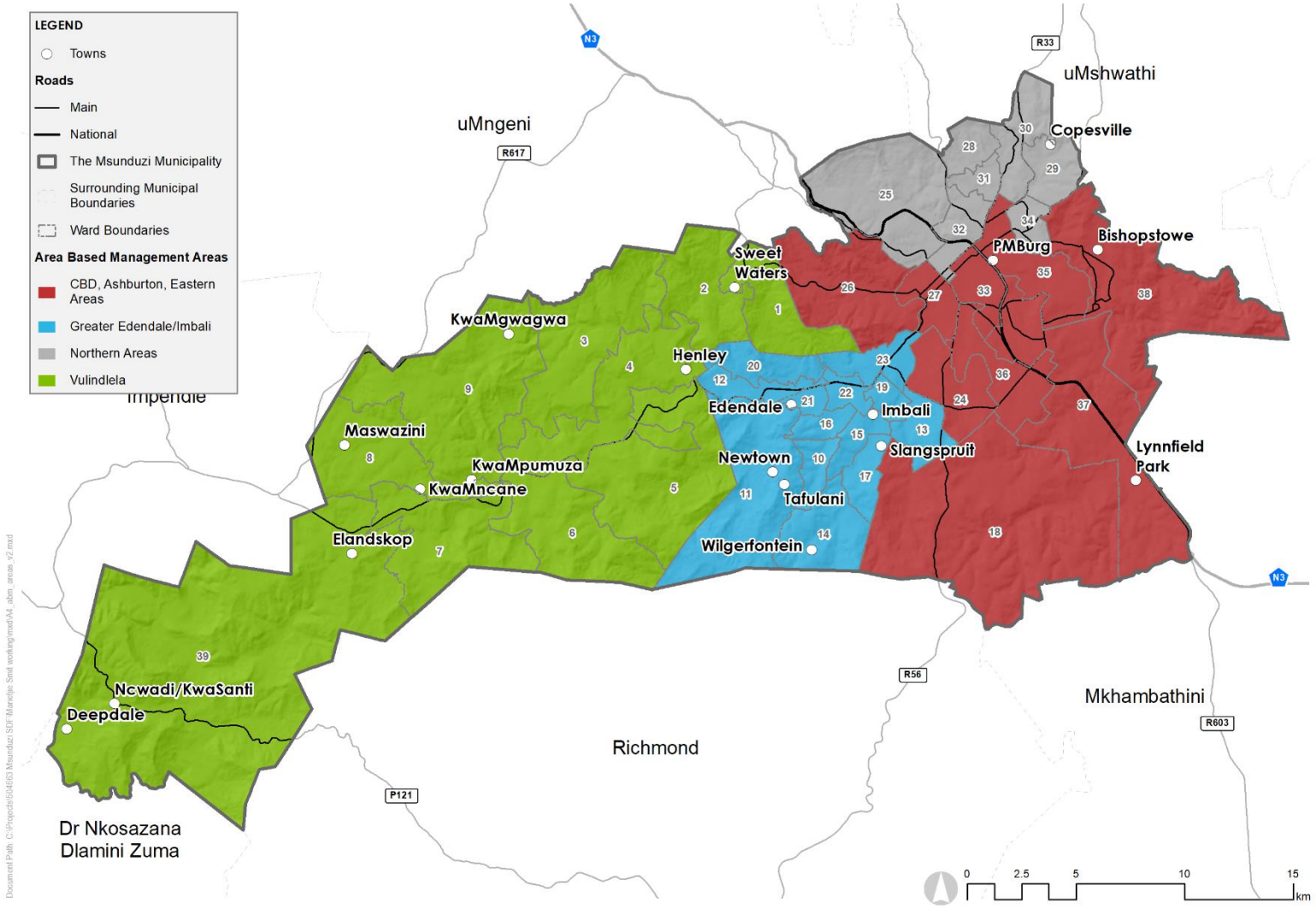


Figure 37: Functional Areas map

7.1.1 Functional Area 1: CBD / Ashburton / Eastern Areas

Existing situation:	Current challenges:
• Mixed use activities are predominant within the CBD with a combination of office, commercial, retail and government sector activity, residential uses are mainly towards the east and west of the CBD; • Ashburton is characterised by a low-density neighbourhood, with scattered community facilities; • There is significant amount of commercial activity in the CBD and industrial activity to the west of the N3 and R56; • There are high levels of employment, mostly within the government and industrial sectors; • The area plays a significant role in terms of transport infrastructure available in the city, this includes the N3, a primary movement corridor and the Edendale Northdale development corridor; and • There is a concentration of education facilities.	• The Eastern Areas experience significant development pressure, which places constraint on the natural environment; • Decline in private sector investment, ageing infrastructure, reduced service delivery and urban decay; • Businesses are relocating to other nodes and suburbs; • Inadequate housing as a result of migration; • Traffic congestion in the CBD and Ashburton area; • High cost of rental space in the CBD; and • Lack of low-cost and social housing in the CBD • Insufficient urban management and maintenance.

Development Strategy and intended impact as per Theory of Change:

Protect:

- Protect and celebrate natural features;
- Protect and maintain historically significant resources/ precincts/ places, and enhance public space and movement routes within these areas;
- Contain the footprint of the town within the current urban footprint;
- Focus on infill and densification at strategic sites;
- Create functional and sustainable urban open space network;
- No development to take place within Agricultural Management Overlay areas.

Change:

- Regeneration of the CBD and prominent nodes; and
- Uplift marginalised areas and foster ownership during recovery.

New:

- Create functional and sustainable urban open space networks;
- Create vibrant urban spaces (soft and hard spaces), create a network of pedestrian friendly public spaces connecting key focal points;
- Support brownfield development, rather than greenfield developments on the periphery of the urban area;
- Initiate and implement urban renewal programmes for the identified strategic precincts;
- No development within environmentally sensitive areas;
- Human settlement developments to be located in close proximity to urban centres and the IRPTN and BRT networks;
- Support integrated human settlement developments and new developments must include community facilities;
- Promote green infrastructure initiatives in industrial areas that are currently underutilised;
- Support private sector led proposed development and ensure joint planning between private and public sectors to unlock further opportunities; and
- Implement fibre connections especially in CBD and around community facilities.

Cross border alignment:

- Any development application submitted along Umlaas Road and near the Municipal boundary should be circulated to both Msunduzi and Richmond Municipalities. To this end, regular engagements with Richmond Municipality are encouraged to discuss the future development along Umlaas Road (R623) road as well as along the R56 towards Thornville located within Richmond Municipality. To this ensure that future development is consistently aligned and integrated.

FA 1: Spatial Framework:

LEGEND

- The Msunduzi Municipality
- Surrounding Municipal Boundaries
- PHSHDA Boundaries

Transportation

- National Roads
- Primary Network
- Secondary Network
- Regional and Network Linkages
- BRT & IRPTN Routes
- Railways

Nodes

- CBD Node
- Urban Hub
- Key Urban Centres
- Urban Centres
- Emerging Centres

Specialised Precincts

- Government Precinct
- Airport Precinct
- Educational Precinct

Corridors

- Primary Corridor
- Regional Corridor
- Emerging Corridor
- Environmental Corridor
- Alternative Development Corridor
- Tourism Corridor
- Cross-Border Integration Focus Area

Tourism

- Tourism and Scenic Routes
- Scenic Gateways
- Heritage Zones

Strategic Development Areas

- Logistics/Business
- Commercial
- Open Space
- Residential
- Transportation
- Ecological Corridor
- Agri Business/Commercial
- Urban Regeneration
- Mixed Use
- Intensification Zone

Growth Management Zones

- Urban Core Zone
- Incremental Growth Zone
- Natural Areas Zone

HSP 2021

- Implementation Projects
- Rental & Social Housing Projects
- Planning Stage Projects
- Informal Settlement Projects

Existing Land Use

- Agriculture
- Commercial
- Industrial
- LFTEA
- Mixed Use
- Open Space
- Refer to Sobantu Scheme
- Refuse Landfill
- Residential
- Social / Civic / Institutional
- Transportation
- Undetermined

Environmental & Development Restrictions

- Environmental & Development Restrictions

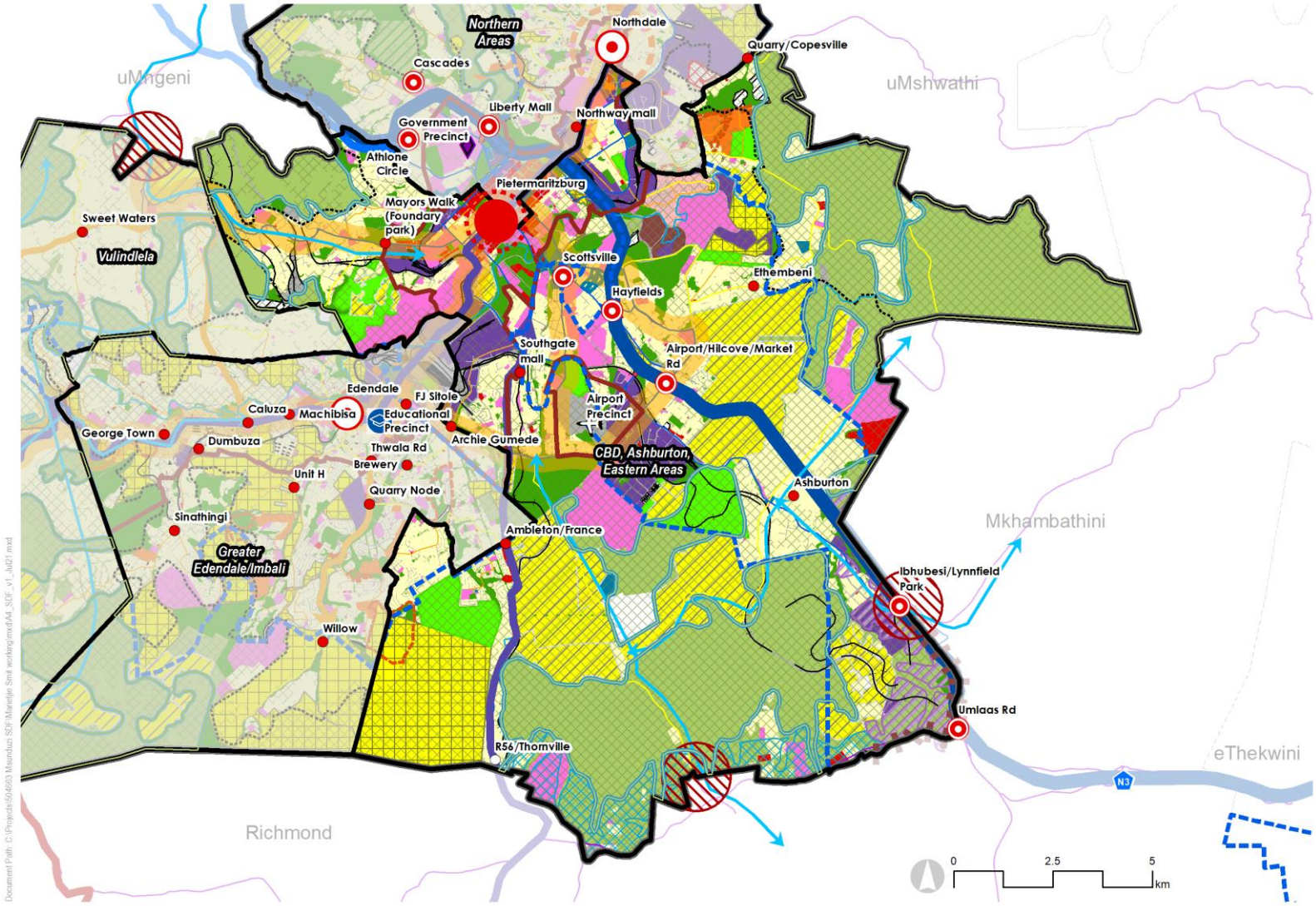


Figure 38: FA 1 - Spatial Framework

Development proposals (2050):

Major projects

- CBD Precinct Plan (various short to long-term projects) for the regeneration of the Pietermaritzburg CBD;
- Hillcove mixed use development;
- Camps Drift Waterfront development; and
- Hesketh Estate
- The proposed Goodall Development in Thornville is acknowledged. Due to the information having been received as this report was bring finalised, the details will only be incorporated into the SDF when stakeholder input is incorporated, after the consultation process.

Human settlements

Available land for outward expansion is located towards the south east of the functional area. Currently this land is earmarked for agricultural use and various tracts of land are marked as environmentally sensitive. Therefore, detailed specialist studies need to be conducted prior to development. It is estimated that households will increase by 11,661 households by 2050 within the CBD / Ashburton / Eastern Areas functional area. Nearly 74% of the future demand is within the low income group. These residents would rely on government subsidised housing. A gazetted PHSHDA is located within the FA as illustrated on Figure 39. There are a number of government human settlement projects being implemented and planned and will provide 6,883 housing opportunities by 2030.

New human settlement developments include the following (as illustrated on Figure 41):

1. The Hillcove mixed use development will provide 1,354 housing opportunities (290 middle income housing opportunities (conventional housing) and 1,064 high income opportunities (475 game reserve housing and 589 lifestyle village housing opportunities)).
2. Camps Drift Waterfront mixed use development will provide 1,1316 apartments (756 social housing apartments and 560 bonded apartments).
3. Hesketh Estate will provide 346 units in retirement estates and 713 high-income golf estate units.
4. Signal Hill Housing Project provides 3,000 low cost housing, social housing and gap units.
5. Redevelopment of the Scottsville bowling club for mixed use development comprising of residential apartments and student accommodation.
6. CRU Development at Northern Gateway (Jika Joe) comprising of 1,164 low-income apartments.
7. MKMVA residential planning programme. The program is intended to release land for military veterans housing.
8. Glenwood Integrated Residential Human Settlements project – The project will provide 3,000 residential units for low-income residents.
9. Ethembeni Integrated Residential Parogramme – An integrated housing project providing 3,000 units and a 60,000-grave cemetery.

These developments are predominantly for the middle and high-income market whilst the greatest need is within the low-low and low-income market. Higher density development is required due to the lack of suitable land for development within the FA.

The following human settlements proposals are made:

- High density and intensification within the nodes and along the corridors with densities between 100 - 180du/ha as illustrated on Figure 42;
- Strategic Development Areas (SDAs) have been identified as illustrated on Figure 43. These SDAs area ideal for integrated greenfield development and should include social and civic facilities. In total these SDAs measure 2,796.50ha in extent and at a density of 60du/ha a total of 167,790 housing opportunities can be accommodated. Detailed specialist studies should be undertaken to determine the total developable area, especially since this SDA is located within environmental sensitive areas. The total developable area may therefore be significantly less than indicated above; and
- The redevelopment of brownfield sites is encouraged to enable transformation, regeneration and restructuring, especially within the intensification zone as illustrated on Figure 42.

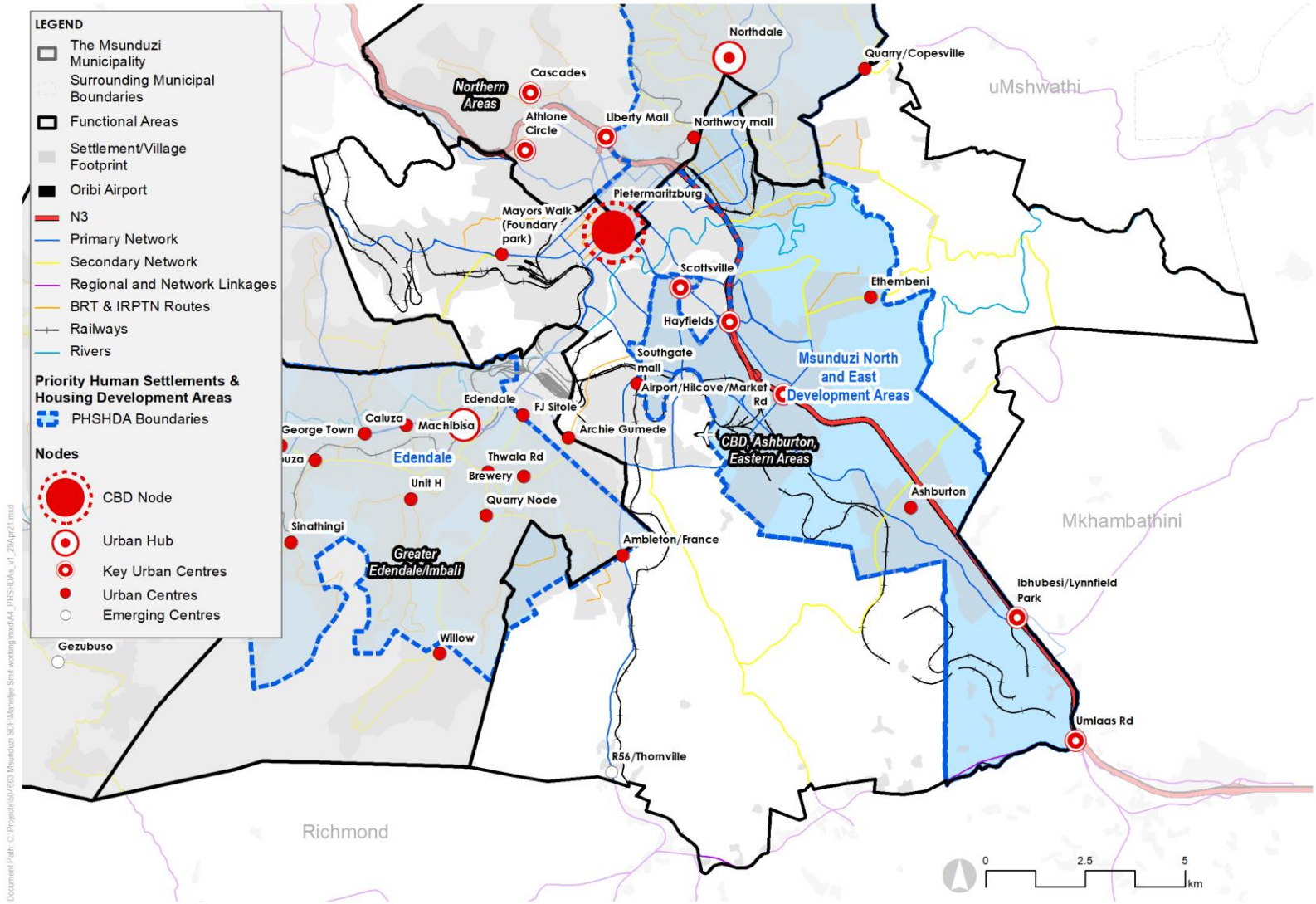


Figure 39: Priority Human Settlement Housing Development Area

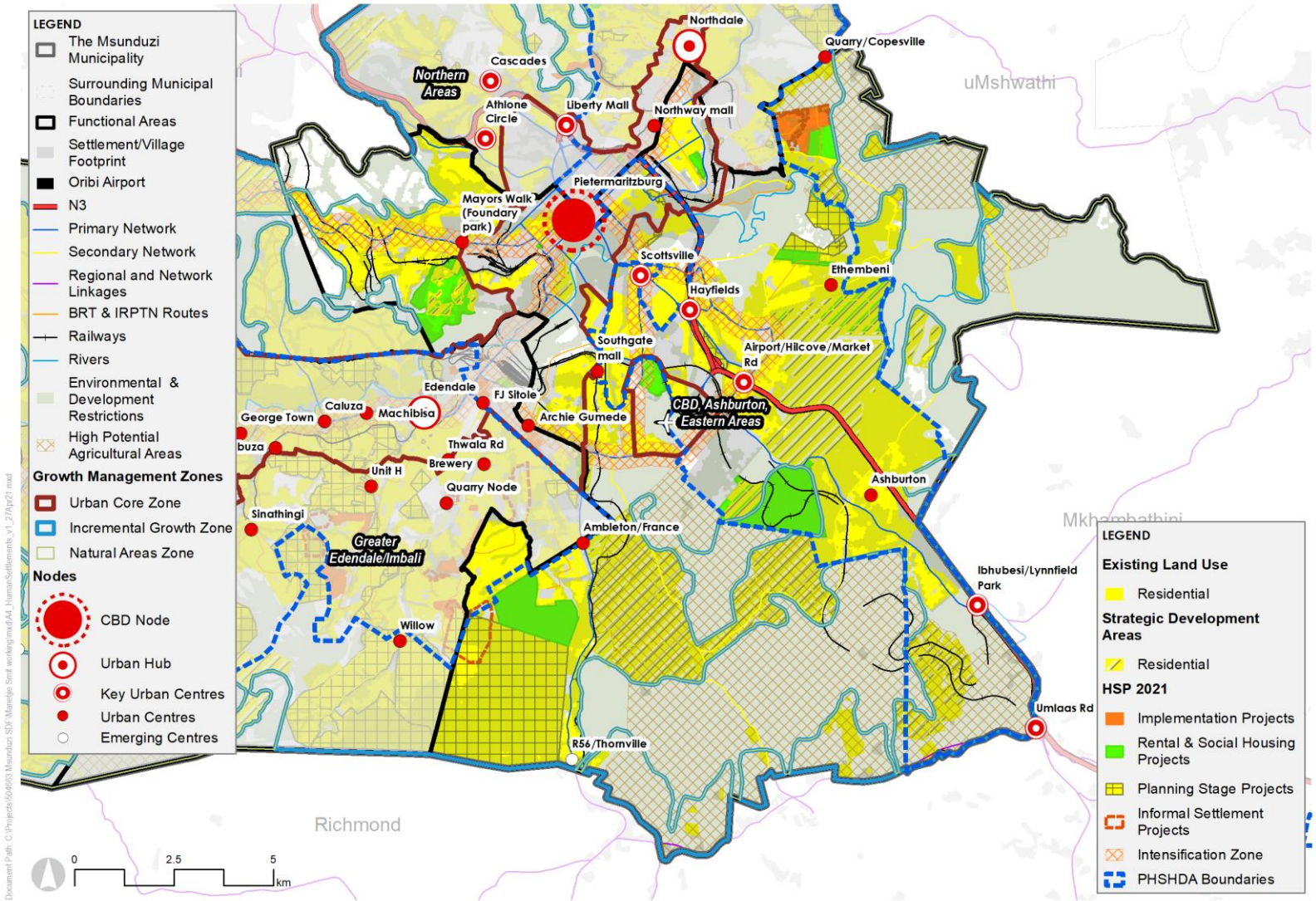


Figure 40: Functional Area 1 – Existing human settlements and proposed Strategic Development Areas

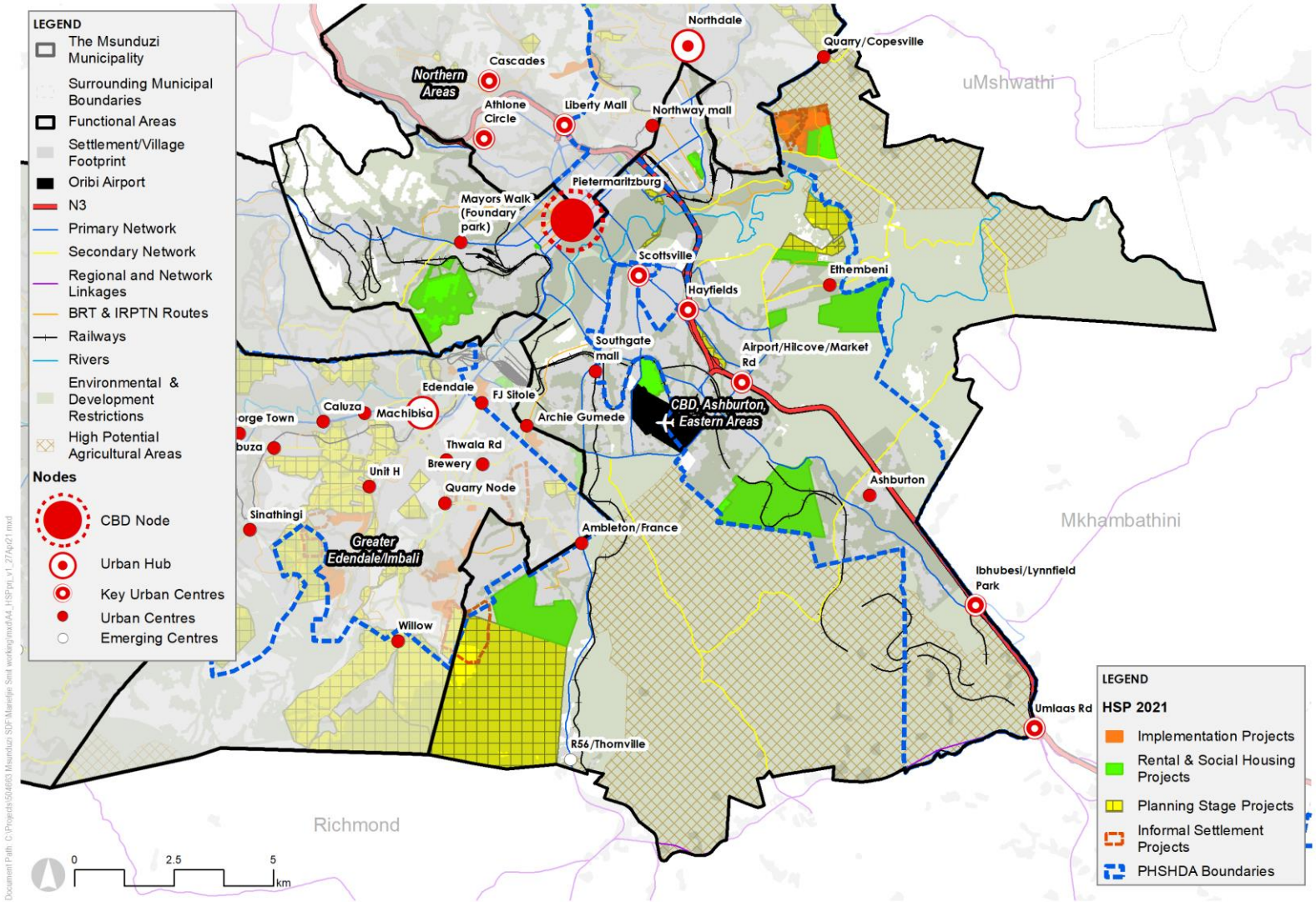


Figure 41: Functional Area 1 - Human Settlements Projects

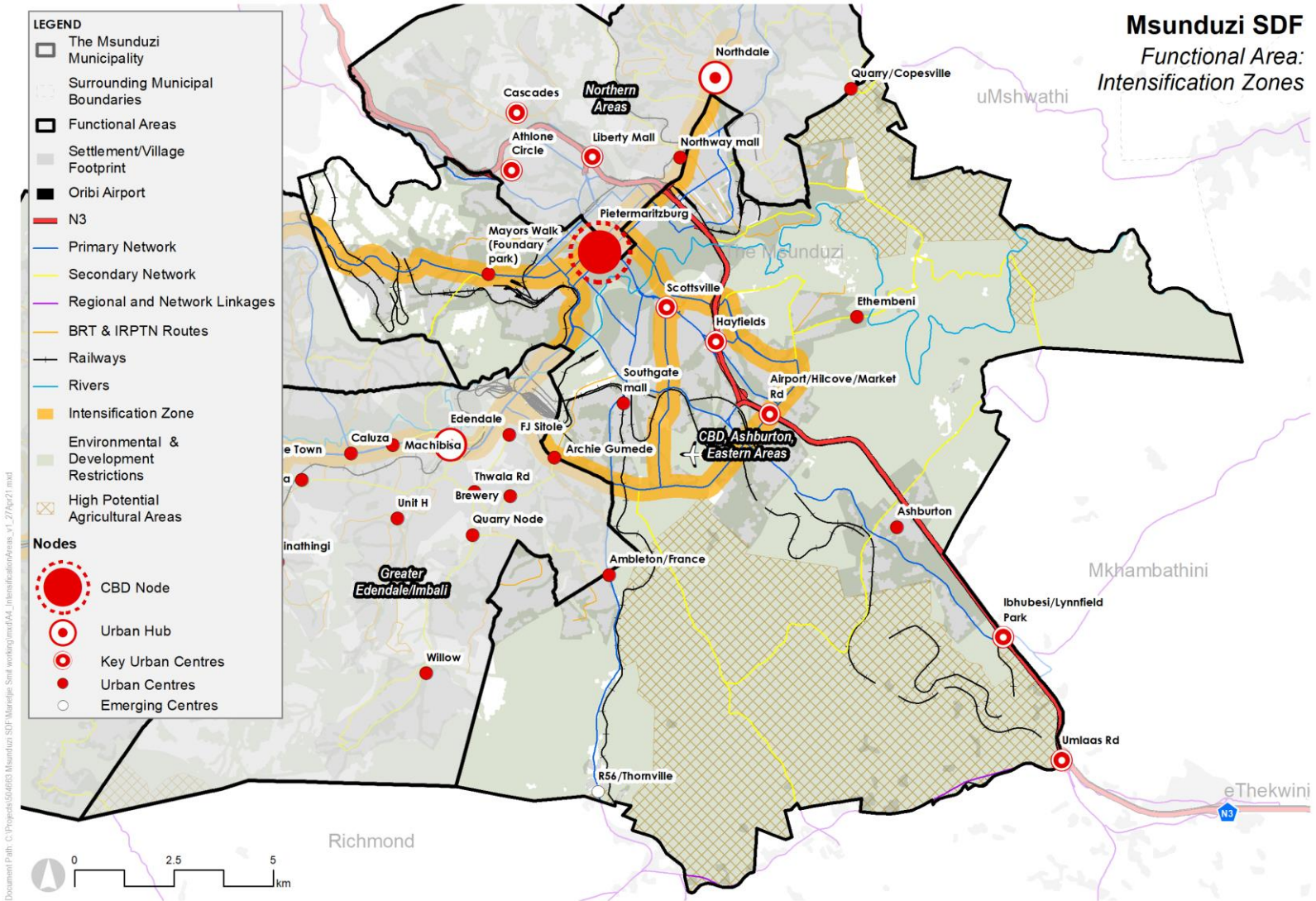


Figure 42: Functional Area 1 - Intensification areas

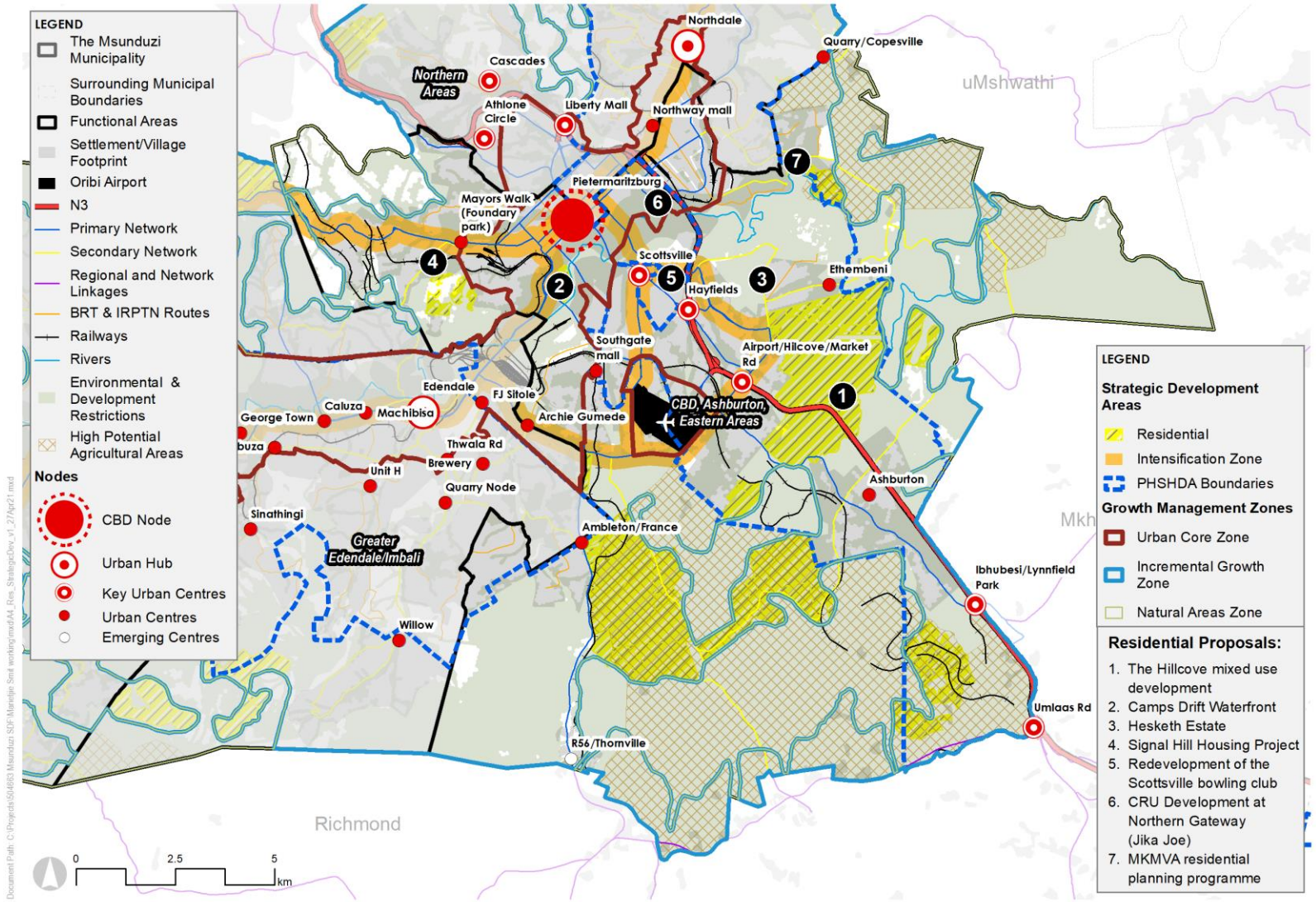


Figure 43: Functional Area 1 – Human Settlement Strategic Development Areas

Social infrastructure

A number of social infrastructure facilities are required within this FA. The Hillcove mixed use development makes provision for 100 frail care suites and facilities, a 300-bed private hospital, 1 primary school and 4 other community facilities. Msunduzi Municipality acquired 89ha for a new cemetery. It is anticipated that this cemetery will provide sufficient occupancy until 2050. Note that more than one facility may be required per Ward.

Table 34: Proposed social infrastructure allocation per Ward

Ward	Social infrastructure allocation	
Ward 18	Clinic Primary School Secondary School	Library Community Hall Social Services (SASSA) Pay Point
Ward 26	Primary School Secondary School	Community Hall
Ward 36	Clinic Primary School	Secondary School Community Hall
Ward 37	Hospital Clinic Fire Station Library	Primary School Secondary School Social Services (SASSA) Pay Point Community Hall
Ward 38	Fire Station	Community Hall

Business, retail and industrial

Figure 44 illustrates existing business, retail and industrial activities within FA 1. The main office and commercial activities take place within the Pietermaritzburg CBD with other commercial activities taking place in and around Scottsville. The industrial activities are clustered near the airport, Lynnfield park and Camps Drift.

New developments within the FA makes provision for the following business, retail and industrial opportunities as illustrated on Figure 45:

1. Hillcove mixed use development – General and limited business, an office park, conference centre, restaurants and wellness centre.
2. Camps Drift Waterfront – 4,969m² retail precinct and 1,991m² medical office precinct.
3. Hesketh Estate – Commercial and Industrial developments.
4. City Improvement District - The proposed CIDS projects will assist in the creation of a conducive environment where a public private partnership can be established in favour of the municipality and the business environment.
5. Re-development of eMatsheni (Retief Street Beer Hall) – The building was illegally occupied and posed a health and community safety threat. As such, the building was demolished, and a market study was undertaken to determine the highest and best use.
6. Lion Park Warehousing located in Ashburton near Lynnfield Park – This develop comprise of warehousing opportunities with 17 erven ranging from 1,336m² – 28,615m². An on-site sewage package plant is planned as part of the project.
7. Mphushini Business Park located in Ashburton – the project will provide mixed-use and logistics park and offices.
8. Airport Precinct Development – this project includes a technology hub to the west of the airport, relocation of terminal building to allow access via Market Road and sites for hangers and industrial development.

Regeneration and transforming of existing low-density areas south of the Pietermaritzburg CBD between the N3 and the R56. Scottsville, Hayfields and Southgate Mall are targeted areas for commercial and mix use areas and inward investment and the transformation of brownfield sites along the corridors connecting these nodes are encouraged. Furthermore, agri-business activities are proposed north of Umlaas Road.

Table 35: Demand for lower order shopping centres and large centres

	Population growth (2016 – 2050)	Per capita	Future supply based on population growth	Land area requirement	Total facility demand
Lower order shopping centres	87,099	0.4m²/capita	34,839m² / 3.48ha	1-2ha	2 - 3
Larger centres		0.6m²/capita	52,259m² / 5.23ha	10-20ha	0

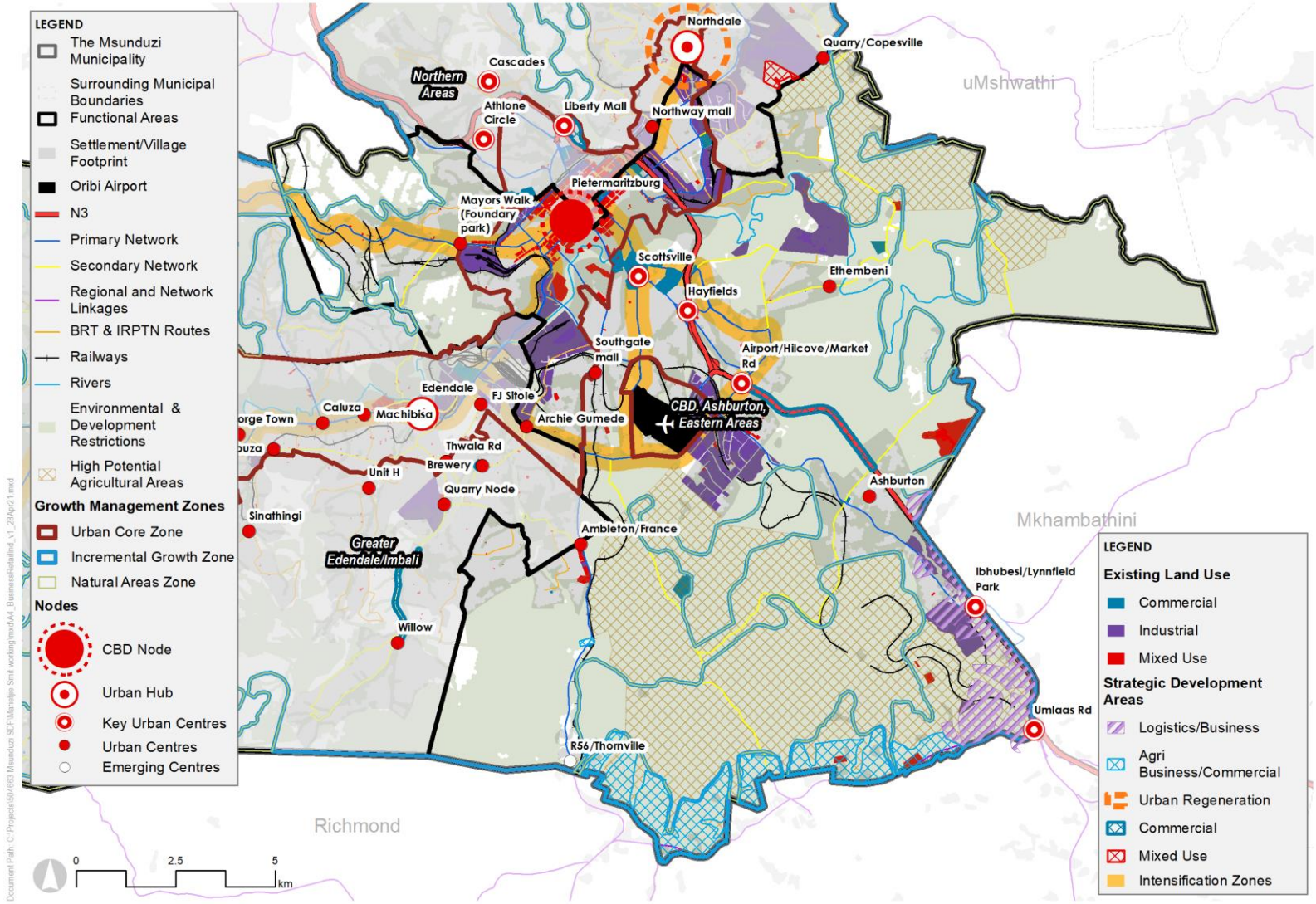


Figure 44: Functional Area 1 - Business, retail and industrial

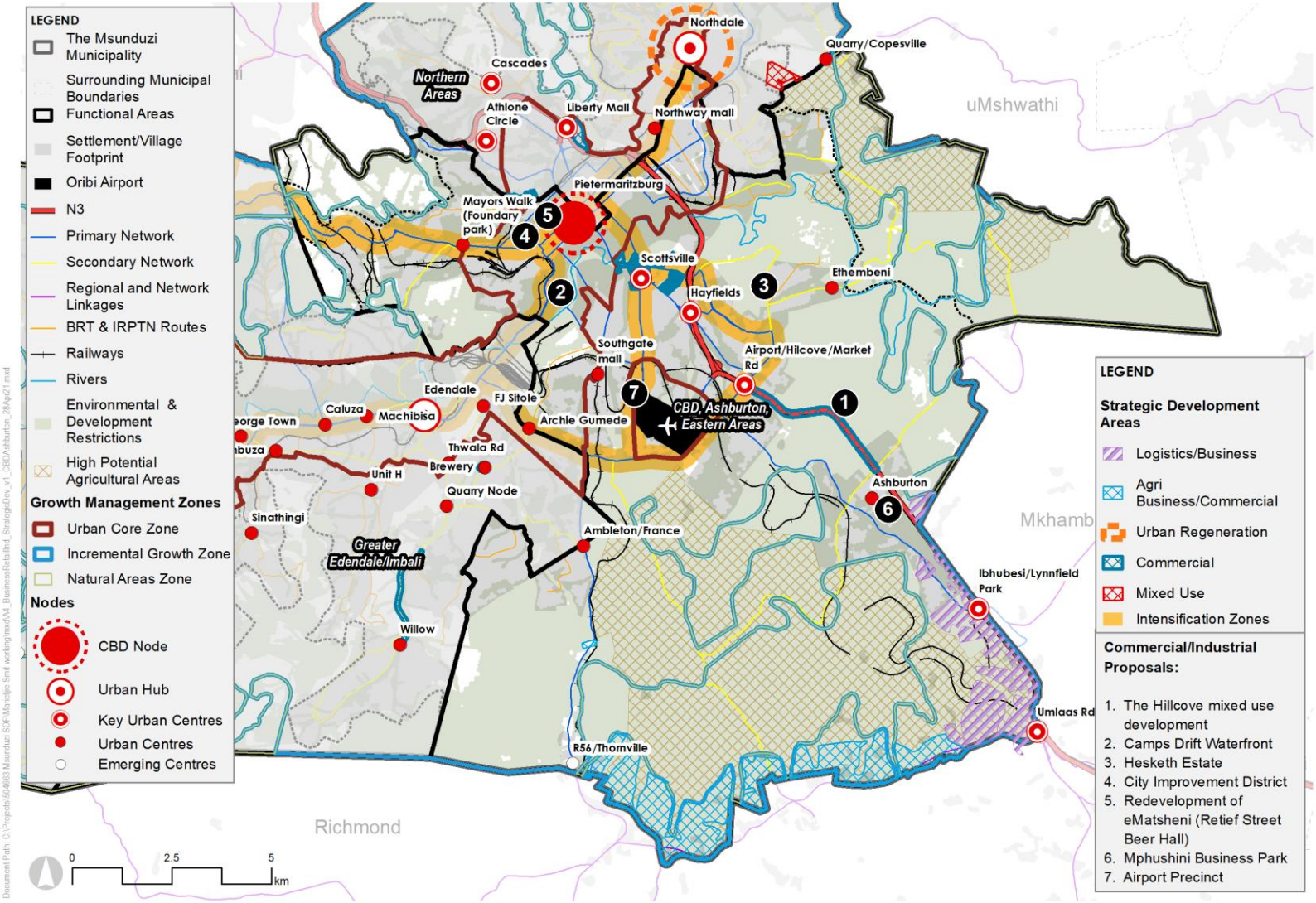


Figure 45: Functional Area 1 - Business, retail and industrial Strategic Development Areas

Infrastructure requirements
Water

The largest increase in water demand takes place in this area, owing to the intensification of existing urban areas and increased housing opportunities. Water demand is expected to increase by over 200Ml/day. This area is currently served by the Belfort and Clarendon reservoirs. Such an increase in daily demand will require both additional investment in bulk infrastructure, as well as measures to reduce the current high unaccounted for water figure of 46%, to make more of the existing water supply available. All upgrades pertaining to the existing water master plan will need to be implemented (R498 million).

The anticipated increase in demand is summarised in the table below and is based on standard demand rates (CSIR Red Book). These figures can be reduced should the municipality implement water saving initiatives, at various scales. For functional area 1, the anticipated water demand load increase is 206 Ml/day.

Table 36 Functional Area 1 anticipated water demand load increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kl/day per unit	Total kl/day
SDA1	CBD, Ashburton, Eastern Areas	48.75	Residential	60	2,925	0.9	2,633
SDA2	CBD, Ashburton, Eastern Areas	33.58	Residential	60	2,015	0.9	1,813
SDA3	CBD, Ashburton, Eastern Areas	49.98	Commercial			40	1,999
SDA4	CBD, Ashburton, Eastern Areas	65.57	Residential	60	3,934	0.9	3,541
SDA5	CBD, Ashburton, Eastern Areas	774.17	Residential	60	46,450	0.9	41,805
SDA6	CBD, Ashburton, Eastern Areas	72.85	Commercial			40	2,914
SDA7	CBD, Ashburton, Eastern Areas	196.08	Residential	60	11,765	0.9	10,589
SDA8	CBD, Ashburton, Eastern Areas	12.17	Residential	60	730	0.9	657
SDA9	CBD, Ashburton, Eastern Areas	826.44	Residential	60	49,587	0.9	44,628
SDA10	CBD, Ashburton, Eastern Areas	65.06	Residential	60	3,904	0.9	3,513
SDA11	CBD, Ashburton, Eastern Areas	422.78	Residential	60	25,367	0.9	22,830
SDA12	CBD, Ashburton, Eastern Areas	521.23	Logistics/Business			40	20,849
SDA13	CBD, Ashburton, Eastern Areas	265.61	Residential	60	15,937	0.9	14,343
SDA14	CBD, Ashburton, Eastern Areas	850.82	Agri business/Commercial			40	34,033
	CBD, Ashburton, Eastern Areas		Clinic		3	0.9	3
	CBD, Ashburton, Eastern Areas		Pre-school		4	0.9	4
	CBD, Ashburton, Eastern Areas		Secondary School		4	0.9	4
	CBD, Ashburton, Eastern Areas		Library		2	0.9	2
	CBD, Ashburton, Eastern Areas		Community Hall		5	0.9	5
	CBD, Ashburton, Eastern Areas		Social Services		2	0.9	2
	CBD, Ashburton, Eastern Areas		Hospital		1	0.9	1
	CBD, Ashburton, Eastern Areas		Fire station		2	0.9	2
TOTAL REQUIRED FUTURE DEMAND							**206,168**

The cost for connection of a new household to a potable water line varies on the type of installation and can also be reduced by urban densification with more than one household utilising a house connection. However, to remain conservative, and at an estimated cost of R20,000 per connection, a possible total cost to connect all new households will be R3,250,000,000. This large number demonstrates why intensification and vertical growth in housing opportunities is required.

Infrastructure requirements:
Sanitation

The largest increase in sewer yield takes place in this area, owing to the intensification of existing urban areas and increased housing opportunities. Sewer yield is expected to increase by over 170Ml/day. This area is currently served by the Darvill and Lynnield Park WWTP. Such an increase in daily yield will require both additional investment in bulk infrastructure, particularly at Darvill for which upgrading plans already exist.

The anticipated increase in yield is summarised in the table below and is based on standard demand rates (CSIR Red Book). These figures can be reduced should the municipality implement water saving initiatives, at various scales, which will have a knock-on impact on sewer yield. For functional area 1, the anticipated sewer yield load increase is 172 Ml/day.

Table 37 Functional Area 1 anticipated sewer yield load increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kl/day per unit	Total kl/day
SDA1	CBD, Ashburton, Eastern Areas	48.75	Residential	60	2,925	0.75	2194
SDA2	CBD, Ashburton, Eastern Areas	33.58	Residential	60	2,015	0.75	1511
SDA3	CBD, Ashburton, Eastern Areas	49.98	Commercial			32	1599
SDA4	CBD, Ashburton, Eastern Areas	65.57	Residential	60	3,934	0.75	2950
SDA5	CBD, Ashburton, Eastern Areas	774.17	Residential	60	46,450	0.75	34838
SDA6	CBD, Ashburton, Eastern Areas	72.85	Commercial			34	2477
SDA7	CBD, Ashburton, Eastern Areas	196.08	Residential	60	11,765	0.75	8824
SDA8	CBD, Ashburton, Eastern Areas	12.17	Residential	60	730	0.75	548
SDA9	CBD, Ashburton, Eastern Areas	826.44	Residential	60	49,587	0.75	37190
SDA10	CBD, Ashburton, Eastern Areas	65.06	Residential	60	3,904	0.75	2928
SDA11	CBD, Ashburton, Eastern Areas	422.78	Residential	60	25,367	0.75	19025
SDA12	CBD, Ashburton, Eastern Areas	521.23	Logistics/Business			34	17722
SDA13	CBD, Ashburton, Eastern Areas	265.61	Residential	60	15,937	0.75	11953
SDA14	CBD, Ashburton, Eastern Areas	850.82	Agri business/Commercial			34	28928
	CBD, Ashburton, Eastern Areas		Clinic		3	0.75	2
	CBD, Ashburton, Eastern Areas		Pre-school		4	0.75	3
	CBD, Ashburton, Eastern Areas		Secondary School		4	0.75	3
	CBD, Ashburton, Eastern Areas		Library		2	0.75	2
	CBD, Ashburton, Eastern Areas		Community Hall		5	0.75	4
	CBD, Ashburton, Eastern Areas		Social Services		2	0.75	2
	CBD, Ashburton, Eastern Areas		Hospital		1	0.75	1
	CBD, Ashburton, Eastern Areas		Fire station		2	0.75	2
TOTAL REQUIRED FUTURE YIELD							**172703**

The cost for connection of a new household to a waterborne sewer pipeline varies on the type of installation and can also be reduced by urban densification with more than one household utilising a house connection. However, to remain conservative, and at an estimated cost of R20,000 per connection, a possible total cost to connect all new households will be R3,250,000,000. This large number demonstrates why intensification and vertical growth in housing opportunities is required.

Infrastructure requirements:
Waste

The largest increase in solid waste generation takes place in this area, owing to the intensification of existing urban areas and increased housing opportunities. Solid waste is expected to increase by over 760,000 kg/day. This area is currently served by the New England landfill site.

Such an increase in daily yield will require additional investment in bulk infrastructure, which will need to extend beyond the current New England site and will require a new location for a district-wide municipal land fill site. However, identifying such a suitable site is a function of a host of informants and criteria that need to be considered, most notably

- Environmental considerations: a detailed screening of available land and the environmental impact of the landfill
- Proximity to waste generation and ease of access: while balancing environmental considerations, proximity to the built up areas of the municipality is important to reduce transportation costs of solid waste
- Site design: available open land needs to be screened for functional suitability in terms of the landfill technical design

Over and above this, investment in waste diversion strategies to reduce the load on future landfill sites should be prioritised in order to reduce the overall environmental impact of solid waste on the municipality.

The anticipated increase in waste generation is summarised in the table below and is based on standard generation rates (CSIR Red Book). These figures can be reduced should the municipality implement waste saving and diversion measures, at various scales. For functional area 1, the anticipated waste generation increase is 762,297 kg/day.

Table 38 Functional Area 1 anticipated waste generation increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kg/day per unit	Total kg/day
SDA1	CBD, Ashburton, Eastern Areas	48.75	Residential	60	2,925	2.05	5,996
SDA2	CBD, Ashburton, Eastern Areas	33.58	Residential	60	2,015	2.05	4,130
SDA3	CBD, Ashburton, Eastern Areas	49.98	Commercial			240	11,995
SDA4	CBD, Ashburton, Eastern Areas	65.57	Residential	60	3,934	2.05	8,065
SDA5	CBD, Ashburton, Eastern Areas	774.17	Residential	60	46,450	2.05	95,223
SDA6	CBD, Ashburton, Eastern Areas	72.85	Commercial			240	17,485
SDA7	CBD, Ashburton, Eastern Areas	196.08	Residential	60	11,765	2.05	24,118
SDA8	CBD, Ashburton, Eastern Areas	12.17	Residential	60	730	2.05	1,497
SDA9	CBD, Ashburton, Eastern Areas	826.44	Residential	60	49,587	2.05	101,652
SDA10	CBD, Ashburton, Eastern Areas	65.06	Residential	60	3,904	2.05	8,002
SDA11	CBD, Ashburton, Eastern Areas	422.78	Residential	60	25,367	2.05	52,002
SDA12	CBD, Ashburton, Eastern Areas	521.23	Logistics/Business			240	125,095
SDA13	CBD, Ashburton, Eastern Areas	265.61	Residential	60	15,937	6.45	102,793
SDA14	CBD, Ashburton, Eastern Areas	850.82	Agri business/Commercial			240	204,196
	CBD, Ashburton, Eastern Areas		Clinic		3	2.05	6
	CBD, Ashburton, Eastern Areas		Pre-school		4	2.05	8
	CBD, Ashburton, Eastern Areas		Secondary School		4	2.05	8
	CBD, Ashburton, Eastern Areas		Library		2	2.05	4
	CBD, Ashburton, Eastern Areas		Community Hall		5	2.05	10
	CBD, Ashburton, Eastern Areas		Social Services		2	2.05	4
	CBD, Ashburton, Eastern Areas		Hospital		1	2.05	2
	CBD, Ashburton, Eastern Areas		Fire station		2	2.05	4
TOTAL REQUIRED FUTURE WASTE GENERATION							**762,297**

Infrastructure requirements

Energy

The largest increase load requirement falls within this area, with an expected load growth required in the range of over 200 MVA. Currently this area is supplied from the Bishopstowe, PETRONET and Northdale substations at 132kV. There is currently available supply for the immediate future, but the 33kV infrastructure within this area is aged and requires upgrade with Northdale and Woodburn substations exceeding their supply capacity(firm)

The load/demand expectations in the table below have been generated utilising a Geographic load flow analysis. The proposed land use with expected demand per hectare generates an expected demand for the end state of the networks and installed capacity. For functional area 1 the expected final load increase is approximately 215MVA, with most of this load being attributed to residential increases and consequent load demand.

Below is a summary of projects per SDA, social infrastructure and Commercial/Industrial demand and their expected load requirements after implementation.

Table 39 Functional Area 1 expected electricity load requirements

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kVA per establishment	Expected kVA/Hectare	Total kVA
SDA1	CBD, Ashburton, Eastern Areas	48.75	Residential	60	2,925		85	2735
SDA2	CBD, Ashburton, Eastern Areas	33.58	Residential	60	2,015		85	1884
SDA3	CBD, Ashburton, Eastern Areas	49.98	Commercial				75	2474
SDA4	CBD, Ashburton, Eastern Areas	65.57	Residential	60	3,934		85	3678
SDA5	CBD, Ashburton, Eastern Areas	774.17	Residential	60	46,450		85	43431
SDA6	CBD, Ashburton, Eastern Areas	72.85	Commercial				75	3606
SDA7	CBD, Ashburton, Eastern Areas	196.08	Residential	60	11,765		85	11000
SDA8	CBD, Ashburton, Eastern Areas	12.17	Residential	60	730		85	683
SDA9	CBD, Ashburton, Eastern Areas	826.44	Residential	60	49,587		85	46363
SDA10	CBD, Ashburton, Eastern Areas	65.06	Residential	60	3,904		85	3650
SDA11	CBD, Ashburton, Eastern Areas	422.78	Residential	60	25,367		85	23718
SDA12	CBD, Ashburton, Eastern Areas	521.23	Logistics/Business				15	5160
SDA13	CBD, Ashburton, Eastern Areas	265.61	Residential	60	15,937		85	14901
SDA14	CBD, Ashburton, Eastern Areas	850.82	Agri business/Commercial				95	53346
	CBD, Ashburton, Eastern Areas		Clinic		3	2		6
	CBD, Ashburton, Eastern Areas		Pre-school		4	2		8
	CBD, Ashburton, Eastern Areas		Secondary School		4	2		8
	CBD, Ashburton, Eastern Areas		Library		2	1		2
	CBD, Ashburton, Eastern Areas		Community Hall		5	3		15
	CBD, Ashburton, Eastern Areas		Social Services		2	2		4
	CBD, Ashburton, Eastern Areas		Hospital		1	5		5
	CBD, Ashburton, Eastern Areas		Fire station		2	3		6
TOTAL REQUIRED FUTURE DEMAND								**216684**

Cost to connect a household can range dependant on the type of installation, but a typical value to be utilised is R16,000.00 per household for low-cost housing. This will result in a possible total cost of approximately R2,600,000,000.00 to electrify all the households within functional area 1.

7.1.2 Functional Area 2: Greater Edendale / Imbali

Existing situation:	Current challenges:
• The area is largely characterised by residential and open space zones; • Existing residential land uses are dispersed towards the southern parts of the area due to the area's topology; • The GEVDI operates within this functional area, a significant number of urban regeneration projects have been identified in the area, these are expected to attract private investment; • The functional area is currently the prime focus for land acquisition to facilitate mixed-use development as part of changing the apartheid landscape; • The south-eastern portion of the Edendale area is currently demarcated as 'Rapid Urbanisation Management Area possibly for future residential development; and • Edendale was identified as a Priority Housing Development Area.	• High levels of unemployment and poverty; • Restricted urban development in certain areas due to undulating topography and river corridors; • Backlogs for the construction and upgrading of roads; • Inadequate infrastructure and basic services, particularly water and sanitation; • The poor remain located far away from economic opportunities; and • Rapid growth of informal settlements mostly on privately owned land.

Development Strategy and intended impact as per Theory of Change:

Protect:

- Protect CBAs and wetlands;
- Protect and maintain historically significant heritage zones, and enhance public space and movement routes within these areas;
- A heritage tourism-orientated plan is proposed, which identifies the main heritage resources that tourists can visit. This forms part of the prioritised projects in the Tourism Development Plan;
- Focus on infill and densification at strategic sites thereby reducing sprawl; and
- Retain and protect high-value and unique agricultural land located towards the south of the FA.

Change:

- Uplift marginalised areas and foster ownership during recovery;
- Promote urban infill and densification at appropriate locations, especially in the Edendale node and Imbali precinct;
- Develop proposed high mixed land use within Wilgefontein, Sinathingi and Newtown;
- Create spaces for informal trading spaces;
- Promote urban agriculture and small-scale farming opportunities; and
- Protect agricultural land from ad hoc transformation.

New:

- Create functional and sustainable urban open space networks;
- Create vibrant urban spaces (soft and hard spaces), create a network of pedestrian friendly public spaces connecting key focal points;
- Support brownfield development, rather than greenfield developments on the periphery of the urban area;
- No development within environmental sensitive areas;
- Human settlement developments to be located in close proximity to urban centres and the IRPTN and BRT networks;
- Support integrated human settlement developments and new developments must include community facilities; and
- Urban agriculture: food gardens at vacant land within urban area, and small-scale farming opportunities to enable the production of local produce that can be sold at informal trading spaces.

Cross border alignment:

- Engage with Richmond Municipality to discuss the future development along the Municipal boundary and limit south-ward expansion of Wilgefontein.
- Any development application submitted at Wilgefontein near the Municipal boundary should be circulated to both Msunduzi and Richmond Municipalities.

FA 1: Spatial Framework:

LEGEND

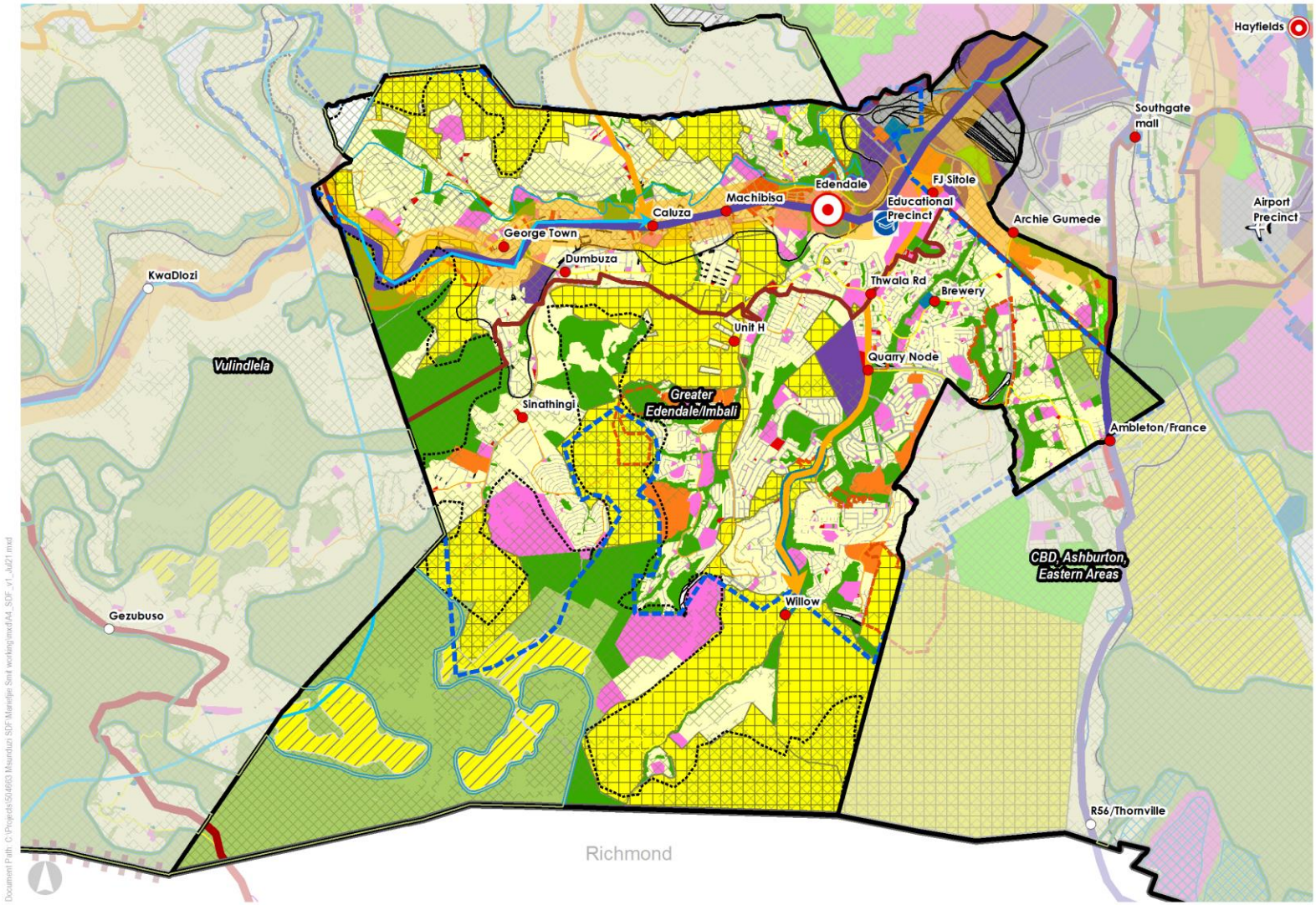


Figure 46: FA 2 - Spatial Framework

Development proposals (2050):

Major projects

- Edendale Town Centre Urban Hub precinct plan;
- Edendale Civic Centre;
- Town Centre Promenades 1 & 2;
- Town Centre Civic Building;
- Town Centre Market Stalls;
- Town Centre Piazza;
- Msunduzi Integrated Rapid Public Transport Network (IRPTN);
- Light Industrial Park;
- Youth Enterprise Park;
- Manyane Hall;
- Imbali Precinct; and
- Human Settlements Projects.

Human settlements

There is limited land for greenfield development within the FA, therefore, higher density development should be encouraged throughout the FA. Detailed specialist studies should be conducted prior to any development on environmentally sensitive land. It is estimated that households will increase by 17,780 households by 2050 within the Edendale and Imbali FA. Nearly 73% of the future demand is within the low income group with these residents relying on government subsidised housing. A gazetted PHSHDA is located within the FA as illustrated on Figure 47. Government human settlement projects are planned to provide 2,195 units by 2021 and an additional 20,730 units by 2030. Various projects are in the implementation stage and the projects in the planning stage are scattered throughout the FA. These projects are illustrated on Figure 49. Note: the density within the Edendale town centre and along corridors can be increased to align with the proposed housing typologies, where applicable, it is also envisaged that the land required to meet the demand will be provided through the transformation, regeneration and restructuring of brownfield areas.

The following human settlements proposals are made:

- Two pockets of land towards the south west of the FA has been identified for future development SDAs as illustrated on Figure 51). These SDAs area ideal for integrated greenfield development and should include social and civic facilities. In total these SDAs measure 297.02ha in extent and, at a density of 60du/ha, a total of 17,821 housing opportunities can be accommodated. Detailed specialist studies should be undertaken to determine the total developable area;
- High density and intensification within the nodes and along the corridors should be encouraged. Densities between 100 - 180du/ha should be promoted within the intensification zone as illustrated on Figure 50.

The maps below provide an indication of the existing residential areas, government human settlement projects, intensification areas and new greenfield developments.

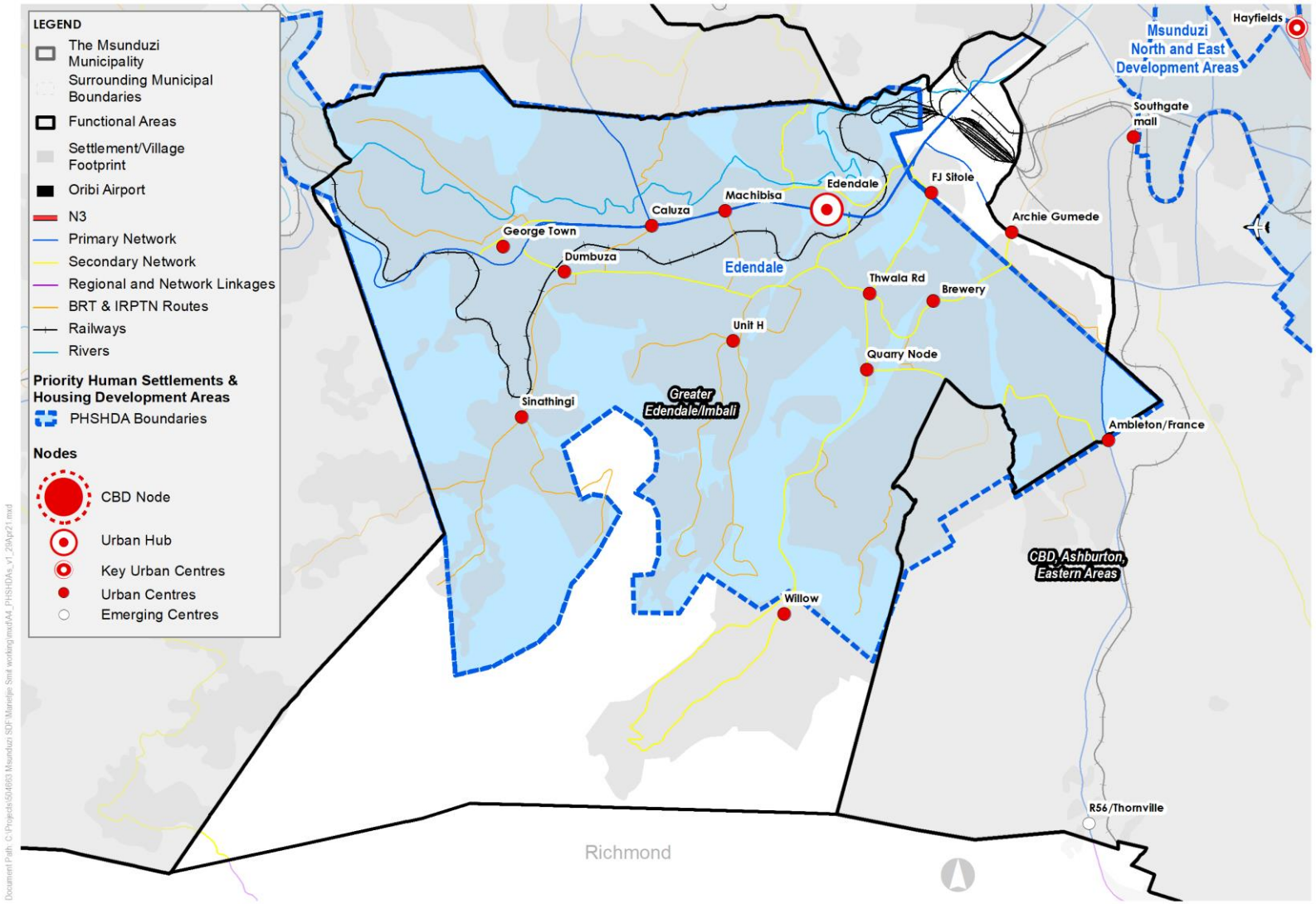


Figure 47: Priority Human Settlement Housing Development Area

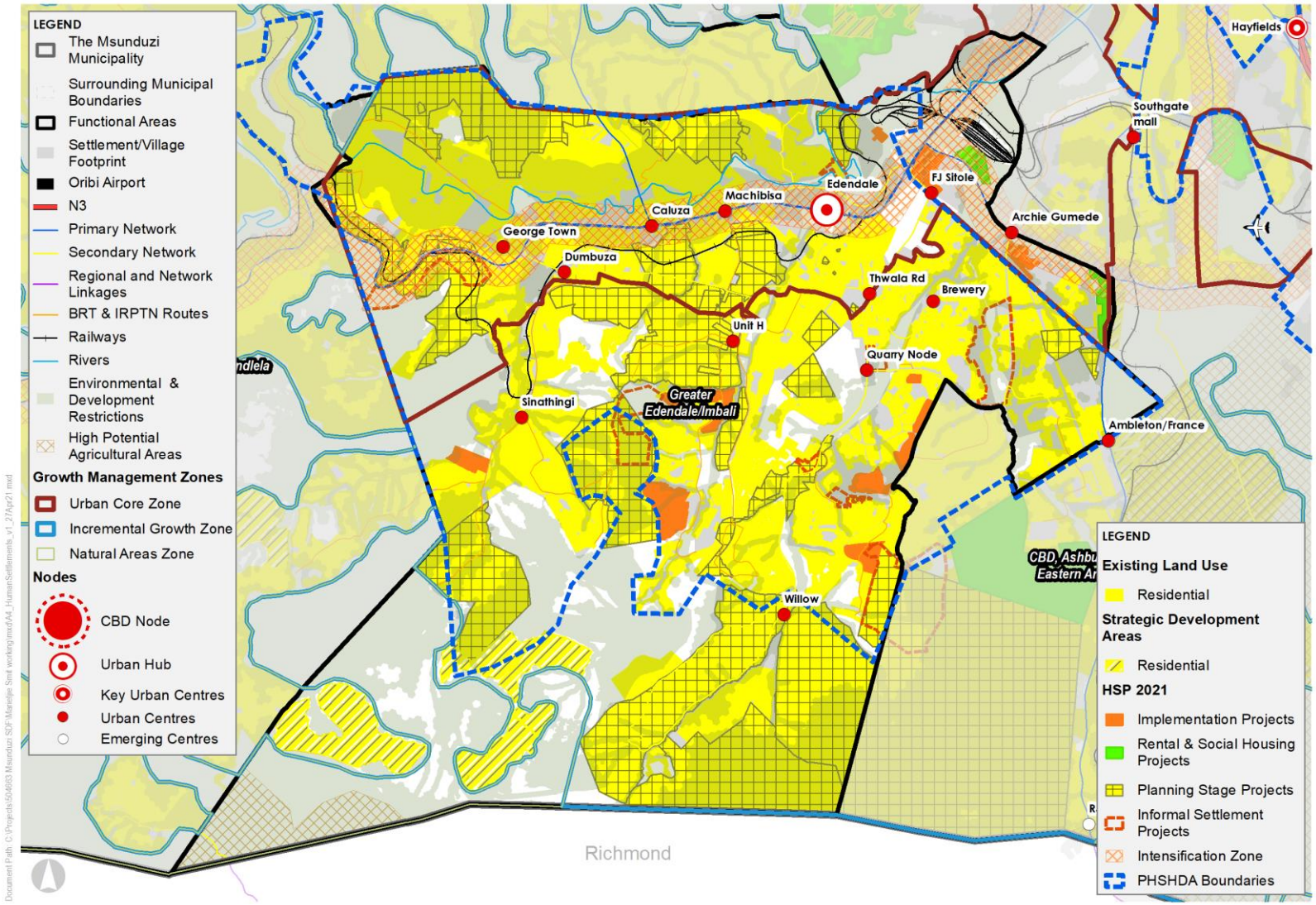


Figure 48: Functional Area 2 - Existing human settlements and proposed Strategic Development Areas

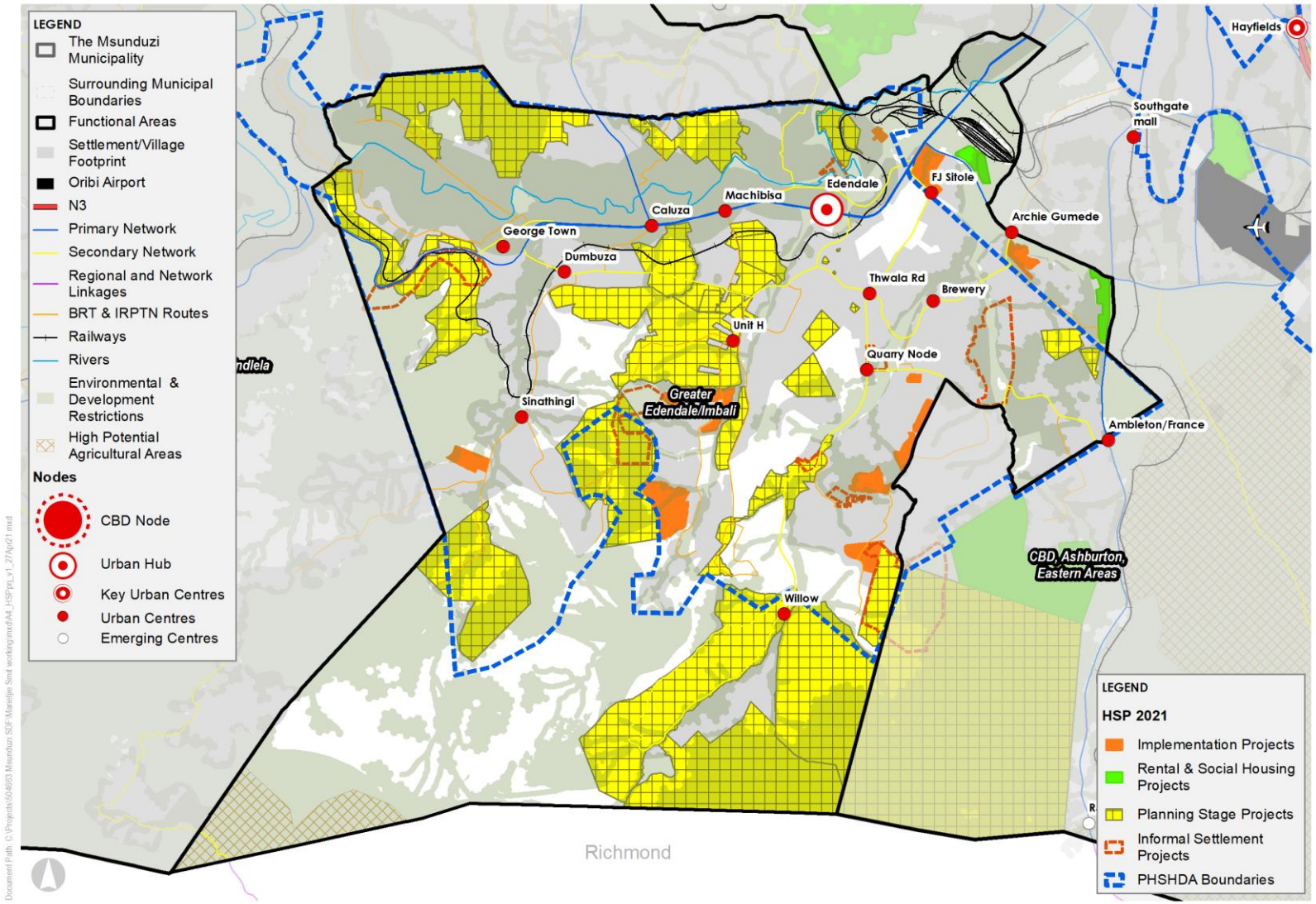


Figure 49: Functional Area 2 - Human Settlements Projects

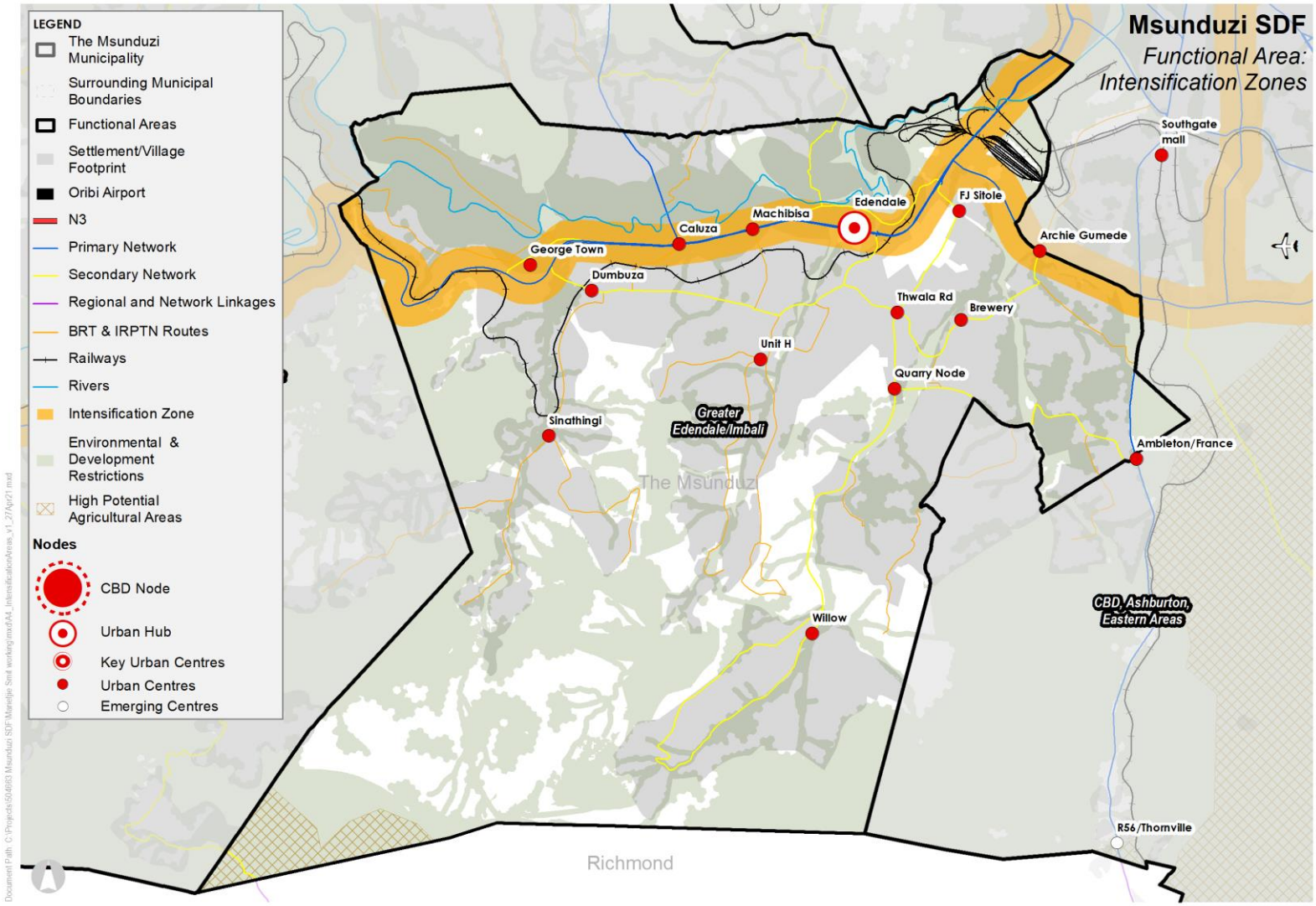


Figure 50: Functional Area 2 - Intensification areas

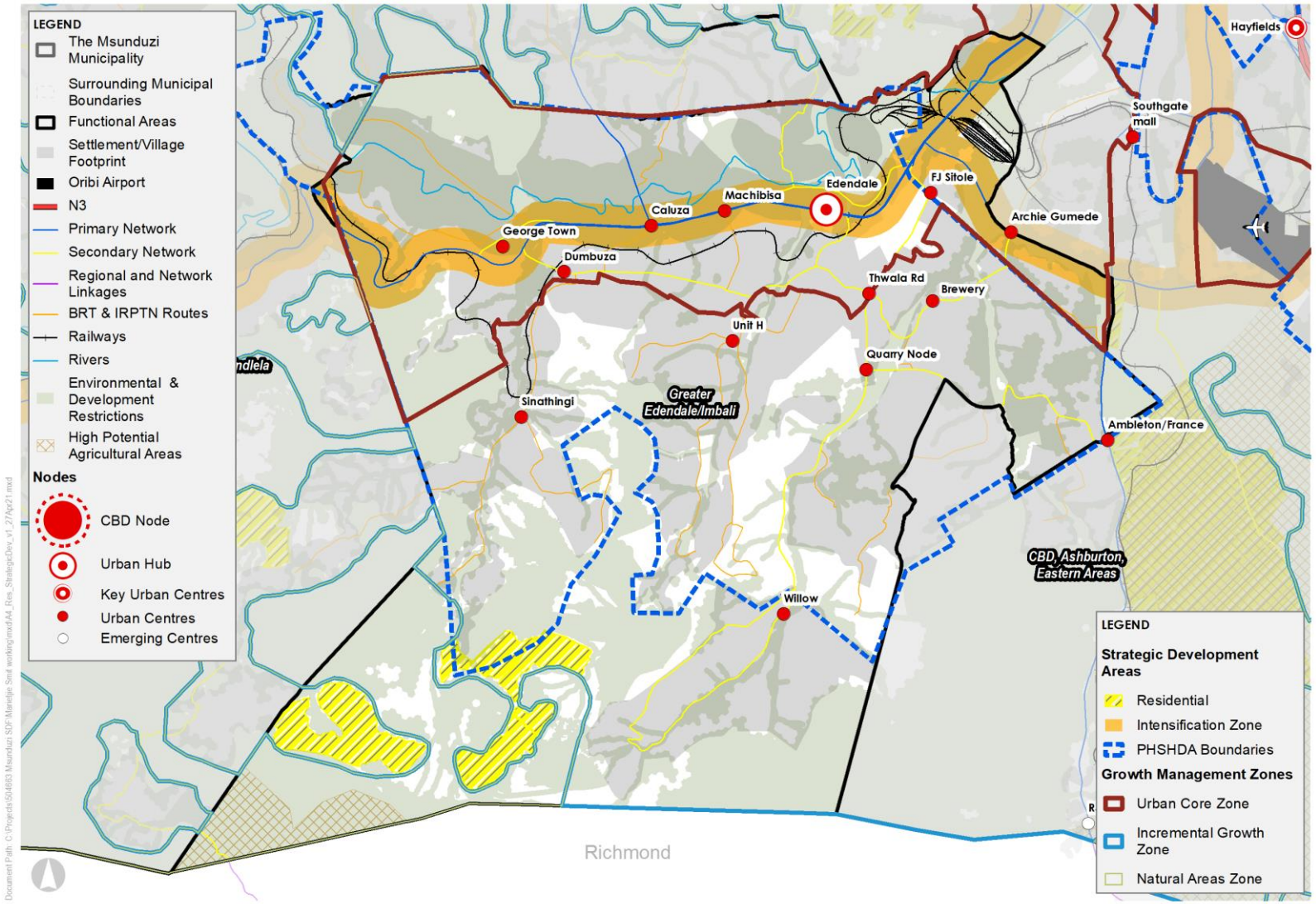


Figure 51: Functional Area 2 – Human Settlement Strategic Development Areas

Social infrastructure

A number of social infrastructure facilities are required within the FA. Note that more than one facility may be required per Ward.

Table 40: Proposed social infrastructure allocation per Ward

Ward	Social infrastructure allocation		
Ward 10	Primary school		
Ward 11	Primary school Secondary school Hospital Clinic	Police station Fire station Community hall	Library Social Services (SASSA) Pay Point Post office
Ward 13	Clinic Police station	Community hall Library	
Ward 14	Secondary school Hospital Clinic	Police station Community hall Library	Social Services (SASSA) Pay Point Post office
Ward 15	Secondary school	Hospital	
Ward 17	Hospital	Fire station	Social Services (SASSA) Pay Point
Ward 20	Primary school Clinic	Community hall Library	
Ward 21	Police station		
Ward 22	Fire station	Home affairs office	
Ward 23	Clinic		

Business, retail and industrial

Figure 52 illustrates existing business, retail and industrial activities within FA 2. Predominantly the commercial and mixed-use activities are located at the Edendale Town Centre with smaller mixed-use erven scattered throughout the FA. The industrial activities are located at Plessislaer, Imbali, Masons Mill and Camps Drift on both sides of the M70. The quarry located near Quarry node is also zoned industrial, however no industrial activities are currently taking place at this location.

New developments within the FA make provision for the following business, retail and industrial opportunities as illustrated on Figure 53:

1. Manaye Hall Precinct – this project seeks to enhance the tourism character within Imbali and link all tourism sites and routs with Msunduzi and surrounds.
2. Edendale Town Centre (Township Regeneration Strategy) - The Greater Edendale area has been identified for a Township Regeneration strategy which aims to ensure that the development of an Urban Hub within the Greater Edendale area will assist with the transformation and regeneration of the area and that the spin-offs of this would contribute to the improvement of the surrounding areas.
3. Edendale Town Centre: Mt Partridge and Thwala Road.
4. Leather hub flagship project.
5. Aluminium Hub Development project – the project is located on erf 3168, Masons Mill. The project was identified to support at least 100 local entrepreneurs in the aluminium fabrication sector and to guide them into sustainable business.
6. Edendale Auto Service Hub – the project aims to address the main challenges of job creation, economic growth and radical economic transformation.

The intensification zone extends along the M70 and southwards towards Unit H as well as at Willow. A commercial corridor stretches northwards from Willow to encourage new development and investment. These economic conditions, described earlier in this report, impact on the up take of land for new commercial, retail and industrial development. **Error! Reference source not found.** provides an indication of the up take rate for commercial, mixed use and industrial activities based on the anticipated economic conditions in the short to medium-term.

Table 41: Demand for lower order shopping centres and large centres

	Population growth (2016 – 2050)	Per capita	Future supply based on population growth	Land area requirement	Total facility demand
Lower order shopping centres	132,806	0.4m²/capita	53,122m² / 5.31ha	1-2ha	3 - 5
Larger centres		0.6m²/capita	79,684m² / 7.97ha	10-20ha	1

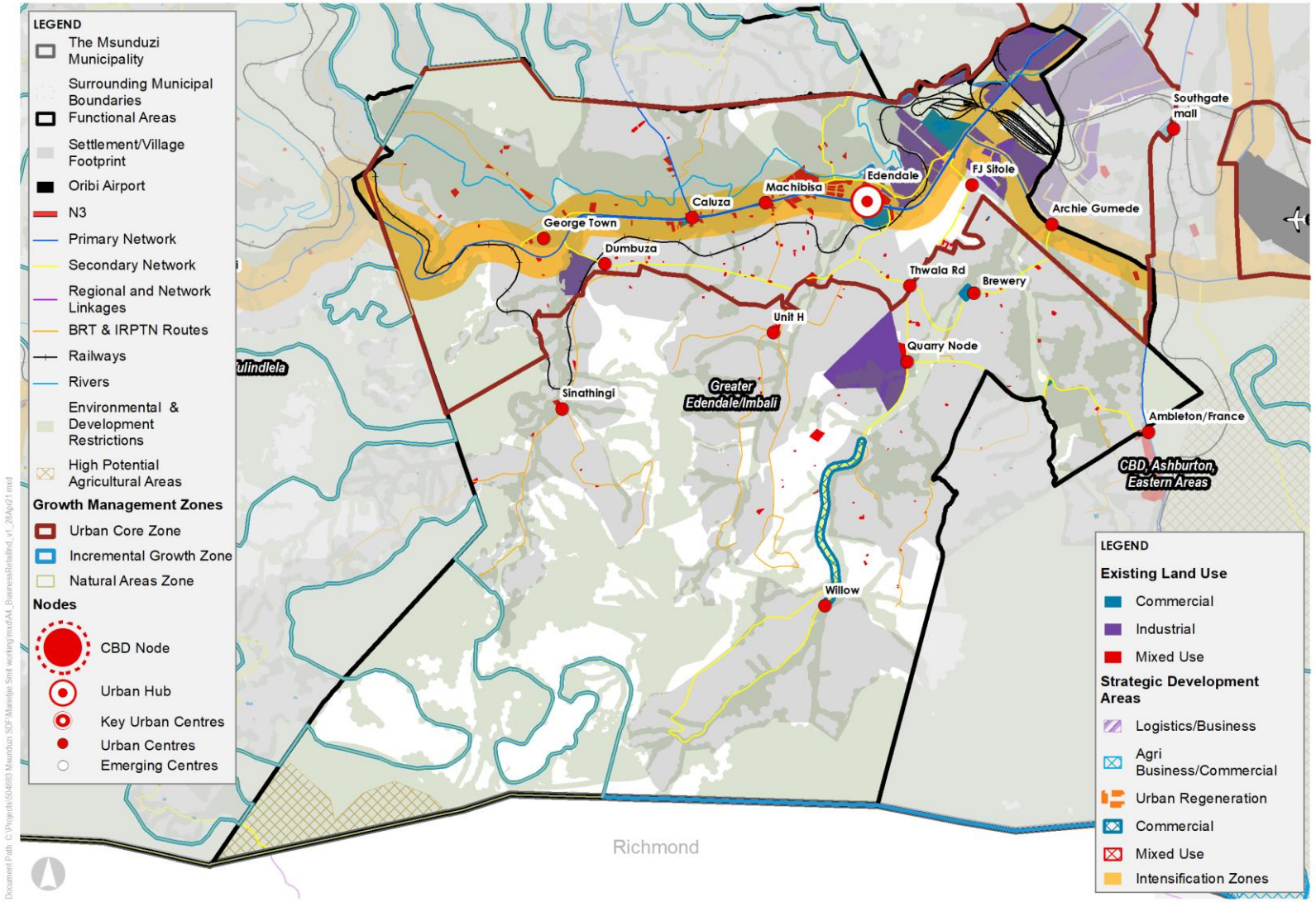


Figure 52: Functional Area 2 - Business, retail and industrial

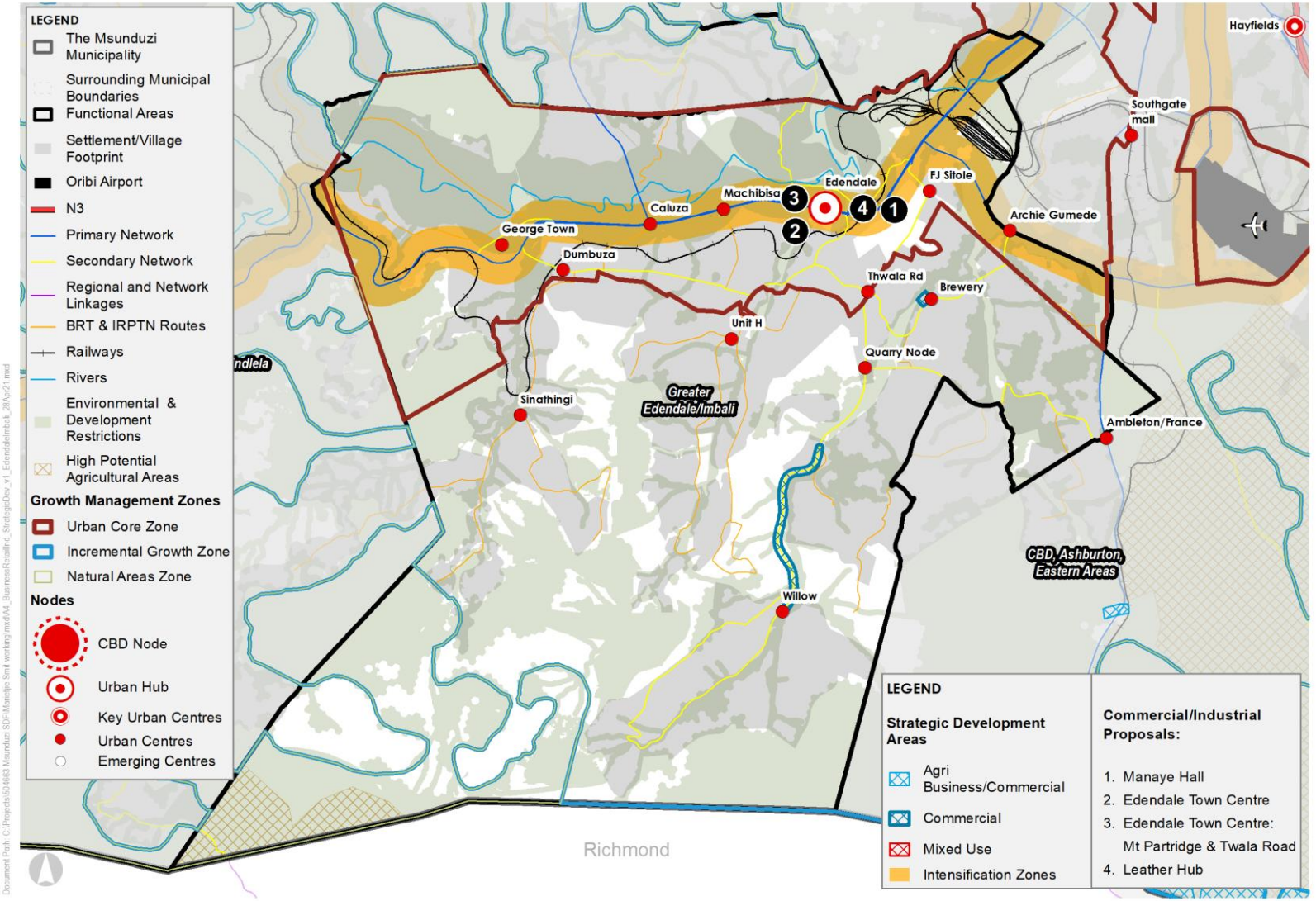


Figure 53: Functional Area 2 - Business, retail and industrial Strategic Development Areas

Infrastructure requirements
Water

Functional area 2 has a smaller increase in water demand requirement, with an expected demand growth of approximately 17 Ml/day. Such an increase in daily demand should fall within the ultimate water demand of 123 Ml/d. Measures to reduce the current high unaccounted for water figure of 55% will also assist with making more of the existing water supply available. All upgrades pertaining to the existing water master plan will be required at some stage in the future to realise the full ultimate water demand (R640 million).

The anticipated increase in demand is summarised in the table below and is based on standard demand rates (CSIR Red Book). These figures can be reduced should the municipality implement water saving initiatives, at various scales. For functional area 2, the anticipated water demand load increase is 17.1 Ml/day.

Table 42 Functional Area 2 anticipated water demand load increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kl/day per unit	Total kl/day
SDA15	Greater Edendale/Imbali	294.02	Residential	60	17,641	0.9	15,877
SDA16	Greater Edendale/Imbali	2.29	Commercial			40	91
SDA17	Greater Edendale/Imbali	28.20	Commercial			40	1128
	Greater Edendale/Imbali		Clinic		3	0.9	3
	Greater Edendale/Imbali		Pre-school		4	0.9	4
	Greater Edendale/Imbali		Secondary School		4	0.9	4
	Greater Edendale/Imbali		Library		2	0.9	2
	Greater Edendale/Imbali		Community Hall		5	0.9	5
	Greater Edendale/Imbali		Social Services		2	0.9	2
	Greater Edendale/Imbali		Hospital		1	0.9	1
	Greater Edendale/Imbali		Fire station		2	0.9	2
	Greater Edendale/Imbali		Post Office		1	0.9	1
	Greater Edendale/Imbali		Police Station		2	0.9	2
	Greater Edendale/Imbali		Home Affairs		2	0.9	2
TOTAL REQUIRED FUTURE DEMAND							**17122**

The cost for connection of a new household to a potable water line varies on the type of installation and can also be reduced by urban densification with more than one household utilising a house connection. However, to remain conservative, and at an estimated cost of R20,000 per connection, a possible total cost to connect all new households will be R353,000,000. This large number demonstrates why intensification and vertical growth in housing opportunities is required.

Infrastructure requirements:
Sanitation

Functional area 2 has a smaller increase in sewer yield requirement, with an expected yield growth of approximately 14 Ml/day. This area is currently served by the Darvill WWTP. Such an increase in daily yield will require both additional investment in bulk infrastructure, particularly at Darvill for which upgrading plans already exist.

The anticipated increase in yield is summarised in the table below and is based on standard demand rates (CSIR Red Book). These figures can be reduced should the municipality implement water saving initiatives, at various scales, which will have a knock-on impact on sewer yield. For functional area 2, the anticipated sewer yield load increase is 14.3 Ml/day.

Table 43 Functional Area 2 anticipated sewer yield load increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kl/day per unit	Total kl/day
SDA15	Greater Edendale/Imbali	294.02	Residential	60	17,641	0.75	13,231
SDA16	Greater Edendale/Imbali	2.29	Commercial			34	78
SDA17	Greater Edendale/Imbali	28.20	Commercial			34	959
	Greater Edendale/Imbali		Clinic		3	0.75	2
	Greater Edendale/Imbali		Pre-school		4	0.75	3
	Greater Edendale/Imbali		Secondary School		4	0.75	3
	Greater Edendale/Imbali		Library		2	0.75	2
	Greater Edendale/Imbali		Community Hall		5	0.75	4
	Greater Edendale/Imbali		Social Services		2	0.75	2
	Greater Edendale/Imbali		Hospital		1	0.75	1
	Greater Edendale/Imbali		Fire station		2	0.75	2
	Greater Edendale/Imbali		Post Office		1	0.75	1
	Greater Edendale/Imbali		Police Station		2	0.75	2
	Greater Edendale/Imbali		Home Affairs		2	0.75	2
TOTAL REQUIRED FUTURE YIELD							**14289**

The cost for connection of a new household to a waterborne sewer pipeline varies on the type of installation and can also be reduced by urban densification with more than one household utilising a house connection. However, to remain conservative, and at an estimated cost of R20,000 per connection, a possible total cost to connect all new households will be R353,000,000. This large number demonstrates why intensification and vertical growth in housing opportunities is required.

Infrastructure requirements:
Waste

The anticipated increase in waste generation is summarised in the table below and is based on standard generation rates (CSIR Red Book). These figures can be reduced should the municipality implement waste saving and diversion measures, at various scales. For functional area 2, the anticipated waste generation increase is 43,539 kg/day.

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kg/day per unit	Total kg/day
SDA15	Greater Edendale/Imbali	294.02	Residential	60	17,641	2.05	36,165
SDA16	Greater Edendale/Imbali	2.29	Commercial			240	549
SDA17	Greater Edendale/Imbali	28.20	Commercial			240	6768
	Greater Edendale/Imbali		Clinic		3	2.05	6
	Greater Edendale/Imbali		Pre-school		4	2.05	8
	Greater Edendale/Imbali		Secondary School		4	2.05	8
	Greater Edendale/Imbali		Library		2	2.05	4
	Greater Edendale/Imbali		Community Hall		5	2.05	10
	Greater Edendale/Imbali		Social Services		2	2.05	4
	Greater Edendale/Imbali		Hospital		1	2.05	2
	Greater Edendale/Imbali		Fire station		2	2.05	4
	Greater Edendale/Imbali		Post Office		1	2.05	2
	Greater Edendale/Imbali		Police Station		2	2.05	4
	Greater Edendale/Imbali		Home Affairs		2	2.05	4
TOTAL REQUIRED FUTURE WASTE GENERATION							**43539**

Such an increase in daily yield will require additional investment in bulk infrastructure, which will need to extend beyond the current New England site and will require a new location for a district-wide municipal land fill site. However, identifying such a suitable site is a function of a host of informants and criteria that need to be considered, most notably

- Environmental considerations: a detailed screening of available land and the environmental impact of the landfill
- Proximity to waste generation and ease of access: while balancing environmental considerations, proximity to the built up areas of the municipality is important to reduce transportation costs of solid waste
- Site design: available open land needs to be screened for functional suitability in terms of the landfill technical design

Over and above this, investment in waste diversion strategies to reduce the load on future landfill sites should be prioritised in order to reduce the overall environmental impact of solid waste on the municipality.

Infrastructure requirements
Energy

Functional area 2 has a smaller increase load requirement, with an expected load growth required in the range of over 18 MVA. Currently this area is supplied from the 33/11kV substations east of Hospital and Hulett substation. There is currently available supply for the immediate future, but the 33kV infrastructure within this area is aged and requires upgrade.

The load/demand expectations in the table below have been generated utilising a Geographic load flow analysis. The proposed land use with expected demand per hectare generates an expected demand for the end state of the networks and installed capacity. For functional area 2 the expected final load increase is approximately 18MVA, with most of this load being attributed to residential increases and consequent load demand.

Below is a summary of projects per SDA, social infrastructure and Commercial/Industrial demand and their expected load requirements after implementation.

Table 44 Functional Area 2 expected electricity load requirements

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kVA per establishment	Expected kVA/Hectare	Total kVA
SDA15	Greater Edendale/Imbali	294.02	Residential	60	17,641		85	16495
SDA16	Greater Edendale/Imbali	2.29	Commercial				75	113
SDA17	Greater Edendale/Imbali	28.20	Commercial				75	1396
	Greater Edendale/Imbali		Clinic		3	2		6
	Greater Edendale/Imbali		Pre-school		4	2		8
	Greater Edendale/Imbali		Secondary School		4	2		8
	Greater Edendale/Imbali		Library		2	1		2
	Greater Edendale/Imbali		Community Hall		5	3		15
	Greater Edendale/Imbali		Social Services		2	2		4
	Greater Edendale/Imbali		Hospital		1	5		5
	Greater Edendale/Imbali		Fire station		2	3		6
	Greater Edendale/Imbali		Post Office		1	1		1
	Greater Edendale/Imbali		Police Station		2	3		6
	Greater Edendale/Imbali		Home Affairs		2	1		2
TOTAL REQUIRED FUTURE DEMAND								**18067**

Cost to connect a household can range dependant on the type of installation, but a typical value to be utilised is R16,000.00 per household for low-cost housing. This will result in a possible total cost of approximately R285,000,000.00 to electrify all the households within functional area 2.

7.1.3 Functional Area 3: Northern Areas

Existing situation:	Current challenges:
• Greater variety of land uses, consisting predominantly of residential, open space, preservation areas and pockets of business uses; • A large industrial area is located towards the east of the Northern Areas, it constitutes a major sector in the economy of the Northern Areas; • There is significant retail and commercial nodes within this functional area; • The functional area is experiencing slow growth with a growth rate of 0.5% deemed reasonable for the short to medium term; • Largest health institutions are located within this area; and • The N3 corridor traverses the ABM, but it is largely a movement corridor between the dominant urban cores of Johannesburg and Durban.	• Concentration of informal settlements; • Limited access points (into or out of the CBD); • Illegal home business operation in the functional area that are altering land use patterns; and • Traffic congestion.

Development Strategy and intended impact as per Theory of Change:

Protect:

- Protect CBAs, wetlands and high potential agricultural land;
- Protect and maintain historically significant heritage zones, and enhance public space and movement routes within these areas;
- A heritage tourism-orientated plan is proposed, which identifies the main heritage resources that tourists can visit. This forms part of the prioritised projects in the Tourism Development Plan of the Municipality;
- Focus on infill and densification at strategic sites thereby reducing sprawl – new human settlements projects are located along the periphery of existing urban area; and

Change:

- Promote urban infill and densification at appropriate locations, especially in the CBD and along BRT corridors;
- Develop proposed high mixed land use within Copesville and Montrose;
- Create spaces for informal trading spaces;
- Promote urban agriculture and small-scale farming opportunities; and
- Protect agricultural land from ad hoc transformation.

New:

- Create functional and sustainable urban open space network;
- Create vibrant urban spaces (soft and hard spaces), create a network of pedestrian friendly public spaces connecting key focal points;
- Support brownfield development, rather than greenfield developments on the periphery of the urban area;
- No development within environmental sensitive areas;
- Human settlement developments to be located in close proximity to urban centres and the IRPTN and BRT networks;
- Support integrated human settlement developments and new developments must include community facilities; and
- Urban agriculture: food gardens at vacant land within urban area, and small-scale farming opportunities to enable the production of local produce that can be sold at informal trading spaces;
- The transformation of land for the proposed government precinct provides an opportunity to breath new life into the area and promote private sector investment.

Cross border alignment:

- Any development application submitted near the Municipal boundary, especially development applications along Ottos Bluff Road, the R33 and the N3, should be circulated to both Msunduzi and uMshwathi Municipalities.

FA 1: Spatial Framework:

LEGEND

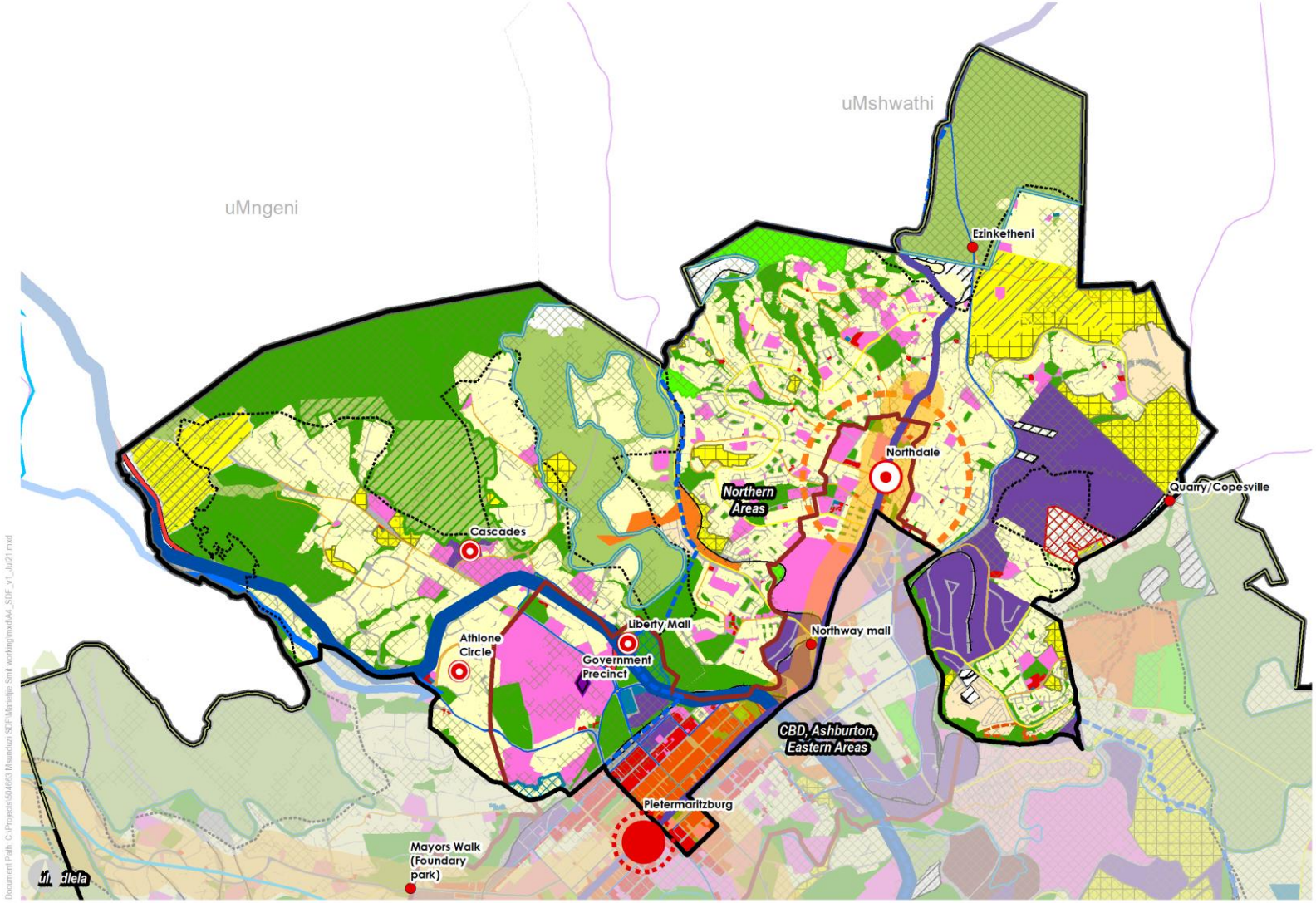


Figure 54: FA 3 - Spatial Framework

Development proposals (2050):

Major projects

- Community halls
- Copesville reservoir
- Government precinct

Human settlements

There is limited land for greenfield development within the FA and the existing forest plantations towards the north should be preserved. It is estimated that households will increase by 9,730 households by 2050 within the Northern Areas. The highest demand for housing is within the low income group. These are predominantly residents who rely on government subsidised housing. There are a number of government human settlement projects being implemented and planned that will provide 2,089 housing opportunities by 2021 and an additional 1,251 housing opportunities by 2030. An alternative approach low density development is required to accommodate the expected growth. A gazetted PHSHDA is located within the FA as illustrated on Figure 55. The maps below provide an indication of the existing residential areas, government human settlements projects, intensification areas and new greenfield developments. Note: the density within the nodes can be increased to align with the proposed housing typologies, where applicable. It is also envisaged that the land required to meet the demand will be provided through the transformation, regeneration and restructuring of brownfield areas.

The following residential proposals are made:

- High density and intensification within the nodes and along the corridors with densities between 100 – 180du/ha as illustrated on Figure 58;
- SDAs have been identified as illustrated on Figure 59. These SDAs are ideal for integrated greenfield development and should include social and civic facilities. In total these SDAs measure 216.74ha in extent and, at a density of 60du/ha, a total of 13,004 housing opportunities can be accommodated. Detailed specialist studies should be undertaken to determine the total developable area;
- The redevelopment of brownfield areas should be encouraged to enable transformation, regeneration and restructuring, especially within the intensification zone as illustrated on Figure 58.

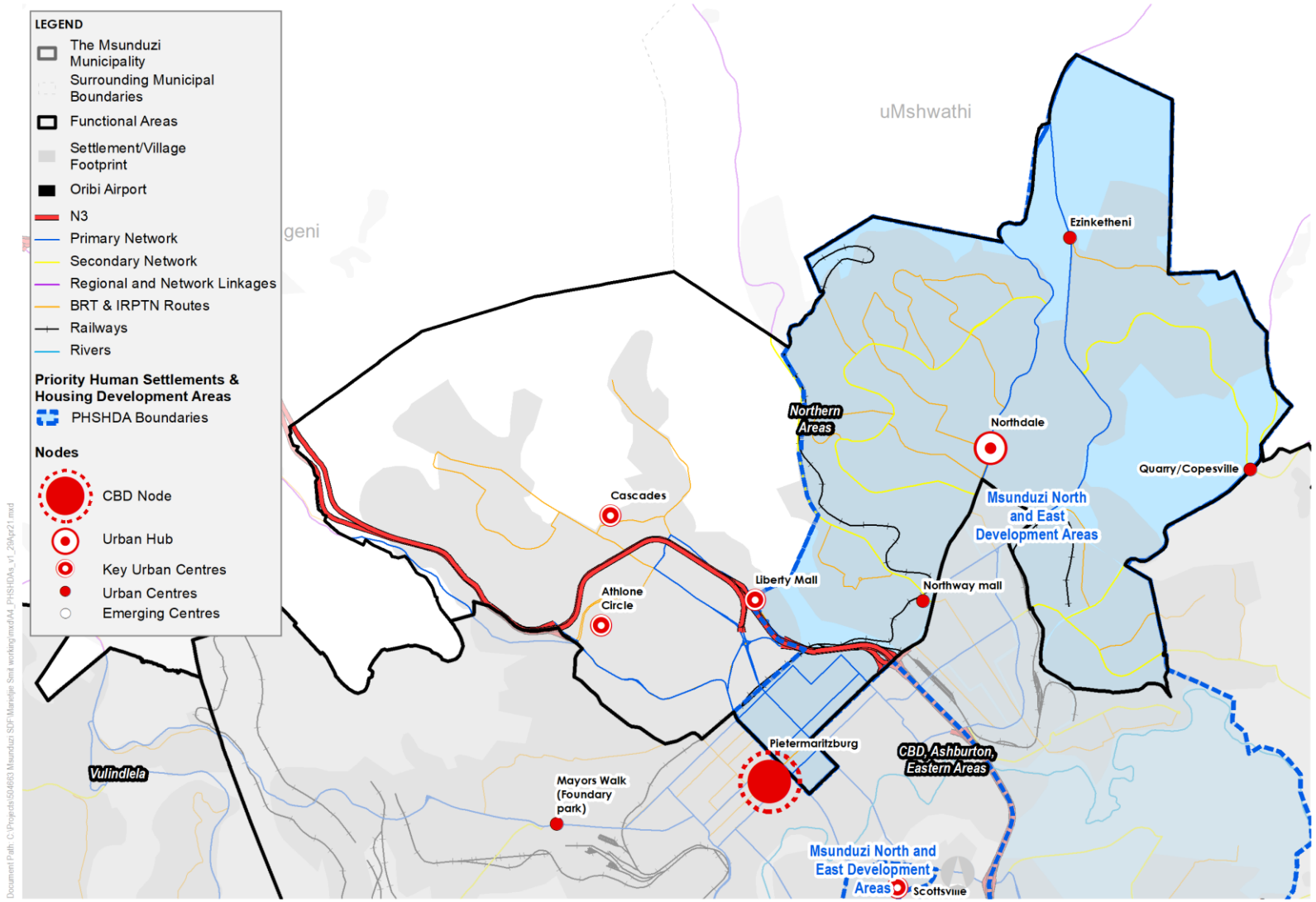


Figure 55: Priority Human Settlement Housing Development Area

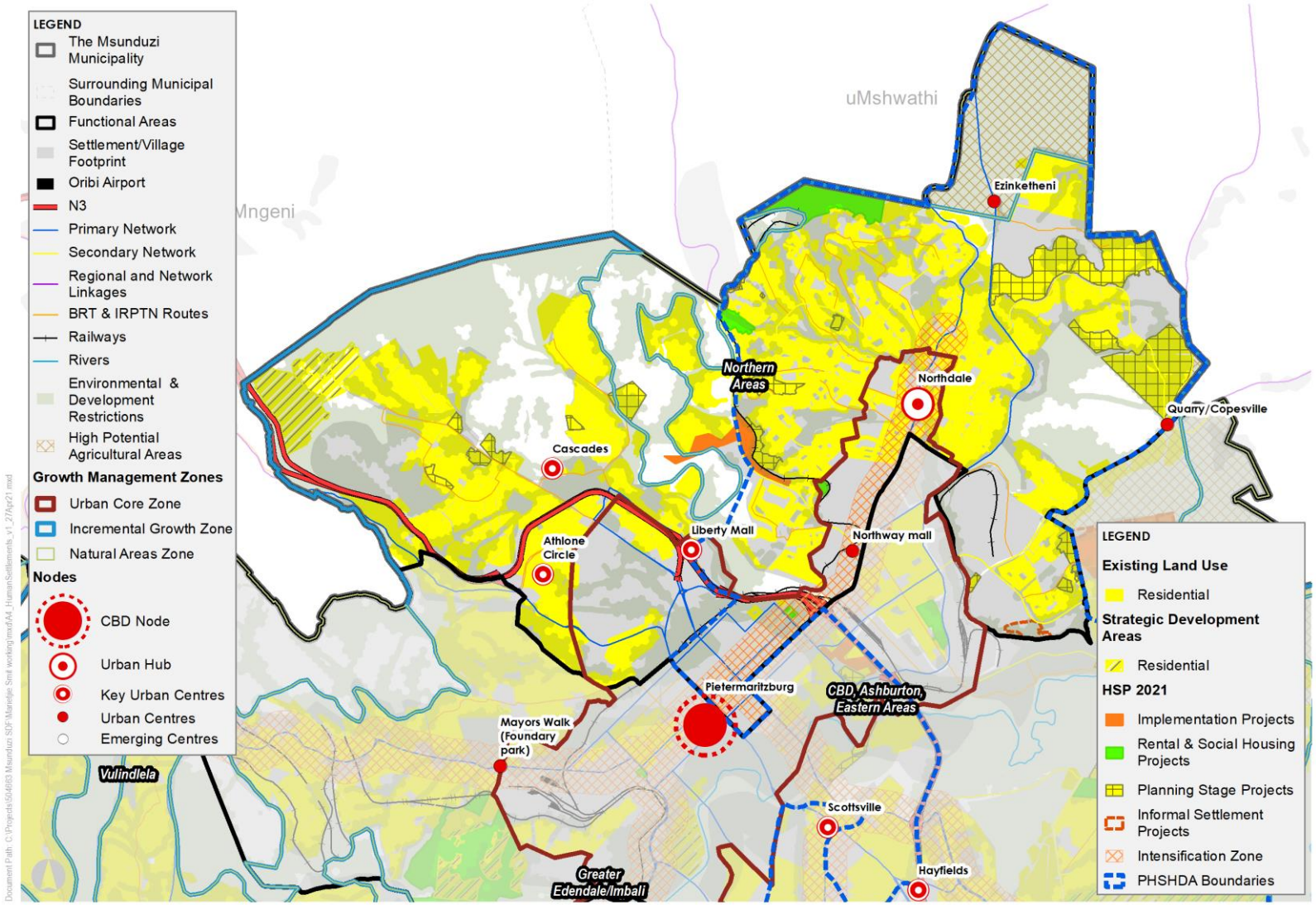


Figure 56: Functional Area 3 - Existing human settlements and proposed Strategic Development Areas

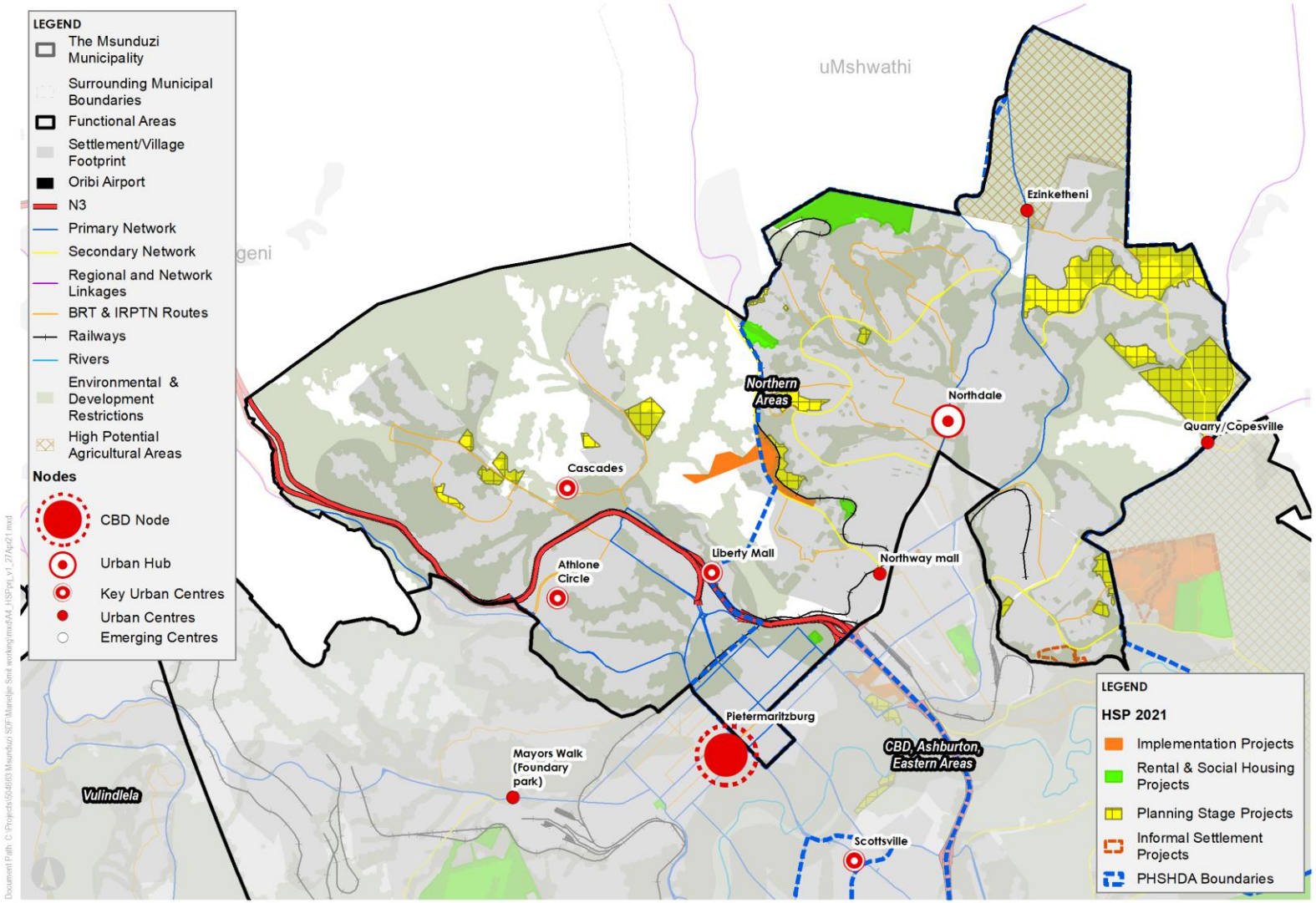


Figure 57: Functional Area 3 - Human Settlements Projects

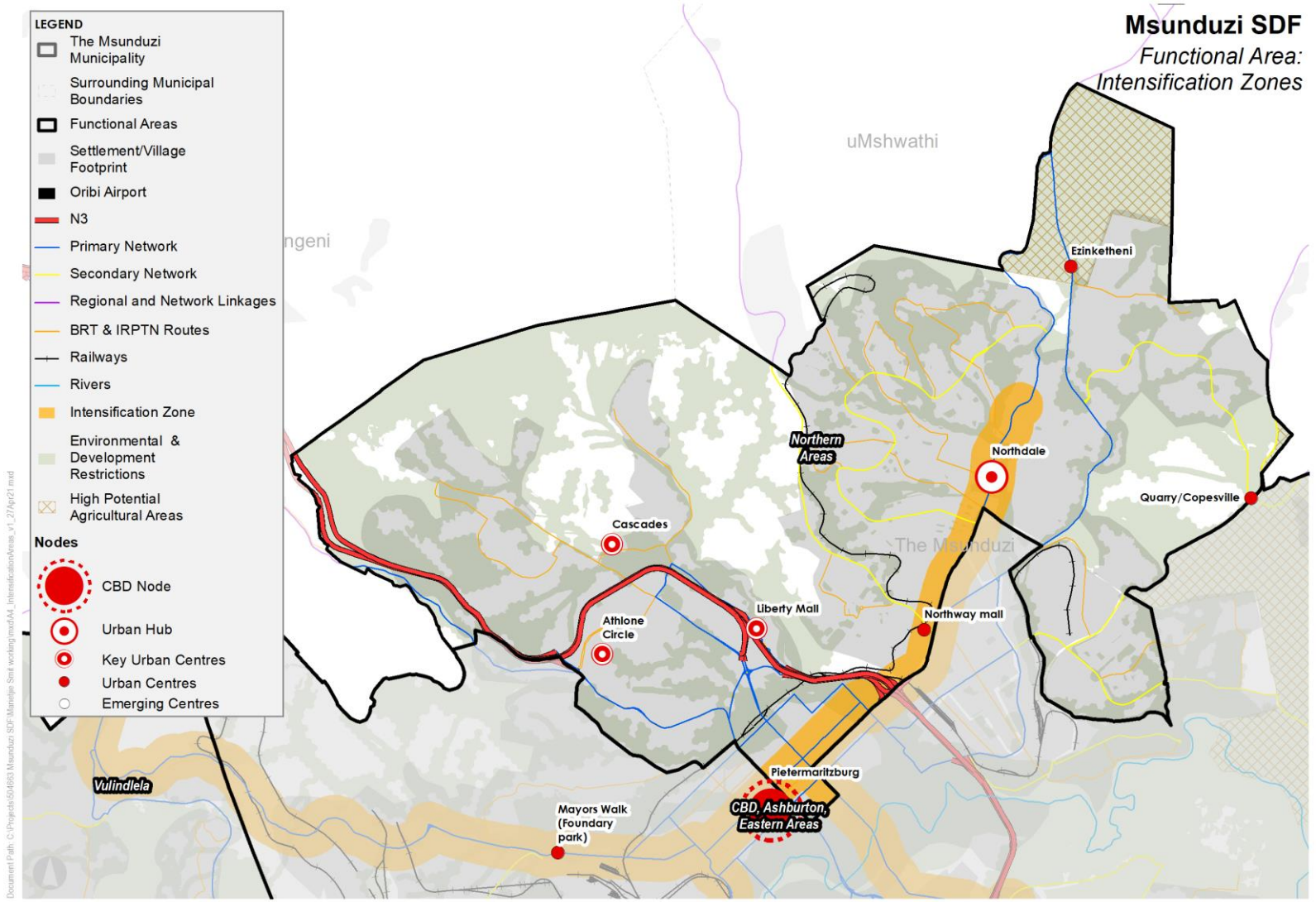


Figure 58: Functional Area 3 - Intensification areas

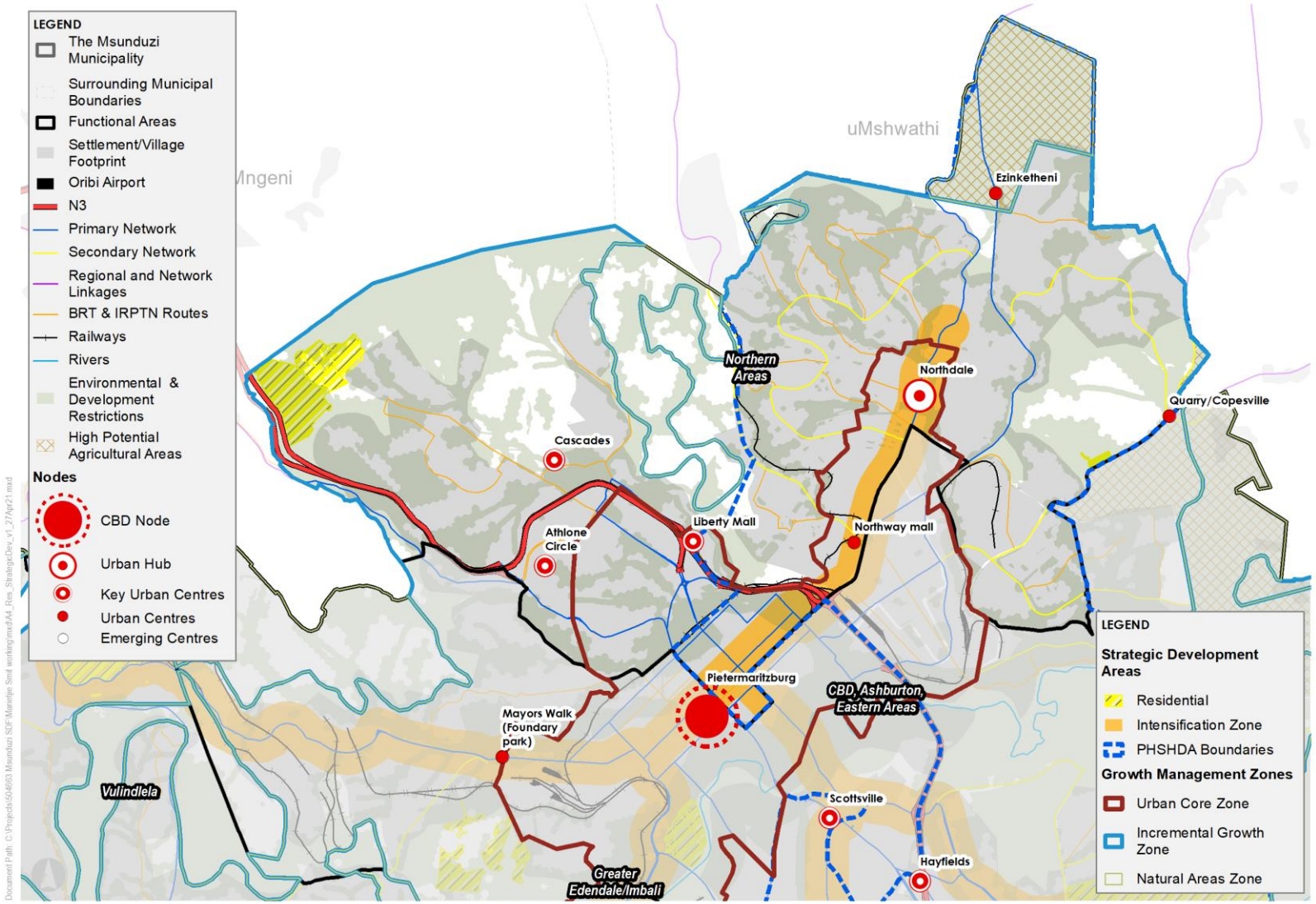


Figure 59: Functional Area 3 – Human Settlement Strategic Development Areas

Social infrastructure

A number of social infrastructure facilities are required within the FA. Note that more than one facility may be required per Ward.

Table 45: Proposed social infrastructure allocation per Ward

Ward	Social infrastructure allocation
Ward 25	Primary school Secondary school Library Community hall
Ward 28	Secondary school Library
Ward 29	Fire station Primary school Secondary school Library
Ward 30	Secondary school Social Services (SASSA) Pay Point Library
Ward 31	Library
Ward 32	Library
Ward 34	Library

Business, retail and industrial

Figure 60 illustrates existing business, retail and industrial activities within FA 3. A portion of the Pietermaritzburg CBD lies within the Northern Area FA. The main office and commercial activities take place within the Pietermaritzburg CBD and small-scale mixed-use activities are scattered throughout the rest of the FA. An industrial park is located at Panorama Gardens with an existing quarry located north east of the industrial park.

As illustrated on Figure 61 the SDF proposes intensification along Connor road, Bangalore road, Khan road, Balham road and Chota Motala road and urban regeneration is proposed in and around the Northdale node. New SDAs have been identified. Firstly, a new site for commercial activities have been identified at Liberty Mall and secondly, a mixed-use site near the Quarry / Copeville node. The economic conditions described earlier in this report impact on the up take of land for new commercial, retail and industrial development within Msunduzi. **Error! Reference source not found.** provides an indication of the up-take rate for commercial, mixed use and industrial activities based on the anticipated economic conditions in the short to medium-term.

Table 46: Demand for lower order shopping centres and large centres

	Population growth (2016 – 2050)	Per capita	Future supply based on population growth	Land area requirement	Total facility demand
Lower order shopping centres	72,675	0.4m²/capita	29,070m² / 2.90ha	1-2ha	2 - 3
Larger centres		0.6m²/capita	43,605m² / 4.36ha	10-20ha	0

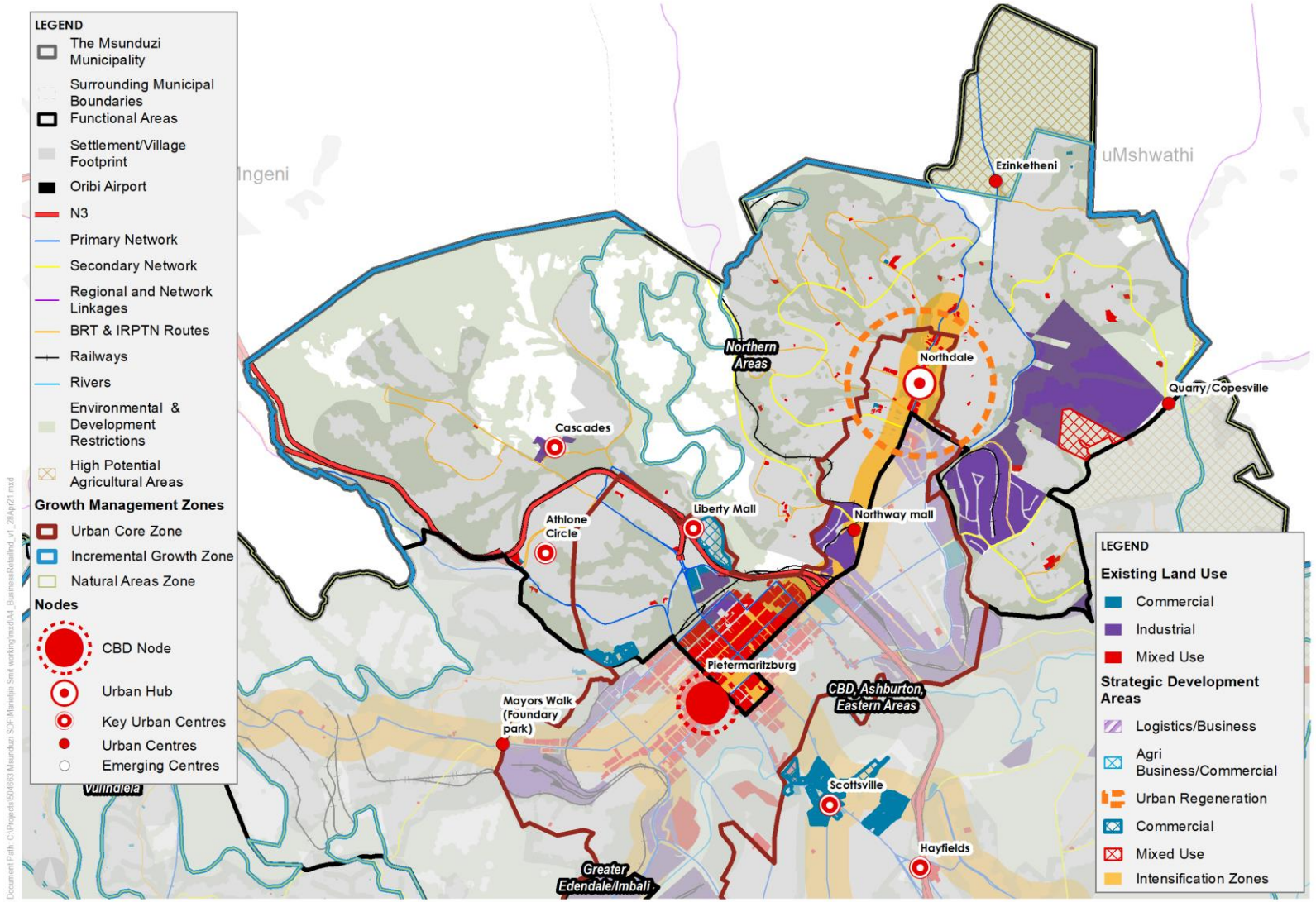


Figure 60: Functional Area 3 - Business, retail and industrial

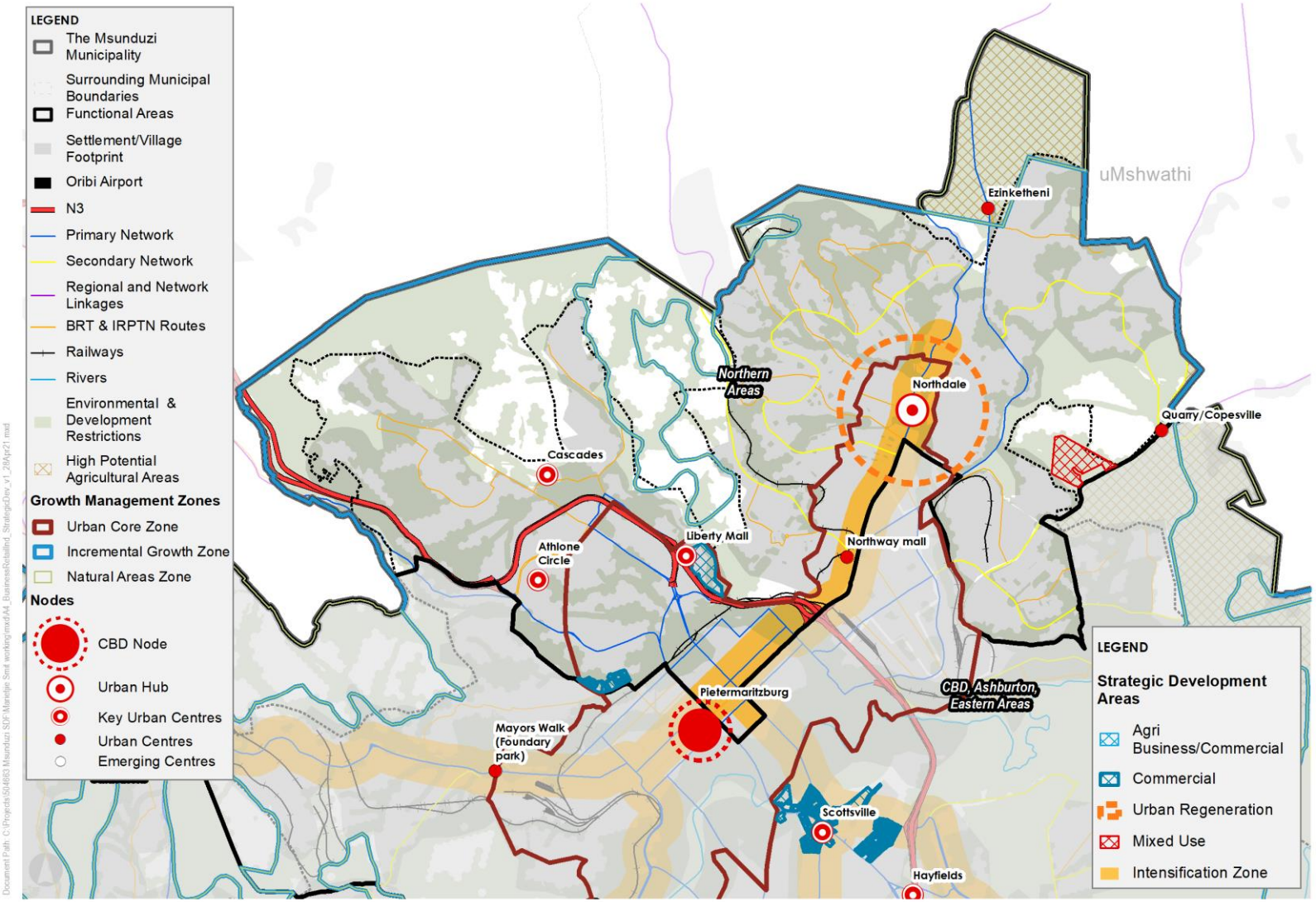


Figure 61: Functional Area 3 - Business, retail and industrial Strategic Development Areas

Infrastructure requirements
Water

Functional area 3 has a smaller increase in water demand requirement, with an expected demand growth of approximately 12.5 Ml/day. This area is currently served by the Belfort and Clarendon reservoirs. Such an increase in daily demand will require both additional investment in bulk infrastructure, as well as measures to reduce the current high unaccounted for water figure of 46%, to make more of the existing water supply available.

The anticipated increase in demand is summarised in the table below and is based on standard demand rates (CSIR Red Book). These figures can be reduced should the municipality implement water saving initiatives, at various scales. For functional area 3, the anticipated water demand load increase is 12.5 Ml/day.

Table 47 Functional Area 3 anticipated water demand load increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kl/day per unit	Total kl/day
SDA18	Northern Areas	107.42	Residential	60	6,445	0.9	5,801
SDA19	Northern Areas	213.86	Open Space				0
SDA20	Northern Areas	9.81	Commercial			40	393
SDA21	Northern Areas	18.00	Commercial			40	720
SDA22	Northern Areas	314.26	Urban Regeneration			10	3143
SDA23	Northern Areas	106.29	Existing Residential			10	1063
SDA24	Northern Areas	29.66	Mixed Use			40	1186
SDA25	Northern Areas	3.03	Residential	60	182	40	121
SDA26	Northern Areas	1.48	Transportation			40	59
	Northern Areas		Pre-school		2	0.9	2
	Northern Areas		Secondary School		4	0.9	4
	Northern Areas		Library		7	0.9	6
	Northern Areas		Community Hall		1	0.9	1
	Northern Areas		Social Services		1	0.9	1
	Northern Areas		Fire station		1	0.9	1
TOTAL REQUIRED FUTURE DEMAND							**12500**

The cost for connection of a new household to a potable water line varies on the type of installation and can also be reduced by urban densification with more than one household utilising a house connection. However, to remain conservative, and at an estimated cost of R20,000 per connection, a possible total cost to connect all new households will be R132,863,000. This large number demonstrates why intensification and vertical growth in housing opportunities is required.

Infrastructure requirements:
Sanitation

Functional area 3 has a smaller increase in sewer yield requirement, with an expected yield growth of approximately 10 Ml/day. This area is currently served by the Darvill WWTP. Such an increase in daily yield will require both additional investment in bulk infrastructure, particularly at Darvill for which upgrading plans already exist.

The anticipated increase in yield is summarised in the table below and is based on standard demand rates (CSIR Red Book). These figures can be reduced should the municipality implement water saving initiatives, at various scales, which will have a knock-on impact on sewer yield. For functional area 3, the anticipated sewer yield load increase is 10.2 Ml/day.

Table 48 Functional Area 3 anticipated sewer yield load increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kl/day per unit	Total kl/day
SDA18	Northern Areas	107.42	Residential	60	6,445	0.75	4,834
SDA19	Northern Areas	213.86	Open Space				0
SDA20	Northern Areas	9.81	Commercial			32	314
SDA21	Northern Areas	18.00	Commercial			34	612
SDA22	Northern Areas	314.26	Urban Regeneration			8	2514
SDA23	Northern Areas	106.29	Existing Residential			8	850
SDA24	Northern Areas	29.66	Mixed Use			32	949
SDA25	Northern Areas	3.03	Residential	60	182	32	97
SDA26	Northern Areas	1.48	Transportation			32	48
	Northern Areas		Pre-school		2	0.75	2
	Northern Areas		Secondary School		4	0.75	3
	Northern Areas		Library		7	0.75	5
	Northern Areas		Community Hall		1	0.75	1
	Northern Areas		Social Services		1	0.75	1
	Northern Areas		Fire station		1	0.75	1
TOTAL REQUIRED FUTURE YIELD							**10230**

The cost for connection of a new household to a waterborne sewer pipeline varies on the type of installation and can also be reduced by urban densification with more than one household utilising a house connection. However, to remain conservative, and at an estimated cost of R20,000 per connection, a possible total cost to connect all new households will be R132,863,000. This large number demonstrates why intensification and vertical growth in housing opportunities is required.

Infrastructure requirements:
Waste

The anticipated increase in waste generation is summarised in the table below and is based on standard generation rates (CSIR Red Book). These figures can be reduced should the municipality implement waste saving and diversion measures, at various scales. For functional area 3, the anticipated waste generation increase is 53,358 kg/day.

Table 49 Functional Area anticipated waste generation increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kg/day per unit	Total kg/day
SDA18	Northern Areas	107.42	Residential	60	6,445	2.05	13,212
SDA19	Northern Areas	213.86	Open Space				0
SDA20	Northern Areas	9.81	Commercial			240	2356
SDA21	Northern Areas	18.00	Commercial			240	4321
SDA22	Northern Areas	314.26	Urban Regeneration			60	18856
SDA23	Northern Areas	106.29	Existing Residential			60	6377
SDA24	Northern Areas	29.66	Mixed Use			240	7119
SDA25	Northern Areas	3.03	Residential	60	182	240	728
SDA26	Northern Areas	1.48	Transportation			240	356
	Northern Areas		Pre-school		2	2.05	4
	Northern Areas		Secondary School		4	2.05	8
	Northern Areas		Library		7	2.05	14
	Northern Areas		Community Hall		1	2.05	2
	Northern Areas		Social Services		1	2.05	2
	Northern Areas		Fire station		1	2.05	2
TOTAL REQUIRED FUTURE WASTE GENERATION							**53358**

Such an increase in daily yield will require additional investment in bulk infrastructure, which will need to extend beyond the current New England site and will require a new location for a district-wide municipal land fill site. However, identifying such a suitable site is a function of a host of informants and criteria that need to be considered, most notably

- Environmental considerations: a detailed screening of available land and the environmental impact of the landfill
- Proximity to waste generation and ease of access: while balancing environmental considerations, proximity to the built up areas of the municipality is important to reduce transportation costs of solid waste
- Site design: available open land needs to be screened for functional suitability in terms of the landfill technical design

Over and above this, investment in waste diversion strategies to reduce the load on future landfill sites should be prioritised in order to reduce the overall environmental impact of solid waste on the municipality.

Infrastructure requirements
Energy

Functional area 3 has a moderate expected increase load requirement, with an expected load growth required in the range of over 33 MVA. Currently this area is supplied from the 33/11kV substations north of Bishopstowe substation. There is currently available supply for the immediate future, but the 33kV infrastructure within this area is aged and requires upgrade.

The load/demand expectations in the table below have been generated utilising a Geographic load flow analysis. The proposed land use with expected demand per hectare generates an expected demand for the end state of the networks and installed capacity. For functional area 3 the expected final load increase is approximately 33MVA, with most of this load being attributed to residential increases and consequent load demand.

Below is a summary of projects per SDA, social infrastructure and Commercial/Industrial demand and their expected load requirements after implementation.

Table 50 Functional Area 3 expected electrcity load requirements

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kVA per establishment	Expected kVA/Hectare	Total kVA
SDA18	Northern Areas	107.42	Residential	60	6,445		85	6026
SDA19	Northern Areas	213.86	Open Space				5	706
SDA20	Northern Areas	9.81	Commercial				75	486
SDA21	Northern Areas	18.00	Commercial				75	891
SDA22	Northern Areas	314.26	Urban Regeneration				85	17630
SDA23	Northern Areas	106.29	Existing Residential				85	5963
SDA24	Northern Areas	29.66	Mixed Use				85	1664
SDA25	Northern Areas	3.03	Residential	60	182		85	170
SDA26	Northern Areas	1.48	Transportation				15	15
	Northern Areas		Pre-school		2	2		4
	Northern Areas		Secondary School		4	2		8
	Northern Areas		Library		7	1		7
	Northern Areas		Community Hall		1	3		3
	Northern Areas		Social Services		1	2		2
	Northern Areas		Fire station		1	3		3
TOTAL REQUIRED FUTURE DEMAND								**33578**

Cost to connect a household can range dependant on the type of installation, but a typical value to be utilised is R16,000.00 per household for low-cost housing. This will result in a possible total cost of approximately R110,000,000.00 to electrify all the households within functional area 3.

7.1.4 Functional Area 4: Vulindlela

Existing situation:	Current challenges:
• Traditional settlement area; • The FA is predominantly rural and underdeveloped with relatively low-density residential areas; • Largest of the four functional areas and houses majority of the city's population; and • The FA falls under the GEVDI.	• The area is characterised by high poverty rates; • High concentrations and growth of population living in disadvantaged/marginalised areas; • High unemployment rate, thus, dependency on government grants; • High demand for housing due to high population growth is resulting loss of high-potential agricultural land; • The number of agricultural job losses is on the rise due to a decline in the number of farming entities; • Underdeveloped and underserviced; • Lack of health facilities; • Backlogs for the construction and upgrading of roads; • Scattered settlement pattern inefficient for the provision of viable transport system; • Lack of integrated public transport and poor pedestrian infrastructure; • Undulating topographical constraints; and • Division of responsibility over management, administration and allocation affecting management of the area.

Development Strategy and intended impact as per Theory of Change:

Protect:

- Protect and celebrate natural features;
- Protect CBAs, wetlands and high potential agricultural land;
- A tourism plan that is focused on the area's heritage is proposed. This aligns with prioritised projects in the Tourism Development Plan;
- Protect the conservation zone along the Municipality boundary;
- Focus on infill and densification at strategic sites thereby reducing sprawl; and
- Diversify crops, planting berries instead of grapes, to adapt to climate change.

Change:

- Uplift marginalised areas and foster ownership during recovery;
- Promote urban infill and densification at appropriate locations (especially the higher order nodes);
- Create spaces for informal trading spaces within the settlement nodes;
- Allocation of land for integrated human settlement projects at higher order nodes;
- Promote urban agriculture and small-scale farming opportunities;
- Upgrading of major roads to provide better accessibility; and
- Ensure development applications are circulated to relevant internal and external environmental approval bodies for consideration and feedback.

New:

- Create vibrant urban spaces (soft and hard spaces), create a network of pedestrian friendly public spaces connecting key focal points;
- Locate new community facilities within walking distance to the residential neighbourhoods;
- Support brownfield development, rather than greenfield developments on the periphery of existing settlements;
- No development within environmental sensitive areas;
- Human settlement developments to be located in close proximity to urban centres and the IRPTN and BRT networks;

- Promote integrated human settlement developments - new developments must include community facilities;
- Promote small-scale farming opportunities on vacant land to enable the production of local produce that can be sold at informal trading spaces; and
- IRPTN and BRT routes to extend towards Deepdale.

Cross border alignment:

- Engage with Richmond, Impendle, Dr Nkosazana Dlamini Zuma Municipalities to discuss the future development along the Municipal boundary; and
- Engage with Impendle Muniipality regarding service provision along the R617 towards Deepdale.

FA 1: Spatial Framework:

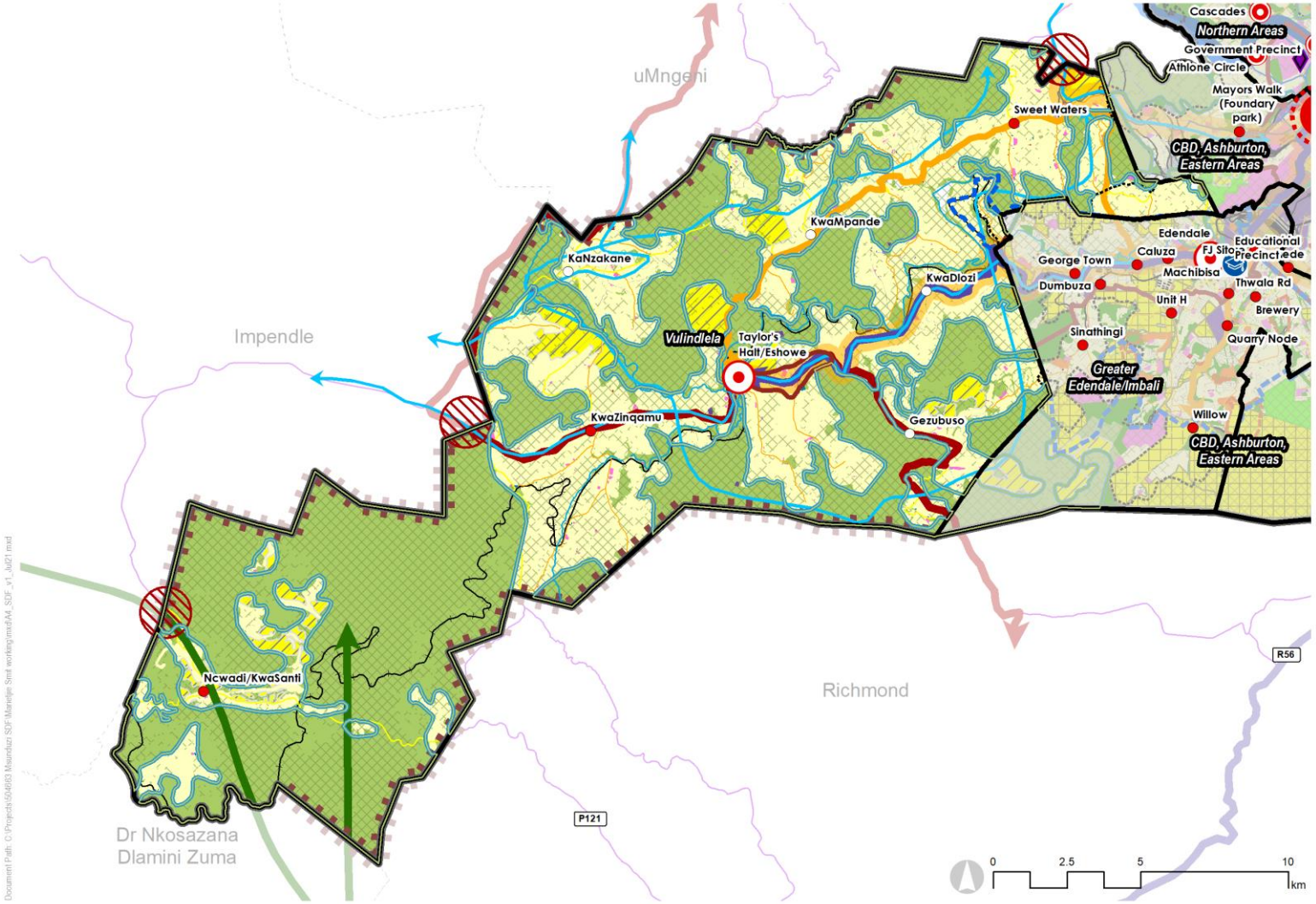

uMngeni
Impendle
Richmond
Dr Nkosazana Dlamini Zuma
Cascades
Northern Areas
Government Precinct
Athlone Circle
Mayors Walk (Foundary park)
Sweet Waters
CBD, Ashburton, Eastern Areas
KwaMpande
KaNzakane
KwaDlozi
Vulindlela
Taylor's Halt/Eshowe
KwaZinqamu
Gezubuso
Edendale
Educational Precinct
Caluza
FJ Sithole
George Town
Machibisa
Dumbuza
Thwala Rd
Unit H
Brewery
Sinathingi
Quarry Node
Greater Edendale/Imbali
Willow
CBD, Ashburton, Eastern Areas
Ncwadi/KwaSanti
R56
P121
0
2.5
5
10
km

Figure 62: FA 4 - Spatial Framework

Development proposals (2050):
Major projects

- Community halls

Human settlements

The land within the Vulindlela FA is predominantly under Tribal Authority and a number of gazetted land claims restricts future development. The existing settlements are scattered throughout the FA and the expansion of these settlements is largely restricted by the undulating topography and the availability of infrastructure services. No government human settlement projects are currently being implemented within the FA. It is estimated that households will increase by 8,521 households in 2050 within the Vulindlela FA. Nearly 75% of the future demand is within the low income group and residents would rely on government support for housing provision. A gazetted PHSHDA is located within the FA as illustrated on Figure 63**Error! Reference source not found.**. It is estimated that a total of 10,123 housing opportunities will be required by 2050 within the Vulindlela functional area.

The maps below provide an indication of the existing residential areas and new greenfield developments. Note: the density within the nodes can be increased to align with the proposed housing typologies, where applicable. It is also envisaged that the land required to meet the demand will be provided through the transformation, regeneration and restructuring of brownfield areas.

The following residential proposals are made:

- Densification and intensification along Sweetwaters Main road;
- Mixed land uses along Sweetwaters Main road is encouraged; and
- SDAs have been identified as illustrated on Figure 65. These SDAs are ideal for integrated greenfield development and should include social and civic facilities. In total these SDAs measure 1,285.40ha in extent and at a density of 25du/ha a total of 32,135 housing opportunities can be accommodated. Detailed specialist studies should be undertaken to determine the total developable area.

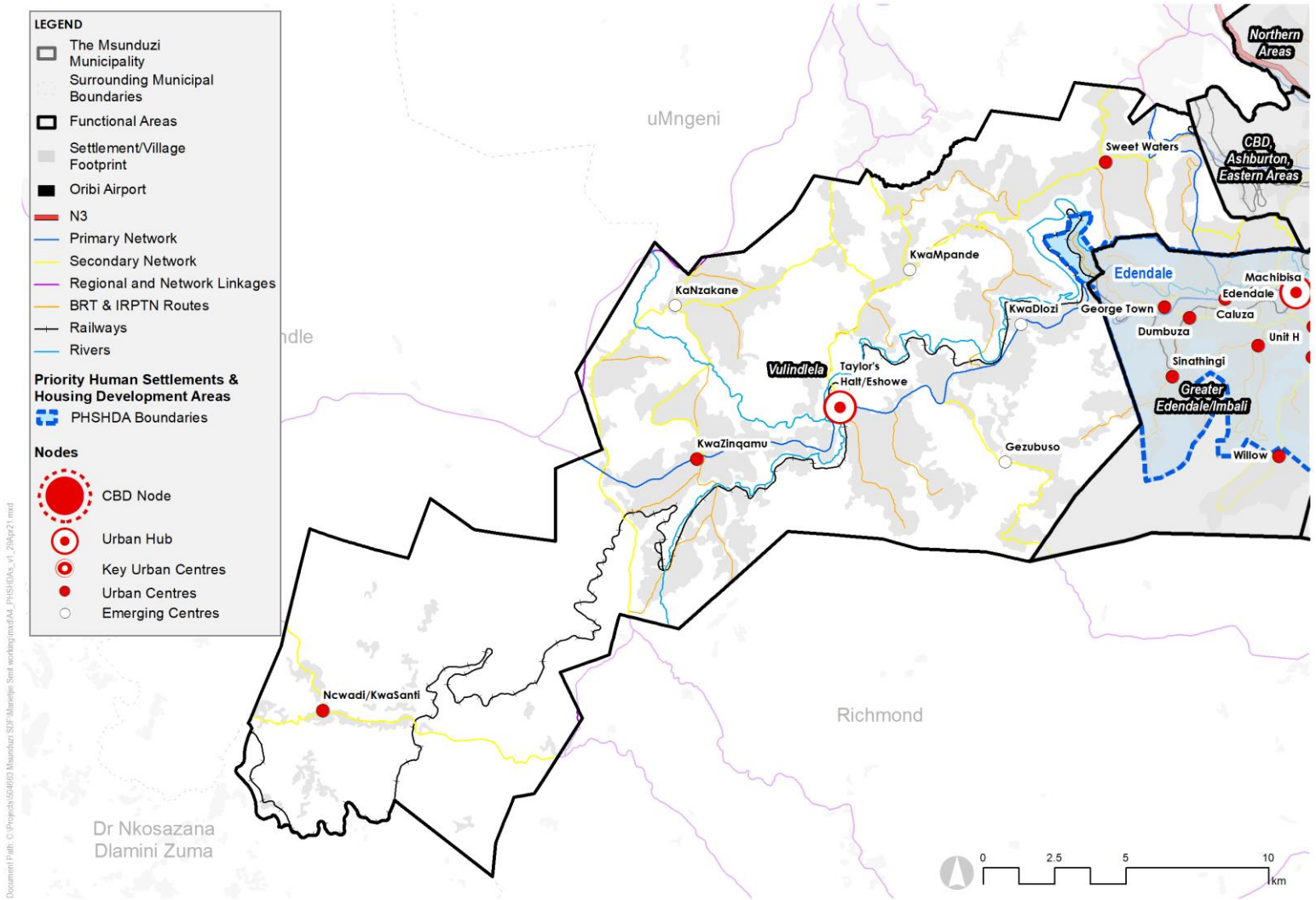


Figure 63: Priority Human Settlement Housing Development Area

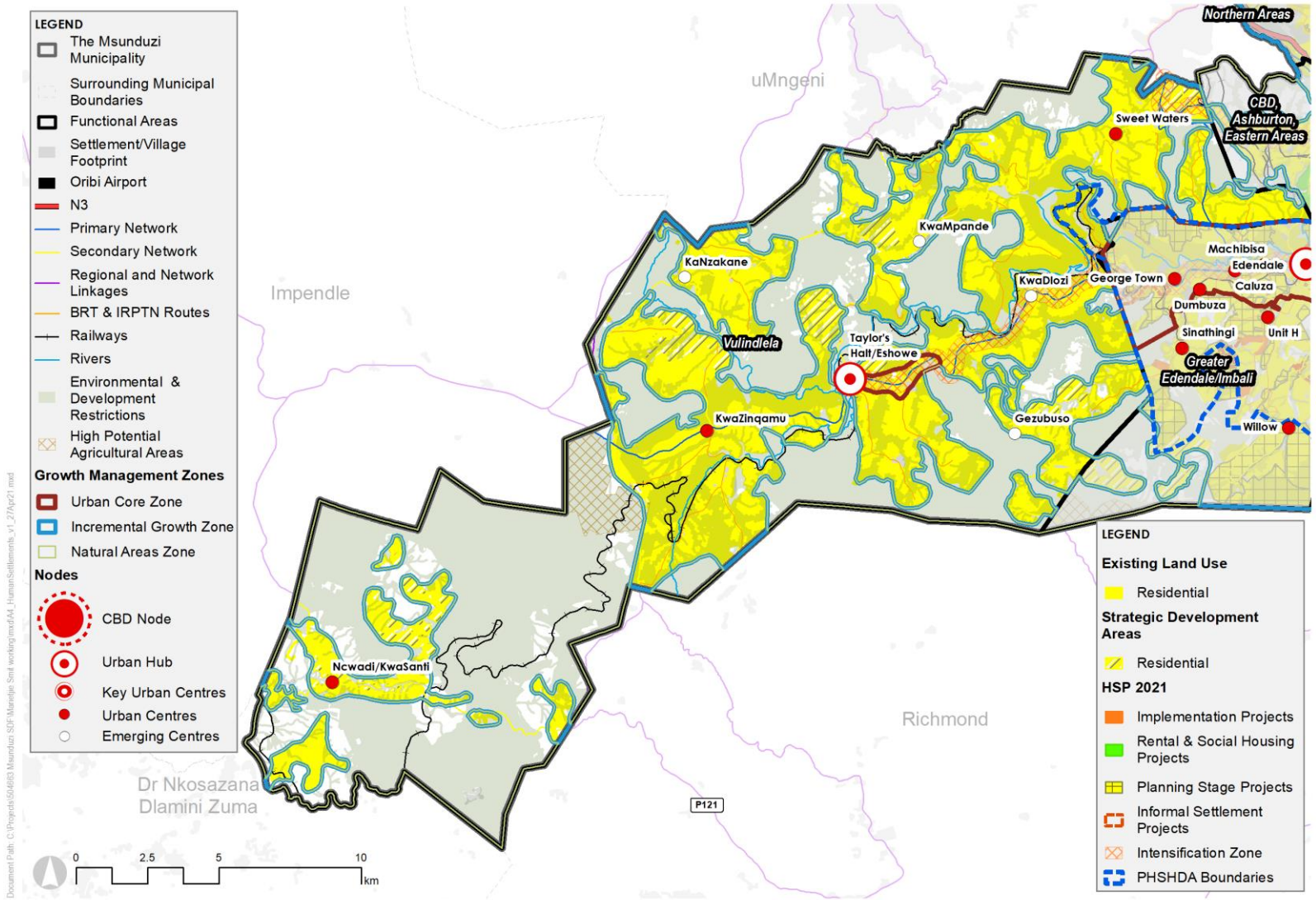


Figure 64: Functional Area 4 - Existing human settlements and proposed Strategic Development Areas

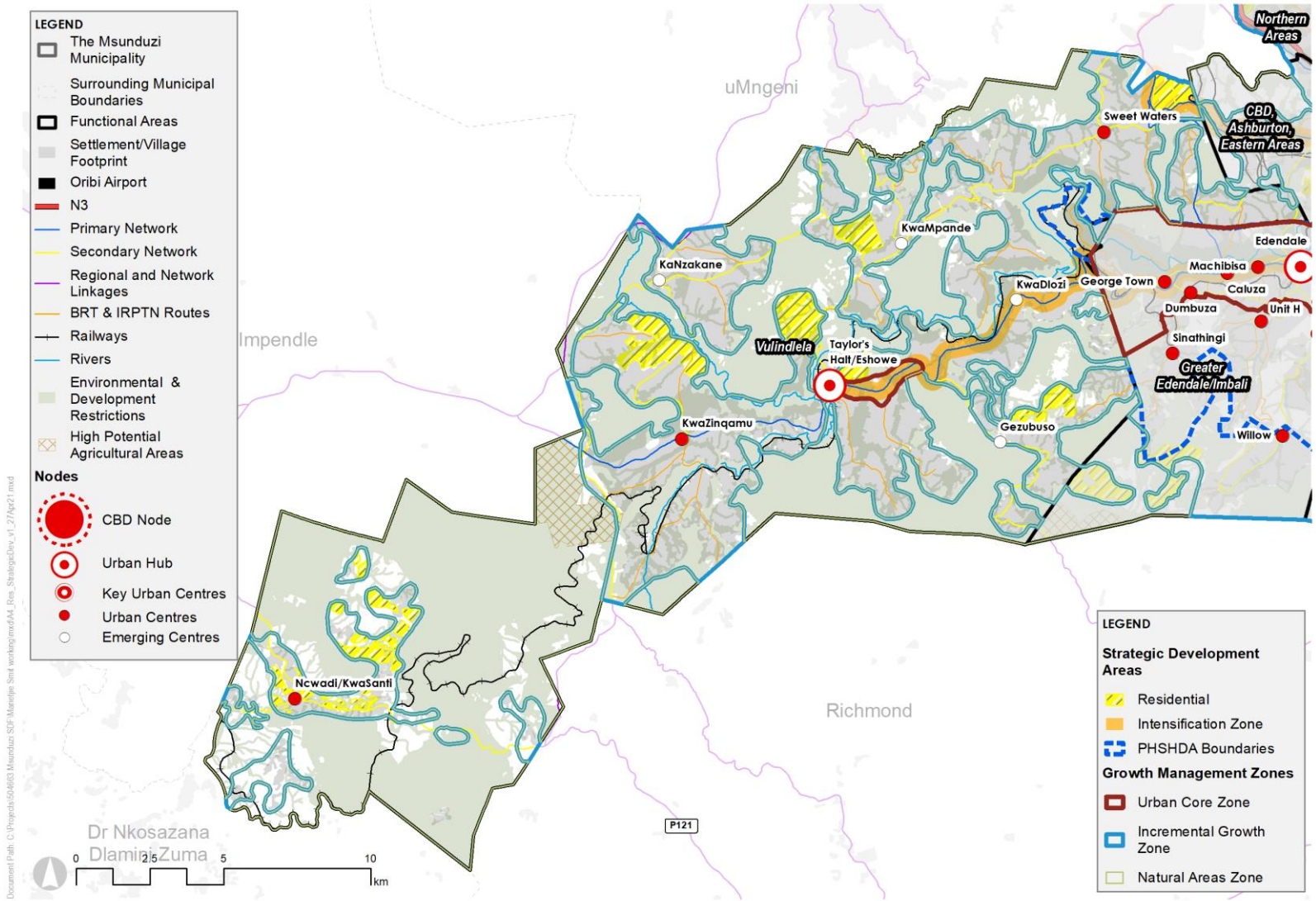


Figure 65: Functional Area – Human Settlement Strategic Development Areas

Social infrastructure

A number of social infrastructure facilities are required within theFA. Note that more than one facility may be required per Ward.

Table 51: Proposed social infrastructure allocation per Ward

Ward	Social infrastructure allocation		
Ward 1	Hospital Police station	Fire station Community hall	Library
Ward 3	Fire station	Community hall	Library
Ward 4	Clinic Library	Social Services (SASSA) Pay Point	Post office
Ward 6	Hospital Fire station Community hall	Library Social Services (SASSA) Pay Point	Home affairs office Post office
Ward 7	Clinic Community hall	Library Social Services (SASSA) Pay Point	Post office
Ward 8	Fire station	Library	Social Services (SASSA) Pay Point
Ward 9	Clinic		
Ward 39	Primary school Secondary school Clinic	Police station Fire station Community hall	Library Social Services (SASSA) Pay Point Post office

Business, retail and industrial

Figure 66 illustrates existing business, retail and industrial activities within FA 4. Limited commercial, mixed-use and industrial activities takes place within the Vulindlela FA.

As illustrated on Figure 67 the SDF proposes the intensification Sweetwaters Main road and a mixed-use corridor between the Taylor's Halt/Eshowe and KwaZinqamu nodes. The economic conditions described earlier in this report, impact on the up take of land for new commercial, retail and industrial development within Msunduzi. **Error! Reference source not found.** provides an indication of the up-take rate for commercial, mixed use and industrial activities based on the anticipated economic conditions in the short to medium-term.

Table 52: Demand for lower order shopping centres and large centres

	Population growth (2016 – 2050)	Per capita	Future supply based on population growth	Land area requirement	Total facility demand
Lower order shopping centres	94,052	0.4m²/capita	37,620m² / 3.76ha	1-2ha	3 - 4
Larger centres		0.6m²/capita	56,431m² / 5.64ha	10-20ha	0

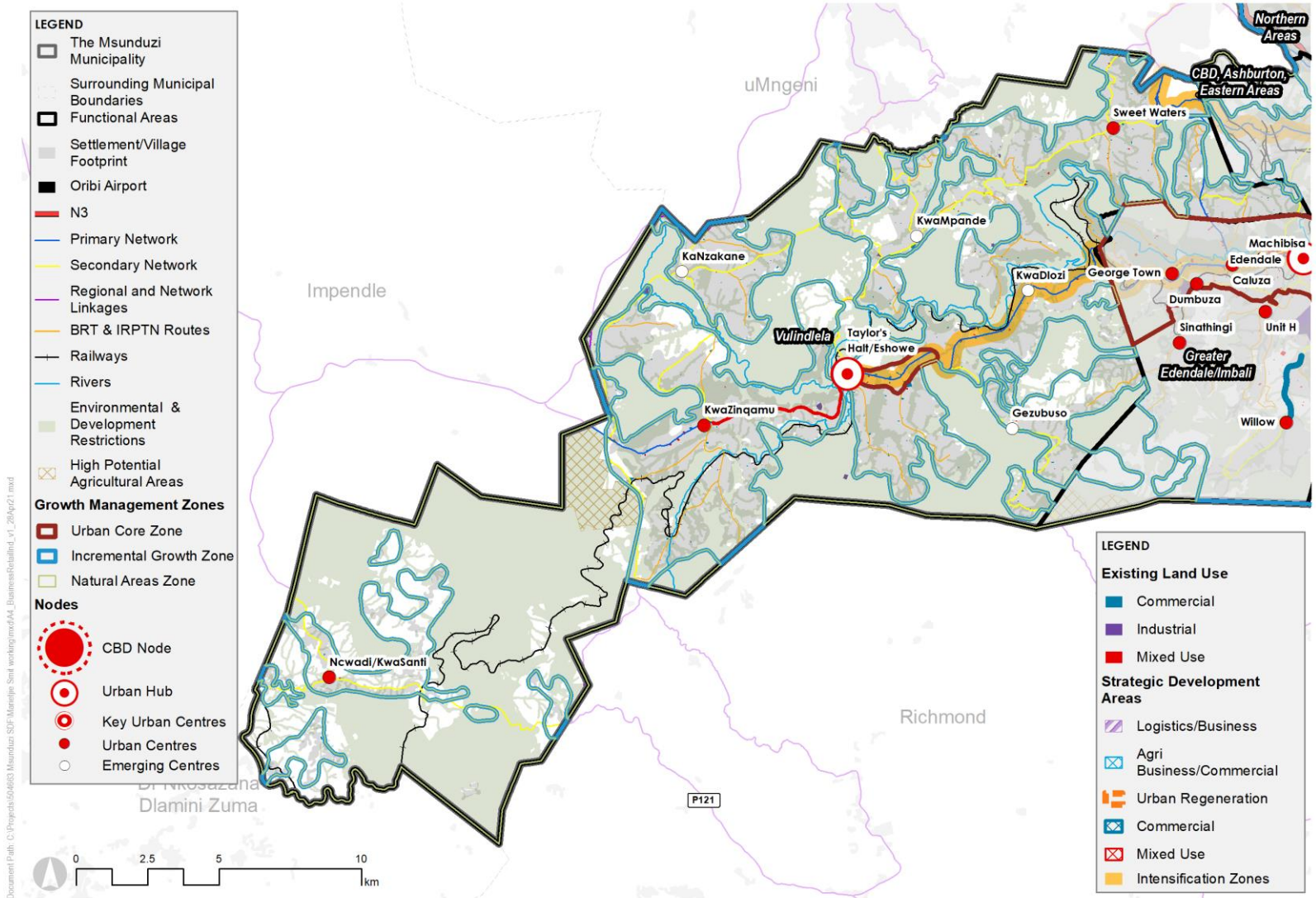


Figure 66: Functional Area 4 - Business, retail and industrial

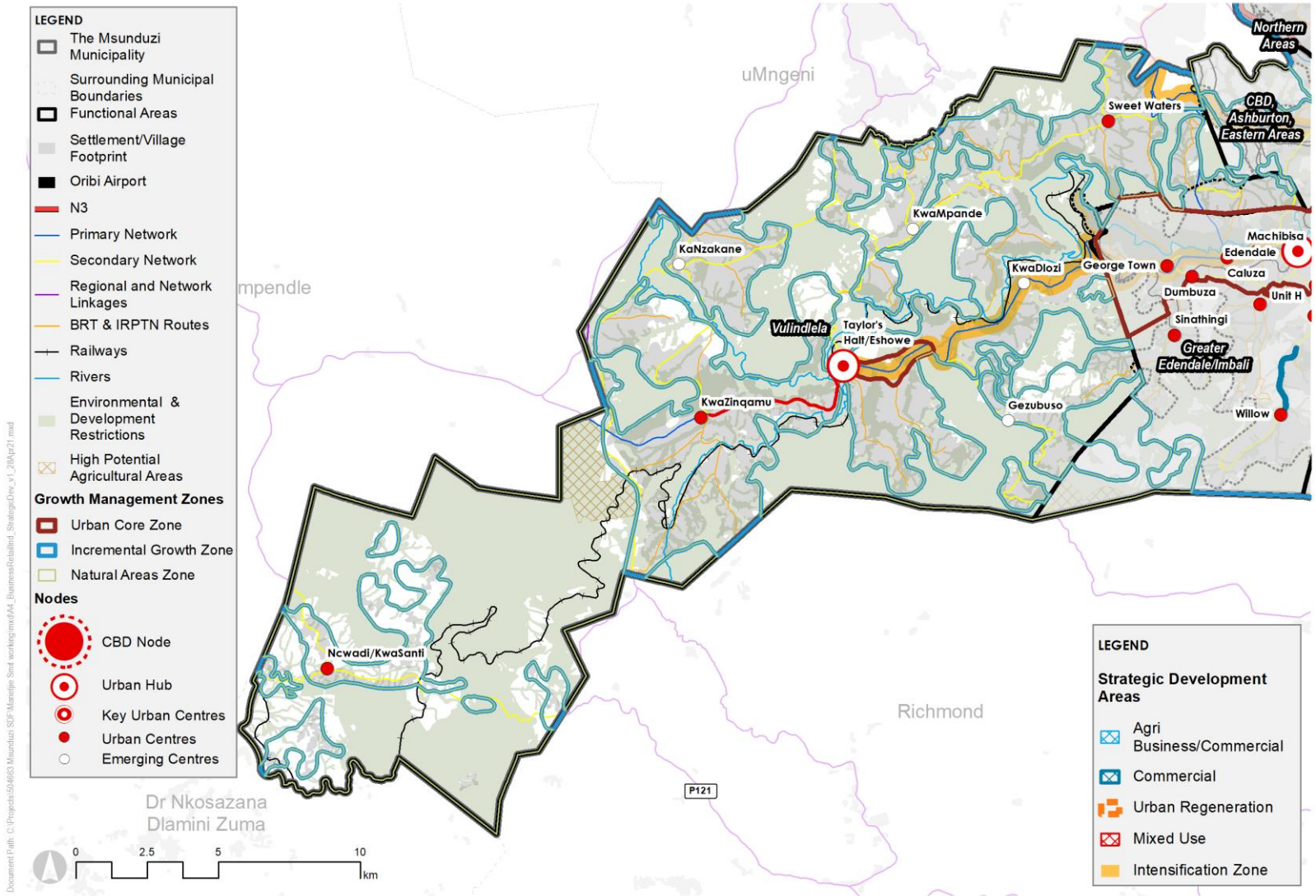


Figure 67: Functional Area 4 - Business, retail and industrial Strategic Development Areas

Infrastructure requirements
Water

Functional area 4 has a moderate increase in water demand requirement, with an expected demand growth of approximately 29 Ml/day. This area is currently served by the Groenkloof Reservoir complex. Such an increase in daily demand will require additional investment in bulk infrastructure and the resolution of the particular network challenges being experienced in the Vulindlela network.

The anticipated increase in demand is summarised in the table below and is based on standard demand rates (CSIR Red Book). These figures can be reduced should the municipality implement water saving initiatives, at various scales. For functional area 4, the anticipated water demand load increase is 28.9 Ml/day.

Table 53 Functional Area 4 anticipated water demand load increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kl/day per unit	Total kl/day
SDA27	Vulindlela	123.39	Residential	25	3,085	0.9	2,776
SDA28	Vulindlela	123.26	Residential	25	3,081	0.9	2,773
SDA29	Vulindlela	135.30	Residential	25	3,383	0.9	3,044
SDA30	Vulindlela	231.32	Residential	25	5,783	0.9	5,205
SDA31	Vulindlela	68.93	Residential	25	1,723	0.9	1,551
SDA32	Vulindlela	32.26	Mixed Use			0.9	0
SDA33	Vulindlela	304.37	Residential	25	7,609	0.9	6,848
SDA34	Vulindlela	90.88	Residential	25	2,272	0.9	2,045
SDA35	Vulindlela	207.95	Residential	25	5,199	0.9	4,679
	Vulindlela		Clinic		4	0.9	4
	Vulindlela		Pre-school		1	0.9	1
	Vulindlela		Secondary School		1	0.9	1
	Vulindlela		Library		7	0.9	6
	Vulindlela		Community Hall		5	0.9	5
	Vulindlela		Social Services		5	0.9	5
	Vulindlela		Hospital		2	0.9	2
	Vulindlela		Fire station		5	0.9	5
	Vulindlela		Post Office		4	0.9	4
	Vulindlela		Police Station		2	0.9	2
	Vulindlela		Home Affairs		1	0.9	1
TOTAL REQUIRED FUTURE DEMAND							**28,955**

The cost for connection of a new household to a potable water line varies on the type of installation and can also be reduced by urban densification with more than one household utilising a house connection. However, to remain conservative, and at an estimated cost of R20,000 per connection, a possible total cost to connect all new households will be R642,440,000. Given Vulindlela's rural nature, it is unlikely that savings will be able to be made in terms of strong densification, and water supply will continue to be extensive and rural.

Infrastructure requirements:
Sanitation

Functional area 4 has a moderate increase in sewer yield requirement, with an expected yield growth of approximately 24 Ml/day. However, the area currently makes use of VIP latrines. As such, any anticipated growth in sewer yield will continue to be handled via this decentralised system of treatment and disposal, and will thus not have a wet flow.

The cost for provision of a new household VIP system depends on the specifics of the locality and availability of materials. However, a rate of R5,000 can be assumed. As such, with 32,172 new housing opportunities envisaged, a cost of R160,860,000 can be assumed.

Infrastructure requirements:
Waste

The anticipated increase in waste generation is summarised in the table below and is based on standard generation rates (CSIR Red Book). These figures can be reduced should the municipality implement waste saving and diversion measures, at various scales. For functional area 4, the anticipated waste generation increase is 65,952 kg/day.

Table 54 Functional Area 4 anticipated waste generation increase

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kg/day per unit	Total kg/day
SDA27	Vulindlela	123.39	Residential	25	3,085	2.05	6,324
SDA28	Vulindlela	123.26	Residential	25	3,081	2.05	6,317
SDA29	Vulindlela	135.30	Residential	25	3,383	2.05	6,934
SDA30	Vulindlela	231.32	Residential	25	5,783	2.05	11,855
SDA31	Vulindlela	68.93	Residential	25	1,723	2.05	3,533
SDA32	Vulindlela	32.26	Mixed Use			2.05	0
SDA33	Vulindlela	304.37	Residential	25	7,609	2.05	15,599
SDA34	Vulindlela	90.88	Residential	25	2,272	2.05	4,658
SDA35	Vulindlela	207.95	Residential	25	5,199	2.05	10,658
	Vulindlela		Clinic		4	2.05	8
	Vulindlela		Pre-school		1	2.05	2
	Vulindlela		Secondary School		1	2.05	2
	Vulindlela		Library		7	2.05	14
	Vulindlela		Community Hall		5	2.05	10
	Vulindlela		Social Services		5	2.05	10
	Vulindlela		Hospital		2	2.05	4
	Vulindlela		Fire station		5	2.05	10
	Vulindlela		Post Office		4	2.05	8
	Vulindlela		Police Station		2	2.05	4
	Vulindlela		Home Affairs		1	2.05	2
TOTAL REQUIRED FUTURE WASTE GENERATION							**65,952**

Infrastructure requirements
Energy

Functional area 4 also has a moderate expected increase load requirement, with an expected load growth required in the range of over 48 MVA. Currently this area is supplied from the 33/11kV substations west of Crossways and Garlington substations. There is currently available supply for the immediate future, but the 33kV infrastructure within this area is aged and requires upgrade.

The load/demand expectations in the table below have been generated utilising a Geographic load flow analysis. The proposed land use with expected demand per hectare generates an expected demand for the end state of the networks and installed capacity. For functional area 4 the expected final load increase is approximately 48MVA, with most of this load being attributed to residential increases and consequent load demand.

Below is a summary of projects per SDA, social infrastructure and Commercial/Industrial demand and their expected load requirements after implementation.

Table 55 Functional Area 4 expected electricity load requirements

SDA	FA	Ha	Proposal	density du/ha	Yield (No. new housing opportunities)	Expected kVA per establishment	Expected kVA/Hectare	Total kVA
SDA27	Vulindlela	123.39	Residential	25	3,085		55	4479
SDA28	Vulindlela	123.26	Residential	25	3,081		55	4474
SDA29	Vulindlela	135.30	Residential	25	3,383		55	4911
SDA30	Vulindlela	231.32	Residential	25	5,783		55	8397
SDA31	Vulindlela	68.93	Residential	25	1,723		55	2502
SDA32	Vulindlela	32.26	Mixed Use				70	1490
SDA33	Vulindlela	304.37	Residential	25	7,609		55	11049
SDA34	Vulindlela	90.88	Residential	25	2,272		55	3299
SDA35	Vulindlela	207.95	Residential	25	5,199		55	7549
	Vulindlela		Clinic		4	2		8
	Vulindlela		Pre-school		1	2		2
	Vulindlela		Secondary School		1	2		2
	Vulindlela		Library		7	1		7
	Vulindlela		Community Hall		5	3		15
	Vulindlela		Social Services		5	2		10
	Vulindlela		Hospital		2	5		10
	Vulindlela		Fire station		5	3		15
	Vulindlela		Post Office		4	1		4
	Vulindlela		Police Station		2	3		6
	Vulindlela		Home Affairs		1	1		1
TOTAL REQUIRED FUTURE DEMAND								**48230**

Cost to connect a household can range dependant on the type of installation, but a typical value to be utilised is R16,000.00 per household for low-cost housing. This will result in a possible total cost of approximately R515,000,000.00 to electrify all the households within functional area 4.

7.1.5 Composite Spatial Development Framework

(see map on following page)

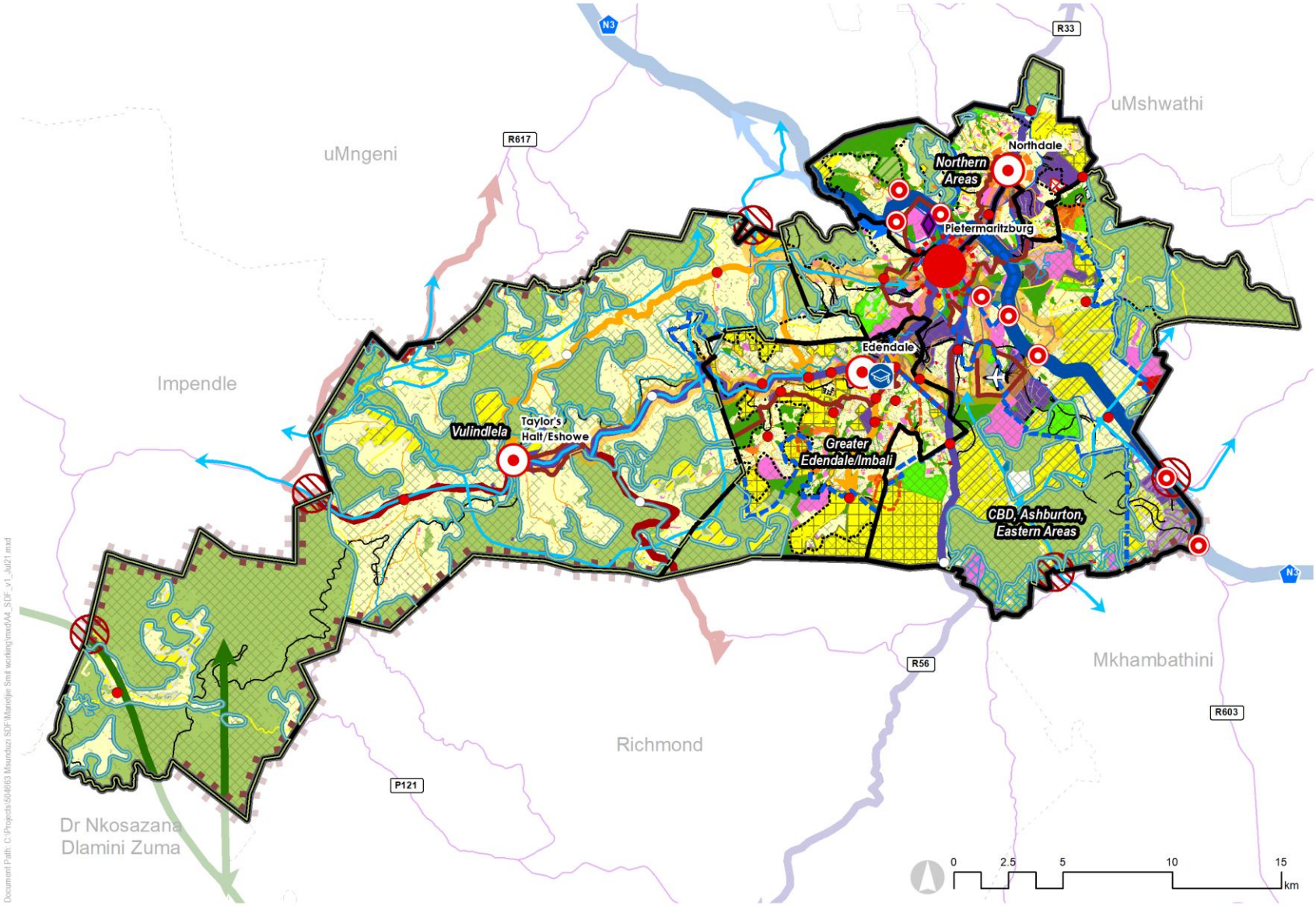


Figure 68: Consolidated Spatial Development Framework

Appendix A - Population and household growth projections

Table 56: Population statistics 2011 and 2016

KwaZulu-Natal Province						
Geo-graphical Area	**2011**	**2011 % of Total**	**2016**	**2016 % of Total**	**Total Growth 2011 to 2016**	**CAGR 2011 to 2016**
Urban	4,875,323	47.5%	5,186,873	46.9%	6.4%	1.2%
Traditional	4,693,983	45.7%	5,240,385	47.4%	11.6%	2.2%
Farms	697,995	6.8%	637,982	5.8%	-8.6%	-1.8%
Total	10,267,300	100.0%	11,065,240	100.0%	7.8%	1.5%

Source: StatsSA Census 2011 and Community Survey 2016

uMgungundlovu District						
Geo-graphical Area	**2011**	**2011 % of Total**	**2016**	**2016 % of Total**	**Total Growth 2011 to 2016**	**CAGR 2011 to 2016**
Urban	591,130	58.7%	637,070	58.1%	7.8%	1.5%
Traditional	305,824	30.3%	359,508	32.8%	17.6%	3.3%
Farms	110,852	11.0%	99,286	9.1%	-10.4%	-2.2%
Total	1,007,806	100.0%	1,095,865	100.0%	8.7%	1.7%

Source: StatsSA Census 2011 and Community Survey 2016

Msunduzi Municipality						
Geo-graphical Area	**2011**	**2011 % of Total**	**2016**	**2016 % of Total**	**Total Growth 2011 to 2016**	**CAGR 2011 to 2016**
Urban	467,065	75.1%	501,890	73.9%	7.5%	1.4%
Traditional	149,927	24.1%	172,328	25.4%	14.9%	2.8%
Farms	4,800	0.8%	4,821	0.7%	0.0%	0.1%
Total	621,793	100.0%	679,039	100.0%	9.2%	1.8%

Source: StatsSA Census 2011 and Community Survey 2016

Table 57: Household income profile (2001, 2011 and extrapolated to 2050)

	2001		2011			2050 (extrapolated)	
Income Group	**Total number**	**Percentage**	**Total number**	**Percentage**	**Percentage difference**	**Total number**	**Percentage**
Low-Low Income	45,150	27.5%	47,576	28.1%	0.6	117,868	28.1%
Low Income	53,529	32.6%	55,367	32.6%	0	135,299	32.6%
Middle Income	51,794	31.6%	52,941	31.2%	-0.4	128,658	31.2%
High Income	13,511	8.2%	13,721	8.1%	-0.1	33,202	8.1%

2011 HH income per geography

Income Group	**Urban Area**	**Traditional Area**	**Farm Area**
Low-Low Income	38,234	8,983	360
Low Income	41,167	13,515	684
Middle Income	45,506	7,016	419
High Income	13,083	492	146