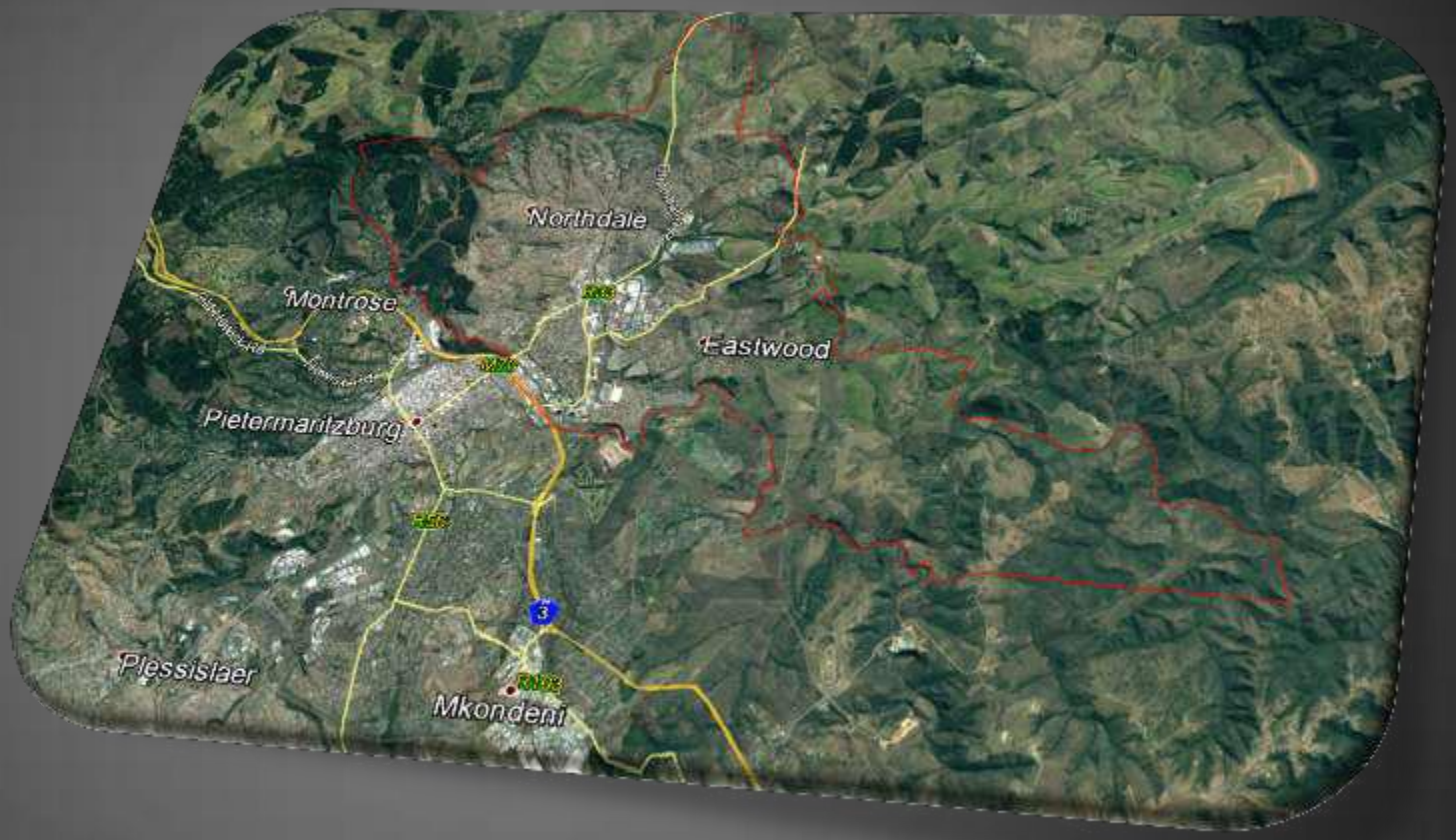

NORTHERN AREAS CONSOLIDATED REPORT

LOCAL AREA PLAN FOR NORTHERN AREAS, BISHOPSTOWE AND SURROUNDS

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NORTHERN AREAS, BISHOPSTOWE & SURROUNDS

LOCAL AREA PLAN

2017

Prepared for:

CITY OF CHOICE

PIETERMARITZBURG
MSUNDUZI

Prepared by:

BLACK BALANCE
INNOVATIVE SUSTAINABLE SOLUTIONS

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1 PROJECT BACKGROUND

Msunduzi Municipality has enlisted the services of Black Balance Projects to undertake the preparation of a Local Area Plan fo r Northern Areas, Bishopstowe and surrounds. The Msunduzi Municipality commonly known as Pietermaritzburg or the "City of Choice" is located along the N3 at a junction of an industrial corridor 80km inland from Durban on the major road route between the busiest harbour in Africa, and the national economic power houses of Johannesburg and Pretoria. The Msunduzi municipality covers an area of 635 km² with an estimated population of 617,000 people. The City of Pietermaritzburg is located within the Msunduzi local municipal area, is the second largest City within KwaZulu-Natal and the Capital City of the Province.

By way of its location, the City serves as a gateway to the inland economic heartland which offers uncapped economic opportunity and investment return potential. Its location has a strong influence on regional channels of investment, movement and structuring of the pro vincial spatial framework for growth and development. It is a primary economic hub within uMgungundlovu District Municipality and its strategic locatio n has favoured and helped the City establish and develop a strong and commanding industrial base.

The Northern area is a fairly built up area and is largely characterised by old dilapidated buildings. These areas have high potential to grow economically, with upgrading of buildings and rejuvenation of already existing properties. The Northern Areas topographical factors exert a major influence on the pattern of urban settlement within the region. The Northern areas and its surroundings is characterised by steep slopes around the outer of the Northern boundary and is fairly gentle around mid-areas.

The Msunduzi Municipality requires the formulation of a Local Area Plan for Northern Areas, Bishopstowe and surrounds. This will provide a clear tool to stimulate and manage sustainable urban development and be a catalyst for private and government sector investment. The Loc al Area Plan must give effect to the principles set out by the Spatial and Land Use Management Act and the goals and objectives of the Provincial Growth and Development Plan, consequently a service provider is required to assist the Municipality to accomplish this task.

2 AIMS

The primary aim of the Local Area Plan is the arrangement of land use and infrastructure associated with the needs of specific communities within administrative region. It integrates transportation, environment, education, economic development, social, residential development and other developmental requirements. Development needs, opportunities and priorities are identified. It is a process that is community-based and driven. The aim of this project is to prepare a Local Area Plan (LAP) for the Northern Areas.

3 OBJECTIVES

The outcome of a Local Area Plan will be a detailed composition of the future spatial structure of the Local Area by means of a map/s as well as design guidelines. The plan should illustrate the following:

To secure and promote the sustainable and developmental trajectory of the City by setting out a vision for future development;

- To consolidate and reinforce the character and role of the study area;
- To inform and provide a new desirable spatial development of identified priority areas by preparing development strategies and guidelines incorporating the preparation of a Development and Implementation Framework;
- To direct and manage investment within the identified priority areas and areas that have economic potential;
- To attract and leverage public and private sector investment;
- Provide specific direction to guide decision-making on an on-going basis, aimed at the creation of integrated, sustainable and habitable regions in the City.
- To advance the function and order of the study area within the municipal space economy;
- To identify infrastructure needs and services constrains and bring forward tangible solutions to address these constraints;
- To consider to the Environmental Management Framework [adopted by Council] and encourage environmentally sustainable land development practices and processes including the emergence of a green economy;
- To ensure public involvement in the formulation of the Local Area Plan;
- To articulate and advance the spatial restructuring of the post-apartheid City and identify strategic areas for intervention to promote the integration of social, economic, institutional, environmental and physical aspects of land development; and in so doing promote sustainable development.

4 STUDY AREA

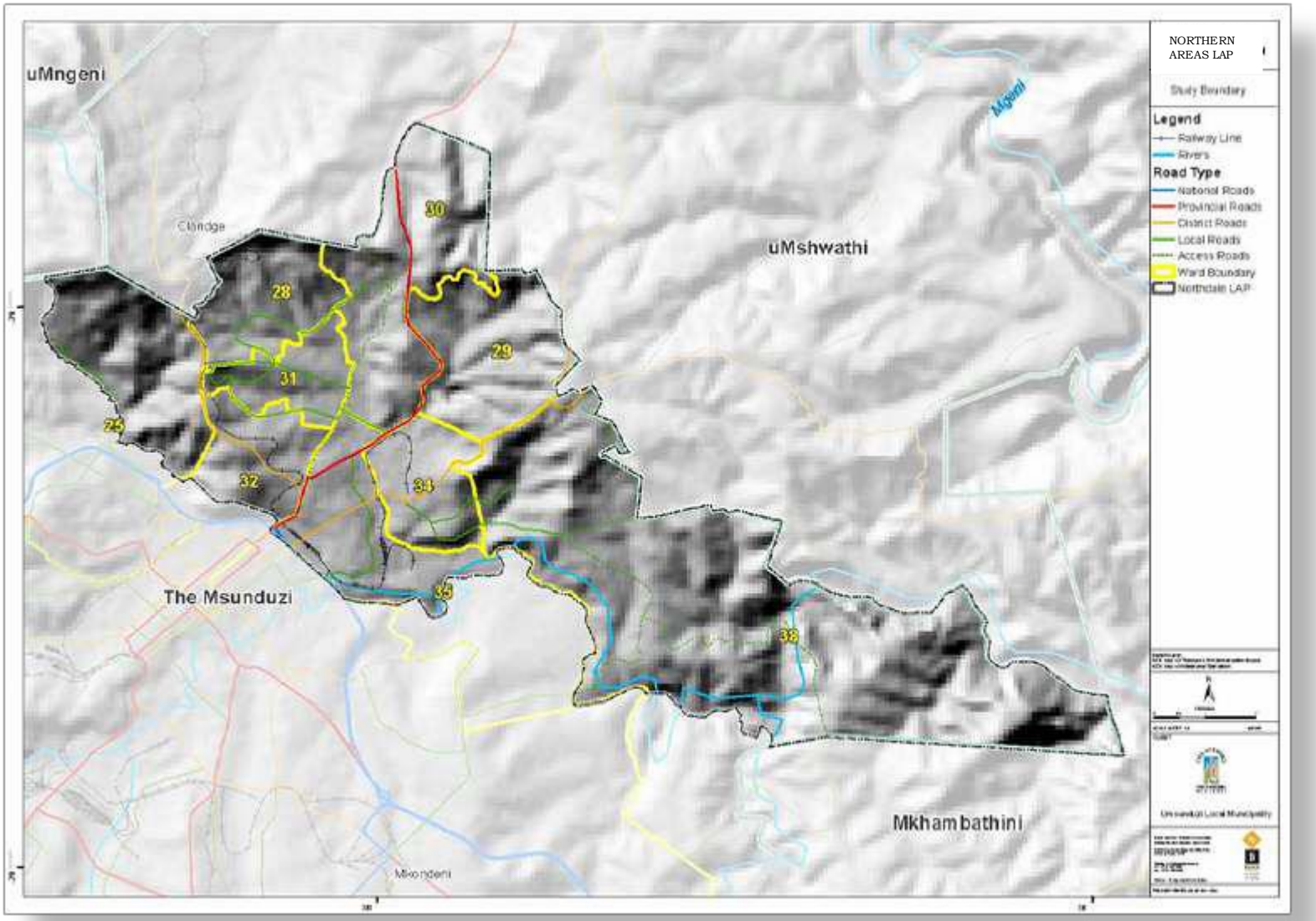
The study area is mostly used for residential purposes and the natures of the settlements are both formal and informal, mainly in the areas of Northern Areas, Copesville, Raisethorpe and Mountain Rise. Forestry/Plantations are also the dominant land uses especially to the west of the area with natural bush in between. The majority of commercial activities are within this area with pockets of industrial uses in places. There are also pockets of Active/Passive Open Spaces (the largest being Queen Elizabeth Park), and Cultivated Land of Copesville.

The area is also part of the Edendale – Northern Areas development corridor and the N3. The incorporation of the Bishopstowe area within the LAP is bringing forward recognition to the area and identifies potential land for development within the Northern Areas. Bishopstowe is currently not zoned and agricultural activity is the predominant land use in the area.

In addition, the Msunduzi Integrated Rapid Public Transport Network (IRPTN) project is based on the development of an improved transportation corridor extending over 17 kilometres from Georgetown in Edendale through the Pietermaritzburg CBD to Northern Areas. It is envisaged that the project will promote public transport and non-motorized transport along the Edendale-Northern Areas Corridor by improving infrastructure and services through integrated transport and land use developments.

Furthermore, the study takes into account the following wards by way of administrative arrangement and Geo-topological terrain

- A portion of ward 25
- Ward 28
- Ward 29
- A portion of ward 30
- Ward 31
- Ward 32
- Ward 34



Map 1: Northern Areas Study Area

5 Policy Context

The Constitution of the Republic of South Africa (Act 108 of 1996) local government was conceived as "the local sphere of government with the constitutional mandate to carry out a number of developmental duties". In Chapter 7, it states that it is the object of local government to "encourage the involvement of communities and community organizations in the matter of local government".

The Constitution of the Republic of South Africa (1996) mandates local government to:

- Provide democratic and accountable government for local communities.
- Ensure the provision of services to communities in a sustainable manner.
- Promote social and economic development.
- Promote a safe and healthy environment.
- Encourage the involvement of communities and community organisations in the matters of local government.

Local government must also promote the Bill of Rights, which reflects the nation's values about human dignity, equality and freedom, and uphold the principles enshrined in the Constitution.

The government (national, provincial and local) has introduced a number of policies and legislation in line with the Constitution to govern different aspects of spatial and land use planning. At national and provincial levels, these deal with issues such as environmental and natural resource management, land tenure and land administration, land use planning and land use management, and human settlement and service delivery. Local government structures on the other hand, have consolidated their developments in Integrated Development Plans, and some have developed by-laws in support of their regulatory function. Although, each of these is assigned to a relevant government department or organ of state and is often implemented in isolation, together they create a normative framework for land use planning and land development.

5.1 National Policies

5.1.1 National Development Plan

The National Development Plan is the overarching plan which supersedes all development plans on all spheres of government. The intention of this plan is to improve service delivery for citizens of South Africa, whilst integrating national, provincial and local policies and programmes into a single, target orientated and long term based plan. In this plan a collective approach of improving the lives of the citizens is applied, and communities themselves have a role to play in this regard.

The Northern Areas LAP (NA LAP) takes into consideration the following NDP objectives in achieving sustainable human settlements:

- Economy and employment
- Economic infrastructure
- Environmental sustainability and resilience
- Transforming human settlements
- Improving education, training and innovation
- Health care for all
- Social protection
- Fighting corruption

The NA LAP will attempt to promote the development of the Integrated Rapid Public Transport Network (IRTPN) and the concept of 'Sustainable Urban Centres' for the integration of essential facilities along a viable transportation corridor. The corridor is proposed to extend over 17 kilometres from Edendale through the CBD to Northern Areas.

The NA LAP will further make recommendations for the conservation of the Municipal Open Space System (MOSS) interface which penetrates the Northern Areas residential area.

The NA LAP will take cognisance of the historical imbalances of the Apartheid policies which shaped many residential areas such as Northern Areas. The disparity of wealth, employment opportunities and access to basic services are critical elements which need to be prioritized and redressed.

The rate of population migration from rural to urban areas has increased significantly since the first democratic elections. The percentage of people living in rural areas has decreased by 10 %, while on the other hand urban areas have experienced an increase of about 60%. The NDP envisages that by 2030 about 70 % of the population will be living in urban areas. The NA LAP aims to align itself with the NDP, through providing innovative strategies which will cater for the increasing urbanisation rates, with greater emphasis towards the youth.

5.2 National Infrastructure Plan

The South African Government adopted a National Infrastructure Plan in 2012. The Plan aims to carry forward the goal of the New Growth Path to provide five million new jobs by 2020. Amongst job provision, the plan further aims to transform the economic landscape and strengthen the delivery of basic services.

The Presidential Infrastructure Coordinating Committee (PICC) was established by the Cabinet, to facilitate and address the challenges of poverty, unemployment and inequality. In response to the Cabinets mandate, the PICC developed 18 strategic integrated projects (SIPS) to cover social and economic infrastructure across all nine provinces (with an emphasis on lagging regions). The SIPs comprise:

- Five geographically-focused SIPs (SIPs 1-5)
- Three energy SIPs (SIPs 8-10)
- Three spatial SIPs (SIPs 6, 7 and 11)
- Three social infrastructure SIPs (SIPs 12-14)
- Two knowledge SIPSs (SIP15&16)
- One regional integration SIP (SIP 17)
- One water and sanitation SIP (SIP 18)

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

SIP 2: Durban-Free State-Gauteng Logistics and Industrial corridor

- Global connectivity via the N3 to O.R Tambo International Airport in Johannesburg & the Durban Harbour and King Shaka International Airport in Durban
- Durban and Johannesburg act as potential Gateways to Msunduzi Municipality (&Northern Areas Industrial basin).

SIP 6: Integrated Municipal Infrastructure project

- Ensure sufficient capacity is available in municipalities to address maintenance backlogs and upgrades required in water, electricity and sanitation bulk infrastructure.
- Integration of National, provincial and local municipal strategies to avoid silos development and promote innovation in addressing and implementing infrastructure projects

SIP 7: Integrated urban space and Public transport programme

- Promotion of Brown field developments (INSITU upgrade) to eradicate informal settlements and redress Apartheid induced issues.
- Promote greater densities, compactness and mixed uses along major corridors to allow ease of access to services, equality and viable public transportation within the region.
- Promote Transit Oriented Development (eg. IRPTN) which easily accommodates sustainable modes of transportation, such as public transport, walking, cycling etc.

SIP 8: Green energy in support of the South African economy

- Promoting alternatives to services provision to reduce Green House Gas emissions (Renewable energy; Reducing private automobile & Transit Oriented Development (TOD), recycling and re-use of waste.
- Urban Greening, Proposing tree-lined streets, open space retention and new parkways.

SIP 18: Water and sanitation infrastructure

- Promote catalytic projects which will fast track backlogs in water and sanitation.
- Innovation in establishing alternative methods in providing water (given current drought conditions)

5.3 Provincial Policies

5.3.1 Provincial Growth and Development Strategy

The Provincial Growth and development Strategy supersedes all provincial strategies in achieving growth and development in the Province to the year 2030. The PGDS attempts to provide the province with a rational strategic framework for accelerated and shared economic growth, through catalytic and developmental interventions. Furthermore its strategy accommodates an equitable spatial development architecture, which is people-centred with specific attention to the impoverished majority, as well as sustainable communities, livelihoods and living environments.

The PGDS informs the Provincial Growth and Development Plan, which is an implementation action plan to achieve the goals of the PGDS for the year 2030.

5.3.2 Provincial Spatial Development Framework

The PGDS is built on the following principles:

Table 1: Table of PGDS Principles

PRINCIPLE	DEFINITION
Principle of sustainable communities	The Principle of Sustainable Communities promotes the building of an all-inclusive environment. Such environments accommodate the integration social, economic, institutional and environmental activities in a sustainable manner. The concept of Densification and compactness are favoured in this regard, to promote a place where people can live and work efficiently.
Principle of economic potential	The Principle of Economic Potential aims to improve productivity and economic excellence of all areas in KwaZulu-Natal. The principle acknowledges the importance to incorporate the private sector as an essential component towards achieving spatial economic needs. The Spatial needs will be achieved through an asset based spatial approach which promotes unique advantages and opportunities within various areas.
Principle of environmental planning	The Principle of Environmental Planning (Bioregional Planning) refers to understanding and respecting the environmental character (potential and vulnerability) and distinctiveness of places and landscapes and promoting balanced development in such areas. The PSDF supports environmental planning as the fundamental methodology on which spatial planning should be based. Thus, rather than being a reactionary barrier to commenced development, the environment is seen as an

PRINCIPLE	DEFINITION
	enabling primary informant to spatial planning and development. Environmental planning can be defined as land-use planning and management that promotes sustainable development. The environmental planning methodology involves the use of Broad Provincial Spatial Planning Categories to reflect desired land use.
Principle of spatial concentration	The Principle of Spatial Concentration aims to build on existing concentrations of activities and infrastructure towards improved access of communities to social services and economic activities. In practical terms this promotes concentration along nodes and corridors with multi-sectoral investment i.e. roads, facilities, housing etc. This is envisaged to lead to greater co-ordination of both public and private investment and result in higher accessibility of goods and services to communities while ensuring more economic service delivery. This principle will further assist in overcoming the spatial distortions of the past. Future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or link the main growth centres in order for them to become regional gateways.
Principle of local self-sufficiency	The Principle of Local Self-Sufficiency promotes locating development in a way that reduces the need to travel, especially by car and enables people as far as possible to meet their need locally. Furthermore, the principle is underpinned by an assessment of each areas unique competency towards its own self-reliance and need to consider the environment, human skills, infrastructure and capital available to a specific area and how it could contribute to increase its self-sufficiency.
Principle of co-ordinated implementation	The Principle of Co-ordinated Implementation actually projects beyond spatial planning and promotes the alignment of role-player mandates and resources with integrated spatial planning across sectors and localities. Essentially the principle suggests that planning-implementation becomes a more continuous process and that government spending on fixed investment should be focused on planned key interventions localities. This principle ultimately also proposes a move towards more developmental mandate definitions of the various departments away, from single mandates to enable the spatial alignment of growth and development investment.
Principle of accessibility	The Principle of Accessibility simply promotes the highest level of accessibility to resources, services, opportunities and other communities. This is intrinsically linked to transportation planning and should consider localised needs for the transportation of people and goods by various modes of transport as guided by the scale and function of a region. At a provincial level there is a strong correlation between the most deprived areas and poor regional accessibility to those areas. In addressing accessibility at provincial and local level, the need for possible new linkages, the upgrade in the capacity of existing linkages and the suitable mix of modes of transport should be considered.
Principle of balanced development	The Principle of Balance Development promotes the linking of areas of economic opportunity with areas in greatest need of economic, social and physical restructuring and regeneration at all spatial scales. In practical terms the principles sought to find a balance between the potentially competing land uses by understanding the relationship and integration between major dimensions within the province and promoting a synergetic mixture of land uses

PRINCIPLE	DEFINITION
	in support of each other at various spatial scales.

6 Environmental legislation

Environmental Legislation involves the collection, analyses and implementation of many laws and regulations aimed at protecting the environment from harmful actions. The cornerstone of environmental law is the National Environmental Management Act (Act 107 of 1998) (NEMA) which informs all provincial, districts and local environmental plans and policies. Msunduzi Municipality has established a set of environmental principles which are based largely on the Environmental Management principles contained in Chapter 1 of the NEMA) ,Local Agenda 21 and the KwaZulu-Natal Environmental Implementation Plan.

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

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

Table 2: Table showing Environmental Legislation

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

	Assistance Programme; and a Green Economy Technical Assistance Fund worth R 2,5 million were established to assist green economy initiatives (DEDTEA Strategic Plan 2014-19, p.5)

7 PREVIOUS PLANNING INITIATIVES

7.1 SPATIAL DEVELOPMENT FRAMEWORK REVIEW 2014/2015

The Spatial Development Framework Review 2014/2015, highlights the N3 as a primary characteristic for the Northern Area Based Management areas of Msunduzi.

The SDF further stipulates that there is a distinct south-west to north-west development corridor between Northern Areas and Edendale, which has potential to be the most prominent corridor in the municipality. The corridor has been integrated into the Integrated Rapid Public Transport Network (IRPTN) project to promote public transport and non-motorized transport along Edendale and Northern Areas.

The SDF proposed the development of key Urban Centres across the municipality to allow for reasonable access to a wide range of services, facilities as well as opportunities. The criteria used to select the relevant areas to propose these Urban centres, involved the identification of areas which already consist of such developments. Northern Areas was amongst the areas chosen within Msunduzi Municipality, which consist of an urban centre.

7.2 EDENDALE-NORTHERN AREAS CORRIDOR

The Edendale- Northern Areas Corridor comprises three components:

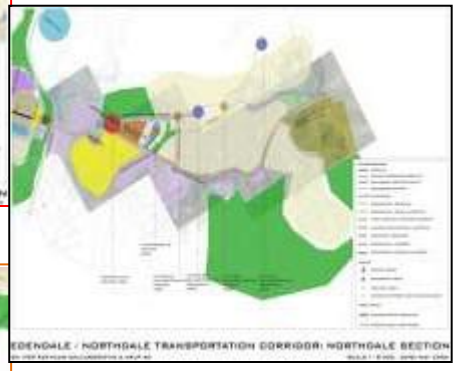
1. The entire Edendale corridor (from Georgetown to Campsdrift)
   - The Corridor will be proposed along the Edendale Road which will pass through three spaced out Primary Nodes. These nodes are namely the Georgetown Town Centre Node which will comprise of both mix use and multi-use developments.

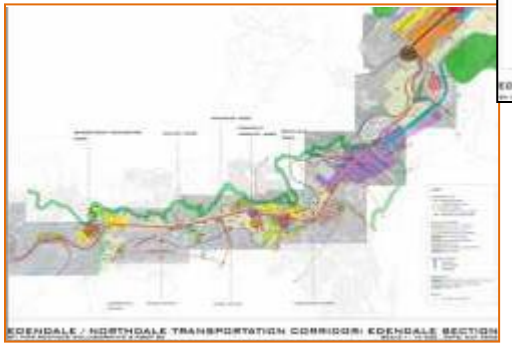
2. The Church Street Corridor of the Pietermaritzburg CBD
   - The Edendale/ Northern Areas corridor will comprise of two sets of one-way pairs on either side of Church Street. Church street will be designed as a semi-pedestrianized street that will permit only public transport.

3. The Northern Areas Corridor.
   - The Northern Areas Corridor comprises two routes:

- The old Greytown Road which comprise of several well developed existing multi- and mixed use retail, office and residential uses.

- The Greytown Road high mobility route. The rehabilitation of the street furniture is highly imperative along this route, to ensure efficient pedestrian movement, which is currently not up to par.





7.3 N3 CORRIDOR PLAN

The N3 Strategic Corridor Development Plan is based on the principle of developing regional economies that have diverse offerings to local communities and in alignment with the goals and objectives contained in the KZN Provincial Growth and Development Plan. The Strategic Vision for the Corridor is to unlock catalytic investments in main sectors and be supported by centres of excellence for human and commercial product development. The NA LAP will support the vision of the N3 Corridor and this will be done through a set of diverse and inclusive regional economies by 2045 through collective actions

The Corridor Plan indicates that regional champions should encourage the development of economic potential and economic inclusion of key communities. As stated in the N3 Corridor, the NA LAP as a regional plan will strengthen local connectivity to the international, national and provincial economy. The success of Northern LAP will also hinge on the ability of local, provincial and national government in fostering human resource development; technology and innovation.

The Strategic Corridor Development Plan is a complementary working tool for the National Development Plan, KZN PGDP, local area plans within Msunduzi as well as Msunduzi Spatial Development Framework. It is not intended to replace the processes of the afore-mentioned spatial plans hence the awaited Northern Areas Local Area Plan will also compliment the N3 Corridor plan vision statement of unlocking economic opportunities.

Similar to the Strategic Corridor Development Plan, NA LAP is "Not a Statutory Plan"; but rather provides strategic guidance to opportunities which may exist within a clearly defined study boundary of the LAP, connecting several local economies within Msunduzi. Within Msunduzi Municipality the N3 Corridor Plan seeks to connect the surrounding areas within the vicinity of the N3 route and take advantage of potential socio-economic benefits for areas such Northern Areas. Around Msunduzi Municipality and Northern Areas area to be more specific, this N3 Corridor Plan provides the building blocks to transform the Major Nodes within the N3 into a thriving region which benefits the province and becomes a Corridor of Excellence for KwaZulu-Natal over the next 30 years.

The approach of the N3 Corridor plan is driven through the three following strategies:

Strategy	Objective
Strategy 1 – Developing Economic Potential within the Corridor to enable economic inclusion	Pietermaritzburg to Pinetown Industrial and Logistics Hub Economic Region: The Catalytic Developments in this region are (1) Government Headquarters in PMB; (2) Airport City Node in PMB; (3) Masons Mill Intermodal in PMB; (4) SED development in Msunduzi; (5) Future Industrial Corridor from SED through to Hammarsdale along an alternate route; (6) Future rail reserve at Mkhambathini for long term Intermodal; (7) Upgrading existing rail terminal at Cato Ridge for the short and medium term Intermodal.
Strategy 2 – Strengthening local connectivity to the International, national and provincial economy	Development of Roads entails the development of BRT and consolidation of mini-bus taxis into mass transit systems will require road improvements in all regions. Development of Rail infrastructure promotes higher utilization of rail to alleviate congestion but also to promote long haul transport of goods from KwaZulu-Natal to inland destinations. The modernization of the Passenger Rail sector combined with BRT opportunities in the province should integrate human settlements and densify key nodes respectively. Development and upgrading of Town Centres are focused on developing local consumption centres by modernizing CBDs and linking activity nodes to create a much larger consumer node concentrated with goods and services.
Strategy 3 – Providing a	Business / Enterprise development Incubators for SMMEs are generally purpose-built facilities aimed at

platform for Human resource development, technology and innovation	providing subsidized business premises within a structured support programme providing both technical and business skills to emerging enterprises. Model Schools is based on the concept of creating schools as centers of excellence. The purpose is to create an enabling environment for learning with the requisite supporting infrastructure and services

Region 1 Nodal plan – Pinetown to PMB

The N3 Corridor Plan has seven (7) regions; and the region from Pinetown to Pietermaritzburg which affects the NA LAP is Region 1. Region 1 described as the "Industrial and Logistics Hub" of KwaZulu-Natal. The said region consists of the following municipalities:

- The Msunduzi Local Municipality
- Mkhambathini Local Municipality
- Part of the eThekwini Local Municipality

The table below indicates the N3 corridor route affecting Msunduzi Municipality and the potential benefits of the corridor.

Code	Corridor	Classification	Main categories of potential
PC2	eThekwini – Msunduzi – uMngeni	Primary corridor	• Production of high value, differentiated goods not strongly dependent on labour costs, focused on local & global niche markets – i.e. manufacturing • Production of labour intensive, mass produced goods more dependent on labour costs, affordable transport linkages – i.e. agriculture and mining • Innovation and experimentation – research and development • Retail and private sector services – large employer of skilled & semi-skilled workers in advanced economies • Tourism – dependant on tourism attractions • - Public service and administration

According to the N3 Corridor Plan, the Northern Areas area is perceived as a region to be enhanced for Connection to Public Transport Corridors. It is recommended to connect Cato Ridge to this IRPTN network, as a branch line from the Pinetown – Mpumalanga C6 corridor. The rail line between Durban and Cato Ridge will also play a role in commuter transport and can in the medium-long term be modernised as soon as a parallel freight rail corridor is available.

Pietermaritzburg is a main node in the regional and local IPTN network, with scheduled PT connections to:

- Edendale – CBD – Northern Areas (BRT), with some branches and feeder lines
- PMB – Howick – Midlands R103 (see next section)
- PMB – Underberg
- PMB – Richmond – Ixopo
- PMB – Northern Areas – New Hannover – Greytown / Wartburg – Tongaat
- PMB – Airport – Mkondeni – Umlaas Road – Camperdown– Umbumbulu – Isipingo
- PMB – Airport – Mkondeni – Umlaas Road – Camperdown– Cato

Ridge – Durban

The N3 Corridor Plan indicates that the rail corridor Edendale – PMB – Northern Areas could be used for commuter transport. This has however been assessed as not viable. Although both Edendale and Northern Areas have a large population, with relatively high densities, the density along the rail reserve itself is low, as the rail corridor runs outside these residential areas. The rail infrastructure is single track and with low speeds; a rail service would result in relatively low frequencies and low speed. The IRPTN system currently under development would be better equipped and can serve as several main trunk corridors, with branch lines and feeders.

In this area mainly the route PMB – Mkondeni – Umlaas Road – Camperdown– Cato Ridge will connect different industrial nodes with residential areas in between and with some major and smaller CBD nodes. This would generate a viable Public Transport Corridor with Public Transport trips in both directions and towards several destinations. For that reason new developments should preferably be planned along this R103 corridor, for optimum Public Transport access.

In the medium-long term a Rapid rail could connect Durban and Pietermaritzburg, with some station nodes in between. These nodes (e.g. Pinetown, Cato Ridge, and Umlaas Road) should coincide with the main economic nodes as suggested.

7.4 CBD LOCAL AREA PLAN

The Msunduzi Municipality has a Local Area Plan for the Central Area and CBD Extension Node (CACEN) of Pietermaritzburg which was adopted in 2014. The vision for CACEN area must support the wider development vision and development imperatives for municipality in which it sits. The Msunduzi Municipality's vision is to be "a dynamic, caring Capital City of Choice in KwaZulu-Natal".

As an important spatial component of the Capital City, the CACEN area will be a highly accessible civic, business, tourism, finance, recreation and residential urban district of choice within The Msunduzi Municipality providing a high quality, safe and secure, convenient and attractive working and living environment supported by "green" infrastructure which provides a platform for the achievement of higher levels of sustainable and "smart" development and urban living.

In order to achieve above mentioned vision a number of "strategic objectives" or developmental principles are required to guide future planning and development within the study area as well as neighbouring areas. The following are the development principles that the CACEN and Northern Areas LAP's should take into consideration:

Table 3: Development Principles & Impacts

DEVELOPMENT PRINCIPLE	IMPACT
1. Improve Urban Mobility (Access)	• Establish improved Regional Access and Integration • Improve Urban Connectivity • Improve Accessibility to services and facilities • Reduce the dominance of the car
2. Be Sustainable And Resilient (Vitality)	• Protect, rehabilitate and Enhance Environmental Assets • Maintain and Improve Basic Services • Promote green technology and infrastructure where appropriate • Integrate climate resilience and climate change adaptation and mitigation strategies into all development processes
3. Make Cacen A Beautiful Place (Sense)	• Review and strengthen the spatial structure of the study area • Establish and enhance Imageability and Legibility • Establish and Protect Territoriality

DEVELOPMENT PRINCIPLE	IMPACT
	and Identity • Establish a more responsive urban form
4. Making Space For Lifestyle Needs And Growth (Fit)	• Promote greater vertical and horizontal mixed use land use and buildings • Increase supply of functional Public Space • Increase and improve Economic Spaces • Increase and enhance Housing Choice • Increase social facilities • Utilise more responsive Building Typologies
5. Promote Inclusive Planning And Joint Ownership (Control)	• Enhance the capacity and responsiveness of local government to manage the urban environment • Enhance Coordination and Cooperation between Stakeholder Groups • Build Management Capacity within the stakeholder community

The CBD LAP boundary is adjacent to our study area of the Northern Areas Local Area Plan and/or falls within the boundary of our study area through the Chasedene residential suburb. Therefore similar or corresponding developmental intentions are the target of these two policy documents. The developmental agenda should be aligned as to ensure coherent planning strategies, which are not overlapping. The CBD LAP basically enables the municipality of Msunduzi to:

- give clarity and direction to developers and land owners in the area with respect to the type and intensity of development;
- make decisions regarding investment in services infrastructure and associated phasing; and
- Guide public and private development through the identification of priority areas and interventions.

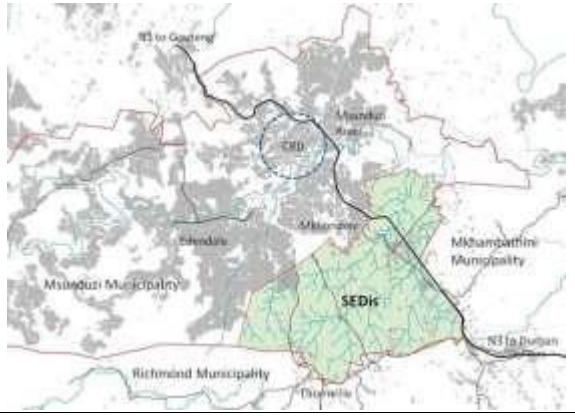
The NA LAP will also address the above intentions of the CACEN LAP and shall seek to advance the following developmental principles articulated in the key national, provincial as well as local policies and legislation:

- Promotion of integrated development
- Promotion of high density living environments
- Promotion of high quality living environments
- Increase in mixed use/multi-use spaces
- Provision of social housing opportunities near employment centres
- Meet the basic needs of citizens of Msunduzi
- An urban regeneration strategy is more than just physical investment and intervention and must focus on development people
- Areas located on development corridors and adjacent to main growth centres must be supported
- Clustering of economic, social and transport facilities is required to maximize thresholds and to ensure the maximum and efficient use of resources
- Provide a platform for economic growth
- Development must not compromise environmental assets
- Protection of historic built environment assets
- Development in corridor is not to be “business as usual”
- Focused investment to ensure sustainable and maximum impact

Looking at the developmental scenario within the Central Business District of Pietermaritzburg as well as the CBD Extension Node, it is vital to focus on elements and events in the development environment with high levels of uncertainty and which will have high levels of impact. It is also vital to identify issues that will result in changed

behaviours and changed circumstances for the residents of Msunduzi. The following provides an overview of the change drivers identified within Msunduzi as well as the Northern Areas area at large in broad developmental themes:

Table 4: Broad Developmental Themes & Impacts

Developmental Theme	Impact
	
Social	• Population Growth including (in-migration/natural/migration) • Changing demographic profile (poor, young, uneducated, low skilled) • Social Justice/Social expectations/Basic needs provision/Survival tactics of poor/ • Lifestyle choices that drive the way we do things and how we live, the way business and government responds with regards to Security and Social cohesion • Low skills base • Human resources development (lack of education
Economic	• Energy cost/Oil Price (peak oil) • Logistics linked to N3 Corridor • Declining agricultural hinterland • Suburban flight - offices and retail
	• Global and local economic climate fluctuations
Environment	• Smarter resource utilisation/water scarcity • Climate change/vulnerability • Increase environmental awareness (social movement) • City marketing/branding City character and identity – think global, act local
Institutional	• Public Sector Institutional capacity/systems/bureaucracy constraints • Private sector influence - market power • Non-delivery/delivery of government
Political	• Increasing social development focus/social equity/Social engineering to redress the past/Redistributive policy – address backlogs/equity/Public Transport • Political systems stability and social responsibility
Financial	• Capital availability over time for both Public and Private Sector

7.5 SEDIS LOCAL AREA PLAN

SEDis (South Eastern District) is the south-eastern edge of the Msunduzi Municipal boundary. It is bounded by Richmond Municipality towards the South and Mkhambathini Municipality along the eastern boundary.

The SEDis area consists of a low population density and poor provision of services especially along the western portion. The area consists of a wide range of unique natural significance, however certain areas are at risk of losing these qualities due to the demand and approval of developments. The SED is LAP encourages the application of strict development controls and quality control with respect to build form, conflict in land uses and the aesthetics of the natural environment.

The following key interventions are identified by the SED is LAP implementation framework:

- Coordinate, integrate and align activities and energies of all key stakeholders.
- Release land for development in a coordinated manner.
- Align public investment for infrastructure, transportation, housing, community facilities.
- Prioritise more detailed levels of planning in areas that will require rezoning.
- Enforce the Urban Development Line and Development Phasing Line.

7.6 HOUSING SECTOR PLAN

The Housing Act No. 107 of 1997 (as amended in 1999, and 2001) gives effect to the constitutionally conferred right to housing in the Bill of Rights. Section 26 of the Constitution of the Republic of South Africa (1996) declares that "everyone has the right to have access to adequate housing" and charges the state with the responsibility to "take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of this right".

To this end, the Parliament of the Republic recognizes and upholds the following tenets relating to housing, that, housing;

- as adequate shelter, fulfills a basic human need;
- is both a product and a process;
- is a product of human endeavor and enterprise;
- is a vital part of integrated developmental planning;
- is a key sector of the national economy;
- is vital to the socio-economic well-being of the nation

Therefore the Msunduzi Housing Sector Plan & Slums Clearance Strategy (2011) addresses the constitutional obligations by articulating it's primary aim of the Housing Sector Plan as the facilitation of the creation of "sustainable human settlements and provide a range of housing products in safe, accessible and affordable locations".

A primary review point will be the extent to which the Municipality has been able to deliver on these ideals in the period 2011 to 2014. The NA LAP will be developed with the following same objectives of the Human Settlement Plan for Msunduzi which can be summarised as follows:

Table 5: Objectives of Project

Objective	Narrative
1	To eradicate and clear the city of all slums by 2014.
2	To accelerate development and consolidate human settlement development in line with the national policy directives and the IDP of the municipality
3	To contribute towards spatial transformation and creation of an efficient settlement and spatial pattern.
4	To facilitate rapid and cost-effective release of land for human settlement development purposes.
5	To build capacity for effective human settlement development

At a strategic level, the visionary campus for a municipality's developmental aspirations is the Integrated Development Plan (IDP) framework and its processes. The IDP framework sets the tone and charts the direction for the desired development, growth and desired change in the development processes of municipalities.

At the level of developmental conception, the key instrument for the spatial expression of the municipality's developmental aspirations is the Spatial Development Framework (SDF). A direct derivative of the SDF process is the development of Local Area Plans (LAP's) which are localised translations of components of the SDF into detailed plans for demarcated localities within the greater framework of the SDF. The designation of a land lot within a ward or cluster of wards for a housing development project, for example, becomes an important element for the Northern Areas LAP.

To this end, the Msunduzi has City has set itself the following Human Settlements development targets in the IDP:

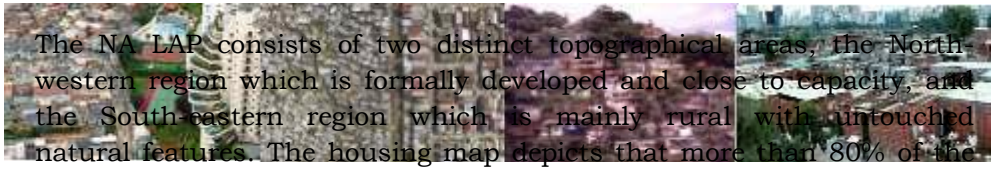
- 100% eradication of informal settlements
- Rural Residential housing infrastructure backlogs are reduced such that less than 10% of households remain without access to formal housing.
- Zero tolerance for exclusions based on racial, ethnic, religious or other demographic characteristics, is reflected in 100% of new settlement patterns.
- 20% of each new mixed-use development consists of rental stock.
- 30% densification of urban space.
- Council Rental Stock maintained on a regular and consistent basis to eliminate unsafe structures and to prevent deterioration of Council's assets.
- Old Rental Stock to be reduced by transferring certain units to qualifying tenants.
- Allocations of new houses in subsidised housing projects to be 100% compliant with DOHS policies by installation of Housing Needs Register and capture of names.

The settlement ordering elements of a given place relate to the location of core services and amenities around which human activity is organized, and the structure of a settlement is an emergent property of the settlement reflecting the interactions between the elements of a settlement and how human activity accommodates itself around the core activities and their interests.

For Msunduzi municipality, the spine of the city is the Chief Albert Luthuli road leading into the CBD, along which is located the elite residential areas. From the CBD, the Edendale, Northern Areas, Mkhondeni and similar arterial connections represent the commercial/industrial component of the settlement.

The corridor between Edendale and Northern Areas is a major settlement structuring element in Msunduzi, and would constitute the spine of the city from a settlement structuring point of view.
The location of the big four major residential areas are in conformity with the road network as an important settlement structuring element.

8 HOUSEHOLDS

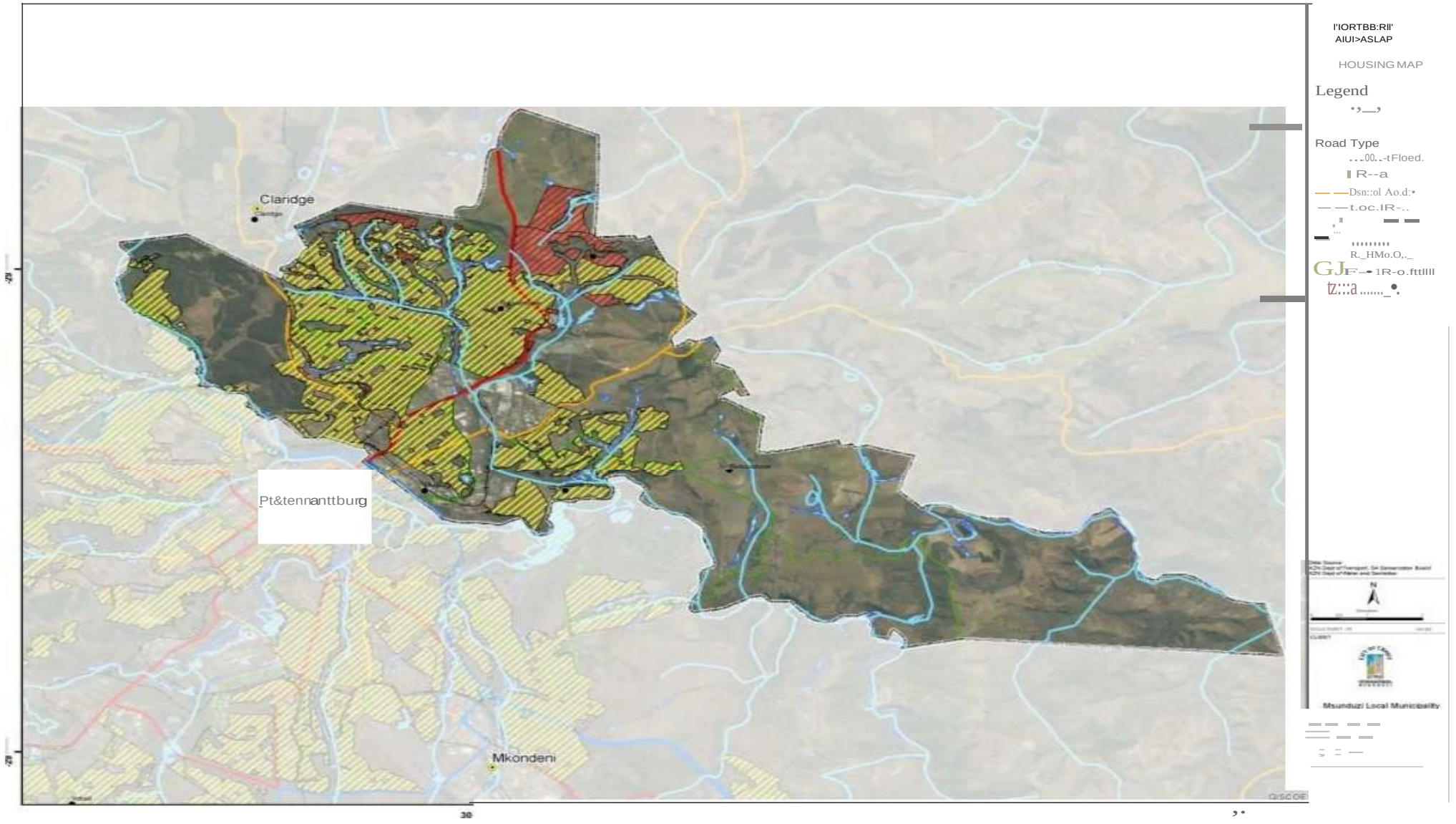


The NA LAP consists of two distinct topographical areas, the North-western region which is formally developed and close to capacity, and the South-eastern region which is mainly rural with untouched natural features. The housing map depicts that more than 80% of the built environment consists of formal residential dwelling units and a small portion of informal dwellings on the northern periphery of Copesville. The Informal residential units consist of migrants who search for employment opportunities in Northern Areas and the greater uMsunduzi Municipality. As a response to the growing informal settlements, funding should be released for the provision of RDP and affordable housing towards the south-eastern region of the LAP. Furthermore an in situ upgrading project should be developed for the existing informal settlement, to mitigate the expansion of informal growth along the periphery of the LAP

The Apartheid policies have largely shaped the manner in which house are situated in rural and urban areas in South Africa. Many urban areas are separated by a fine line when it comes to formal and informal housing, due to rural-urban migration and the segregation of non-whites from economically driven cities. Since 1994 formal housing has increased by 50%, translating to an additional 5.6 million formal homes since the first democratic elections. However, undoing the effects of the apartheid policies will require time and major resources.

The graph below indicates that the study area consists mostly of formal dwelling units. The Northern Areas of uMsunduzi are mostly

urban as opposed to the rural southern portions like Edendale. That being said, the peripheral areas of Northern Areas as well as certain portions within formal residential erven, consists of traditional and informal settlements. Demand for housing in Northern Areas is increasing due to the economic opportunities from the industrial district. Therefore its essential to make provisions for low cost and social housing, as well as proposing instu housing programs to eradicate the informal houses.



Map 2: Housing- Formal and Informal

8.1 Required Social Facilities

The household count as per the 2011 census data indicates that there are approximately 36825 households within the NA LAP LAP study area. In lieu of this fact, the table below the estimation of required social services, based on the CSIR guidelines, for the study area.

Households	36 825
Estimated Population	124 587

Table 6: Required Social Facilities

Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
EDUCATION				
Crèche/nursery school	Estimated minimum population: 5 000.	2	25	23
Primary school	Estimated minimum population: 3 000 - 4 000.	28	31	3
High school	Estimated minimum population: 6 000 - 10 000	13	12	0
Tertiary Training Not University	Estimated minimum population: 100 000	3	1	0
HEALTH				
Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
Clinic	An estimated minimum of 5 000 people	8	25	17
Hospital	1 770 000 for Regional Hospital and 450 000 for District Hospital	2	1	0
CIVIC / SOCIAL AND CULTURAL FACILITIES				
Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
Community Centres	A minimum population of about 10 000 people.	5	12	7
Library	Libraries can serve populations of 5 000 - 50 000	2	2	0
Religious Centres	2 000 people are required to support a single church.			
Post Office	Estimated minimum population: 11 000 people.	4	4	0
Police Station	Estimated minimum population: 25 000.	1	5	4
RECREATION (SPORTS AND PARKS)				
Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
Indoor Sports Hall (medium/large)	Estimated minimum population: 500 000.		1	
Sports Field	Estimated minimum population: 7 500.	1	17	16

9 DEMOGRAPHIC ANALYSIS

Population growth is based on the difference from Census 2001 data and Census 2011 data. Three scenarios were used to determine the growth of the NA LAP area, which has implications in terms of:

- The provision of Infrastructure

This will determine whether there is an adequate water, electricity and sanitation service and supply available to absorb the growth of the NA LAP study area. The provision of transport, in terms of roads (upgrades, new links) as well as non-motorised means becomes an important factor when dealing with the growth of a population.

- The provision of Social Services

The growth rate will also identify the provision of social services, which is inclusive of schools, clinics, libraries, police stations etcetera, by using CSIR guidelines that illustrate population thresholds required for the provision of social services.

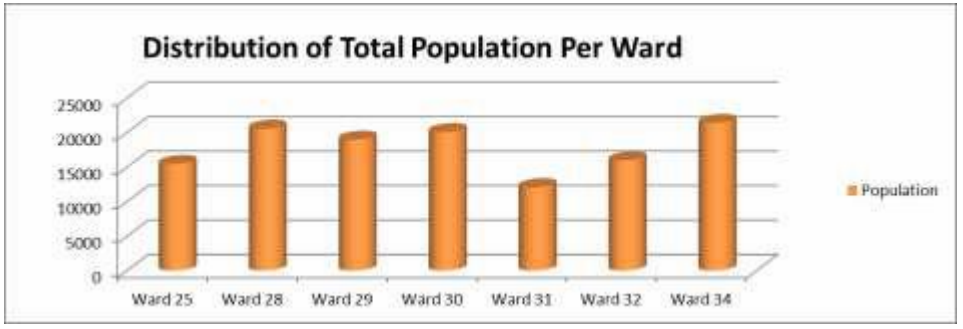
- The availability of land for new housing developments

Increasing populations will require housing; therefore the demand for housing will be based on the growth of the population. The provision of land will be necessary to housing the growing population.

- The availability of land for economic activities (commercial and industrial)

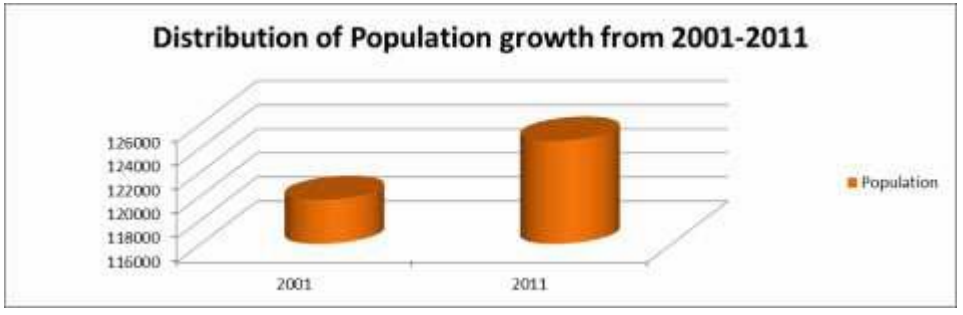
Increasing populations means that more jobs are required and more retail/ commercial development will be required to deal with a growing population.

According to the Stats SA Census the population of the NA LAP has increased at a growth rate of 0.4% from 2001(119660) to 2011(124587). Although the population has increased significantly certain wards have experienced negative growth such as wards 29, 30 and 31. The remaining wards have grown exponentially despite the minimal availability of vacant land. The reason for this growth could result from people converting their dwelling units to rentals or people moving in with their family members.



Graph 1: Distribution of total population per ward

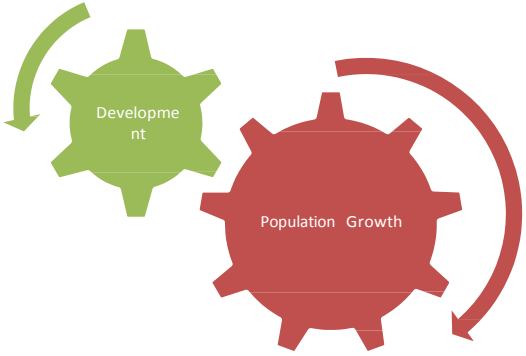
9.1 Population Growth



Graph 2: Distribution of population growth from 2001 - 2011

Population growth is based on the difference from Census 2001 data and Census 2011 data. Three scenarios were used to determine the growth of the NA LAP area, which has implications in terms of:

- The provision of Infrastructure



This will determine whether there is an adequate water, electricity and sanitation service and supply available to absorb the growth of the NA LAP study area. The provision of transport, in terms of roads (upgrades, new links) as well as non-motorised means becomes an important factor when dealing with the growth of a population.

- The provision of Social Services

The growth rate will also identify the provision of social services, which is inclusive of schools, clinics, libraries, police stations etcetera, by using CSIR guidelines that illustrate population thresholds required for the provision of social services.

- The availability of land for new housing developments

Increasing populations will require housing; therefore the demand for housing will be based on the growth of the

population. The provision of land will be necessary to housing the growing population.

- The availability of land for economic activities (commercial and industrial)

Increasing populations means that more jobs are required and more retail/ commercial development will be required to deal with a growing population.

The growth scenarios inform land demand infrastructure requirements for NA LAP project areas. These scenarios are suggested below as low, medium and high growth rates.

Table 7: Distriction of population growth rates per Low, Meidium & High Growth Scenario

Growth Scenario	Scenario 1: Low Growth Rate	Scenario 2: Medium Growth Rate	Scenario 3: High Growth Rate
Annual Growth Rate	0.4%	1.12%	2%
Basis of growth rate	Actual growth rate for the identified Wards within the NA LAP Study area, which is the difference between 2001 and 2011 census data.	Growth rate is based on the growth rate for the entire Msunduzi Municipality, indicative of the difference between 2001 census and 2011 census data.	This is an assumed population growth.

Table 8: Population Projections

Growth Scenario	Scenario 1: Low Growth Rate	Scenario 2: Medium Growth Rate	Scenario 3: High Growth Rate
Annual Growth Rate	0.4%	1.12%	2%
2017 population	127607	133197	140305
2027 population	132804	148890	171031
2037 population	138213	166432	208486

Using the above growth scenario, we can suppose that the household growth rate will be as per the population growth rate. The table below shows the growth of household within the project area.

Table 9: Household Projections

Growth Scenario per household	Scenario 1: Low Growth Rate	Scenario 2: Medium Growth Rate	Scenario 3: High Growth Rate
Annual Growth Rate	0.4%	1.12%	2%
2017 population	37714	39250	40848
2027 population	39366	44004	49188
2037 population	41466	50547	61617

The above figures have implications in terms of infrastructure availability and land availability. The above figures when presented in terms of different density options show the

relevance of land availability. Currently, according to the Msunduzi Housing Sector Plan (2015/16), housing density is estimated to be around 9.56 per Hectare. For the NA LAP LAP, it is assumed that low density is at 10du/ha, medium density is at 25du/ha and high density is at 50du/ha. See table below which indicates land required for different densities.

Years	2027	2037
land demand for 2027 for low density @ 10du/ha	3909	4085
land demand for 2027 for medium density @ 25du/ha	1741	1968
land demand for 2027 for high density @ 50du/ha	991	1232

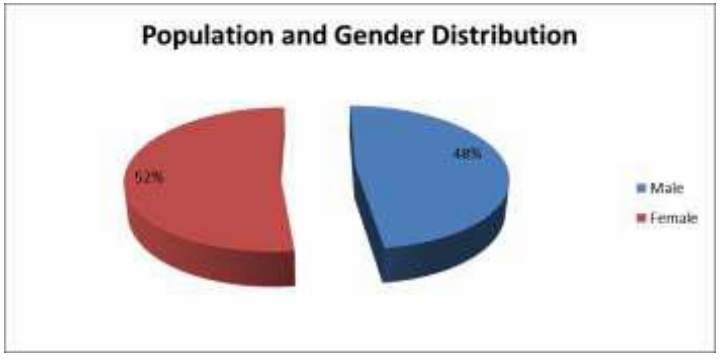
Currently the NA LAP LAP Study area is approximately 7748 hectares in size. Out of the 7748, from the environmental determinants (see status quo), it is noted that 2111 hectares of the study area falls under Environmental Services. It is estimated that 2832 hectares of land within the study area is for Agricultural purposes (SDF GIS shape-files: 2014/15). The table below illustrates the amount of land already used in terms of: Agriculture, Industry, Social, Residential and Environmental.

Land Use	Area in hectares
Agriculture	2831.63
Industry	344.57
Residential	1755.81
Social	111.68
Environmental	2111.00
Total	7154.68

The remainder of the study area is estimated to be around 593.32 hectares. It is worth noting that the Msunduzi SDF (2015/16) suggests that the Northern areas are experiencing low growth, primarily because the Northern Areas are already developed. The reality of the situation is that for the density within the NA LAP LAP study area to increase there will have to be a restructuring of the existing residential developments, allowing for medium density residential development in areas where the zoning only permits for a dwelling unit. The table above suggests that out of the 7748 hectares (the study area), only 593 hectares remain, since an estimated 7154.68 hectares is the total area that has been developed on or has been designated as environmental or agricultural use.

9.2 Population Characteristics

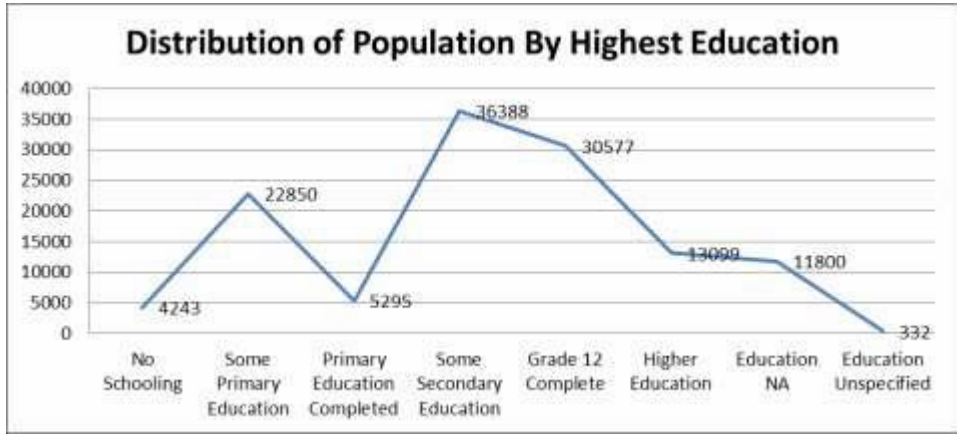
The following Pie Chart indicates that the Northern Areas region consists of a female dominated population. According to the chart there are 52 % Females and 48% Males within North dale.



Graph 3: Population of gender distribution

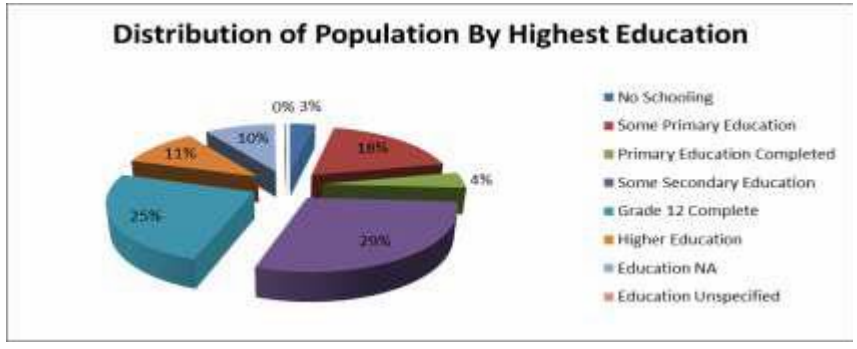
The fluctuating graph below indicates the distribution of the Northern Areas Population by highest education. The results of the graph indicate some positive results such as the high number of people who

complete are enrolled and complete grade 12. On the negative side it also indicates a dip of 17478 individuals who fail to gain access to higher education. The graph further indicates a major backlog in the number of people who are not schooling.



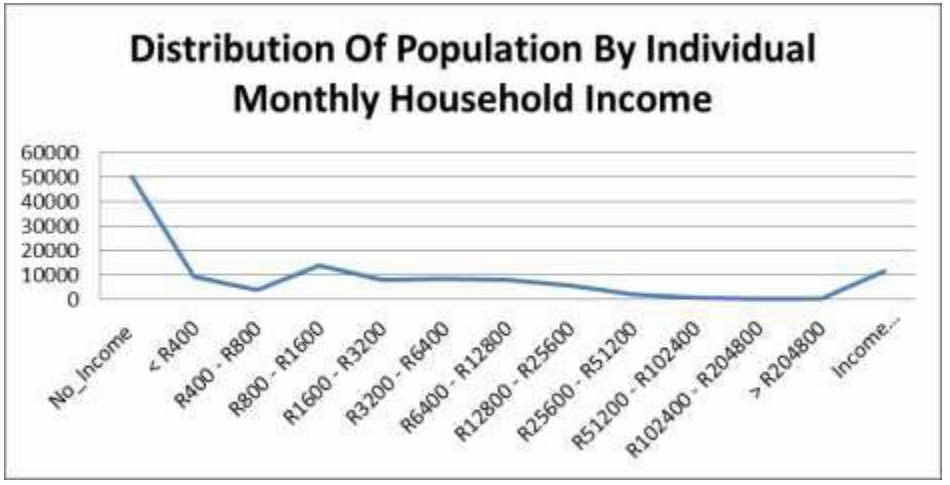
Graph 4: Distribution of the Northern Areas Population by highest education

The Pie Chart below presents the percentages of the above-mentioned graph indicating highest education. The chart clearly indicates the depreciation in percentages from the 29% of individuals in some secondary education to only 11% of that 29 who manage to proceed to higher education.

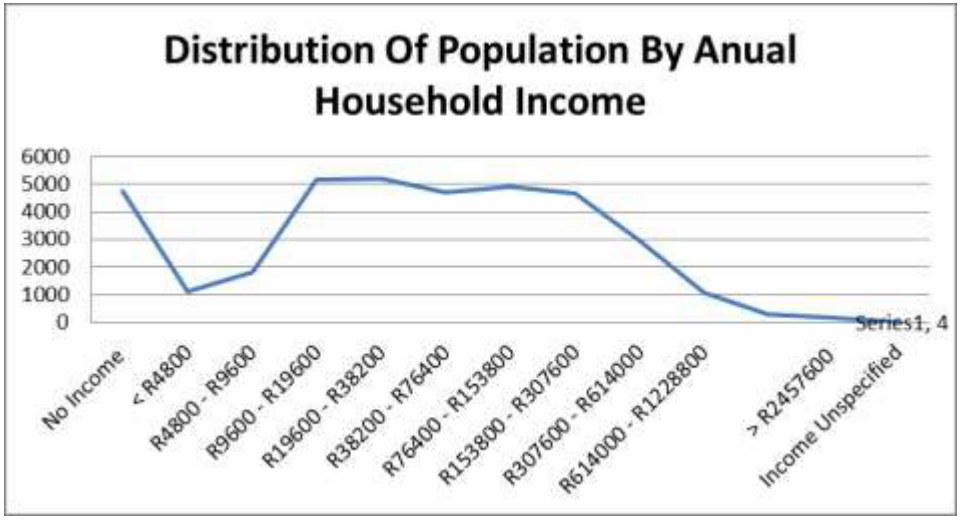


Graph 5: Distribution of population by highest education

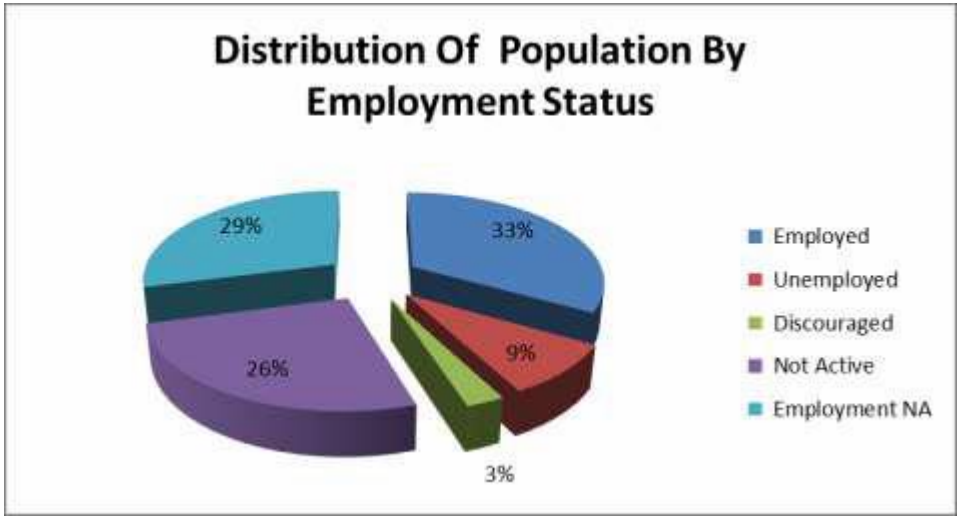
According to the following graph the population in the Northern Areas area has an even mix of low and middle individual monthly income. The stark difference appears from the number of households with no income at all. This group is normally made up of people who are either too old or too young to find any employment. However it also comprise of households with adults who are unemployed, graph.... Indicates that 9 % of the population is unemployed which is a total of 11 212 individuals. The annual household income follows a similar trend, indicating very high levels of households with no income and a great depreciation as the household income exceeds R307 600.



Graph 6: Distribution of population by individual monthly household income



Graph 7: Distribution of population by annual household income



Graph 8: Distribution of population by employment status

10 ECONOMIC ANALYSIS

10.1 Economic Assessment

Since there is limited economic information available specific to Northern Areas, the economic status quo of Msunduzi Local Municipality will be considered where information specific to Northern Areas is unavailable.

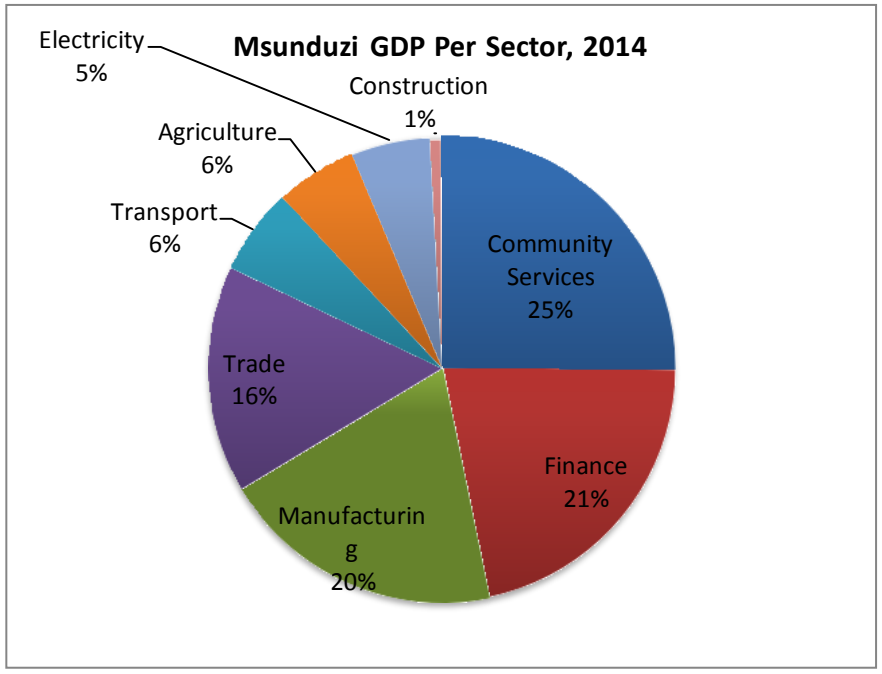
10.2 THE STATE OF THE ECONOMY

An analysis of GDP-R at the district level reveals that Msunduzi Local Municipality is the main driving force behind the uMgungundlovu District Municipality economy as the local municipality produced a GDP-R of R28.964 billion (68.5 per cent) in 2014. The local economy grew sluggishly by 1.9% between 2013 and 2014, which was a slight improvement from the 1.7% growth experienced between 2012 and 2013. Despite the economic growth rate remaining in positive territory, the economic outlook for the local economy in 2015 remained dim, as it tries to withstand the effects of increasing electricity tariffs which have the potential to impact on business investment within the municipality.

The Gross Value Added (GVA) of Msunduzi for 2011 was R 22.7 billion. The GVA growth rate for 2011 was 3.42%. The GVA per capita for this period was R 36 703.

10.3 KEY FORMAL ECONOMIC SECTORS

The key economic sectors in Msunduzi in 2014 were Community Services (29%, Finance (18%), Manufacturing (15%) and Trade (14%).



Graph 9: Msunduzi GDP Per Sector

Community Services

Community services amounts for 29% of the Gross Domestic product of the Msunduzi Municipality it has remain consistent from 2011. This is because Pietermaritzburg city is the capital of the KwaZulu Natal and therefore houses a number of provincial government departments.

Finance

The financial sector of the Msunduzi economy is the second largest sector in terms of GDP and accounts for 18% down from 24% in 2011. The fact that it is second largest can be associated with a large number of commercial banks being located in the Municipality, as well as other financial institutions. The location of government departments within the Municipality, together with their financial transactions, reinforced this trend.

Transport

Transportation accounts for 11.2% of the GDP of the Municipality slightly down 13% in 2011. The municipality is located along the busy N3 corridor, as well as at the confluence of number of major provincial and district roads. The establishment of a motor sales complex adjacent to the N3 and showground's further attempt to strengthen this sector.

Trade

Trade accounts for 14% of the municipal GDP up from 12% this an important element of the economy. Many higher order retail facilities are located in the Municipality and have a large catchment area servicing many at the outlying towns and communities both within and outside the Municipality.

Manufacturing

Although there has been a decline in the manufacturing output of the Municipality over the last decade manufacturing contributed 14% to the local GDP. This is an important sector and many opportunities exist for its further development and growth. The municipality has plans at advanced stages to release additional land for industrial growth. One such development is the Ibhubesi light industrial park which is a 60 ha site in Ashburton which is under construction and will have 70 sites of commercial and light industrial properties.

Agriculture

Agriculture provides 4% of the GDP of the municipality. Although subsistence agriculture plays an important role in the Municipality, commercial agriculture is not as prevalent as in surrounding municipality. Many surrounding municipalities within the UMgungungndlovu District Municipality supply produce directly to the markets in Msunduzi.

Tourism

The economy of the municipality is dependent on a number of major sporting and cultural events , including the Comrades Marathon, Midmar Mile, Duzi Canoe Marathon and the Mountain Bike World Cup, to name but a few. These events lead to directed cash-injections into the economy and have positive impact on the local tourism establishments. The Municipality is also located midway between the burg and beach tourism destinations and is a convenient stop-over for many travellers.

Furthermore, according to the Msunduzi 2016 – 2021 Integrated Development Plan, the following additional sectors have high growth potential:

Post and Telecommunications

This capital intensive industry has been growing at a very impressive rate for the past 10 years and probably reflects the fact that Pietermaritzburg serves as the telecommunications hub for a large hinterland.

Sales and Repairs of Motor Vehicles and Fuel

This industry is growing rapidly within the Municipality and reflects the importance of the Municipality being situated on a major transportation corridor. The comparative advantage of this sector is only likely to grow with the renewed strategic focus on the Durban – Gauteng corridor.

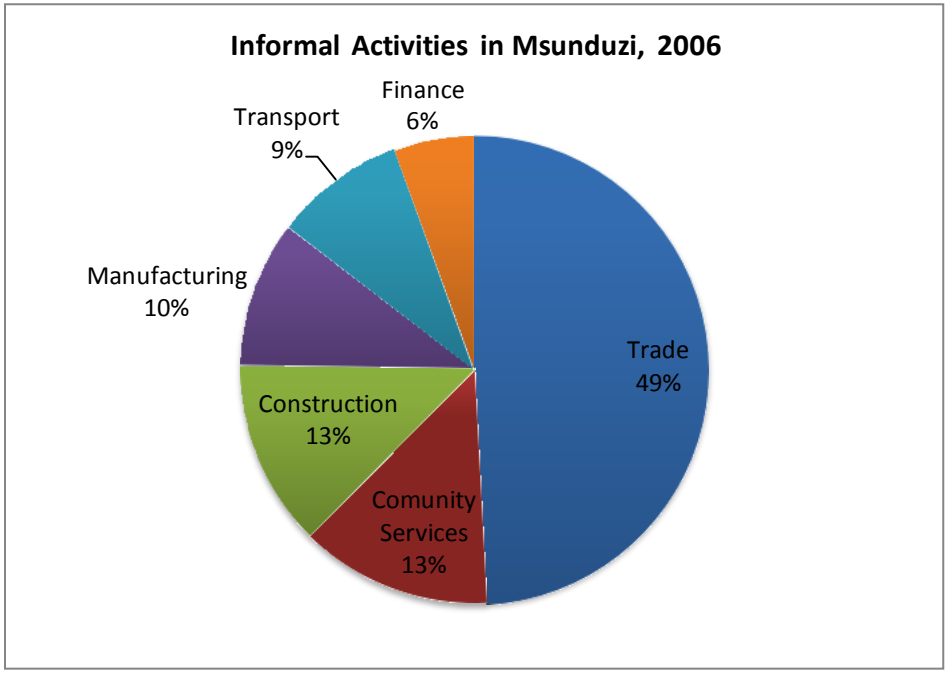
10.4 THE INFORMAL SECTOR

As aforementioned, the significantly high proportion of not economically active individuals in the region could be an indication of the existence of a strong informal sector, which may not be considered in formal economic indicators.

According to the Msunduzi 2016-2021 Integrated Development Plan, there is a significant informal economy in the region.

Most informal businesses in Msunduzi are low-income generating operations that are typically survivalist. Retail trade (i.e. restaurant, bar, shebeen, tavern, accommodation, vehicle repair/cleaning, shoe repair, repair of personal and household goods, garage, spaza shops/tuck shops/hawker-type stands selling various goods etc.) and community services (i.e. health, communication (telephones), cell phones, catering, gardening, domestic/ household services, funeral services, hair salon, social and personal services etc.) are the predominant sectors of informal sector activity.

The figure below further gives an indication of informal activities in Msunduzi.



Graph 10: informal activities in Msunduzi, 2006

It is important that although not in the same proportion, the type of activities in the informal sector complement those the formal sector.

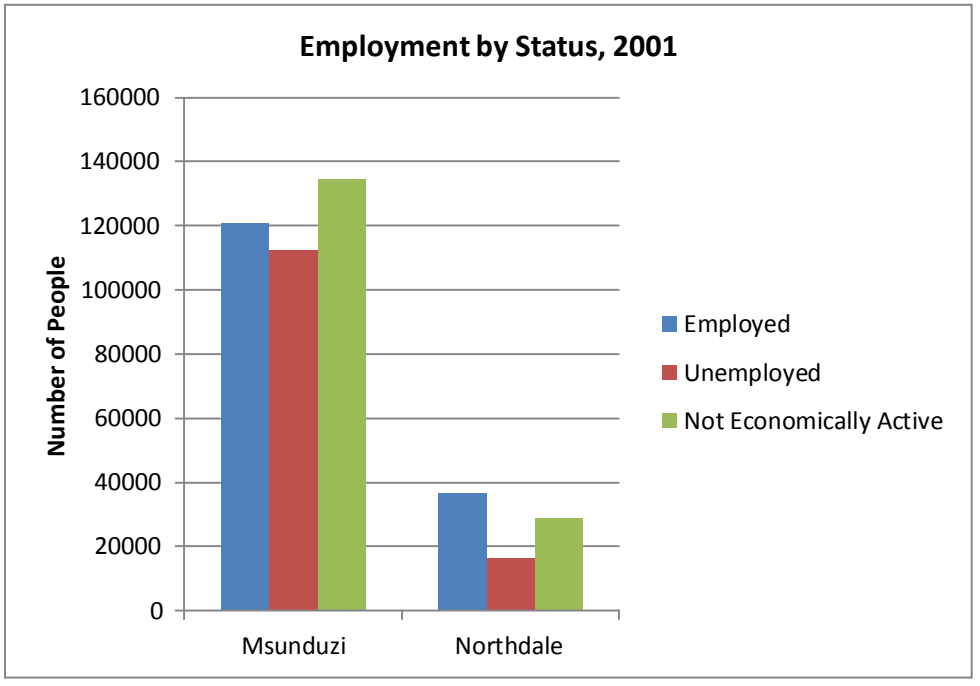
The Msunduzi LED Strategy (2008) indicates that in 2004, retail trade accounted for 49.2% of overall informal activity in Msunduzi. This percentage increases to approximately two-thirds of informal activity, if community services are included in the calculation. Most of the informal businesses in Msunduzi are survivalist and provide support for an average of 5.68 individuals, who are almost always family members and not part- or full-time employees. Most of these businesses also earn less than R 1,000.00 per month (68%). A major cost for these businesses is the cost of transport, usually getting to and from the work site. The cost of transport can be anything from R250.00/month to R1,000.00/month. When this is related to the average earnings of R 1,000.00/month, the problem becomes obvious. The majority of traders are positive about the future, and almost all traders want to grow their respective businesses into larger formal businesses in the future - 36% of all respondents in a study by COGTA reported that they specifically want to be self-employed.

In understanding why informal traders are not entering the formal economy, the COGTA (2012) survey indicated that costs of becoming part of the formal economy were the major hindering factor (86%). A further 32% quoted not knowing how to become part of the formal economy, while 2% reported it was too complicated, and 2% reported other reasons. This indicates some reticence to join the formal economy, possibly due to administrative burden and associated compliance costs which form a barrier to transition. However, a significant factor is a lack of knowledge, which suggests the need for greater information and support services for informal business considering migrating to the formal economy in this municipal area. However, a larger sample would need to be canvassed before committing resources to such a specific programme.

It is important note that although the sector information is for the Msunduzi Local Municipality as a whole, and not specific to Northern Areas, planning initiatives would do well to consider as it sets the context within which Northern Areas is located. Economic activity within Northern Areas would be similar to complementary to the greater Msunduzi context.

10.5 EMPLOYMENT

According to the 2001 census, the unemployment rate in Msunduzi was 48% (112 392 people). In Northern Areas specifically, this figure stood at 31% (16 451 people). Furthermore, 28% of the Msunduzi of the labour force was not economically active. This figure was the same (28%) in Northern Areas.

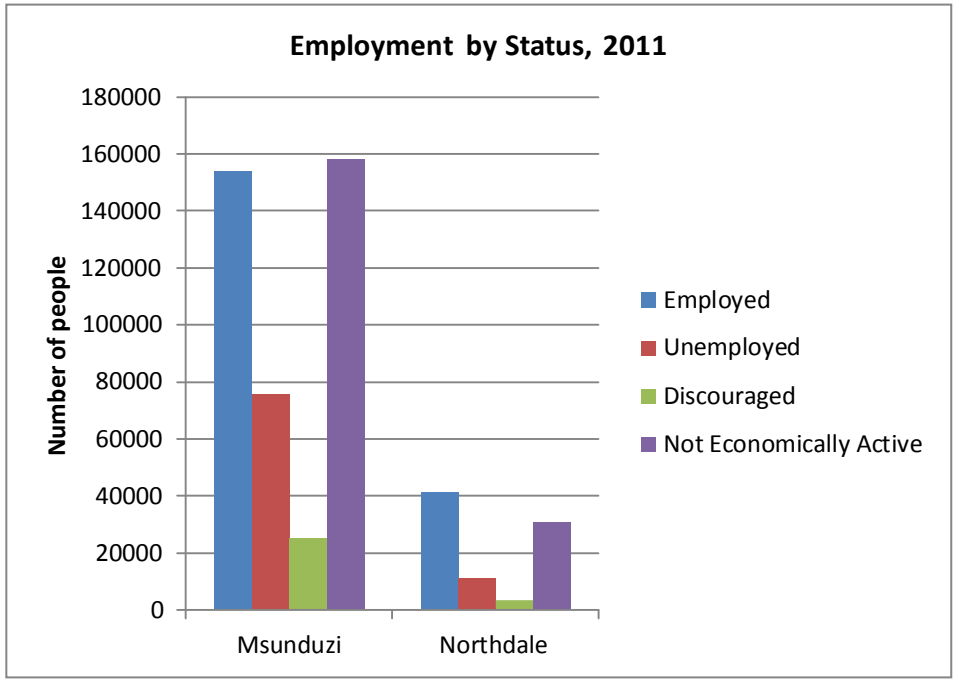


Graph 11: Employment status, 2001

Source: Census 2001

In the 2011 census, the unemployment rate in Msunduzi was 33% (75 763 people), and that of Northern Areas was 21% (11 212 people). Furthermore, 6% of Msunduzi's labour force was discouraged work

seekers, and 38% were not economically active. In Northern Areas 4% of the labour force was discouraged work seekers, and 35% were not economically active.



Graph 12: Employment status, 2011

Source: Census 2011

Although Northern Areas fared better than Msunduzi Local Municipality as a whole in terms of employment in both the 2001 and 2011 data, the same challenges still apply. Although unemployment has decreased considerably, it remains a cause for concern. There has been an increase in population, and therefore the amount of people willing and able to work, the percentage of people employed is still high.

There are thus a number of new entrants in the labour market failing to secure employment opportunities. This is reflected in a new employment status indicator introduced in the 2011 employment statistics, 'discouraged workers'. These are people who are "not actively seeking employment or do not find employment after long-term unemployment". This is usually because individuals have given up looking or have had no success in securing employment, hence the term "discouraged".

The "not economically active" category reiterates this challenge. This category has actually increased in both Msunduzi and Northern Areas, and is even more than the employed labour force in Msunduzi (2011). Not Economically Active individuals include students, homemakers, those with illness/disabilities; and those too young/too old to work among others. With this figure increasing, this increases the burden of the employed population, to carry the rest of the population. This may not be clear at first glance. The age dependency ratio is 43% in both Msunduzi and Northern Areas. Thus it can be said that there are 43 people dependant on every 100 people of the labour force. However when the not economically active and discouraged workers are taken to consideration, the dependency ratio becomes 168% in Msunduzi and 109% in Northern Areas. This means in Northern Areas, for every 100 people employed, they have to support 109 people who are not economically active in Northern Areas and 168 people in Msunduzi. This places significant population on the Northern Areas and Msunduzi tax base.

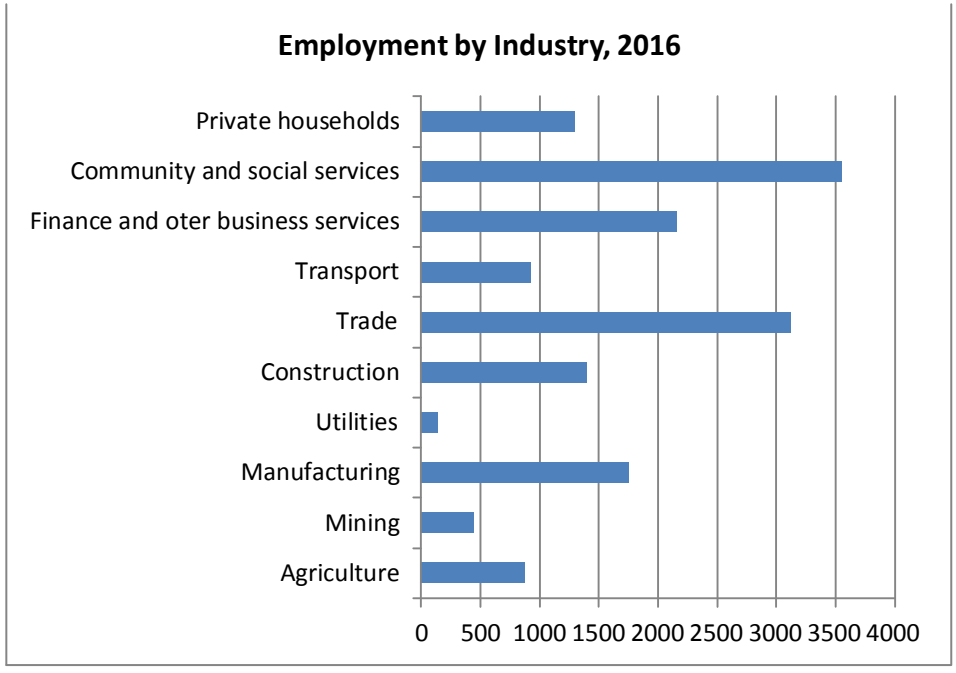
Thus despite the perceived improvement in the unemployment rate, there is still a significant need for the creation of employment creation in the region.

However, it must be noted that the "others" component of the not economically active population may include those individuals that are involved in the informal sector. Thus there is a possibility that there may be more "economically active" individuals than reflected in the data.

There are a number of factors could be influencing unemployment in the Northern Areas/ Msunduzi region. Education and existing industries will be considered for the purposes of this assessment.

Employment and Existing Industries

The figure below gives an indication of employment by industry in South Africa in the second quarter of 2016.

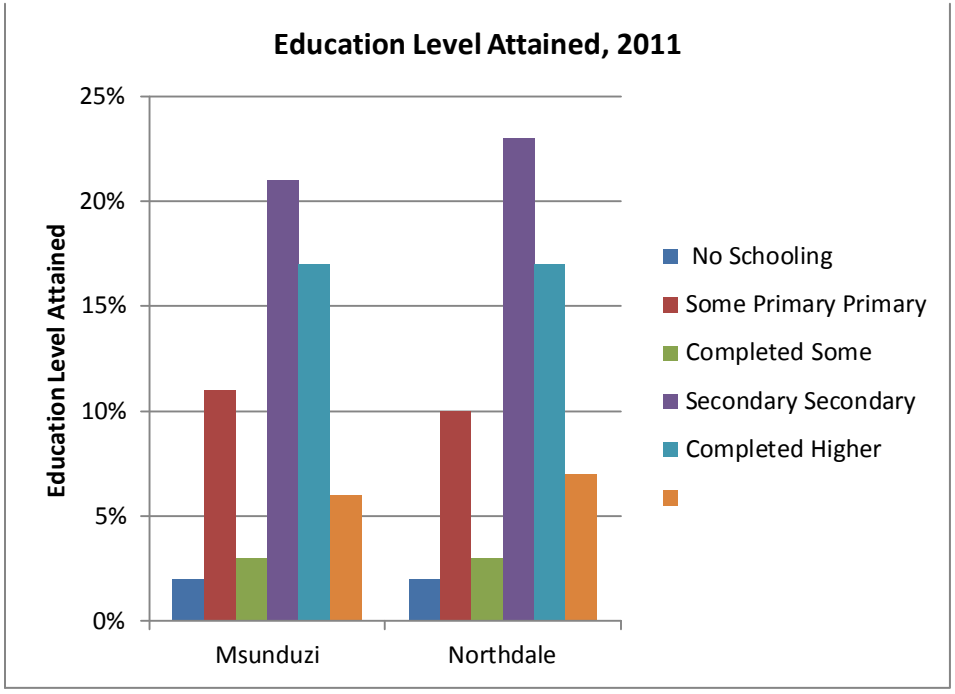


Graph 13: Employment industry, 2016

According to the figure, Community & Social Service; Trade; Finance & Other Business Services; and Manufacturing employ the largest number of people in the country. As aforementioned, these are largest sectors in Msunduzi Local Municipality. Thus the municipality is successfully attracting large employment generating industries.

Education

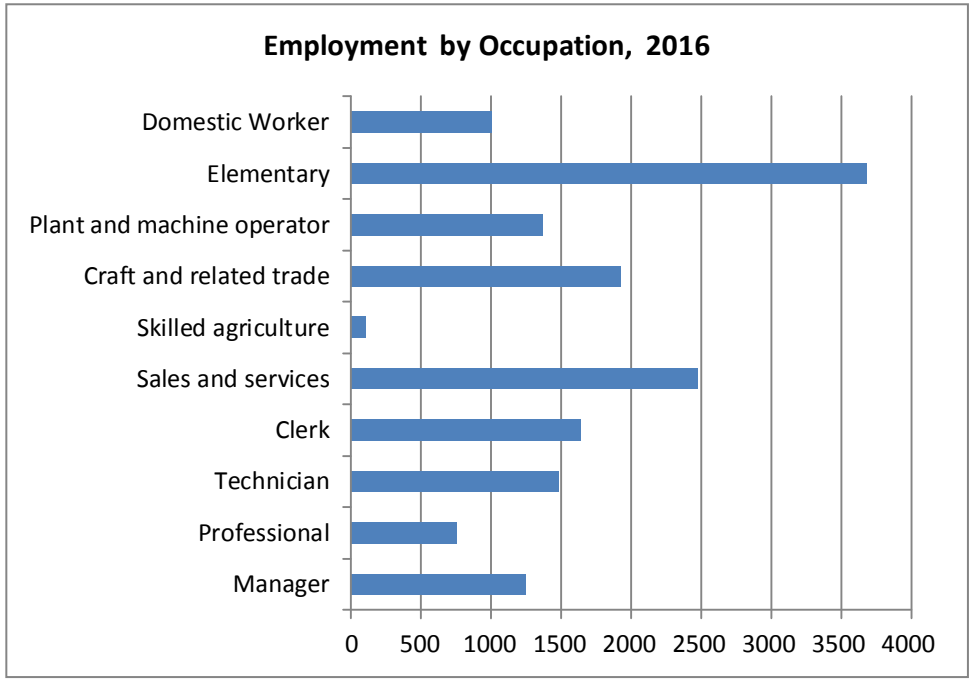
In its Diagnostic Overview released in 2011, the National Planning Commission (NPC) found that education and employment were two major problems affecting the South African economy – specifically a poor quality of education and low employment levels. These two aforementioned variables are interrelated in that a poor quality of education can lead to inability to find relevant employment, resulting in structural unemployment; the most prevalent type of unemployment in South Africa. Inherently, unemployment leads to loss of income by households. As household income decreases and becomes unable to meet all the needs of the household, that household that household is categorized as living in poverty.



Graph 14: Employment level attained, 2011

Education level attainment patterns are similar in Msunduzi and Northern Areas, with a high proportion with some or all secondary education completed but few people with higher education. Thus employment opportunities would have to be semi-skilled and low-skilled in order to address unemployment.

The figure below gives an indication of employment by occupation in South Africa in the second quarter of 2016. In order to promote employment, education and skills development initiatives will need to be aligned to industry and employment trends.



Graph 15: Employment by occupation, 2016

According to the figure, the largest employment is for Elementary; Sales & Services; Craft & Related Trade; Clerk; and Technician occupations respectively. Thus education and skills development initiatives promoting employment need to be aligned with these occupations.

10.6 SUMMARY OF FINDINGS

- Gross Domestic Product and Gross Value Added reflect an upward trend in economic growth in the region
- Unemployment figures, although high, are improving and showing a downward trends
- Employment creation and skills development initiatives need to be aligned to industrial sector growth trends
- The main sectors in the region are community services, finance, manufacturing and trade respectively
- There is a strong informal sector which is aligned to and complementary to the formal sector, and which needs to be supported in order to move to the formal sector and contribute more significantly to economic growth.

11 BIO-PHYSICAL ANALYSIS

11.1 INTRODUCTION

FutureWorks has been appointed by Black Balance Projects (Pty) Ltd to undertake a bio-physical spatial analysis to inform the development of the Northern Areas Local Area Plan (LAP), including consideration of key environmental and agricultural opportunities and constraints. This report presents the results of the analysis. It is intended that this information is used to assist in the preparation of a LAP that: (i) appropriately protects ecosystems and associated ecosystem services, (ii) minimises exposure of people and infrastructure to climate change and other environmental risks, and (iii) optimises the economic and human-benefit opportunities presented by the natural environment in the study area, including agricultural production.

This status quo report focuses on highlighting the spatial environmental and agricultural protection and management priorities

that have been identified through an evaluation of the biophysical issues, constraints and opportunities within the study area.

11.2 Information Sources

The baseline information presented in this report was collected from a review of relevant municipal, provincial and national environmental and spatial plans and policies. In addition, on 3 October 2016 an interview was held with representatives of the Msunduzi Municipality Environmental Management Unit and a site visit was carried out to obtain additional insights into the bio-physical issues and opportunities in the study area.

The status quo analysis has included consideration of the following:

- Bio-physical Elements:
  - Topography;
  - Hydrology, including river catchment systems;
  - Flora and fauna;
  - Climate;
  - Air;
  - Agricultural resources.

- Plans / Policy used in the Assessment of Conservation Significance:
  - Threatened Ecosystems gazetted under the National Environmental Management Biodiversity Act (2004) and associated SANBI maps;
  - KZN Systematic Conservation Plan (Ezemvelo KZN Wildlife);
  - National Freshwater Ecosystems Priority Area (NFEPA) Rivers and Wetlands;
  - Msunduzi Environmental Management Framework and Strategic Environmental Management Plan;
  - Msunduzi Environmental Services Plan, containing protected areas, areas of biophysical significance and ecological corridors.

- Evaluation of Current and Future Demand for Ecosystem Services (including agricultural production):
  - Msunduzi IDP and SDF;
  - Umgungundlovu Climate Vulnerability Analysis;
  - Msunduzi Climate Change Policy.

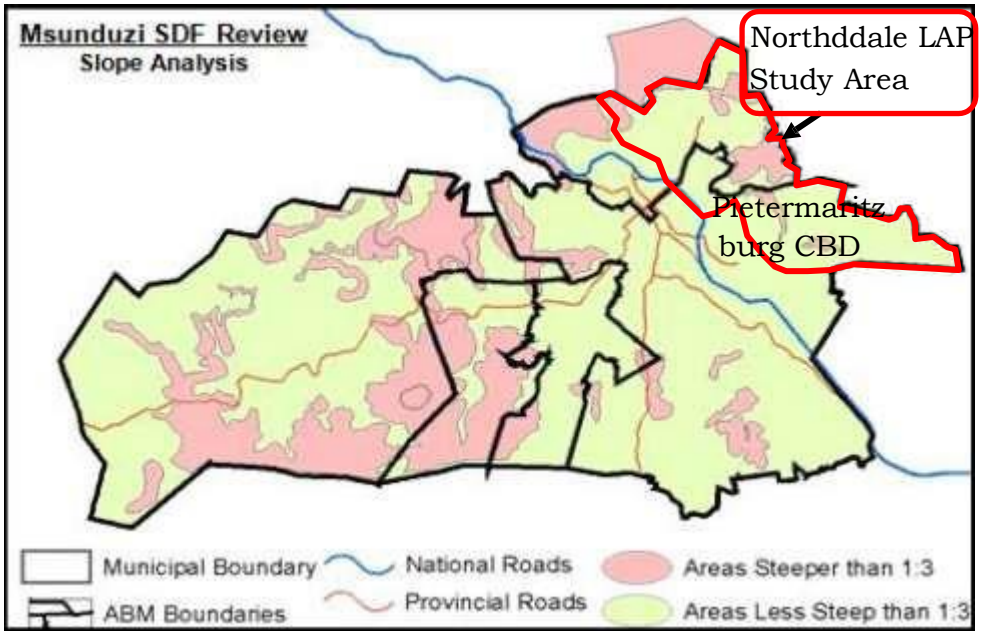
11.3 Bio-physical Status Quo

11.3.1 Location & Topography

The NA LAP area is located in the north-eastern portion of the Msunduzi Municipal Area and forms the eastern section of the Pietermaritzburg city bowl. The main topographical feature of the area is the Msunduzi River Valley, which runs in a roughly west-east direction through the southerly portion of the study area.

The areas adjacent the Pietermaritzburg Central Business District (CBD) near the base of the Msunduzi River valley and are generally flatter. The topography steepens towards an escarpment located in the northerly and easterly extent of the study area. This escarpment forms the watershed between the Msunduzi River valley and the UMngeni River valley.

The southern and south-eastern portions of the study area are characterized by rolling hills and some steep south- and east-facing cliff areas. There is a network of drainage lines throughout the study area as well as the larger Msunduzi River valley.



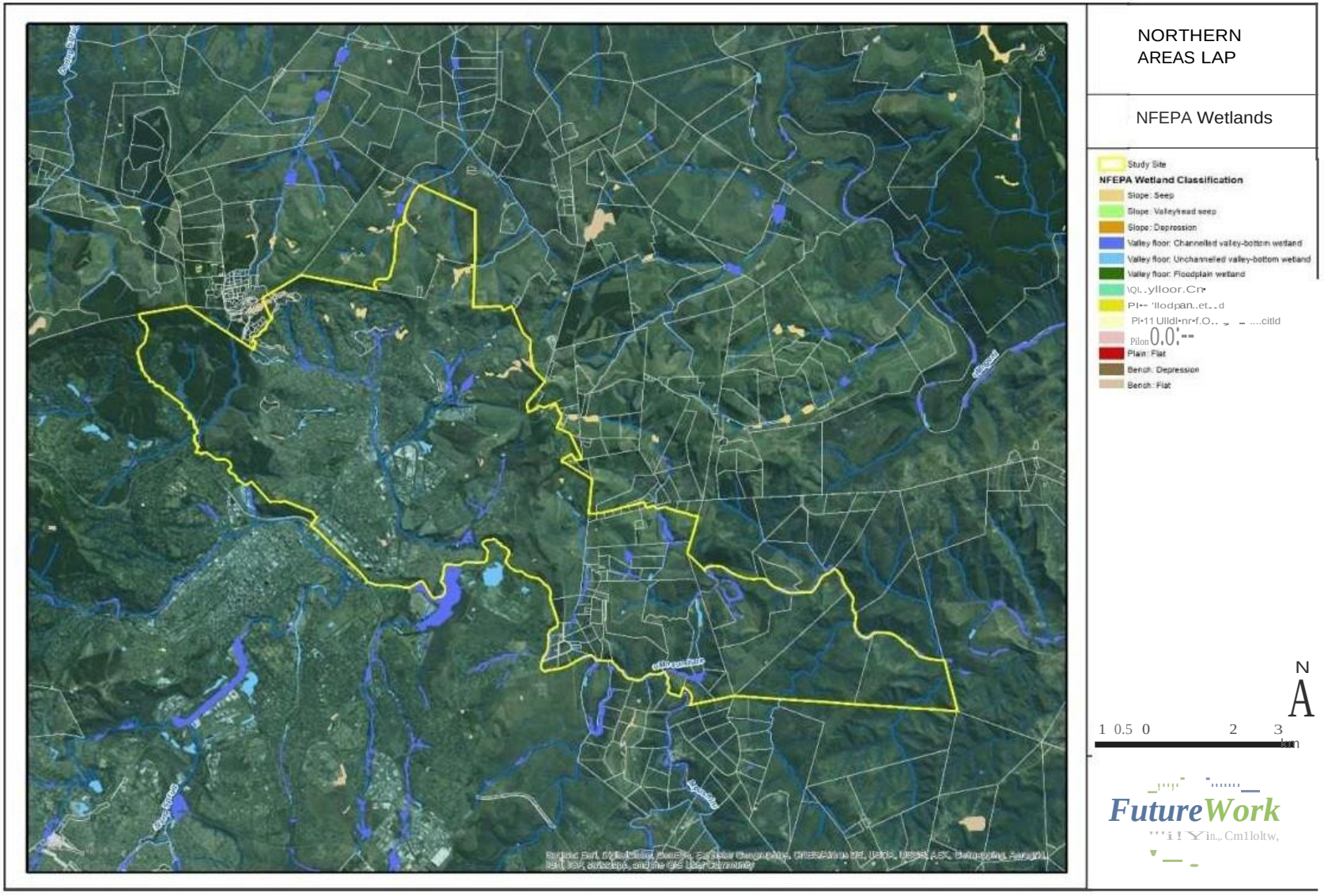
Map 3: Slope Analysis (from Msunduzi SDF Review Report, 2009).

11.3.2 Watershed Context & Hydrology

The NA LAP study area is roughly 7,748 hectares (ha) in extent and is located within the middle reaches of the UMngeni River Catchment, which is a major supplier of water resources for human consumption in the Province of KwaZulu-Natal. The majority of the study area falls within the Msunduzi River sub-catchment, a tributary that drains most of the Msunduzi Municipal Area. A short distance downstream of the study area, the Msunduzi River forms a confluence with the UMngeni River and then flows into Inanda Dam, which supplies a large part of the potable water resource requirement of the greater Durban region.

The Msunduzi River is located almost entirely within an urbanised catchment, and has long been associated with poor water quality arising from industrial effluent and urban wastewater and stormwater. However, the river hosts the annual Duzi Canoe Marathon, an economically important sports and tourism event on the KwaZulu-Natal calendar.

The Msunduzi Municipality is a signatory to the UMngeni Ecological Infrastructure Partnership (UEIP) project. This is an inter-governmental and multi-stakeholder initiative that safeguards and rehabilitates ecological infrastructure within the UMngeni River catchment in order to enhance water resource flows and quality. As a component of this initiative, the Msunduzi Municipality is rehabilitating the Baynespruit stream, a tributary of the Msunduzi River draining a large part of the study area, and which is in a highly polluted state owing to industrial and urban discharges, as well as solid waste pollution.



Map 4: Major River System & Wetlands in the NA LAP Study Area.

11.3.3 Climate & Agricultural Resources

Climate

Figure 1 on the next page shows that the major part of the study area has a mild and moist climate, with an annual rainfall of between 800mm and 1000mm. The steeper, south-facing slopes of north-western portion of the study area have a cool and very moist climate, with average annual rainfall exceeding 1000mm. The southern and south-western areas are hotter and drier, with rainfall averaging below 800mm per annum.

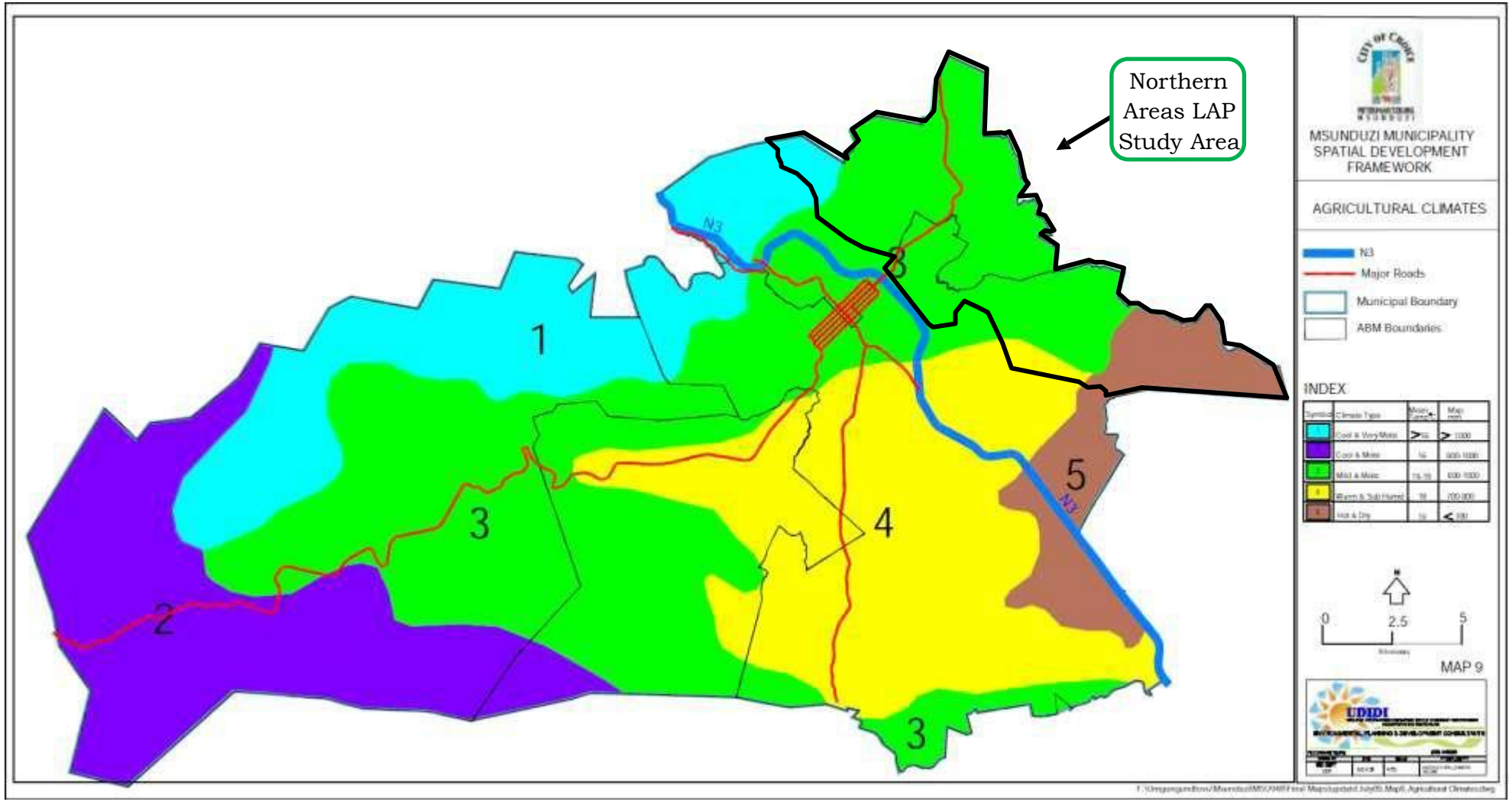


Figure 1: Climatic Zones within the Study Area (from Msunduzi SDF Review, 2009

Agricultural Resources

Figure 2 shows that, while there is no 'high potential' agricultural land within the study area, the agricultural potential is considered to be best in the central and northern portions of the study area, where rainfall is higher and the climate is cooler. These areas currently contain sections of forestry plantation (Black Wattle, Pine and Gum) and extensive cropping, mainly sugar cane. The south-western areas, where the climate is warmer and drier, is used for extensive rangeland agriculture such as cattle farming, and in some cases game farming where combined with biodiversity conservation land uses.

Figure 2 shows the agricultural areas that the 2015 Spatial Development Framework recommends incorporating / retaining in the developing urban fabric. The map includes existing plantation forestry and extensive sugar cane areas in the west, north and central portions of the study area, as well as the extensive areas of existing rangelands (mostly indigenous grasslands and woodlands / savanna) in the drier south-western area.

While Map 6 identifies remaining large patches of agricultural land that should be retained for commercial production purposes, it is noted that urban agriculture is also taking place at a 'backyard scale' in some of the lower income residential areas and informal settlements (for example Copesville). Such activities can be important for local food security and the health and financial security of low income households. As an approach, planning for local food security through home / communal gardening should therefore be addressed in the future upgrading of informal settlement areas.

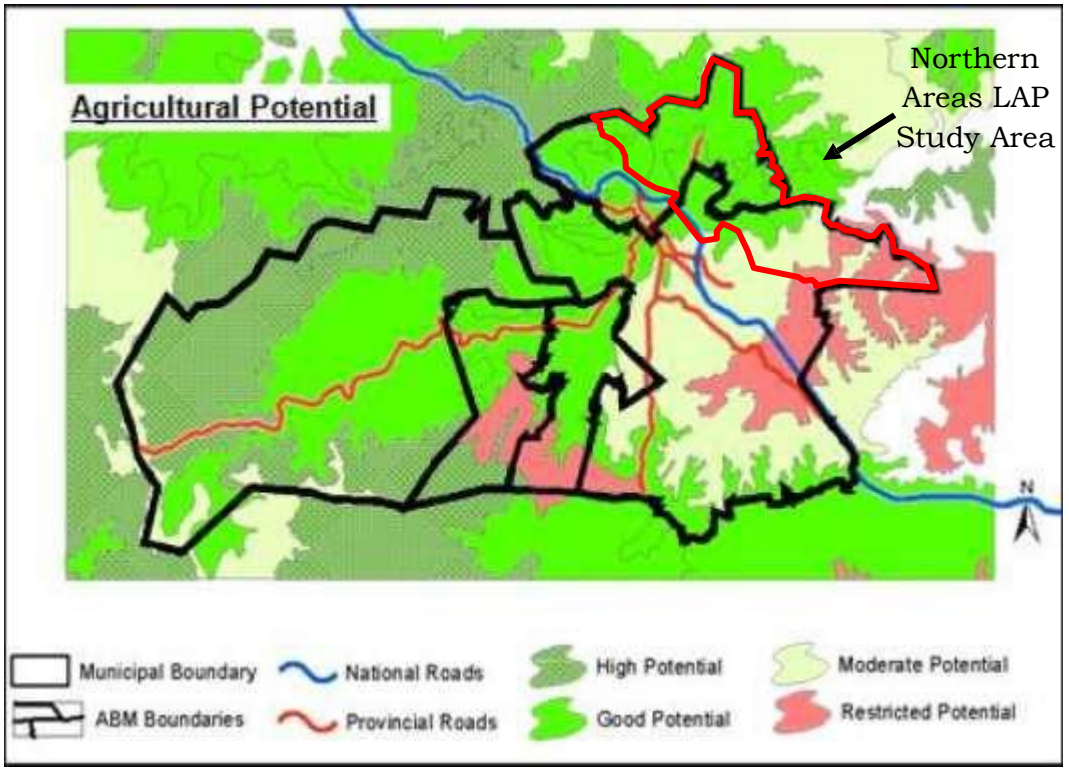


Figure 2: Agricultural Potential (from MSUNDUZI SDF Review, 2009).

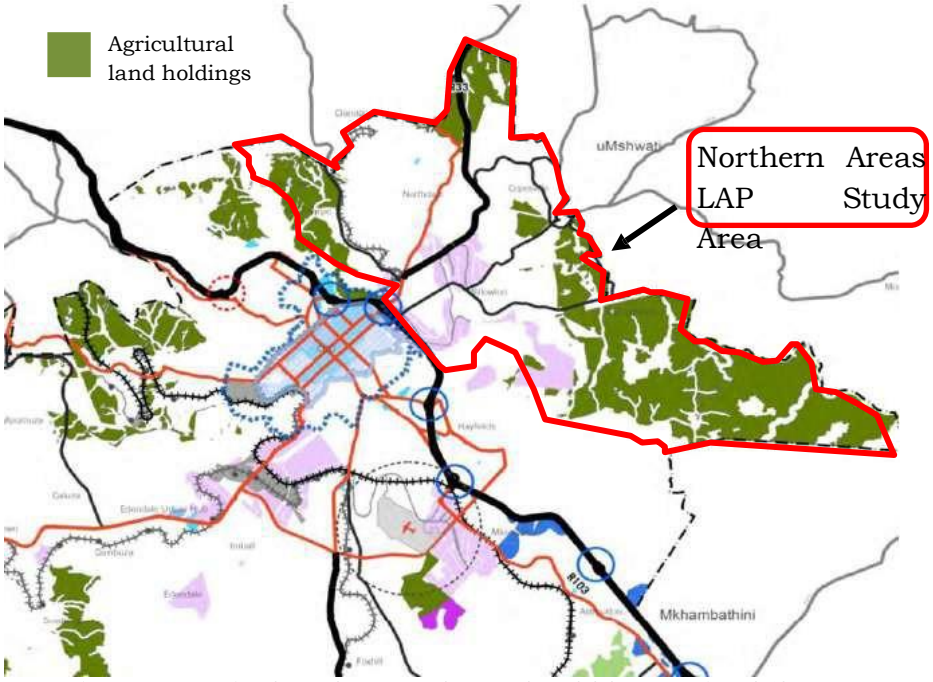


Figure 3: Agricultural Areas thats Should be Retained (from Msunduzi SDF Review, 2015).

Climate Change & Implications for Agriculture

National climate change models indicate that the region is likely to become hotter, experience more frequent high intensity rainfall events, and more intense drought cycles. This is likely to create more challenging conditions for both commercial and subsistence agricultural activities and may lead to the need to change the types of agriculture undertaken, and / or pressure to transform agricultural land to other uses in the future. At both the household and commercial scales, promoting 'conservation farming' approaches that limit irrigation requirements and protect soil resources would be useful as a climate adaptation response. Households as well as new developments which is inclusive of Industrial Development could also be encouraged and supported to use rainwater harvesting from roofs and roads to create a sustained source of water for home gardens.

The plantation forestry areas in the west of the study area reduced in size over the past 20 years with urban settlement expansion (mainly for the expansion of high income housing in Ferncliffe and Chase Valley). Given the fact that no new forestry expansion is likely to be permitted for the forseeable future in South Africa (due to national water resource constraints), the remaining areas of plantation forestry in the study area are likely to be retained for forestry purposes. However, the sugar cane industry faces significant challenges, and it is possible that there may be increasing financial pressure on farmers to convert to other land or agricultural uses.

11.3.4 Ecosystems & Species

Ecosystem Services

Human health and well-being are intrinsically linked to living with healthy ecosystems that provide a wide range of ecosystem goods and services such as producing food and water, mitigating urban heat islands and air pollution, managing urban stormwater, treating and diluting urban waste and wastewater, and providing places for recreation. People in cities and municipal governments therefore benefit directly from incorporating 'ecological infrastructure[1]' into spatial planning and development. In addition, ecological infrastructure has been shown to play a key role in mitigating greenhouse gas emissions through carbon sequestration, and improving the resilience and adaptability of cities, residents and business to the shocks and stresses of climate change. The growing awareness of the importance of the services delivered by ecological infrastructure has contributed to the

[1] *'Ecological infrastructure' refers to functioning natural ecosystems that deliver a sustained supply of ecosystem services. It is the nature based equivalent of built or hard infrastructure and includes, for instance, healthy mountain watersheds, rivers, wetlands, coastal dunes, and nodes and corridors of natural habitat, which together form a network of interconnected structural elements in the landscape (www.sanbi.org).*

emergence of the concept of 'ecosystem-based adaptation ' (EBA) to climate change.

Importantly, ecological infrastructure must also be recognised as vulnerable to climate change. The species compositions, structure, connectedness and functionality of ecosystems may be threatened by changing temperatures and rainfall patterns, and increased pressure from accelerated flooding and storm damage. Altered productivity of ecological infrastructure causes changes in quantity and quality of ecosystem goods and services, resulting in issues such as declining agricultural productivity, increase in water-borne disease, reduced security of supply of water and food.

A key point that is often missed is the fact that ecosystem services are delivered not only by ecological infrastructure, but also by the built / transformed environment. Transformed or built environments may deliver a narrower range or lower quality of services than a functional natural ecosystem. For example, agricultural areas are high producers of food (an ecosystem good), but may be poor at delivering other services such as biodiversity conservation. This implies that proper management of both natural AND built environments is required in order to optimise the desired ecosystem services needed to address human needs, and buffer climate change risks and vulnerabilities.

Extent, Condition and Conservation Status of Ecosystems in the Study Area

The NA LAP study area contains a diversity of terrestrial ecosystem types, including grasslands, savanna / woodland, forests and wetlands. The steeper, south-facing escarpment slopes in the western extent of the study area contains the only scarp forest habitat (63 ha). In terms of the National Forests Act (1998), all indigenous forests are protected. The condition of the scarp forests in the study area have declined due to surrounding agricultural / silvicultural activities, invasive alien plants, fire and natural resource harvesting pressure.

Photograph 1: Section of the Escarpment Area Containing Remnant Patches of Forest in a Degraded State

The central portion of the study area contains remnant patches of Ngongoni Veld grasslands in variable condition. Key pressures on these areas include settlement encroachment, overgrazing, too-frequent burning patterns, invasive alien plants, natural resource harvesting and illegal dumping.

Photograph 2: Grasslands Near Copesville Containing Invasive Alien Plants

Photograph 3: Illegal Dumping Along Arterial Roads and Back Roads Near Industrial Areas Threatens Natural Ecosystems and Human Health

Photograph 4: Pressure for Greenfields Development May Also Place Pressure on Remaining Natural Habitats.

The eastern portion of the study area contains larger and more continuous patches of Eastern Valley Bushveld and KwaZulu-Natal Hinterland Thornveld. These areas are in some cases used for livestock grazing or game. The condition of these habitats is generally good, although bush encroachment appears to be occurring where stocking rates have been too high in the past, or inappropriate fire regimes have been applied.

A number of ecosystems listed as 'critically endangered' or 'vulnerable' in terms of the in terms of the National Environmental Management Biodiversity Act (2004) may occur within the study area. These include:

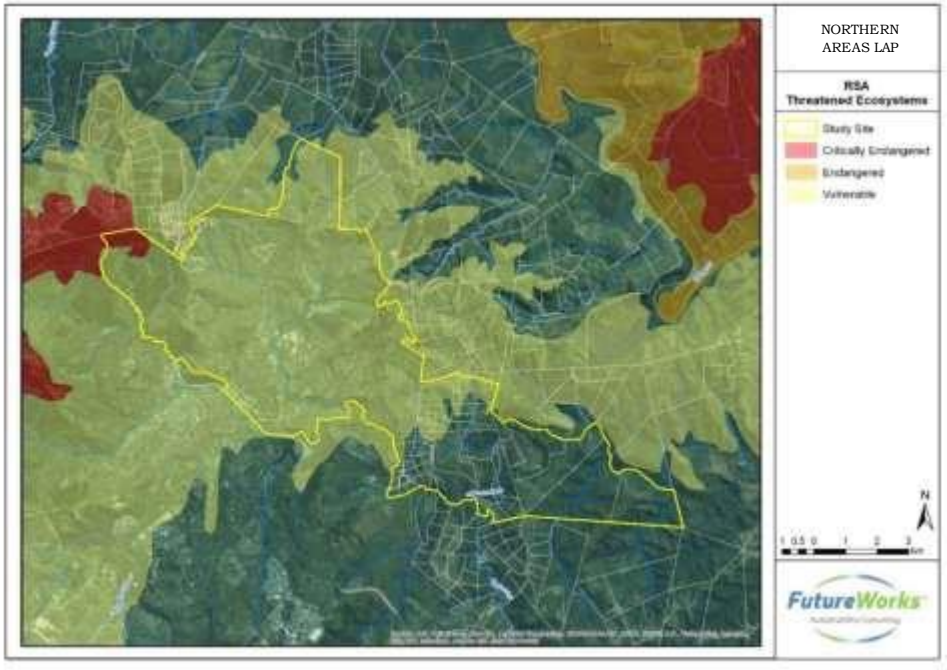
- 'Oakland and Townhill Ridge' (KZN 17), an ecosystem type that includes Eastern Mistbelt Forest, Midlands Mistbelt Grassland and Ngongoni Veld and that has been listed as a 'critically endangered'

ecosystem due to only 13% of the original extent of the natural ecosystem remaining;

- 'Midlands Mistbelt Grassland' (GS 9), a grassland type that has been listed as a 'vulnerable' ecosystem, owing to less than 45% of the original extent of the natural ecosystem remaining;

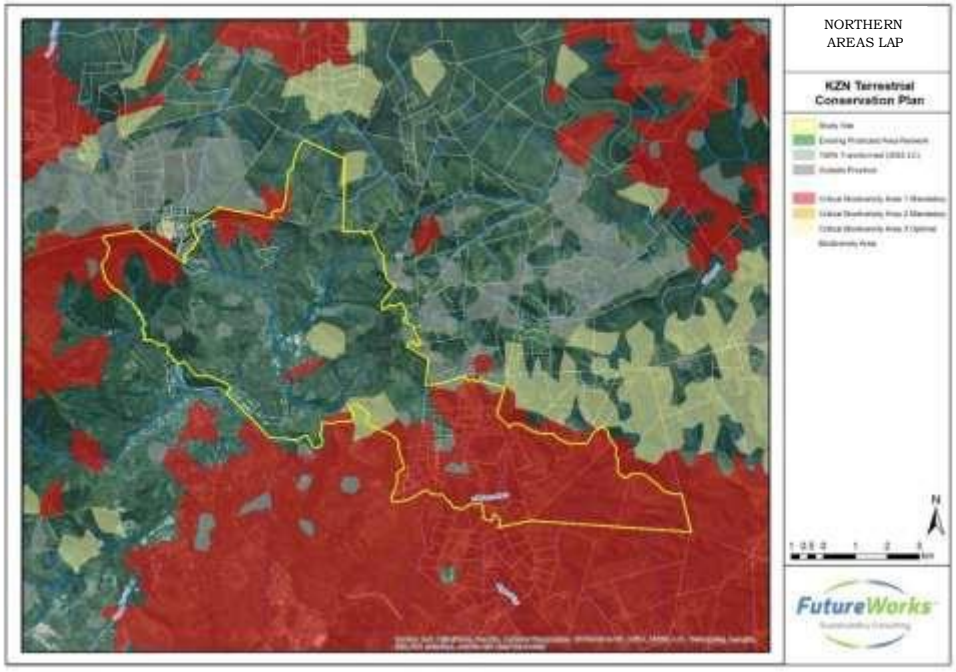
- 'Ngongoni Veld' (SVs 4), a type of savanna that has been listed as a 'vulnerable' ecosystem, owing to more than 40% of this ecosystem type having been transformed in South Africa.

The expected location of these critically endangered and vulnerable ecosystem types is shown in Map 4.



Map 5: Expected Location Of Threatened Ecosystem Types (From Sanbi Bgis).

Map 5 shows that the KwaZulu-Natal Terrestrial Conservation Plan identifies Critical Biodiversity Areas (CBA) as including the scarp forests and grasslands in the east and north of the study area, as well as the grasslands and woodlands in the west / south-west of the study area.



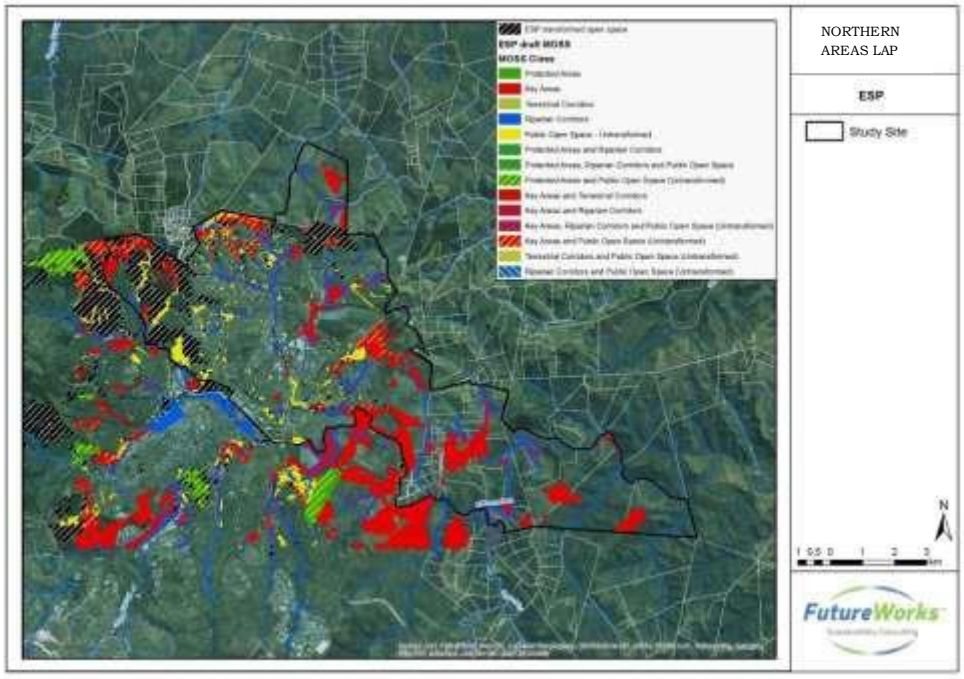
Map 6: KZN Conservation Plan for The NA LAP Area (From Ekznwidlife).

According to the Msunduzi Environmental Services Plan, around 27% (2,110 ha) of the 7,748 ha NA LAP study area comprises open spaces that contribute towards ecosystem services delivery. These include areas of natural ecosystems, ecosystem corridors, public and private open spaces (1,570 ha); also included are 'transformed public open spaces' (540 ha) that have limited biodiversity value but play a role in delivering other amenities / services.

The table below and Map 7 present the details of these Msunduzi Environmental Services Plan coverages in the NA LAP study area.

Table 10: Environmental Services Plan Coverage in the NA LAP Study Area

Environmental Services Plan Areas	Number of Sites in NA LAP area	Total Hectares	% of NA LAP area
Key Areas	1383	507	6.5%
Key Areas and Public Open Space (Untransformed)	511	173	2.2%
Key Areas and Riparian Corridors	1405	186	2.4%
Key Areas, Riparian Corridors and Public Open Space (Untransformed)	279	39	0.5%
Public Open Space - Untransformed	305	236	3.1%
Riparian Corridors	996	377	4.9%
Riparian Corridors and Public Open Space (Untransformed)	302	52	0.7%
Sub-totals	5181	1570	20.3%
ESP Transformed Open Space	388	541	7.0%
TOTALS	5569	2111	27.2%



Map 7: Environmental Services Plan for the NA LAP Study Area (From Msunduzi Municipality Emf).

Protected Areas & Ecological Corridors

Notably, there are no Protected Areas within the NA LAP study area. However, the Mpushini Protected Environment and Hesketh Conservation areas are located south of the study area, Ferncliffe Nature Reserve to the west, and Cumberland Nature Reserve to the north-east. The ecological infrastructure within the NA LAP study area therefore needs to ensure ecological corridor linkages between these protected areas are retained. This can be achieved by protecting remaining areas of natural, high value ecosystem areas in the LAP, and ensuring continuous linkages between these areas, river corridor systems, and Protected Areas outside of but near the boundary of the study area. The figure below shows a conceptual illustration of the key ecological linkages that should be retained between Protected Areas and

other environmental asset areas within and surrounding the NA LAP study area.

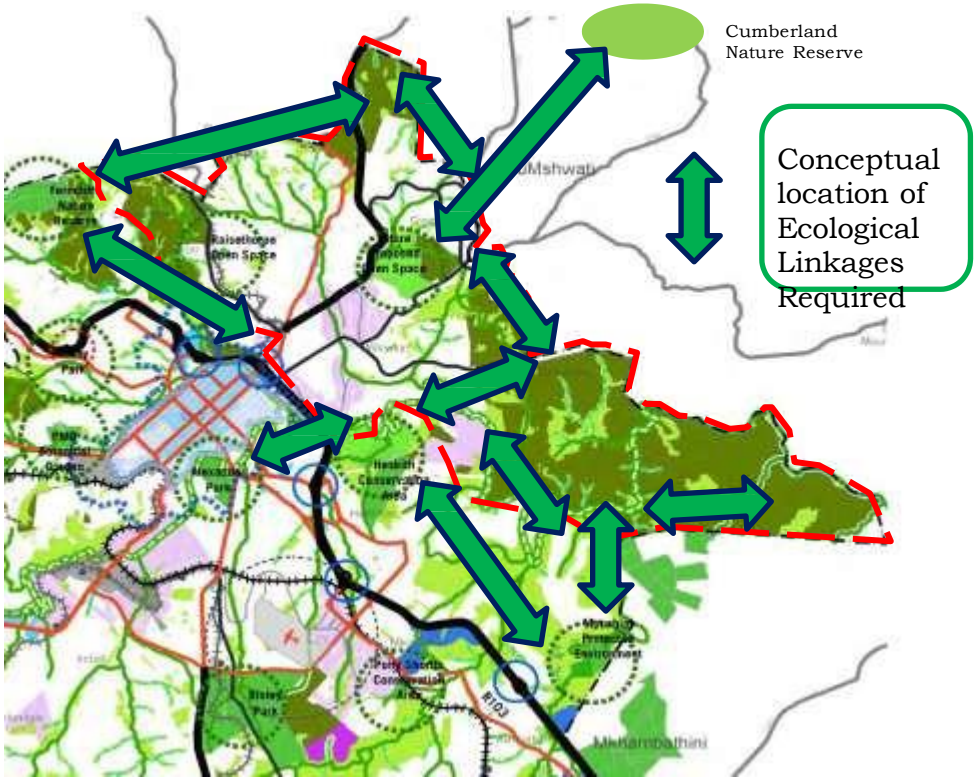


Figure 4: : Concept Map Showing Required Ecological Linkages Between Protected Areas and Other Significant Areas or Systems in / Surrounding the Study Area

Wetlands, Watercourse Buffers & Flood Risk

Wetlands are important ecosystems both in the context of biodiversity conservation and ecosystem services provision. As a buffer for the potential impacts of climate change, wetlands can play a key role in reducing the vulnerability of people and ecosystems to the impacts of increased flooding and droughts by regulating water flows in river systems, mitigating floods and enhancing water quality. The Msunduzi Municipality Environmental Management Framework has recommended that all remaining wetlands within the municipal area be preserved.

Map 3 shows the major river systems and National Freshwater Priority Area (NFEPA) wetlands in the study area. The majority of the wetland areas are located in the valley bottoms and are effectively floodplain wetlands. The condition of many of these have been negatively impacted by urban agricultural activities, invasive alien plants, streambank erosion, canalization, high rates of sedimentation and pollution (solid waste, urban and industrial effluent and wastewater). This implies that wetland ecosystem services are significantly diminished within the study area.

In 2013 Golder Associates undertook a Climate Change Vulnerability Assessment for the Umgungundlovu District. The study found that quaternary catchments U20H and U20J, which encompass the catchment of the Msunduzi River, are associated with the greatest vulnerability to increased risk of flooding in the region. In the NA LAP study area, this risk is mostly relevant to infrastructure crossings that link communities across the Msunduzi River. The study noted the Woodhouse Road low-level bridge adjacent to Sobantu having been the cause of loss of life as people attempt to cross during times of flood. The Grimthorpe Road low-level bridge in Lincoln Meade was also noted as an important link for the Bishopstowe farming community's direct access to the Pietermaritzburg CBD.

In areas such as Copesville and Sobantu, informal settlement has encroached into valley lines and associated wetland areas. The

Msunduzi Environmental Management Unit reports that there are a number of areas within Sobantu that experience flooding on a fairly regular basis. In some of the urban and industrial areas, stream canalization has resulted in the loss of floodplains and wetlands, and has therefore increased the exposure of downstream settlement and infrastructure to flooding risks. Key interventions of the NA LAP would therefore be to:

(i) Identify existing settlement and infrastructure located in flood prone areas and appropriate responses to protect this from flooding (including relocation where necessary);

(ii) Identify key watercourses and wetlands (i.e. ecological infrastructure) that should be rehabilitated to restore ecosystem services flows in order to minimize or reduce the downstream costs associated with elevated flooding, poor river flow regulation and poor water quality (for example the Baynespruit Rehabilitation Project);

(iii) Identify appropriate development set-backs from all streams, rivers and wetlands in the study area to properly protect these ecosystems and ensure that people and infrastructure are not exposed to flooding risks.

In respect of point (ii) above, the Msunduzi Municipality SDF (2015) suggests that all watercourses should be protected with a 40m buffer, or through keeping development out of the 100 year floodline. The Msunduzi Municipality's Environmental Services Management Plan has included the 100 year floodline, or a minimum 20m buffer, on all watercourses and wetlands in the municipal area (see Map 7). While these measures serve a useful 'rule of thumb' approach, flooding risk needs to be assessed in a more nuanced manner for the NA LAP area going forward. In this regard, factors such as topography and localised elevated flooding risks linked to climate change; planned upstream development / land use activities (including stream / wetland canalization) or identified infrastructure, residential development, industry etc. located within high flood risk areas should be used to model flooding risk and identify appropriate development set-backs that limit risk to people and infrastructure.

Photograph 5: Informal Settlement has Encroached Into Drainage Lines in Some Areas

Photograph 6: Invasive Alien Plants Such as Gum and Bugweed (Shown Here) are Prevalent in Many of the Watercourses in the Study Area

11.3.5 Air Quality

According to the 2004 KwaZulu-Natal State of the Environment Report (published in 2010), air quality in Pietermaritzburg is periodically poor. This is mainly a result of various industrial air emissions in the city bowl, traffic emissions, and associated poor dispersion conditions and frequent temperature inversions which trap the pollutants. In addition, annual burning of sugar cane prior to harvest, burning at the Pietermaritzburg Landfill Site, and veld fires have been blamed for poor air quality.

The NA LAP area, particularly the central, northern and eastern portions, are affected by poor air quality. The south-western portion is less affected given that it is located outside the city bowl area and therefore enjoys better dispersion conditions. Pietermaritzburg's air is monitored by the Msunduzi Municipality.

For the Northern Areas LAP, there is little that can be done to limit the exposure of current and / or future human settlement to poor air quality. The issue needs to be dealt with through limitation and management of industrial emissions throughout the Pietermaritzburg citybowl.

11.4 Planned Development

The Msunduzi SDF (2015) (see Figure 4) presents a number of concepts for future development in the NA LAP study area. This includes informal settlement upgrading, densification of settlement at key nodes and along key (existing and future) public transport routes. A number of economic centres are proposed to be consolidated and expanded in line with the 'polycentric urbanism' concept, resulting in expansion of commercial and industrial land uses in certain locations. Planned development also includes the establishment of quality public open spaces in Raisethorpe and Northern Areas, as well as an urban Parkway along the Msunduzi River.

The above development will result in increased direct and indirect pressure on natural ecosystems in the study area. Pressure for transformation or active use of remaining natural open spaces will increase, and agricultural land holdings may come under pressure to be transformed to urban land uses. This will result in decreased supply of ecosystem services. Increased urban wastes, discharges and effluent will create added pressure on the receiving environment, particularly if attention is not paid to adequate levels of types of municipal servicing. There will thus be increased demand for ecosystems to perform key functions such as filtering urban outputs and mitigating the effect of elevated urban stormwater discharges.

Poorly planned urban development risks fragmenting existing natural areas into small, isolated pockets which become ecologically and environmentally unsustainable and which socially become a "nuisance" as a result of illegal dumping and overgrowth creating a perceived security risk. The need for linking core natural areas via ecological corridors is critical.

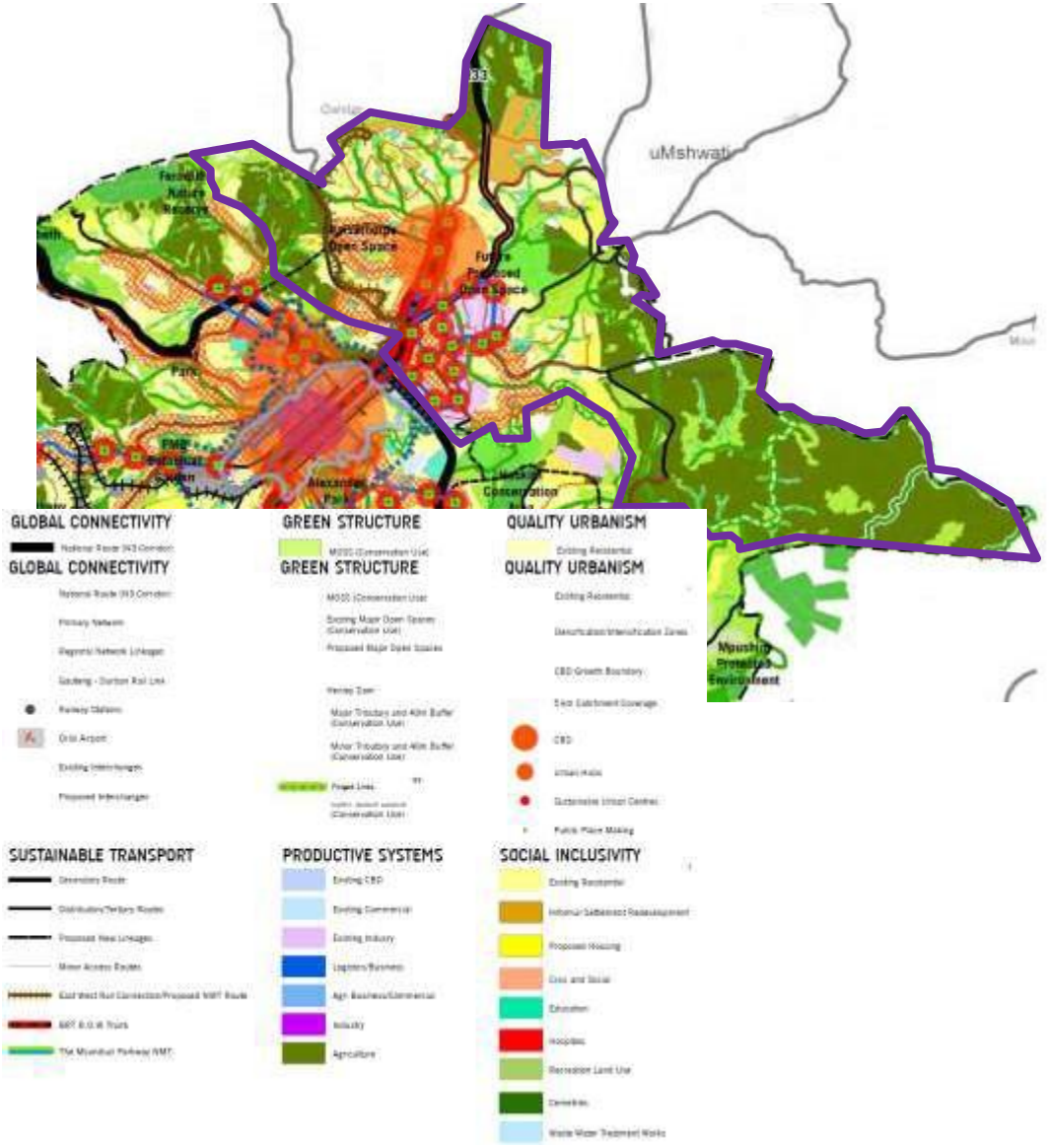


Figure 5: Msunduzi Municipality SDF (2015)

11.5 Issues, Threats & Climate Change-Related Risks

Existing issues and emerging threats that have, or are likely to reduce the delivery of desired levels and types of ecosystem services within the study area (including agricultural production) are listed below:

Table 11: Threats & Issues in Desired Levels and Types of Ecosystem Services

Issues and Threats	Description of Impact on Ecosystem Services Delivery
Transformation of ecosystems	The NA LAP study area has been the site of rapid settlement expansion, stream canalization and agricultural land development. This has resulted in a direct loss of ecosystem coverage and reduced range and levels of ecosystem services supplied. In the central, northern and western parts of the study area, remaining natural areas are fragmented and disconnected, and increasingly exposed to disturbance. In the south-western portion the ecosystems are more in-tact and better connected. Agricultural land uses are also suppliers of ecosystem services (e.g. food production), but the range of such services is smaller than for natural areas. How such developed areas are managed (and this includes urban settlement) plays a role in the ecosystem services delivered. Urban and agricultural management is therefore a key approach towards optimizing the flow of ecosystem services from areas that have been transformed from a natural state. There are a number of areas containing ecosystems with a high conservation status. This includes all remaining areas of forest and wetland, and the areas designated as falling within the critically endangered 'Oaklands and Townhill' ecosystem type. These areas must be properly protected from future development and should be managed to ensure that they are not degraded by the threats and issues listed below.
Invasive alien plants	Invasive alien plants are a significant problem in many of the watercourse and wetland areas within the study area, as well in some grasslands. These species significantly reduce available water resources within the hydrological system, may reduce water quality and increase fire hazard. They also change the species composition of natural ecosystems. The spread of these plants poses a direct threat to remaining natural habitats, particularly in watercourses.
Illegal dumping	Illegal dumping is a serious issue in parts of the study area, particularly along arterial road routes near industrial zones. Illegal dumping damages natural ecosystems through the introduction of pollutants and invasive species, smothering of plants and animals, and increased fire risk. Illegal dumping is also unsightly and may pose a human health risk, reducing the social amenity value of the affected natural areas.
Fires and communal grazing	The study area contains fire prone grassland and woodland habitats that can be damaged by frequent burning. Use of these areas for communal grazing, or the close proximity of these habitats to human settlement, roads and commuter footpaths exposes them to increased risk of being set alight on a too-frequent basis. Certain plant and animal species may be lost and soil erosion may become an issue if the basal plant cover is reduced through frequent fires. Communal grazing of such areas may place further pressure on the ecosystem, particularly where stocking rates are too high.
Urban expansion	Informal and formal expansion of urban settlement that results in transformation of remaining natural ecosystems and agricultural land resources will result in reduced supply of ecosystem services. Depending on the ecosystems transformed, this may impact on the municipality's ability to meet its ecosystem conservation targets, and may create

	increased costs in replacing the lost ecosystem services (for example the provision of flood mitigation services). In addition, informal settlement may expand into high risk zones (for example flood or fire prone areas) resulting in increased disaster risk.
Municipal service levels	Development taking place in areas where municipal bulk services have not been installed results in sub-standard service provision and increased risk of environmental pollution. In some cases, development may conflict directly with the objective of maintaining functional ecological infrastructure. In particular, city densification and infill strategies can present a challenge in that the intensification of development in certain locations – without increasing levels of municipal servicing adequately – can result in an intensification of the 'urban outputs' that the ecological infrastructure is expected to deal with (e.g. increased stormwater peaks, more polluted urban stormwater, more wastewater etc.), resulting in a degradation of ecological infrastructure locally and regionally. Development therefore needs to be planned and implemented holistically, and implemented in conjunction with service infrastructure rollout or upgrading to accommodate increased demand.

Key risks to people, economic activities and infrastructure, and the condition of ecosystems associated with climate change include:

Table 12: Key Risks and Impacts to People, Economic Activity and Infrastructure

Risks	Description of Impact on People / Economy / Infrastructure / Ecosystems
Increasing temperatures	Increasing temperatures will have a negative impact on human health and may change species compositions with certain ecosystems. People will be required to spend more on electricity for cooling, health care costs may increase, and worker productivity may decrease. Invasive alien plants are expected to grow more quickly under conditions of greater temperature and increased atmospheric carbon dioxide. Ecosystem service supply may be increasingly impacted by changing ecosystem condition.
Increased intensityand frequency of flood events due to climate change	Increasing intensity and frequency of storm and high rainfall events may result in elevated surface and river flooding. This may impact on infrastructure – creating costs to the municipality for replacement and repair – and may cause loss of life and property. River systems and wetlands may be damaged by flooding, resulting in a decline in ecological condition and reduced ecosystem services supply. Flooding may significantly reduce water quality in river systems, increasing the cost of potable water supply and reducing the life-span of water storage dams. Polluted freshwater systems may also not be suitable for agricultural use.
Increased intensity of droughts due to climate change	Increasing intensity of droughts may result in human health impacts, reduced agricultural production, and associated increases in the cost of food. Riparian and aquatic ecosystems may be negatively affected, particularly where abstraction rates from rivers and streams remain high under drought conditions.
Change in climatic	Change in climate is anticipated to have an effect on the types of crops that can be grown in certain parts

suitability for crops	of KwaZulu-Natal. This may affect commercial farming operations as well as subsistence farmers, and switches to different crop varieties may be required. Staple foods such as Maize are anticipated to be affected.

11.6 Key Opportunities

The following opportunities associated with the natural ecosystems and agricultural resources in the NA LAP study area have been identified:

Table 13: Key Opportunities in NA LAP Study Area

Opportunity	Description
Game farming, farm and eco-estates, tourism development	The large remaining tracts of grassland and woodland in the south-west areas of the NA LAP study area offer an opportunity for the development of tourism activities and investments associated with the good visual and wildlife / biodiversity amenity that these areas offer. With the establishment of the Mpushini Protected Environment, the opportunity exists to expand Mpushini to include these areas. In addition, some of the areas may be suitable for the development of eco-estates or farm-estates that create unique lifestyle opportunities and attract development investment into the region and help build the municipal property rates base.
Community-based tourism and natural capital restoration / management	The establishment of a functional Msunduzi urban parkway could provide an opportunity for community-based tourism and associated green job creation activities (for example River Rangers, invasive alien plant clearing programmes, riparian and wetland rehabilitation etc). Cycling routes and hiking along this corridor could be developed in a similar vein to what has been done in the Durban Green Corridor project.
Natural products economy	The study area contains a variety of plant species that have potential for commercialization in the natural products (or biodiversity) economy. This includes a range of medicinal and aromatic plant species, cut flowers, horticultural plants etc. Commercial production of these plants could be undertaken in conjunction with conservation land uses.
Urban agriculture	The 'good agricultural potential' of the central, northern and western portions of the study area should be put to use through the incorporation of urban farming (for subsistence of small scale production) in appropriate locations. This would assist in addressing local food security and the provision of income generating opportunities for local people.
Open space amenity	Open spaces should be retained for active and passive recreational amenity for local residents. These open spaces should also be designed to reduce urban heat and improve the quality of living environments through enhanced visual amenity and recreational opportunities. In high density living environments, such open spaces have been found to be important for residents' psychological, spiritual and physical well-being.

11.7 Recommendations

An integrated approach is therefore needed, where ecological infrastructure is recognised as an asset within the spatial fabric of the rapidly urbanising NA LAP area, and where development and services are implemented in a manner (both spatially and in terms of standards) that is cognisant of the carrying capacity of the ecological infrastructure. The NA LAP should therefore encourage and facilitate the integration, protection and management of robust, climate resilient ecological infrastructure and associated socio-economy. The following recommendations are made for the LAP preparation process:

1. The LAP process should include a process of refined delineation / mapping of ecological infrastructure that connects fragmented remnants of ecosystems, establishes corridors and protects core areas. This should use the existing Msunduzi ESMP as a base. The design must respond to local and regional ecosystem services needs (both now and under future climate change scenarios), and national and regional biodiversity conservation priorities. Linkages to and from protected areas / ecosystems outside the study area must also be considered.

2. The above process should include the modelling and delineation of flood risk zones and associated appropriate development set-backs from all watercourses and wetlands in the study area as suggested in Section 0. This should be a refinement of the 'rule of thumb' set-backs contained in the EMF and SDF aimed at ensuring that flooding risk to people and infrastructure is properly addressed, as well as ensuring that ecological infrastructure that provides hydrological services is properly protected so that hydrological ecosystems services provision can be maximised.

3. Key areas of ecological infrastructure that require rehabilitation or restoration to address flooding and water quality issues and risks should be identified. A programme for implementation of rehabilitation / restoration should be identified. The possibility of linking this to the Municipal Offsets initiative to leverage investment for restoration and management should be explored.

4. Municipal service infrastructure should be planned for on the basis of current and future development demand and intensity. Development implementation phasing should be planned to respond to infrastructure rollout / upgrading timeframes, in order to limit the risk of environmental pollution and damage from inadequately serviced development.

5. The issue of illegal dumping needs to be resolved through improved policing and the provision of affordable and accessible waste collection, recycling and disposal facilities. Key spatial and management interventions in this regard need to be identified; for example this may include the provision of sites for waste collection and transfer stations near industrial zones.

6. Green infrastructure design and building approaches should be promoted that enhance the provision of ecosystem services in the built landscape, and reduce negative outputs of transformed landscapes that ecological infrastructure must absorb. In this regard, planning must address the issue of current and future urban heat islands (particularly under future climate change scenarios) through including heat sinks in the spatial fabric (this function can be performed by ecological infrastructure, urban parkways and appropriately sized residential erven, vegetated streetscapes etc.). Planning should also incorporate the concept of Sustainable Urban Drainage Systems, which uses a sequence of water management practices and facilities designed to drain surface water in a manner that will provide a more sustainable approach than routing run-off through a pipe to a watercourse. Open spaces for active and passive recreational use must be properly planned for, particularly where high density living environments are to be developed.

7. Current and future food security requirements should be addressed through ensuring areas are set aside for urban agriculture, and the adoption of conservation agriculture approaches is promoted in a programmatic manner. As part of this process, existing agricultural areas should be evaluated in terms of economic importance. Areas that are marginal should be identified as priorities for conversion to other land uses.

8. An evaluation of invasive alien plant coverages and threats should be undertaken to determine priority areas for clearing / management. Programmes for management of these species, linked to job creation and small business development should be initiated with support from other government agencies.

9. Harnessing ecological systems to support growth of the green economy should be explored (e.g. harnessing job creation, livelihood and green energy opportunities associated with alien plant biomass, sustainable harvesting and production of indigenous natural products such as medicinal plants and fibres, community based tourism development, etc).

12 TRANSPORTATION ANALYSIS

12.1 1 Context

Northern Areas is located to the north and north-east of the Pietermaritzburg CBD. It consists of an eclectic mix of land uses including high, middle and low income residential areas, industrial development, educational facilities and a small retail node.

Dr Chota Motala Road is the main corridor in the area, linking the CBD and N3 with the residential areas. Other key corridors in the area includes the Ottos Bluff Road, Bambatha Road, Orthmann Road, Bombay Road and Manning Road. These roads carry the majority of the traffic in the area and accommodates public transport vehicles and pedestrians.

This situational analysis provides an overview of the transportation elements of the area. Items considered include a summary of relevant past planning studies, existing travel patterns in the area, public transport, pedestrian movement and existing operational issues.

12.1.1 Study area and Focus Area

The study area as defined by this study includes the Northern Areas, Bishopstowe and surrounds.

The full extent of the study area was considered from a traffic and transportation perspective at the project inception stage. The roads which carry the majority of the traffic, public transport and pedestrian activity within the study area were identified. Based on this, a focus area was identified and a focus area boundary was created. All traffic

10. Disaster risk management needs to be addressed, including the identification and management of fire and flooding risk area and appropriate spatial and management responses to address these risks.

11. Slope and geological stability needs to be investigated and understood for the study area, such that the NA LAP does not place and people and infrastructure in areas unstable areas.

and transportation related maps illustrate the extents of both the study area and the identified focus area boundaries.

12.2 Review of Related Studies

12.2.1 SDF 2014/2015

In order to enhance connectivity to the N3, the following interventions have been identified:

- Reinforcement of the existing interchanges along the N3;
- The draft SDF identified 2 locations for new interchanges to be introduced, namely, Mkondeni area - located in between Ashburton (Exit 69) and Market/ Oribi Airport (Exit 74), and Town Hill/ Wembley are parallel to Wylie Park.

It is proposed that the north /south rail link which runs parallel to the N3 and R103 between Pietermaritzburg and Durban be reinforced as the primary rail link and be promoted and upgraded to reinforce connectivity.

The Msunduzi Integrated Rapid Public Transport Network (IRPTN) is based on the development of an improved transportation corridor extending over 17km from Georgetown in Edendale through the CBD to Northern Areas.

The rail lines running in an east/ west direction should be reviewed because the existing and future demand on this line, with the introduction of the IRPTN will not be sufficient to warrant the cost of upgrades and maintenance. It is proposed that this line be decommissioned and removed to allow for new opportunities.

Due to the east/west link providing great connectivity through major residential areas and being situated on flat topography, it is the most favourable NMT route. It is proposed that an NMT link be implemented along the decommissioned east/west rail line.

12.2.2 CBD LAP, August 2014

In terms of regional mobility, a business commuter service from Durban to Msunduzi is to be introduced by PRASA.

In order to provide access to the city, the following links should be investigated further:

- Extension of Victoria Road to meet Masukwana Street;
- Re-design of Masukwana Street/ Church Street intersection to accommodate BRT ROW;
- Extension of Retief Street to Chatterton Road;
- The eastern extension of Burger Street to Manning Avenue;
- The missing linkage of Burger Street to the west.

In terms of CBD circulation and access, the following is proposed:

- One-way CBD circulation system which will operate parallel to the Church Street BRT route;
- One way routes for Jabu Ndlovu (west-east), Langalibalele (east-west), Pietermaritz (west-east) and Hoosen Haffejee (east-west).

The proposed public transport system includes:

- Dedicated Right of Way BRT route from Edendale via Church Street to Northern Areas. Church Street is to become a dedicated pedestrian and BRT zone;
- Express bus routes along Langalibalele, Pietermaritz, Moses Mabhida and Masukwana Streets;
- IRPTN depot to be facilitated within the Foundry Park area;
- BRT stop at the Msunduzi Railway Station to facilitate commuter/ business rail service from Durban to Msunduzi.

The following interventions have been identified for the short, medium and long term:

- Short term:
- Parking impact study: to determine the impact of the closure of Church Street on parking and parking standards;
- Burger Street Extension: extension of Burger Street east to join Burger Street west.
- Medium term:
- Integrated Rapid Public Transport System: includes the development of IRPTN corridors with nodes/bus stops;
- Burger Street to Manning Avenue/ Larch Avenue: realignment of the city access route from Manning Avenue/ Loop Street to Burger Street.
- Long Term:
- Retief Street extension to Polocrosse Fields and Berg/ Victoria Link Road: provide an extension to the Church Street Interchange from Victoria Road to the north of the CBD;
- College Road Extension: extension of College Road through Ridge Road to King Edward and ultimately New England Interchange with the N3.

12.2.3 KZN N3 Strategic Corridor Development Plan, Region 2, 13 April 2016

Region 1 of the N3 Corridor study is the KZN Industrial and Logistics Hub which is defined by the industrial areas of Pinetown and New Germany to the east up to the Msunduzi Local Municipality and incorporating Mkhambithini Local Municipality.

The following is a summary of the required rail infrastructure planning identified for the Pietermaritzburg area:

- PRASA: Express train to PMB (2015 - 2020);
- Rapid Rail Link to PMB (2030 – 2050).

In terms of the required road infrastructure planning, the N3 Durban – Pietermaritzburg – Gauteng has been identified as a priority intervention. The N3 needs to be widened. The first priority is the N3 capacity upgrade between Durban and PMB, as well as improved connectivity of the Pinetown to PMB industrial /logistic areas – which would require the MR385 upgrade. The next priority is the PMB by-pass and Van Reenen by-pass.

The following is an indicative suggestion of the timing of the required road infrastructure interventions for the N3, as extracted from the N3 Corridor Study report:

Table 14: Timing of the Required Road Infrastructure Interventions for the N3

Period	N3 Durban - PMB	N3 PMB
2015 – 2020	Capacity: EB Cloete - PMB	Capacity: N3, Market Road
2020 - 2025	Capacity: EB Cloete - PMB	Upgrade Roads to PMB nodes: Airport, Masons, Mill etc.
2025 - 2030	Parallel Route: M13 – MR 385 – Umlaas Road	Bypass: PMB
2030 – 2050	Alternative Routes: to Durban North (R614), South (R603)	

12.2.4 Northern Areas- Edendale Corridor Study, Iyer Rothaug Collaborative, June 2006

The following transport system proposals are contained in this report:

- The existing service roads along part of Edendale Road will be integrated into adjoining developments to serve as access and servicing to the developments;
- The connections between the railway stations and various nodes will be enhanced;
- An extension of the existing bicycle track from Sunderland Road to the Georgetown Town Centre Node. Consideration of an extension from the edge of the CBD that will skirt the edge of the CDB, via Alexander Park through to the Northern Areas corridor and other employment areas. Bicycle stacking areas to be considered at strategic and appropriate locations;
- Enhancement of pedestrian links along all major roads connecting from Edendale Road into the hinterland and the railway stations.

Edendale Corridor:

- The Old Edendale Road will be designed to operate as a major access road, linking Hospital Node to Qolokolo Node through Sutherland Road intersection;

- Public transport laybys and ranks to be located along Edendale Road;
- The intersections of Edendale Road with major distributor/ arterial roads will be enhanced. Pedestrian links to be enhanced, inclusive of pedestrian crossings and pedestrian safety features;
- Connections between railway stations and the nodes will be enhanced.
- Cycle stacking facilities to be provided. Possible extension of the cycle track will deviate from Edendale Road, pass through Campsdrift, through Alexander Park, skirt the edge of the CBD and cross the freeway connecting to the industrial areas to the north.

The Corridor within the CBD Node:

- Two sets of one-way pairs on either side of Church Street, to which traffic will be diverted;
- Church Street to be a semi-pedestrianized street that will only permit public transport;
- Connections between the public transport facilities and the pedestrian oriented areas needs to be improved;
- Provision of safe, secure bicycle stacking areas;

The Northern Areas Corridor:

- Improve and enhance major pedestrian intersections and public transport stops along Greytown Road, with appropriate pedestrian crossings and sidewalks;
- Old Greytown Road will be retained as a high friction corridor with a number of nodes along it. Parking areas, pedestrian routes and bus stops will be enhanced and improved.

12.2.5 IRPTN

The Msunduzi Municipality has developed an IRPTN system for city which will see a trunk corridor operating from Edendale in the west through the CBD and out to the Northern Areas area in the east.

It is broadly proposed that the phase 1 of the system will be from Edendale to the CBD and Phase 2 will be from the CBD to Northern Areas. The timing for Phase 2 will be in 10 to 15 years' time and will depend on the success of Phase 1.

Notwithstanding the above, the IRPTN system for the Northern Areas area will consist of a trunk corridor along Dr Chota Motala Road, where two stops and a terminal station is proposed. Feeder services are proposed from the neighbouring residential nodes and complimentary services from the south-eastern areas to the industrial area are proposed as well.

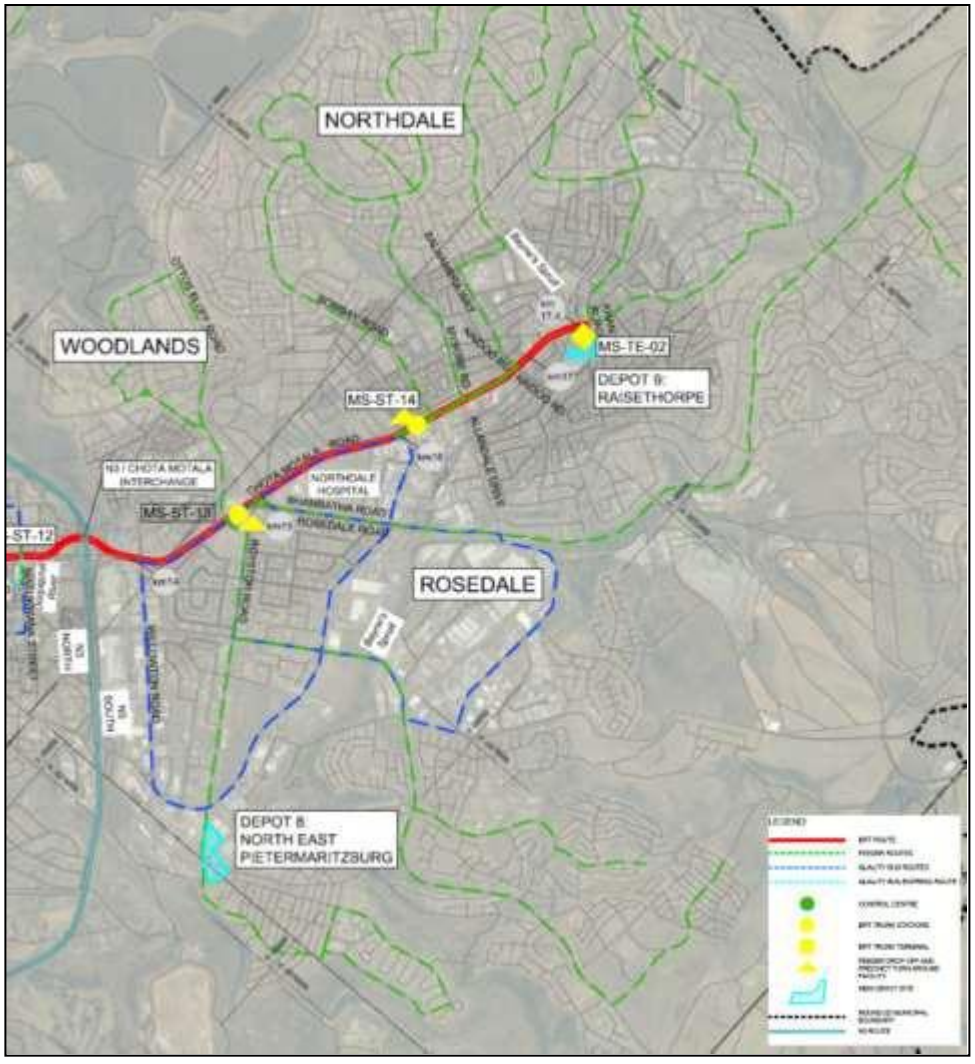


Figure 6: Proposed IRPTN System for Northern Areas (Source: Goba)

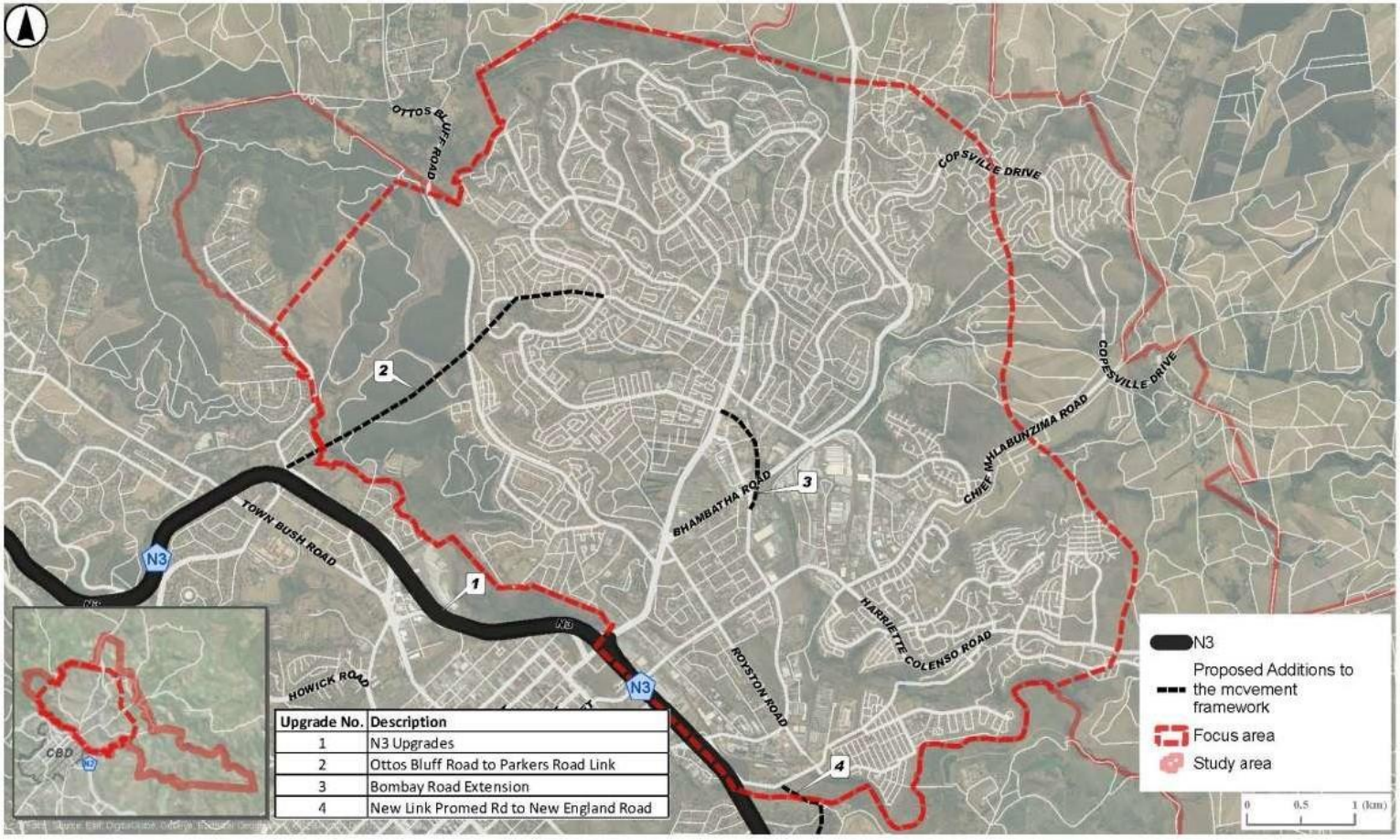
12.2.6 Summary of Proposed Road Upgrades

The proposed future upgrades for the study area has been gathered from review of relevant planning documents and discussion with the authorities.

It has been established that there are five key road upgrade proposals that will have an impact on the study area. These upgrades are as follows:

- Upgrade of the N3 with a possible by-pass around Townhill [1]
- New link from Northern Areas/Ottos Bluff to Parkers Road in Chase Valley Downs – alignment to be confirmed [2]
- Bombay Road extension to Orthmann Road [3]
- New Link Road from Promed Rd to New England Road [4]
- SANRAL are proposing an upgrade of the Orthmann Road/N3 interchange

(The numbers contained in the parenthesis [x] refer to locations shown in the corresponding future upgrades map)



Upgrade No.	Description
1	N3 Upgrades
2	Ottos Bluff Road to Parkers Road Link
3	Bombay Road Extension
4	New Link Promed Rd to New England Road

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ARUP

Map 8: Future upgrades

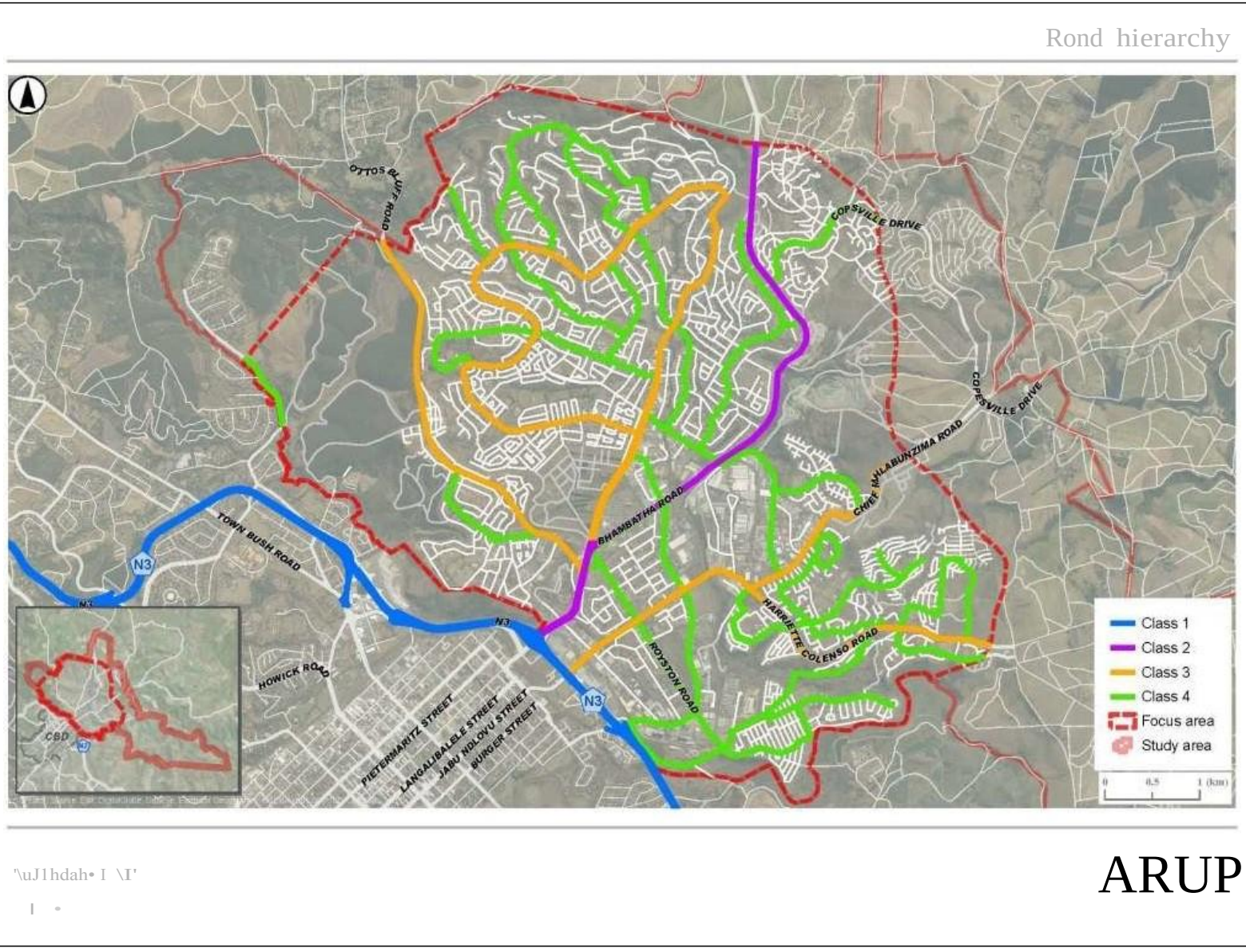
12.3 Road Network

The road network within the selected focus area is heterogeneous and comprises of roads with different classifications, cross sections and ownership.

The N3 between Durban and Gauteng runs in an east west direction at the southern part of the study area, providing regional accessibility and is under the authority of SANRAL.

The major mobility routes within the focus area are:

- Dr Chota Motala Road - this road runs in a north-south direction. It consists of two lanes in each direction and is a Class 3 road, north of the R33 and three lanes in each direction and is a Class 2 road to the south of the R33.
- Ottos Bluff Road – this road runs in the east-west direction and is a single lane Class 3 road.
- R33 Bambatha Rd – this road runs in the north-south direction and is a single lane Class 2 Road. It's a regional road that links Pietermaritzburg with Greytown, Dalton etc.
- Orthmann Road – This road runs in the east-west direction and is a single lane Class 4 road with localised widening.
- Bombay Road – Bombay Road creates a loop through the Northern Areas residential area and ties in with Dr Chota Motala Road at both ends. It's a single lane road and is classified as a Class 3, however it functions primarily as a Class 4 road.
- Manning Avenue - This road runs in the east-west direction and is a single lane Class 3 road with localised widening.



Map 9:Road Hierarchy

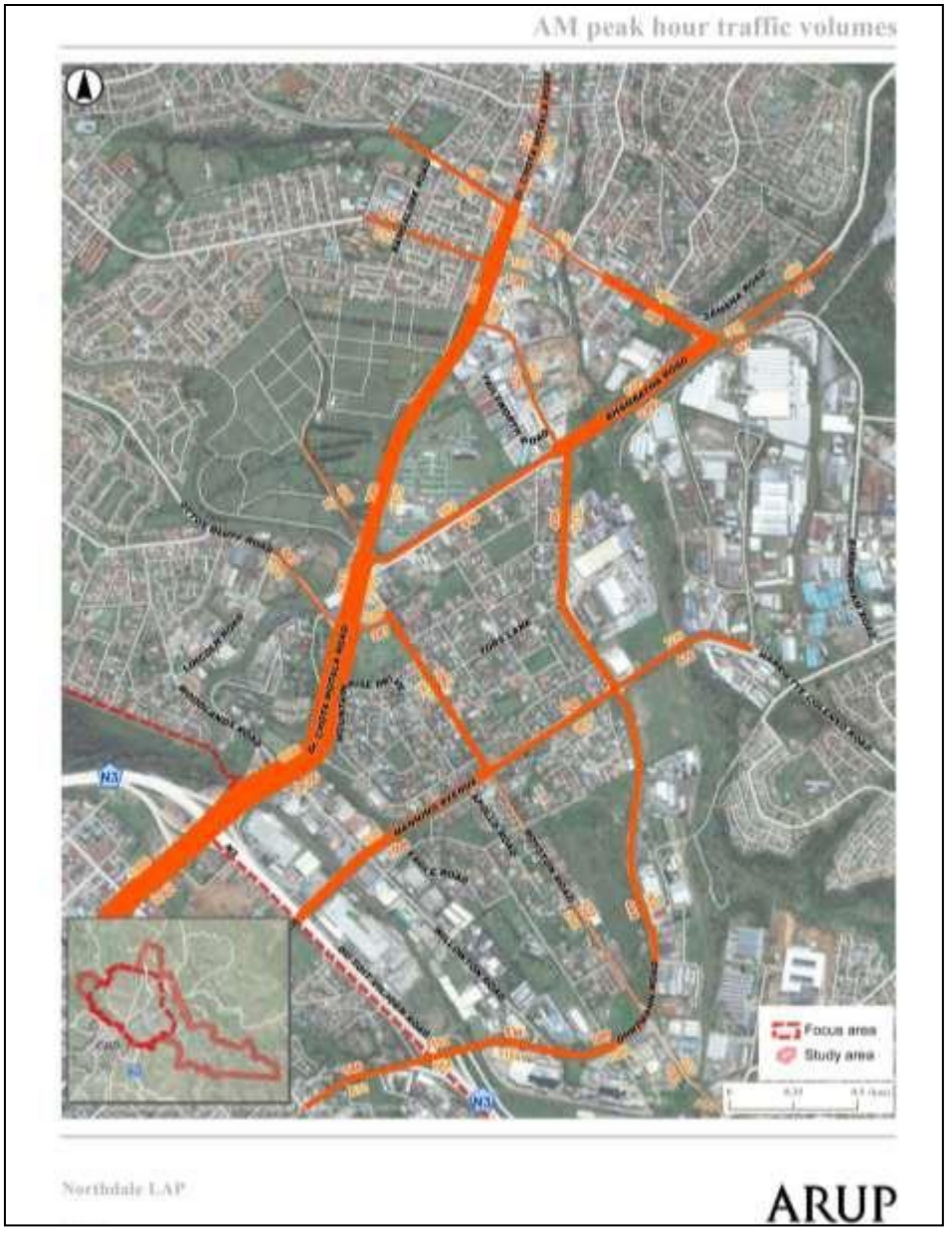
12.4 Traffic Volumes

Traffic counts undertaken in 2014 were obtained for selected intersections within the study area. The AM and PM peak hour link volumes were calculated and illustrated Map 15 and 16.

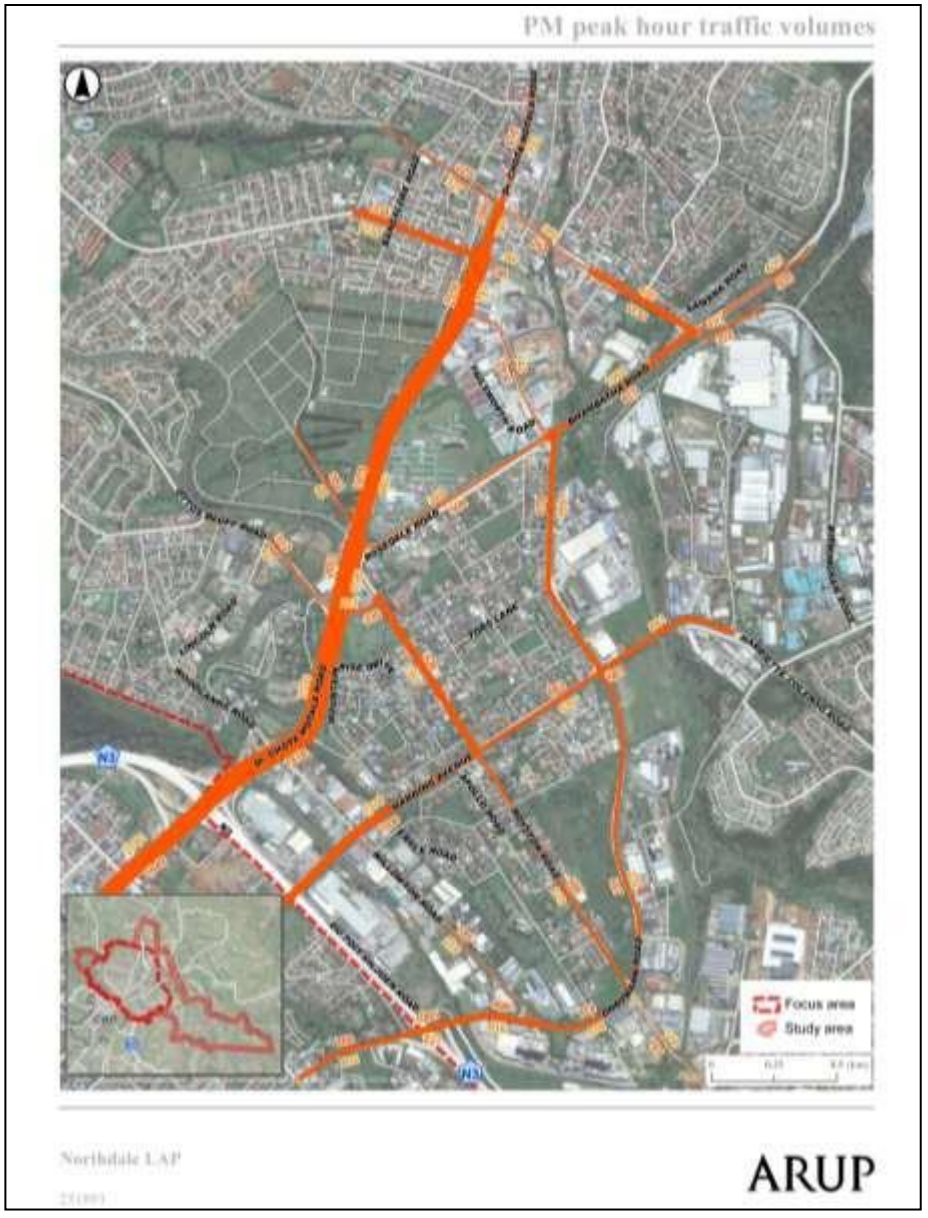
The volumes show that traffic during both peak hours is funnelled to and away from the three bridges that cross the N3.

During the morning peak hour there is approximately 5700 vehicles leaving the study area and heading towards the CBD and the N3 whilst there is 3400 vehicles heading in the opposite direction during this same period. Majority of this traffic is travelling along Dr Chota Motala Road from the Raisethorpe, Bombay Heights and Northern Areas areas.

During the afternoon peak hour there is approximately 5200 vehicles entering the study area from the CBD and the N3 whilst there is 3300 vehicles heading in the opposite direction during this same period.



Map 10: AM Peak Hour Traffic Volumes



Map 11: PM Peak Hour Traffic Volumes

12.5 Travel Behaviour/ Patterns

On-site observations and an inspection of traffic counts in the area shows that at the broader level the predominant flow of traffic in the morning peak hour is from north to south i.e. from the residential areas of Northern Areas, Rosedale, Copesville, Eastwood etc towards the CBD and the N3 (for onward journeys to Howick/Hilton and Durban).

At a local level there is a high demand from west to east i.e. from the residential nodes in the west to the industrial nodes in the east.

An assessment was undertaken of the 2014 traffic volumes crossing the N3 in the north to south direction (from Northern Areas to CBD) through the course of the day as this is considered as one of bottlenecks in the road network during the AM peak. The following three screenline volumes were considered, Dr Chota Motala Rd, Manning Road and Orthmann Road. The objective was to assess the temporal distribution of traffic crossing the screenline over the day and the peak periods.

The results of the analysis shows that the peak hour is between 07:00 and 08:00 when the roads crossing the N3 screenline are operating at or close to capacity. However, the analysis shows that after 08:00 the V/C decreases significantly and by 08:15 the V/C is less than 60%.

Therefore, if peak spreading occurs, there is potential for some growth in traffic without any major road network upgrades required.

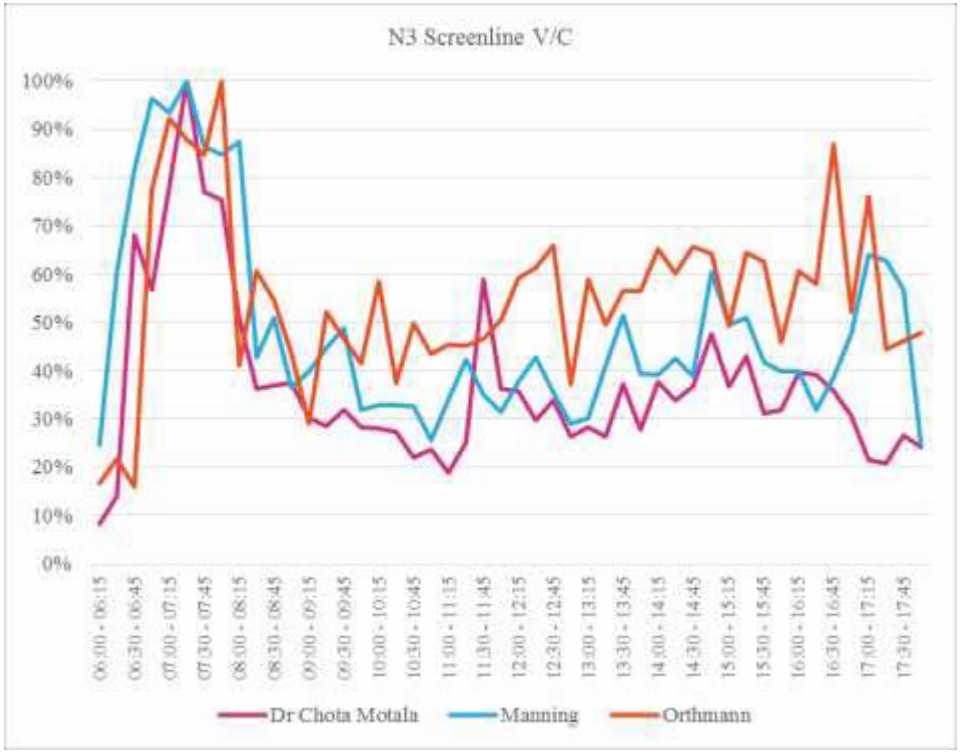


Figure 7: Volumes Across the N3 Screenline at Three Crossing Points, North to South

12.6 6 Road Public Transport

Taxis are the main public transport mode, with a mix of mini-bus taxis and metered car taxis. In some areas taxis operate randomly on a "first come first grab" basis, whilst in other areas namely, Eastwood and Sobantu, the taxis are more organised and have created unofficial holding areas from where taxis are dispatched in an orderly manner.

(The numbers contained in the square brackets [x] refer to locations shown in the corresponding public transport map)

12.6.1 Public Transport Facilities

The following public transport facilities were identified during the site visit:

- Demarcated bus/taxi laybys located along Dr Chota Motala Road ;
- Public transport laybys located in the Northern Areas suburb;
- Two shelters located along Dr Chota Motala Road between Mysore Road and Balhambra Way[1];
- One shelter located along Dr Chota Motala Road near Northern Areas Hospital[2];
- Two shelters located along Bombay Drive, located near the Chota Motala Road intersection and in front of the Municipal building[3];
- Two shelters located along Ottos Bluff Road, located near the top of the road and halfway along the road[4];
- Four shelters located along Sikhosana Street in the Sobantu area[5];
- Two shelters located in the Eastwood area along Les Van Wyk Drive, located in the vicinity of Harriette Colenso Road and in the vicinity of the large parking area being used by hawkers[6];
- One shelter located along Starling Road in the Eastwood area [7].

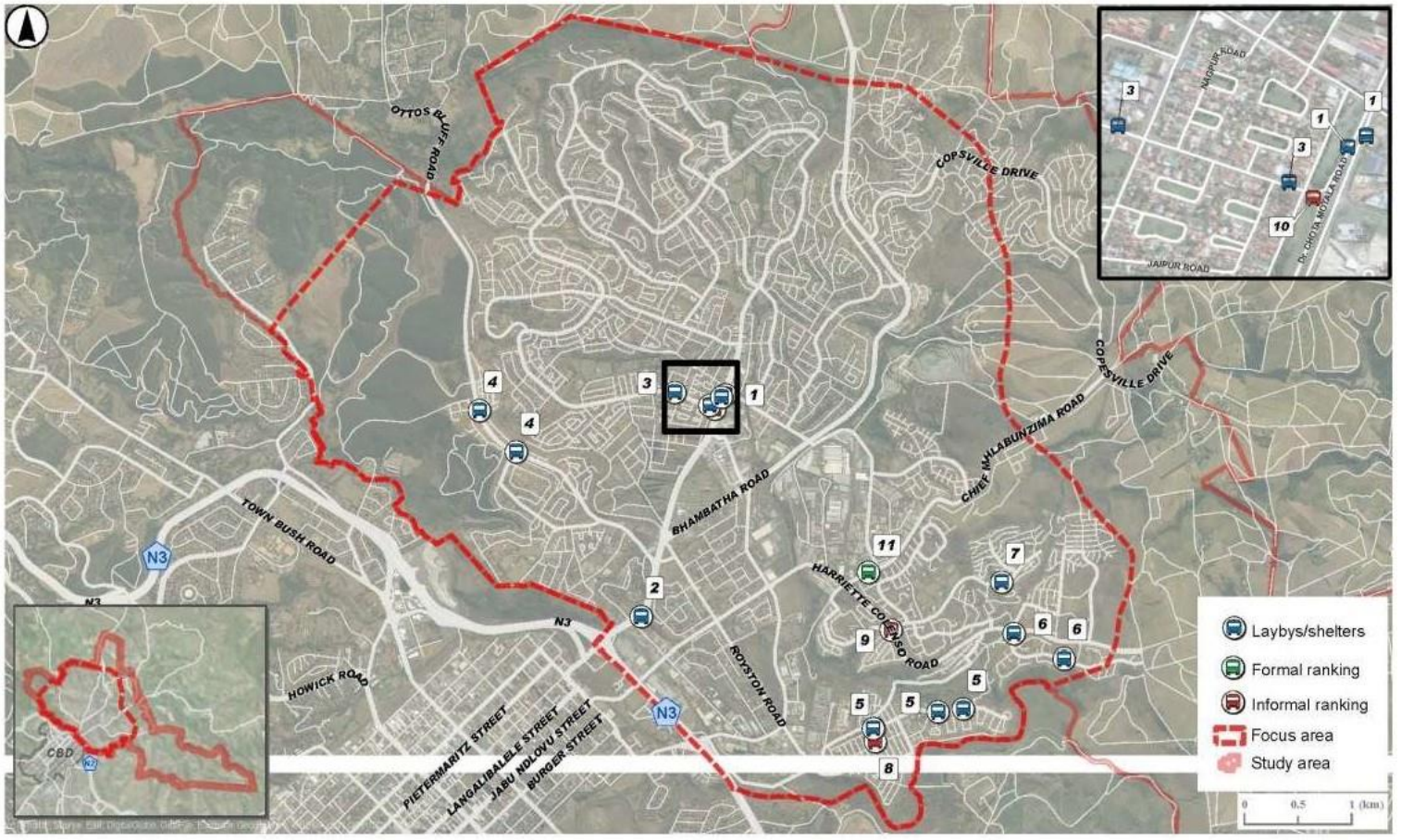
Based on the site visit, there are fourteen shelters in the area with a majority being located in places where they are not used by passengers.

12.6.2 Public Transport Operations

Most services operate with vehicles driving around the area searching for passengers. Due to the oversupply of mini-bus taxis, the passenger demand is met without incurring any passenger waiting periods.

The following observations regarding the public transport observations were noted during the site visit:

- All areas to the west of Dr Chota Motala Road are well served with taxis that operate in a circle searching for passengers;
- axis were observed making a u-turn using the public transport laybys in the vicinity of the intersection of Khan Road/ Regina Road and the intersection of Bombay Drive/ Balhambra Way;
- Mini-bus taxis travelling along Ottos Bluff Road were observed making a turn at the bus shelter located at the top end of the road;
- Mini-bus taxis were observed travelling on a circular route searching for passengers in areas to the east of Dr Chota Motala Road, namely, Orient Heights;
- The up-market areas in Mountain Rise, namely, Royston Road are not serviced by mini-bus taxis;
- Copesville Drive is well serviced by mini-bus taxis which search for passengers residing in the squatter area to the north of Copesville Drive and to the east of Greytown Road;
- In the Sobantu area taxis appear to be ranking at the corner of Khumalo Street and Mendi Street [8];
- In the Eastwood area, there is an unofficial ranking area in the Carriage Way, just off Harriette Colenso Road. Mini-bus taxis serving areas to the south of Colenso Road are despatched from this location. Travelling east along Harriette Colenso Road, there is a holding area on the left of the road[9];
- Mini-bus taxis were observed parking during the off-peak periods in unofficial areas between Dr Chota Motala Road and Lahore Road, and off Dr Chota Motala Road opposite the Kingsway Mall[10];
- There is a formal holding area located along Chief Mhlabunzima Road located between Manning Road and Kingfisher Road[11];
- Due to the heavy traffic along Dr Chota Motala Road, all taxis turn left onto Manchester Drive and then right onto R33 (Bhambatha Road) to get to town. Mini-bus taxis were observed overtaking slow traffic and travelling on the oncoming traffic lane along Manchester Road;
- A survey was conducted between 07:10 – 07:20 at the public transport layby located along Dr Chota Motala Road between Bombay Drive and Manchester Road. The survey revealed that 17 mini-bus taxis pass this location with a total of 171 passengers on-board.



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Map 12: Public Transport

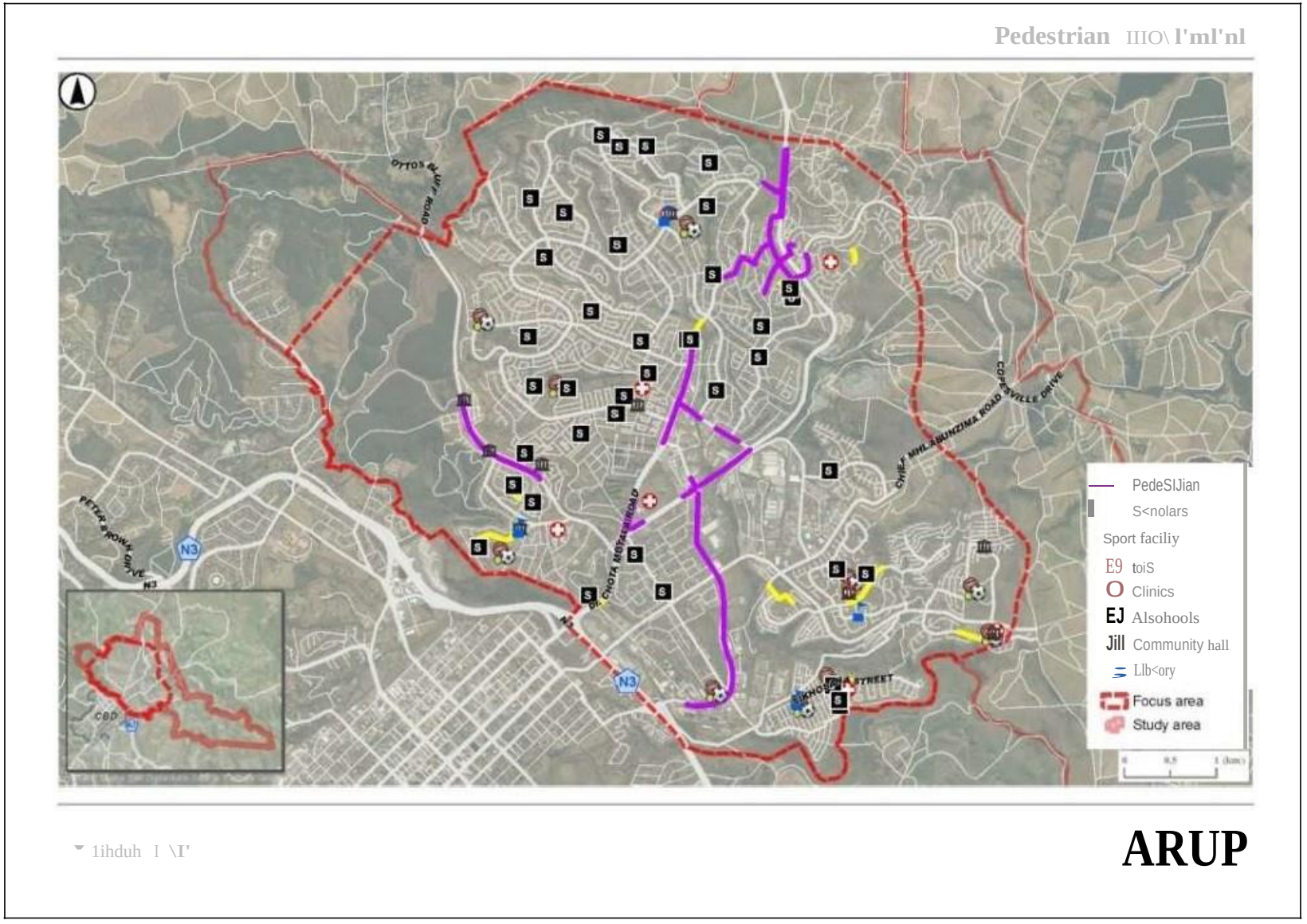
12.7 Non-Motorised Transport

On-site observations were undertaken to gain an understanding of the predominant pedestrian movements in the area.

The site visit indicates that the areas which experience high pedestrian volumes include Dr Chota Motala Road in the vicinity of the hospital and the commercial node in Raisethorpe, Orthmann Road, Allandale Road, Manchester Road and Manning Avenue to name a few. These areas have pedestrian facilities on at least one side of the road.

There is high scholar pedestrians around most of the schools in the area. Map 13 shows some of the schools where pedestrian activity was observed. In most cases pedestrian and traffic calming facilities are in place at these areas.

There is also high pedestrian demand along Ottos Bluff Rd and on the R33 just north of Copesville. Both these road do not have adequate pedestrian infrastructure. At the R33, there is a high demand between the informal settlement north of Copesville and the broader Northern Areas area. Pedestrian, including scholars, are seen walking along and on the R33 and across the open fields in and around this area. Map 6 provides an indication of the location of these pedestrian movement. (pedes. Mov)



Map 13: Pedestrian Movements

12.8 Operational Issues

12.8.1 Queuing

One of the problems created by limited roadway capacity is traffic queuing. On-site observation showed that during the AM and PM peak hour there is a considerable amount of queuing within the study area. Refer to Map 14 and 15.

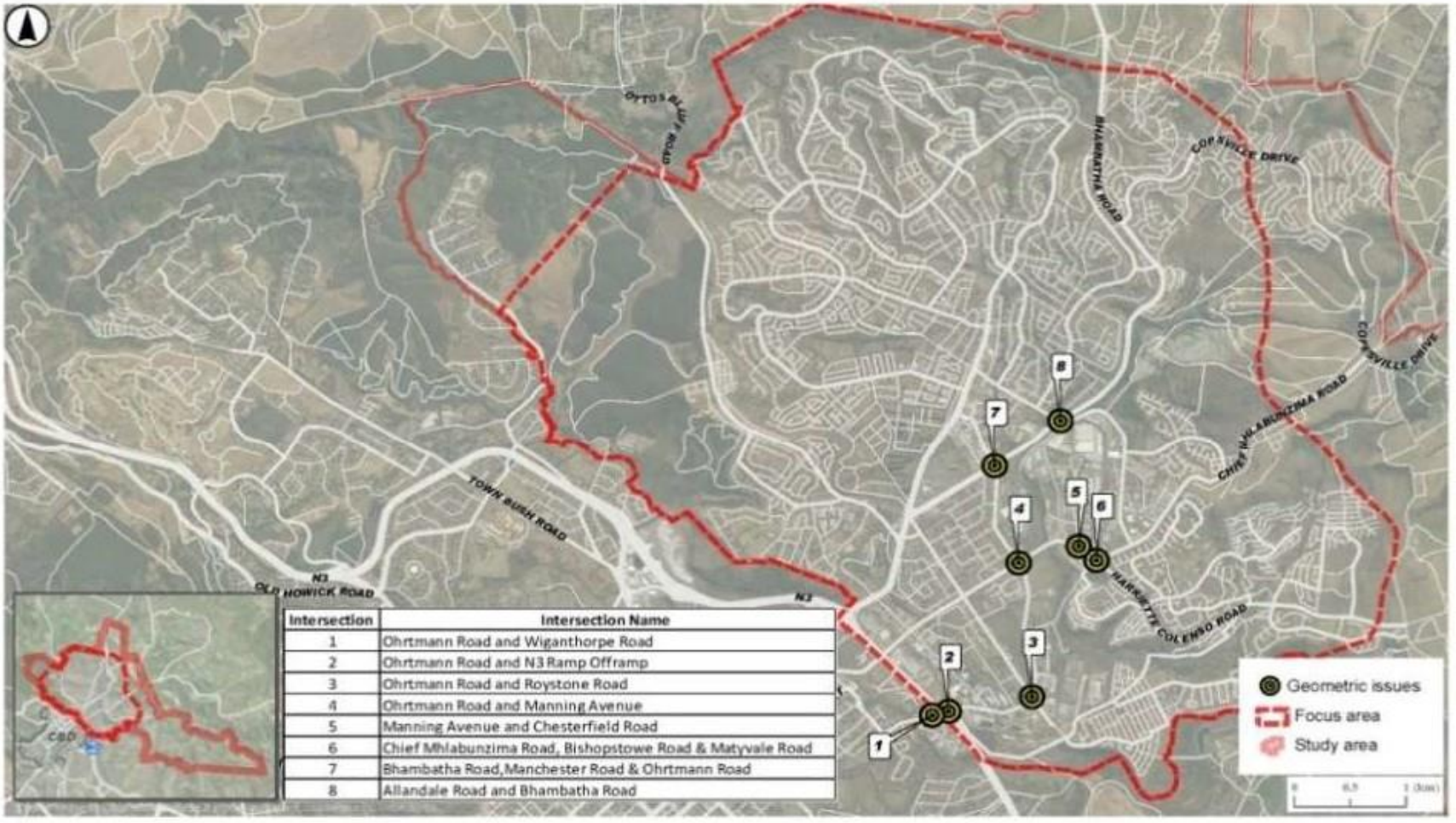
Some of the key queuing areas were mapped out and presented in the following Maps. The main areas during the morning peak hour was the length of Dr Chota Motala Road - from Willowton Road all the way towards Bombay Road -, Bhambatha Road - towards Manchester Road - , Allandale Road and Manning Road from Larch Road. During the afternoon peak hour, the queues are more or less in the reverse direction.

Map 14: AM Observed Queues

Map 15: PM Observed Queues

12.8.2 Geometric Issues

During the site visits, it was noted that a number of intersections, especially in the vicinity of the industrial nodes of the study area are geometrically sub-standard. Majority of these intersection are located in and around the industrial nodes and as such were not designed to accommodate large articulated trucks. Refer to Map 16.



Intersection	Intersection Name
1	Ohrtmann Road and Wiganthorpe Road
2	Ohrtmann Road and N3 Ramp Offramp
3	Ohrtmann Road and Roystone Road
4	Ohrtmann Road and Manning Avenue
5	Manning Avenue and Chesterfield Road
6	Chief Mhlabunzima Road, Bishopstowe Road & Matyvale Road
7	Bhambatha Road,Manchester Road & Ohrtmann Road
8	Allandale Road and Bhambatha Road

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Map 16: Geometric Issues

12.9 Summary of Key Findings and Issues

The following is a summary of the key findings and issues:

- The N3 Freeway creates a screenline in the north-south direction along the southern side of the study area.
- Traffic in the area is constrained during the morning peak hour at the N3 crossing points (N3 screenline). Plans are in place to increase the capacity across this screenline. This includes a new link from Ottos Bluff Road to Parkers Road in Chase Valley Downs and the upgrade of the Orthmann Road/N3 interchange.
- During the morning and afternoon peak hour the intersections of Dr Chota Motala Road/Bhambatha Road and Bhambatha Road/Orthmann Road are two major bottlenecks. These intersections need either road widening and/or adjustments to the traffic signal timing. Despite the aforementioned capacity improvements across the N3 screenline, mitigating measures/upgrades are still required at these intersections.
- Whilst the morning and afternoon peak hours are operating at capacity, an inspection of traffic counts has shown that there is spare capacity on the road network either side of the peak hours.
- During the morning peak hour the main vehicle movement is in the north to south direction towards the N3 and CBD followed by the movement in the west to east direction, towards the industrial nodes.
- A large number of pedestrians were observed in the focus area, however there are two key areas where there is a high concentration of pedestrian activity but limited or no infrastructure. These are along the R33 north of Copesville and along Ottos Bluff Road.
- Whilst there are plans for IRPTN to extend to this area, based on discussions with the IRPTN team it is unlikely to happen in the next 10 to 15 years.

In terms of transportation opportunities, the following should be considered when developing the Local Area Plan:

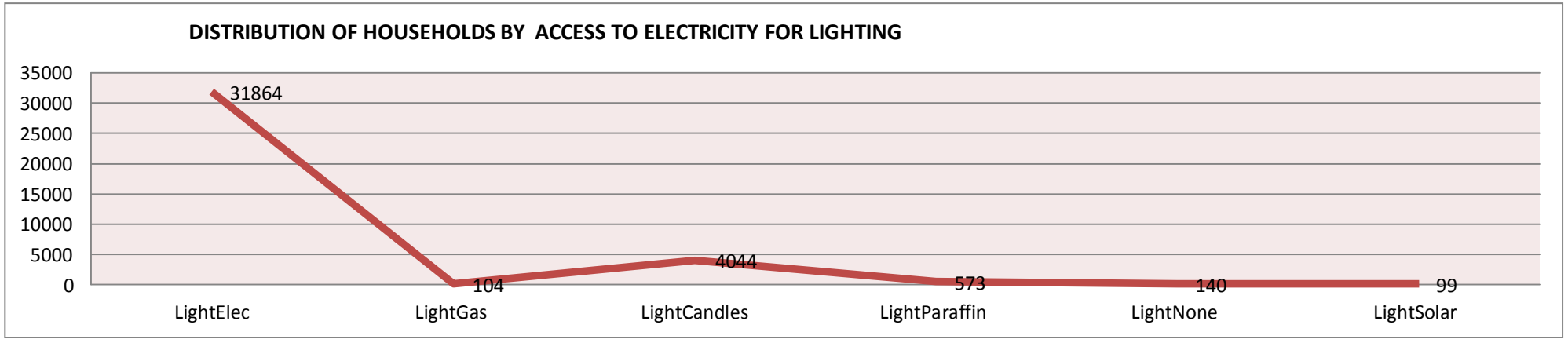
- In the recent past there has been an increase in decentralisation of offices and educational facilities from Pietermaritzburg CBD to the Hilton area. This has resulted in a shift in travel patterns as the traffic volume heading in that direction has increased thus putting additional pressure on the N3 and in particular the Town Hill area. In this regard, it is proposed that a new link via the Ottos Bluff Road should be considered. This route will provide an alternate route between Northern Areas and Hilton and can also act as an alternate route in the event there is an accident on Town Hill.
- Whilst the implementation, if at all, of the Phase 2 of the Msunduzi IRPTN is still some 10 to 15 years away, the proposed trunk, feeder and complimentary routes have been identified. It is proposed that one approach in improving the feasibility of Phase 2 and potentially bringing its implementation forward would be to increase density and encourage Transit Orientated Development (TOD) along the identified corridors

13 INFRASTRUCTURAL ANALYSIS

13.1 ELECTRICTY

The Msunduzi IDP 2016/17 aims to improve infrastructure efficiency through the implementation of the City Development Strategy which was developed during the 2014/15 financial year. Infrastructure is one of eight city wide key areas which will be steered by the plan to ensure that strategies, programmes and projects are implemented more efficiently (uMsunduzi IDP 2016/17: 2). The following graphs identify the infrastructure status quo information of wards 25, 28, 29, 30, 31, 32 and 34 as per the Statistics South Africa Census (2011).

Census (2011) indicates that access to electricity has improved significantly within the identified wards. The number of people with access to electricity are around 31 864 while those with no access to electricity range up to 140. The plan going forward should be to ensure 0% backlog in electricity, to improve equality, reduce disasters caused by secondary energy sources and mitigating global warming effects. Furthermore, options to introduce renewable energy (Solar Panel) should be at the forefront of electricity provision.

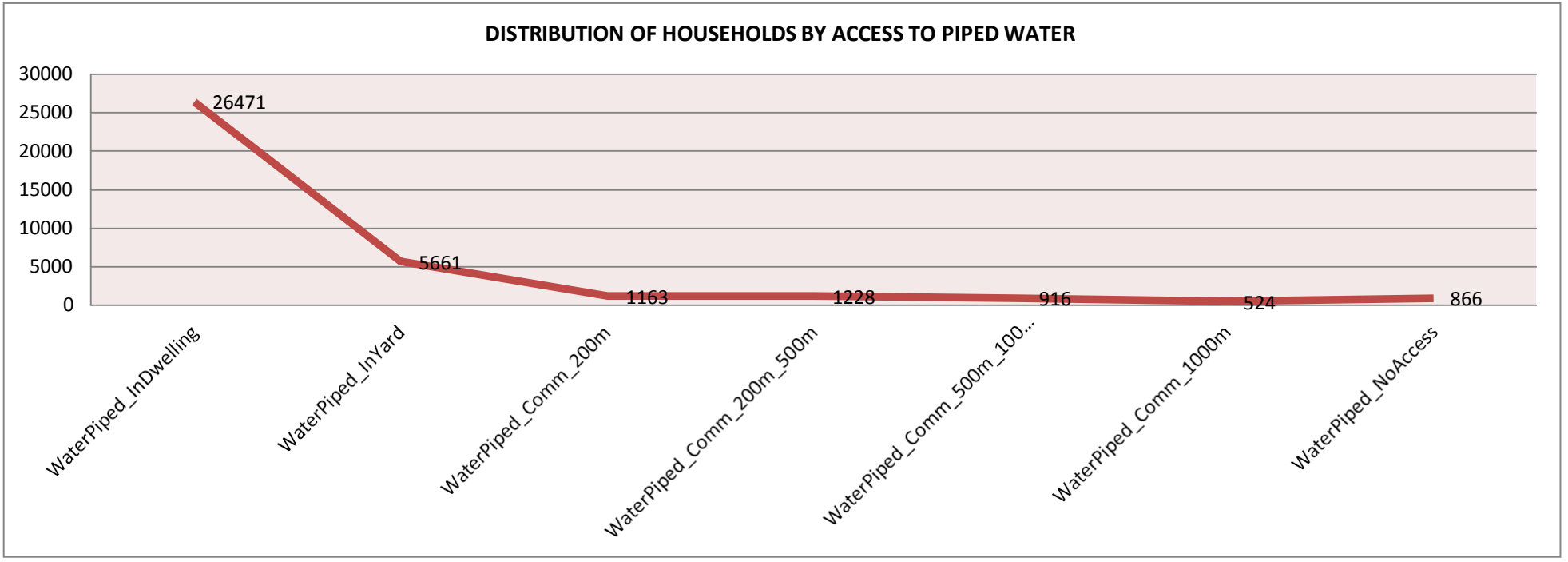


We understand from discussions with Municipal Officials that the existing electricity grid is not constrained in Northern Areas and that this will not be a constraint to further development.

13.2 WATER

Access to water is defined by whether you have 'Tap Water" within your dwelling or not. Modern indoor tap water delivers clean, safe and potable water. Water provision has been in the forefront of infrastructure service delivery in South Africa.

Census (2011) indicates that more than 26 000 households have access to 'piped water in dwelling'. Although there are 866 households with no access, the different between the two indicates the amount of urgency which has been transferred towards providing piped water within dwelling.



13.2.1 Water Conveyance

The Northern Areas area is covered by full pressure water reticulation fed from a 400 dia trunk main.
This trunk main is shown on the attached drawing.
The following pertinent data on this trunk main is extracted from the GIS system data base:

- Size of main 400 dia
- Design velocity 0,62 m/s
- Static head 108,76m
- Dynamic head 108,65m
- Pressure drop 0,11m
- Spare capacity at a velocity of 1,2m/s (calculated) 72 l/s

Consequently, water supply reticulation is not considered to be a constraint to further development in this area.

13.2.2 Water Treatment

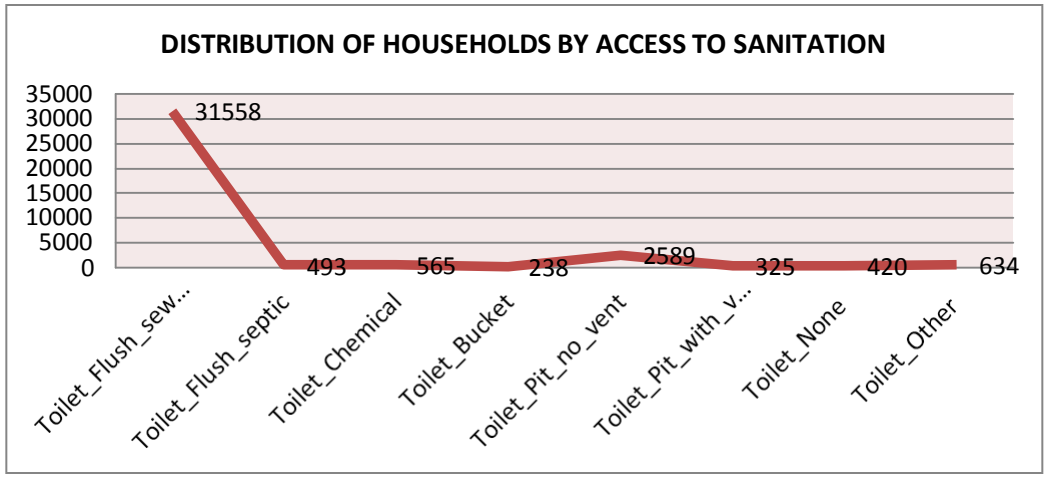
In general, the provision of potable water to Pietermaritzburg is under stress due to lack of capacity in the water treatment works serving the City. (Midmar and D V Harris works)

However, Umgeni Water is currently expanding the Midmar Water Treatment Works and this is expected to be in effect by the end of 2017.
This additional capacity will cater for growth and development for the foreseeable future.
The provision of potable water for future development is not perceived to be a constraint to further development in this area.



13.3 SANITATION

Water plays an important role in the provision of adequate sanitation which explains why they are often treated as a single entity. Inadequate sanitation as well as poor water infrastructure negatively impact food security, livelihood choices and the eruption of fatal disease.



Census (2011) indicates that most of the backlog in sanitation has been redressed and attended. The graph below highlights 31 558 households with access to Toilet Flush sewerage, while on the other hand 634 without access. The graph further indicates that the second larg est provisions of sanitation are Pit Latrines with no ventilation system. The municipality should aim to prioritise the provision of toilet flush sewerage systems to those with no access to sanitation infrastructure, then further aim to provide to those who are still using the pit latrine system.

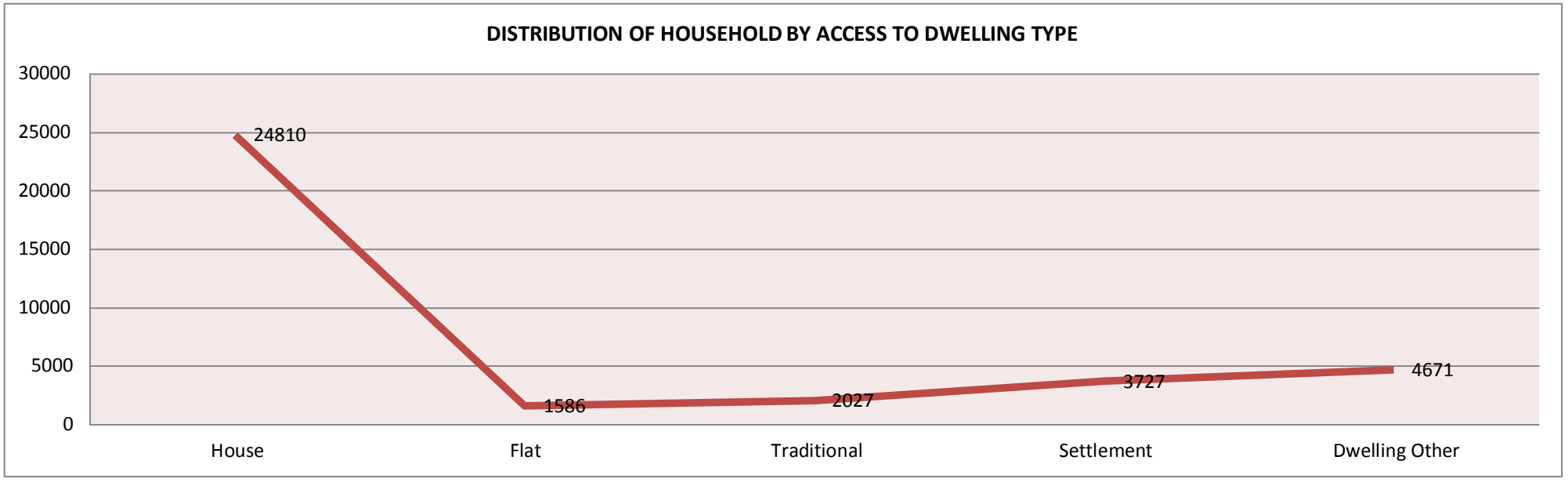
13.3.1 Sanitation Conveyance

The formally planned areas of Pietermaritzburg, of which Northern Areas is one, are provided with a full water borne sewerage reticulation system.
The extant of reticulation coverage in the area of interest is depicted on the attached drawing.
The reticulation drains to a collector sewer on the Western side of the vacant land as highlighted on the attached drawing.
The vacant land commands this sewer and may drain to it by gravity.

The following information is extracted from the data base attached to the Municipal GIS System:

- Size of trunk sewer 300 mm dia
- Design capacity 39,21 l/s
- Spare capacity available 14,97 l/s

The conclusion is thus drawn that the conveyance of waste water from this area is not a constraint to further development.



13.3.2 Sewage Treatment

Sewage generated in this section of the Pietermaritzburg drainage area is treated at the Darvill Waste Water Treatment Works.
This works is currently overloaded and no spare capacity exists for the acceptance of additional sewage flows.
However, a major expansion of this works is under construction and is expected to be completed by the end of 2017. This will provide ample additional capacity to cater for growth and development for the foreseeable future.
Consequently, sewage treatment capacity is not considered a constraint to further development.

14 PLANNING ANALYSIS

The planning analysis takes into consideration analysis completed under the various sections and includes:Demographic, Economic, Bio-physical, transport and Bulk services- Infrastructure, as well as the current trends within the NA LAP study area.

A Land Use Analysis was conducted in the NA LAP Study area. Due to the size of the study area, approximately 7500 hectares in extent, much of the analysis was via desktop, with a full land use survey completed along Dr Chota Motala Road and much of the Industrial Area along Willowton Road and Ohrthmann Road. Dr Chota Motala Road features as the second stage of the IRPTN strategy, with the first phase beginning in Edendale, and the second phase running through Dr Chota Motal Road, ending at Khan Road.The map below shows the land use currently within these areas.

It is evident from the land use survey that these areas represent the economic hub of the study area and are composed of industry, warehousing, retail, service stations, medical facilities, professional services, food outlets, informal settlements and in the midst of the commercial hub, a cemetery.

Planning Related issues:

Planning Issues	Key Findings
Economic Growth	The economic fabric of the study area is limited to the Northern Areas Area ehich is centere along Wards 28, 31, 32, a portion of Ward 30 along Dr Chota Motala Road, Ward 34 along Orhtmann Road and Roasedale and Ward 35 along Orhtmann Road and Willowton. Ward 29 composed mainly of Copesville has a general lack of economic stimulus. The north end of the boundary consisting of Ward 30 is semi rural, with development in the form of Informal Settlements. Ward 38, which is the Bishopstowe Area is rural in character and is limited to conference/ entertainment venues, agricultural land and areas of conservation. In terms of the econimc Hub which lies primarily along Chota Motala Road, land availability seems to be an issue. The expansion of this commercial area if at all possible would mean envcroachment onto the surrounding residential properties.
Land use Zoning and Regulation	The Msunduzi Town Planning Scheme covers a significant part of the study area, but relates directly to the urban portions. The Bishopstowe Area presently is not administered by a Town Planning Scheme. Any Development proposed within the Bishopstowe area would be subject to an application for the subdivision or consent use through Act 70 of 70.
Corridors	The N3 is a a major structuring element and divides the northern areas from SEDIs and the CBD. The industrial area along Orhtmann and Willowton are strategically placed to take full advantage of the N3, as a freight corridor. Within the Northern Areas area, Dr Chota Motala Road appears to be the primary corridor that allows access offthe N3 into the area.
Population	The majority of the NA LAP study area is concentrated along Wards: 28,30 and 31. The east portion of the study area has a scattering of

Planning Issues	Key Findings
	people since most of the land is farm portions.
Social Facilities	There is a significant amount of Social Facilities within the study area, and the social facilities table presented within the Demographic section is a suggestion of the required amount of facilities. The shortfalls within this table arte not significant, however if the growth in this was to increase, there would be a definite need to provide more social facilities, especially schools, libraries and clinics.
Bulk services	The area is well catered for in terms of water, sanitation and Electricity. Plans to improve and increase the treatwork capacities, will not hinder any development within this area.

15 SPATIAL SWOT ANALYSIS

STRENGTHS	WEAKNESSES
• Chota Motala Road is a thriving economic hub • Other mini- economic hubs exist- like Debbie Place, and areas along Bombay Road. • The Urban area within the study area has Bulk Water , Sanitation and Electricity, with reticulation. • The study area is well serviced with Social facilities. • The Msunduzi Municpality has recognised the environmental elements of the Northern Areas Area and has illustrated this as part of the SDf (2015) • The N3 traverses the Northern ABM, allowing for efficient connectivity with Johannesburg towards the North and Durban towards the South. • The Northern Areas region is predominantly urban, with mostly planning formal housing and settlements. • The Industrial Corridor within Northern Areas, provides an existing commercial base, which counteracts the unemployment rate within the area. • The Bishopstowe area has good agricultural land that promotes food security in the area. • There are a number of conference/ wedding venues that increase investment potential to the area. • The study area is surrounded by natural ecosystems that are aesthetically pleasing to the area.	• Informal settlements within the formalised areas of the study area (Chota Motala Road) • Risk of disease due to unsanitary conditions within informal settlements. • Backlogs in terms of housing delivery. • The Limited land within the Northern Areas area, puts the commercial agricultural land North of Northern Areas, at risk of encroachment. • Traffic congestion along Chota Motala Road due to lack of parking facilities. • Cemetery located within a core commercial corridor which decreases the availability of land to increase activities along the corridor. • Insufficient vendor spaces for the informal community.

OPPORTUNITIES	THREATS
• The N3 which traverses the municipality provides opportunities such as a logistics platform to exist at key intersections or off-ramps along route. • The proposed Northern Areas-Edendale corridor, will allow for viable public transportation within uMsunduzi, integrating the rural landscape of Edendale, with the central and Northern portions of the municipality. • Existing Infrastructure within the North, provides sufficient impetus to propose and implement new housing projects within the vacant plots of land. • Tourism marketing strategy to promote adventure,wedding and eco-tourism within the Bishopstowe area. • Implementation of higher density residential establishments and concerted effort by the Housing Department to include higher density low cost housing inititiatives- in line with the IRPTN focus area. • Amendment of Town Planning Scheme to facilitate development along Chota Motala Road and its immediate vicinity.	• The increasing informal settlements within Northern Areas increases vulnerability of the environment, and opportunity to propose formal settlements • The slow delivery in housing projects within the area opens room for the development of more informal settlements. • Unavailabilty of funds to deal with the increasing population and associated development within the study area. • Increasing use of cars and lack of parking facilities within the commercial areas may lead to further congestion as well as vehicular accidents. • The growth in populations may lead to development on parcels of land with Environmental significance.

16 CONCLUSION

This Status Quo Analysis represents a statistical and observational overview of the current infrastructural, environmental, social and economic conditions, trends and challenges within the Northern Areas, Bishopstowe and surrounding area. The qualitative experiences of the various roleplayers will further be gathered during the future phases of the study and included to augment these initial findings. The status quo intends to provide a common understanding and agreement of the challenges to be addressed in the conceptualisation of future development within the study area and further guide the formulation of a Conceptual Spatial Framework for the Northern Areas LAP. It is anticipated that additional, more detailed information will be included for any identified investment areas or nodes as these emerge during the further phases of the study.

17 KEY SPATIAL PROBLEMS AND VISIONING

17.1 Spatial Issues

The Northern areas of Msunduzi Municipality consists of a more formally planned and developed built environment as opposed to the southern areas such as Edendale. The issue with the Northern areas is that most of the developable land has been used hindering the expansion of the towns. Northern Areas is surrounded by either environmentally sensitive land or forest land which is privately owned.

One of the issues arising within the area is the high demand for housing from people who seek to locate within the vicinity of job opportunities. Due to lack of vacant lland within the study area, higher density residential needs to be encouraged, with vertical expansion as opposed to horizontal expansion. The issue at hand is convincing the private owners along major routes (such as Dr Chota Motala) to accept densification along the major routes, which would accommodate a high population threshold to reduce the housing backlog and allow for the efficient functioning of the proposed IRPTN route..

17.1.1 Physical Environment

The Northern areas and its surroundings is characterised by steep slopes around the outer of the Northern boundary and is fairly gentle around mid-areas. Northern Areas LAP (NA LAP) is mostly urban in nature and fully built up within areas that can permit development. The main topographical feature of the area is the Msunduzi River Valley, which runs in a roughly west-east direction through the south portion of the study area.

The areas adjacent the Pietermaritzburg Central Business District (CBD) near the base of the Msunduzi River valley are relatively flat. The topography steepens towards an escarpment located in the northerly and easterly extent of the study area. This escarpment forms the watershed between the Msunduzi River valley and the UMngeni River valley.

The southern and south-eastern portions of the study area are characterized by rolling hills and some steep south- and east-facing cliff areas. There is a network of drainage lines throughout the study area as well as the larger Msunduzi River valley.

Increasing intensity and frequency of storm and high rainfall events may result in elevated surface and river flooding. This may impact on infrastructure – creating costs to the municipality for replacement and repair – and may cause loss of life and property. River systems and wetlands may be damaged by flooding, resulting in a decline in ecological condition and reduced ecosystem services supply. Flooding may significantly reduce water quality in river systems, increasing the cost of potable water supply and reducing the life-span of water storage dams. Polluted freshwater systems may also not be suitable for agricultural use.

Increasing intensity of droughts may result in human health impacts, reduced agricultural production, and associated increases in the cost of food. Riparian and aquatic ecosystems may be negatively affected, particularly where abstraction rates from rivers and streams remain high under drought conditions.

Change in climate is anticipated to have an effect on the types of crops that can be grown in certain parts of KwaZulu-Natal. This

may affect commercial farming operations as well as subsistence farmers, and switches to different crop varieties may be required.

17.1.2 Settlement Pattern

The study area is mostly characterised as residential and includes both formal and informal settlements, mainly in the areas of Northern Areas, Copesville, Raisethorpe and Mountain Rise. The NA LAP study area has been the site of rapid settlement expansion, informal and formal expansion of urban settlement which may have resulted in the transformation of remaining natural ecosystems and agricultural land resources hence a reduced supply of ecosystem services. In addition, informal settlements have encroached into valley lines, wetlands and into high risk zones (for example flood or fire prone areas) resulting in increased disaster risk.

An urban development line is required to mitigate settlement expansion onto natural and ecological systems, in order to maintain a balance and sustainable growth between the natural and built environment within Northern Areas.

17.1.3 Nodes

NA LAP consists of a number of nodes located strategically and accordingly to the function of the particular area and corridor it's associated with. The following are the list of nodes which currently exist within the study area.

- Industrial nodes- Willowton, Rosedale, Ohrtmann Rd
- Existing CBD – along Dr Chota Motala Rd
- Retail node- along Bombay road, cornerof Dr Cchota Motala and Ottos Bluff, corner of Balhambra and Newholme way, along Allandale Dr, along Hhan and Ishwari road

Nodes allow for the interaction of people and day to day needs at an accessible and walkable distance. On that notion, it's imperative to ensure that settlements are not located in isolation to essential nodes. Lower order nodes should be proposed for areas which are located to far from local amenities, such as the rural settlements in Copesville.

17.1.4 Movement Network and Corridors

The N3 Freeway creates a screen line in the north-south direction along the southern side of the study area. Traffic in the area is constrained during the morning peak hour at the N3 crossing points (N3 screen line). Plans are in place to increase the capacity across this screen line. This includes a new link from Ottos Bluff Road to Parkers Road in Chase Valley Downs and the upgrade of the Orthmann Road/N3 interchange.

During the morning and afternoon peak hour the intersections of Dr Chota Motala Road/Bhambatha Road and Bhambatha Road/Orthmann Road are two major bottlenecks. These intersections need either road widening and/or adjustments to the traffic signal timing. Despite the aforementioned capacity improvements across the N3 screen line, mitigating measures/upgrades are still required at these intersections. Whilst the morning and afternoon peak hours are operating at capacity, an inspection of traffic counts has shown that there is spare capacity on the road network either side of the peak hours.

During the morning peak hour the main vehicle movement is in the north to south direction towards the N3 and CBD followed by the movement in the west to east direction, towards the industrial nodes. A large number of pedestrians were observed in the focus area, however there are two key areas where there is a high concentration of pedestrian activity but limited or no infrastructure. These are along the R33 north of Copesville and along Ottos Bluff Road. Whilst there are plans for IRPTN to extend to this area, based on discussions with the IRPTN team it is unlikely to happen in the next 10 to 15 years.

In terms of transportation opportunities, the following should be considered when developing the Local Area Plan:

In the recent past there has been an increase in decentralisation of offices and educational facilities from Pietermaritzburg CBD to the Hilton area. This has resulted in a shift in travel patterns as the traffic volume heading in that direction has increased thus putting additional pressure on the N3 and in particular the Town Hill area. In this regard, it is proposed that a new link via the Ottos Bluff Road should be considered. This route will provide an alternate route between Northern Areas and Hilton and can also act as an alternate route in the event there is an accident on Town Hill.

Whilst the implementation, if at all, of the Phase 2 of the Msunduzi IRPTN is still some 10 to 15 years away, the proposed trunk, feeder and complimentary routes have been identified. It is proposed that one approach in improving the feasibility of Phase 2 and potentially bringing its implementation forward would be to increase density and encourage Transit Orientated Development (TOD) along the identified corridors

17.2 Spatial Economic Issues

17.2.1 Agriculture

There is no 'high potential' agricultural land within the study area, the agricultural potential is considered to be best in the central and northern portions of the study area, where rainfall is higher and the climate is cooler. These areas currently contain sections of forestry plantation (Black Wattle, Pine and Gum) and extensive cropping, mainly sugar cane. The south-western areas, where the climate is warmer and drier, is used for extensive rangeland agriculture such as cattle farming, and in some cases game farming where combined with biodiversity conservation land uses.

National climate change models indicate that the region is likely to become hotter, experience more frequent high intensity rainfall events, and more intense drought cycles. This is likely to create more challenging conditions for both commercial and subsistence agricultural activities and may lead to the need to change the types of agriculture undertaken, and / or pressure to transform agricultural land to other uses in the future.

The national water resource constraints poses significant challenges for the sugar cane industries and it is possible that there may be increasing financial pressure on farmers to convert to other land or agricultural uses.

The steeper, south-facing escarpment slopes in the western extent of the study area contains the only scarp forest habitat (63 ha). In terms of the National Forests Act (1998), all indigenous

forests are protected. The condition of the scarp forests in the study area have declined due to surrounding agricultural / silvicultural activities, invasive alien plants, fire and natural resource harvesting pressure.

17.2.2 Industrial Activities

The Northern Areas study area consists of an eclectic mix of land uses including high, middle and low income residential, industrial, and educational and a retail corridor. The Industrial Basin is located along Ottos Bluff Road, Bambatha Road, Orthmann Road, Bombay Road and Manning Road which are Key Industrial corridors within the study area. Orthmann Road provides access to the Industrial area from the N3 corridor, which is a major industrial and logistics connector between Johannesburg and Durban. The major CBD of uMsunduzi municipality and its close proximity to the N3 has also favoured and helped the establishment of a strong and commanding Industrial base in Northern Areas.

The Industrial base contributes highly to the municipality's economic base, however the industrial effluent has for a long time contaminated the Msunduzi River which results in poor water quality. The issue with water quality is strongly associated with illegal dumping by industrial companies, which plays a negative toll on the environment and natural hygiene of the study area. Furthermore air quality in Pietermaritzburg is periodically poor due to the Industrial air emissions from the heavy industrial corporations.

17.2.3 Tourism

The economy of the municipality is dependent on a number of major sporting and cultural events , including the Comrades Marathon, Midmar Mile, Duzi Canoe Marathon and the Mountain Bike World Cup, to name but a few. These events lead to direct cash-injections into the economy and have positive impact on the local tourism establishments. The Municipality is also located midway between the Berg and beach tourism destinations and is a convenient stop-over for many travellers.

The uMsunduzi municipality should develop a tourism development plan which will establish the role that Pietermaritzburg tourism, and other community tourism agencies will play in the implementation of the plan, develop a strategy that will obtain maximum benefit for tourism service providers.

17.2.4 Delineation of Economic Activity Areas

As part of the further planning, a process of physically delineating of Economic Activity Areas has been undertook to determine the priority intervention areas as well as to engage key role-players of the further development of the concept.

Unlike developing/rural areas, the NA LAP has been fully developed with the relevant and essential services required to deem an area as urban. However most of the major Economic Activity Areas function in isolation to the lower order services located within residential areas, which hinders the achievement of a broader based growth where people have efficient access to

services, while enjoying the opportunity to work, live and play within the same vicinity.

The Msunduzi SDF aims to achieve a polycentric structured growth within the whole of Msunduzi, therefore it's essential that the NA LAP aligns to the objectives of the MSDF when planning for the future. The economic centres are proposed to be consolidated and expanded in line with the 'polycentric urbanism' concept, resulting in expansion of commercial and industrial land uses in certain locations.

The analysis of these Economic Activity Areas has been done so with the use of the following criteria:

- Economic activity
- Transport
- Social/community uses
- Political/administrative activities and;
- Educational activities

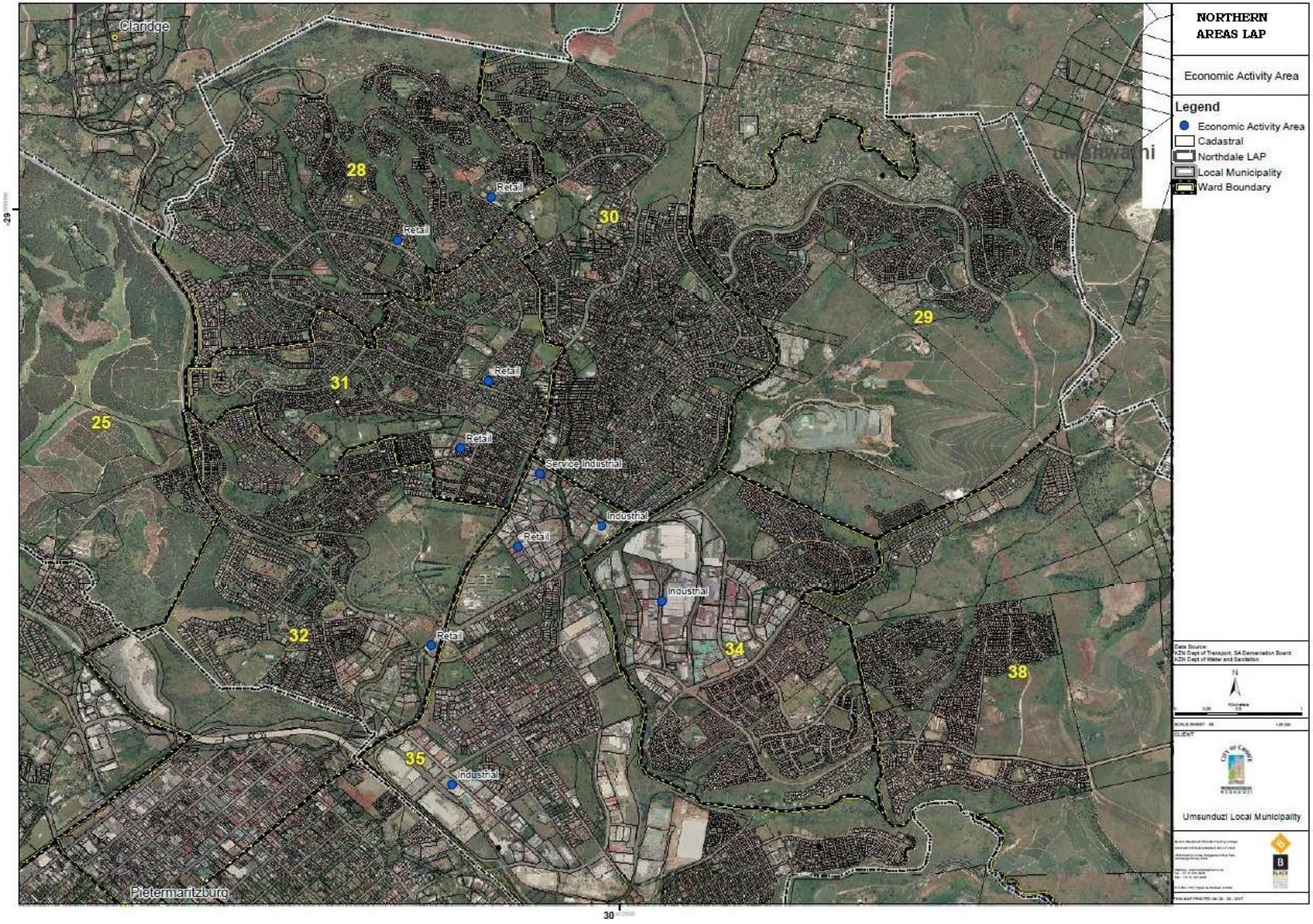
Each of these functions either has the characteristics of an urban centre or a focal point, or they have the potential to become an urban centre or focal point within that area.

17.2.5 Overview: Delineated Economic Activity Areas

The following Economic Activity Areas were delineated as priority intervention areas and catalysts for the future growth of the NA LAP.

1. Orthmann Industrial District
2. Willowton Industrial District
3. Northway Mall Precinct
4. Factory Warehouse Precinct
5. Bhambatha Industrial District
6. Chota Motala Economic District
7. Bombay Service Centre
8. Newholme Service Centre
9. Highgate Service Centre
10. Khan Service Centre

Map 17: Proposed Economic Opportunity Areas



1. Orthmann Industrial District`

. Role

The Orthmann Industrial area is located within the southern region of the NA LAP . The area consists of mostly light industrial uses which are surrounded by residential units and open space systems. This area contributes significantly to the industrial job opportunities within the north.

I. Access

The strategic location of this area, allows efficient access to the site from the N3 along Orthmann Road towards the south. Access is also achievable along Bhishipstowe Road along the east and Chief Mhlabunzima Road towards the North.

. Key Interventions and LED Opportunities

- Utilization of vacant portions of land for either the expansion of residential, Industrial or Commercial Land.
- Opportunity to split the Industrial area, and create two separate yet inter-related Precincts: Industrial Precinct and a Mixed Use Precinct.

2. Willowton Industrial District

. Role

The Willowton Industrial area is located along the southern region of the NA LAP along the N3 corridor. The Industrial district consists of a mix of light to heavy industrial uses. Most of the industrial job opportunities are found within this area.

. Access

The area is highly accessible from the southern boundary along Orthmann road which comes from the N3. Larch Road offers a North-South acces route into the area, this route also provides direct linkage between Northern Areas and Msunduzi CBD. Lastly Willowton Road which traverses the area provides east-west access into the site.

. Key Interventions and LED Opportunities

- Widening of Orthmann Road/N3 Interchange to accommodate heavy vehicle access as well as heavy pedestrian traffic.
- Promoting residential densification along single

residential units, to optimally use existing resources and provide more housing opportunities along places of employment.

3. Northway Mall Precinct

. Role

The Northway Mall Precinct is a convenient centre which offers a range of fast food franchises, as well as day to day commercial amenities. The precinct also consists of a petrol filling station to service the southern residential settlements in Northern Areas. The area offers flexibility in choice to those who prefer shopping in less congested areas.

. Access

The Precinct is located along the Dr Chota Motala Road at the intersection of Bhambatha Road. The convenient location allows it to service commuters and pedestrians travelling at any direction towards the precinct.

. Key Interventions and LED Opportunities

- Identification of areas with densification potential.
- Upgrade and maintain existing service infrastructure to ensure on-going capacity is maintained

4. Factory Warehouse Precinct

. Role

The Factory Warehouse Precinct bridges the gap between formal and informal trading. It offers a vast amount of trading space for low rent, in order to allow people to sell in Bulk. It consists of a number of factory shops which sell a wide range of clothing at low costs. This precinct integrates the low and middle income groups.

. Access

The strategic location of this precinct allows it to enjoy access from the two major roads within the NA LAP . Dr Chota Motala on the western access and Bhambatha Road towards the south-eastern access.

. Key Interventions and LED Opportunities

- Expansion of precinct to offer more rental space for more entrepreneurs.
- Upgrading and maintenance of dilapidated infrastructure to make place more welcoming for all types of customers.

5. Bhambatha Industrial District

I. Role

The Bhambatha Industrial District is a smaller scale of a range of light industrial companies and warehouses. It provides the opportunity to rent for the purpose of running a business or storing of essential items.

II. Access

The site is accessible from Bhambatha Road towards the south-east boundary of the site. There are not many access points within this industrial district, which is a disadvantage for companies are not easily seen, without actually knowing it exists there.

III. Key Interventions and LED Opportunities

- Integrate the Factory ware house precinct to transform the area into a single mixed use precinct.
- Pockets of environmentally sensitive land need to be conserved and introduce programmes aimed at identification of these areas.

6. Chota Motala Economic District

I. Role

The Chota Motala Economic District provides mixed use services which range from social, economic, industrial, administrative etc. The district offers a range of employment opportunities. The densities for the services provided is very high, however the residential densities of the houses within the vicinity is low.

II. Access

The Main access to this area is along Dr Chota Motala which links Msunduzi CBD and Northern Areas CBD while intersecting the N3. The major east west access points are found within the Bombay Road and Khan Road Interchanges.

IV. Key Interventions and LED Opportunities

- Increase residential densities where the scheme only allows for single residential densities.
- Revitalisation, in the form of Urban Regeneration of the area to increase aesthetics and street beautification.

7. Bombay Service Centre

I. Role

The Bombay service centre offers mixed use commercial/residential services to households located along Bombay Road towards the western region of the NA LAP .

II. Access

The main access to the site is along Bombay Road which also offers direct linkage with Dr Chota Motala Road which is the main access route within the NA LAP . The service centre offers different types of commercial uses as well as a petrol filling station. The area can also be accessed via (the north-south) Bangalor Road.

II. Key Interventions and LED Opportunities

- Upgrade and maintain area to accommodate the youth from neighbouring schools as well as the elderly receiving government grants.

8. Newholme Service Centre

I. Role

The Newholme service centre consists of mixed use buildings which offer a range of commercial, residential and office use buildings.

II. Access

The site is easily accessible from one of the major Chota Motala/Naidoo Road intersection, towards the western region of the NA LAP .

II. Key Interventions and LED Opportunities

- Increase housing densities along the road to promote compaction and optimal use of available resources.
- Maintenance of buildings and street furniture to attract more office use buildings.

9. Highgate Service Centre

I. Role

The Highgate service centre is located far from the main Dr Chota Motala commercial corridor. It services residents located in the far north-western region of the NA LAP . It offers a small range of commercial services.

II. Access

The Highgate service centre is located towards the northern end of Bombay Road.

III. Key Interventions and LED Opportunities

- Expansion and upgrade of existing infrastructure onto the vacant land, to service a wider range of customers.
- Propose precinct plan to efficiently utilize vacant space.

Khan Service Precinct

I. Role The Khan service precinct offers a range of services which conveniently provide for the north-western region of the NA LAP . The precinct offers the same type of services that would be found in a mall, however in a lower scale.
II. Access The precinct is located at the intersection of Bombay and Khan Road, which are two major roads that intersect with Dr Chota Motala Road.
III. Key Interventions and LED Opportunities • Integrate the precinct with the petrol filling station, to make use of the vacant adjacent property. • Propose precinct plan to efficiently utilize vacant space.

17.3 Implications for LAP

The spatial issues highlighted above will act as the basis from which strategic spatial decisions will emanate for the NA LAP. The following are a myriad of issues which touch specifically to the study area.

(Issues affecting rural landscapes along the periphery such as Copesville & Bishopstowe)

(a) Topography is a deterrent to development within areas with undulating topography;
(b) Lack of access to economic opportunities which translate into high levels of unemployment and dependency within settlements along the periphery;
(c) Low service delivery level due to limited income generation to support local government efforts;
(d) Scattered settlement pattern impacting negatively on service delivery;
(e) Lack of land use management mechanisms;
(f) Lack of maintenance of road infrastructure thereby affecting movement;
(g) Non-functional nodal areas due to non-viability of public investment;
(h) Lack of investment in tourism potential areas.

(Issues affecting urban landscapes within the central portions of the study area)

(i) Limited land for the proposal of expansion areas
(j) Development of single residential units along major economic and industrial corridors,

(k) Supply of housing has not yet reached the demand, hence the emerging informal residential units
(l) Limited tourism opportunities within the study area
(m) The continued degradation of the environment, due to industrial expansions

Strategies to be formulated in the NA LAP will have to be logical and practical to enhance the current spatial state of the municipality.

Currently the NA LAP LAP Study area is approximately 7748 hectares in size. Out of the 7748, from the environmental determinants (see status quo), it is noted that 2111 hectares of the study area falls under Environmental Services. It is estimated that 2832 hectares of land within the study area is for Agricultural purposes (SDF GIS shape-files: 2014/15). The table below illustrates the amount of land already used in terms of: Agriculture, Industry, Social, Residential and Environmental.

Land Use	Area in hectares
Agriculture	2831.63
Industry	344.57
Residential	1755.81
Social	111.68
Environmental	2111.00
Total	7154.68

The remainder of the study area is estimated to be around 593.32 hectares. It is worth noting that the Msunduzi SDF (2015/16) suggests that the Northern areas are experiencing low growth, primarily because the Northern Areas are already developed. The reality of the situation is that for the density within the NA LAP LAP study area to increase there will have to be a restructuring of the existing residential developments, allowing for medium density residential development in areas where the zoning only permits for a dwelling unit. The table above suggests that out of the 7748 hectares (the study area), only 593 hectares remain, since an estimated 7154.68 hectares is the total area that has been developed on or has been designated as environmental or agricultural use.

17.4 Formulating a Spatial Vision for NA LAP

The purpose of evaluating the Vision and Mission of the Local Authority is to highlight the components of these statements that need to be spatially interpreted. The Municipality needs to be made aware of the implications of the spatial statements to allow them to prepare and evaluate a proper course of action. These spatial implications will be manifested within the Local Area Plan being compiled.

The IDP Vision for uMsunduzi LM Reads as follows:

"To develop a safe, vibrant city in which to live, learn, raise a family, work, play and do business."

The table depicts the spatial components that need to be considered in order to meet the vision statements of the municipality. The impacts and considerations are briefly discussed.

18 DEVELOPMENT CONCEPT AND STRATEGIES

18.1 BACKGROUND TO THE DEVELOPMENT CONCEPT

The principal purpose of the NA LAP is to enhance the spatial quality, ensure efficient functionality and to facilitate socio-economic development of the study area Settlement. The greater part of the study area is a Brownfields development which consists of formal housing, informal housing, commercial land use as well as industrial land use. The intention is to use this process to provide suitable development options for the study area.

18.1.1 Development Vision

The Long term spatial development vision for NA LAP LAP is based on the development objectives, reads as follow:

"To develop a vibrant neighbourhood by encouraging development that supports a range of quality jobs, businesses, shops and services that meet the needs of local people and protects and enhances the quality of the local environment and amenities in a sustainable manner"

18.1.2 Conceptual Underpinnings

From the status quo analysis undertaken for the study area, a number of performance qualities are being sought, which are largely underpinned by the concepts of sustainable development, spatial restructuring and economic integration. These concepts encapsulate the objectives of the NA LAP. The concerns which underpin the initial problems identified and influenced the conceptual underpinnings of the study include:

VISION	ISSUE	GOAL
Safety & Security	Assess and Evaluate safety and security within public areas, illegal activities as well as informal traders. Furthermore assess the level of intervention from the Police force towards public transportation violence, especially in Taxi Ranks and train stations.	Cities have a duty to protect the public and much is accomplished by first responders such as police, fire and ambulance personals. These qualities when practiced efficiently can attract the right people to locate within, and the right investors to develop innovative and economic empowering structures.
Vibrant City	Increase densities along commercial & industrial corridors as well as providing Transit-oriented development which is safe, fast in walking distance and accessible to all, physically and financially.	Vibrant cities seek to achieve a diverse physical environment, with pedestrian interactions as opposed to automobile dependency, and a good mix of people and buildings with a mix of low to high income structures.
Sustainability	The conversion of environmentally sensitive land into industrial or and other built use, undermines the ecological elements which make up cities. Furthermore the dumping of toxic and non-recyclable waste in drains and rivers pollutes natural riverine systems which are used by humans and animals for many uses.	The sustainability elements refer to the consideration of environmental impact, minimization of the release of required input of energy, water and food and waste output of heat, air pollution and water pollution.

- The identification of the location of development opportunity zones and associated physical, institutional and financial requirements to enable development within;
- The preparation of conceptual design solutions for the development zones;
- The preparation of recommendations with regard to service infrastructure and associated costs (if absent);
- The identification of other priority areas (if applicable);
- The prioritization of the phasing of development projects identified within the study boundary; and
- The possibility to access formal housing opportunities for current informal residents.

In summary, the proposed Local Area Plan is regarded as part of an important initiative to improve the quality of life of communities within the study area.

The findings of these analyses will form the basis for the development vision, objectives and interventions to be made in subsequent phases of the NA LAP.

The Msunduzi SDF refers to seven sustainable urbanism pillars which is relevant to the preparation of the NA LAP. A summary of these pillars can be viewed on the next page.

(Source: Adapted from the Msunduzi SDF 2014/2015)

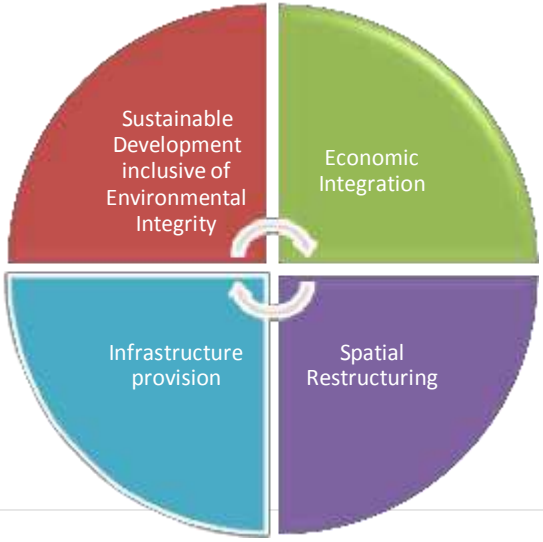
From the status quo analysis undertaken for the study area and in conjunction with the seven pillars identified within the Msunduzi SDF, a number of performance qualities are being sought, which are largely underpinned by the concepts of:

- sustainable development;
- spatial restructuring; and
- economic integration.

These concepts encapsulate the objectives of the NA LAP

Sustainable Development

Human needs and aspirations are a common objective of



development. Meeting the basic needs of all citizens is enshrined within the constitution of South Africa. The essential needs of the community should therefore be met, as enshrined within our constitution, however, beyond this; the quality of life of the said community must also be improved. As defined by the Brundlandt Commission, "Sustainable development is development that meets the needs of the present population without compromising the ability of future generations to meet their own needs". Sustainable development is therefore inter-generational and in essence provides a balance between the economic, social and the environmental components whilst ensuring essential management of these inter-related components.

A sustainable community should offer many ecologically responsible opportunities for investment, businesses, and employment that will, in turn, support an economically diverse and prosperous community. In the context of the study area, the development concept should be in support of sustainable livelihoods and a range of appropriate social facilities.

One of the elements of sustainability is the efficiency in the provision of public services. The provision of adequate public facilities in the study area would serve as an essential attraction to its surrounding settlements and ensure the sustainability of the existing settlement. Another element of sustainability is ensuring that public transport works optimally to ensure that all residents (whether car owners or not) are capable of moving from one place to another efficiently.

In anticipation of the future development of the study area; there is the need to accommodate growth through efficient land use. Creating a liveable and sustainable environment where the land can be put to economic use is an essential requirement.

Spatial Restructuring

The spatial restructuring of the study area is deemed an important facet of this Local Area Plan. The study area is already developed; the residential, commercial and industrial land uses present within the area leaves little or no space for further development. There are scatterings of informal settlements within the study area (example: Copesville), however Msunduzi already has plans to either relocate these settlements or upgrade them. The needs of the beneficiary communities will have to be met through appropriate considerations for land uses which will assist in uplifting the socio-economic status of the households.

The principle of clustering of complementary land uses, especially of public and social facilities remains essential to increasing user-accessibility.

Spatial restructuring also involves making appropriate land use decisions which enhance the functionality and image of the settlement either through appropriate densities and encouraging a mix of uses where possible. This may include the provision of higher housing densities along appropriate corridors that will feed into the public transport system and the intended IRPTN system.

Economic Development

Economic development is one of the keys to an improved quality of life and therefore any proposals to be made in this regard will have to be to the benefit of the public at large. This involves emphasis on the ordinary person who has very limited resources and is unlikely to be able to participate in the mainstream or formal economy.

Northern Areas operates within the parameters of the formal and informal economy. This dual economy is interlinked yet requires different systems and spaces to function efficiently. One aspect of this complex relationship is that of location.

The need to address locational issues of economic activity in Northern Areas is urgent to avoid unprecedented contestation. The town's role as a community commercial hub in the Municipality makes it pivotal to ensure that a balance is achieved within the different economic sectors. With this as a backdrop for economic integration, the spatial make-up, (e.g. land use) must be able to support existing and incoming economic participants.

In addition to this, spatial structure of the town must be able to open up locational opportunities for both economies. Being able to create economic opportunities for different participants must be a deliberate attempt to achieve both spatial and economic inclusion as well as strengthen the interdependency of the different economic sectors.

The situation requires seeking out areas with locational advantage for informal trading. This relates to locations with high pedestrian movement. A prerequisite is to identify various generators and attractors as a locational determinant in this regard. Appropriate land use management with respect to promoting zonings that will enable greater economic activity will be essential to promote entrepreneurship and local economic development.

Table 15: STOP-CONTINUE-START ANALYSIS

NA LAP Local Area Plan		
Stop	Continue	Start
1. Sprawl		1. Compaction 2. Promote infill development
2. Low density development	Low density development in appropriate locations	3. Increase densities in appropriate locations
3. Disaggregated land use pattern		4. Consolidation of functional districts
4. Low town management		5. Improve town management through appropriate policy formulation and enforcement
5. Little support for micro-economic activities		6. Investment into small-scale economic ventures

18.2 GOALS AND STRATEGIES

To address these localised issues, it is necessary to identify a realistic vision, goals, objectives, and develop appropriate strategies, which are contextually responsive and address the needs of the beneficiary communities. The main objectives for study area as explained earlier, is to pursue sustainable

development, economic development and spatial restructuring. These can be achieved by giving attention to the following goals:

- To promote a sustainable settlement pattern and improve legibility and function;
- To improve connectivity and circulation within the settlement and with surrounding areas;;
- To create opportunities for economic activities and promote higher residential densities;
- To promote Infrastructural Development; and
- To promote environmental integrity;

These goals provide the detail to inform the conceptual framework and the local area plan for the NA LAP area. The expression of these development goals is critical in ensuring that all role-players and resources are directed at a common development path for the future growth and an efficiently functional settlement.

18.2.1 To Promote legibility and function

The developed portion of the study area accommodates three major land uses: residential, commercial and industrial. The greater Bishopstowe area is the only area that promotes environmental and agricultural practices.

The need to promote cluster development is deemed relevant towards efficient land use. Cluster development is already a component of the study area, and can be considered efficient. The promotion of other economic practices within the predominantly residential areas, may allow for greater local economic development, since the economic zones are already oversubscribed.

The town has a fairly formal street pattern, laid about in a modified grid. The CBD area, located along main road (Dr Chota Motala Rd), is where most activities and movement take place. This part of the CBD is congested with both vehicles and pedestrians and will need to be decongested.

Delineation of a CBD Boundary

The CBD represents the heart of the town and must stand out in relation to its other parts. The CBD must therefore be legible in terms of location and ease of movement through credible landmarks which people can create mind maps from. This therefore necessitates the delineation of a CBD boundary.

The CBD boundary to be delineated is intended to promote concentration of economic activity in light of generating economies of scale. Secondly, this is to curb slow creeping of commercial activity towards the town's peripheries.

Strengthening the Function of the Northern Area

The function of the CBD as a service centre and as a public place needs to be redefined and made legible through land use. A mix of economic and social uses as well as other supporting uses will have to be promoted in the town centre. The ability for users to clearly identify the different activity districts such as a commercial district and a social district forms part of strengthening its role of a service centre.

Encouraging Options for Land

The predominant uses in the Northern Areas are commercial and residential. From formal retail shops to street traders, the town accommodates a variety of economic activities, yet in a haphazard manner. With formal shopping facilities lining the main street, informal traders have also adopted to locations where foot traffic is frequent. The current state of economic activity clash needs to be addressed by promoting an integration of different land uses in the CBD in a logical manner.

Locational suggestions for trading areas, commercial developments, local production spaces and residential development will be made to accommodate a range of socio-economic needs in the area.

Residential Clustering

The proposed new housing settlements are intended to become a liveable space with strong social bonds. Residential proposals are made within the existing development footprints to foster efficiency in land use. It is important to promote Integrated Human settlements, that allow for the philosophy of Live, Work and Play.

18.2.2 To Improve Connectivity and Circulation

Connections and circulation will be enhanced through road upgrades and proposed new links, as well as the medium term plans for the Integrated Rapid Public Transport Network (IRPTN).

Non-motorised transport such as walking and cycling will be promoted through the provision of pathways., pedestrianised streets, pedestrian crossings and bicycle stacking areas.

Public transport in the form of mini bus taxis and buses is the current mode of transport in the area. However, the medium term plan is to roll out the IRPTN to the NA LAP area.

Public Transport

Circulation networks provide convenient, efficient, affordable and safe movement of people, goods and services (CSIR, 2000). Performing movement networks have the following characteristics:

- Give priority to non-motorised modes of transport and the needs of public transport;
- Maintains convenience, safety and multiple use patterns; and
- Accommodates a range of movement demands and socio-economic functions.

The proposed IRPTN routes will be used as the spine for the development of high density residential and will seek to regenerate and consolidate existing commercial, administrative and social nodes.

Enhanced Pedestrian Movement

One of the well-known sustainable elements of the urban system is the promotion of non-motorised transport options. With the presence of residential development, schools, retail, social and industrial developments in the area, NA LAP presents itself as a suitable place to encourage non-motorised movement. An enabling factor is the availability of suitable pathways and streets and the future IRPTN.

18.2.3 To create Opportunities for Economic Activities

The NA LAP study area has within it, two important economic components which include the retail/ commercial component and the industrial component that provide jobs and revenue to the Msunduzi Municipality.

The retail commercial component can be found along Dr Chota Motala Road, Allandale Drive and Bombay Road etc. The industrial component can be located along Ohrtmann Road, Chesterfield Road, Birmingham Road, Sheffield Road and Willowton Road etc.

Potential for small-scale agriculture exists on around the Bishopstowe area, with emphasis on tourism opportunities in the area. Using the natural resources base to create opportunities for economic activities in appropriate locations and enhancing connectivity is an essential aspect of the NA LAP Local Area Plan.

Better Opportunities for Street Trading

One of the key issues to be addressed in the town is ensuring integration of small-scale trading with the mainstream economy. Currently, petty traders operate along the main road and from locations where pedestrian movement is high. Whilst this constitutes a typical characteristic of small traders, the need to make available trading facilities in appropriate locations can beneficial to the economic make-up and visual enhancement of the town.

The sensitivity of street trading thus requires an appropriate set of interventions to be applied.

Small scale Agriculture and Tourism

The Bishopstowe settlement is located on environmentally sensitive land. Land within this area can be used to enhance tourism opportunities and where applicable allow for small scale agricultural activities, thereby promoting Local Economic Development.

Mixed Use Precinct

The proposed Mixed Use precinct is not only to accommodate social facilities but to serve as an avenue for economic activities, as well as to improve accessibility to this area and to promote higher density residential development in line with what the Msunduzi IRPTN is attempting to achieve. Essential retail facilities are already within the corridor, that being Dr Chota Motala Road and surrounds.

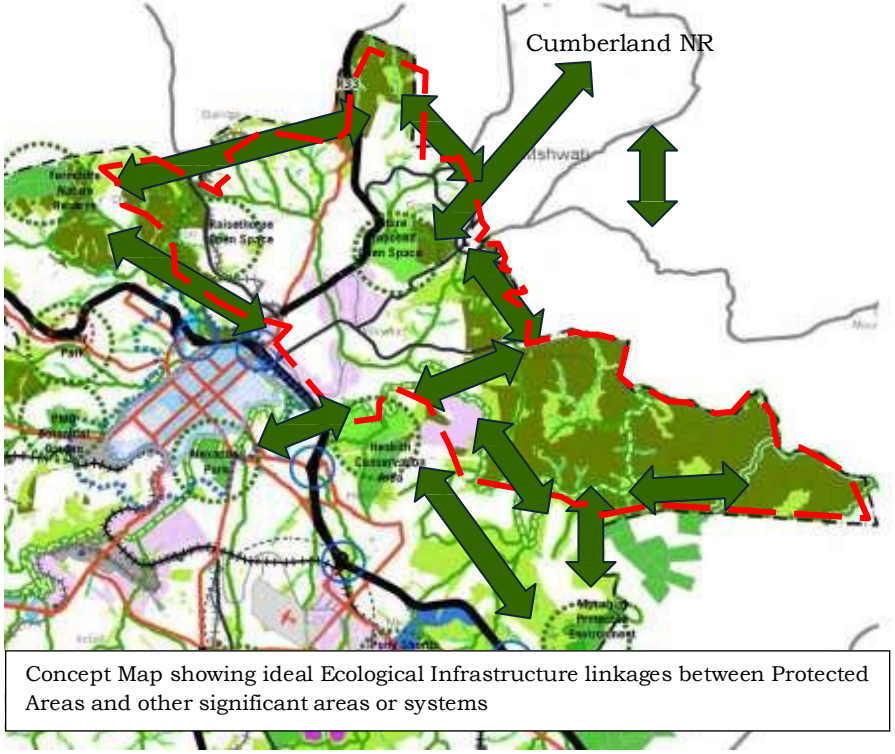
18.2.4 To Promote Infrastructural Development

Adequate infrastructure is essential to facilitate the future growth of economic activity in the NA LAP S LAP. This includes water and sanitation, movement, waste management and public/social facilities.

From a sustainability viewpoint, separation of different waste materials for local recycling can be promoted as part of building local economic development initiatives. Public investment is a needed requirement to ensure that the proposed NA LAP LAP functions better.

18.2.5 To promote environmental integrity

Securing critical Ecological Infrastructure



Concept Map showing ideal Ecological Infrastructure linkages between Protected Areas and other significant areas or systems

To protect and enhance the supply important ecosystem services in the study area, including buffering people and infrastructure from the impacts of climate change, an integrated approach is needed to facilitate the protection and management of a robust, climate resilient ecological infrastructure and its associated socio-economy. This can be achieved through appropriate forms of development investment that optimise the opportunities presented by the natural environment, and protect the integrity of ecological services infrastructure.

Ecological infrastructure that connects fragmented remnants of ecosystems, establishes corridors and protects core areas should be protected in the development planning process. The system of ecological infrastructure must respond to local and regional ecosystem service's needs (both now and under future climate change scenarios),

and national and regional biodiversity conservation priorities. Linkages to and from protected areas / ecosystems outside the study area should be promoted.

A sustainable approach to Municipal Servicing

Municipal service infrastructure should be planned for based on current and future development demand and intensity. This includes the provision of adequate waste collection services and waste drop off / transfer stations to limit the propensity for illegal dumping, particularly of industrial waste. Development implementation phasing should be planned to respond to infrastructure rollout / upgrading timeframes, to limit the risk of environmental pollution and damage from inadequately serviced development.

Green infrastructure design and building approaches should be promoted that enhance the provision of ecosystem services in the built landscape, and reduce negative outputs of transformed landscapes that ecological infrastructure must absorb. Planning must address the issue of current and future urban heat islands (particularly under future climate change scenarios) through

including heat sinks in the spatial fabric (this function can be performed by ecological infrastructure, urban parkways and appropriately sized residential erven, vegetated streetscapes etc.). Planning should also incorporate the concept of Sustainable Urban Drainage Systems, which uses a sequence of water management practices and facilities designed to drain surface water in a manner that will provide a more sustainable approach than routing run-off through a pipe to a watercourse. Open spaces for active and passive recreational use must be properly planned for, particularly where high density living environments are to be developed.

Using the Natural Environment Sustainably to grow the Green Economy

Harnessing ecological systems to support growth of the green economy should be explored (e.g. harnessing job creation, livelihood and green energy opportunities associated with alien plant biomass, sustainable harvesting and production of indigenous natural products such as medicinal plants and fibres, community based tourism development, etc).

Current and future food security requirements should be addressed through ensuring areas are set aside for urban agriculture, and the adoption of conservation agriculture approaches is promoted in a programmatic manner.

Rehabilitation and management of ecological infrastructure should be promoted through urban / industrial conservancies, community stewardship programmes, and agricultural / rural conservancies.

Opportunity	Description
Game farming, farm and eco-estates, tourism development	The large remaining tracts of grassland and woodland in the south-west areas offer an opportunity for the development of tourism activities and investments associated with the good visual and wildlife / biodiversity amenity that these areas offer. With the establishment of the Mpushini Protected Environment, the opportunity exists to expand Mpushini to include these areas. In addition, some of the areas may be suitable for the development of eco-estates or farm-estates that create unique lifestyle opportunities and attract development investment into the region and help build the municipal property rates base.
Community-based tourism and natural capital restoration / management	The establishment of a functional Msunduzi urban parkway could provide an opportunity for community-based tourism and associated green job creation activities (for example River Rangers, invasive alien plant clearing programmes, riparian and wetland rehabilitation etc). Cycling routes and hiking along this corridor could be developed in a similar vein to what has been done in the Durban Green Corridor project.
Natural products economy	The study area contains a variety of plant species that have potential for commercialization in the natural products (or biodiversity) economy. This includes a range of medicinal and aromatic plant species, cut flowers, horticultural plants etc. Commercial production of these plants could be undertaken in conjunction with conservation land uses.
Urban agriculture	The 'good agricultural potential' of the central, northern and western portions of the study area should be put to use through the incorporation of urban farming (for subsistence of small scale

	production) in appropriate locations. This would assist in addressing local food security and the provision of income generating opportunities for local people.
Open space amenity	Open spaces should be retained for active and passive recreational amenity for local residents. These open spaces should also be designed to reduce urban heat and improve the quality of living environments through enhanced visual amenity and recreational opportunities. In high density living environments, such open spaces have been found to be important for residents' psychological, spiritual and physical well-being.

18.3 DEVELOPMENT CONCEPT

This section of the report involves the translation of the goals and objectives into a local area plan. The goals are depicted conceptually to demonstrate the strategies for the NA LAP LAP.

18.3.1 Land Use Proposals

Land uses proposals being made relate to all aspects of the development process to accommodate economic and social needs. Land use in NA LAP LAP is largely guided by the need for housing and social facilities and infrastructural development. These needs hinge on encouraging clusters of residential development, social facilities, and making land available for local economic development, whilst ensuring the ecological and environmental integrity of environmental assets is sustained.

These proposals are geared towards the socio-economic and physical development of NA LAP LAP, to assist it to function better as a sustainable urban settlement within the Msunduzi Municipality.

Residential Uses

In order to promote residential development in NA LAP LAP, proposals are made for high density residential development along the IRPTN corridor, which directly relates to the land alongside Dr Chota Motala Road, on within 200 metres proximity to the corridor. New residential development if at all possible along the corridor must take into consideration safety and security, therefore the architectural concepts and design for these higher residential units must incorporate the element of safety in the design of the building. Also, this idea relates to efficiency in land use and the promotion of close-knit communities which facilitate active and passive surveillance.

Social Facilities

The NA LAP LAP social facilities table is outlined in the Social Facilities table in the succeeding pages. The table makes note of available facilities, and the shortfall of facilities, according to the population threshold. It should be noted that the table is an indication of the amount of social facilities required, however at the same time, it is our view that the current provision of social facilities are adequate for the population of the NA LAP LAP.

18.3.2 Transport and Connectivity

The planning for pedestrian and cyclist connectivity will act as the basis for the development of the Local Area Plan.

In order to provide access to the CBD/N3 and enhanced circulation within the NA LAP area, proposals for new links and road upgrades are being considered.

In addition, the proposed IRPTN will provide additional capacity to the transportation system thereby creating opportunity for increases in development density and an opportunity for regeneration of existing nodes.

Short term proposals for mini bus taxi and bus stops are being considered for the area

18.3.3 Environmental Concept

Ecological infrastructure that connects fragmented remnants of ecosystems, establishes corridors and protects core areas should be protected in the development planning process. The system of ecological infrastructure must respond to local and regional ecosystem service's needs (both now and under future climate change scenarios), and national and regional biodiversity conservation priorities. Linkages to and from protected areas / ecosystems outside the study area should be promoted.

Development that makes best use of the environmental asset base, and so contributes towards the long-term protection and management of that asset base, should be encouraged and promoted.

Key components of the ecological infrastructure that need to be rehabilitated (e.g. wetlands, grasslands, woodlands and forests) should be identified and prioritised to ensure that the functionality of the ecological infrastructure is optimised.

Areas that require formal protection should be identified and appropriate processes initiated. Where possible, long term protection and management should be sought through public-private partnership arrangements, for example through industrial / business conservancies and Urban Improvement Precinct approaches.

Service infrastructure standards should be implemented to limit the possibility of degradation of the receiving environment, particularly stormwater and sanitation infrastructure.

A long-term view needs to be taken with regards to both the opportunities and hazards associated with ecological infrastructure. In this regard, a risk averse approach should be taken when delineating potential flood zones that should be excluded from development, as well as areas that may be exposed to veld fire risk.

18.3.4 Infrastructural Proposals

Availability of Data

The data includes households (HH) estimates based on STATS SA 2011 HH. No HH count done by the municipality was received.

The data came in form of a GIS model depicting what was available in terms of existing services around the selected development site.

The demand was based on the new 1000 HH, while source and yield could not be confirmed as there was no data available for the process plant.

Methodology

Three growth scenarios were investigated for this housing development used to determine the population based on the number of households envisaged.

These are:

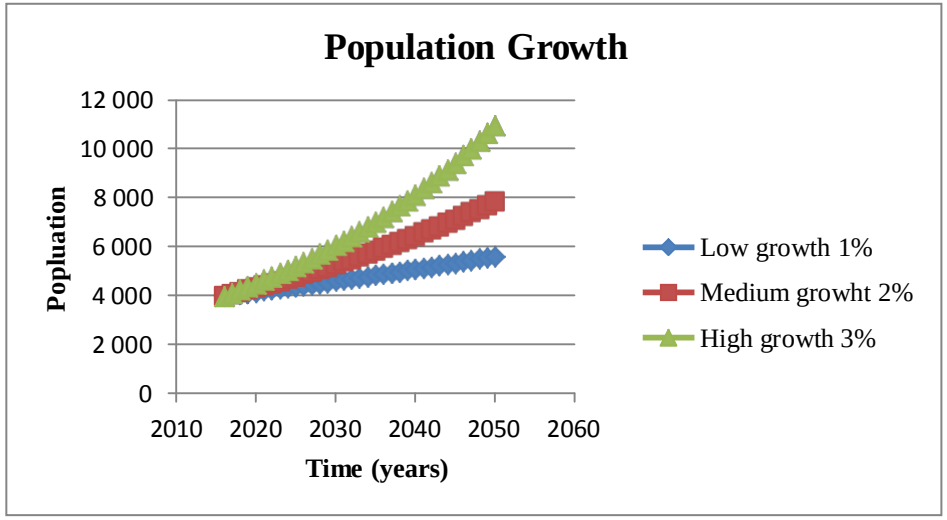
- Low growth at 1%,
- Medium growth at 2%
- High growth at 3%

These scenarios were extrapolated using arithmetic progression to determine future population.

It is noted that the high growth scenario (at 3%) is greater than the current 2.3% for the province and 1.12% for the local municipality and will thus be treated as worst case scenario.

The following graph below shows all three growth scenarios.

Figure 8: Population Growth



Water supply

Design approach

Demand calculations are based upon the guidelines published in "Guidelines for Human Settlement Planning and Design" (the "Red Book")

The following criteria have been used:

- Design year = 2016
- Design horizon = 34 years
- Dwelling Occupancy = 5
- Growth Rates = 1%, 2% & 3%
- Demand = 80 l/c/day
- Summer Peak Factor = 1.5
- Storage Required = 48 hours of GAADD from one source

Design assumption- It was assumed:

- That the area is totally residential and that no industrial water demand will be applicable.
- Future consumers will have full level of service i.e. yard connection and waterborne sanitation.

Water Supply *n*frastructure

Msunduzi local Municipality is provided with bulk potable water by Umgeni Water, from Midmar Water Treatment Works (WTW), supplemented by D V Harris WTW.

The Midmar WTW is in the process of expansion, this is expected to be complete by the end of 2017

Bulk water supply to the Northern Areas area is via a 460mm diameter steel pipeline which runs along Otto Bluff's road as shown on Appendix A appended to this report.

Water Demands

Extrapolating the growth projections and the design criteria the following demand table was compiled; to show only the high and low growth scenarios for this development.

Table 16: Projected Water Demands for High and Low Scenarios

No.of Dwellings	Population	Population Growth	AADD *kl/d*	GAADD *kl/d*	SDD *l/s*	Storage Required *Ml*
1000	5000	7013	561	617	10.71	1.1
1000	5000	13660	1093	1202	20.87	2.2

The figures in the table above are reflecting year 2050 daily demand of 1.1Ml/d and 2.2Ml/d for both low and high scenarios respectively.

Ability of the Existing Infrastructure to Supply the Demand

We have discussed the expected demands with the Msunduzi LM Water Department and they have confirmed that what we asking for can be accommodate by their system.

Sanitation

Design approach

Same approach applied to water supply above will be the same for sanitation.

The following criterion has been used:

- Average daily flow = 500l/u/d
- Peak factor = 3.5
- Infiltration = 15%

Table 17: Present and Future Sanitation Discharge

No.of Dwellings	Discharge Standard ***l/u/day***	Average Daily Discharge		PF	Infiltration factor	Peak Discharge ***l/s***
		l/s	*kl/d*			
1000	500	5.79	500	3.5	15	**23.3**
						41.9

Sanitation Infrastructure

Sewage from this area is treated at the Darvill Wastewater Treatment Works (WWTW). This works is currently being expanded to provide additional capacity for Umsunduzi LM. The Expansion programme is expected to be complete by the end of 2017.

We have discussed the impact of this development on the existing and expanded infrastructure with the Umsunduzi LM Sewerage Branch and they confirm that with that there is an expansion of WWTW from 60Ml/d to 100 Ml/d which is expected to deal with the future demands on the municipality.

The existing sewer network is shown on the attached Appendix B.

Please note that areas adjacent to the new development site are on pit latrines and consideration should be given to the upgrading of these areas to water borne sanitation to avoid any disruptions to the new development.

Electricity

The capacity of the current bulk electric infrastructure is under stress already, the addition of the new housing developments will automatically put more strain to the grid, as noted from the Msunduzi Spatial Development Framework (2009) document there is a problem of electricity supply with regular black-outs being reported to the LM. The bulk electric requirements for this new development will still have to be determined more precisely in next stage, the preliminary design report. However, also noted as part of the SDF (2015), in terms of electricity there has not been any mention of electricity as an issue, however there is a move toward greener living, and alternative energy options.

18.3.5 Land Use Budget

The table presented in the next page provides an understanding of population thresholds with regard to associated and required social facilities (using CSIR Guidelines). As per the land use budget table, there appears to be a shortfall in terms of certain facilities, however this tool is meant to act as an informant and not necessarily taken as a rule. The Northern area appears to be well endowed with Social Facilities, especially with regard to education.

Table 18: NA LAP LAP Land Use Budget

Households Estimated Population	36 825 124 587	FACILITIES		
Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
EDUCATION				
Crèche/nursery school	Estimated minimum population: 5 000.	2	25	23
Primary school	Estimated minimum population: 3 000 - 4 000.	28	31	3
High school	Estimated minimum population: 6 000 - 10 000	13	12	0
Tertiary Training Not University	Estimated minimum population: 100 000	3	1	0
HEALTH				
Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
Clinic	An estimated minimum of 5 000 people	8	25	17
Hospital	1 770 000 for Regional Hospital and 450 000 for District Hospital	2	1	0
CIVIC / SOCIAL AND CULTURAL FACILITIES				
Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
Community Centres	A minimum population of about 10 000 people.	5	12	7
Library	Libraries can serve populations of 5 000 - 50 000	2	2	0
Religious Centres	2 000 people are required to support a single church.			
Post Office	Estimated minimum population: 11 000 people.	4	4	0
Police Station	Estimated minimum population: 25 000.	1	5	4
RECREATION (SPORTS AND PARKS)				
Type of Facility	Use Capacities & Population Thresholds	Existing	Required	Shortfall
Indoor Sports Hall (medium/large)	Estimated minimum population: 500 000.		1	
Sports Field	Estimated minimum population: 7 500.	1	17	16

18.4 SUMMARY OF DEVELOPMENT OBJECTIVES, GOALS AND STRATEGIES

The summary of the development objectives, goals, strategies for the NA LAP LAP represents the desires by which NA LAP LAP will be transformed to meet the proposed development vision. These strategies and interventions span both spatial and a-spatial issues which relate to each other. The next phase of the project will make specific locational proposals where applicable to the interventions outlined in the table below.

Table 19: Summary of Goals and Objectives of the NA LAP LAP Local Area Plan

Objective	Goal	Strategy	Intervention
1. Spatial Restructuring	To Promote a Sustainable Settlement Pattern and improve Legibility and function	Land Availability	Municipality to provide serviced land for residential development which allows for densification
		Promote efficient land use	Create residential clusters
		Increase legibility of the CBD	Delineate CBD Edge
		Provide options for a variety of land uses in support of social and economic development	Encourage a mix of uses within the designated social precinct
			Develop an open space system of active and passive opens spaces
2. Economic Stimulus	To create opportunities for small-scale economic activities & Economic Expansion and Industrial Development	Provide support to home businesses	Land Use Management Initiative allowing for free entry of home businesses within designated residential areas.
		Provide institutional support for business start-ups	Establishment of a Small Business Support Centre for local entrepreneurs
		Provide Land	Allow for the expansion of existing light industrial/ warehouse/ logistics expansion
		Focus on Local Economic Development	Identify existing organic nodes and allow for mixed use development- land use management effort
		By providing appropriate facilities for Street Trading	Provide trading stalls along the intersection of the main road and the Taxi Rank

3. Infrastructure Provision	To Improve Connectivity and Circulation in NA LAP LAP.	Provide routes for vehicular movement and local and regional connectivity	To undertake road upgrades and new routes where necessary
		Encourage Non- Motorised Transport	Provide pedestrian pathways along main access roads in appropriate locations.
		Enhance circulation and connectivity	Provide for road upgrades and proposed new links, as well as plan ahead for IRPTN.
	Promote Infrastructural Development	Develop social facilities and amenities	Where applicable, and dependant on land availability, provide for social amenities.
		By providing sufficient waste management services to the settlement	Provide a bulk solid waste collection point
			Provide waste collection bins, recycle bins in all activity areas and on pathways.
		By providing essential basic services	Relocation of informal settlements to formalised areas, as well as in- situ upgrades where appropriate.
4. Environmental Integrity	Promote sustainable development	Planned Municipal Service Infrastructure	Development of implementation phasing should be planned to respond to infrastructure rollout.
		Green infrastructure design and building approaches	Planning must address the issue of current and future urban heat islands- inclusion of heat sinks- urban parkways, open space systems, green corridors etc.
		Incorporate sustainable urban drainage systems	Implement water management practices designed to the routing of run-off into water courses.
		Use the Environment in a sustainable manner	Harnessing of ecological systems- provide for job opportunities, livelihoods and green energy, as well as tourism opportunities. Commercial production opportunities for natural products.
		Promote conservancies	Rehabilitate natural ecosystems through urban and rural conservancies as well as through community stewardship programmes.

19 DEVELOPMENT CONCEPT

The development concept is based on the vision expressed within this document:
"To develop a vibrant neighbourhood by encouraging development that supports a range of good quality jobs, businesses, shops and services that meet the needs of local people and protects and enhances the quality of the local environment and amenities in a sustainable manner"
The development concept is based on a few spatial restricting elements:

- Transport- defines the movement system
- Environment- defines the environmental services
- Economic opportunities- defines the key economic opportunities
- Broad land use- defines other land uses like: residential, education etc.

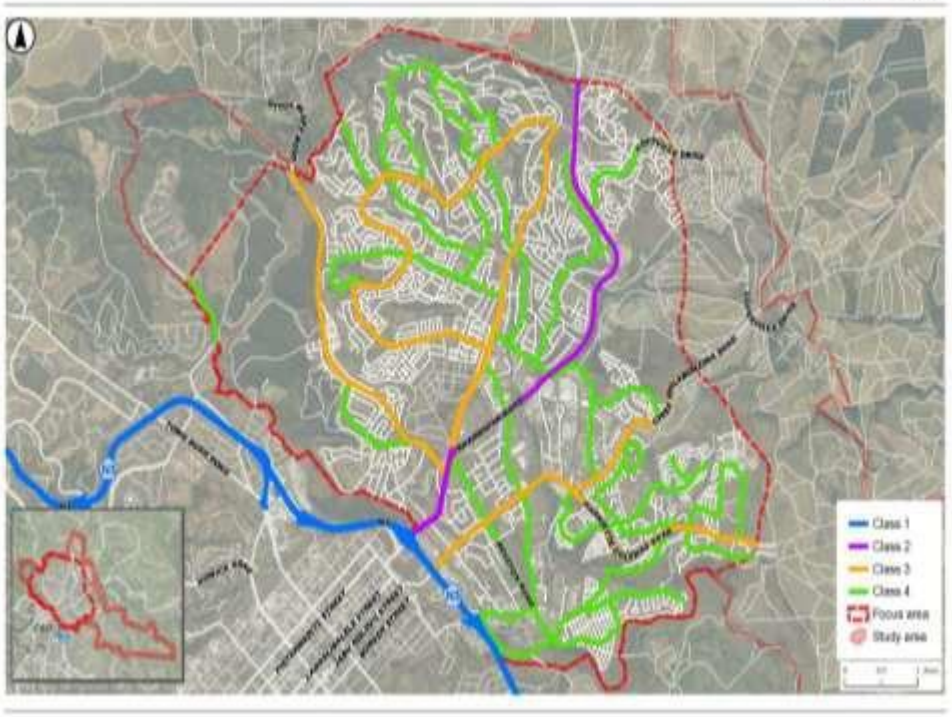
The NA LAP and surrounds study area forms the northern portion of the Msunduzi Municipality. The commercial/ retail component of the study area is primarily found along the Dr Chota Motala corridor which directs links the study area to the Central Business District of Msunduzi. The industrial/ warehousing/ logistics component is directly accessible from the N3 and therefore has regional linkage as well as linkage to the Central Business District. The major environmental component falls within the Bishopstowe area and has a scattering of households in it. The formalised portion of the NA LAP and surrounds study area falls within wards: a portion of ward 25 and wards: 28, 29, 30, 31, 32, 34 and 35. Ward 38 of the study area is the least formalised with agricultural land and environmentally sensitive areas. The greatest concentration of informal settlements occurs in ward 30, along the Copesville area.

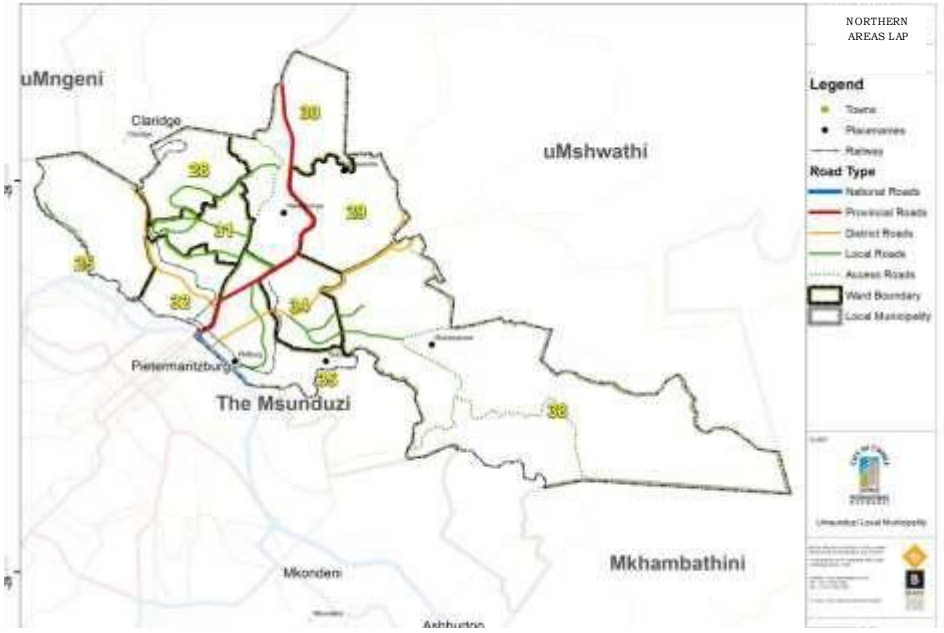
19.1 Defining the movement system

The major mobility routes within the focus area are:

- Dr Chota Motala Road - this road runs in a north-south direction. It consists of two lanes in each direction and is a Class 3 road, north of the R33 and three lanes in each direction and is a Class 2 road to the south of the R33.
- Ottos Bluff Road – this road runs in the east-west direction and is a single lane Class 3 road.
- R33 Bambatha Rd – this road runs in the north-south direction and is a single lane Class 2 Road. It's a regional road that links Pietermaritzburg with Greytown, Dalton etc.
- Ohrtmann Road – This road runs in the east-west direction and is a single lane Class 4 road with localised widening.
- Bombay Road – Bombay Road creates a loop through the Northern Areas residential area and ties in with Dr Chota Motala Road at both ends. It's a single lane road and is classified as a Class 3, however it functions primarily as a Class 4 road.
- Manning Avenue - This road runs in the east-west direction

Road hierarchy



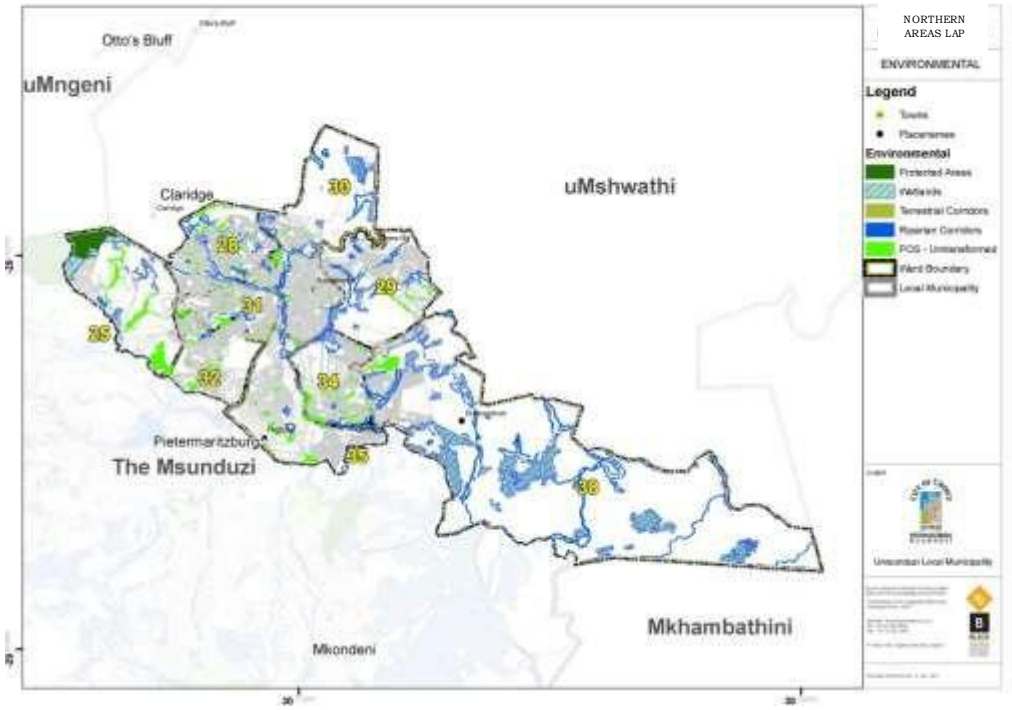


Map 18: Transport

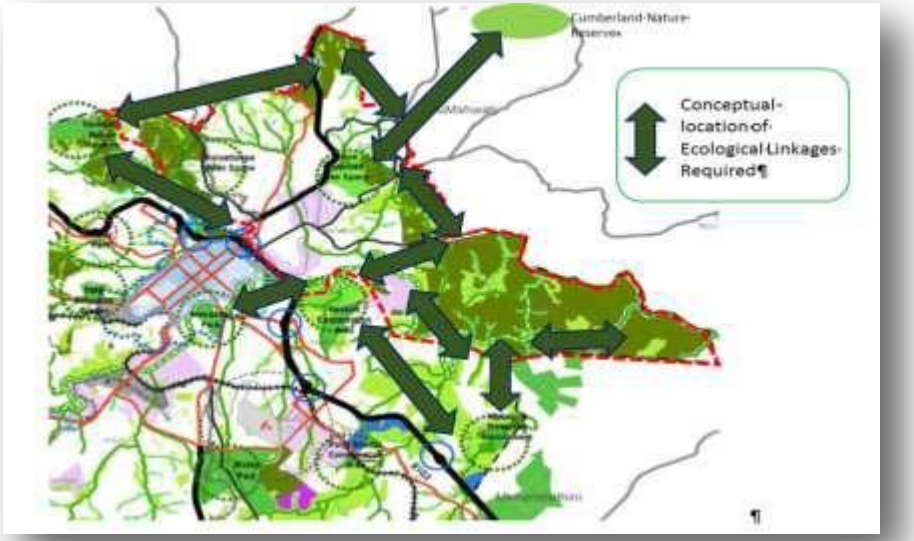
and is a single lane Class 3 road with localised widening.

19.2 Defining the Environmental Assets

Map 19: Environmental



According to the Msunduzi Environmental Services Plan, around 27% (2,110 ha) of the 7,748 ha NA LAP study area comprises open spaces that contribute towards ecosystem services delivery. These include areas of natural ecosystems, ecosystem corridors, public and private open spaces (1,570 ha); also included are 'transformed public open spaces' (540 ha) that have limited biodiversity value but play a role in delivering other amenities / services. Notably, there are no Protected Areas within the NA LAP study area. However, the Mpushini Protected Environment and



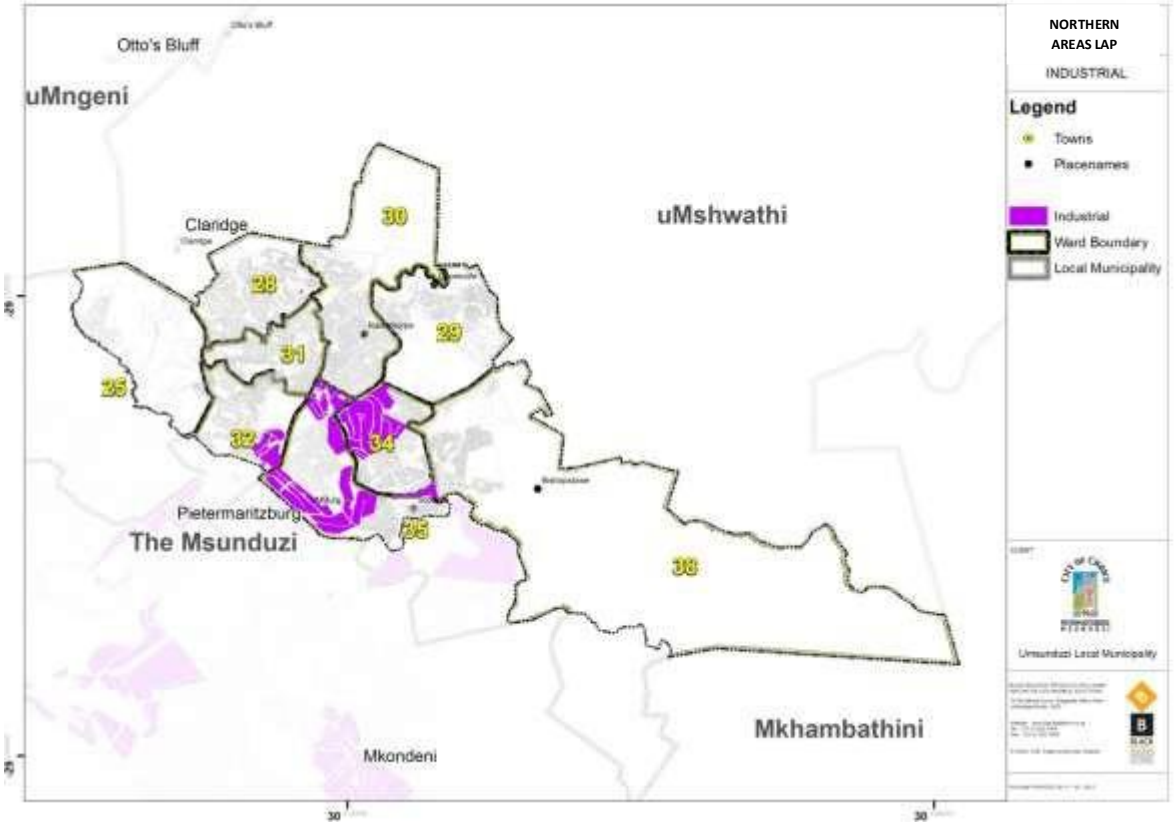
Hesketh Conservation areas are located south of the study area, Ferncliffe Nature Reserve to the west, and Cumberland Nature Reserve to the north-east. The ecological infrastructure within the N A LAP study area therefore needs to ensure ecological corridor linkages between these protected areas are retained. This can be achieved by protecting remaining areas of natural, high value ecosystem areas in the LAP, and ensuring continuous linkages between these areas, river corridor systems, and Protected Areas outside of but near the boundary of the study area.

The figure to the right shows a conceptual illustration of the key ecological linkages that should be retained between Protected Areas and other environmental asset areas within and surrounding the NA LAP study area.

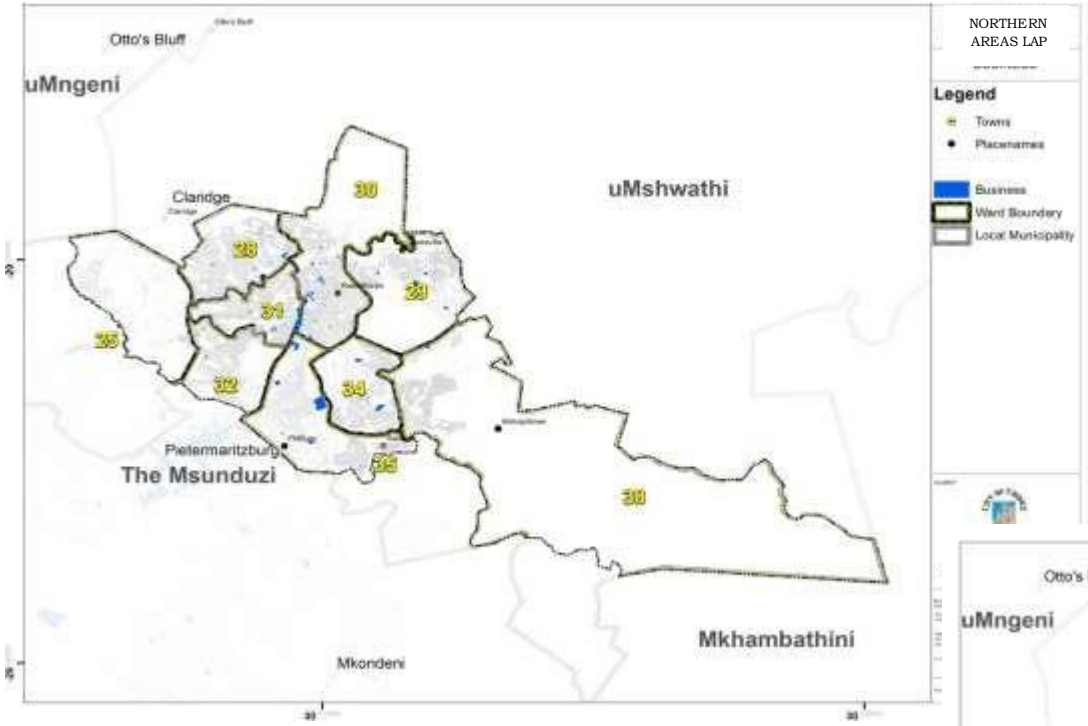
19.3 Defining the key economic activities

The study area serves as a catalytic industrial hub. The existing of commercial/ retail component as well as the industrial/ logistics component is testimony to availability of employment within these sectors, as well as underpinnings of essential revenue that feeds into the Msunduzi economic base. Agriculture also serves as a economic productive region, located especially around the Bishopstowe area. The following planning and design elements would need to be considered and / or addressed:

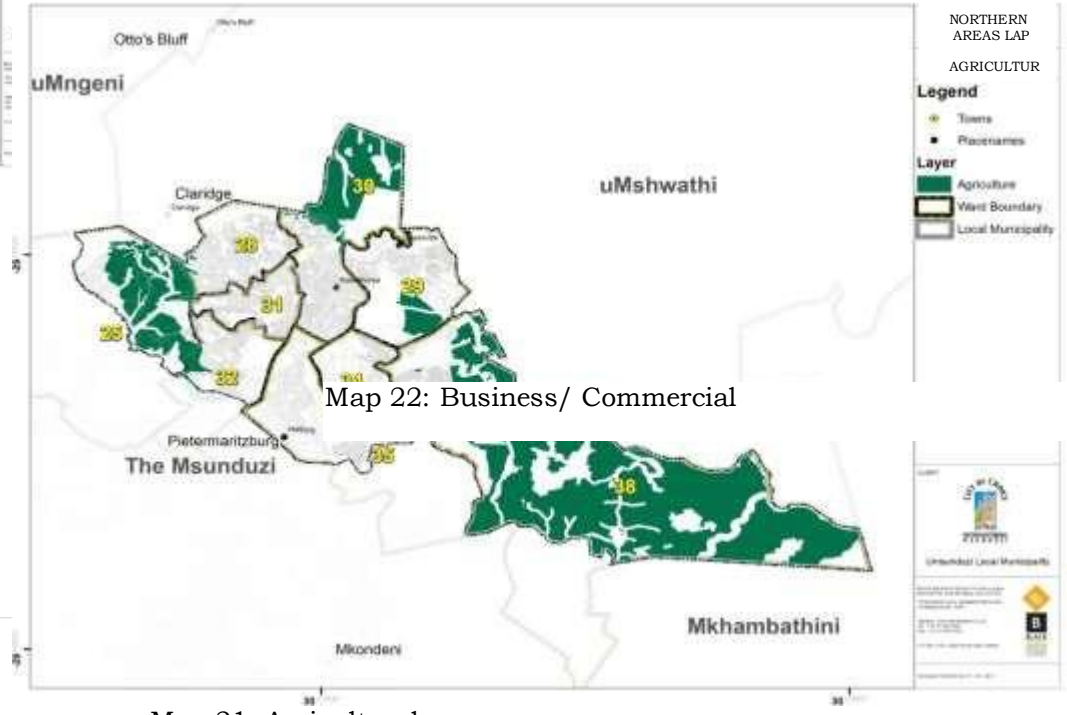
- A clear economic development vision should be established for the Study Area. The vision should feed into the debate on the economic development.
- The future role of the Study Area will be a determining factor in decision-making around the location of industrial land, public transport, commercial and social service activities which will guide future investment.
- The diversification of the local economy through the introduction of Industrial Potential/ Expansion, especially in support of other industrial activities should be explored.
- Economic development opportunities in a variety of viable sectors should be considered.
- Identify priority areas for upgrading of housing and service infrastructure.
- Apart from the intention to establish a higher-order economic development within the Study Area, focus must also be placed on protecting and growing local economic opportunities and local nodes, whilst integrating these more effectively with the regional system.



Map 20: Industrial



Map 22: Business/ Commercial



Map 21: Agricultural

19.4 Defining key land use reservations

The study area has a significant role to play with the associated undeveloped areas which could accommodate the regional facilities and functions required within the municipality, such as social services, higher density housing development and regional bulk infrastructure and service facilities.

As part of the municipality's housing development strategy, the need for areas to accommodate higher density residential development must be identified as key component towards housing delivery.

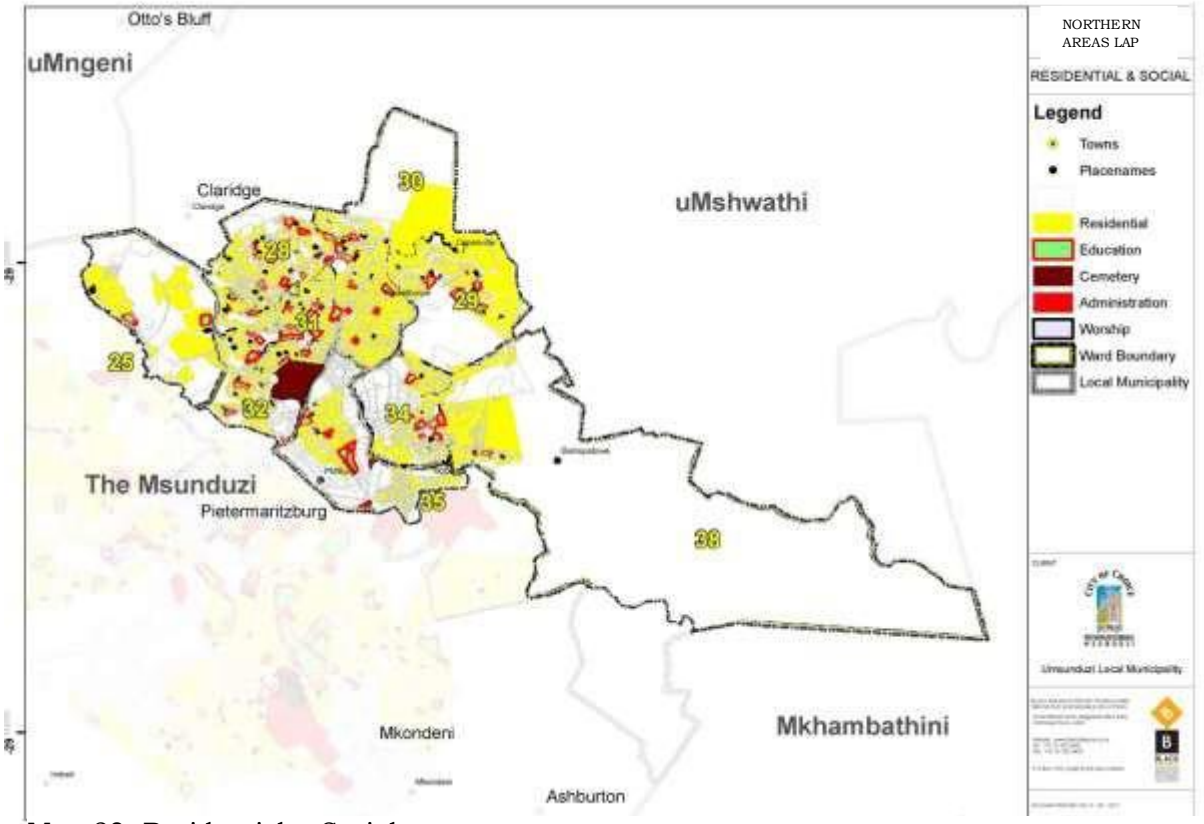
Pockets of undeveloped land in close proximity to commercial and industrial nodes should allow for a mixture of land uses by promoting commercial or mixed use development, including housing densification.

From the above the following planning and design elements would need to be considered and / or addressed:

- The potential for extending the role served by the potential commercial and/or industrial nodes in the Study Area must be explored with reference to longer term regional connectivity and development trends.

- Provision must be made for the improvement of social and government services in and around the Study Area.

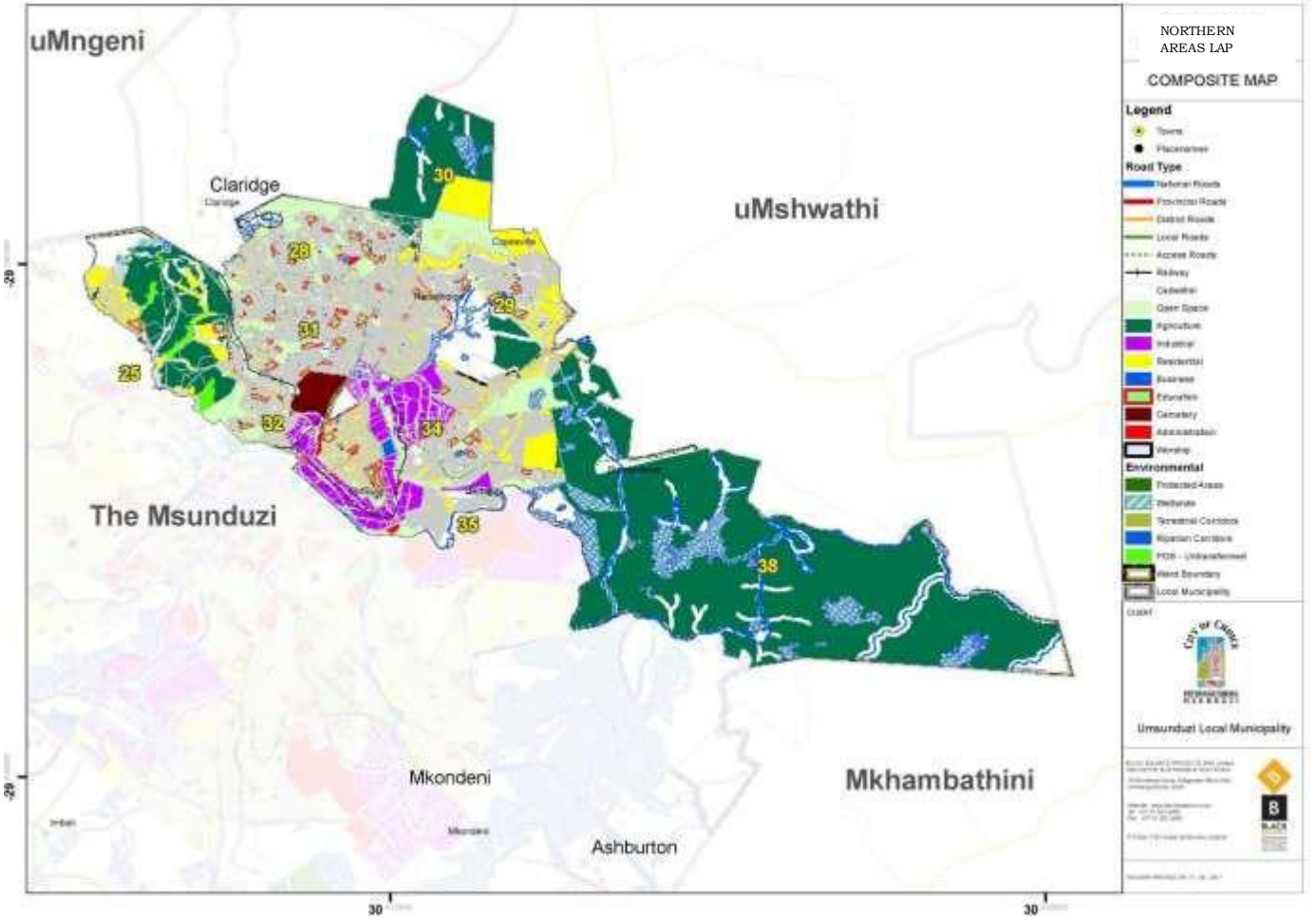
- A definitive reservation should be put in place for high density housing units, extension of commercial areas and the extension of industrial areas, as well as any reservation required for bulk infrastructure facilities.



Map 23: Residential + Social

20 CONCLUSION

The development concept represents a combined development vision for the NA Local Area Plan and should be considered in conjunction with the earlier research conducted as part of this study. The combination of the varying land uses per the study areas is starting point of the Development Framework, as depicted in the associated composite map. The proposed associated land use controls and infrastructure implications for the development concept as well as the overall conceptual framework will be addressed within the next phase of the study. This will contribute to the refinement of this development concept into the final NA LAP



Map 24: Composite Land Use Map

21 INTRODUCTION

As a result of the updated Status Quo report; its findings and key issues identified and discussed with roleplayers, the broad development concept plan was formulated as described herein. The report provides a brief indication of the existing and potential regional functions of the Northern area which is then translated into a series of associated development Goals and Objectives. These goals and objectives are further linked to performance criteria which guide the spatial development concept illustrated herein.

22 REGIONAL FUNCTIONS OF THE NORTHERN AREA

22.1 Role of the Northern Areas LAP

The Northern Areas LAP (NA LAP) forms part of the Northern Area Based Management areas of Msunduzi Local Municipality. Msunduzi Local Municipality is separated by Area Based Management Zones namely: Northern Areas (Study area), (CBD, Ashburton, Eastern Areas), Edendale(Greater Edendale and Greater Imbali, Vulindlela.

The repercussions of the apartheid era policies created an existing spatially segregated municipality, which resulted in the agglomeration of economic opportunities in the (CBD, Ashburton & Eastern area management zone) and the Northern area management zone. The Greater Edendale and Vulindlela area based management zones are less developed and economically actives then the above-mentioned zones.

The NA LAP consists mostly of formal built up areas (along the centre and towards the western boundary) and agriculturally zoned land towards the western boundary and in pockets of the northern and eastern boundaries.

The NA LAP aims to align with the N3 strategic Corridor Development Plan and the goals and objectives contained in the KZN Provincial Growth and Development Plan. The current social, economic, agricultural and industrial opportunities as well as its location along the N3, provides opportunities to connect several local economies within Msunduzi as well as promoting regional priority intervention areas along the N3 intersections.

The CBD, Ashburton & Eastern Area Based Management Zones provide the majority of Employment opportunities within Msunduzi, however the Northern ABM is a very competitive runner up on that regard. The major difference between the two ABM's is that the Northern have been developed to capacity resulting in development and service delivery constraints. The NA LAP should consider looking at increasing densities along major corridors, to increase activity along major routes and utilization of existing resources.

22.2 Development Principles

The following provides an overview of principles, approaches and concepts forming the basis for the strategic assessment and the subsequent Spatial Development Concept for the NA LAP. While

the IDP identifies a wide range of guiding principles, the following represents a selection of the most important guiding aspects:

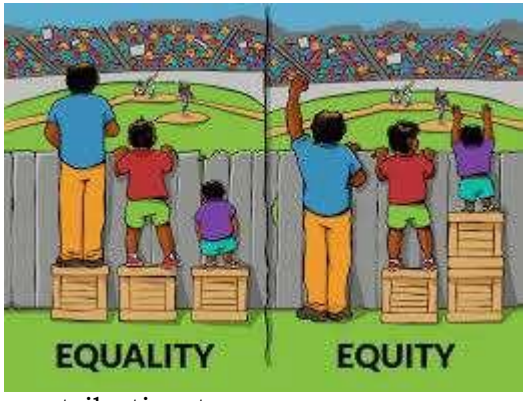
- Promoting an Equitable City
- Promoting an Efficient City
- Promoting a Sustainable City
- Promoting an Integrated City

22.2.1 Promoting an Equitable City

Everyone affected by land use management and land development actions or decisions must enjoy equal protection and benefits. In the past the planning and management of land use has been characterised by extreme inequality. Land use management decision-making must be equitable and must address the inequitable legacy inherited from decades of planning in the interests of a racial minority.

Land use management norms based on this principle are:

- Active participation of Communities in Land Development;
- Public involvement in land use planning and development processes must be inclusive;
- Land use regulators and planning authorities must ensure past injustices are not proliferated;
- The appropriateness of land use must be determined on the basis of its contribution to area;



- Each development proposal should be judged on its own merits,
- Land development should result in security of tenure, including individual and communal tenure;

Where land development takes the form of upgrading an existing settlement, it should not deprive beneficial occupiers of homes or land or, where it is necessary for land or homes occupied by them to be utilised for other purposes, their interests in such land or homes should be reasonably accommodated in some other manner.

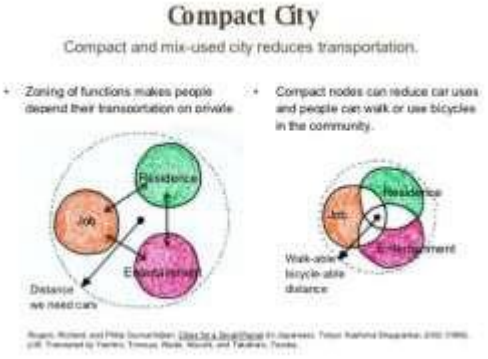
22.2.2 Promoting an Efficient City

The desired result of land use and/or development must be produced with the minimum expenditure of resources.

Optimising land use management and development opportunities requires efficiency in institutional arrangements and operations, adopted procedures, the settlement form or pattern, and the utilization of man-made or natural resources during land planning and development.

Land use management norms based on this principle are:

- Land use planning and development should promote the development of compact human settlements, combating low density urban sprawl;
- The areas in which people live and work should be



close to, or integrated with, each other;

- Land development should optimise the use of existing bulk infrastructure and social facilities;
- Land development should take place within the fiscal, institutional and administrative means of the municipality;
- The contributions of all sectors of the economy (government and non-government) to land development must be interrelated;
- The municipality should co-ordinate the interests of the various sectors involved in or affected by land development.

22.2.3 Promoting a Sustainable City

The resources making up the natural and built environment should be sustainably managed and used. Land use and development decisions must promote a harmonious relationship between the built and the natural environment. The long-term availability of physical, social and economic resources to support development should be thoroughly investigated.

Land use management norms based on this principle are:

- The use and development of land should promote the protection, enhancement and management of the natural environment;
- Land development should promote the establishment and maintenance of viable communities;
- Land development should meet the basic needs of all citizens;
- Land may only be used or developed in accordance with legal processes;
- Decisions affecting land development and land use should firstly take into account national, provincial or local interests as recorded in approved policy and legislation;
- Land development and planning processes must integrate disaster prevention, management or mitigation measures;
- Decision-making must ensure the safe utilisation of land by taking into consideration risk factors such as unstable geological conditions and flood lines;
- Land which is currently in agricultural use should only be reallocated to other uses where real need exists and prime agricultural land should remain in production.

The life cycle costs of land development and its likely side effects on the environment, community, and the economy need to be understood and taken into account to sustain its benefits, while minimising or mitigating any likely negative impacts.

22.2.4 Promoting an Integrated City

The separate and diverse elements involved in development planning and land use should be combined and coordinated into a harmonious whole. The principle of integration reflects the need to integrate systems, policies and approaches in land use planning and development

Land use management norms based on this principle are:

- Land use planning and development decisions should take account of and relate to the sectoral policies of other spheres and departments of government;
- Land development should contribute to the correction of the historically distorted spatial patterns;
- Land use and development should promote efficient, functional and integrated settlements;
- Residential and employment opportunities should be located in close proximity to, or integrated with, each other;
- Land use and development should promote racial integration;
- Land use and development should promote mixed use development.
- A diverse combination of land uses, also at the level of individual erven or subdivisions of land, should be promoted;
- Land use and development should be determined by the availability of appropriate services and infrastructure, including transportation infrastructure;

- Land development in rural and urban areas should be promoted in support of each other.

Large gated estates (business park or residential) tend to have a negative impact on city form, connectivity and integration.

22.3 Spatial Development Directives

22.3.1 Emerging Spatial Structure of the North

The Msunduzi SDF indicates that the municipality's growth structure is largely aligned and influenced by the Sustainable Urbanism Criterion. The pillars within the sustainable urbanism concepts are aligned towards specific departments for future planning and implementation purposes for example;

- Social Inclusivity – Community Services and Social Equity Committee; and
- Sustainable Services – Infrastructure Services ABM Management and Facilities Committee.
- Global Connectivity – Msunduzi Municipality, City Manager;
- Productive Systems – Economic Development and Growth Committee;
- Ecological Infrastructure – Environmental Department;
- Sustainable Transport – Msunduzi Traffic and Transport Authority;
- Quality Urbanism – Corporate Strategic Planning Committee;

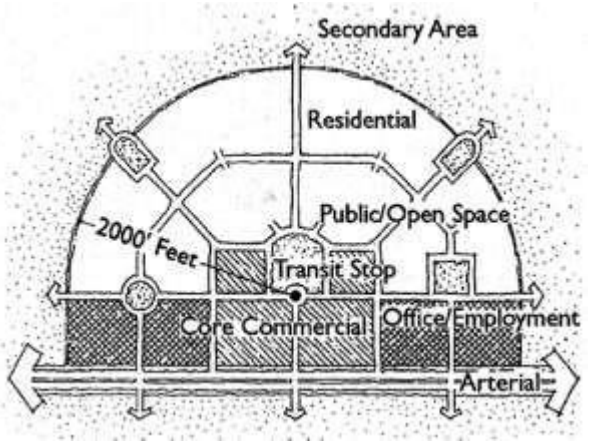
The municipal spatial structure aims to address the need for transformation through interventions that seek to bring about growth, development and change. The municipality aims to direct investment equally as opposed to concentrating on the areas of prominence.

The emerging spatial structure follows the notion of polycentric growth which breaks down the existing distribution of opportunities through the development of new centers throughout the Municipality. The approach aims to assess all areas of need within the municipality an see the establishment of industrial, commercial and retail investment at different scales over time.

23 DEVELOPMENT GOALS, OBJECTIVES AND FRAMEWORK

23.1 Goal 1: To promote a sustainable settlement pattern

The developed portion of the study area accommodates three major land uses: residential, commercial and industrial. The greater Bishopstowe area is the only area that promotes environmental and agricultural practices.



The need to promote cluster development is deemed relevant towards efficient land use. Cluster development is already a component of the study area, and can be considered efficient. The promotion of other economic practices within the predominantly residential areas, may allow for greater local economic development, since the economic zones are already oversubscribed.

23.1.1 Residential Clustering

The proposed new housing settlements are intended to become a liveable space with strong social bonds. Residential proposals are made within the existing development footprints to foster efficiency in land use

23.2 Goal 2: To Improve Connectivity and Circulation

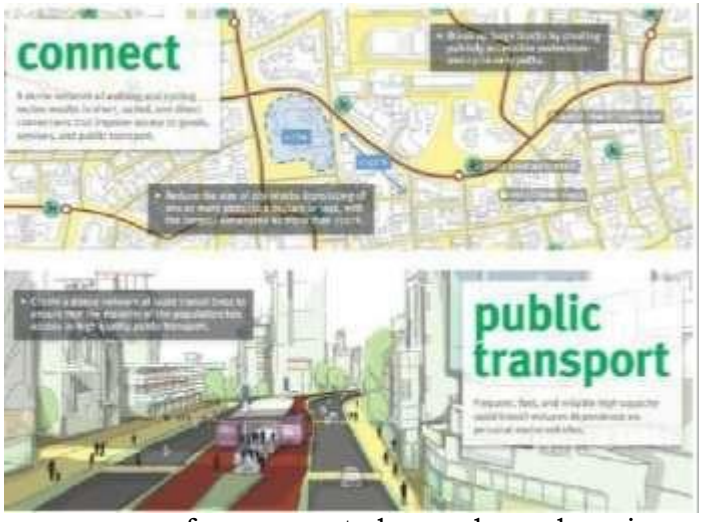
Connections and circulation will be enhanced through road upgrades and proposed new links, as well as the medium term plans for the Integrated Rapid Public Transport Network (IRPTN).

Non-motorised transport such as walking and cycling will be promoted through the provision of pathways, pedestrianized streets, pedestrian crossings and bicycle routes.

Public transport in the form of mini bus taxis and buses is the current mode of transport in the area. However, the medium term plan is to roll out the IRPTN to the NA LAP area.

23.2.1 Public Transport

Circulation networks provide convenient, efficient, affordable and safe movement of people, goods and services (CSIR, 2000). Performing movement networks have the following characteristics:



- Give priority to non-motorised modes of transport and the needs of public transport;
- Maintains convenience, safety and multiple use patterns; and
- Accommodates a range of movement demands and socio-economic functions.

The proposed IRPTN routes will be used as the spine for the development of high density residential and will seek to regenerate and consolidate existing commercial, administrative and social nodes.

23.2.2 Enhanced Pedestrian Movement

One of the well-known sustainable elements of the urban system is the promotion of non-motorised transport options. With the presence of residential development, schools, retail, social and industrial developments in the area, NA LAP presents itself as a suitable place to encourage non-motorised movement. An enabling factor is the availability of suitable pathways and streets and the future IRPTN.

23.3 Goal 3: To create Opportunities for Economic Activities

The NA LAP study area has within it, two important economic components which include the retail/ commercial component and the industrial component that provide jobs and revenue to the Msunduzi Municipality.

The retail commercial component can be found along Dr Chota Motala Road, Allandale Drive and Bombay Road etc. The industrial component can be located along Ohrtmann Road, Chesterfield Road, Birmingham Road, Sheffield Road and Willowton Road etc.

Potential for small-scale agriculture exists on around the Bishopstowe area, with emphasis on tourism opportunities in the area. Using the natural resources base to create opportunities for economic activities in appropriate locations and enhancing

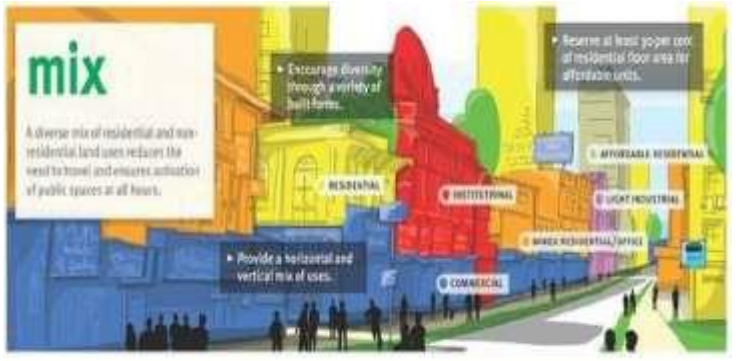
connectivity is an essential aspect of the NA LAP Local Area Plan.

23.3.1 Small scale Agriculture and Tourism

The Bishopstowe settlement is located on environmentally sensitive land. Land within this area can be used to enhance tourism opportunities and where applicable allow for small scale agricultural activities, thereby promoting Local Economic Development.

23.3.2 Mixed Use Precinct

The proposed Mixed Use precinct is not only to accommodate social facilities but to serve as an avenue for economic activities, as well as to improve accessibility to this area and to promote higher density residential development in line with what the Msunduzi IRPTN is attempting to achieve. Essential retail facilities are already within the corridor, that being Dr Chota Motala Road and surrounds.



23.4 Goal 4: To Promote Infrastructural Development Adequate

infrastructure is essential to facilitate the future growth of economic activity in the NA LAP S LAP. This includes water and sanitation, movement, waste management and public/social facilities.

23.5 Goal 5: To promote environmental integrity

- Securing critical Ecological Infrastructure

To protect and enhance the supply important ecosystem services in the study area, including buffering people and infrastructure from the impacts of climate change, an integrated approach is needed to facilitate the protection and management of a robust, climate resilient ecological infrastructure and its associated socio-economy. This can be achieved through appropriate forms of development investment that optimise the opportunities presented by the natural environment, and protect the integrity of ecological services infrastructure.

- A sustainable approach to Municipal Servicing

Municipal service infrastructure should be planned for based on current and future development demand and intensity. This includes the provision of adequate waste collection services and waste drop off / transfer stations to limit the propensity for illegal dumping, particularly of industrial waste. Development implementation phasing should be planned to respond to infrastructure rollout / upgrading timeframes, to limit the risk of environmental pollution and damage from inadequately serviced development.

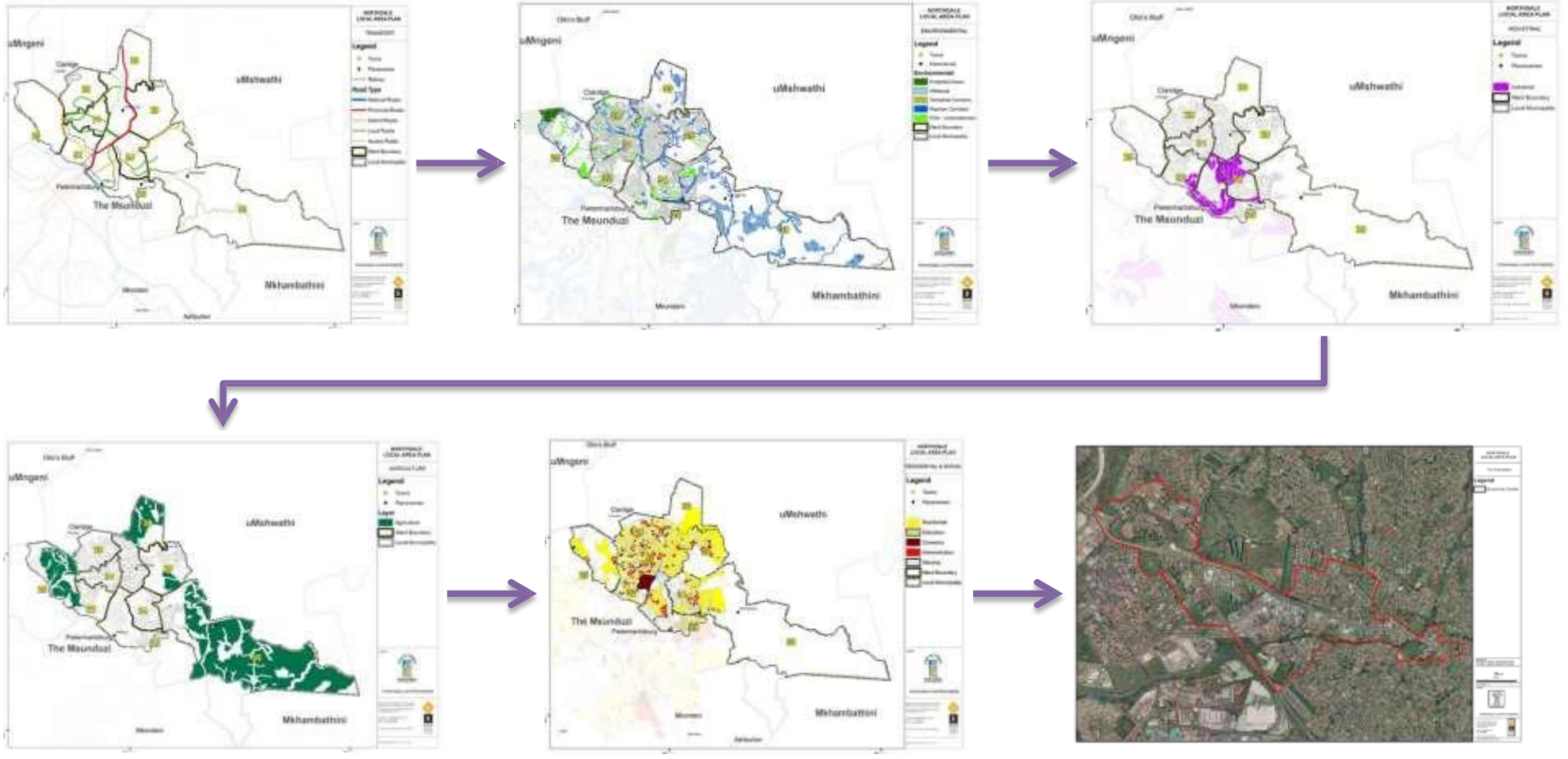
Green infrastructure design and building approaches should be promoted that enhance the provision of ecosystem services in the built landscape, and reduce negative outputs of transformed landscapes that ecological infrastructure must absorb.

- Using the Natural Environment Sustainably to grow the Green Economy

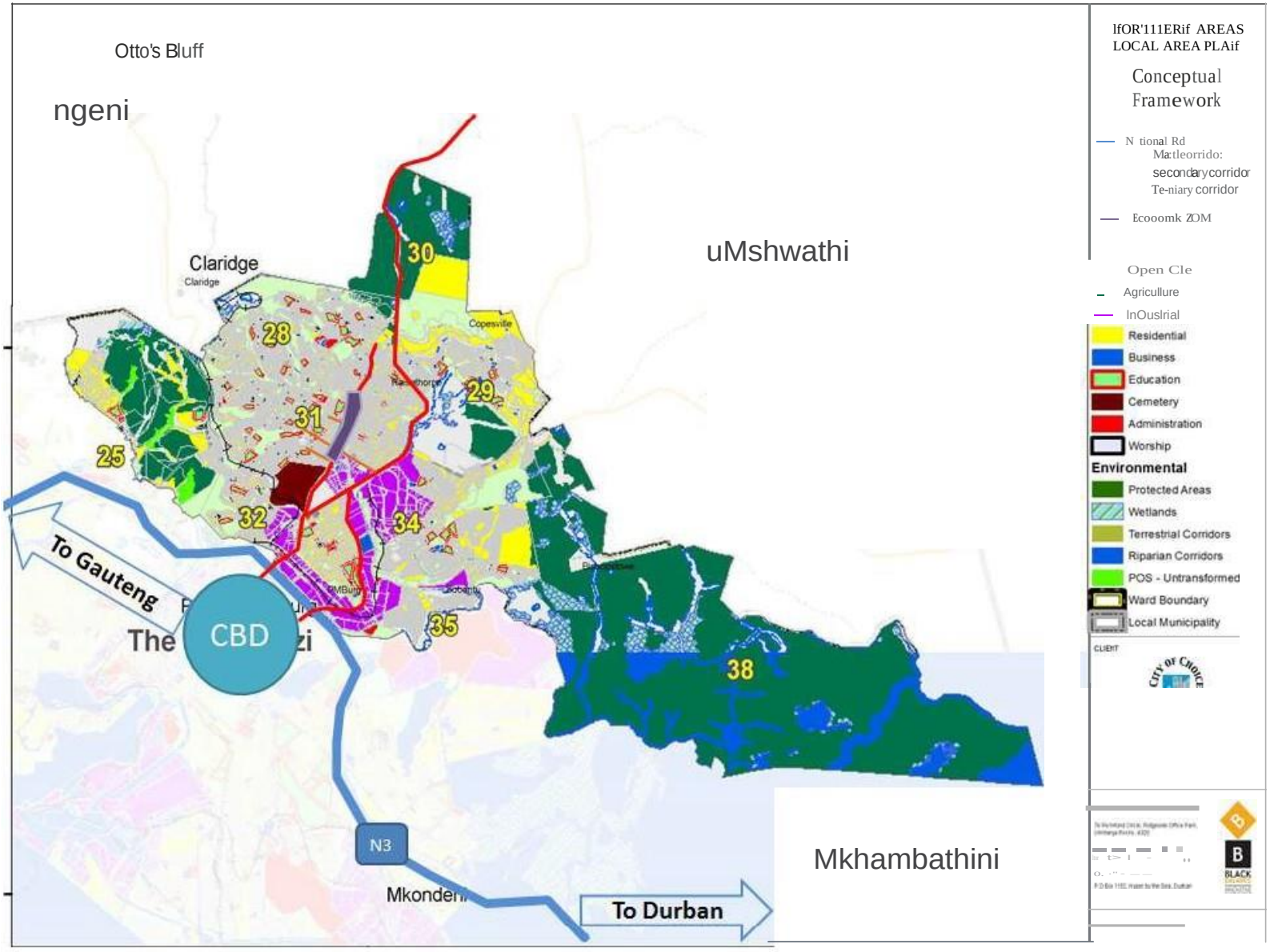
Harnessing ecological systems to support growth of the green economy should be explored (e.g. harnessing job creation, livelihood and green energy opportunities associated with alien plant biomass, sustainable harvesting and production of indigenous natural products such as medicinal plants and fibres, community based tourism development, etc).

Current and future food security requirements should be addressed through ensuring areas are set aside for urban agriculture, and the adoption of conservation agriculture approaches is promoted in a programmatic manner.

24 COMBINED SPATIAL CONCEPT



Map 25: Consolidated Framework



25 CONCEPTUAL FRAMEWORK

The Conceptual Framework provides details of the development concepts formulated in the preceding section of this report. Strategies will be depicted spatially where applicable to guide the intended spatial future of the Northern Areas. Statements of intent will be made for proposed land uses as these will form the basis of the decision making process towards development in the core economic centre of the Northern areas. The framework does not award land development rights to individual properties, but creates opportunities for public and private investment. Issues of land ownership and acquisition processes will have to be undertaken by either private individuals or the municipality in order to facilitate physical development. The framework could be used by the Municipality to motivate for funding for urban reconstruction initiatives.

25.1 Proposed Land Uses

This section of the report provides details on the land uses being proposed in the different land use designations for the LAP. The land uses proposed will include the following:-

1. Commercial and Retail
2. Residential
3. Mixed Use
4. Public Facilities
5. Industrial

The above land uses are applicable to the entire Northern Areas LAP, however for purposes of this section, the key uses concentrating along the core economic centre will include:

1. Commercial
2. Residential
3. Mixed Use

25.1.1 Commercial and Retail development

The preferred location for retail and commercial uses is within the CBD boundary (see Figure 1). This area represents the core mixed use district which can accommodate a range of commercial, residential and public facilities. Within the core CBD area, a higher intensity of activity is encouraged in order to achieve the optimum use of space. The following parametres are advised in the CBD:-

- The ground floors of all buildings in this core are to be occupied by retail uses, restaurants, coffee shops, banks and other publicly accessible uses.
- Office space and residential uses are to be permitted on upper floors of buildings in this core.
- All ground floors are to be provided with publicly accessible pedestrian arcades.

Another aspect of the commercial component which attention has been given to is small-scale retailing. Designated zones close to the intersection of the main road and taxi rank would be allocated to traders. Formal trading areas will have to be erected in these areas to provide secure trading facilities to micro-entrepreneurs. These areas are located where pedestrian flows are highest.

25.1.2 Residential Development

The idea is to promote choice and a high degree of equal opportunities for affordability. Also, an important determining factor is the current on-site sanitation employed in Msunduzi, thus calling for medium density developments, particularly related to site size. These include the following:-

- High density residential zone is proposed where density can be at 50 dwellings per hectare. This relates to two or three-storey walk-ups and is proposed mainly to be developed along Dr Chota Motala Road, Baijoo Road, Tulshi Road, Mysore Road and Naidoo Road and . This area is located in proximity to the core economic activity area along Dr Chota Motala Road, thus providing a comfortable walking distance for pedestrians and feeds into phase 2 of the IRPTN for Msunduzi Municipality.
- Medium density residential zone is proposed where density can be at 25 dwellings per hectare. This relates to a clustered housing typology, semi-detached units or two storey walk-ups and can be positioned ion proximity to the core economic areas, and within walking distance from Dr Chota Motala Road, so as to provide pedestrian movement and a feeder population to the proposed IRPTN.

25.1.3 Mixed Use Development

The mixed use designation refers to areas where a range of commercial, residential and other related land uses can be provided in harmony with each other.

These areas are to be positioned along the vicinity of the core economic activities. There has already been a move along Dr Chota Motala Road, with two storey buildings that are currently retail on the ground floor and residential on the second floor. The opportunity may exist to further develop these into three-storey walk-up units, with the 3rd storey dedicated to residential use.

25.1.4 Public Facilities

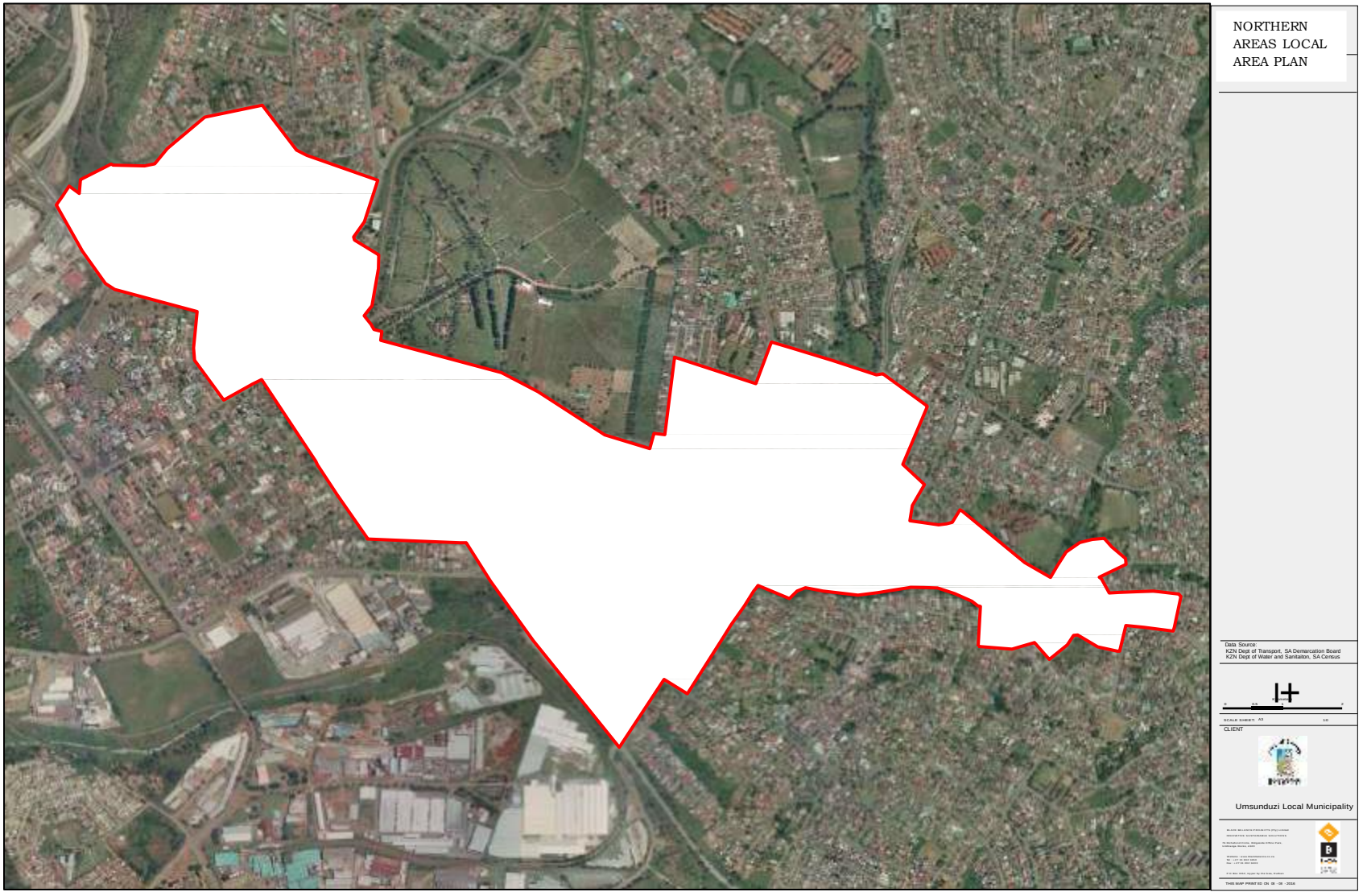
Currently there is a concentration of Education institutions (schools) in proximity to the core economic area.

The open space system exists, since a river flows through this area, however emphasis can be placed along further developing these into user-friendly areas, by means of park management and creation of areas for recreation.

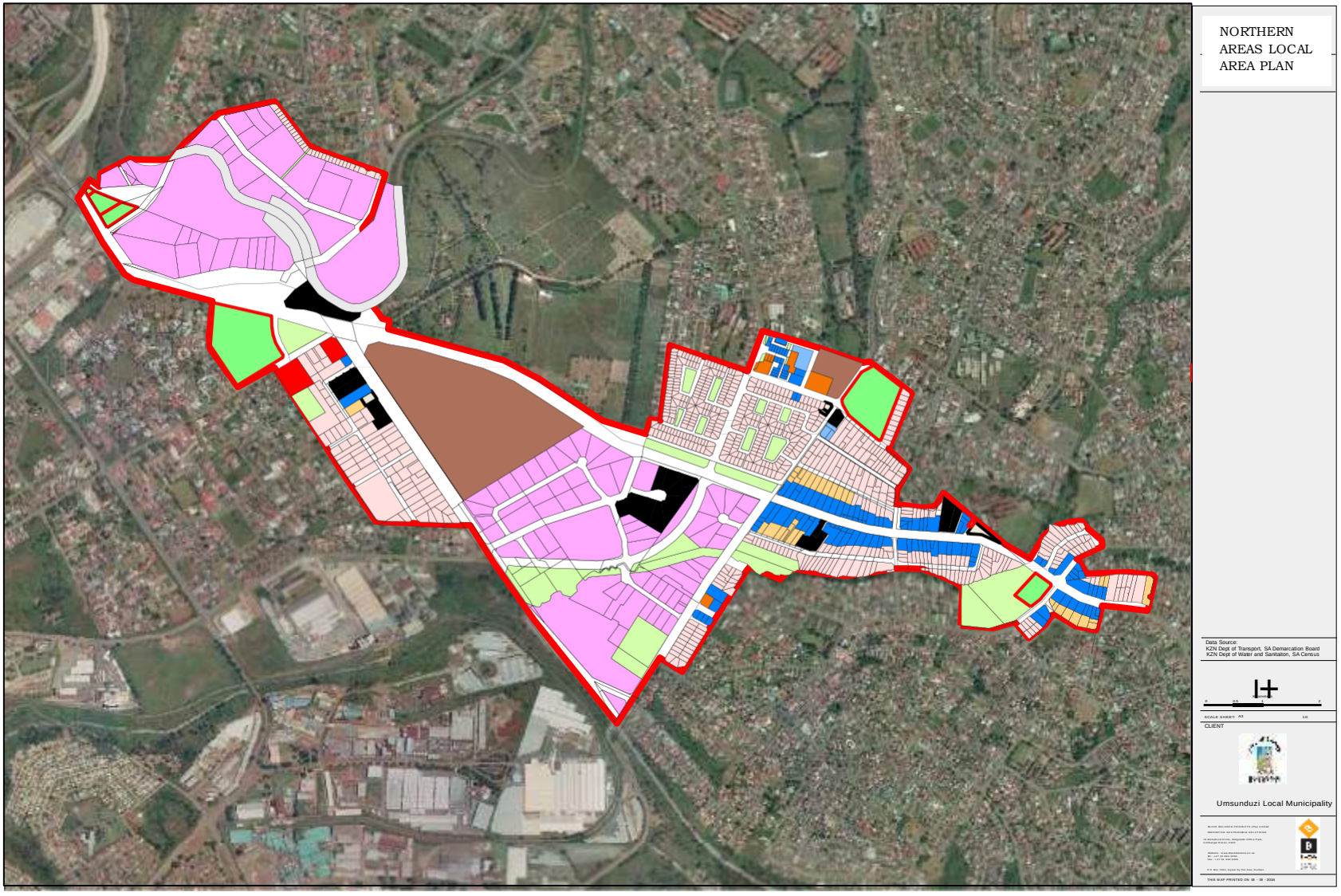
Currently, Taxi's park indiscriminately along Dr Chota Motala Road, further congesting the area, by not allowing for the free flow of traffic. A proposal exists to formalise an area along Dr Chota Motala Road as a Taxi Rank, as well as provide for formal vending areas that will house some of the informal trade occurring along the intersections along Dr Chota Motala Road.

25.1.5 Industrial Land Use

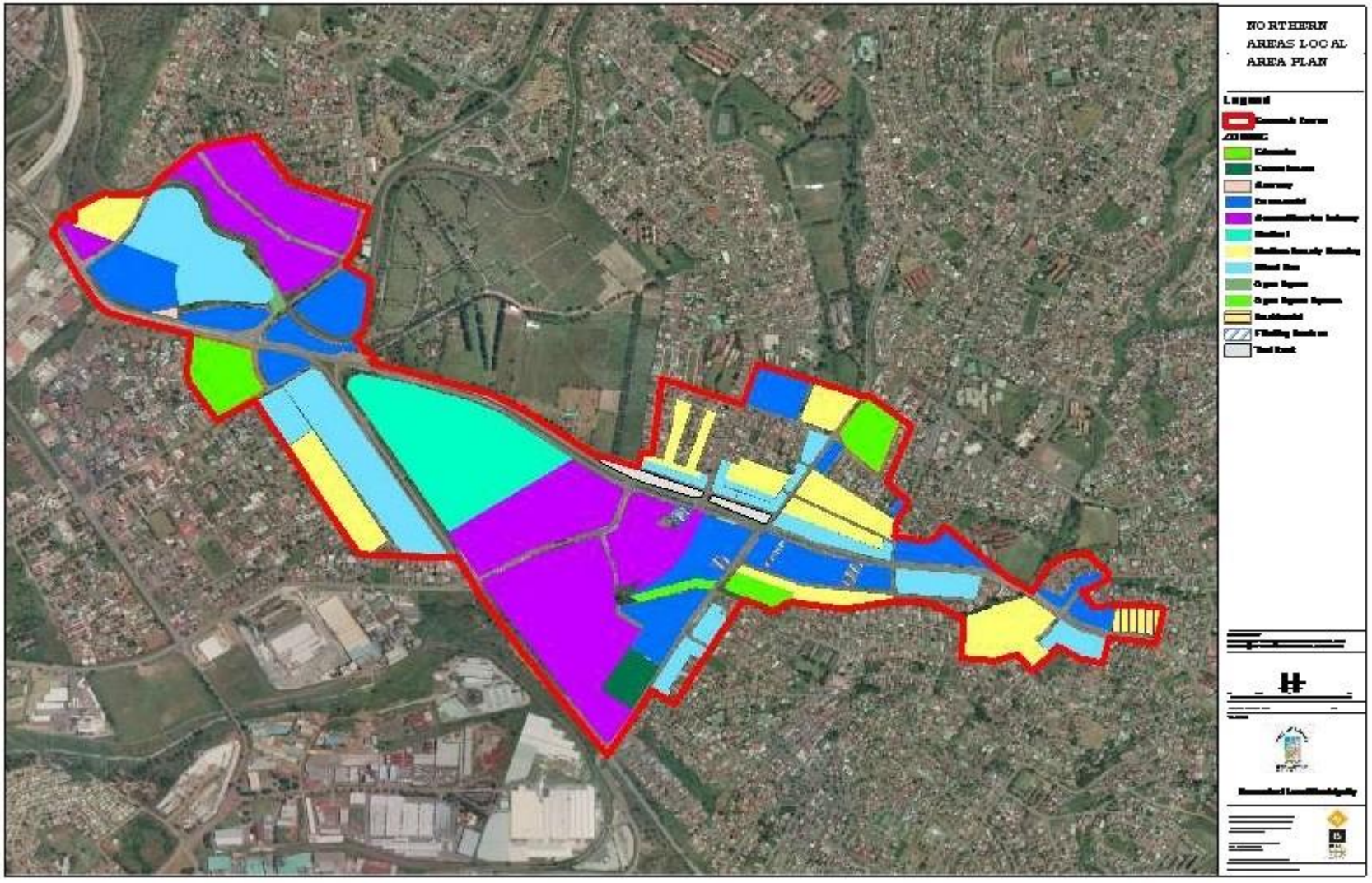
Industrial activity constitutes a major sector in the economy of the Northern Areas. The areas along Orthmann Road is already dedicated to Industrial Activity that can be defined as General Industry. This plan proposes a light to service industrial uses ofland along Dr Chota Motala Road, and Allandale Drive that will allow for the free entry of: Vehicle Repairs; Service Stations; Motor Display Areas; Parking Areas; Retail and Commercial, as well as Restaurants



Map 26: Economic Core Area



Map 27: Economic Core Area- Pmb Town Planning



Map 28: Economic Core Area- LAP Framework

25.2 Urban Development Edge

An Urban Development Edge/ Line are generally put in place to prevent disorganised and unwanted development. The edge/line is meant to promote densification and is in place to align to the infrastructure capacity of the Municipality.

In order to create the feeder population required for the IRPTN (Phase 2) to be economically viable, it is necessary to try and promote higher Density residential as well as retail development. As per the population projections illustrated in the prior section of this report, it is assumed that if the Northern Areas is expected to grow, it will impact on the environmental services as well as the Agricultural land. The table below illustrates the point that the Northern Areas may far outgrow itself, therefore probably taking development in the direction of the surrounding Municipalities of Umswati and Mkhambathini.

Table 20: Land Use Projections

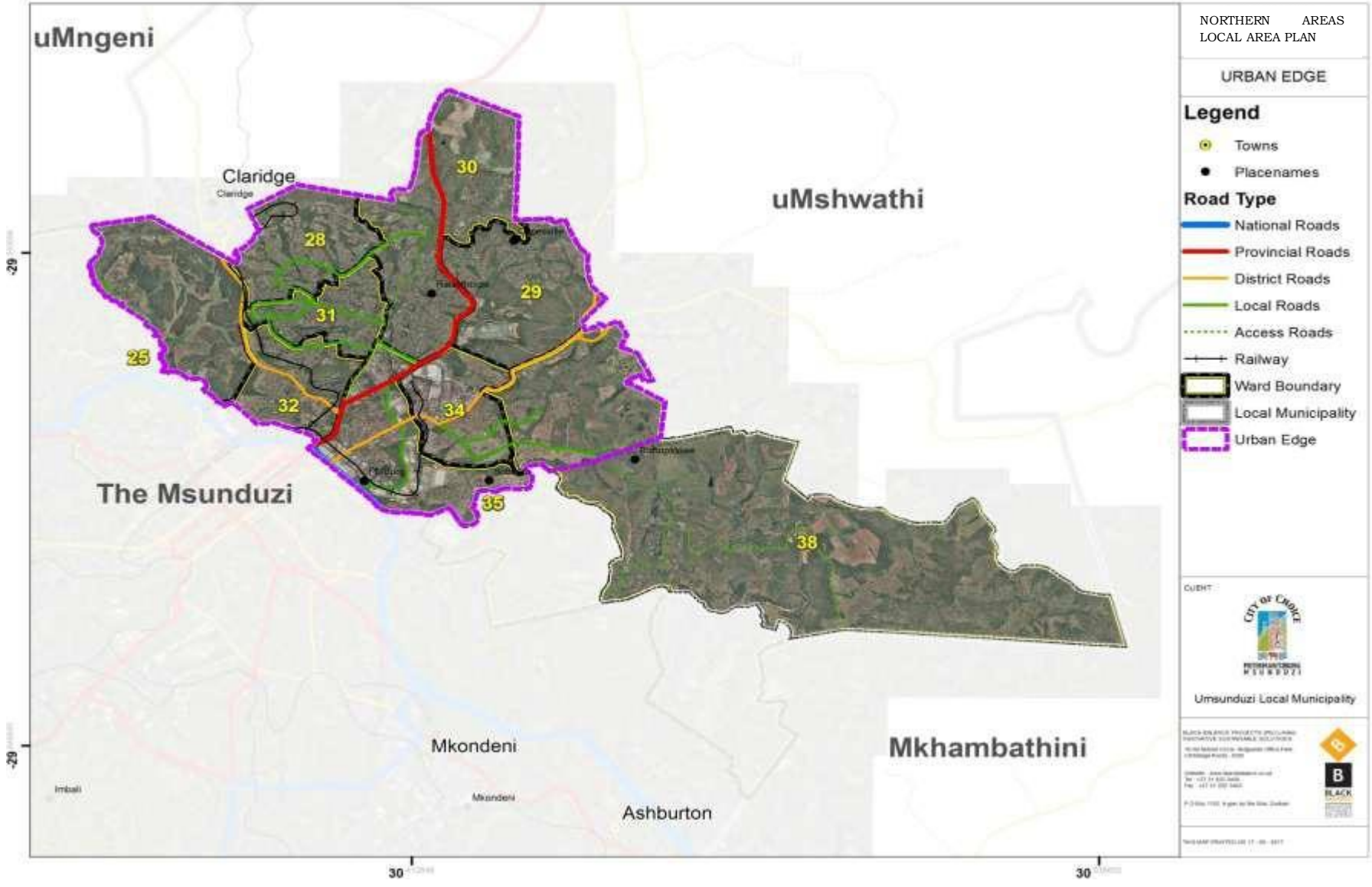
Existing Land Use	Area in hectares	Growth at 0.4%- Yr 2027	Growth at 1.12%- Yr 2027	Growth at 2%- Yr 2027
Agriculture	2831.63	2900	3201	3521
Industry	344.57	353	389	428
Residential	1755.81	1799	1985	2183
Social	111.68	114	126	139
Environmental	2111.00	2162	2386	2625
Total Land Use	7154.68	7328	8087	8896

25.2.1 Why an Urban Edge

- The current Northern Areas LAP study area is approximately 7748 Hectares. If the Northern Areas grows at the Msunduzi Municipality growth rate of 1.12% ., it is expected that the population by 2027 and associated development would outgrow the study area.
- With increasing development comes increased traffic; currently the Northern Areas experiences traffic congestion during peak hours, further development will lead to more congestion problems.
- To delineate an area where bulk infrastructure can be rolled out, thus leading to more organised development.
- To promote densification, and create more compact cities thus decreasing sprawl and inefficient land use.
- To protect available natural resources, as well as much needed agricultural land, required for food security.

It is therefore necessary to identify and delineate an area that can accommodate higher Density Residential Development as well as associated facilities, without negatively impacting on the environment or Agriculture, as well as promote the most efficient use of land and facilitate the delivery of infrastructure services in an efficient manner. The map below illustrates the proposed Urban Development Line.

Map 29: Urban Edge Line



25.3 Town Planning Scheme

In order to ensure a compact city model that allows for densification and the suggested land uses described in the preceding sections it is necessary to ensure that the Town Planning Scheme is in place and allows for the proposed uses. The Northern Areas LAP has taken a bold stance to promote densification, in line with the required feeder population for the IRPTN. It is therefore essential that the Town Planning Scheme is revised to promote this densification. It is noted that the Town Planning Scheme for Msunduzi does not include Ward 38, this is primarily agricultural Land. In terms of the Urban Edge Delineation, the map below illustrates the area covered by the Town Planning Scheme, the proposed area outside the Scheme but within the Urban Edge. This would mean that the Land Use Management Section of the Msunduzi Municipality extend the current scheme area to include all areas within the Urban Edge Line. It is apparent that a portion of Ward 30 and a large portion of Ward 38 do not have a Scheme in place.

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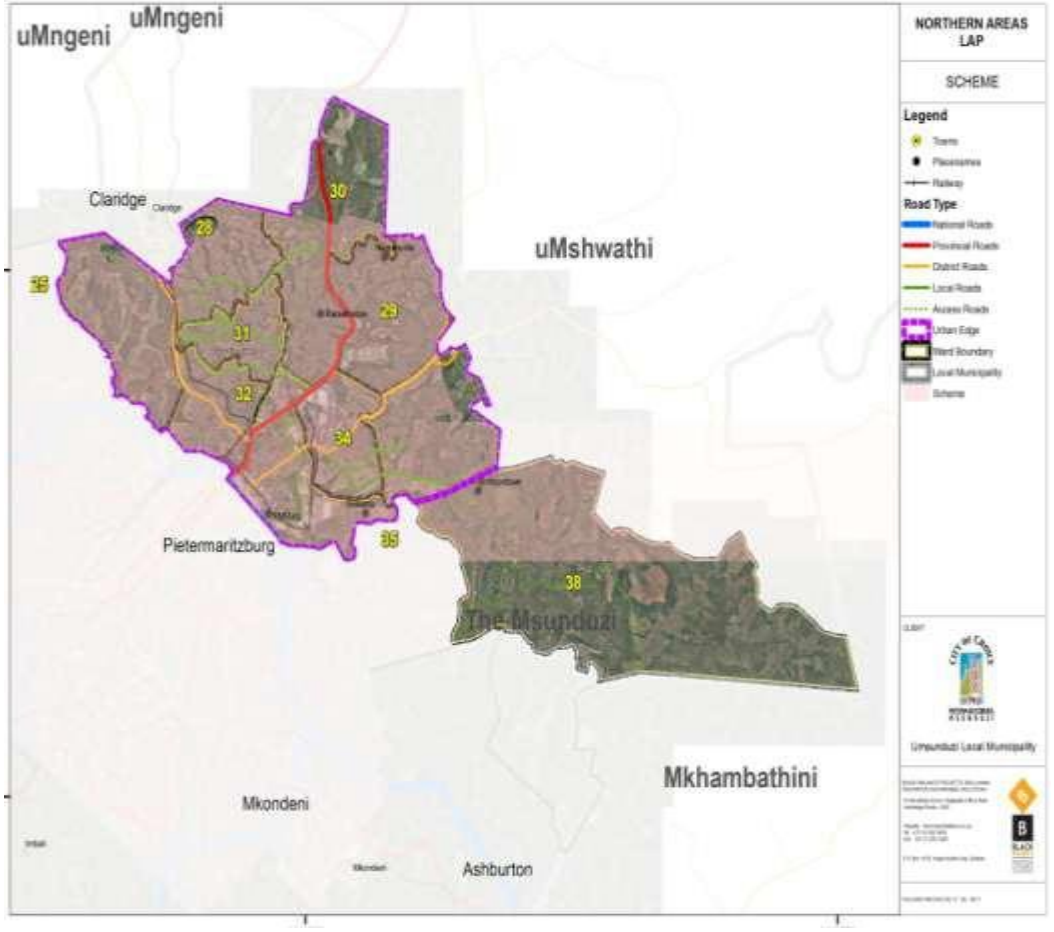
Map 30: Scheme Area



25.4 Urban Regeneration

Figure 9: Regeneration Example

Urban regeneration is the attempt to reverse the decline and deterioration of a neighbourhood, or precinct by both improving the physical structure, and, more importantly and elusively, the economy of those areas. In all regeneration programmes, public money is used as an attempt to pump prime private investment into an area.

It is apparent that there has been a change in the appearance of Dr Chota Motala Road, with infrastructure investment, in terms of upgrading the road into a two lane both ways structure, as well as some private investment that has seen the construction of newer buildings, and refurbishment of other buildings (example the Caltex garage), as well as the improvement of the area with newer retail/ restaurants (like MacDonald's). However there seems to still be a mismatch between the old and the new, with private businesses still operating in buildings that are in need to some repair and maintenance. Dr Chota Motala Road, which is the economic core for the Northern areas, is in need of an Urban Regeneration

Allandale Drive which has recently seen a marked increase in retail activity is also in need of regeneration. The figure alongside is an example of how the area can be regenerated.

25.5 Transport Framework

25.5.1 Proposed Road Upgrades

In addition to the road upgrades that are committed, a set of possible road upgrades have been identified. This was done through an appraisal of the status quo, the future IRPTN system and the proposed land use proposal.

Serious consideration was given to ensuring alignment between the IRPTN feeder/complementary routes and the proposed road upgrades. The idea is that these upgrades act as the precursor for the implementation of the IRPTN system.

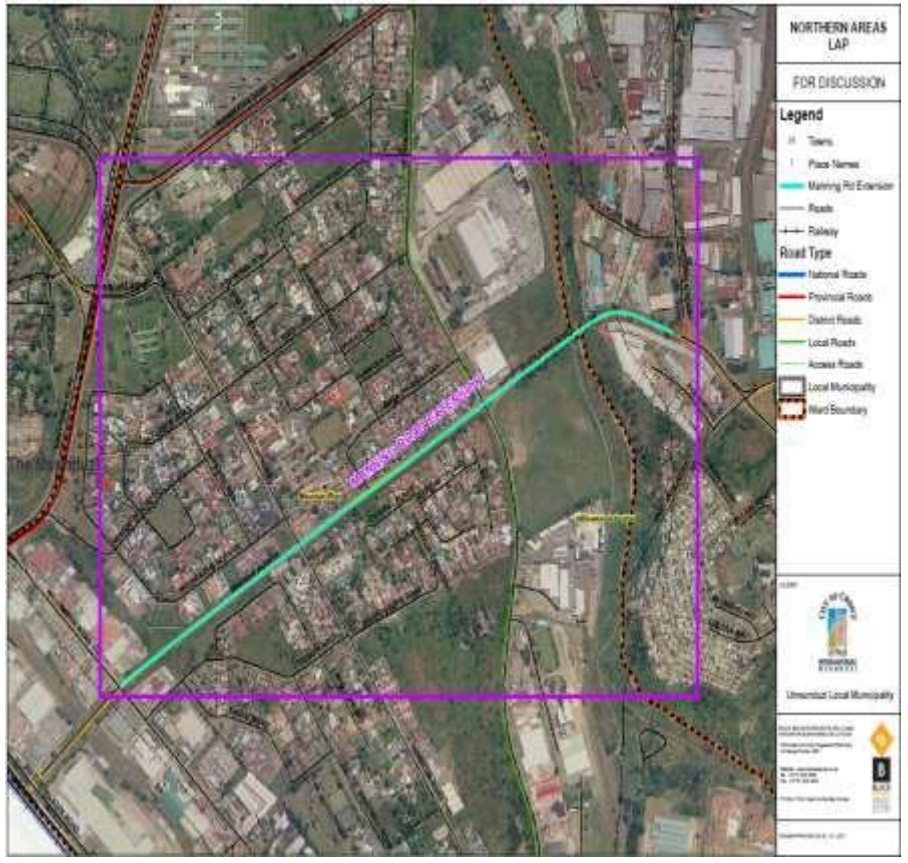
Proposed upgrade (a) Prestwich Place to Salford Rd link is a proposal developed out of the need to join and integrate these two commercial nodes and improve pedestrian and vehicle connectivity. This route will also tie in with (3) the Bombay Road Extension.

Upgrades (b to f) i.e. the widening of Larch Rd, Manning Road, Orthmann Rd, Bambatha Rd, Ottos Bluff Rd and Allandale Rd w ere identified on the back of the site visits. The Larch Rd/Manning Road and Orthman Rd proposals are in particular important as they provide for additional capacity over the N3, thereby reducing reliance on Dr Chota Motala Rd and freeing up capacity for IRPTN.

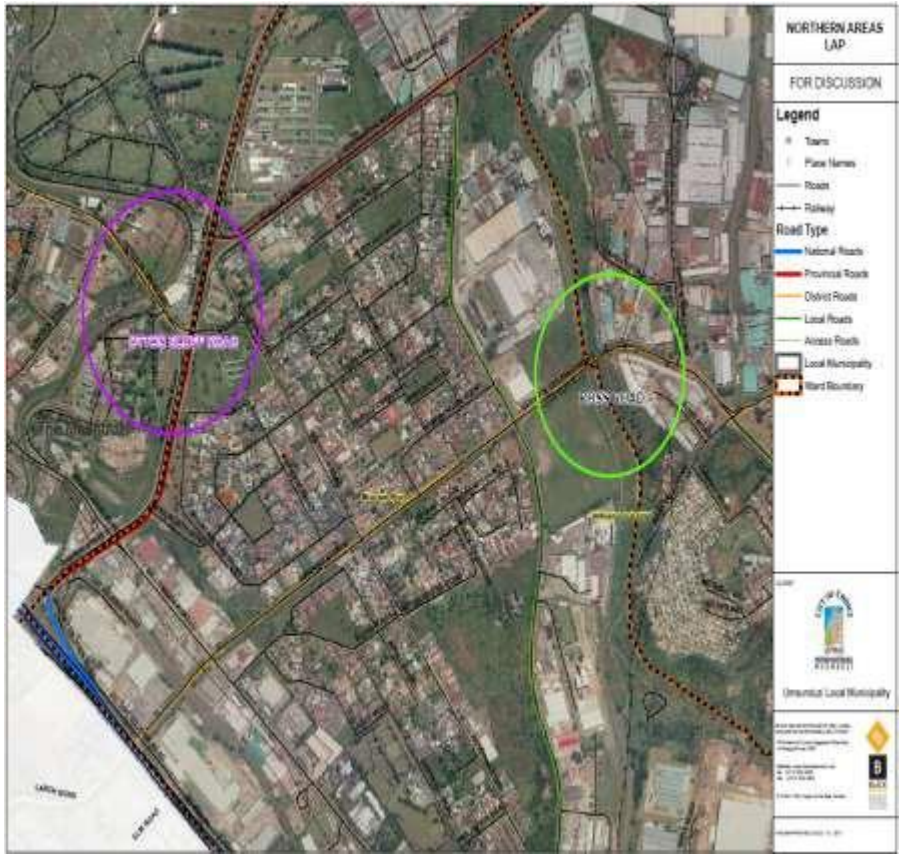
The proposed (g) Woodlands to CBD link via the rail reserve is a long term opportunity that will require detailed analysis and engagement with rail authority. The idea however is that the transport corridor is in place already and therefore an opportunity exist. The one main advantage is the linkage that would be provided to the north-western end of the CBD, which currently struggles with access.

The proposed Northern Areas – Hilton link idea (h) was born out of a high level assessment of the migration of offices from the Pietermaritzburg CBD to Hilton. Northern Areas which has a high middle to high income population would therefore contribute towards the traffic heading to Hilton. The link will provide an alternate route between the two areas and reduce the reliance on the N3.

Following the stakeholder engagements which took place, the following suggestions were made. (Refer to the two maps below).



Manning Road Extension



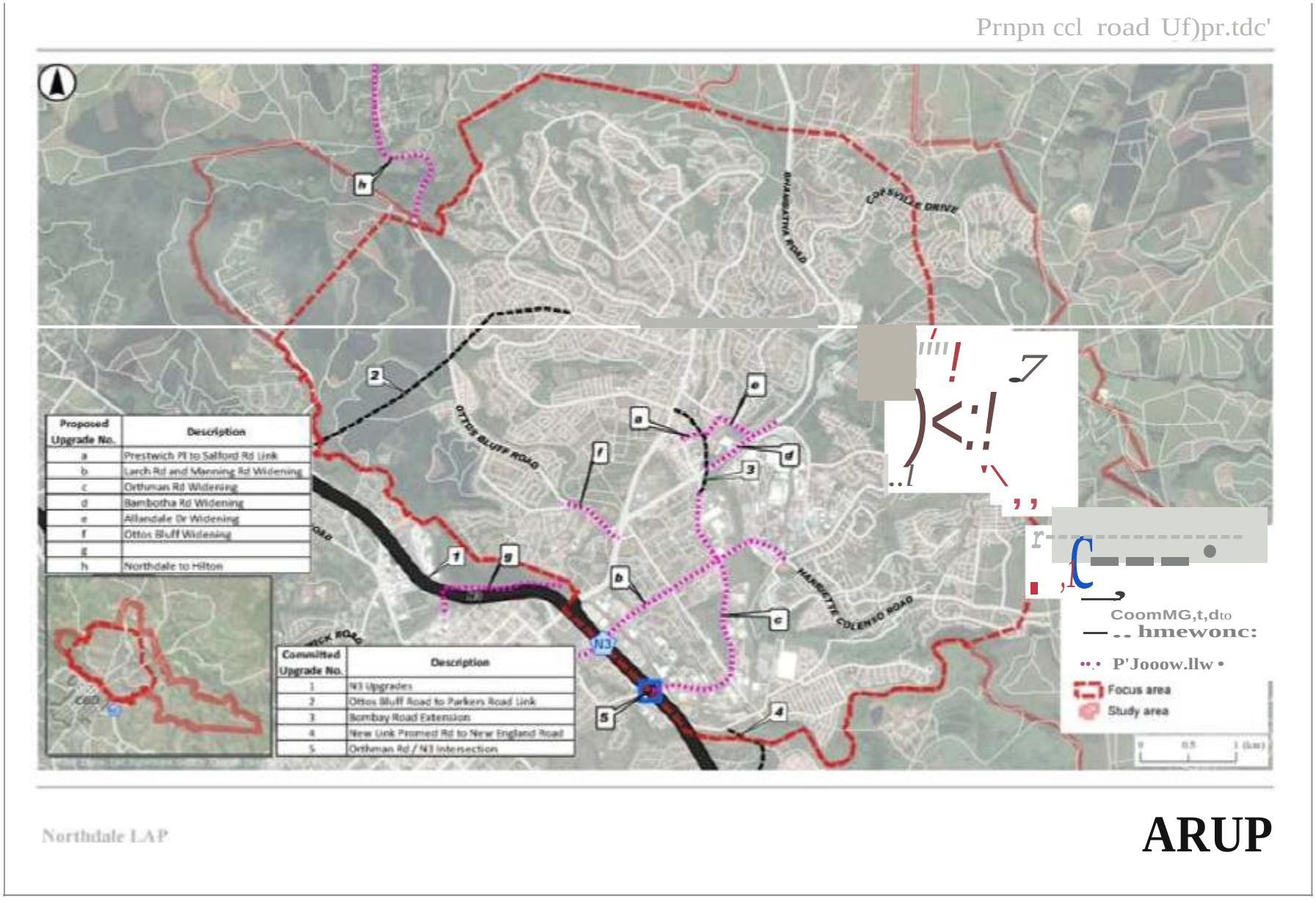
Proposed Ottos Bluff linkage to Ross Road

Committed Road Upgrades

In the status quo phase a review of the relevant planning documents were undertaken.

From this the committed road upgrade proposals were extracted. These upgrades include the upgrade of the N3 (1), a new link road between Ottos Bluff Rd and Parker Road (2), the extension of Bombay Road (3), new link road between Promed Rd and New England Rd (4) and the Orthmann Rd/N3 interchange upgrade (5). The new link from Woodlands to Chase Valley called Ottos Bluff link is at EIA stage.

Map 31:Proposed Road Upgrades



25.5.2 Non-Motorised Network

The idea for the creation of an NMT plan was to identify a network along which appropriate NMT facilities (cater for pedestrian and cyclist) can be provided. This is a high level plan that will require refinement. The intention is to therefore create a starting point.

Like the proposed road upgrades the NMT network was developed through an appraisal of the status quo, the future IRPTN system and the proposed land use proposal.

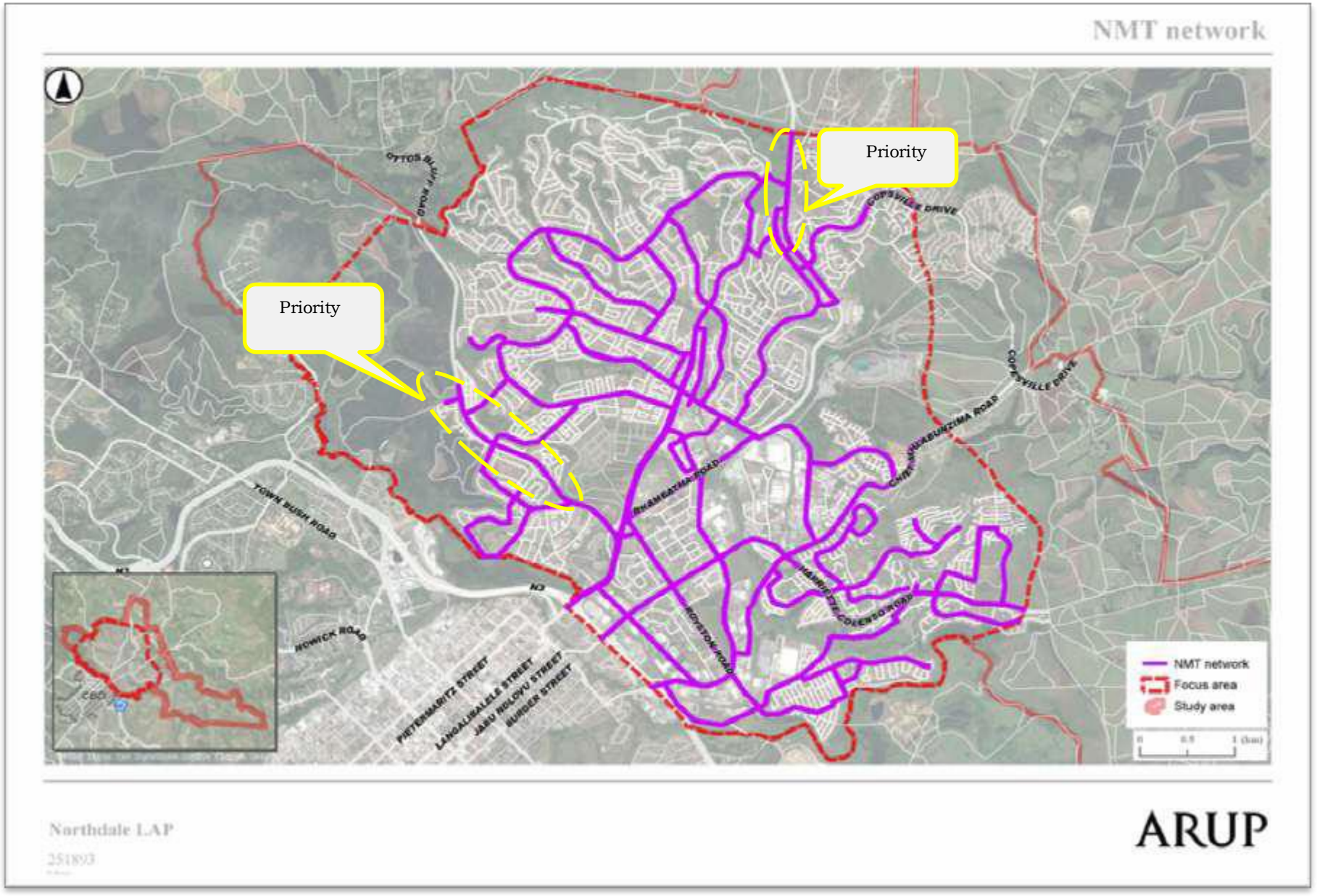
Serious consideration was given to ensuring alignment between the IRPTN feeder/complementary routes and the NMT Network. The idea is that these upgrades act as the precursor for the implementation of the IRPTN system.

The NMT network links the residential areas at an internal level with educational facilities. At an external level it would link with future IRPTN system and neighbouring industrial and commercial nodes.

Urgent Need

- There is an urgent need for NMT facilities along the R33, between the informal settlement north of Copesville and the broader Northern area.
- Pedestrian, including scholars, are seen walking along and on the R33 and across the open fields in and around this area.
- There is also a need for facilities along Ottos Bluff Rd in the vicinity of the residential nodes.
- Rehabilitation of aging road infrastructure and to look at possible improvements to it (example, Ronnie Fraser, Manning Avenue, Chief Mhlabunzima Road, Dr Chota Motala and Bombay Roads just to mention a few).
- Mini bus vehicles (taxis) to make better use of the Transport Hub which has been built for them (Brookdale Transport Hub).

Map 32: Non-Motorised Network



25.5.3 Public Transport

The long term plan for public transport in the area is the development of the IRPTN for the greater Northern area. Therefore, any plans that are implemented should have some level of alignment with the long-term plan.

On-site observations had indicated at least three informal ranks in the study area.

1. In the Sobantu area taxis appear to be ranking at the corner of Khumalo Street and Mendi Street

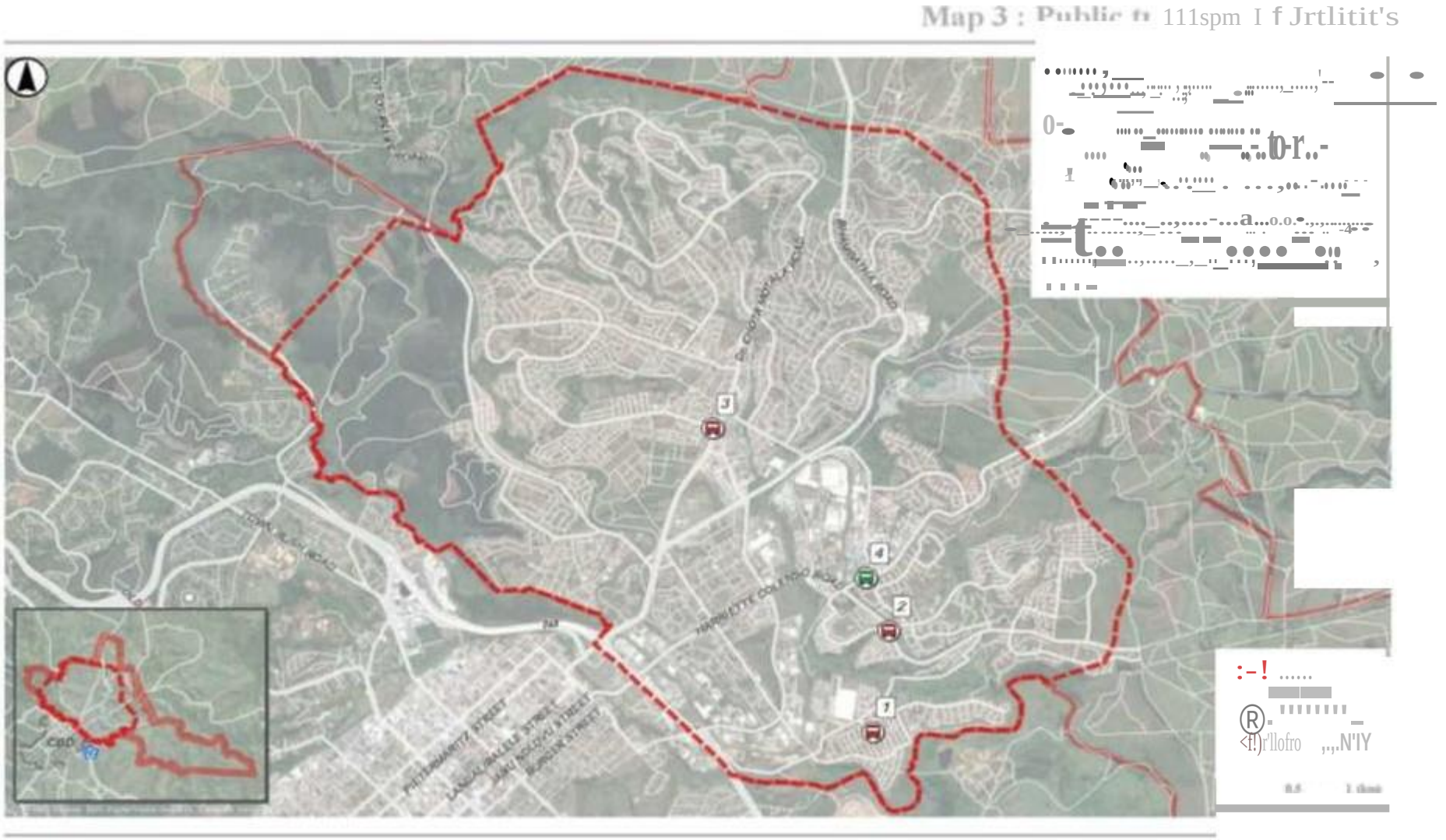
2. In the Eastwood area, there is an unofficial ranking area in the Carriage Way, just off Harriette Colenso Road

3. In the grass verge between Dr Chota Motala Road and Lahore Road, near Bombay Road.

The third site, the site at the intersection of Bombay Road and Dr Chota Motala Road is in the vicinity of a proposed feeder station to the main IRPTN trunk station. In this regard, it is recommended that a site in the vicinity be identified for the taxi rank that could then be converted to a feeder station once the IRPTN is operational.

The remaining two sites should be considered in more detail and converted to formal rank if it is warranted. The mini bus taxis will be slowly moving to the Brookdale holding area as of December 2017. As a long term solution, car users need to consider using public transport, it is the only solution as the new roads will also get congested.

Map 33: Public Transport Facilities



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26 KEY DEVELOPMENT GUIDING PRINCIPLES

Based on the development vision, concepts and strategies suggested in the previous phase of the report, a number of key development principles are outlined as part of guiding this Local Area Plan. These principles are intended to influence the spatial and non-spatial decisions towards the successful implementation of the LAP.

These principles include the following:

- Growth Intensification,
- Quality Living Environment,
- Building Area Character

26.1 Growth Intensification

The Northern Areas has a potential to grow but this will have to be guided by the ability to maximise the fixed assets of the town – land. In order to meet the growing demand for housing and economic ventures in the town, a number of proactive measures will have to be adopted as part of the revitalisation process. To this effect, the following guides are suggested:

- Densification will have to undertake in appropriate locations within the town. Areas around the CBD where capacity still exists for further development will have to be harnessed.
- Composite building typologies will have to be adopted as part of promoting intensification of activities within the CBD core.
- A phased approach to development should be adopted to discourage leapfrogging. Direction of growth should be guided by the short and long term development edges and influenced by infrastructural capacities.
- Public places should be embedded within reach of the general public without negative impacts on travel costs.

26.2 Quality Living Environment

The quality of the living environment is essential in retaining businesses and the population of towns. With this as a backdrop to revitalising development, it becomes relevant to ensure that all aspects of the living environment are able to promote a better quality of life. This will include devoting attention to the following:

- Residential development should offer choice to all income groups as part of promoting spatial equity.
- Identify suitable land for a housing development that can accommodate low-income households so as to help to eventually eradicate the informal settlement in this area.
- Public spaces should be maintained and managed properly in order to make them attractive to use. Constant use of such facilities will decrease the tendency for vandalism.
- Maintenance programmes should involve residents of the town as part of creating awareness of ownership.
- Improve on the existing or building social service facilities which are needed in certain wards to absorb the demand for it (as a matter of urgency). These include clinics, libraries, schools, parks, community halls, cemeteries, crematoriums sporting facilities, etc. Stakeholder engagements made mention that social facilities in certain wards were in need of some upgrading and in some

instances where certain wards had experienced an increase in the population; the facilities in these wards would need to be improved to accommodate this demand.

- An environmental plan needs to be in place (rehabilitation plan for the wetlands; sanitation plan) for the entire area.
- The Municipality is trying its best to implement speed bumps where possible, however the Community need to be aware that speed humps are not a solution to reckless driving and where speed humps cannot be implemented other mitigating measures for roads safety such as law enforcement need to be considered.

26.3 Building Area Character

Carving a character for this area lies in the distinctiveness of each functional district yet considering the complementary roles they each play within the urban system. With this as a backdrop, the LAP proposals on land designations have been used as a tool to create a cohesive and functional character within the town. In order to promote character building, the following parameters would have to apply:

- The preferred land uses in the various land designations should be used as a guide to where certain activities can occur and not occur.
- Neither public nor private investment should be permitted to determine how and where development. A balance of the different interests should be sought at all times.
- The opportunity for a gateway presents an opportunity to create the initial impression of the town. Facilities within the Gateway (along Dr Chota Motala Road) should promote the town's identity by providing information such as a town map, places of interest and location of public facilities.
- The elements of the public realm must reflect local culture and identity as part of reinforcing the character of the town.

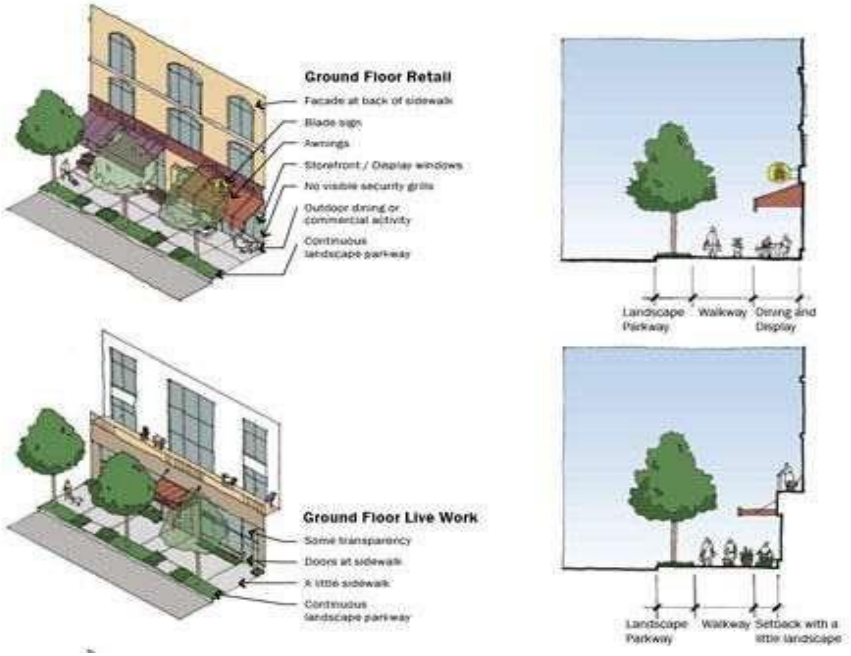
27 DEVELOPMENT AND DESIGN GUIDELINES

This section of the report makes suggestions to development and design guidelines to inform the physical make-up of the town. It involves suggestions to various techniques for ensuring appropriate built form and the public realm.

27.1 Built Form

- Building design within the town centre should promote and encourage passive surveillance through reduced setback lines.
- Buildings are to be street facing to increase surveillance on public and semi-private spaces especially within the CBD.
- Access and entrances to individual buildings should be visible from adjacent streets.
- High and opaque fences should be discouraged and possible avoided.
- Mixed-use buildings where commercial activities occur on the ground floor and residential uses on the upper floors should be encouraged within the CBD and in zones where commercial activities are allowed. See figure below which illustrates the design guidelines required for retail residential spaces.

Figure 10: Retail/ Commercial Space



(Source: planetzen.com)

- Buildings at gateway entrances should have a strong and appropriate architectural articulation.
- Design of buildings should reflect the character of the area, showing rich history and include cultural influence.
- Buildings and public spaces should be designed a human scale to promote intimacy between users and buildings.
- Buildings should be orientated appropriately to allow for natural lighting through windows and other openings.

27.2 Pedestrian Circulation

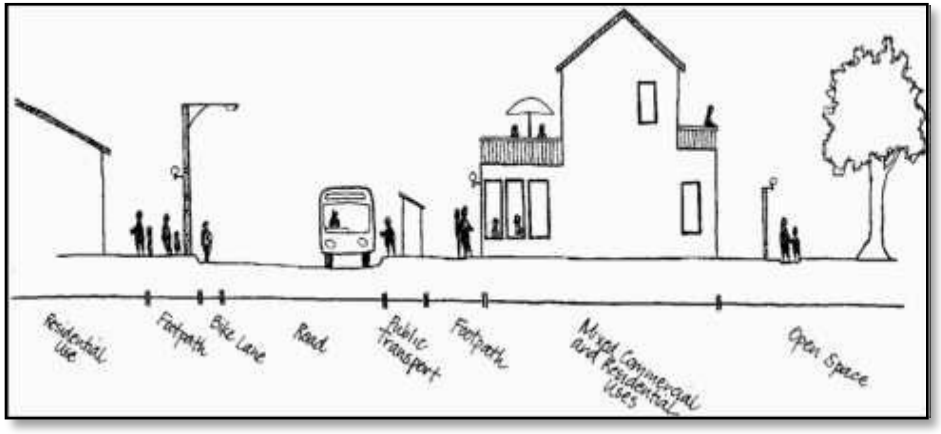
- Suitable sidewalks need to be built in and around wards where they either do not exist or where they are not adequate for pedestrians to be using them as they pose a safety hazard. A survey will be undertaken so that it can be included on the list of sidewalks required for when the budget becomes available.
- Sidewalks should be paved with non-slippery material to allow for safe and ease of movement.
- Pedestrian crossings are to be clearly marked to encourage pedestrians to cross the street at such designated pedestrian crossings.
- Pedestrian arcades are to be sufficiently well lit and maintained.
- Adequate signage should be displayed to inform and caution pedestrians of constraints along streets and other public places.

27.3 Public Places and the Public Realm

- Landscaping should be placed along the entire length of the street where traffic calming is desired, on both sides of the street. It is particularly critical to place landscaping that narrows the optical width of the roadway and communicates that the road is changing in the transition zone where the largest decrease in speed is sought.
- Landscaping is to be done in such a way as to prevent pedestrians from crossing the streets at random points.
- Landscaping should be carried out in a way which does not obstruct sightlines.

- Public open spaces should be designed to promote interaction by clustering outdoor furniture in an appropriate manner. This increases visibility and consciousness of being in a public space.
- A hierarchy of space should be reinforced by means of fencing, landscaped buffers to distinguish between private, public and semi-private open spaces (see figure below). Opaque and long fencing should be avoided at all cost unless for land uses requiring such special privacy requirements.

Figure 11: A Hierarchy of Space



(Source: Illustrated CPTED Guidelines)

27.4 Formalized Trading Areas

Current Informal traders are to operate only from permanently erected shelters erected in designated zones.

These zones are located in core business area and on the streets forming the main streets and public transport points.

Public ablutions are to be of high quality design and are to be erected within the Taxi Rank.

28 TOWN DEVELOPMENT AND LOCAL AREA PLAN

The Northern Areas Local Area Plan proposals as discussed in the report have been influenced by the situational analysis which preceded the formulation of strategies, and the subsequent translation of these strategies into the local area plan proposals.

The Northern Areas Local Area Plan is a tool to be used in spatial and programmatic decisions which affect the town. Proposals made have the ability to revitalise the core economic centre in the following ways:

- to inform and advance the orderly and desirable spatial development of identified priority areas

- to create a climate conducive to private sector investment and provide a clear spatial logic that would facilitate such decisions on investment and accordingly to encourage investment decisions, not only in pursuance of optimal returns, but also in support of a shared spatial vision for the town;

- to deliver economic growth that does not continue to generate environmental loss, a natural environment threatened by poor resource management, resource intensive economic growth and a carbon dependent energy base.

- to respond to the spatial marginalization of the economy as well as a range of market and sector demands, promoting the

optimal participation in the economic affairs and activities of the town;

The Northern Areas Local Area Plan as proposed seeks to articulate and advance the spatial restructuring of the post-apartheid town and identify strategic areas for intervention to promote the integration of social, economic, institutional, environmental and physical aspects of land development.

The development of the Northern areas hinges on the ability of these proposals materialising through available funding and the efficiency of institutional capacity to oversee the proposed projects. Most importantly, the proposals are required to be acceptable to the various stakeholders, particularly development partners and the daily users of the town.

29 IMPLEMENTATION FRAMEWORK

This section of the report is focused on developing programmatic strategies towards not only the implementation of proposed interventions within the Northern Areas but also the sustainable future functioning of the area. The key focus of this phase would be the development of an implementation programme and a funding strategy.

29.1 PRIORITY PROJECT IDENTIFICATION

The Development Plan is translated into specifically defined actions which are required to assist the Municipality in initiating the development process within the study area recognised as the Northern Areas LAP. These actions take the form of projects with catalytic effects in an attempt to further stimulate public and private sector investment towards building a self-sustaining regenerative momentum.

The objectives of the identification of catalytic projects and their successful implementation thereof are intended to bring about economic and social development of the people within the study area and its hinterland. The physical improvements resultant of these projects are intended to create an environment that is more conducive to doing business, attracting investment and visitors and encouraging residents to appreciate and discourage migration of the town.

A number of catalytic projects (see Annexure A) have been identified that will initiate the revitalisation process for Northern Areas LAP. These projects can be implemented in any order as and when funding is secured, land acquisition processes completed and legal procedures finalised. By their nature, they are independent projects and do not rely on the completion of others before they can be started.

29.1.1 Project Types

In order to define the specific role of the Municipality in the design and implementation of each project, three categories of action have been defined. These are for the Municipality to:

- design and deliver;
- plan and promote; or
- Illustrate and facilitate.

A. Design and Deliver Projects

These are projects that the Municipality initiate, fund, design, implement and project manage.

Projects under this category include:

- Land Acquisition Strategy
- Infrastructure Sector Plans aimed at the Intervention Areas
- Dr Chota Motala Road, Public Realm Upgrading
- Orthmann Road Public Realm Upgrading
- Allandale Drive Realm Upgrading
- Upgrading of public ablution facilities within the Economic Hub
- Dr Chota Motala Road Taxi Rank and Formal Trading Area
- Densification of the Dr Chota Motala Road CBD
- Upgrading of internal distribution and link roads
- Provision of alternate Route to the N3 Route
- Stormwater Infrastructure Provision.
- Provision of Public Parking and street parking along Allandale Drive
- Provision of Storage Facilities for Street-side Retailers
- Co-ordination of all development interventions
- "My Clean Northern Areas" Campaign- Provision of Bins and Recycling Bins
- CBD Infrastructure Maintenance Programme

B. Plan and Promote Projects

These projects are those that are not necessarily directly funded or implemented by the Municipality but are to be planned and promoted to secure external funding. The Municipal role is also to ensure that these projects are implemented in accordance with the approved Development Plan. Projects under this category include:

- Pedestrian / Vehicular separation along Allandale Drive
- Business Investment Policy and Guidelines on Building Maintenance
- Higher Density Public Housing Development
- Northern areas Gateway Development
- Allandale Drive- Regeneration Strategy
- Dr Chota Motala Road Regeneration Strategy
- Provision of Industrial and commercial sites to attract external investors
- Agricultural corridor within the Bishopstowe Area for export purposes along the N3 Corridor
- Tourism Development around Bishopstowe Area
- Upgrading of the Sewerage Treatment Works

C. Illustrate and Facilitate Projects

These projects are not funded or implemented by the Municipality. Rather, they are planned, funded and implemented by the land owner or private sector. The Municipality's role is to illustrate and facilitate the opportunities for the site and assist the land owner to remove restrictions, obtain rights and facilitate the development of the project as quickly as possible. Projects under this category include:

- Targeted Facilitation of development on privately-owned vacant land
- Investment Promotion Campaign

- Development of Cross Boundary Tourism Product between Mkhambathini, Umswati and Umgeni Municipalities.

It should be noted that although the above priority projects have been identified others may be added over time and some may change to different categories.

29.2 PHASED SEQUENCE OF DEVELOPMENT

An overall phasing plan for the development of the Northern areas is essential to provide direction over the long-term. The basis of the phasing would be to maximize the use of existing infrastructure and to adequately prepare for significant capital expenditure in the town. The main factors influencing the phasing of development will be:

- capacity of existing infrastructure and social facilities
- cost of new infrastructure to accommodate the expansion of the town
- access to transportation networks

Annexure A is a schedule of prioritised projects with associated phasing and cost implications.

29.3 IMPLEMENTATION ACTION PLAN

In this part of the report, a plan is outlined to inform the short, medium and long terms priorities to the overall framework as well as the individual precincts will be proposed. Critical phasing and sequencing of actions documented and mapped for clear communication will be provided and critical project dependencies and key success factors identified. The implementation phases of the Northern Areas LAP may follow the stages outlined below.

29.3.1 LAND ACQUISITION STRATEGY

A proactive Land Acquisition Strategy (LAS) is required in order to develop partnerships with private owners to release land for the development of public facilities and amenities.

The objectives of the Land Acquisition Strategy would be to

- Accelerate the land acquisition process;
- Ensure that the Msunduzi Municipality can acquire land within the Northern Areas through support funding from the Department of Rural Development and Land Reform.
- Improve the identification, selection and planning of public projects within the town based on availability of land
- Ensure maximum productive use of land acquired.
- The proactive land acquisition strategy would guide the purchase of land within the town to support the overall development concept for the Northern areas

The Land Acquisition Strategy will also align with the Department of Human Settlements programmes linked to the fast tracking of housing delivery. Central to this programme is the purchase of well-located land for Rental Housing where the Department is committed to make funding available for land acquisition.

The Land Acquisition Strategy would also define the financial and institutional arrangements required to finance the acquisition of land based on the agreed selling price, expropriation or auction price of such land.

Methods of acquisition would include:

a) Market transactions/ negotiated transfers

Land would be acquired through normal market transactions. The municipality would approach owners to see if they would be interested in selling their land through normal market transactions, depending on the negotiations

b) Auctions

Land auctions may provide may the municipality with a good opportunity to proactively acquire land; given that the final bidding price for land at an auction is generally plus or minus 90% of the actual market value.

c) Expropriation

The rationale of targeted expropriation would be due to the failure of the land market to provide adequate opportunities to acquire the land has been considered necessary for development.

INSTITUTIONAL DEVELOPMENT STRATEGY

In order to facilitate the implementation of the proposed development strategies, proper and functional institutional arrangements will have to be put in place to oversee and steer the various processes. Below are the stages and ideas which can be employed to this effect.

Stage 1: Establish a Development Coordination Forum

The first step in initiating the implementation process will be the establishment of a Development Coordination Forum, spearheaded by the Msunduzi Municipality.

This body is *not* responsible for project implementation but is instead responsible for overseeing the implementation process and coordinating the actions of all role-players active in the development of the Northern Areas as well as the rest of the Municipality.

The Msunduzi Municipality will remain responsible for all development within the Northern Areas and is the sole custodian of the areas Development Plan. The role of the Development Coordination Forum is to ensure that all development taking place within the Northern Areas is in accordance with the Development Plan.

As such the Forum would be chaired by a Municipal official but would have as its' members the Development Agency, the Business Improvement District Association, the Technical Task Team, the marketing team etc. Private developers, service providers such as Eskom, Transnet and Telkom and officials from various municipal departments and other spheres of

government would be required to make representations on the Forum on an ad-hoc basis as and when needed.
Generally councillors would not sit on this Forum but would regulate its activities through its requests for resolution approval and report backs to Full Council, the Executive Committee or Portfolio Committees.

The Development Coordination Forum should meet on a regular basis, act as the central collation point for all documents and instructions and should keep and distribute minutes of all decisions taken. Any expenditure incurred by it would have to be done in accordance with the normal procurement policies of the Municipality.

It is also recommended that at least some level of decision making responsibility is delegated to the Forum by the Municipality. This is to increase efficiency, reduce bureaucracy, streamline processes and be able to act speedily and timeously.

Stage 2: Prepare and Adopt Appropriate Development Control Policies

As many of the actions and developments taking place in the town will be undertaken by the private sector it is important for the Municipality to retain control over these actions to ensure that they comply with their overall vision of the town.

Whilst the Municipality has control over these actions through its by-laws, building control and town planning processes, it will be necessary to adopt additional policies specifically tailored to the Northern Areas. The intention is to ensure that individual developments are of an exceptionally high standard so that over time the collective actions of individual developers translate into a higher standard of development and an overall improvement in the appearance of the town in terms of standards and appearance. This will ensure that private development does not detract from the efforts of the Municipality but instead complements public sector investment.

Suggested policy themes have been proposed and it is suggested that the Municipality develop a fully-fledged set of town development control policies.

It goes without saying however that the adoption of such policies will be ineffective unless they are consistently and continuously enforced and the Municipality needs to ensure that the appropriate mechanisms and bodies are in place and functioning.

Stage 3: Prepare and Adopt Guiding Plans

To ensure the effectiveness of the Development Coordination Forum, the Development Agency needs to ensure relevant, efficient regeneration of the CBD actually takes place. The Municipality should prepare and adopt the following plans:

- A Management Plan;
- A Financial Plan; and

- A Communication Plan.

The Management Plan

It has become increasingly evident that Management Plans are crucial to the successful implementation of development projects. The Municipality has a central role to play in shaping the way in which this occurs as well as providing the political and administrative climate to facilitate the process.
It is therefore vital that a Management Plan is prepared and adopted by the Municipality through the Msunduzi Development Coordination Forum, that provides the basis for managing the development process and ensuring the vision of the Development Plan is adhered to.

Management Plan would include:

- an outline of the required management structure;
- chains of command and lines of communication, both internal and external;
- decision making powers and delegated authorities;
- monitoring, evaluation and reviewing requirements;
- methods of coordinating the activities of Municipal departments, services providers, other government departments, developers etc
- methods to ensure alignment with the IDP and other municipal programmes and strategic initiatives;
- a performance management system;
- reporting structures; and
- financial aspects; and
- Communication aspects.

The financial and communication aspects of the Management Plan are worthy of more detailed planning. These are discussed below.

The Financial Plan

The Financial Plan establishes the feasibility and procedures for managing and implementing the Northern areas Development Plan. This Plan should include:

- the legislative framework;
- income (grants, subsidies, tariffs, service charges etc);
- expenditure (operating and capital);
- investments, loans and losses;
- assets and liabilities;
- costs of services;
- potential sources of income;
- potential risks;
- potential benefits;
- a capital investment programme; and
- business plans for specific projects.

The components of the Financial Plan should be packaged in such a way that they can be seamlessly incorporated into the Municipal IDP and budget. The incorporation of the budget and the IDP will ensure that projects identified in the IDP are actualised and people's lives are improved.

29.3.1.1.1 The Communication Plan

Communication is concerned with both internal and external communication and the Communication Plan will need to address both aspects.

Internal communication is concerned with ensuring that organisational harmony for those involved in the management and implementation of the Northern Areas Development Plan is achieved. The Internal Communication Plan will ensure that staff is kept informed of project progress and decisions taken, information is disseminated timeously, awareness of duties and responsibilities is created, problems are detected and dealt with, all of which creates a culture where informed decisions are taken and quality is improved.

External communication is more concerned with marketing, promotion and garnering support. This is to attract investment, limit opposition and boost confidence in the work of the Municipality.

Stage 4: Establish the Northern Areas Development Agency

One way of realising the proposals of the Northern Areas Development Plan is for the Municipality to set up a separate and independent Development Agency which would be responsible for the implementation of specific projects within the town.

The Role of the Development Agency

Development Agencies are entities owned and established by a sphere of government (local, provincial or national). Their purpose is to work towards a coordinated approach to addressing the problems and opportunities in their targeted areas. A key focus is engaging and leveraging the public and private sectors in an agreed physical, social and economic development strategy and meeting clearly defined targets. This needs to take place within a broader context of a comprehensive framework or plan area.

Agencies may be considered as publicly owned entities, with public accountability and responsibilities, but using private sector strategies.
The development agency may assume the role as the operational or implementing arm of the municipality and could therefore be a key delivery mechanism and strategy for the implementation of the municipal IDP and other key projects. It may also be a central receptacle for external funding, technical assistance and skills. Its role is to fill the gap between development plans and their implementation.

Establishing a Development Agency

In South Africa, the Industrial Development Corporation (IDC) has been mandated by the Government to effectively participate in the spatial and economic development of areas in need. The IDC is a key role player in LED-driven initiatives, as its development mandate has been expanded to include the active

pursuit of the establishment of development agencies in areas of need.

Not every municipality within South Africa is eligible for IDC assistance. The IDC targets those municipalities that meet a variety of criteria, including:

- geographic;
- poor and under-developed areas;
- rural bias;
- 'poor province' bias; and
- areas with high potential for development, measured through:
  - jobs to be created;
  - empowerment opportunities created;
  - local business development opportunities;
  - SMME development potential;
  - use of un/under-utilised assets;
  - social, economic, environmental and physical benefits;
  - areas with a critical mass of identified, feasible and viable economic opportunities;
  - rehabilitation and regeneration initiatives;
  - areas identified by national policy imperatives; and
  - areas benefiting from major strategic economic initiatives.

A further consideration by IDC will be to ensure an equitable geographic spread of agencies around the country.

Development Agency Projects

It is expected that economically viable projects will be drawn from the municipal IDP, an assessment of opportunities through extensive scoping and other studies. The development agency may therefore identify and pursue projects that are not contained in the municipal IDP. The development agency will also be the catalyst in facilitating the establishment of economic and social infrastructure projects that impact on a town's attractiveness as an investment destination and could include roads, taxi ranks, training facilities and water projects amongst other.

The relationship between Development Agency and Municipality

It is generally recommended that development agencies assume the form of a Section 21 company. The Companies Act designates Section 21 companies as independent legal entities. The development agency could however take on other legal structures within which to operate including closed corporations, public and private companies, cooperatives or trusts. However, the case of development agencies at the municipal level is somewhat different as the development agency is an independent agency, but an independent agency *of the municipality*.

By extension of this, the projects undertaken by the development agency are under the aegis of the municipality.

In order to deliver effectively, the development agency must have agreed boundaries of operation. The roles and functions of both the municipality and the development agency are clarified and legally documented in the Articles of Association. It is through the Articles of Association that the municipality provides the policy and strategy framework within which the development agency will operate, and thereby provides the mandate of the development agency. It is advisable too, if a charter, outlining the

roles, responsibilities and objectives of the agency is drafted to ensure its community accountability.

In the past, municipal councillors were directors of the development agency but recent legislation has changed this, so in future municipal councillors may not be members of Section 21 companies or trusts. Development Agencies do *not* assume overall responsibility for all development within the CBD – that task remains the responsibility of the Municipality which controls and coordinates it through its chairing of the CBD Development Forum. The municipality also remains responsible for its statutory obligations such as the approval of town planning applications and building plans, the enforcement of bylaws and the installation and maintenance of infrastructure services etc.

For further details on establishing a Development Agency and determining its roles and responsibilities refer to 'Development Agencies in South Africa: An IDC Guideline Manual for the Establishment, Management and Operation of Public Development Agencies in South Africa'.

Establish a Technical Task Team

The Technical Task Team should be set up by the Development Coordination Forum to advise it on specific technical issues that will arise during the implementation process. This Team has no decision making powers but acts in an advisory capacity.

Its members could comprise Municipal officials or private sector consultants but should have expertise in architecture, urban design, heritage matters, civil, structural and transport engineering.

The Technical Task Team would sit on the Development Coordination Forum and its function would be to assess whether development proposals are a reasonable interpretation of the Vision of the Development Plan, contribute socially, economically and aesthetically to the regeneration of the Northern Areas and are technically sound.

Appoint Project Champions

Typically the implementation of particular projects involves numerous decision makers. Besides the Northern Areas Development Coordination Forum these could include Municipal officials and councillors, Provincial and National Government Departments, the private sector, service providers such as Eskom, Telkom and Water Authorities, various funding agencies, and NGOs each of which have certain established rights, powers and functions.
In these cases it is difficult for any of these role-players, in undertaking their own initiatives, to establish 'who is in charge', what the correct procedures for approval are and how to ensure that their projects are aligned with the ideals of the Development Plan.

Ultimately it is necessary for the Development Coordination Forum to establish and retain control of all activities in its area of

jurisdiction and although its decisions would be taken jointly, under the auspices of the Municipality, it can be beneficial to appoint a particular individual who would be the main point of contact and have ultimate responsibility for the management of a particular project.

Project Champions should initially be appointed for the Catalytic Projects but should also be appointed for all other projects that emerge over time.

This person would need to:

- 'drive the process';
- field queries;
- supply information;
- give direction to stakeholders;
- communicate with interested and affected parties;
- secure funding;
- ensure adherence to legal procedures;
- ensure adherence to the Development Plan;
- report back to the Development Coordination Forum and
- make recommendations on appropriate action to be taken.

For large or complex projects, this person could be appointed from outside the Municipality, but for smaller projects, an employee of the Municipality, could be utilised. Regardless it is important that Project Champions form a permanent part of the Development Coordination Forum.

29.4 FUNDING STRATEGY

A funding strategy is a plan that sets out the funding need, identifies actions timescales and possible funding resources to meet the developmental needs. The strategy is to enable the Msunduzi Municipality to identify prospective funding sources and also motivate for more funding from existing funders.

This strategy makes suggestions to who could be identified as potential funders based on project type, when the funding is likely to be needed based of the priority and phasing, and lastly, how funding can be secured for the proposed projects identified. The funding strategy is only a guide to funding possibilities and not prescriptive. The Msunduzi Municipality has discretion to secure funding from sources it deems fit.

29.4.1 POTENTIAL FUNDING SOURCES

Funding may be sourced from varies entities depending on the project nature. For example, road upgrades or maintenance would largely attract funding from the Department of Transport or the Municipal Infrastructure Grant.

Who are the Potential Funders?

All government departments receive funding annually to spend on projects that are in line with their core functions. Medium Term Expenditure Framework is a modern ideal tool of budgeting that seeks to translate government policies and plans into an expenditure programme within a coherent multi-year macro framework.

Municipalities need to ensure that all the projects that need to be funded are listed in order of priority in the business plan and development frameworks such as (IDP, SDF and Precinct Plans) to allow for the departments to fund the project. The Funding Agents table is a schedule of types of projects and prospective funders.

With regard to the projects identified, prospective funders could include:

- Municipal Infrastructure Grant (MIG)
- Department of Co-operative Governance and Traditional Affairs
- Department of Economic Development and Tourism
- Department of Rural Development and Land Affairs
- Department of Social Development
- Department of Human Settlements
- Department of Transport
- Department of Agriculture
- Department of Arts & Culture
- Department of Public Works
- Department of Health

Table 21: Funding Agents

Funding Agent	Examples of Project Funded by Departments
1. Municipal Infrastructure Grant (MIG)	• Infrastructure
2. Department of Co-operative Governance and Traditional Affairs	• Disaster Management Strategy • Providing Technical Support to Municipalities • Provision of Multi- Purpose Community Centre
3. Department of Economic Development and Tourism	• Trader Facilities • SMME projects • Parks
4. Department of Rural Development and Land Affairs	• Land Acquisition • Town Planning Schemes • Precinct Plans • Sidewalk upgrade
5. Department of Social development and Welfare	• Orphanages • Pension Collection Points
6. Department of Agriculture	• Fencing Projects • Poultry Projects • Agricultural Massification
7. Department of Health	• Construction of Clinics or Hospitals
8. Department of Transport	• Road Construction • Road Maintenance (Gravelling)
9. Department of Public Works	• Construction of Public Facilities • Maintenance of Public Facilities
10. Department of Arts & Culture	• Libraries • Museums
11. Department of Human Settlements	• Low Cost Housing • Gap Housing

Source: Black Balance Projects, 2017

29.4.2 WHEN TO SECURE FUNDING

It is commonly recognised that better planning helps to avoid wasted time and resources. The development of a fundraising strategy should enable the Municipality to ensure that there is a

shared understanding of the aims and priorities for the Municipality.

Municipalities need to prioritise their project list in terms of importance. The phasing of a project is determined by the scope of the project. The bigger the project, the more phases it will be.

In an attempt to secure funding, the Municipality would have to prepare a business plan which contains the project duration and phasing of such. This will assist possible funders to plan as such should they wish to provide funding.

Benefits of phasing projects include:

- ensuring project control
- less capital or budget is used as opposed to financing a complete project
- limits corruption as a progress report is required after every phase and if there are any irregularities, they can be addressed immediately.

29.4.3 HOW TO SECURE FUNDING

For prospective funders to be willing to secure funding, the Msunduzi Municipality will have to be able to motivate strongly for such funding. A business plan needs to be put in place which will contain the projects details including milestones and the cost per milestone, as well as monitoring systems.

The Northern Areas Local Area Plan can be used to secure funding for the projects once the Report is approved by Council.

It is also of importance that the identified projects be included as Part of the Capital Projects in the Msunduzi IDP and SDP to strengthen the prospect of securing funding given the legal status for these documents.

30 NORTHERN AREAS LAP IMPLEMENTATION SCHEDULE

NORTHERN AREAS LAP IMPLEMENTATION SCHEDULE

Project No.	Project / Intervention	Priority	Type	Responsibility	Estimated Budget	Funder
1.1	Upgrading of Allandale Drive and Provision of Street Parking	A	Infrastructure	Municipality	R 100 000 000.00	Dept of Transport/MIG
1.2	Upgrading of Orthmann Road Intersection.	A	Infrastructure	Municipality	R 4 000 000.00	Dept of Transport
1.3	Link Road- Prestwich Place to Salford Rd	A	Infrastructure	Municipality	TBD	Dept of Transport/MIG
1.4	Link Road- Larch Road and Manning Road	A	Infrastructure	Municipality	TBD	Dept of Transport/MIG
1.5	Orthman Road Widening	A	Infrastructure	Municipality	TBD	Dept of Transport/MIG
1.6	Bambatha Road Widening	A	Infrastructure	Municipality	TBD	Dept of Transport/MIG
1.7	Ottos Bluff Widening	A	Infrastructure	Municipality	TBD	Dept of Transport/MIG
1.8	Development of Pedestrian Pathways along R33 (Paving, Greening, Lighting).	A	Infrastructure/Aesthetics (Catalytic)	Municipality	R 2 500 000.00	EPWP/MIG
1.9	Construction of Recycling Collection Points	A	Infrastructure	Municipality	R 500 000.00	Municipality
1.10	Dr Chota Motala Rd Taxi Rank Provision	A	Infrastructure	Municipality	R 1 000 000.00	MIG
1.11	Formulation of a Land Acquisition Strategy	A	Institutional (Catalytic)	Municipality	R 350 000.00	DRDLR/ COGTA
1.12	Releasing and availing of land for agricaltural and economic development	A	Institutional	Municipality / DRDLR	TBD	DRDLR/ COGTA
1.13	Land Potential Investigation for LAP Study area	A	Institutional	Municipality	R 750 000.00	Municipality
1.14	Northern Areas Strategic Environmental Assessment	A	Environmental	Municipality	TBD	Municipality
1.15	Baynespruit Rehabilitation Project (Part of the Umgeni Ecologoical Infrastructure partnership)	A	Environmental	Municipality	TBD	Municipality
	SUB TOTAL				**R 109 100 000.00**	
2.1	Upgrading of Public Abution Facilities near proposed Taxi Rank	B	Infrastructure	Municipality	R 120 000.00	MIG
2.2	Upgrading of Sewerage Treatment Plant	B	Infrastructure	District Municipality	TBD	District Municipality
2.3	Formulation of a Densification Strategy	B	Institutional	Municipality	R 450 000.00	Municipality
2.4	Provision of Storage Facilities for Street Traders	B	Local Economic Development	Municipality	TBD	Dept of Economic Development
2.5	Promote infill development and align development to planned layout	B	Institutional	Municipality	TBD	Municipality
2.6	Maintenance of infrastructure services	B	Institutional	Municipality	TBD	Municipality/Dept of Transport
2.7	Urban Design for the Northern Areas Gateway	B	Institutional	Municipality	R 350 000.00	COGTA
2.8	Provision of Trading Stalls along Dr Chota Motala Rd	B	Infrastructure	Municipality	R 500 000.00	COGTA
2.9	Allandale Drive- Regeneration Strategy	B	Institutional	Municipality	R 600 000.00	COGTA
2.10	Dr Chota Motala Road- Regeneration Strategy	B	Institutional	Municipality	R 750 000.00	COGTA
	SUB TOTAL				**R 2 770 000.00**	
3.1	Formulation of Cross-Border Tourism Strategy (Umgeni, Mkhambathini, Umshwati)	C	Institutional	District Municipality and Local Municipalities	R 500 000.00	Department of Economic Development and Tourism
	SUB TOTAL				**R 500 000.00**	
	TOTAL BUDGET REQUIRED				R 112 370 000.00	