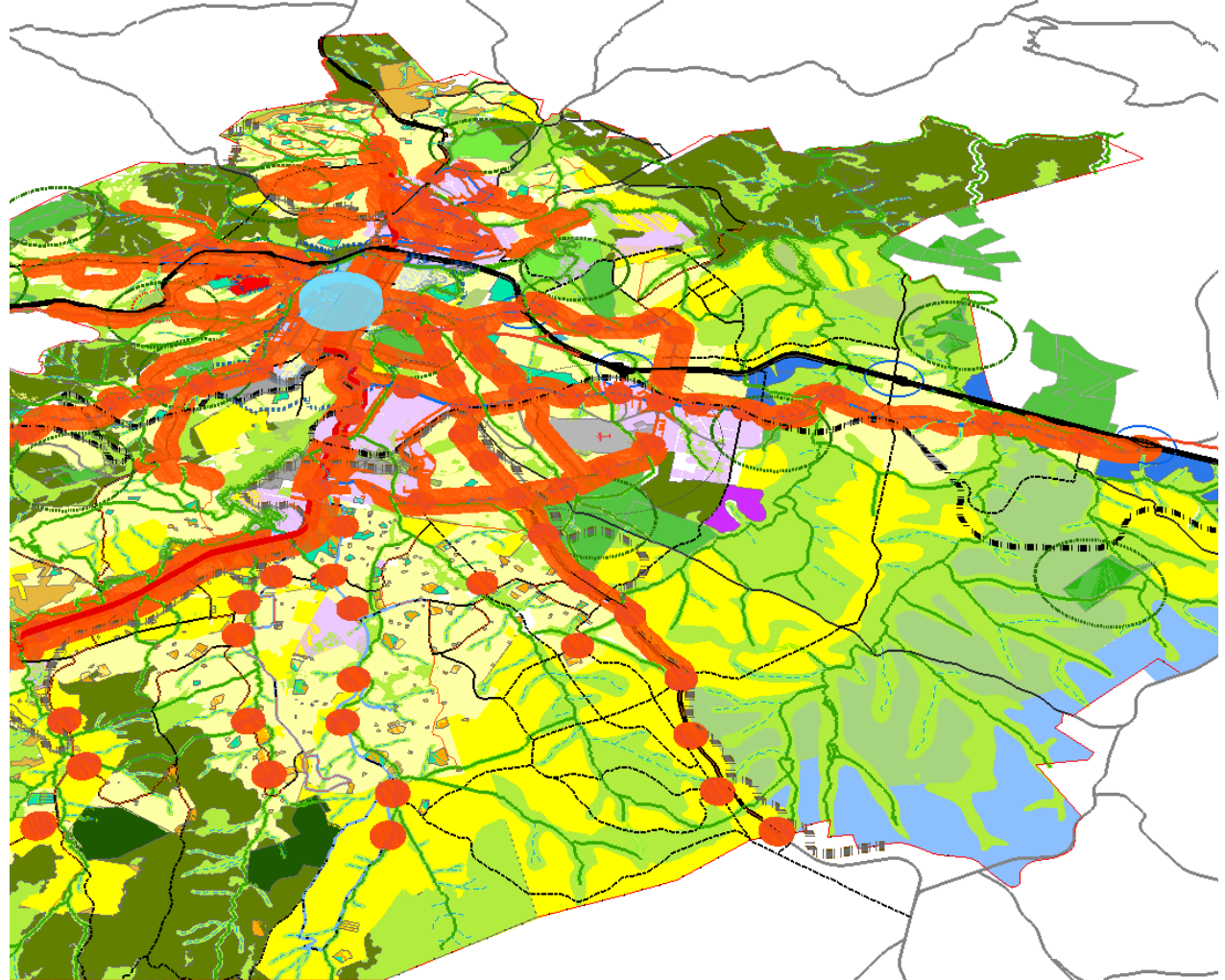
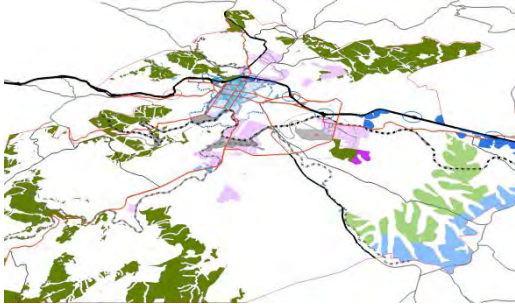


MSUNDUZI MUNICIPALITY SDF REVIEW

FINAL REPORT



MSUNDUZI MUNICIPALITY SDF REVIEW

FINAL REPORT

FEBRUARY 2015

PREPARED FOR:
MSUNDUZI MUNICIPALITY

IYER[®]
URBAN DESIGN STUDIO

SUPPORTED BY:
STRATPLAN
HATCH GOBA
MOTT MACDONALD PDNA

FOR:



BY:



IN ASSOCIATION WITH:



00 DOCUMENT QUALITY CONTROL

PROJECT/ DOCUMENT DETAILS			
PROJECT NAME/ TITLE	The Review and Preparation of the Spatial Development Framework (SDF) for Msunduzi Municipality		
REPORT TITLE	Planning Report		
PHASE OF PROJECT PROCESS	Final		
DOCUMENT DATE			
DOCUMENT REVISION NO.	03		
CLIENT	MSUNDUZI MUNICIPALITY		
CLIENT REPRESENTATIVE	Mr Narain Singh, Mr George Lebelo		
AUTHORS' DETAILS			
COMPANY	IYER URBAN DESIGN STUDIO CC	ROLE ON PROJECT	SIGNATURE /INITIALS OF PRINCIPALS
ADDRESS AND CONTACT DETAILS	28 DEVONSHIRE AVENUE GLENWOOD DURBAN 4001 P.O. BOX 17390 CONGELLA 4013 T +27 31 202 9550 F +27 31 202 9551		
PREPARED BY	Suzanne Schlemmer	Project Manager, Urban Planner	
ORIG. DATE PREP.	18 /12/2014		
ASSISTED BY	Tafadzwa Jaya	Planning Support	
	Jessica Brislin	Environmental Planning & Project Management Support	
	Ahmed Moorad	GIS and Planning Support	
CHECKED BY	Nathan Iyer	Project Director, Urban Planning Lead	
DATE CHECKED	12/02/2015		
APPROVED BY	Nathan Iyer	Project Director, Urban Planner Lead	
DATE APPROVED	13/02/2015		
DOCUMENT ISSUE/ REVISION RECORD			
DOC REV NO.	ISSUED TO	DATE OF ISSUE	ISSUED BY
00	Mr Narain Singh, Ms Jane Perumal	13/02/2015	Iyer Urban Design Studio: Jessica Brislin

00 TABLE OF CONTENTS

SECTION	PAGE
EXECUTIVE SUMMARY	7
STRUCTURE OF THE SDF PRODUCT	10
IMPORTANT NOTES ON TERMINOLOGY USED	11
01 BACKGROUND	12
1.1 Introduction	13
1.2 Project Approach	14
1.3 Structure and Purpose of the Report	16
02 SYNTHESIS OF KEY ISSUES	17
2.1 Status Quo Summary	18
2.2 Strategic Issues	21
03 VISION AND APPROACH	22
3.1 A Global Perspective	23
3.2 Msunduzi Municipal Vision	25
3.3 Sustainable Urbanism	26
3.4 Building the Sustainable City	29
3.5 The Approach to the Development of the Msunduzi SDF	30
04 MSUNDUZI GROWTH MODEL	31
05 MSUNDUZI SDF	42
5.1 Introduction	43
5.2 Global Connectivity	44
5.3 Productive Systems	55
5.4 Ecological Infrastructure	66
5.5 Sustainable Transport	76
5.6 Quality Urbanism	85
5.7 Social Inclusivity	96
5.8 Sustainable Services	105
5.9 Consolidated Plan – Msunduzi SDF	121
5.10 SDF's Response to Climate Change	132

SECTION	PAGE
06 MSUNDUZI SDF ALIGNMENT	133
6.1 Umgungundlovu SDF Alignment	134
6.2 Surrounding Local Municipal SDF Alignment	136
6.3 Alignment with Current Legislation, Guidelines & Policy	138
07 IMPLEMENTATION STRATEGY	144
7.1 Introduction	145
7.2 High Priority Focus Areas	147
7.3 Implementation Projects	167
7.4 Capital Investment Framework & Phasing Plan	180
7.5 Broad Land Use Guidelines	184
7.6 SDF Implementation Plan Alignment	192
7.7 Approach to Project Roll-Out	195
7.8 Monitoring & Evaluation	197
08 REFERENCES	200
ANNEXURES	201
A1 IDP Scorecard Codes	202
B1 Alignment with IDP Catalytic Projects	203
B2 Alignment with DEDT Catalytic Projects	204
B3 Alignment with the Msunduzi CBD LAP	205
B4 Alignment with the Msunduzi SEDIS LAP	207
B5 Current Msunduzi Capital Projects (Relevant to SDF Planning)	209
B6 Current Grant-Funded Projects (Relevant to SDF Planning)	210
B7 Alignment with the Msunduzi SEA Indicators Checklist	212

EXECUTIVE SUMMARY

A Spatial Development Framework (SDF) provides a spatial basis to achieve the municipal vision and goal of the IDP. The Msunduzi Municipality requires an update - or review - of its last approved SDF. This report comprises this undertaking, and contains a suite of maps to support the revised framework.

Msunduzi, as a City, sits at a critical point of change. As the second largest metropolitan complex in the province, it's ever-present possibility of reaching Metropolitan Status and a shift toward City Development. It is for this reason, that a very different SDF is required, one which breaks from the conventions of land use driven frameworks, and the paralysis of processes based on an extensive status quo analysis, which has led to many of the SDFs prepared within the province being nothing more than a reflection of what is there.

The Msunduzi Municipality SDF Review followed a series of steps to reach a sound and meaningful final product. Key milestone reports included a Status Quo Report, a Vision, Spatial Development Framework and Implementation Plan. The result is something that is structured quite differently to the former SDF (although they are aligned in their mutual intent).

The approach adopted for the SDF is primarily about presenting a possible future, which whilst being cognisant of the past and present, it is firmly rooted in establishing a compelling vision of the future and in advancing the goals of Cities.

The Status Quo Report revealed key findings about the municipality, necessary in terms of knowing the point of departure from which we are planning.

The geographic location of Msunduzi municipality allows it the opportunity of becoming well connected in the global economy due to the access it has to the N3 highway leading to major harbours and airports. The surrounding municipalities and towns access various connectivity and growth opportunities through Msunduzi, across various sectors such as Tourism and Agriculture. As such it is essential for physical connectivity to be further improved to stimulate these economic linkages.

Non-physical connectivity has become just as important as physical connectivity in the 21st century as the internet is now seen not just as a business tool but also as a means of accessing a world of education and opportunity. A broadband demand survey in the province revealed the need for high speed internet in educational institutions, hospitals and clinics as well as in the local government sector. The SDF takes it one step further and proposes that it should reach all transport stations and, over time, the individual household level.

History has significantly shaped the city, evidenced by the apartheid city model which is still manifest even 20 years after achieving democracy, which is an unacceptable situation. Linked to this is the clear disparity of wealth, employment opportunities, plot sizes, levels of neighbourhood planning and access to basic services (especially sanitation) which needs to be corrected in the West, East, South-West of the CBD main (Edendale, Vulindlela, Imbali, Northdale, Shenstone and Ambleton etc).

These areas reflect both a high concentration of informal settlements and traditional settlements.

While there are some areas in the area where recreational spaces, public services and amenities have been provided, the quality, maintenance and accessibility to the communities they are intended to serve in these areas is questionable and it thus a major target of the implementation plan arising out of the SDF.

Because development has been so visibly concentrated in the previously white areas (e.g. (Northern region, CBD, Ashburton & Eastern region)), the Greater Edendale/ Imbali area has recently been earmarked for an Urban Network Strategy project.

The trend for the Vulindlela area however indicates that it is becoming more of a forgotten space in terms of development from both a public and private investment point of view. The SDF therefore proposes step-wise ways of integrating Vulindlela with Msunduzi, such as increasing accessibility through enhanced transport corridors, new sustainable urban centres in key areas and generally improved service provision.

The natural environment of Msunduzi is becoming better-understood with, for example, the completion of the Environmental Management Framework in 2010, but it is significantly under-protected when it comes to formally retaining key biodiversity features. The SDF attempts to map all of the pertinent environmental features as the 'ecological infrastructure' of the Municipality, which is essentially to be treated as a distinct line in the sand – being either uninhabitable (e.g. if in a flood zone) or subject to further study.

EXECUTIVE SUMMARY

Active and passive Open Space areas, parks and sporting facilities form an equally important part of Msunduzi's ecological infrastructure, and the objective of the SDF is thus also to promote enhanced interaction for citizens with the environment through activating more of these spaces.

In terms of transportation and infrastructure, the Msunduzi Municipality, as a whole, lacks a supportive accessibility structure which could render the area permeable and accessible to all. The limited choice in movement is hindered by the undulating topography located to the east and west of the Municipal area (especially Vulindlela, as mentioned earlier).

The current system does not sufficiently support the needs of the communities leading to costly and unnecessary time wasted on the service through overlaps, duplication or unnecessary transfers. The system also has inadequate infrastructure for non-motorised forms of mobility – walking and cycling.

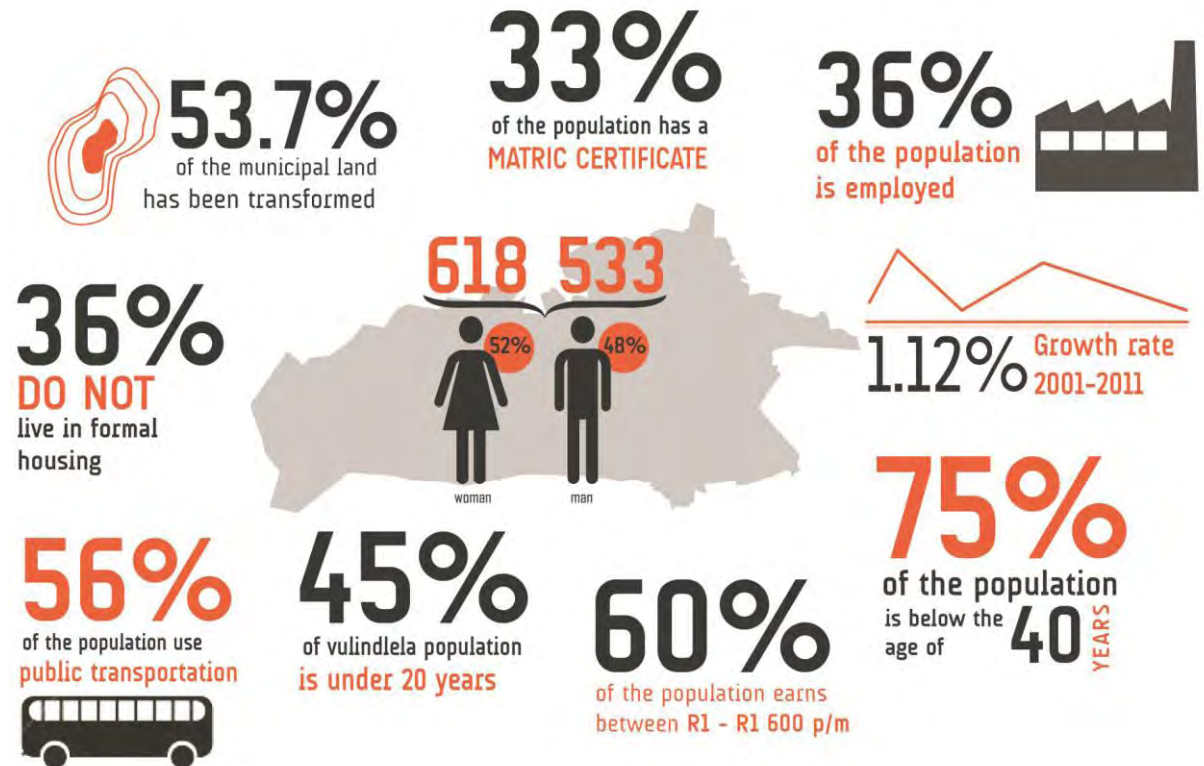
It is envisaged that the Integrated Rapid Public Transport Network (IRPTN) system would address these many of these concerns; however should the project be stalled for whatever reason these issues will need to be taken forward and addressed urgently in another manner.

The municipality has areas that could be ideal for future densification programmes. This was established through the recognition of areas that possessed diverse range of services and facilities which are concentrated, attracting a dense and nucleated settlement pattern around them.

While the quality of urbanism within most areas of the municipality may be considered to be low mainly due to the issue of access to services, it must be noted that Msunduzi Municipality does have substantial potential in this area, and especially along key transport routes for ease of access.

In terms of social inclusivity, the overall assessment of the municipality would reflect that it has a low level of social inclusivity.

This is evident in the inequality of provision of public/civic facilities across the municipality (as mentioned, being much like the distribution of wealth and employment opportunity patterns). The irony, however, is that the most populated & underprivileged areas within the municipality have the least access to such facilities (e.g. recreational parks, police stations, hospitals and libraries).



Key findings of the Status Quo

EXECUTIVE SUMMARY

The dominant presence of educational institutions within the municipality is noteworthy.

Much like social facilities, the status quo analysis has revealed that services are not evenly distributed/ supplied across the municipality. Once again the more formal and urban areas of the municipality are better serviced and generally more connected than the more informal, rural and peri-urban areas.

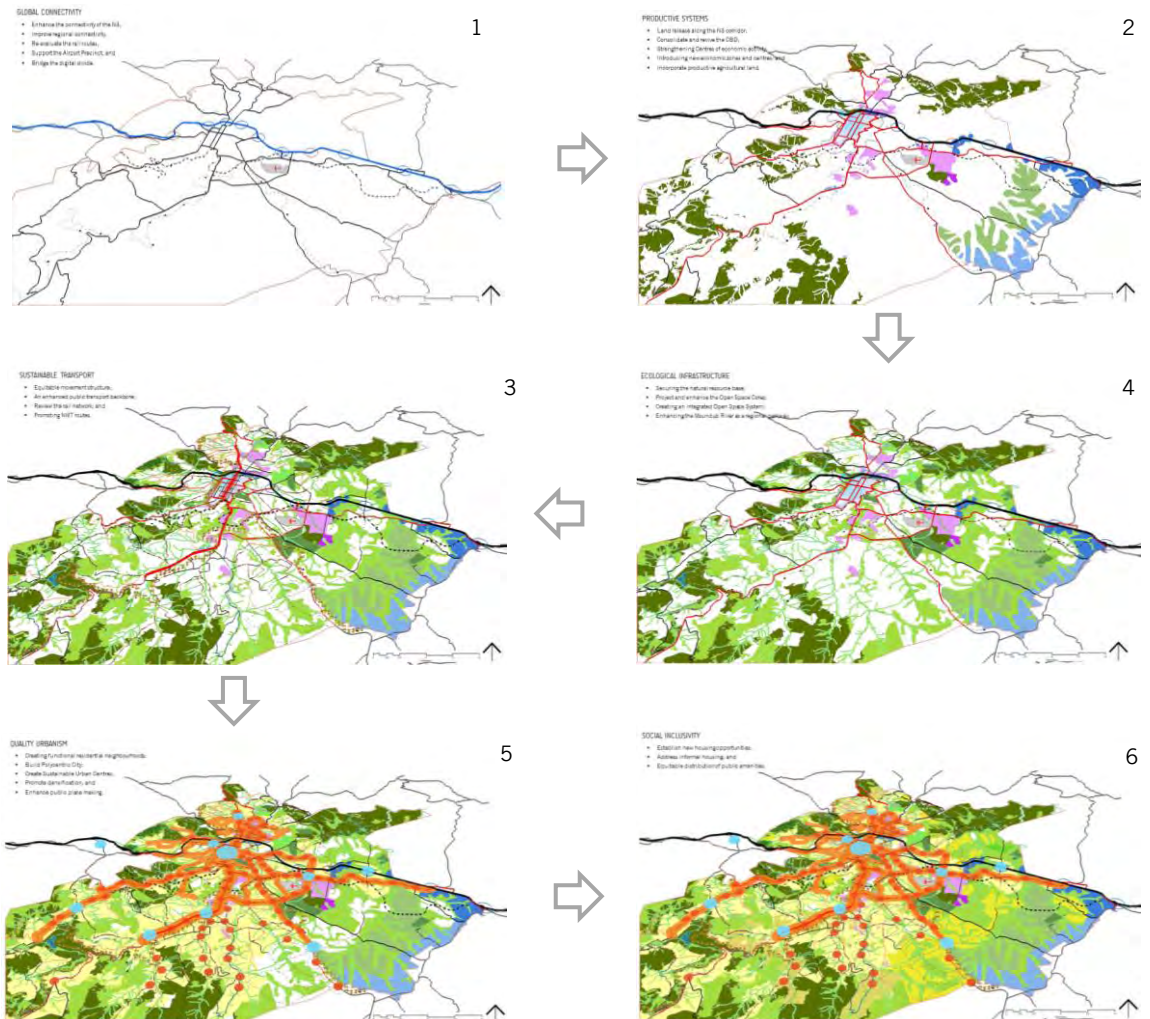
The diversity of the landscape and housing typologies lends itself to more tailored, sustainable service provision in future. New technological improvements to water, electricity, waste management and sanitation provision are on the horizon and pose significant opportunities for future uptake due to their ever-approaching price parity and convenience factors. These opportunities are explored per Area Based Management (ABM) area due to the general homogeneity of these areas.

Based on a thorough understanding of the study area following status quo phase, a comprehensive SDF map was compiled in a systematic manner. The SDF is based on 7 Pillars identified as forming a backbone of sustainability for the future city.

The SDF phase identified the need for the following interventions, per pillar:

1. Global Connectivity: Improved local, regional and national physical connectivity of the municipality via road, rail, NMT and air transport, as well as bridging the digital divide with a strategy for enhanced ICT connectivity;

2. Productive Systems: Developing a strategy for land release along the N3 corridor, reviving the CBD and other secondary and tertiary centres of economic activity, introducing new economic centres in previously neglected areas (particularly those previously considered 'rural'), and making the most of productive agricultural land.



How the SDF was 'built' layer by layer

EXECUTIVE SUMMARY

3. Ecological Infrastructure: Enhancing the open space network in the city for improved natural service provision and ecological functionality, through the protection of formal and informal nature reserves, open spaces, enhancing linkages across catchments and increasing setback lines in key areas such as those adjacent to watercourses.

4. Sustainable Transport: Spatially identifies and promotes an equitable movement structure across the city, through an enhanced public transport backbone (e.g. the IRPTN and possible future NMT routes) and by reviewing the functionality of the rail network.

5. Quality Urbanism: Creating functional, well-served neighbourhoods, building a polycentric city structure with secondary major centres (such as in Edendale), identifying areas for future smaller sustainable urban centres, promoting densification and public place making in the aforementioned areas and along public transport trunk routes.

6. Social inclusivity: Identifying areas for new housing opportunities, areas where informal housing needs to be addressed and/or upgraded on-site, and areas requiring the equitable distribution of public amenities.

7. Sustainable Services: Enhancing existing infrastructure based on findings per ABM, identifying areas for future infrastructure installations and mechanisms for achieving infrastructure-related efficiency through economies of scale (at densified urban centres and along key transport routes, using resource-efficient technologies where appropriate).

The above interventions were conceptualised based on the following key philosophies/objectives: Transformation, Equity/ Equality, Restructuring, Recycling/ Upcycling, Reinventing and Public Place Making.

Further to this, the SDF is based on a growth model developed as part of this study, which identified future population as well as economic space required for the future. This enables the SDF to have a sound basis informed by sustainable anticipated growth.

The economic and population growth models identified a need to ensure a minimum 2500ha of industrial land, 600ha of commercial land and 9550ha of residential land , These land allocations were adequately tied into the forecasted 2050 plan.

The implementation of the SDF resulted in 50 projects being proposed with the following catalytic programmes being introduced as 'top prize' programmes for change:

- Programme 1: Launching an Agriculture & Logistics Platform
- Programme 2: Ensuring Liveable Cities
- Programme 3: Promoting Land Release Industrial Development
- Programme 4: Creating Viable Urban Centres
- Programme 5: Inception of Rapid Delivery Agency
- Programme 6: Enhancing Municipal Knowledge Management
- Programme 7: Revival of the Garden City

[Note: these 7 programmes are not to be confused with the 7 Sustainability Pillars forming the basis of the SDF map – although they are linked]

With each of the 50 projects outlined in terms of their objectives, time frames, budgets, implementing departments, the plans were mapped on a discreet project-by-project basis (where possible), serving as a capital investment framework, and checked in terms of their alignment with key planning tools (e.g. the IDP).

By and large, there is significant overlap with the various planning documents for the city, but the SDF proposes several more 'sweeping' projects which are to be rolled out on a municipal wide scale (and thus could not be mapped as discreet projects).

A phasing plan was built in accordance with the various projects - as they relate to certain land use categories. This resulted in a land use guideline which can be cross-referenced against the distinct SDF map legend items as well as the more generic/broad land use categories.

The process of monitoring and evaluation reveals the importance of departmental alignment and long term financial planning and forecasting to achieve desired outcomes in the most efficient manner for the city. In this regard, it was proposed that the city consider strongly the establishment of:

- A Rapid delivery Unit to assist with key aspects such as appropriate funding mechanisms, streamlined project management and overall efficacy;
- An internal Municipal Development Alignment Forum for officials to discuss issues of alignment and conflict.

The Msunduzi Municipality has the tools in hand to begin seeing the vision of the SDF through for a sustainable, thriving city. It will not be easy, but the roadmap that has been created points to a city of choice that, if handled accordingly, will be second to none.

STRUCTURE OF THE SDF PRODUCT

For ease of navigation, the structure of the full SDF product is outlined as an overall introduction to the plan, and where the various sections may be located.

The final SDF product comprises:

- This report;
- A series of Annexures tied to this report; and
- A GIS map Package with individual shapefiles included.

This report is available in **both hardcopy printing format and softcopy reading format** (both being contained in a folder entitled '**Msunduzi SDF Full Report**'). The final report broadly contains the following key chapters/sections:

- A background to the process including an introduction to the study area, project team and project process (pages 12-16);
- A synthesis of key issues - importantly, a recap of findings from the status quo phase and a summary of strategic issues arising (pages 17-21);
- A vision for the city based on the sustainable cities model, guiding legislation & policy and global best practice (pages 22-30);
- A municipal growth model projecting up to the 2030 and 2050 horizon in terms of population and economic growth, leading to future land release requirements (pages 31-41);
- The SDF plan which is built systematically on the notion of the 7 pillars to achieving a sustainable cities approach, and importantly, arriving at a composite SFF map (pages 42-132);

- A section on alignment with legislation and the surrounding local district SDF (pages 133-143);
- A comprehensive implementation strategy which includes a full suite of projects arising from the SDF phase, an focus on catalytic programmes, a phasing plan, land use guidelines, more alignment check and balances against local plans, and an monitoring and evaluation framework (pages 144-197); and
- Finally, a suite of annexures concludes this report from pages 201 onwards.

It is important to note that the Status Quo Report is not embedded in the report - for reasons of wanting to keep the SDF as succinct as possible. In any event, much of the status quo information is carried through to this final report. These items are therefore found in a separate electronic folder called '**Msunduzi SDF Background Documents**'.

The GIS map package and individual shapefiles are available purely electronically and are found on a separate CD entitled '**Msunduzi SDF GIS files**'.

Also important to note, is that the legends for the maps from pages 46-102 are **only based on the new or additional** layers which have been added in a layered manner for the purposes of that section and what it is specifically trying to show in that section only (spatially). The final SDF map has ALL layers displayed in the legend – based on each of the layers being 'built up' into a final composite SDF.

IMPORTANT NOTES ON TERMINOLOGY USED

In order to read the SDF document systematically and in its correct sense, it is important to note that certain perceivably new, or alternative, terminology has been employed by the project team, based on their best professional judgement and views of progressive city planning.

It must be noted for example that National Treasury uses different planning terms to COGTA (e.g. an Urban Hub is the Neighbourhood Development Programme - NDP - term given to a Regional Node by COGTA). Based on this, our team has had to remain decisive and has used terminology which they consider to be the most appropriate planning terms for the Msunduzi study area.

As such it is important to note the following:

- The terms *CBD*, *Key Centres*, *Sustainable Urban Centres* and *Networks*, *Linkages* and *Links* have been used in place of Nodes and Corridors respectively, in order to intentionally step away from a typically hierarchical, nodal focus on areas receiving investment. The SDF proposes that all centres identified need a certain level of investment to reach a minimum baseline in terms of facilities;
- Note that while there has been alignment with key plans such as the Local Area Plans, some land use categories have been re-named and adjusted slightly (e.g. Commercial Land includes Offices, as does that of Logistics and Business Parks); and
- Several of the environmental layers generated for this SDF are categorised as being for 'Conservation Use'. While this term has ecological connotations, it includes areas which aid in conserving resources (e.g. ecological infrastructure) such as riparian areas). The 'conservation use' layers therefore include the following areas identified in the SDF: open space areas, nature reserves (cores), watercourses and

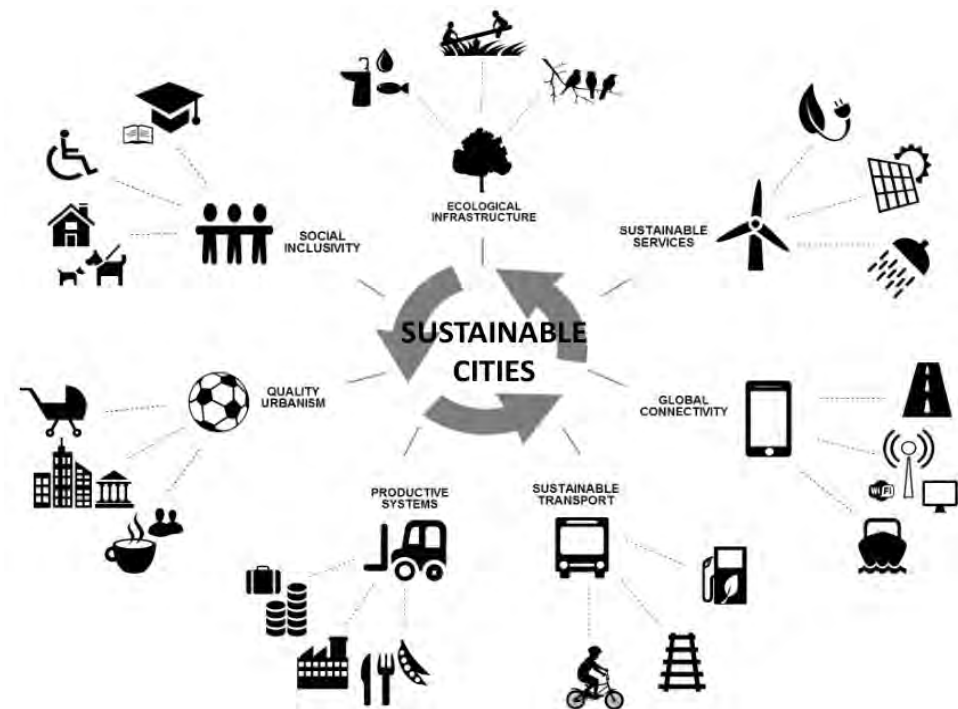
Key Centres: Secondary CBDs such as Raisethorpe and Edendale

Sustainable Urban Centres: Local centres to be developed at key interceptory points with all basic services and, where possible, key facilities.

Densification / Intensification: An increase in residential and commercial development intensity in the CBD, Key Centres and Sustainable Urban Centres, as well as along the IRPTN trunk corridors.

their associated buffers, forged linkages across catchments and ecological infrastructure (comprising the MOSS - or ESP - layer).

The 7 Pillar approach to achieve sustainable city growth, as described in this SDF, is best summarised by the info-graphic below.



The 7 pillars used to define and guide the sustainable growth trajectory of the city, as used in the process of 'building' the SDF.

1.1 OVERALL PROJECT BACKGROUND

Iyer Urban Design Studio have been appointed by the Msunduzi Municipality for the 'Review and Preparation of the Spatial Development Framework (SDF) for the Msunduzi Municipality'.

The nature and complexity of the project requires a multidisciplinary approach. Therefore the following specialists have been appointed as part of the Iyer team to assist in the formulation of the SDF;

- Hatch Goba, for the traffic, transport and infrastructure components;
- Stratplan for the LED and Socio-economic analysis;
- Mott MacDonald PDNA for the environmental aspects; and
- GAPP Architects and Urban Designers for assistance with strategic input and a peer-review progress.

The consultant team bring a wealth of knowledge and experience to the Iyer Team, and have previously worked on a number of projects within the Msunduzi Municipality as well as the Umgungundlovu District Municipality.

The Project Process/ Methodology

The original Terms of Reference provided guidance relating to the requested methodology. The following methodology has been used for the preparation of the Spatial Development Framework. The following provides a more detailed breakdown of the various stages, completed and anticipated for the competition of the project. This report represents phases 3 and 4 of the adjacent outlined methodology.

Phase 1: Inception Report and Communication Plan

The initial phase of the project allowed the client body and project team to confirm the methodology and approach to the project going forward. An additional line item for this phase was the preparation and development of a 'Road-Map'. The 'Road-Map' aimed at providing a way forward in the preparation of the review for the Msunduzi Municipality SDF. The report highlighted the weaknesses and shortfalls of the current SDF, while also outlining the different issues that need to be addressed as part of the SDF Review process.

Phase 2a: Credible Status Quo Report

The Status Quo Analysis provided a detailed, integrated analysis and assessment of the Msunduzi Municipality. The overall analysis was conducted in terms of the Sustainable Urbanism approach, established at the outset of the project. The Status Quo document serves as the basis to guide the development of the SDF (separate to this report for reasons of brevity, but available electronically).

Phase 2b: Synthesis of Issues

The Synthesis of Issues component provided an analysis of the current situation within the Msunduzi Municipality, identifying key issues which need to be addressed in the formulation of the SDF. The 'Synthesis of Issues' is highlighted in the section which follows as well as the concluding chapter within the Status Quo Report.

Phase 3: Vision Development

The ultimate 'Vision' for the Msunduzi Municipality was established at the outset of the project, in the form of the 'Sustainable Urbanism' approach. The approach and vision adopted for Msunduzi Municipality ensures the spatial preparation and development of a Sustainable City.

Chapter 3 in this report reiterates the 'Sustainable Urbanism' approach and outlines the current expectation for growth and development from a global perspective.

Phase 4: Draft Spatial Development Framework

The Draft SDF prepared comprises the bulk of this report. Using the 'Sustainable Urbanism' directives, a number of goals and objectives have been established for each of the sustainable urbanism pillars. These goals provide the framework on which the draft SDF has been prepared.

Phase 5: Achieving Support for the Draft Spatial Development Framework

The ultimate goal in preparing the draft SDF for the Msunduzi Municipality was to achieve support for the proposals identified. This process is an internal Municipal process which commenced after the Draft SDF has been issued for circulation. This phase included a number of consultation processes with various fora.

Phase 6: Finalisation and Approval Process

This phase required the project team to address concerns identified in phase 5, and to finalise the SDF for the final approval process. This phase also included a number of consultation process with various forums.

Phase 7: Implementation, Monitoring and Evaluation Process

The Implementation phase involved the formulation of a guiding process to enable the Municipality to implement and track the progress of the plan on a project-by-project basis.

Phase 8: Close Out

The final phase of the project required the finalisation of the SDF plan, taking into consideration all concerns identified within phases 6 and 7.

1.2 PROJECT APPROACH

Msunduzi as a City sits at a critical point of change. As the second largest metropolitan complex in the province, Msunduzi is on the brink of acquiring Metropolitan Status and a shift toward City Development. It is for this reason, that a very different SDF is required, one which breaks from the conventions of land use driven frameworks, and the paralysis of processes based on an extensive status quo analysis, which has led to many of the SDFs prepared within the province being nothing more than a reflection of what exists.

The approach adopted for the SDF is primarily about presenting a possible future, which whilst being cognisant of the past and present, is firmly rooted in establishing a compelling vision of the future and in advancing the goals of cities. By nature, therefore, an SDF must be strategic and visionary. At no other point in the history of the City is this approach more prudent. Therefore, the basis of our approach and methodology is the notion of increased emphasis on defining a Future Spatial Vision, matched with an implementable Framework that serves as the defining instrument for future development. The SDF should be forward looking, whilst addressing past imbalances, with a strong focus on City Development. Now is the moment to seize a remarkable opportunity.

Secondly, the philosophy underpinning our approach is one that acknowledges Spatial Planning in its literal sense cannot realise the full suite of requirements for City Development. It is thus essential that a realistic implementation framework be tied to the SDF process.

A key component of the SDF is thus providing for suitable resourcing and experience within the team that understands the funding and implementation context within the municipal environment. The SDF must translate into a clear decision-making tool which is able to chart a way forward for public sector investment.

Equally, importantly realising the development goals of the municipality relies on the ability of the city to create an environment that facilitates Private Sector confidence and investment. It is therefore critical that the SDF conveys a confident and realistic future that is attractive for private sector investment.

Thirdly, in order for the SDF to be relevant to contemporary society and current development realities, the SDF must be grounded in a real understanding of the nature and change evidenced in contemporary South African cities. Msunduzi today is a clear reflection of the dual nature of the South African city 'condition'. Understanding the challenges of newer forms of energies and the informality of current CBD contexts is critical to arriving at a sound SDF. At a more micro spatial planning scale, it is imperative that an appropriate approach to designing for dual economies, informality and the feel and character of the current South African city scene, is paramount.

The fourth aspect of the approach is basing future development on realistic targets and growth scenarios. Often spatial frameworks depict either a static existing land use profile or, alternatively, an accretion of the existing findings leading to a full 'coloured in' zoning plan. These are not based on an actual translation of population growth, applicable densities and spatial footprints realistically required.

As a result this generates unrealistic expectations and anticipates unrealistic demands on infrastructure. The SDF then, rather than being a tool to facilitate development, becomes an actual impediment to growth and development. We propose a truly strategic approach to growth, and importantly, base future growth on a real understanding of population dynamics, trends and growth forecasts. Embodied in our approach is an understanding that cities are dynamic and their growth is a result of an ongoing development process; one of action with sequential and incremental infrastructure provision and response.

The fifth, and most critical aspect of our approach is the need to focus the SDF around a 'Sustainable Urbanism' argument. Iyer Urban Design Studio, has over the last few years developed a composite understanding and approach to designing for sustainable urbanism. Sustainable Urbanism arguably presents a wider view of sustainability.

There is a fundamental need to understand the collective impact of city form - its shape, footprint, make-up, and ultimately the performance of places in delivering sustainability. The nature and pattern of cities has the most significant bearing on sustainability. Therefore, a much wider set of objectives needs to form part of the sustainable cities argument. We firmly believe that the SDF should be guided by objectives of sustainable development. As a result, a key aspect of the SDF is to develop a methodology that uses specific sustainability criteria as a focus point, a filter and a lens in developing the SDF.

1.2 PROJECT APPROACH

Based on all of the above, it has been recommended that the SDF be understood as a powerful tool for future City Development, and that the approach put forward recognises this need. The approach to be applied represents a clear, focused and results-oriented departure in our execution of work from conventional, static and land use driven SDFs that typically fall short of providing what should be a compelling spatial vision that coheres, guides and inspires.

The following section outlines the structure and purpose of this report.

1.3 STRUCTURE AND PURPOSE OF THE REPORT

As outlined above, the Sustainable Urbanism approach becomes the basis and foundation for the approach adopted in formulating the Msunduzi SDF. The Sustainable Urbanism methodology was adopted at the outset of the project, and therefore each phase within the project is approached as per the seven identified pillars.

Each pillar potentially is geared towards a specific portfolio committee, or line department(s) and can be used as a complete 'toolkit' or guideline document, which will outline the existing status quo, development objectives and guidelines for the vision and concept, developmental approach, as well as detailed projects and an implementation plan. Therefore each pillar could be assigned as follows;

- **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;
- **Social Inclusivity** – Community Services and Social Equity Committee; and
- **Sustainable Services** – Infrastructure Services, ABM Management and Facilities Committee.

This would ensure that the SDF becomes a guiding and coordinating instrument, ensuring that implementation occurs.

With Sustainable Urbanism as the basis, the Msunduzi Draft SDF Report has been structured in the following manner:

Section 2 – Synthesis of Issues

Section Two, the synthesis of issues is derived from the previous report, Status Quo Analysis. This section formed part of the Status Quo Analysis conclusion and provides the basis for the approach adopted in the preparation of the Msunduzi SDF. The Synthesis of Issues identifies three primary challenges as a result of the Status Quo evaluation to be addressed – the N3 Corridor, a Polycentric City Structure and Understanding Vulindlela.

Section 3 – Vision & Approach

The vision chapter reiterates the Sustainable Urbanism pillars as outlined in the Status Quo Report. The Sustainable Urbanism approach forms the foundation on which the Msunduzi SDF is developed.

In conjunction with the vision, the team outlines the basic building blocks for the development of a 'Sustainable City' as well as a brief global perspective on existing urban growth.

As a result of the challenges that face the Msunduzi Municipality, six strategic interventions /approaches have been adopted for the formulation of the SDF. The six overarching interventions include: Transformation, Equity/Equality, Restructuring, Recycling/ Upcycling, Reinventing and Public Place Making.

Section 5 – Msunduzi Growth Model

As part of the background to the development of the SDF, and based on the Status Quo findings an Economic Development Strategy and Spatial Development Strategy was developed. The purpose of these Strategies is to provide an understanding of population and economic growth implications within Msunduzi over the next 40 years, i.e. to the 2050 horizon. Therefore the Strategies developed will provide the SDF with realistic figures for the growth and development of the population as well as the economic sectors within the Msunduzi Municipality, projecting to 2050.

Section 6 – Msunduzi Draft SDF

Section six is divided into the seven sustainable urbanism pillars – Global Connectivity, Productive Systems, Ecological Infrastructure, Sustainable Transport, Quality Urbanism, Social Inclusivity and Sustainable Services. Each pillar provides a number of interventions required for its successful development and implementation.

The final plan reveals the composite Msunduzi SDF, which if achieved, will ensure the development of a truly Sustainable Urban City.

The section concludes with a summary of findings, and highlights briefly how global climate change impacts have been factored and 'built' into the plan, spatially.

Section 7 – Implementation Plan

The final section of the report provides a new and dynamic approach to implementation through the introduction of various programmes and strategies for implementation.

SYNTHESIS OF KEY ISSUES

2.1 STATUS QUO SUMMARY

The Status Quo Analysis provided a detailed, integrated analysis and assessment of the Msunduzi Municipality. This section of the report provides a summary of the current state of the Municipality, as well as key issues which need to be addressed in the formulation of the SDF.

The Status Quo and Synthesis of issues report therefore serves to guide the development of the SDF. The following provides a summary of the key issues emanating from phase 2a and 2b of the project.

Global Connectivity

From a global connectivity perspective it was established that the geographic location of the municipality and existing national road, rail and airport infrastructure that allow access to the O. R. Tambo International Airport in Johannesburg, the Durban Harbour and King Shaka International airport in Durban alike, provide the City with the opportunity of improving its global connections and presence. Johannesburg and Durban are seen as potential gateways for Msunduzi and, in turn, Msunduzi municipality will increasingly act as a gateway to its surrounding local municipalities.

From a non-physical connectivity point of view, the acknowledgement at provincial level that non-physical connectivity is just as important as physical connectivity is evident in the various initiatives that are aimed at improving internet access and ICT usage within the province. There is therefore a need to improve ICT infrastructure within Msunduzi municipality as it will in turn have multiple benefits on educational institutions, hospitals, clinics and

local governance in the municipality – directly in line with strategic provincial objectives such as that of the PGDP (objective 4.4: Development of information and communications technology).

Productive Systems

Another recurring issue observed during the analysis was the existing spatial segregation stemming from apartheid era policies. Currently the bulk of economic opportunities is in and around the central (CBD) area, Ashburton & Eastern areas and Northern areas (see ABM map overleaf).

The Greater Edendale and Vulindlela areas, which are historically black areas, are significantly less developed and economically active (in the formal sense) than the other ABM areas in the Municipality (see map overleaf). The Greater Edendale/ Imbali area was earmarked for the development of an Urban Hub as part of the NDP's Urban Network Strategy for improving the spatial structure for cities in South Africa. As such it is anticipated that this will bring about a higher rate of improvement in the area (the informal economy being acknowledged equally in this area).

The remaining major concern for the municipality from a productive systems point of view therefore remains that of Vulindlela. In terms of investment it appears to be fast-becoming a forgotten area (particularly by private investors) within the municipality. As such there is a need for key intervention measures in this area to ensure successful functioning of the whole municipal area.

Ecological Infrastructure

In terms of green structure, 46.3% of the total 63,385 ha of the municipal area still remains as natural open space. One of the main initiatives that have been adopted in a bid to preserve the ecological heritage of the municipality is the establishment of the Environmental Management Framework (EMF) as a proactive environmental planning tool.

It was found that 20186 ha or 31.7% of the municipal area has conservation importance. However, currently only 853.5 ha or 1.35% of the Municipality is formally protected. This figure is increasing with Biodiversity Stewardship initiatives taking place particularly in the Ashburton area, however this figure is considered inadequate with regard to protecting remaining areas of conservation value (EMF, 2010).

One of the city's benchmarks is to ensure that 100% of residents are within 15 minutes walking distance to facilities within the cities open and green space network. Considering that a number of residential areas within the municipality do not have this type of access, it is evident that there is a need for this to be addressed in the preparation of the SDF.

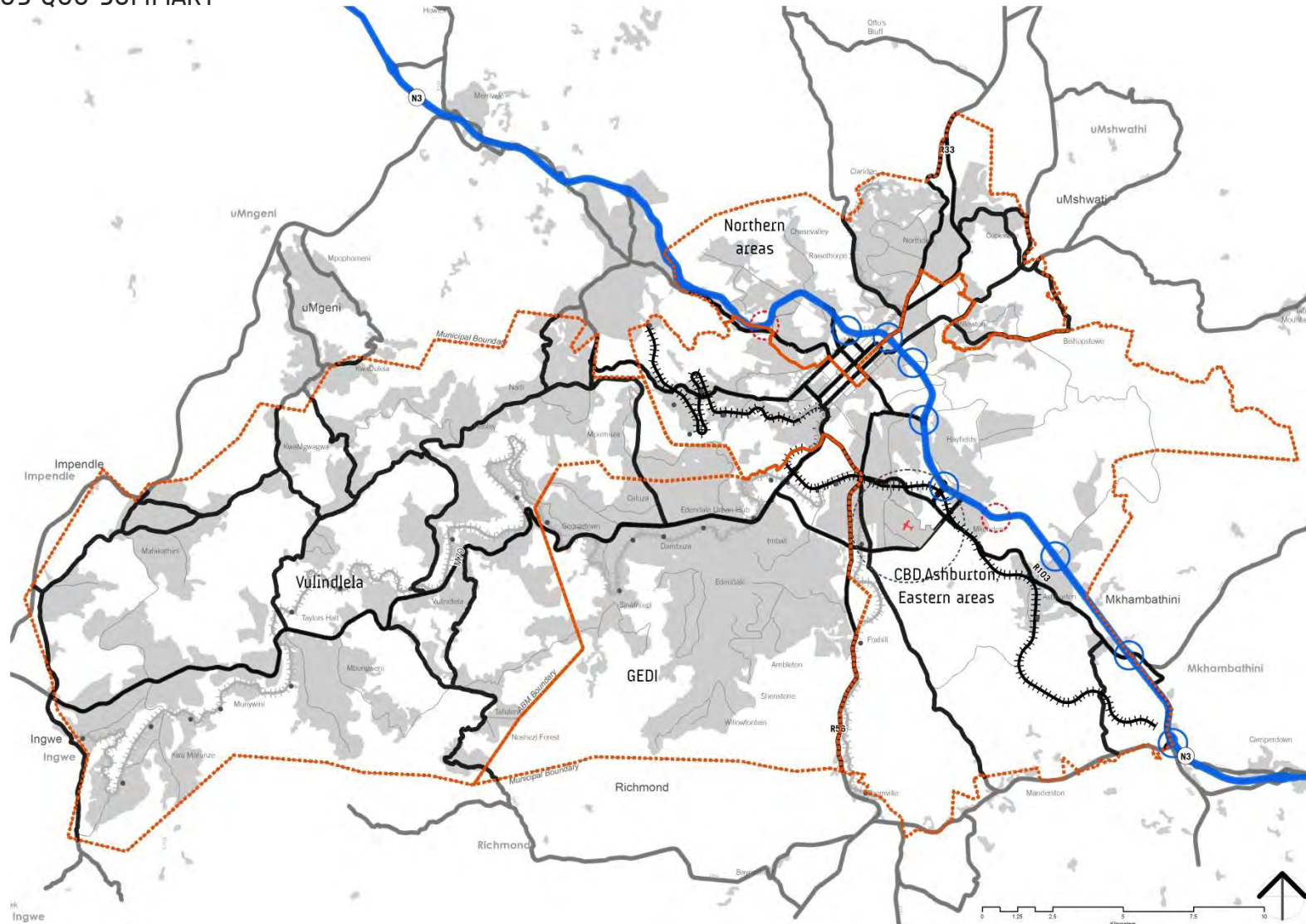
Sustainable Transport

With regard to transportation, the assessment reflected that access and permeability of the municipal area is limited due to the Municipality's current structure as well as the undulating topography predominantly in the western side of the municipality.

As is the case in many South African cities, the majority of the population is dependent on public transportation or pedestrian movement. However the needs of the population

02 SYNTHESIS OF KEY ISSUES

2.1 STATUS QUO SUMMARY



2.1 STATUS QUO SUMMARY

are currently not adequately supported. Additionally, the existing road infrastructure was found to have capacity issues. It is evident that, in order to ensure the success of the municipality, the SDF must address the inherent transportation issues confronting the municipality.

It is envisaged that, once the proposed IRPTN project be implemented, it will address the issues of public transport, road capacity and pedestrian movement within the municipality, thus improving permeability and access for all within the municipal area.

Quality Urbanism

Quality Urbanism looks at creating urban environments that offer opportunity, choice and promote safety and a sense of place. At the centre of this is the idea of cities that work for all. The assessment reflected that the spatial form of the city was strongly shaped by apartheid policies. The impact of this is still evident today as the northern and north eastern areas of the CBD today remain better developed and serviced than the areas to the south-west of the CBD. The areas to the north of the CBD were found to generally possess a wider variety and concentration of services and facilities (areas like Montrose and Willowton).

The former township areas south and south west of the CBD were found to have a lesser variety and concentration of services and facilities. In terms of recreational areas and facilities, while spaces may have been provided in some areas, the quality, maintenance and accessibility to the communities they are supposed to serve was found to be inadequate. Numerous informal settlements were identified across the municipality mainly in the Imbali as well as Copesville areas. This emphasizes how important it is for the SDF to make spatial provision for the housing needs

within the municipality, and to ensure adequate service provision within these areas.

The assessment conducted reflects that there are various areas within the municipality that could be ideal for future densification (reflected in the maps which follow in Section 5.9). These areas are mainly those identified as having a range services and facilities aligned with public transport systems, and become an important factor in the location of densification initiatives – in identified urban centres and future IRPTN corridors.

Social Inclusivity

The Municipality is currently not socially inclusive. The main evidence of this is through the numerous informal settlements in the municipality and unequal distribution of public amenities and the root of this present problem can again be traced back to the apartheid era planning policy and implementation.

The assessment reflected that the Greater Edendale, Imbali and Vulindlela areas have been neglected in terms of the provision of civic and social facilities. This is caustic considering that these are equally highly populated areas, and the population-to-social facilities ratio is low. There is thus a need for the study and improvement of the provision of civic and social facilities in a way that ensures access to them by all.

Sustainable Services

In the case of the civic and social facilities, there is once again evidence of unequal service provision between the Northern/ CBD/ Ashburton and Eastern Region as compared to the Greater Edendale and Vulindlela areas but most especially the Vulindlela area (which in itself requires

more innovative, robust approaches – due in part to topographical and locality issues, and it being on Ingonyama Trust Board land).

Sanitation and water services were found to be most lacking in the Edendale and Vulindlela areas. These are both considered to be essential services to create decent human living conditions. Considering the benchmarks set in the Municipality's IDP, there is still a lot to be done to improve provision in this area. It must be noted that the Municipality is also in a place where it can explore more innovative and sustainable means of providing services to its population.

After considering the key issues identified in the status quo report, the next phase involves addressing the key issues by establishing specific strategies per sustainability pillar.

This report thus presents the proposed strategies under each of the 7 sustainability pillars and highlights how the city will become 'A City of Choice Second to None'.

This aims to ensure that Msunduzi is a city where its entire population can live peacefully, move about freely and in a cost-effective manner, work to earn a living and reduce unemployment, poverty, inequality, and play, and lead a healthy lifestyle, thus increasing life expectancy.

As a means toward reaching this vision, the Municipality aims at being a well serviced city; an accessible, connected city; a clean, green city; a friendly, safe city; an economically prosperous city; and a financially viable and well governed city.

2.2 STRATEGIC ISSUES

As a result of the status quo assessment, three strategic, overarching issues which require additional attention have been identified within the Msunduzi Municipality. These are acknowledged as being:

1. The N3 Corridor

The N3 Corridor is a relatively recent addition to the movement infrastructure of the Msunduzi Municipality, only coming into service around the 1970's. The historical spatial planning, together with the movement infrastructure, guided the spatial economic development of the city, with higher order activities generally being located on routes of national and regional significance, with these routes originally passing through the Pietermaritzburg CBD.

Although manufacturing opportunities linked to this road have been exploited over the past 30 years, it has only been over the past decade that the route altered the spatial distribution of the commercial and retail sectors in the Municipality with the Liberty Mall and surrounding developments bearing testimony to this (Msunduzi Municipality SDF Review, Phase 2A & 2B, Status Quo Report, May 2014).

The existing transition of the commercial, retail and industrial sectors to be in closer proximity to the N3 corridor, presents new land opportunities to be created and established. With modern business and industry being attracted to high visibility and connectivity along major movement infrastructure, the N3 spine provides these opportunities as well as the opportunity for linking to a wider network and reinforces appropriate local and global connections. Currently, limited infrastructure along the route, in the form of multiple, full interchanges at

key intervals is hindering the ability of new industry to develop and utilise the space. Improving connectivity along the N3 with the introduction of new interchanges and upgrade of existing interchanges, will allow Msunduzi to grow and engage at a more regional level. This is a vital starting point for the growth and recognition of the Municipality within the regional scale.

2. Polycentric Structure

The notion of a polycentric structure within the Msunduzi context recognises the need to break down the existing distribution of opportunities through the development of new centres throughout the Municipality.

The existing structure does not promote live, work and play environments. Residents commute long distances, at great expense, between places of work and residence. The introduction of a polycentric structure will see the establishment of industrial, commercial and retail sectors within specific, desirable places throughout the municipality, complementing the existing CBD structure.

This re-structuring therefore calls for the review of the existing nodal and corridor structure, which focusses on a hierarchical approach. This approach results in a lot of energy and investment being concentrated into the more prominent areas identified as nodes, at the expense of other worthy or needy areas outside of this system. Currently, as a result of this system, primary and secondary nodes get continuous investment. It is therefore proposed that the nodal, hierarchical system be replaced with a new approach to this system is developed, where all areas are reviewed as being 'in need' of appropriate investment. This approach will assess all areas as areas of need, which will receive tailored scales of investment over time.

3. Understanding Vulindlela

The Vulindlela area is located to the west of Pietermaritzburg and northwest of the Greater Edendale area. To some extent, it is an extension of the more formally settled Edendale area. It covers a substantial percentage of the total land area of Msunduzi, accounting for almost 40%. The IDP (Msunduzi, 2013) indicates that the study area is made up of 9 wards; and the following traditional council areas Mafunze, Inadi, Mpumuza, Nxamalala and Ximba. In 2011 the area was home to nearly a quarter of the population of the municipality.

The M70 provides the main linear structuring element, stretching through the area in an east west direction linking into Edendale, and stretching to the regional access route, the R617, in the west (this route links Msunduzi with Impendle and onwards to Bulwer and Underberg).

Vulindlela is currently a misunderstood area. It is viewed as a traditional rural environment, which in certain parts is true, however the majority of the area should be classified as a traditional suburb - much like other suburban areas within the Msunduzi context.

An exercise conducted between the layouts and densities of established suburban areas within the established city and randomly selected portions of Vulindlela confirmed this, with both areas producing overall densities of 2 du/ha in many of these areas. Understanding Vulindlela as a suburban and not a rural area is the first step of its successful integration into overall Municipal planning, and in successfully providing the needs, services and facilities to 'complete' Vulindlela as a livable settlement.

VISION AND APPROACH

03 VISION AND APPROACH

3.1 A GLOBAL PERSEPCTIVE

Cities globally are rapidly urbanising. The rate of urbanisation is illustrated in the adjacent diagram, where the rural population globally as well as in sub-Saharan Africa is indicated in green and grey respectively.

The orange and red circles indicate the increasing growth of the urban population. It is also important to note that the size of the circles themselves is also indicative of growth or decline .

The diagram illustrates the rate of growth and urbanisation from 1960 to 2050. The graph indicates the tipping point for global urbanisation around 2010, where the global population that was urbanised exceeded that which was rural. Projections beyond this point illustrate and project that by 2050, approximately 70% of the world's population will be living cities.

Therefore, the way in which cities are viewed and how they function becomes very important, as this is where the majority of the world's population will be living. The form and nature of these cities and their growth is critical as they become the economic engine room and population centres for countries.



03 VISION AND APPROACH

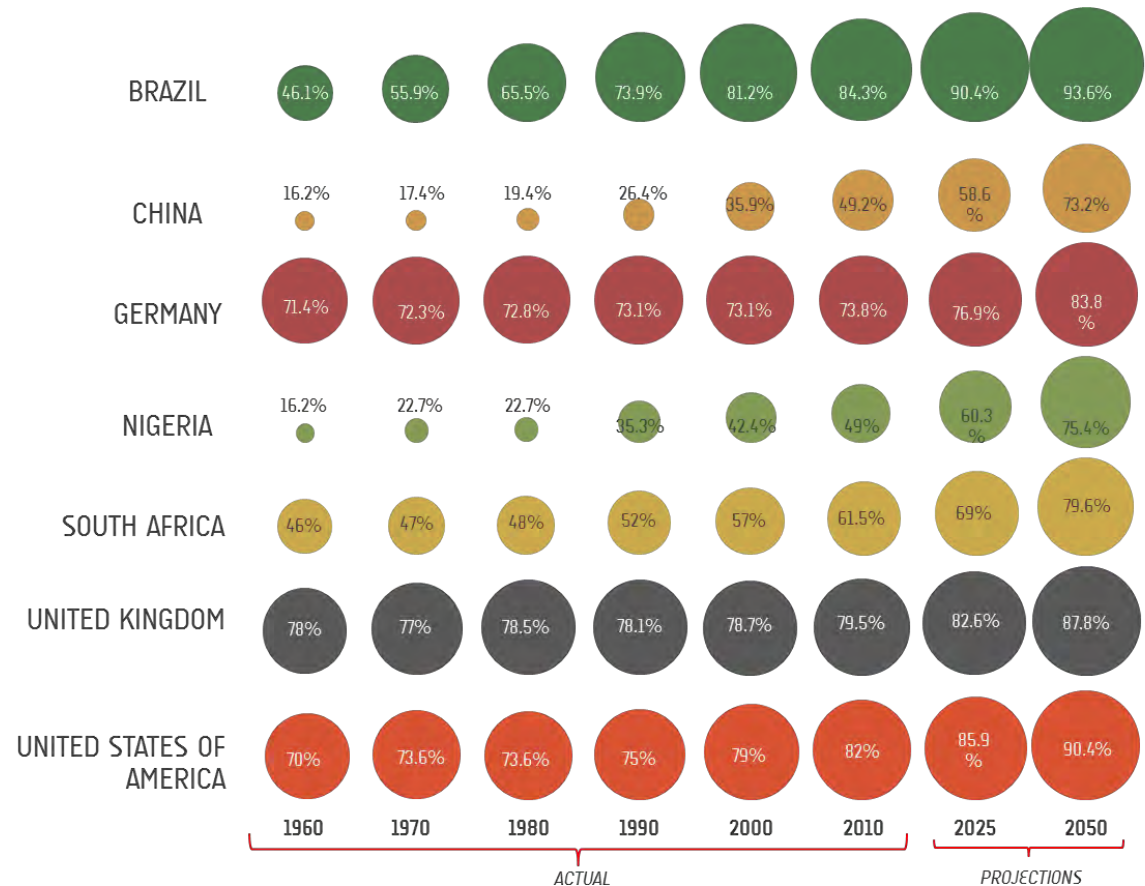
3.1 A GLOBAL PERSEPCTIVE

The adjacent diagram illustrates the growth and urbanisation of seven unrelated countries over the last 50 years, as well as the anticipated projection of growth until 2050.

While the growth and development of China and Nigeria, for example, has been dramatic, South Africa has experienced steady growth. The projected growth of South Africa in 2050 climbs significantly in comparison to the preceding years.

These diagrams highlight the shift towards cities and growth of a globalising urban population. This suggests the significance of cities as places for substantial growth in future and highlights the need for a well considered approach to the growth of cities, such as Msunduzi, particularly in the context of sustainability.

Our future is an urban future and therefore the shape and form of cities is paramount to a meaningful future.



Source: World Bank, 2014

3.2 MSUNDUZI MUNICIPAL VISION

The Msunduzi Municipality Vision, as taken from the 2014/ 2015 Review of the Integrated Development Plan (IDP), is a **'City of Choice, Second to None'**.

In the foreword by the Municipal Manager Mr Mxolisi Nkosi, for the 2013/ 2014 IDP Review, Mr Nkosi states that the IDP creates a:-

"Strategic framework of the municipality, based on the Vision 2030 City Development Strategy, which encapsulates a Vision of the 'City of Choice Second to None', which is to develop a City where the entire Citizenry can live peacefully, move about freely and in a cost-effective manner, working to earn a living and reducing unemployment, poverty, and inequality, and playing to lead a healthy lifestyle, thus increasing life expectancy. As a means towards reaching this vision, the Municipality aims at being a well serviced city; an accessible, connected city; a clean, green city; a friendly, safe city; an economically prosperous city; and a financially viable and well governed city. In order to realise our Vision, we have identified six broadly defined outcomes:

1. *The focal areas for the first outcome, **a well serviced city**, are: water and sanitation service delivery, energy supply provision, and implementation of waste management – for all.*
2. *The focal areas for the second outcome, **an accessible and connected city**, are: roads construction and maintenance and transport management, human settlement development, telecommunications connectivity, and social infrastructure distribution.*

3. *The focal areas for the third outcome, **a clean, green city**, are: renewable energy supplies, public open space creation, and urban renewal and greening promotion.*
4. *The focal areas for the fourth outcome, **a friendly, safe city**, are: social cohesion, and safety and security.*
5. *The focal area for the fifth outcome, **an economically prosperous city**, is: job creation.*
6. *The focal areas for the final outcome, **a financially viable and well governed city**, are: to have empowered and skilled employees, sound financial management systems, accountability, and effective anti-corruption measures'."*

(Foreword by the Municipal Manager: IDP 2014; Pg 2)

The focal areas identified above will be addressed within the Sustainable Urbanism Framework established for the development of the Msunduzi SDF. To achieve the Municipal vision and develop a Sustainable City the focal areas will be addressed in the following manner ;

1. **Focal area one** - a well serviced city, will be addressed under Sustainable Services;
2. **Focal area two** – an accessible and connected city , will be addressed within Global Connectivity, Sustainable Transport, Quality Urbanism and Social Inclusivity pillars;
3. **Focal area three** - a clean, green city, is addressed within the Ecological Infrastructure;
4. **Focal area four** - a friendly, safe city, is implicit within all the pillars, however particular reference will be made under Sustainable Transport, Quality Urbanism, Social Inclusivity and Sustainable Services;

5. **Focal area five** - an economically prosperous city, will be assessed under Productive Systems;
6. **Focal area six** - a financially viable and well governed city, these objectives refer to an underlying management layer within the Sustainable Urbanism approach. This focal area will be addressed more specifically within the implementation plan of this project and not within the development of the Msunduzi SDF.

In addition to these 'Focal Areas' the project team have identified a number of other interventions, as a result of the Status Quo Assessment, that will be assist the Municipality to achieve its vision. These interventions are detailed critically within chapter six of this report.

Msunduzi Municipal Vision –

'To be a City of Choice, Second to None, where the entire citizenry can:

- Own a financially viable and well governed city
- Live peacefully
- Move about freely and in a cost-effective manner
- Work to earn a living, thereby reducing unemployment, poverty, and inequality
- Play, to lead a healthy lifestyle, thus increasing life expectancy.'

3.3 SUSTAINABLE URBANISM

The vision for the SDF is informed by the municipal vision, and is driven by a need to pursue more sustainable future. To this end, the SDF is premised on a Sustainable Urbanism model as described below.

Sustainable Urbanism presents a wide view of ‘conventional’ sustainability. Whilst embracing the traditional three-tiered notion of ecological, economic, and social development, Sustainable Urbanism seeks to move toward a more collective view of sustainability. This goes beyond the traditional understanding, which often focus solely on the un-built, and with a the fixation on parts of the system, such as green architecture in isolation of other issues impacting on sustainability. There is a fundamental need to understand the collective impact of city form, its shape, footprint, make-up and ultimately the performance of its places in delivering sustainability. The nature and pattern of cities has the most significant bearing on sustainability. Therefore a much wider set of objectives needs to form part of the sustainable cities debate (Farr, 2007; IYER 2014).

There are several factors that are considered essential in order to achieve sustainable urbanism, these include:

1. Global Connectivity

Cities and Towns that perform well are those which are globally connected.

Global connectivity refers to both physical and non-physical connections or dimensions. Physical connections may be identified as major structuring elements such as roads, and rail that enhance connectivity to opportunities, whereas the non-physical connectivity refers to digital connectivity.



3.3 SUSTAINABLE URBANISM

It is important to enhance access and connectivity at a national and regional scale. Key in this regard is linkage within the space economy. Strategic global connectors such as Ports and Airports are critical to global connectivity. Regional road and rail connectivity is paramount to the increased performance and sustainability of a city.

Secondly, a key aspect of global connectivity is ensuring ICT-related connectivity through access to next generation digital technology, to increase participation within the wider global economy. This is also critical in contributing to enhancing access to knowledge, and growing the skills and education base of cities. Global connectivity is an essential element of sustainable urbanism.

2. Productive Systems

Sustainable cities are productive cities. Cities facing economic decline and with limited growth, are likely to have an unsustainable future. Securing 'production' relates to economic production (the production of jobs and income as well as the agricultural sector).

Economic production involves the development and encouragement of new businesses and providing for jobs to create an employed and healthy population. Healthy cities require the development of productive economic regions. Given the significance of global competition, it is vital that cities innovate and adapt to changes in the market. Defining the competitive edge of particular regions and their infrastructure advantages are paramount to the success of cities. It is vital therefore to retain, secure and expand the productive capacity of cities, whilst adapting to new opportunities as a result of global markets and competition.

Agricultural production relates to securing access and availability of food. This includes ensuring that all urban residents have access to a wide range of types of food in adequate quantities. Ensuring that areas are set aside for productive agricultural use within proximity to urban settlement is critical to food security.

Sustainable cities are diverse in land use providing for a range of opportunities. One of the most important of these is access to economic opportunity.

3. Ecological Infrastructure

Ecological Infrastructure refers to the valuable (free) services delivered to people by natural, functioning ecosystems (SANBI, 2012). Enhancing the Ecological Infrastructure of cities is paramount to sustainable urbanism. It is important to understand the inextricable relationship between human well-being and the natural environment. The positive integration of green space within cities, and planning for the various dimensions of green space, is an absolute fundamental element of sustainable urbanism.

At an ecological level, it is important to understand the significance of protecting natural systems as systems in their own right, and not just in terms of the resources that these provide. Therefore an essential starting point is the restoration and enhancement of natural functioning systems and the preservation of those elements that are considered irreplaceable.

Ecological Infrastructure should include open space opportunities for passive and active recreation. This is tied directly to enhancing human well-being, health and overall liveability.

Another dimension of ecological infrastructure is the incorporation of agricultural land within cities. This includes urban agriculture in appropriate areas – but this component has been included principally under the Productive Systems chapter. The overall concept of sustainable urbanism is dependent on the positive integration of high quality integrated Ecological Infrastructure being integrated into the urban fabric.

4. Sustainable Transport

Environments that perform well for people are those, which provide maximum choice and accessibility. Choice refers to movement at both pedestrian and at vehicular levels. A key objective of sustainable urbanism is providing for improved public transport use and a shift away from dependence on individual private travel.

Sustainable Transport consists of strengthening or replacing current transport systems of an area with more fuel-efficient and environmentally safe alternatives such as bus or rail rapid transport systems, cycling or pedestrian oriented movement. Sustainable transport systems would make a positive contribution to the environmental, social and economic sustainability of the communities they serve.

A key component of sustainable transport is the provision and support for Non-Motorised Transport (NMT) systems. In mixed-use urban environments, given the proximity of residences to employment opportunities, NMT represents an extremely viable option for local access.

The shift from private transport to public transport is vital in achieving sustainability relating to reducing emissions and improving air quality, and general economic efficiency.

Sustainable transport is thus a key facet of sustainable urbanism.

3.3 SUSTAINABLE URBANISM

5. Quality Urbanism

Quality Urbanism is about establishing the timeless qualities of 'good urbanism' that create opportunity, facilitate choice, a sense of place and promote safety. This has at its basis the development of places that work for all people which is an essential ingredient of sustainable cities.

A key aspect of quality urbanism is encouraging density, compactness and complexity. This is a foundation for sustainable urbanism. Apart from land being understood as a scarce resource, density and compact environments are generative in nature and can yield a wider range of urban opportunity.

Density and compactness leads to complexity allowing a greater mix of land uses, shared spaces and services, and reducing the cost of infrastructure. The goal is to promote a particular pattern of fine grain urban form which is complex in profile and which reduces the negative impacts of sprawl.

Mixed use environments increase the choices available to people, having the ability to live and work in an area. Providing the ability to access local needs is an essential aspect of sustainable urbanism.

6. Social Inclusivity

Enhancing social inclusivity is a cornerstone principle of sustainable urbanism.

There are many aspects to social inclusivity, at the broadest level. This deals with the notion of people centered cities, whereby citizens have an active role in shaping their futures.

Participation in decision-making is therefore an essential aspect of social inclusivity.

The physical environment is an important influence in social well being and in fostering inclusivity. A fundamental part of social inclusivity is ensuring equity in the distribution of opportunity for all residents. Successful urban places are those that adequately address the needs of the widest range of society, with a particular emphasis on those with limited means – including the young and the old. A key determining feature of socially inclusive environments is the ability of an environment to cater for the youngest, and at the same time, oldest members of society.

Creating environments that enhance quality of life, afford equal opportunities and enable integration is paramount to achieving sustainable cities.

7. Sustainable Services

Understanding that the planet's resources are finite and limited is a primary starting point for sustainable urbanism. Sustainable services are based on low impact solutions such as the use of appropriate forms of energy, minimising waste, adaptive use and harvesting of by-products.

There are various aspects to enhancing sustainable services such as reducing carbon emissions through energy efficiency and the introduction of new technologies such as solar panels, wind turbines etc.

Other dimensions include reducing the consumption of water and including the harvesting of rainwater. Reducing waste and promoting a culture of recycling is an important aspect of sustainable urbanism.

Developing more compact and dense environments as part of sustainable urbanism also assists sustainable urbanism objectives by maximising the delivery of services. As part of good urbanism, the incorporation of green architecture in reducing the energy requirements through passive design is also an important aspect of sustainability.

The following subsection, 3.4, provides a spatial and graphic depiction of how sustainable urbanism can be realised 'on the ground'.

3.4 BUILDING THE SUSTAINABLE CITY

Building the Sustainable City requires the combination of a number of elements, which are linked in an appropriate and planned manner. For context, the adjacent images and text below outline conceptually the basic building blocks for the development and growth of a Sustainable City. An example of such a process is provided below and graphically depicted on the right.

Stage 1

- The identification of the green structure as a base;
- The position of settlement at interceptory points of high accessibility, and in support of public transport.

Stage 2

- The growth of settlement around a central place;
- The provision of public amenities and places.

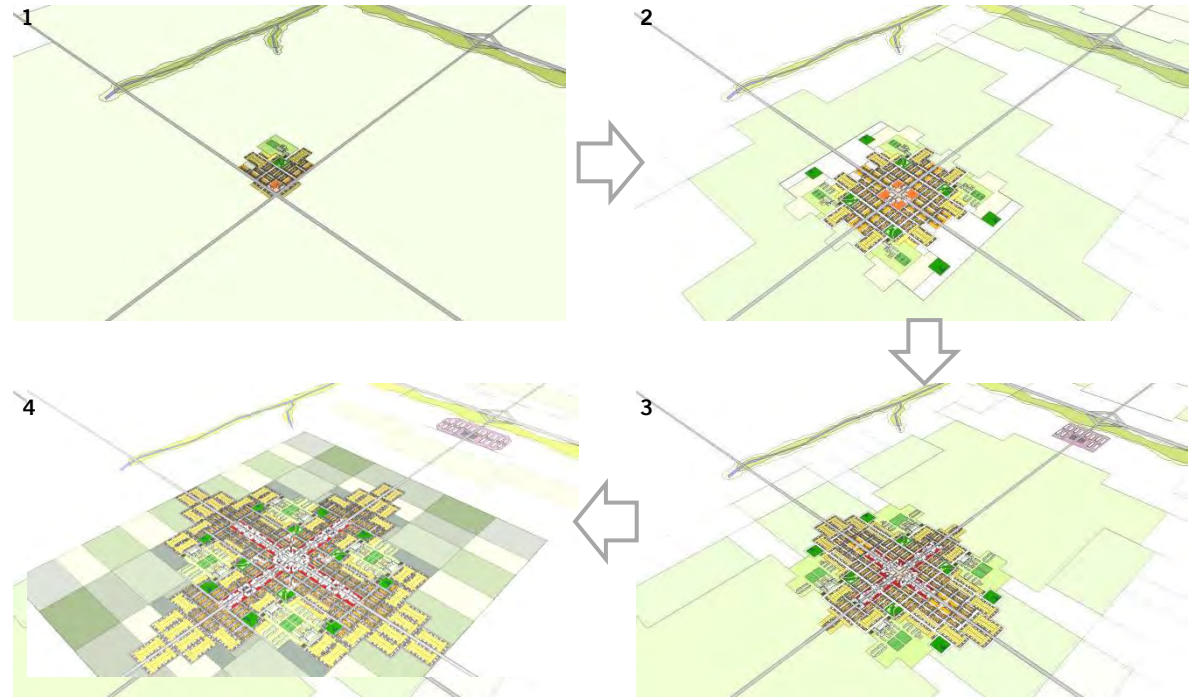
Stage 3

- The introduction of economic opportunities along main access corridors;
- The expansion and growth along the main axes with consequent provision of facilities.

Stage 4

- The introduction of a range of densities with particular emphasis on higher densities providing exposure and definition along the primary route;
- The structuring of development and densities along public transport spine;
- The reservation of productive land for agriculture in proximity to settlement and markets.

These spatial structuring concepts inform the preparation of the ultimate spatial framework.



Building the Conceptual Sustainable City

3.5 THE APPROACH TO THE DEVELOPMENT OF THE MSUNDUZI SDF

Based on the Status Quo synthesis together with the overall approach to the project – Sustainable Urbanism, the following approach has been adopted as the primary intervention for the review and development of the Msunduzi SDF.

The approach consists of six targets or tools which can be used to intervene within the Msunduzi Municipality;

1. Transformation;
2. Equity/ Equality;
3. Restructuring;
4. Recycle/ Upcycle;
5. Reinventing; and
6. Place Making.

Transformation

To address the current short comings of the existing conditions within the Municipality, each of the interventions need to be focussed on transformation.

Transformation indicates the need to move away from the status quo and develop a new, fresh way of thinking. For example, viewing the introduction of the new Integrated Rapid Public Transport Network (IRPTN) or the Ecological Infrastructure as an integrator and asset rather than a constraint to the municipal development, and relooking at the concept of nodes and corridors changes the focus to look at areas of need.

The SDF must have transformational objectives and seek to bring about change, it should not merely reinforce the existing status quo.

In summary, the SDF must be a tool to transform the city and create equity. As a result equity and equality become the founding and vital way in which space is structured.

Equity/ Equality

Instilling equity and equality in planning will ensure that all residents of the Msunduzi Municipality enjoy the same benefits and access to amenities. A key aspect of creating equity and equality for Msunduzi residents will require the development of a polycentric structure. A polycentric structure will enable a range of higher order centres to be developed throughout the municipality, therefore increasingly dispersing places of employment and social amenities.

Restructuring

This approach provides a unique opportunity to restructure parts of the system that are dysfunctional and inefficient, for example the long travel distance between places of employment and residential neighbourhoods.

Recycle/ Upcycle

Underutilised infrastructure can be recycled or upcycled into something more desirable for the existing needs of the surrounding community or the Municipality as a whole. Instead of focussing on greenfield development, which is often easier and more attractive, focus should be on the redevelopment of brownfield sites, where areas are neglected and environments tend to become unsafe.

Reinventing

Reinventing parts of the municipality is vital to the overall growth and development of the area. For example, reinventing the city into a more dynamic, dense and vibrant city through the development of limit lines. The same is true for the Msunduzi River. The Msunduzi River is a powerful landscape feature which connects Vulindlela across the Municipality to the CBD via a natural channel, all the way through to the Umgeni system in Mkhambathini. The river is currently underutilised and could be reinvented into a dynamic system that is an asset, providing a range of different functions to the city.

Place Making

The final intervention requires the meaningful integration of public space through the Municipality. Planning is about people and therefore the interventions adopted for the Msunduzi SDF should be focussed on creating a diverse range of public spaces, which meet the needs of all communities within it.

04

MSUNDUZI GROWTH MODEL

04 MSUNDUZI GROWTH MODEL

Economic and spatial development plans often only focus on providing plans for the relatively short term (5 years). The Msunduzi Economic Development Strategy and Spatial Development Strategy will be based on an understanding of population and economic growth implications over the next 40 years, i.e. to 2050. Short and medium term development strategies should then be established based on the context provided by longer term estimates. A similar process was followed when considering the spatial strategies for the Umgungundlovu District Municipality and this section builds further on this approach.

The view of Msunduzi Municipality in 2050 is focussed specifically on the potential implications of population growth and dynamics, as well as economic growth and dynamics.

The Growth Scenarios

As a starting point, the population and economic growth is considered within the context of three scenarios. The most likely scenario is then identified, expanded on and further discussed.

The three scenarios for future population and economic growth for the Msunduzi Municipality considered is simplistically referred to as:

- A low growth scenario;
- A medium growth scenario; and
- A high growth scenario.

In the sections below the scenarios are described and the likely implications of each of the three scenarios unfolding is considered.

Scenario 1: Low Growth Scenario

In terms of this scenario, population and economic growth rates achieved over the past 10 years continues well into the future (earlier sections reflected on population and economic growth for the period 2001 to 2011). The population growth rate will then be expected to be around 1% per annum and the economic growth rate at around 2% per annum.

This scenario is based on a number of assumptions. Firstly, the current severe impact of HIV/AIDS on population growth will continue to be felt over the longer term. Due to subdued economic growth migration to the region will be limited, although people will continue to trickle into the area, not only from neighbouring poverty stricken districts such as Harry Gwala and Umzinyathi, but also from neighbouring local municipalities such as uMshwathi, Mpofana, Impendle and Richmond Municipalities.

The economy will show positive growth, as it has shown for the past 15 years, but this will be well below the rates required to address developmental and poverty issues. New major industrial and property developments will be limited and existing industries will possibly stagnate (Draft LED, 2014).

Scenario 2: Medium Growth Scenario

In terms of the scenario the population and economic growth rates will be in excess of that achieved over the past 10 years. The population growth rate is anticipated to be 2%, whereas the economy will grow at a rate of 5%.

This scenario assumes that the HIV/AIDS pandemic has been curbed and that the negative impact thereof on population growth has been reduced. It is also assumed that, because of higher economic growth rates, the area has become a target for migrants from neighbouring rural local municipalities and Districts such as Harry Gwala and Umzinyathi. Migrants from the Eastern Cape should not be excluded from this scenario.

The economy of Msunduzi is set to grow at 4% per annum, a rate still substantially lower than that proposed in the National Development Plan for 2030 (i.e. at 5.4%). However, even this 4% per annum growth rate still assumes continued capital development, expansion of production activity and the strengthening of all economic sectors.

Scenario 3: High Growth Scenario

In terms of this scenario the population and economic growth rates will be well in excess of that achieved over the past 10 years and will be amongst the highest in the country. The population growth rate is then expected to be 3% and the economy of the District will grow at 6% plus.

As with Scenario 2, this scenario assumes that the HIV/AIDS pandemic has been largely eradicated and the negative impacts of the pandemic have been greatly reduced. Population growth is also stimulated by strong economic growth rates and particularly by people migrating to the area from neighbouring municipalities, districts and further afield.

The economy would grow at exceptionally high rates primarily as a result of major investments in infrastructure, specifically transport infrastructure, and resultant major investments in the industrial and agricultural sector. Msunduzi will have become the investment destination of choice along the N3 Corridor.

04 MSUNDUZI GROWTH MODEL

The Most Likely Scenario

Considering specifically the growth prospects used as the basis for the 2012 National Development Plan, and the potential offered by the municipality, it is suggested that the most likely 2050 scenario for the Msunduzi Municipality and the larger Umgungundlovu District, based on current available information, will be Scenario 2 - the Medium Growth Scenario. The sections that follow expand further on the implications of this scenario.

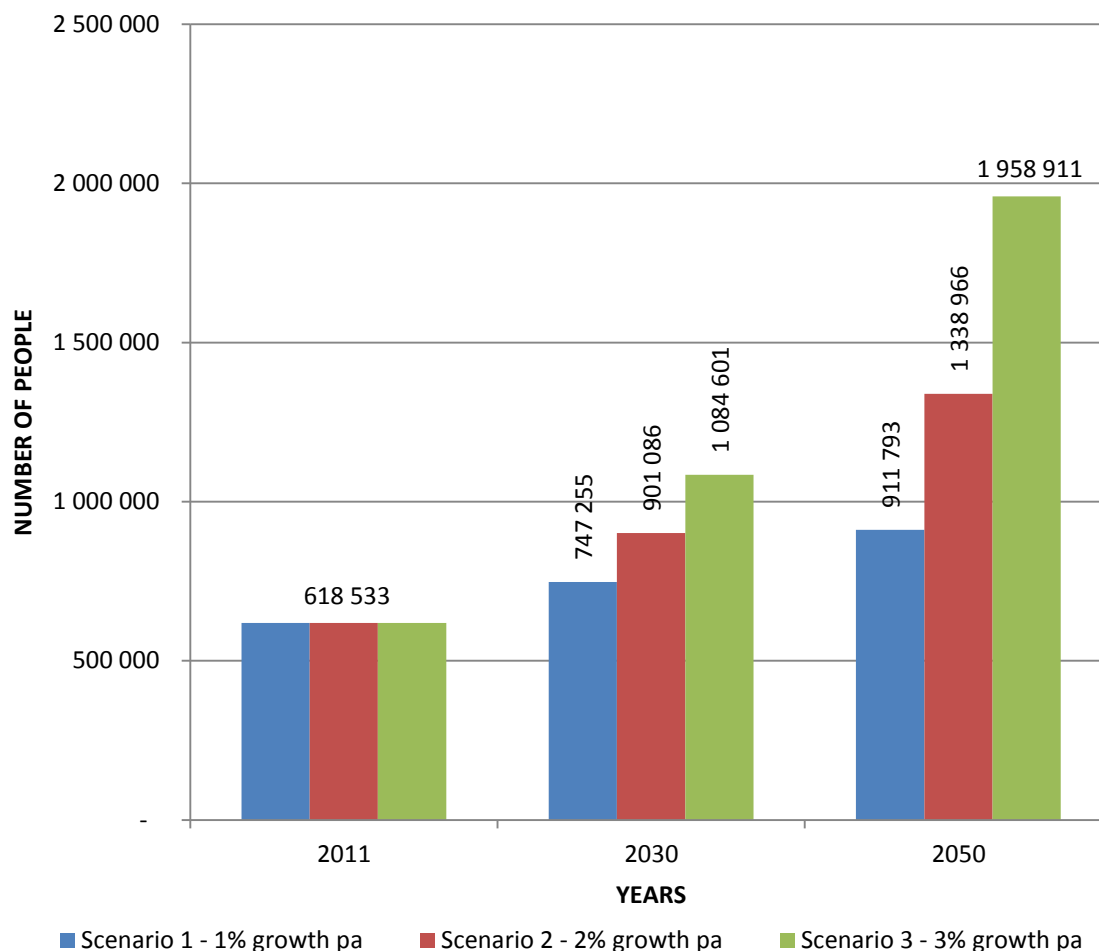
2050 Population Growth and Implications

The implications of the above three scenarios specifically in terms of population growth are considered in this section.

Overall Population Growth

The adjacent diagram reflects on the total district population in 2011, 2030 and 2050 in terms of the three scenarios.

Starting off from the 2011 base of a population of 618 533 people (StatsSA ,2012) the medium growth scenario would see the population grow by nearly more that 60% to 1.1 million people in 2030 and double to 1.34 million people in 2050. Should the 3% growth rate of the high growth scenario be applied, it is estimated that the population in the District will potentially triple by 2050 to just less than 2 million people. Even in the case of the low growth scenario the population of the District will grow with 50% by the year 2050.



Msunduzi 2030 And 2050 Population Growth For Three Scenarios (Stratplan, 2014)

04 MSUNDUZI GROWTH MODEL

Spatial Distribution of Population Growth

From a spatial planning perspective it is assumed that this population growth will not be uniform throughout the Msunduzi Municipality. However, if the population in the various ABM areas grow uniformly the growth will be as reflected in the adjacent diagram.

The adjacent diagram illustrates, based on a number of basic assumptions, the implications of population growth across the four ABM areas of the Municipality. The assumptions are:

- The growth in the Northern Areas will slow down as a result of the developed nature of the area, the low densities and the middle to high income profile of the population in these areas. In similar areas in eThekweni negative growth rates are now being experienced. A growth rate of 0.5% per annum, which is a positive growth rate but below the natural population growth rate, is thus anticipated for the northern areas.
- Greater Edendale Imbali is almost fully developed at fairly high densities. However, because of the low income nature of development in these areas densification will continue to take place through higher occupancy numbers of existing structures and, hopefully, structured attempts to support higher density development (as proposed in the Msunduzi SDF). A growth rate of 1.5% per annum, which is above the anticipated natural population growth rate, but below the projected 2% growth rate for the municipality is expected.



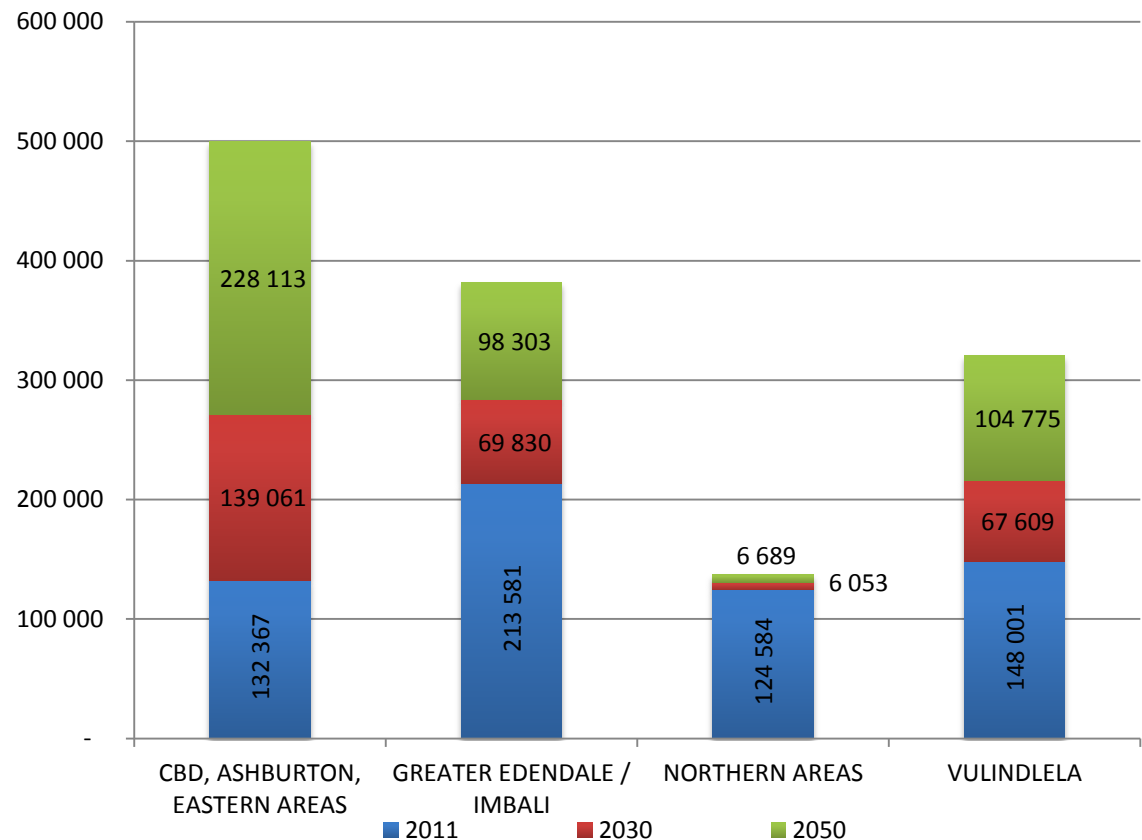
Spatial Distribution Of Growth Applying A Uniform Growth Rate (Stratplan, 2014) –See map in Section 2.1

04 MSUNDUZI GROWTH MODEL

- The Vulindlela area will continue to grow through densification in existing development areas, where overall densities comparatively more rural in nature (although higher in clustered settlement areas). A higher growth rate of 2% per annum is anticipated here as this is viewed as the most convenient location for those arriving in urban Msunduzi to settle.
- Finally, It is anticipated that the CBD and Eastern Areas will experience the most substantial population growth over the next 40 years. This is not anticipated to be natural population growth and densification, but rather planned growth resulting from the location of the area in proximity to the N3 corridor and being the anticipated location for the most significant investment in the economy, specifically in the government, manufacturing, logistics and agricultural sectors. This ABM area is the only one in Msunduzi with space available for substantial greenfields development. Residential development should as far as possible be integrated with those localities where job opportunities will be created. A growth rate of 3.5% (actual 3.46% per annum is thus anticipated in these areas) .

The 2014 to 2050 growth rates for the respective areas will then be:

ABM AREA	GROWTH RATE P.A.
CBD And East	3.46% p.a
Gedi / Imbali	1.50% p.a.
Northern Areas	0.50% p.a.
Vulindlela	2.00% p.a.



Scenario 2: Population Growth In Abm Areas Over Time (Based On Assumptions) (Stratplan, 2014)

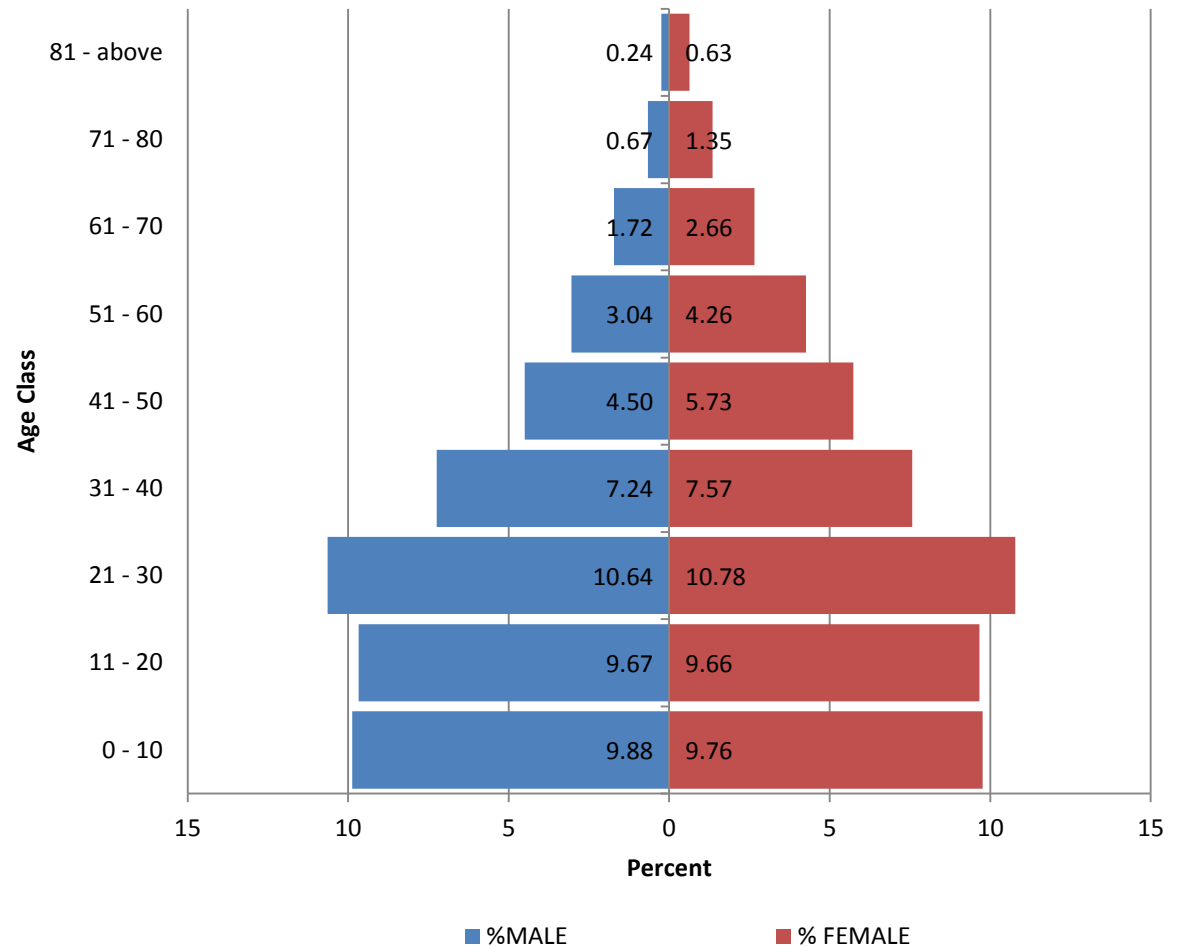
04 MSUNDUZI GROWTH MODEL

The implications of the above basic assumptions are that the CBD and Eastern Areas will grow at a substantially higher rate, but that substantial growth will also have to be accommodated in the Greater Edendale and Vulindlela areas. In terms of Scenario 2, the population of the CBD and Eastern Areas will experience a four-fold increase from 132 367 to close on 500 000 people over the next 40 years. However, the bigger challenge will still remain accommodating the additional growth anticipated in the Greater Edendale and Vulindlela areas.

2050 Population Structure

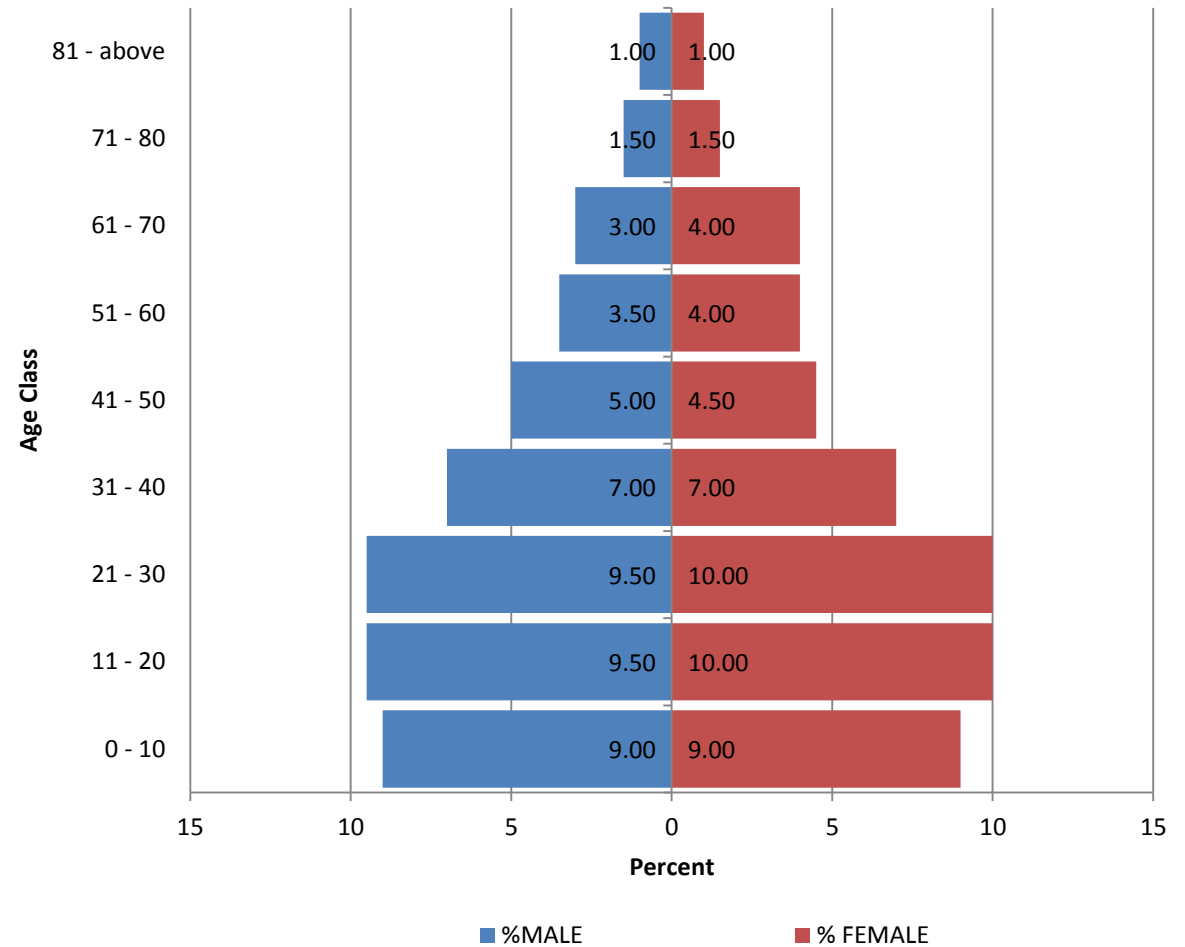
The adjacent diagram presents the 2011 population pyramid for the Umgungundlovu District based on the latest Census statistics. This pyramid is fairly typical for developing countries with a wide base suggesting a very young population. In this case nearly 40% of the population is below 20 years of age and slightly more than 60% are below 30.

It can be anticipated that this population structure will change over the period leading to 2050 and that the population, in terms of the medium growth scenario, will include a larger percentage of the aged and that the contribution of the younger age categories to total population will become smaller, i.e. the base will start to shrink. The result will potentially be a population pyramid as reflected in the following diagram.



2011 Msunduzi Population Pyramid (Stratplan, 2014)

04 MSUNDUZI GROWTH MODEL



2050 Msunduzi Population Pyramid (Stratplan, 2014)

04 MSUNDUZI GROWTH MODEL

Applying the above population distribution to the 2050 population estimated for the Medium Growth Scenario provide the results reflected in the adjacent table.

It is noted that although the percentage contribution of the youngest age group will decrease the actual number of people in the 0 – 20 age category will be nearly as high as the total population of the Msunduzi population in 2011. The number of people in the 40 and above categories will also be relatively high when compared to the current population in those age groups.

Implications For Housing

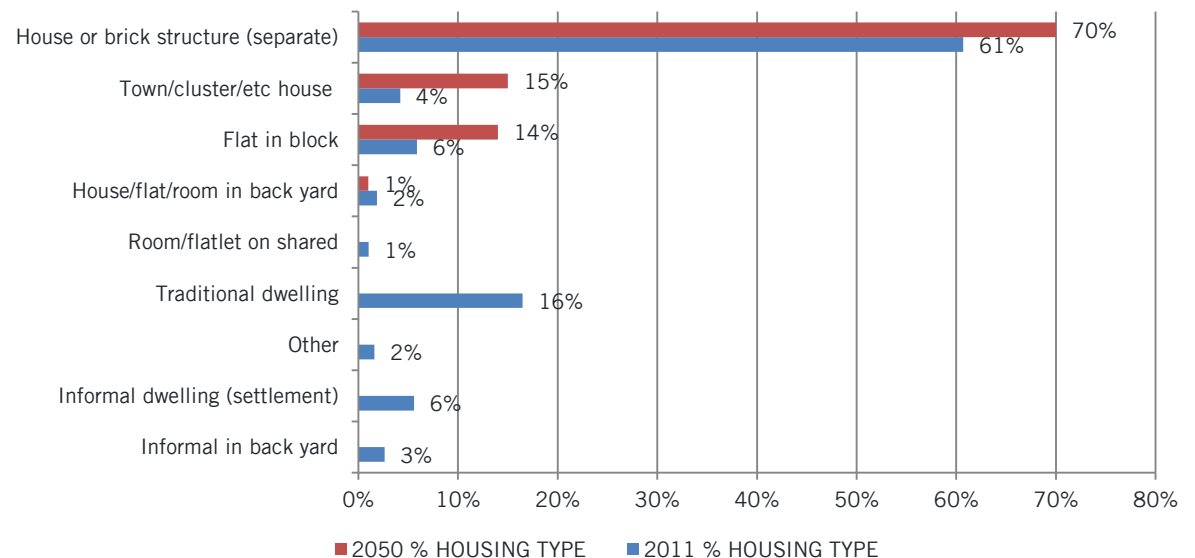
The medium growth scenario suggests, considering a reduction in family size by 2050, that nearly 355 000 housing units will be required by 2050. The current housing stock also includes a large number of informal and traditional dwellings requiring upgrading.

The adjacent diagram reflects on the 2011 housing stock in Msunduzi and the preferred distribution of housing types in Msunduzi by 2050. This suggests an eradication of informal housing by 2050 and that 70% of the population is accommodated in formal housing and/or apartments 15% in higher density clusters, 14% in highrise blocks of flats and 1% in backyard rooms or flats.

Considering the need for 191,007 housing units to be provided, including what can be viewed as the current backlogs (primarily informal and traditional housing), over the 40 year period, the table which follows reflects the overall number of units to be provided, and breaks this down to the annual figure to be provided.

AGE	MALE	FEMALE	TOTAL
0 - 10	120,507	120,507	241,014
11- 20	127,202	133,897	261,098
21 - 30	127,202	133,897	261,098
31 - 40	93,728	93,728	187,455
41 - 50	66,948	60,253	127,202
51 - 60	46,864	53,559	100,422
61 - 70	40,169	53,559	93,728
71 - 80	20,084	20,084	40,169
81 - above	13,390	13,390	26,779
	656,093	682,873	1,338,966

2050 Population Age Distribution For Medium Growth Scenario (Stratplan, 2014)



Current and Proposed 2050 Distribution Of Housing Types (Stratplan, 2014)

04 MSUNDUZI GROWTH MODEL

The table confirms that on average 5 000 units must be supplied per annum to address the anticipated 2050 housing need.

2050 Economic Growth And Implications

The 2011 Baseline

The 2011 size and structure of the Umgungundlovu District economy, measured in terms of Gross Value Added (GVA), is reflected in the table below and compared with the size and the structure of the eThekweni and Provincial economies.

See Table overleaf: A Comparative 2011 Economic Structure for Msunduzi (GVA in Rm)

Msunduzi makes an 8.5% contribution to the Provincial economy compared to the 12% of the Umgungundlovu District and the 53.3% contribution of the eThekweni economy. The current structure shows the dominance of the manufacturing, finance, government and transport sectors in the Msunduzi economy and this closely mirrors the Provincial economy, with the government sector making a comparatively larger contribution in Msunduzi as can be expected with the Provincial Capital being located in the District.

HOUSING TYPE	2050 HOUSING NEED	TO BE PROVIDED	PER ANNUM
Informal dwelling (settlement)	-	-	-
Informal in back yard	-	-	-
Other	-	-	-
Room/flatlet on shared	-	-	-
Traditional dwelling	-	-	-
House/flat/room in back yard	3,550	472	12
Flat in block	49,700	40,060	1,027
Town/cluster/etc house	53,250	46,369	1,189
House or brick structure (separate)	248,499	148,946	3,819
TOTAL	354,998	191,007	4,898

Table showing how to address the 2011 to 2050 Housing Need in Msunduzi (Stratplan, 2014)

SECTOR	MSUNDUZI		UMGUNGUNDLOVU		KZN PROVINCE	
	Rmillion	% per sector	Rmillion	% per sector	Rmillion	% per sector
Mining and quarrying	R 471	2%	R 532	0%	R 3,381	1%
Construction	R 568	3%	R 910	3%	R 8,126	3%
Electricity, gas and water	R 628	3%	R 729	2%	R 5,899	2%
Agriculture	R 633	3%	R 2,231	2%	R 11,781	4%
Community, social and personal services	R 1,400	6%	R 1,982	6%	R 16,708	6%
Wholesale and retail trade, catering and accommodation	R 2,305	10%	R 3,462	15%	R 37,867	14%
Transport, storage and communication	R 3,255	14%	R 4,064	15%	R 36,412	14%
General government	R 4,218	19%	R 5,376	11%	R 34,424	13%
Finance, insurance, real estate and business services	R 4,422	19%	R 5,909	23%	R 53,444	20%
Manufacturing	R 4,804	21%	R 6,970	22%	R 59,165	22%
TOTAL	R 22,702	100%	R 32,164	100%	R 267,207	100%
CONTRIBUTION TO PROVINCIAL ECONOMY	8.5%		12.0%		100%	

Table showing a comparative 2010 Economic Structure for Msunduzi (GVA in RM) (Stratplan, 2014)

04 MSUNDUZI GROWTH MODEL

The adjacent table reflects on the impact of economic growth rates on the growth of the economy over time.

The 2050 Economic Projections

Using the 2050 GVA contribution, based on a 5% per annum growth rate between 2010 and 2050, and a number of assumptions as to the structure of the 2050 Msunduzi economy, the table overleaf reflects on the potential growth and contributions of the various economic sectors by 2050.

The Spatial Economic Implications

The above is important from a spatial planning perspective as it illustrates that, considering the anticipated growth rates, the manufacturing economy for instance will grow five times in size (based on current Rand values). This manufacturing sector development will have to be accommodated within the SDF of the Msunduzi Municipality.

The growth of other sectors that have potentially major implications for spatial planning include the finance and government sectors, with additional requirements for primarily well-located office space, the retail sector and transport sector (each with unique space requirements), and the importance of retaining high potential agricultural land to allow for growth in this sector. These space implications should be further considered going forward.

The calculations below specifically consider the land implications if the growth in the manufacturing, commercial and government sectors are to be achieved.

YEAR	ANNUAL ECONOMIC GROWTH				
	0%	2%	4%	5%	6%
2011 GVA	R 22,702	R 22,702	R 22,702	R 22,702	R 22,702
2020 GVA	R 22,702	R 27,131	R 32,312	R 35,218	R 38,354
2030 GVA	R 22,702	R 33,072	R 47,829	R 57,367	R 68,687
2040 GVA	R 22,702	R 40,315	R 70,799	R 93,444	R 123,008
2050 GVA	R 22,702	R 49,144	R 104,800	R 152,211	R 220,288
Per Capita GVA 2010 (R)	R 36,703				
Per Capita GVA 2050 (R)		R 36,703	R 78,270	R 113,678	R 164,521

Tables showing Impact of Various Economic Growth Rates on Msunduzi GVA (RM) (2011 To 2050) (Stratplan, 2014)

SECTOR	MSUNDUZI 2011	2011 GVA CONTRIBUTION	2050 WITH 4% GROWTH SCENARIO	2050 GVA CONTRIBUTION
Manufacturing	R 4,804	21%	R 23,056	22%
Finance, insurance, real estate and business services	R 4,422	19%	R 20,960	20%
General government	R 4,218	19%	R 15,720	15%
Transport, storage and communication	R 3,255	14%	R 15,720	15%
Wholesale and retail trade, catering and accommodation	R 2,305	10%	R 12,576	12%
Community, social and personal services	R 1,400	6%	R 6,288	6%
Agriculture	R 633	3%	R 2,096	2%
Electricity, gas and water	R 628	3%	R 3,144	3%
Construction	R 568	3%	R 3,144	3%
Mining and quarrying	R 471	2%	R 2,096	2%
TOTAL	R 22,702	100%	R 104,800	100%

04 MSUNDUZI GROWTH MODEL

The integration of future housing development with the proposed spatial economic development is to be considered.

MANUFACTURING SECTOR		
	GVA (Rm)	LAND (HA)
CURRENT	R 4,804	1,856 h
2050 @ 4% p.a.	R 23,056	8,909 h
INCREASE	480.0%	480% a

SUGGEST AT LEAST A DOUBLING OF INDUSTRIAL LAND TO APPROX 4 000ha

COMMERCIAL SECTOR (FINANCE, RETAIL, SERVICES ETC)		
	GVA (Rm)	LAND (HA)
CURRENT	R 8,126	293 h
2050 @ 4% p.a.	R 39,824	1,436 h
INCREASE	490.1%	490% a

SUGGEST AT LEAST A DOUBLING OF COMMERCIAL LAND TO APPROX 600ha

GOVERNMENT SECTOR		
	GVA (Rm)	LAND (HA)
CURRENT	R 4,218	? h
2050 @ 4% p.a.	R 15,720	? h
INCREASE	372.7%	? a

Dedicated land for the development of the government sector is to be identified based on more detailed assessment of needs

STRATEGIC ISSUES FOR CONSIDERATION

The implications of the medium road scenario to be considered in future spatial development planning in the Msunduzi Municipality are:

- The population of Msunduzi could potentially double over the next 40 years. This suggests, in simple terms, that the current space available for residential development in the Msunduzi Municipality must increase substantially and that higher density housing development must be a key strategy going forward. The expansion of residential areas must therefore be planned for, and in each urban area the spatial implications of expansion and densification must be considered. It is anticipated that the majority of this expansion will take place in the N3 Corridor (the South Eastern District specifically), which is the area where the most substantial areas of land for development is available and where future economic development will potentially be concentrated.
- In order to accommodate the population it is estimated that 5 000 housing units per annum will have to be provided in the Msunduzi Municipality (for the District this figure is as high as 10 000 housing units per annum). This will require the release of serviced land for 5 000 units per annum on a continual basis over the next 40 years.
- At an economic growth rate of 4% the requirement for space to accommodate specifically the manufacturing, logistics, commerce and government sectors will continue to place pressure on well-located land particularly along the N3 Corridor (potentially 5 times the current land area for industrial development may be required). The District SDF (Umgungundlovu, 2014) suggests that, considering the transport capacity constraints on this corridor, it is evident that alternative corridors and nodes, with the associated access and bulk infrastructure required, for the expansion of these sectors, will have to be provided for.

05

MSUNDUZI SDF

5.1 INTRODUCTION

The following section is divided into and profiles intervention for the seven Sustainable Urbanism pillars – Global Connectivity, Productive Systems, Ecological Infrastructure, Sustainable Transport, Quality Urbanism, Social Inclusivity and Sustainable Services.

Each pillar identifies a number of interventions/ proposals which should be adopted in order to prepare Msunduzi Municipality to achieving its vision - a 'City of Choice, Second to None'.

As identified in chapter 3, the Municipality has outlined six focal areas, which are aimed at addressing their Vision.

The following section is therefore structured in terms of the adopted Sustainable Urbanism criteria, which encompasses the focal areas in the following manner;

1. **Focal area one** - a well serviced city in terms of water and sanitation service delivery, energy supply provision, and implementation of waste management, will be addressed under the Sustainable Services pillar;
2. **Focal area two** – an accessible and connected city identifying features such as roads construction, maintenance and transport management, human settlement development, telecommunications connectivity and social infrastructure distribution, will be addressed within Global Connectivity, Sustainable Transport, Quality Urbanism and Social Inclusivity pillars;
3. **Focal area three** - a clean, green city, are: renewable energy supplies, public open space creation, and urban renewal and greening promotion is addressed within the Ecological Infrastructure pillars;
4. **Focal area four** - a friendly, safe city, with particular

reference to social cohesion, safety and security is implicate all the pillars, however particular reference will be made under Sustainable Transport, Quality Urbanism, Social Inclusivity and Sustainable Services;

5. **Focal area five** - an economically prosperous city, through job creation will be assessed under Productive Systems;
6. **Focal area six** - a financially viable and well governed city, refers to empowered and skilled employees, sound financial management systems, accountability and effective anti-corruption measures. These objectives refer to an underlying management layer within the Sustainable Urbanism approach. This focal area will be addressed more specifically within the implementation plan of this project and not within the development of the Msunduzi SDF.

In addition to the Sustainable Urbanism criteria and the Focal Areas identified through the Msunduzi Municipal Integrated Development Plan (IDP) vision, the SDF need to be realistic in its intentions and proposals. Therefore, the Msunduzi Growth Model is an essential additional element which is included in the development of the SDF. The new land use parcels identified within the following sections can be directly translated back to the future requirements outlined in the Growth Model.

The proposed Msunduzi SDF therefore becomes a tangible working document to guide and facilitate the growth and development of the Municipality through to the 2050 horizon.

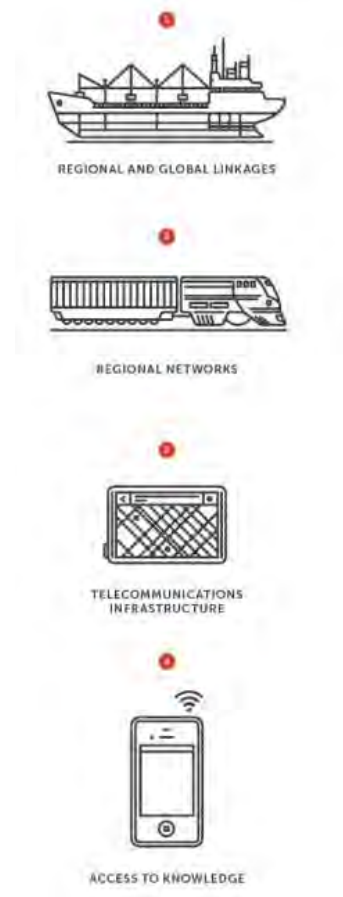
5.2 GLOBAL CONNECTIVITY

Global Connectivity refers to both physical and non-physical connections.

Physical connections are identified as major structuring elements such as roads and rail that enhance connectivity to opportunities, whereas the ICT connectivity refers to the latest digital connectivity – ensuring access to next generation technology to increase participation within the wider global economy.

To meet these targets and to address the shortcoming identified within the Status Quo, the following proposals have been identified to achieve a truly Sustainable City, from a Global Connectivity perspective, within the Msunduzi context. The following proposals/ interventions required include:

- I. Enhance Connectivity to the N3;
- II. Improve Regional Connectivity;
- III. Re-Envisage the Rail Routes;
- IV. Support the Airport Precinct; and
- V. Bridge the Digital Divide.



Cities and Towns that perform well are those which are globally connected.

5.2 GLOBAL CONNECTIVITY

5.2.1 ENHANCE CONNECTIVITY TO N3

As identified previously, global connectivity refers to both physical and non-physical connections. The N3 is a major structuring element that provides the most powerful physical connection within the Msunduzi Municipality. As the only primary connector within the region, traversing from Durban to Johannesburg in a north-westerly direction from the coast.

The N3 spine has the opportunity to link a wider network, ensuring appropriate local and global connections.

The Municipality currently does not fully harness the existing potential along the N3 corridor system, therefore a number of interventions have been identified:

1. Reinforce the existing interchanges along the N3 –

A number of interchanges along the route are only partial interchanges, therefore movement and permeability at these points are restricted. It is therefore proposed that an investigation into the possibility of creating full interchanges along the N3, allowing maximum choice and exposure to neighbouring land parcels and enhancing connectivity to and from the N3;

2. Introduction of new interchanges – the draft SDF identifies two locations for additional interchanges along the N3.

- i. The first is located in the Mkondeni area. The Mkondeni area is a growing economic hub within Msunduzi. The proposed interchange will accelerate the current demand and growth for the area, allowing greater direct access to and from the N3. The proposed interchange is located in between Ashburton (Exit 69) and the Market/Oribi Airport (Exit 74) interchange;

- ii. The second proposed interchange is located in

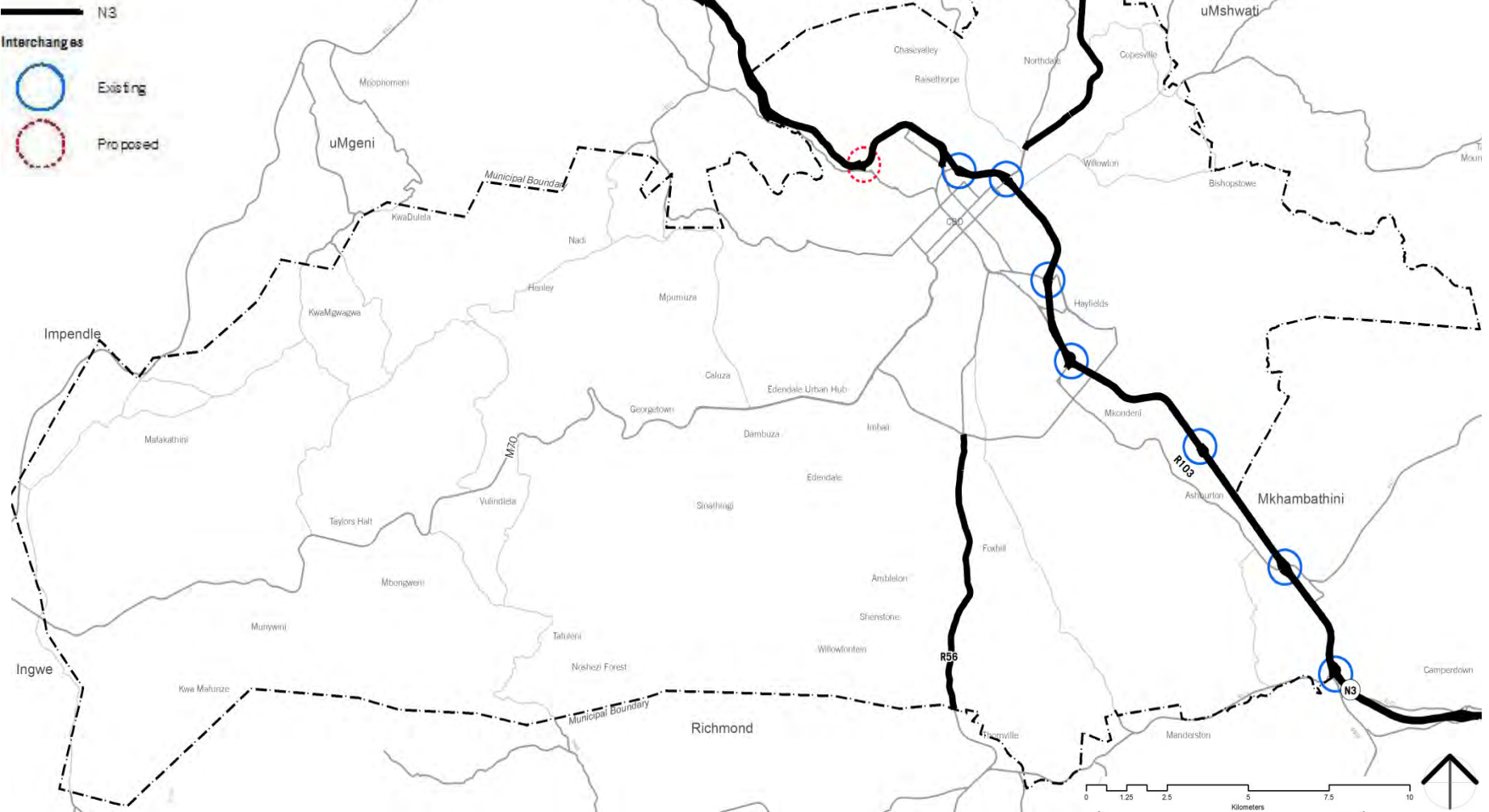
the Town Hill/ Wembley area parallel to Wylie Park. An additional interchange in this location will allow commuters the choice of a final interchange point to exit the N3 before leaving the Msunduzi Municipality.

The existing infrastructure along the N3, north of the Liberty Midlands Mall, is limited. Therefore commuters are forced out of the Msunduzi Municipality along the N3 to Hilton, located in the Umngeni Local Municipality, before exiting the highway.

Enhancing connectivity to the N3 will allow the Msunduzi Municipality to appropriately benefit from this important regional and provincial connector. Without reinforcing the existing infrastructure and introducing new opportunities, Msunduzi will continue to be isolated from regional potential associated with greater connectivity and exposure to the N3. Harnessing and exploiting the latent potential of the N3 is critical to the success of the Municipality.

5.2 GLOBAL CONNECTIVITY

5.2.1 ENHANCE CONNECTIVITY TO N3



5.2 GLOBAL CONNECTIVITY

5.2.2 IMPROVE REGIONAL CONNECTIVITY

Improved connectivity along the N3 is one enhancement to the existing Global Connectivity of the Municipality. Greater connections to the surrounding district Municipalities also need to be forged to ensure greater integration, both spatially and from an economic point of view.

Road infrastructure connecting to adjacent municipalities need to be reinforced and improved. Providing greater connections will allow better permeability and access, therefore reinforcing Msunduzi's role within the District Municipal context as a centre of regional significance.

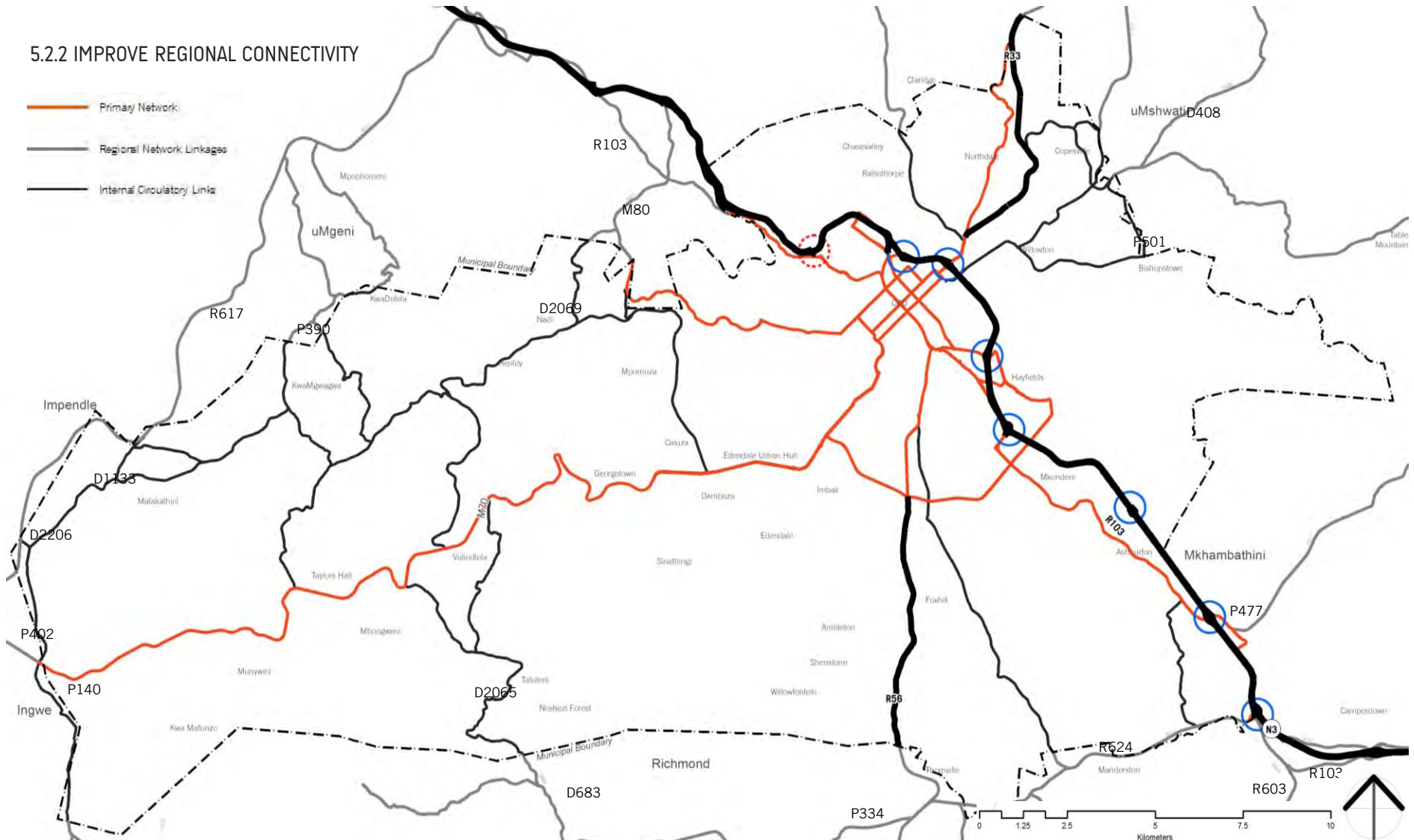
Infrastructure that provide regional connectivity to surrounding district municipalities are highlighted in the adjacent plan. These routes are not necessarily direct routes, however they provide the necessary linkage and connectivity that will allow the movement of goods and services to and from Msunduzi. Apart from the N3 providing the greatest access, the regional links will provide the greatest integration between the neighbouring local municipalities. Links which will provide regional connectivity have been identified as (roads are listed in a clockwise manner from the N3):

- | | | |
|----------|----------|---------|
| ▪ R103; | ▪ P402; | ▪ D408; |
| ▪ R603; | ▪ D2206; | ▪ P501; |
| ▪ R624; | ▪ D1133; | ▪ P370; |
| ▪ R56; | ▪ R617; | ▪ P477. |
| ▪ P334; | ▪ P390; | |
| ▪ D683; | ▪ D2069; | |
| ▪ D2065; | ▪ M80; | |
| ▪ P140; | ▪ R33; | |

Note: Road names may be subject to changes

5.2 GLOBAL CONNECTIVITY

5.2.2 IMPROVE REGIONAL CONNECTIVITY



5.2 GLOBAL CONNECTIVITY

5.2.3 RE-ENVISAGE RAIL ROUTES

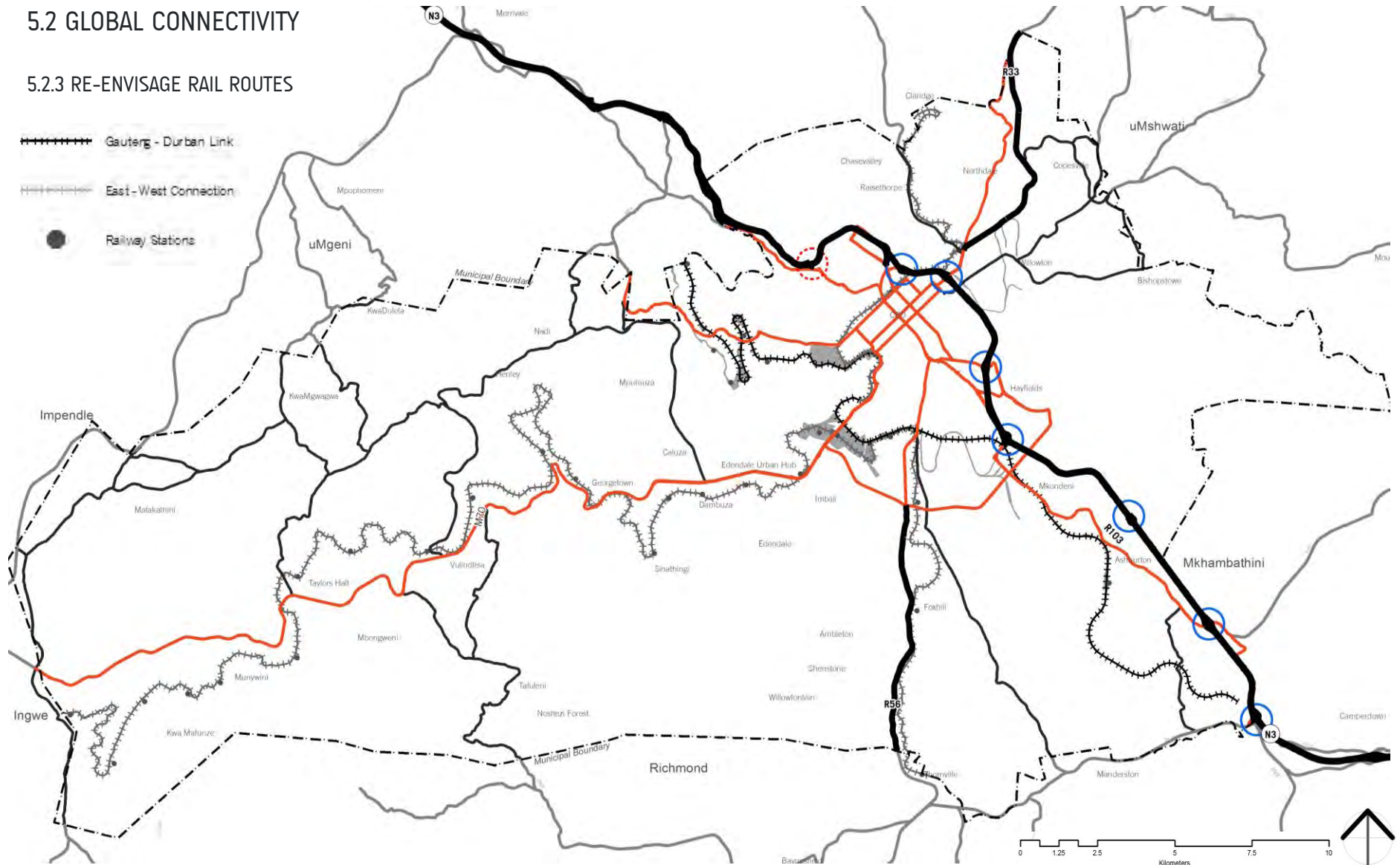
The existing rail links within the Msunduzi Municipality are currently underutilised for public transport, but are utilised daily for transporting local produce. There are policies in place to better utilise the rail network in Msunduzi, especially if the city is to become an agricultural hub, business destination and a global cycle-event area. The existing rail infrastructure is used for daily regional transport of goods and produce such as timber, and may be critical to future on-going local trade. The adjacent terrain also presents a unique connectivity opportunity throughout the Municipality as a linear space potentially providing city scale connectivity.

It is proposed that the north/ south link, which runs parallel to the N3 and R103 between Pietermaritzburg and Durban, be reinforced as the primary rail link. This link would form the foundation of the eThekweni/ Msunduzi portion of the wider Durban to Johannesburg rail express route. This route should therefore be promoted and upgraded as part of the idea of reinforcing global connectivity.

The anchor stations within Pietermaritzburg and Durban have recently been upgraded to facilitate the business commuter trade (Hatch Goba, 2014).

5.2 GLOBAL CONNECTIVITY

5.2.3 RE-ENVISAGE RAIL ROUTES



5.2 GLOBAL CONNECTIVITY

5.2.4 SUPPORT THE AIRPORT PRECINCT

Promoting Global Connectivity requires investment into all forms of movement. Therefore strengthening the Airport Precinct also becomes a key contributing factor to enhancing the global reach and connectivity of the Municipality.

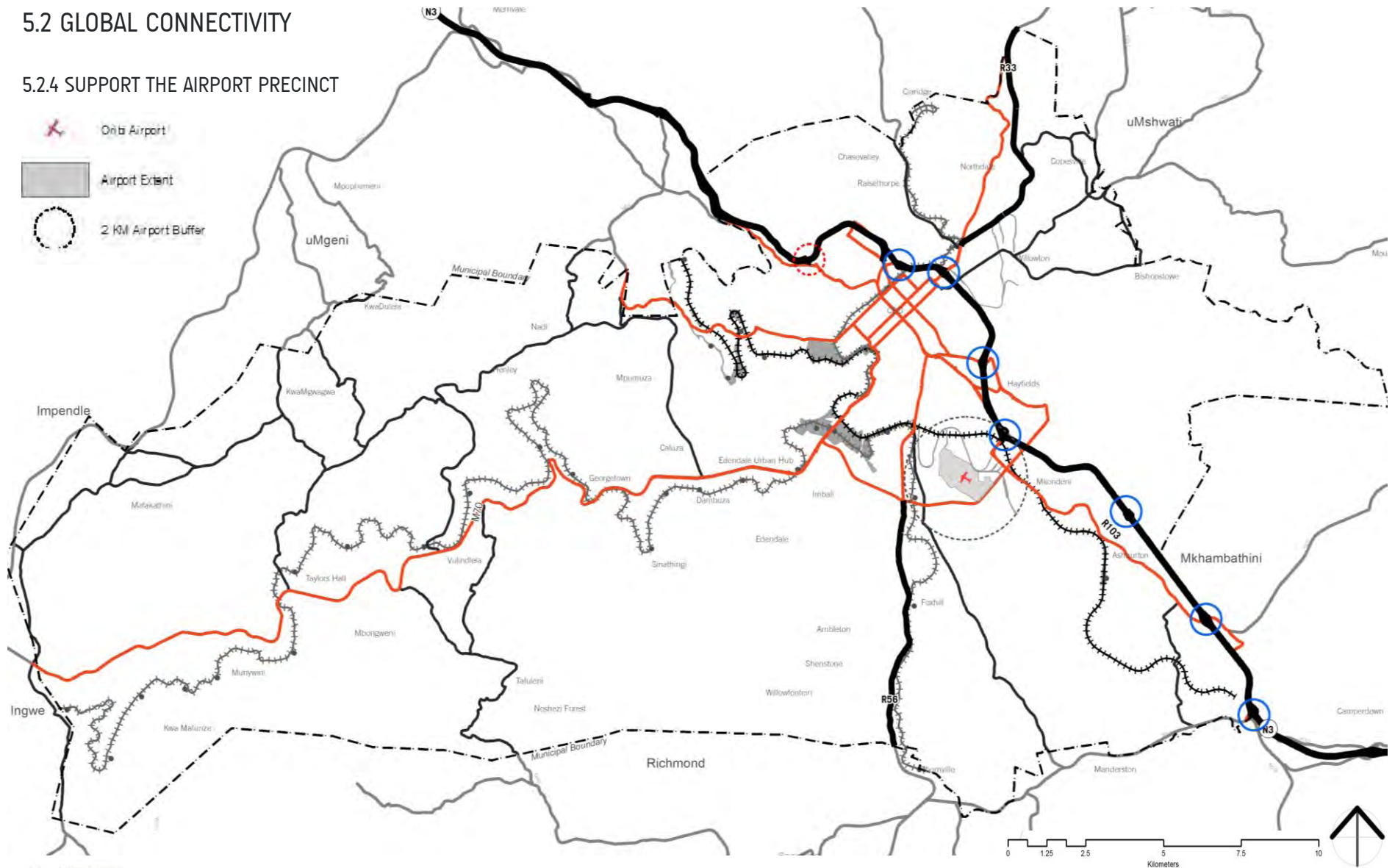
The proposal does not confine the growth and development of the precinct to aviation related industries, but to industries as a whole. Thus the introduction and upgrading of the adjacent N3 interchanges plays an important role in supporting the growth and development of this precinct. The increased direct access to the area from the N3 should increase the land value and demand from a business and commercial point of view.

Despite influencing and strengthening the global reach and connectivity of Msunduzi Municipality, it is important to secure and further the economic base of the area for the local community. It is proposed that a mix of industrial type uses continue within the airport and greater Mkondeni precinct.

Msunduzi currently has limited economic expansion space, and therefore necessary planning and policy support is required to encourage the growth of these areas.

5.2 GLOBAL CONNECTIVITY

5.2.4 SUPPORT THE AIRPORT PRECINCT



5.2 GLOBAL CONNECTIVITY

5.2.5 BRIDGING THE DIGITAL DIVIDE

The non-physical element of the Global Connectivity pillar refers to digital connectivity.

The world has seen an explosive growth in digital connectivity over the past decade and this trend will continue in decades to come. Digital connectivity has and will continue to influence and change the manner in which business and personal communication occurs. The availability and affordability of mobile phones, smartphones, tablets, ipads, laptops and other portable devices makes communication technology accessible to a wide range of users. Digital connectivity also has far reaching consequences for education, social and economic development.

Therefore with a 2030 and 2050 year horizon for this SDF, it is critical to plan for appropriate digital connectivity within the Msunduzi Municipality.

Therefore it is proposed that all public facilities, particularly public transport stops be equipped with WiFi to allow public facilities to become connectivity hotspots in both the physical and non-physical sense.

Over time it is envisaged that these hotspots would start attracting a range of other economic activities, as well as higher thresholds, therefore reinforcing the growth and development along primary access routes throughout the Municipality.

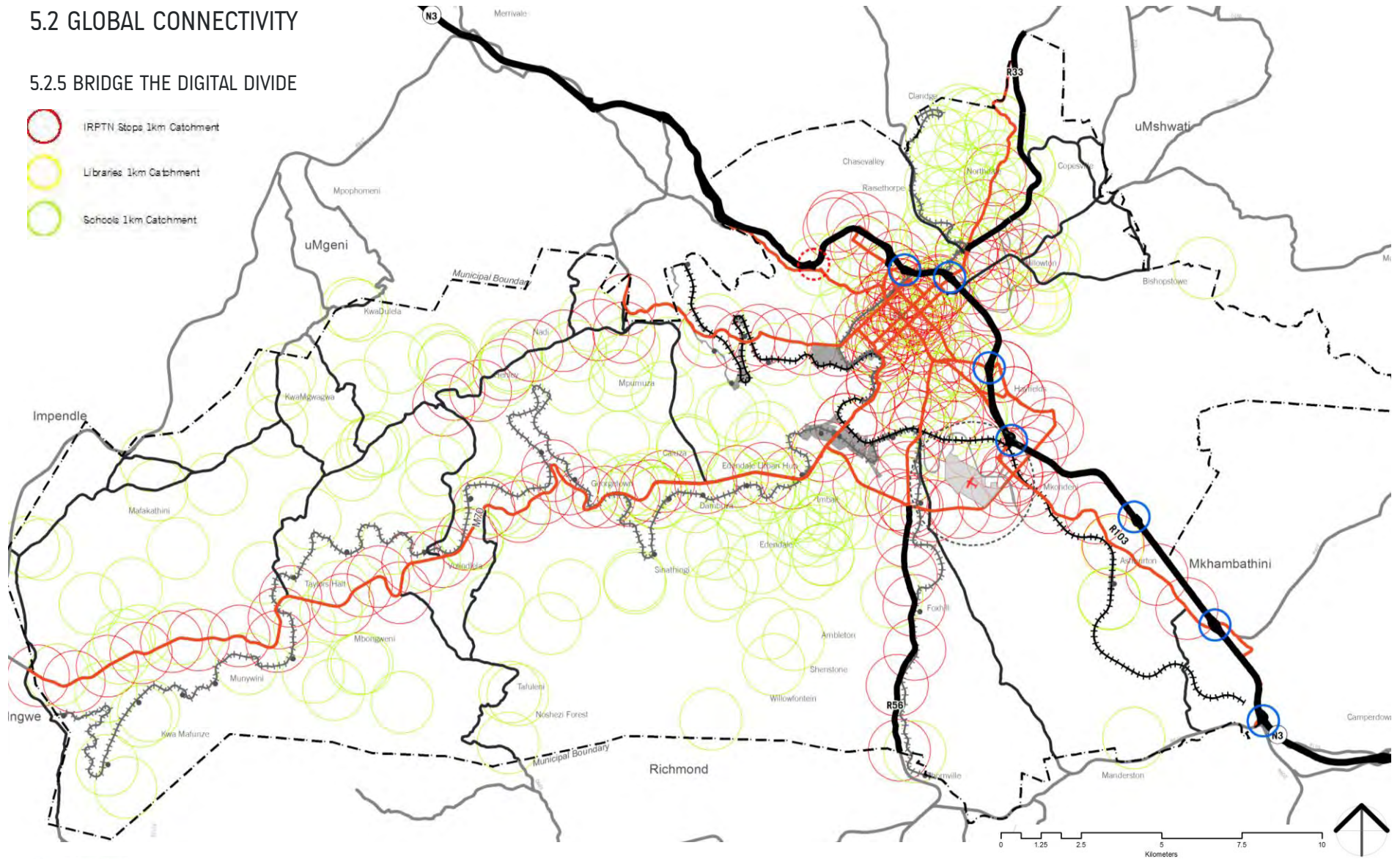
Providing digital connectivity to all residents of the Municipality will assist in the efficiency of services and communication within and beyond the Municipality as a

whole. It is progressive and the way of the future for Msunduzi both now and leading up to 2030 and 2050.

Since not all centres can be serviced simultaneously, it is recommended that this type of intervention occur in a phased manner starting with key centres such as the CBD, Edendale and Northdale.

5.2 GLOBAL CONNECTIVITY

5.2.5 BRIDGE THE DIGITAL DIVIDE



5.3 PRODUCTIVE SYSTEMS

Economic production involves the development of new businesses and providing for jobs to create an employed and thriving population. Healthy cities require the development and activation of productive economic regions. Given the significance of global competition, it is vital that cities innovate and adapt to changes in the market. Defining the competitive edge of particular regions and their infrastructural advantages are paramount to ensuring successful cities. It is vital, therefore, to retain, secure and expand the productive capacity of cities, whilst adapting to new opportunities as a result of global markets and competition.

Agricultural production relates to securing access and availability of raw products and food. This includes ensuring that all urban residents have access to a wide range of types of produce in adequate quantities. Ensuring that areas are set aside for productive agricultural use within proximity to urban settlement is critical to food security and economic prosperity.

Sustainable cities are diverse in land use providing for a range of opportunities. One of the most important of these is access to economic opportunity.

Ensuring the Msunduzi Municipality achieves a Productive Economic Systems, the following interventions are required;

1. Land release along the N3 corridor;
2. Consolidate and revive the CBD;
3. Strengthening Centres of economic Activity;
4. Introducing new economic zones and centres; and
5. Incorporate productive agricultural land.



INDUSTRIAL WORKER



LOCAL AND REGIONAL FOOD SYSTEMS



URBAN AGRICULTURE



PRODUCTIVE ECONOMIC REGIONS



EMPLOYED AND HEALTHY POPULATION



NURTURING DIVERSE ECONOMIES

Cities facing economic decline and with limited growth, are likely to have an unsustainable future.

5.3 PRODUCTIVE SYSTEMS

5.3.1 LAND RELEASE ALONG THE N3 CORRIDOR

Cities facing economic decline and with limited growth, are likely to have an unsustainable future. Therefore, providing carefully managed and strategic 'productive systems' within the Municipality is critical to the development and sustainability of Msunduzi. It is therefore envisaged that land along the N3 interface be released for economic activity.

As identified within the 'Global Connectivity' pillar the N3 is a powerful linkage which needs to be 'exploited' from an economic development point of view. In addition to the N3, the introduction of new and upgrading of existing interchanges along the N3 is vital to the successful release of land for further development along the N3 interface.

Another aspect to the successful release of land within the Municipality is to ensure that a strategic, phased approach is adopted. It is important for the land adjacent to the N3, with greatest access and visibility, to be released first.

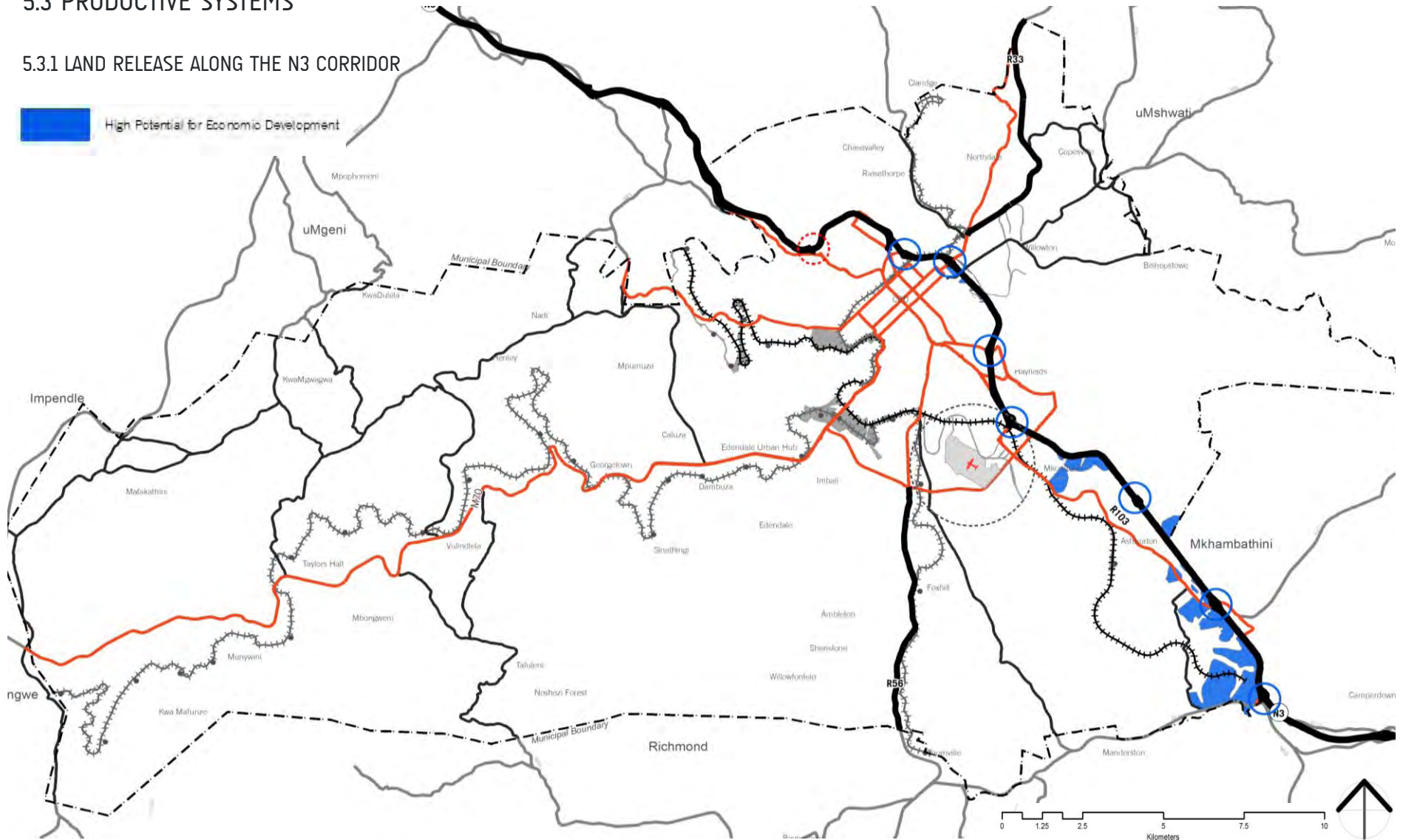
These strategic land parcels are critical in terms of the Municipality's 'Productive Systems' pillar, as productive environments create jobs and enrich livelihoods, therefore improving the overall well-being of the Municipality and its residents.

The land parcels along the N3 lend themselves to light industrial/ logistics and business type uses. Promoting residential uses along the N3 is not ideal, as mixed use type of development for this area (in terms of its exposure and access to the freeway) presents a more compelling case and a more appropriate interface for business as opposed to residential.

All development along this corridor needs to be carefully considered and strategically inserted into its local context in order to take into account the existing opportunities and constraints and, importantly, its natural environmental attributes.

5.3 PRODUCTIVE SYSTEMS

5.3.1 LAND RELEASE ALONG THE N3 CORRIDOR



5.3 PRODUCTIVE SYSTEMS

5.3.2 CONSOLIDATE AND REVIVE THE CBD

A key aspect to ensuring the 'Productive Systems' of Msunduzi Municipality, is ensuring the regeneration and revival of the CBD. To facilitate this proposal a 'limit line' has been developed to guide and consolidate the CBD. The limit line is informed by the 'Ecological Infrastructure', and encourages that investment be directed to the CBD as a first priority (whilst not undermining Polycentricity). This ensures that the CBD maintains its current and increasing levels of activity and continues to serve as a socio-economic core.

The CBD planning boundary currently extends outside the newly identified 'limit line' and therefore the current planning boundary should be viewed as the future growth boundary. Once the CBD has successfully consolidated and revived itself, development should only then breach the proposed limit line.

Consolidating and reviving the CBD addresses the foundational principles guiding the SDF, which is one of recycling/ upgrading and reinventing.

The process is already underway with a number of Municipal led initiatives that are bringing new purpose to parts of the CBD. These projects are:

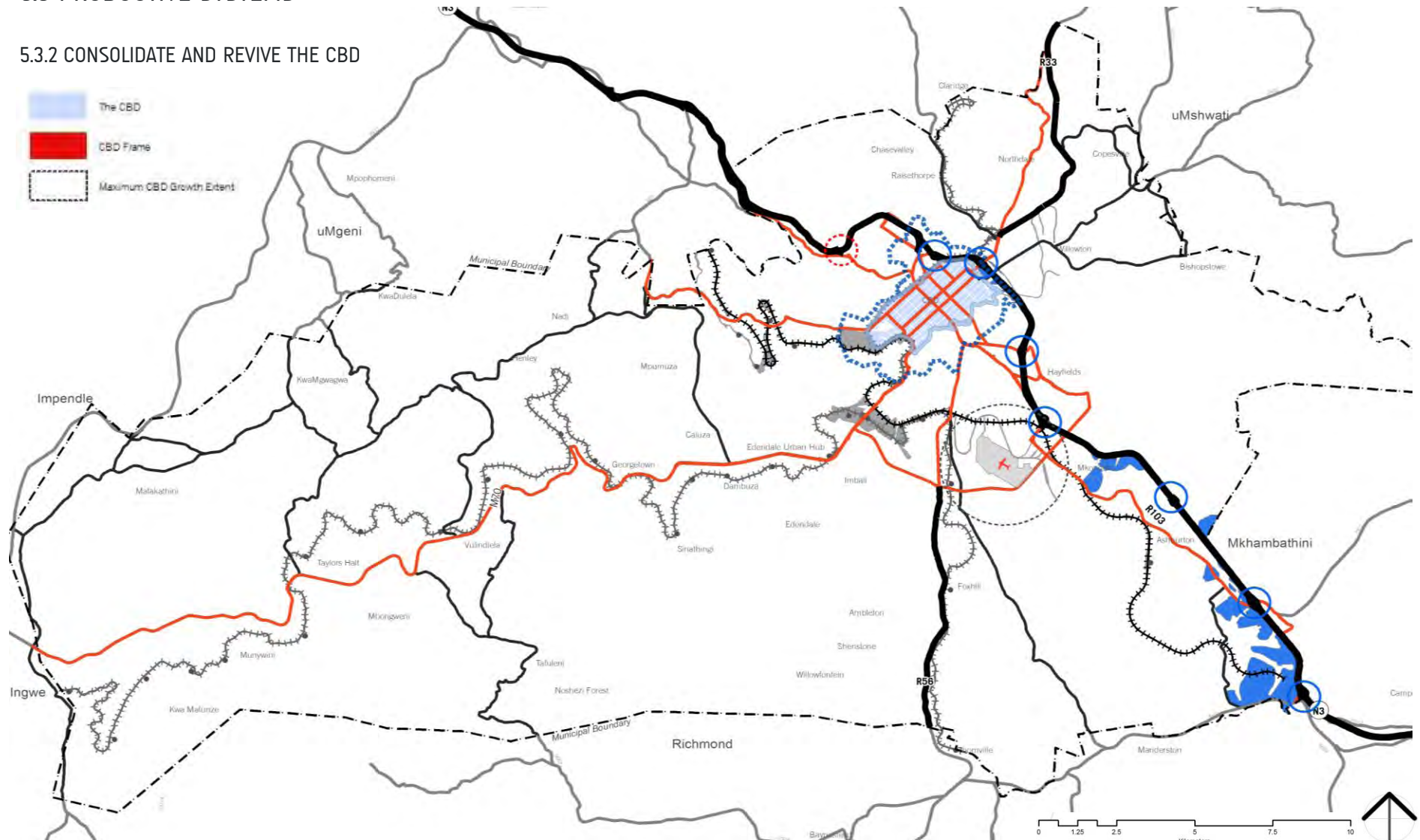
1. Pietermaritzburg Urban Renewal Project; and
2. The planned Msunduzi IRPTN.



Image: Recently completed Pietermaritzburg Urban Renewal Precinct (Iyer Urban Design Studio, 2014)

5.3 PRODUCTIVE SYSTEMS

5.3.2 CONSOLIDATE AND REVIVE THE CBD



5.3 PRODUCTIVE SYSTEMS

5.3.3 STRENGTHENING CENTRES OF ECONOMIC ACTIVITY

Strengthening centres of economic activity refers to the recognition and reinforcement of existing economic centres.

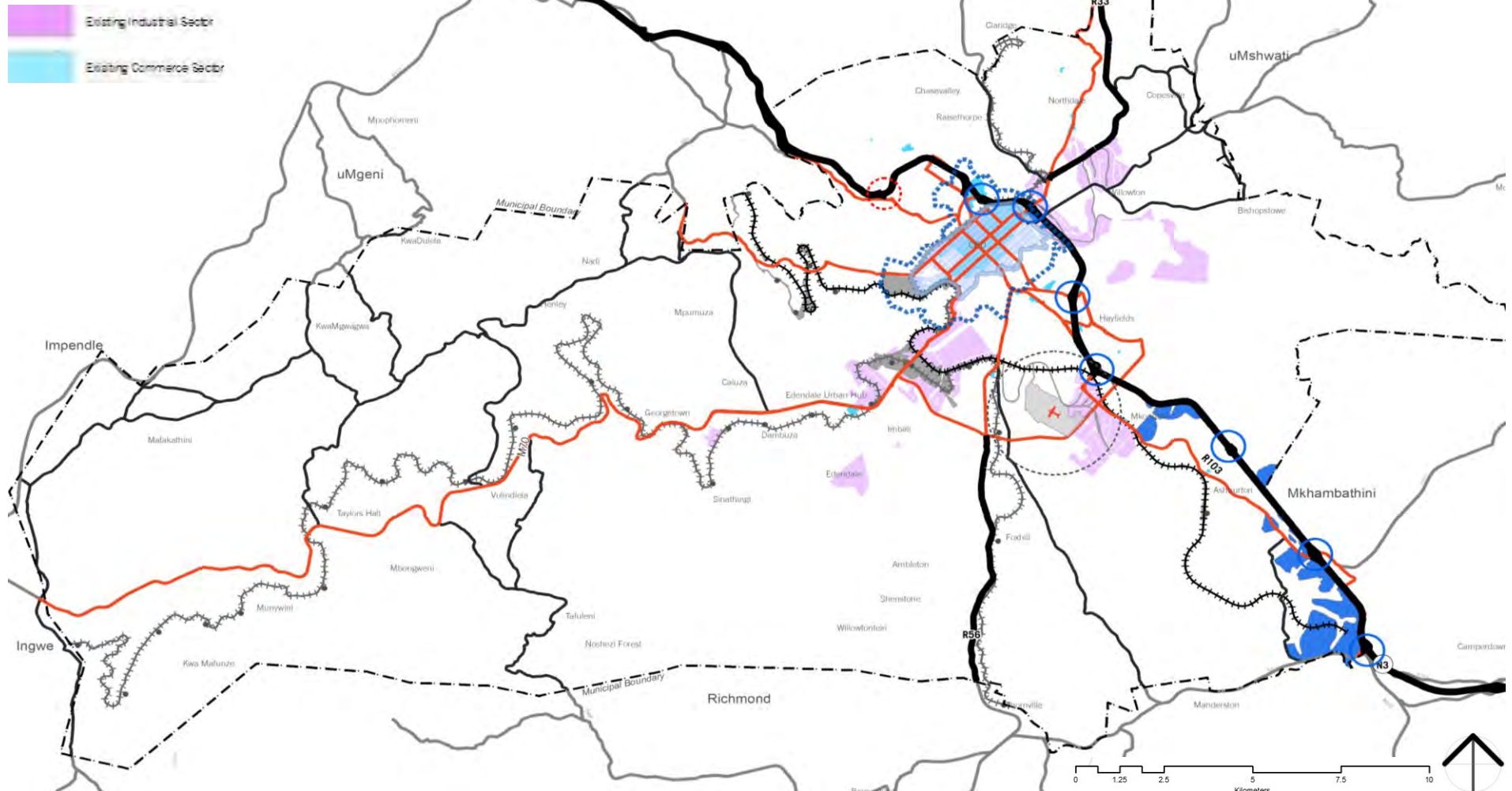
Reinventing and upgrading these centres, such as Mkondeni, is vital to promote and support growth within the economy. Supporting their development and growth will ensure the sustainable development of the economy of Msunduzi and ultimately increase and grow the potential for employment.

Other centres of economic activity which need to be supported through renewal and new investment include;

- Willowton;
- Copesville;
- Fringes of the CBD;
- Imbali; and
- Edendale.

5.3 PRODUCTIVE SYSTEMS

5.3.3 STRENGTHENING CENTRES OF ECONOMIC ACTIVITY



5.3 PRODUCTIVE SYSTEMS

5.3.4 INTRODUCING NEW ECONOMIC ZONES AND CENTRES

The introduction of new economic zones and centres is critical to the growth and development of the Municipality. In addition to releasing land along the N3, consolidating and reviving the CBD and strengthening existing centres of economic activity, the growth model predicts that the Msunduzi Municipality will need to accommodate an approximate additional 9 500ha of residential land and a total of 4 000ha of industrial land and 600ha of commercial land to meet the 2050 growth model target estimates.

Therefore there is a need to introduce new economic zones and centres to support and guide future growth. Three primary economic zones have been identified and are strategically located to support the existing structures of the Municipality and to provide transformation and equity. These zones have been located at Mkondeni, Thornville and Manderston.

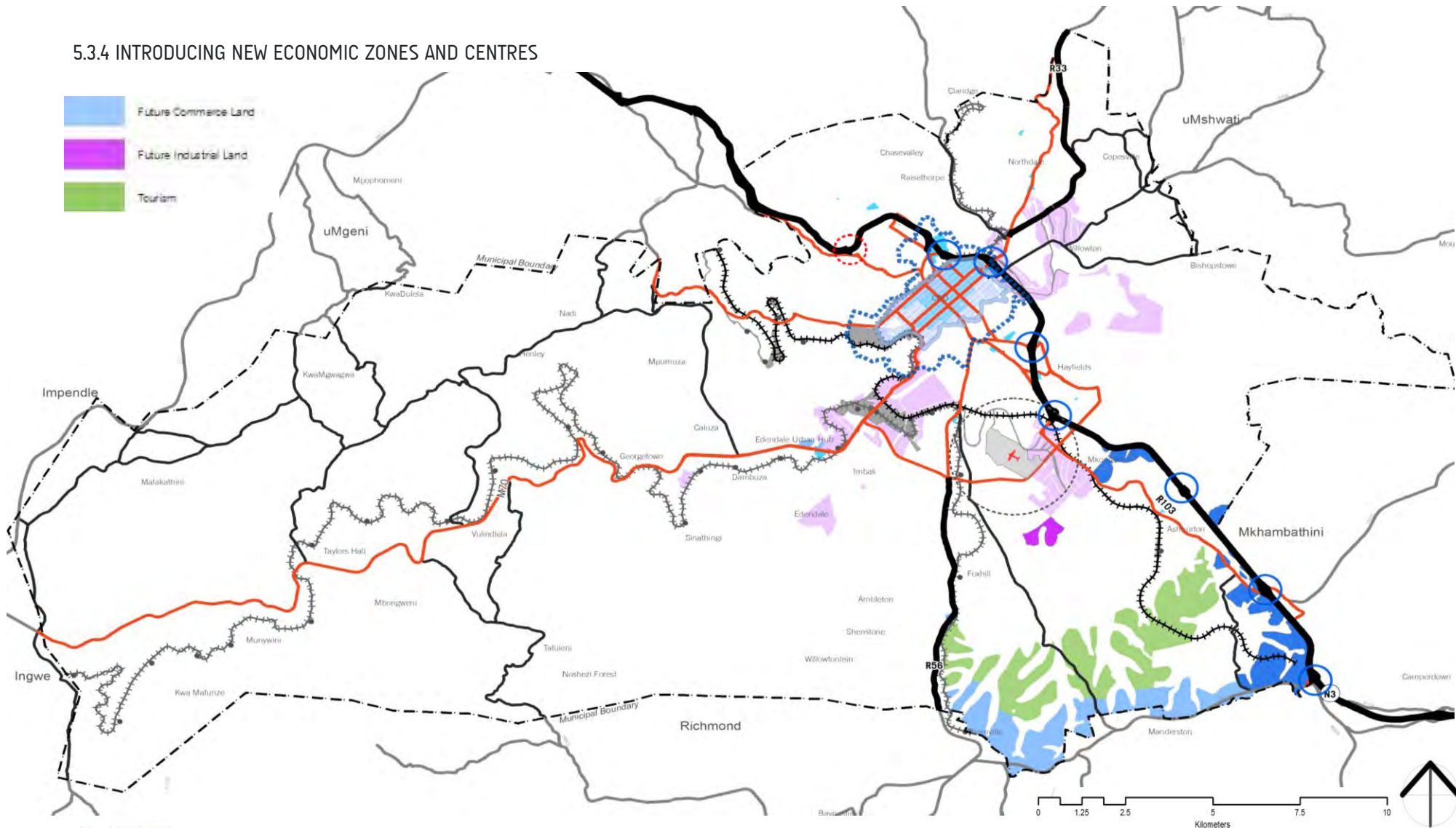
It is critical to create linkages to the N3, regional roads, and the Pietermaritzburg Airport.

The intention of new land opportunities identified for Mkondeni is to provide additional support in strengthening and reinforcing the existing Airport Precinct. The land use focus for this zone should be structured around industrial and logistic types of uses, as well as commercial uses between the R103 and the N3. (Note that these areas already include pockets of industry).

The Thornville and Maderston areas are proposed to facilitate business/ office uses with potentially very good access to the N3, with agri-processing type uses inland towards the R56 in support of the surrounding productive agricultural land practices.

5.3 PRODUCTIVE SYSTEMS

5.3.4 INTRODUCING NEW ECONOMIC ZONES AND CENTRES



5.3 PRODUCTIVE SYSTEMS

5.3.5 INCORPORATE PRODUCTIVE AGRICULTURAL LAND

A critical component of the productive system pillar is the incorporation of productive agricultural land. A study was conducted as part of the Municipal EMF, which indicated land that should either be retained or checked for agricultural purposes. The agricultural land identified in the adjacent plan is a refinement of this data set, based on recent studies such as the SEDIS Plan, encroaching settlement patterns and newly mapped watercourses.

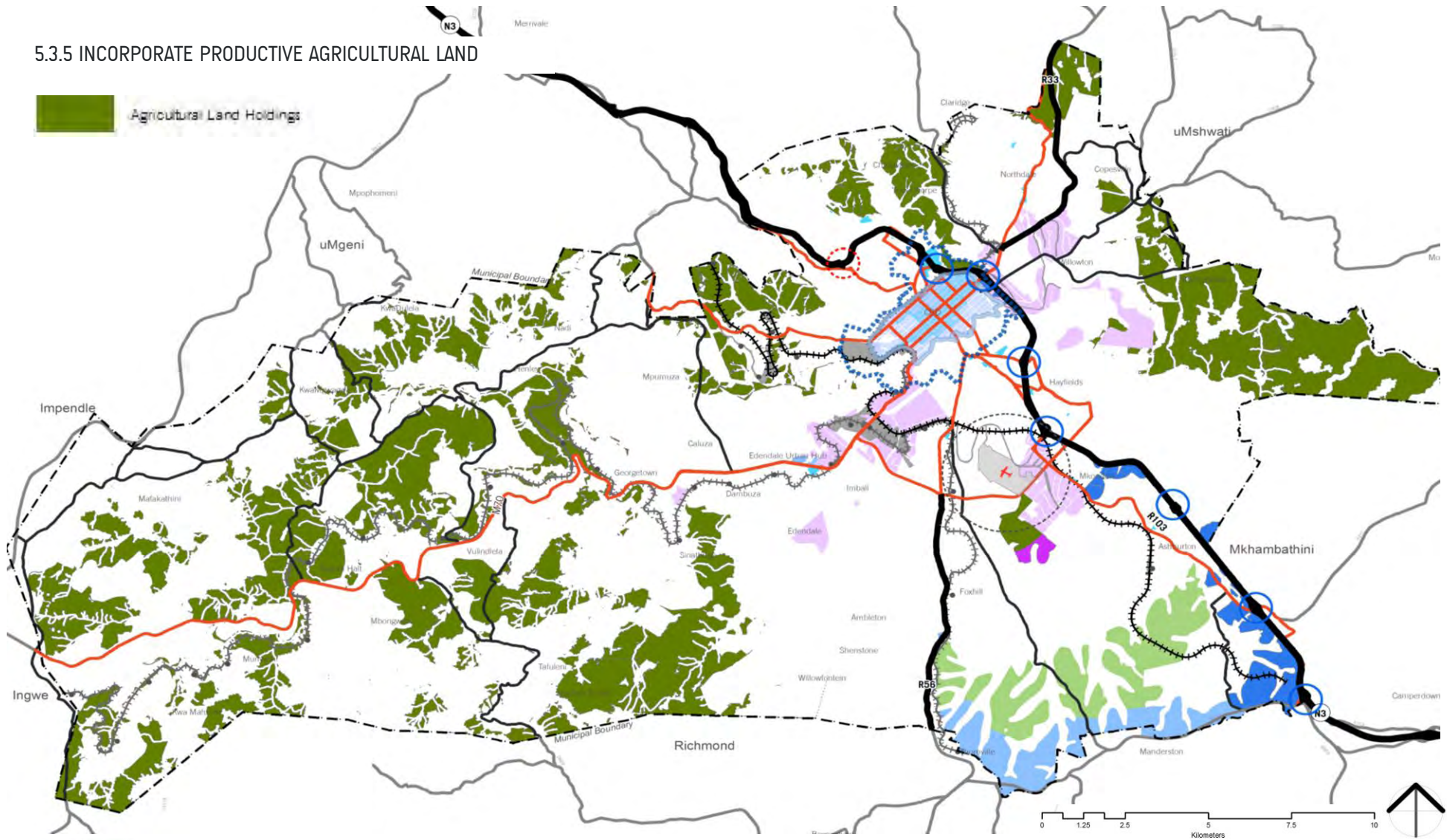
It is proposed that more intensive agricultural production is located between the N3 and R56, adjacent to the proposed agri-processing hub. Pockets of existing forestry will remain, while other existing lower intensity agricultural areas within the Vulindlela area should be intensified and expanded where possible, based on further study.

Going forward there is a distinct need to identify the most compatible produce per area to ensure the greatest yield and for both the economy and communities.

Act 70 of 1970 is an important piece of legislation to consider once agricultural land is identified and subdivided/set aside. The principles behind this Act must therefore be borne in mind by city planners to ensure alignment with necessary agricultural planning procedures.

5.3 PRODUCTIVE SYSTEMS

5.3.5 INCORPORATE PRODUCTIVE AGRICULTURAL LAND



5.4 ECOLOGICAL INFRASTRUCTURE

Enhancing the Ecological Infrastructure of cities is paramount to sustainable urbanism. It is important to understand the inextricable relationship between human well-being and the natural environment. The positive integration of green space within cities, and planning for the various dimensions of green space, is an absolute fundamental element of sustainable urbanism.

The Ecological Infrastructures should include natural areas and open space opportunity areas for passive and active recreation. This is tied directly to enhancing human well-being, health and liveability.

Another dimension of Ecological Infrastructure is the incorporation of productive open space within cities. This includes urban agriculture in suitable areas. The overall concept of sustainable urbanism is dependent on the positive integration of high quality urbanism with an integrated green lattice.

In order to achieve the vision for the Msunduzi Ecological Infrastructures, a series of four planning objectives are proposed, based on the following headline objectives:

1. Securing the natural resource base
2. Protect and enhance open space cores
3. Creating an integrated open space system
4. Enhancing the Msunduzi River as a regional parkway

In line with the study timeframes, it should be noted that the above planning objectives have been created with both short and longer-term planning horizons in mind. However, due to the importance of ecological infrastructure for human well-being, it is hoped that these plans would be achieved well before the 2050 planning horizon. An outline of each of the headline objectives follows.



Ecological Infrastructure refers to the valuable (free) services delivered to people by natural, functioning ecosystems (SANBI, 2012).

It is important to understand the significance of protecting natural systems as systems in their own right.

5.4 ECOLOGICAL INFRASTRUCTURE

5.4.1 SECURING THE NATURAL RESOURCE BASE

This layer is based on the Municipal Open Space System (MOSS) layer and additional feature layers and refinements. Although it is still in draft, the MOSS layer is a useful basis for environmental planning in Msunduzi because it is based on intensive specialist input which served to outline areas of conservation importance to meet the municipality's ecological targets.

The MOSS is based on previously mapped threatened vegetation types, terrestrial and riparian ecosystems, key species identified in the landscape and nature reserves, as well as transformed (manicured) public open space areas which are equally important in terms of holistic living environments.

For the purposes of the SDF, the MOSS layer has been refined to include:

- Recently ground-truthed areas by the Msunduzi Environmental Management Unit (including the recent LAP), and
- The findings of the Mkhondeni Strategic Environmental assessment (SEA) and other local studies done for major development sites such as Hillcove Hills and the iBhubesi development.

In addition to the above refinements to the MOSS, it was critical that key landscape features such as rivers, slopes and wetlands were defined, mapped and included in this layer.

To achieve this, the following was undertaken:

- Using topographic maps and 2013 aerial imagery, all perennial and non-perennial watercourses in the Msunduzi area were digitised and mapped;
- Recent wetland mapping from the EMF and 1:3 slope

analyses were mapped; and

- In areas with an absence of 1:100year floodline data, the rivers and wetlands were buffered by 40m.

Therefore, in addition to the MOSS layer, these landscape features are essentially undevelopable and are worthy of retention at all costs.

Rationale for Minimum 40m Buffer Requirement adjacent to Watercourses

In the absence of distinct buffer requirements for watercourses, the selection of a 40m buffer requirement was guided by: presiding law, precedent and precaution. However it was ultimately chosen on a discretionary basis.

In terms of law and precedent, varying buffer zone requirements for watercourses have been advocated for a suite of land uses by national and provincial government departments:

- In an urban setting: **15m to 30m**, and in a plantation forestry setting: **20m** (KZN Department of Agriculture & Environmental Affairs, KZN Department of Water Affairs & Ezemvelo KZN Wildlife);
- In an agricultural setting: **10m** from edge of the river (CARA, Act 84 of 1983);
- In an urban landscape: 30m, and in a rural landscape: **50m** (Gauteng Department of Agriculture, Conservation and Environment);
- The previous Water Act 1954 (Act 56 of 1954), stated that rivers should be buffered by **50m** on either side, should the 1:100 year floodline be undetermined;
- Linked to the above, many SDFs stipulate that no

development is to take place within the 1:100 year floodline;

- The Johannesburg MOSS (JMOSS) used a 50m buffer on all watercourses; and
- Streams in rural (low density) areas of have a **32m** 'trigger' for development activities in terms of the National Environmental Management Act Regulations (2014).

The latter 32m requirement is considered a safe 'middle rung' choice, even for urban areas, as development adjacent to watercourses has many on-site and downstream repercussions if left unchecked. It was therefore used as the basis for a buffer requirement. However to account for the onset of unpredictable climate change impacts and edge effects in future, and given that this SDF has a 2050 planning time horizon, it was considered prudent to increase this buffer allowance to **40m** on either side of a watercourse as a precautionary measure. At minimum, any development within the 1:50year floodline **must** be investigated in terms of environmental, hydrological and geotechnical impacts in order to attain approval.

This is not to be confused with the 100m and 1km '*water quality control zones*' specified for main stem rivers and dams respectively in terms of Umgungundlovu's Integrated Environmental Management Plan. These have, however, been applied to the Msunduzi River and Henley dam - respectively - see Section 5.4).

5.4 ECOLOGICAL INFRASTRUCTURE

5.4.1 SECURING THE NATURAL RESOURCE BASE

In summary, both transformed open space areas (e.g. parks) and untransformed open space areas (e.g. reserves) and key landscape features such as river corridors and buffers, provide a suite of valuable ecosystem goods and services, including: water purification, flood attenuation, clean air, carbon sequestration, nutrient rich soil for farming, land for grazing, recreational activities, aesthetic pleasure and pollination. Thus, the more open space that is retained, the better for the persistence of healthy living environments within Msunduzi, and for free service provision. In turn, this helps play a part in attracting and retaining people to the area.

GREEN STRUCTURE

- MOSS (Conservation Use)
- Existing Major Open Spaces (Conservation Use)
- Proposed Major Open Spaces

- Henley Dam
- Major Tributary and 40m Buffer (Conservation Use)
- Minor Tributary and 40m Buffer (Conservation Use)
- The Msunduzi Parkway (Conservation Use)
- Open Space Lattice (Conservation Use)

PRODUCTIVE SYSTEMS

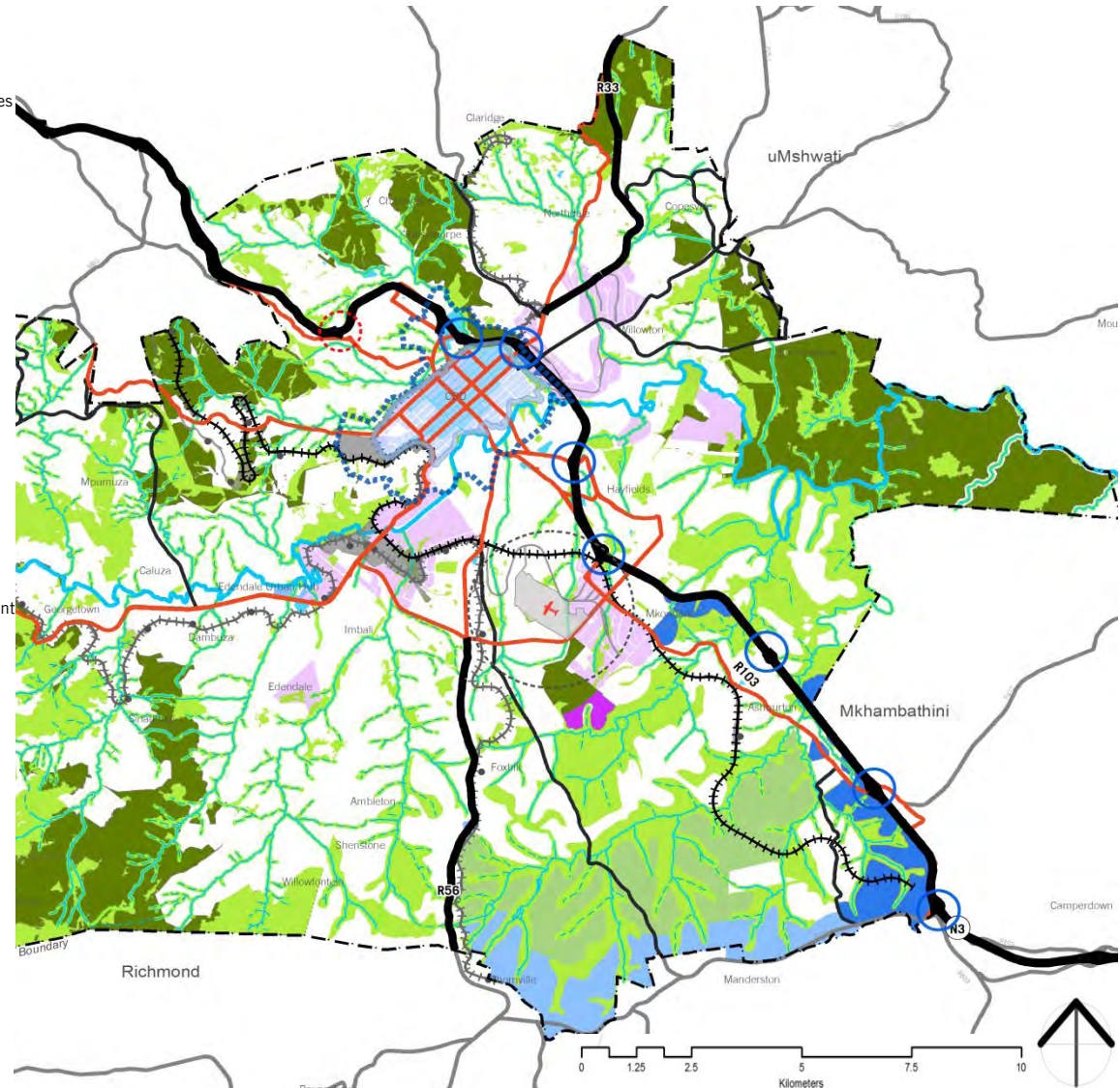
- Existing CBD
- Existing Commercial
- Existing Industry
- Logistics/Business
- Agri Business/Commercial
- Industry
- Agriculture

QUALITY URBANISM

- Existing Residential
- Densification/Intensification Zones
- CBD Growth Boundary
- 5 km Catchment Coverage
- CBD
- Urban Hubs
- Sustainable Urban Centres
- Public Place Making

SOCIAL INCLUSIVITY

- Existing Residential
- Informal Settlement Redevelopment
- Proposed Housing
- Civic and Social
- Education
- Hospitals
- Recreation Land Use
- Cemeteries
- Waste Water Treatment Works
- Cemeteries
- Waste Water Treatment Works



5.4 ECOLOGICAL INFRASTRUCTURE

5.4.2 PROTECT AND ENHANCE OPEN SPACE CORES

This spatial layer is based on the key public open spaces, and both formal and informal nature reserves in the Msunduzi municipal area.

These areas are worthy of retention at all costs as they:

- Are key areas for active engagement of Msunduzi's citizens with their environment;
- Conserve natural resources and provide larger areas for biodiversity refuge;
- Provide opportunity for environmental education; and
- Are vital green lungs providing relief from dense cityscapes and which promote carbon sequestration.

Going forward they are also of key strategic importance to the municipality as they signal an opportunity to build on existing momentum by virtue of the fact that they already enjoy some degree of protection.

In future, it is considered desirable for these areas to be increased in size, or at minimum, that they be surrounded by more complementary land uses.

To protect these areas from adjacent development which is in direct conflict with them, a 30m precautionary buffer was applied to these core areas in line somewhat with guiding legislation for watercourses. The buffer allowance however is not as strict as that selected for watercourses, as open space areas don't pose the same risk to human life as that of a flooding watercourse.

A 1km radial buffer has been applied for schematic reasons to indicate that these areas should ideally be

complemented and/or expanded in future with similar surrounding open space/low-density activities. This buffer also adds to the potential linkages of these conservation areas with surrounding watercourses and other MOSS corridors (albeit conceptually).

FORMALLY PROTECTED AREAS

Queen Elizabeth Park	93.5ha
Mpushini Protected Environments	101.8ha

LESS FORMALLY PROTECTED AREAS

Bisley Valley Nature Reserve	358.4ha
Ferncliff Nature Reserve	147.6ha
Worlds View Conservation Area	31.7ha
Hesketh Conservation Area	92.5ha
Alexandra Park	71.4ha
Wylie Park	10.6ha
Pietermaritzburg National Botanical Gardens	47.7ha
Polly Shortts Conservation Area	11.8ha

5.4 ECOLOGICAL INFRASTRUCTURE

GREEN STRUCTURE

- MOSS (Conservation Use)
- Existing Major Open Spaces (Conservation Use)
- Proposed Major Open Spaces
- Henley Dam
- Major Tributary and 40m Buffer (Conservation Use)
- Minor Tributary and 40m Buffer (Conservation Use)
- The Msunduzi Parkway (Conservation Use)
- Open Space Lattice (Conservation Use)

PRODUCTIVE SYSTEMS

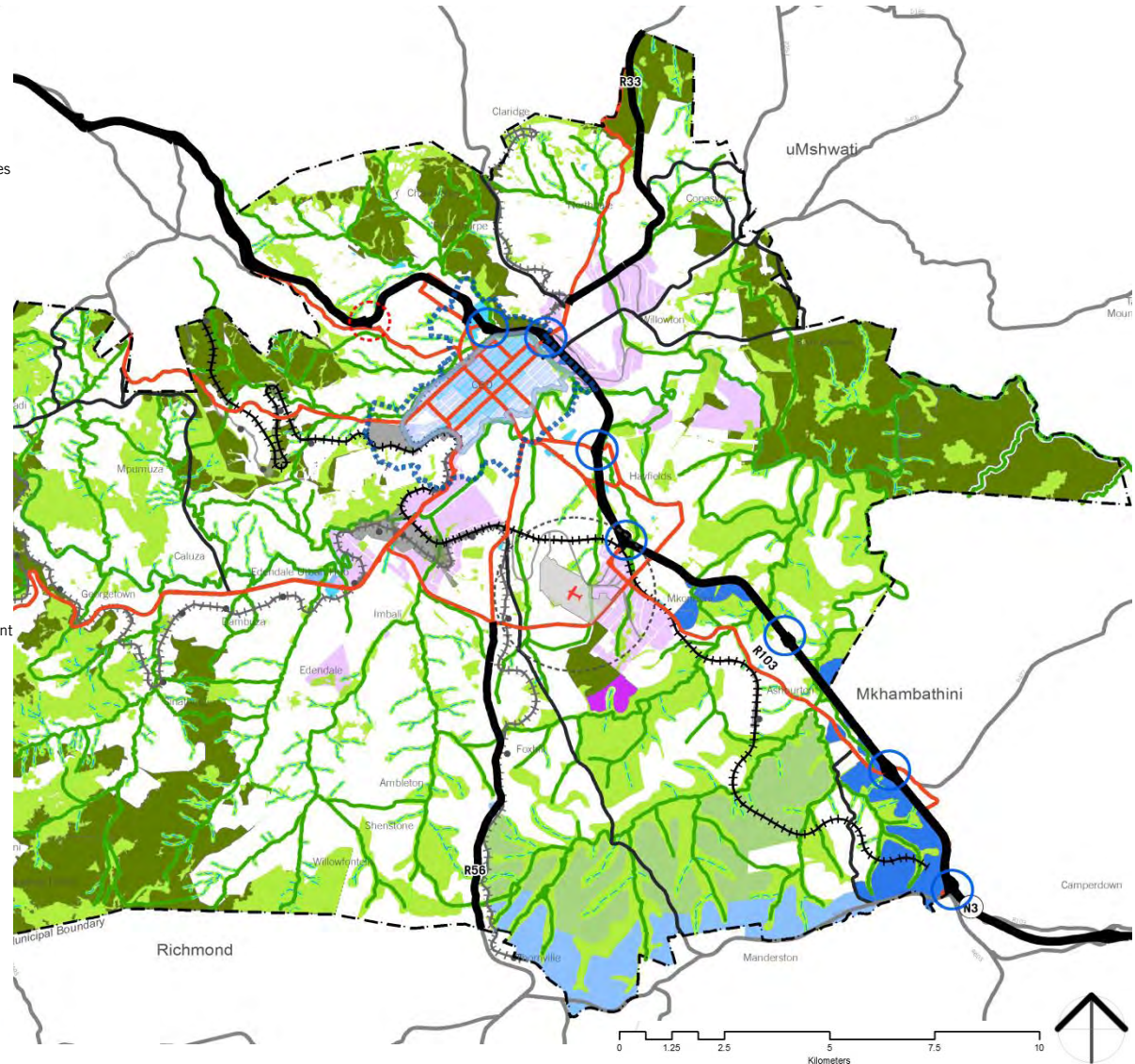
- Existing CBD
- Existing Commercial
- Existing Industry
- Logistics/Business
- Agri Business/Commercial
- Industry
- Agriculture

QUALITY URBANISM

- Existing Residential
- Densification/Intensification Zones
- CBD Growth Boundary
- 5 km Catchment Coverage
- CBD
- Urban Hubs
- Sustainable Urban Centres
- Public Place Making

SOCIAL INCLUSIVITY

- Existing Residential
- Informal Settlement Redevelopment
- Proposed Housing
- Civic and Social
- Education
- Hospitals
- Recreation Land Use
- Cemeteries
- Waste Water Treatment Works



5.4 ECOLOGICAL INFRASTRUCTURE

5.4.3 CREATING INTEGRATE OPEN SPACE SYSTEM

The objective of this layer is primarily to reinforce the importance of some of the key features of objectives 1 and 2 - leading to more defined corridor and cross-catchment linkages between open space cores, rivers and catchments.

Key perennial rivers in Msunduzi were considered the major corridor linkage opportunity areas and therefore these have been accentuated and enhanced visually through 100m buffering around them.

Additionally, linkages of streams across catchment boundaries were forged into the map in order to establish a network of linkages. These forged linkages were mapped on a discretionary basis where there might be an opportunity to create cross-catchment migration of species in future and require further integration in future local level plans.

Whilst the 'buffering' and 'forging' of these features is almost purely schematic, the intention is to simply flag these areas for noting possible future interventions (again acknowledging the 2030 & 2050 time horizons). In line with the above it is hoped that stricter setback lines and associated management tools will be introduced in future to optimise:

- Resilience against impacts such as floods, drought, edge effects and/or loss of habitat integrity, possibly exacerbated by climate change impacts; and
- Viable biodiversity and recreational corridor linkages as 'connectors' between cores and catchments.

WHY BUFFERS?

Due to the rate and extent of development in the country, natural areas are becoming increasingly isolated from other larger natural areas. This is leading to the quality and integrity of open space being impacted negatively from activities outside of these areas, e.g:

- Extinctions of animals outside of a larger natural area due to their isolation from the broader population;
- Excessive disturbance due to other activities on its border, such as:
 - where the natural area is used for access to that development,
 - where there are other stressors or 'edge effects' on its border such as non point-source pollution (such as excess sediment & nutrients), stray pets which prey on wild species, and/or increasingly extreme weather events which can destroy habitat (high speed winds, hail, lightning).

A buffer's function is therefore to reduce or mitigate the negative influences of activities taking place outside natural areas and to better integrate these areas with more compatible surrounding landscapes/land uses. Alternatively, a buffer zone may have complementary management restrictions placed on its use and development, aimed at providing an extra layer of protection.

(Conservation Use)

Proposed Major Open Spaces

Henley Dam

Major Tributary and 40m Buffer
(Conservation Use)

Minor Tributary and 40m Buffer
(Conservation Use)

The Msunduzi Parkway
(Conservation Use)

Open Space Lattice
(Conservation Use)

Densification/Intensification Zones

CBD Growth Boundary

5 km Catchment Coverage



CBD



Urban Hubs



Sustainable Urban Centres



Public Place Making

PRODUCTIVE SYSTEMS

Existing CBD

Existing Commercial

Existing Industry

Logistics/Business

Agri Business/Commercial

Industry

Agriculture

SOCIAL INCLUSIVITY

Existing Residential

Informal Settlement Redevelopment

Proposed Housing

Civic and Social

Education

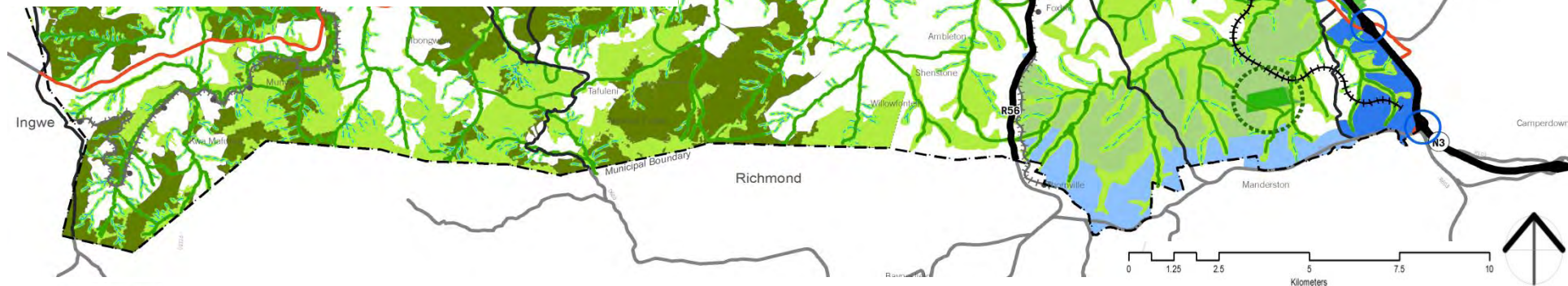
Hospitals

Recreation Land Use

Cemeteries

Waste Water Treatment Works

05 MSUNDUZI SDF



5.4 ECOLOGICAL INFRASTRUCTURE

5.4.4 MSUNDUZI RIVER – REGIONAL PARKWAY

It is critical to encourage city dwellers to interact with their environment to allow them to develop a heightened appreciation of green spaces, instead of their being viewed as a nuisance or as areas which 'limit' development.

According to the most recent IDP, Msunduzi's rivers are in a poor state – evidenced by the following statement:

"Almost without exception, monitoring indicates poor levels of water quality with [water] being classified as being unsuitable for human consumption without treatment and to a large extent unsuitable for recreational use. Many residents depend directly on water harvested from these highly polluted streams and rivers for drinking, cooking and irrigation which has a direct, and on occasion, severe health implications."

This level of degradation and pollution of water courses in Msunduzi also has had a significant negative impact on its indigenous biodiversity - including fish species, riverine vegetation, frogs, mammals, birds and insects.

The Msunduzi Municipality is also unique because its major river system, the Msunduzi, flows through the entire length of it, from west to east. While its headwaters begin in Richmond and flow through to Mkhambathini, from a management perspective, the Msunduzi Municipality is equally responsible for the health of the Msunduzi river – meaning that any pollution event that takes place within the municipality, has an impact on the health of the Msunduzi River and beyond (e.g. into the Umgeni system).

In response to this, the final planning layer - a regional, central parkway system - is proposed along the entire

length of the Msunduzi River. Again, it has been denoted schematically – this time with a prominent 200m buffer.

To highlight the importance of this river system, and to 'recycle' and renew it to its original glory, radical intervention is required. The rationale behind the proposed parkway system is to ensure that the Msunduzi River is given the prominence it deserves in the catchment and in terms of management.

If rolled out appropriately, over time, it would become a vibrant focus point of the municipality where people can enjoy the outdoors, recreation and interaction with the natural river environment.

In terms of co-benefits, a system like this would also improve the capacity of the river to attenuate floods, sequester carbon, improve city aesthetics and tourism potential and it would act as a major (macro) corridor linkage across altitudes, longitudes and latitudes.

In the absence of any formal parks or open space areas besides Henley Dam in the previously disadvantaged located west of the municipality, this proposed system has good strategic coverage in a west-east direction (in direct contrast to the north-south direction of existing open space areas located near advantaged communities).

The current efforts of Umgeni Ecological Infrastructure Partnership (UEIP) must be considered when embarking on efforts to secure the regional parkway system.

IMPORTANT TO NOTE:

Several spatial layers generated under the Ecological Infrastructure pillar will also be termed **Conservation Use** layers in the final SDF Map. This is in order to align the SDF with the requirements of the National Environmental Management Act (NEMA) Regulations (2014). This is to ensure that any proposed development within the sensitive areas identified in the city is adequately assessed (particularly in urban contexts which have increasingly relaxed requirements).

PROPOSED CONSERVATION AREAS

EXISTING / CURRENT PROPOSED (2015)		FUTURE PROPOSED ADDITIONS (2050)		TOTAL
MOSS (incl. all newly mapped watercourses)	13776 ha	40m Buffers and Linkages	8636ha	22412 ha
Open Space Cores (Including Nature Reserves)	961 ha (7% of MOSS)	New Open Space Cores (including Parkway)	1627.4 ha (11.8% of MOSS)	2588 ha (18.8% of MOSS)

Henley Dam

Major Tributary and 40m Buffer
(Conservation Use)

Minor Tributary and 40m Buffer
(Conservation Use)

The Msunduzi Parkway
(Conservation Use)

Open Space Lattice
(Conservation Use)



PRODUCTIVE SYSTEMS

Existing CBD

Existing Commercial

Existing Industry

Logistics/Business

Agri Business/Commercial

Industry

Agriculture

CBD Growth Boundary

5 km Catchment Coverage



CBD



Urban Hubs



Sustainable Urban Centres



Public Place Making

SOCIAL INCLUSIVITY

Existing Residential

Informal Settlement Redevelopment

Proposed Housing

Civic and Social

Education

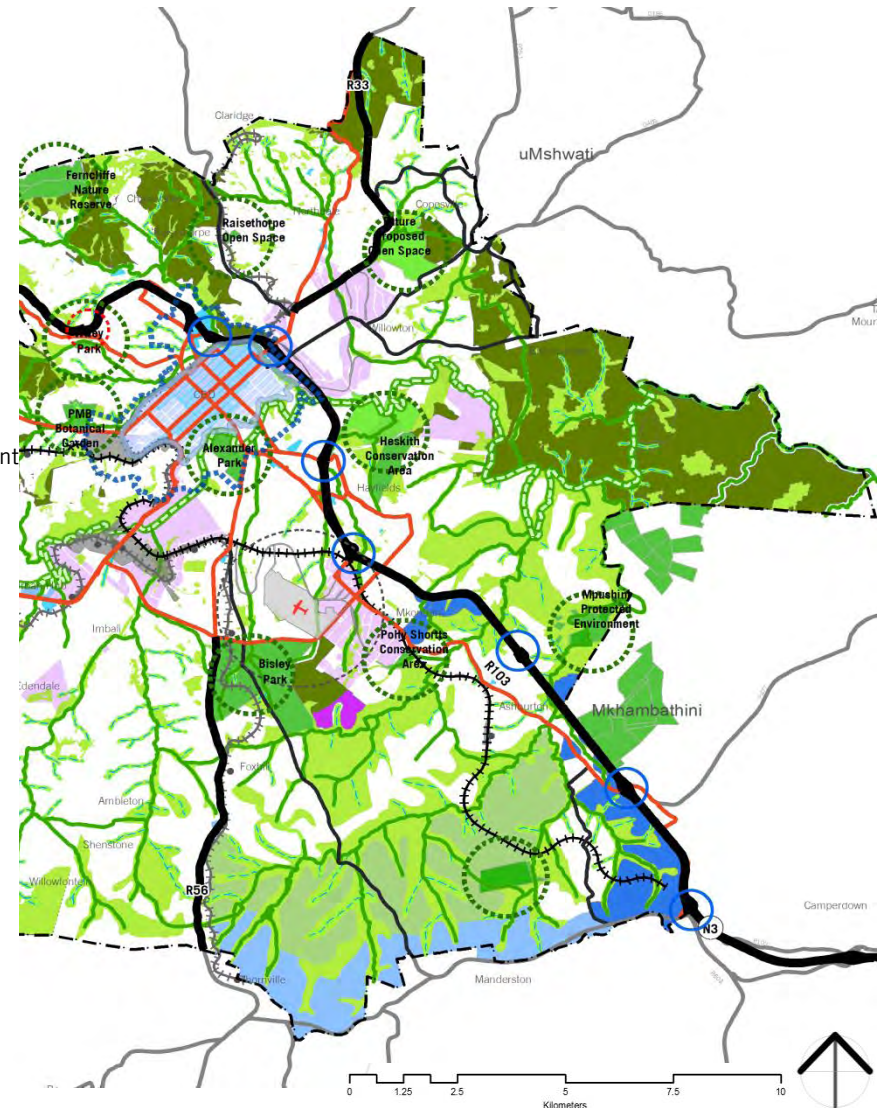
Hospitals

Recreation Land Use

Cemeteries

Waste Water Treatment Works

05 MSUNDUZI SDF



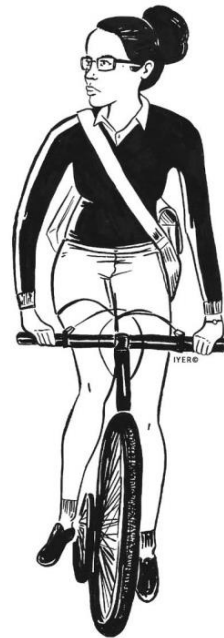
5.5 SUSTAINABLE TRANSPORT

Sustainable transport involves of strengthening or replacing the current transport systems of an area with more dense/highly utilised, fuel-efficient and environmentally safe alternatives such as bus or rail rapid transport systems, cycling or pedestrian oriented movement. Sustainable transport systems would make a positive contribution to the environmental, social and economic sustainability of the communities they serve.

A key component of sustainable transport is the provision and general support for NMT systems. In mixed-use urban environments, given the proximity of residences to employment opportunities, NMT represents an extremely viable, healthy and cost-effective/ sustainable option for urban mobility.

Sustainable Transport becomes an important backbone to sustainability. It is critical to ensure that each aspect of transport is addressed efficiently. The following interventions are proposed for the sustainable development of the transport system within the Msunduzi Municipality;

1. Equitable movement structure;
2. An enhanced public transport backbone;
3. Review the rail network; and
4. Promoting NMT routes.



COMMUTING CYCLIST



PEDESTRIAN ENVIRONMENTS



NON-MOTORISED TRANSPORT



PUBLIC TRANSPORT



REGIONAL SYSTEMS



LOCAL TRANSPORT

Environments that perform well for people are those which provide maximum choice and accessibility.

5.5 SUSTAINABLE TRANSPORT

5.5.1 EQUITABLE MOVEMENT STRUCTURE

The approach adopted for the 'Equitable Movement Structure' consists of the existing movement framework, as well as the introduction of new linkages. The purpose of new linkages aims at opening up the existing development vacuum, which currently exist within parts of Msunduzi, and enables better integration between separated areas.

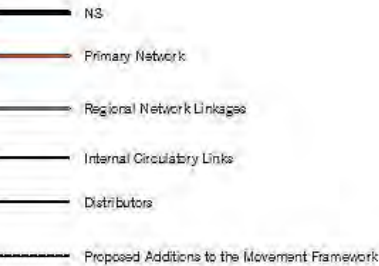
The increased connectivity between road infrastructure creates a superior network that provides greater choice and flexibility. Increasing choice also allows greater integration between disparate parts of the city space previously fragmented through spatial policy, and improves connectivity between places of residence and work.

Therefore it is proposed that new linkages are introduced in the following areas:

1. **Edendale and Mkondeni** – a number of new linkages are proposed between the isolated areas of Edendale and Mkondeni. New linkages will allow much needed connectivity and integration between the residential areas of Edendale and the economic zones within Mkondeni as well as further east towards the N3, where greater opportunities are to be located.
2. **Woodlands and Chase Valley** – A new link from Raisethorpe through Chase Valley will allow a more integrated structure of movement and ultimately better integration across different historical spatial groupings within Msunduzi.

5.5.1 EQUITABLE MOVEMENT STRUCTURE

5.5.1 EQUITABLE MOVEMENT STRUCTURE



5.5 SUSTAINABLE TRANSPORT

5.5.2 AN ENHANCED PUBLIC TRANSPORT BACKBONE

Enhancing public transport throughout the Municipality will allow the community of Msunduzi, greater access to a wider range of amenities and services. A quality, regulated system will ensure that all residents have access to a safe and reliable service. Therefore the introduction of a dedicated BRT line and Quality Bus Service throughout the major centres of the Municipality will provide important mobility spines for further development and growth in these areas.

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 CBD to Northdale. It is envisaged that the project will promote public transport and non-motorized transport along the Edendale Northdale Corridor by improving infrastructure and services through integrated transport and land use developments. The main elements of the project comprise:

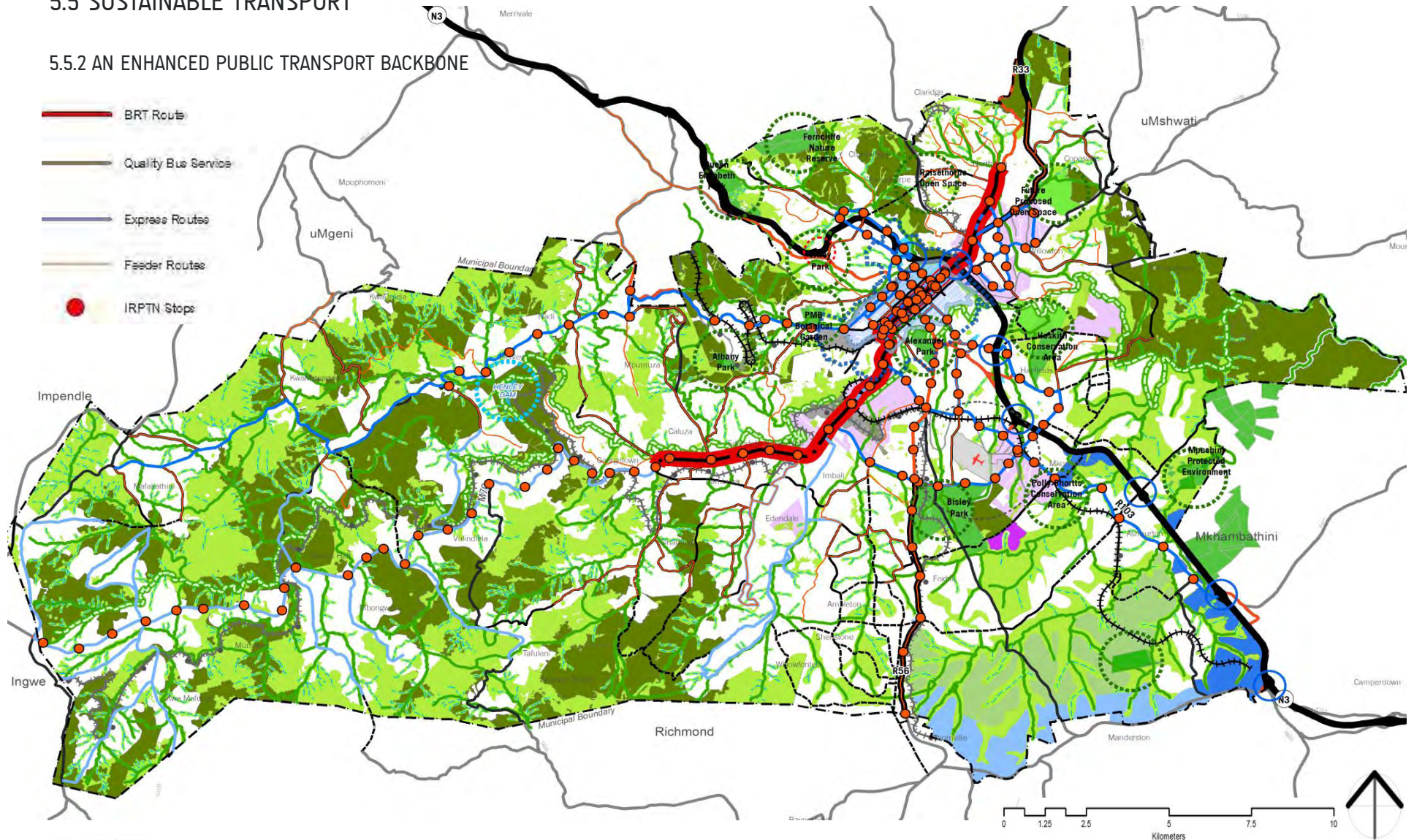
- Improved, higher frequency public transport services along the corridor;
- Urban renewal and activity node development along the corridor;
- Enhancement of non motorized transportation facilities;
- Provision and improvement of pedestrian facilities;
- Development of public transport facilities in the urban core; and
- Improved public transport facilities to serve public transport along the corridor.

The first phase of the network comprises the following route types:

- Trunk - the core route with the highest demand using a segregated right of way. One such route has been identified for the initial phase running from Edendale in the west through to Raisethorpe in the east distance of some 17km;
- Complementary - other strategic bus routes branded as 'Quality Bus' routes; and
- Feeder - these routes serve more isolated areas, and where the road network may comprise gravel roads. These services link with both trunk and complementary routes, and services would typically be provided by 14-seater minibuses.

5.5 SUSTAINABLE TRANSPORT

5.5.2 AN ENHANCED PUBLIC TRANSPORT BACKBONE



0 1.25 2.5 5 7.5 10
Kilometers



5.5 SUSTAINABLE TRANSPORT

5.5.3 REVIEW THE RAIL NETWORK

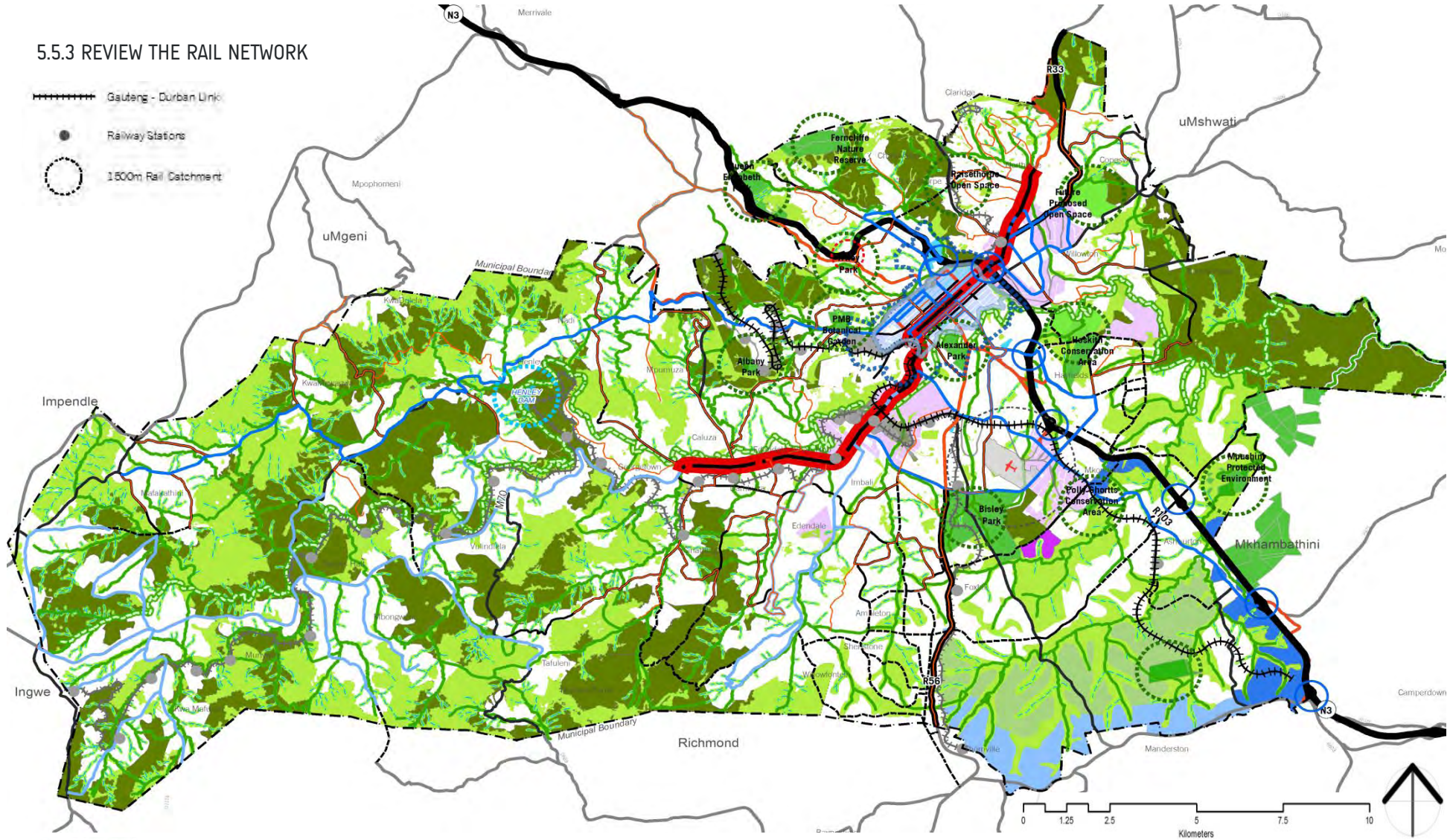
In light of the introduction of the Msunduzi IRPTN network and the existing limited service along the rail system, it is proposed that there is a review of the current rail network within Msunduzi. It is recommended that the main line linking Durban and Johannesburg, via Pietermaritzburg be retained. This route, running parallel to the N3 and R103, is a vital regional and provincial connector which should be maintained and enhanced.

The rail lines running in a east/ west direction should be reviewed with the recommendation that they should be decommissioned and removed to make way for other more appropriate uses. This is because the existing and future demand on this line, with the introduction of the Msunduzi IRPTN system will not be sufficient enough to warrant the cost for upgrading and maintenance. It is therefore proposed that the infrastructure be removed to allow for new opportunities to take advantage of the land and stimulate integration between communities and areas that were previously separated by the rail barrier.

The proposed recycling and reinvention of the east /west rail link therefore presents a number of unique opportunities for the Municipality. The link is a powerful system which connects existing areas of need, through a central spine, to the CBD via an alternative route. A major advantage of the link is the fairly flat/ low-gradient linear spine, connecting communities at a grade that permits ease of using non-motorised modes of transport.

5.5 SUSTAINABLE TRANSPORT

5.5.3 REVIEW THE RAIL NETWORK



5.5 SUSTAINABLE TRANSPORT

5.5.4 PROMOTING NMT ROUTES

NMT routes are a critical network within the 'Sustainable Transport' network which should not be overlooked. NMT routes are particularly important in areas such as the Msunduzi Municipality where the majority of residents are dependent on pedestrian access.

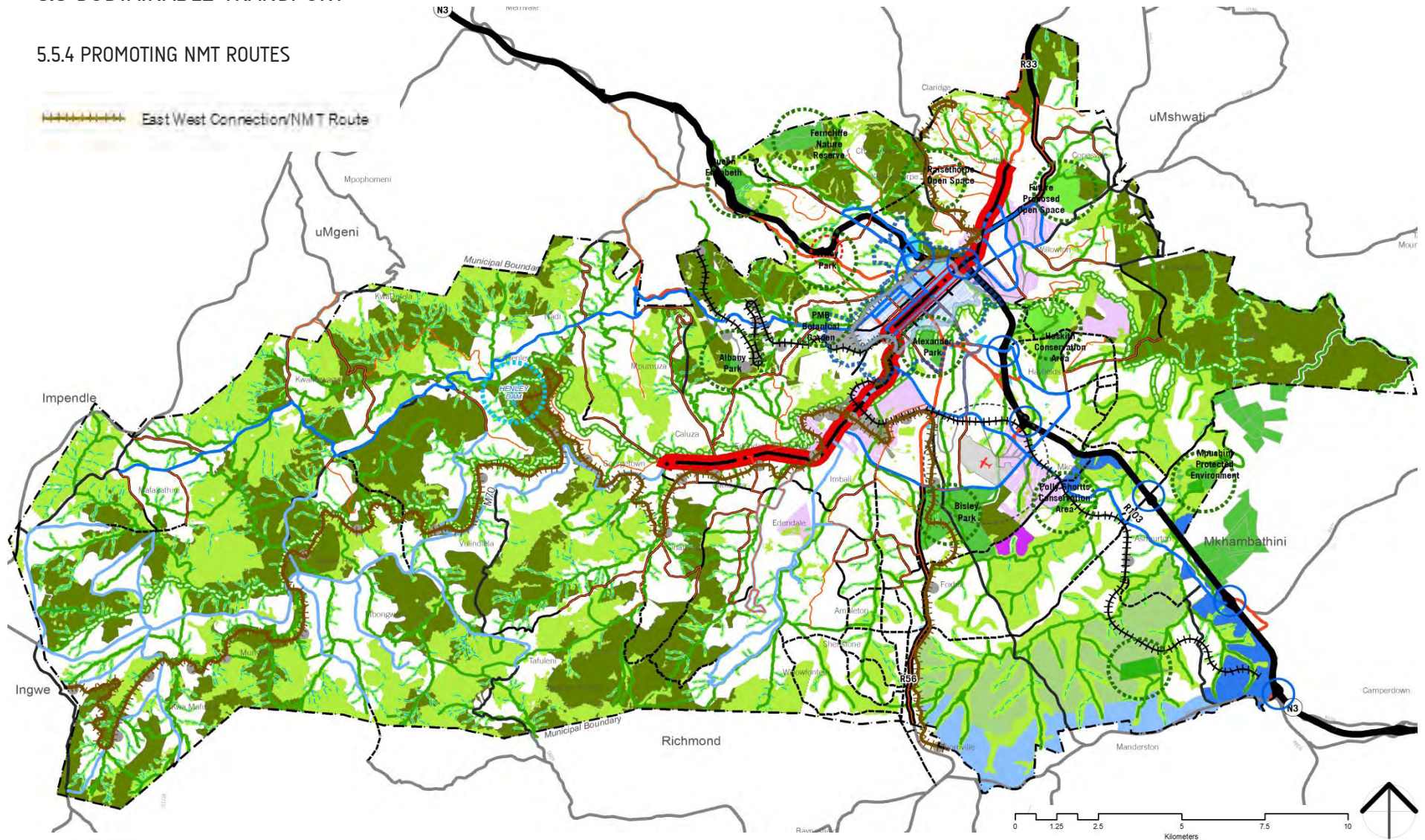
NMT routes refer to a complementary planned route which facilitates both pedestrians as well as cyclists. The NMT routes form part of the wider integrated IRPTN system.

The decommissioning of the east/ west rail line provides an opportunity for an NMT link to be implemented along the old rail route. The east/ west link provides great connectivity through the major residential areas and is situated on flat topography making a NMT route most favourable. The new proposal will allow for the upgrade of the old system to make way for the introduction of new life to an existing, sterile environment. The project will promote the upliftment of 'dead' or negative space and the introduction of a vibrant, safe environment which will provide central access to all the major nodes within the Municipality. Where in the past, the rail served as a barrier between communities this could in future become an 'integrator'.

It is proposed that in addition to the planned NMT routes as part of the IRPTN system, new routes are established in association with the 'Ecological Infrastructure'. The prominent mountain bike track between Ferncliffe and Cascades must also be noted. The potential for an extended cycle network across the municipality represents a real opportunity for the city, particularly in its rich, natural corridors. A link from Ferncliffe in the north, to Bisley in the south should thus also be explored in this regard.

5.5 SUSTAINABLE TRANSPORT

5.5.4 PROMOTING NMT ROUTES



5.6 QUALITY URBANISM

A key aspect of quality urbanism is encouraging density, compactness and complexity. This is a foundation for sustainable urbanism. Apart from land being understood as a scarce resource, density and compact environments are generative in nature and can yield a wider range of urban opportunity.

Density and compactness leads to complexity allowing a greater mix of land uses, shared spaces and services, and reducing the cost of infrastructure. The goal is to promote a particular pattern of fine grain urban form which is complex in profile, and which reduces the negative impacts of sprawl.

Mixed use environments increase the choices available to people, having the ability to live and work in an area. Providing the ability to access local needs is an essential aspect of sustainable urbanism.

A series of spatial layers have been developed in order to achieve greater densities, compactness and mixed uses within the Msunduzi Municipality. A key component to this pillar and the suite of interventions listed below, is the concept of equality. All areas of the Municipality have been viewed equally, the only preference used to instil the interventions below is current densities patterns. Therefore the Quality urbanism interventions include:

1. Create functional residential neighbourhoods;
2. Build polycentric city;
3. Create sustainable urban centres;
4. Promote densification; and
5. Enhance public place making.



A key aspect of quality urbanism is encouraging density, compactness and complexity.

5.6 QUALITY URBANISM

5.6.1 CREATE FUNCTIONAL RESIDENTIAL NEIGHBOURHOODS

Various issues were revealed during the analysis stage of the SDF relating to the current settlement pattern, land use opportunities, and the range and quality of facilities and services available to people in different parts of Msunduzi.

As stipulated, one of the key objectives of quality urbanism is that of creating opportunity, facilitating choice and promoting safe and liveable environments for all, thus creating functional residential neighbourhoods.

Functional residential neighbourhoods are complete neighbourhoods that work well for those residing within them. They are environments where residents feel safe, fulfilled and have access to a choice of goods and services they may require for their daily living. Functional and complete neighbourhoods are also those that offer people choice in terms of housing options, jobs, facilities and services, as well as quality public environments.

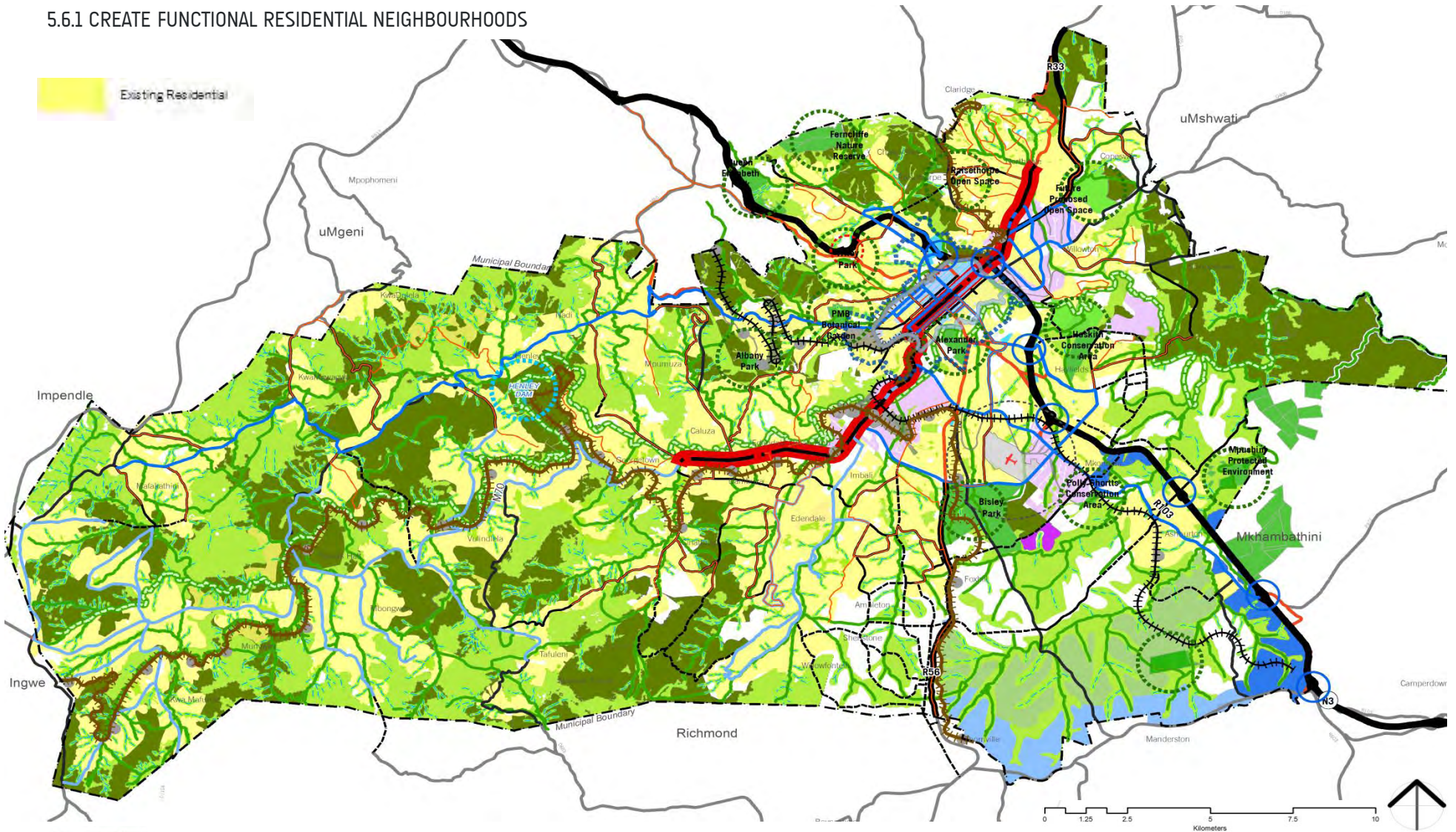
Acknowledging the current settlement pattern and state of neighbourhoods within the Msunduzi Municipality, the SDF aims to facilitate the transformation of underdeveloped, uncoordinated neighbourhoods into well serviced, complete and liveable spaces. This can be achieved through a series of interlinked local level initiatives within the municipality that will ultimately lead to an overall transformation of neighbourhoods within Msunduzi by 2050.

In-situ upgrades of informal settlement areas, and removal of communities from hazardous areas (such as floodzones) are key considerations in this regard. CCTV for a smart city is also a chief consideration.

The remaining sections on quality urbanism highlight these different interventions, their location and overall benefit.

5.6 QUALITY URBANISM

5.6.1 CREATE FUNCTIONAL RESIDENTIAL NEIGHBOURHOODS



5.6 QUALITY URBANISM

5.6.2 BUILD A POLYCENTRIC CITY

As stipulated in the previous sections, one of the critical elements of functional and complete neighbourhoods is the idea of people having access to a variety of facilities and services. As the status quo analysis revealed, the existing community of Msunduzi currently has limited access to a range of commercial, civic, and social facilities and services, as the main centres where these are located are not easily accessible to all.

As such, the SDF promotes the development of key Urban Centres strategically located across the Municipality in order to allow all people within the Municipality to have reasonable access to a wider range of services, facilities as well as opportunities.

The primary notion here is the concept of Pietermaritzburg becoming a polycentric city. The supporting plan reflects the proposed location of each of these centres, based on the idea of ensuring adequate coverage of the Municipality's current settlement foot print, based on both current momentum and strategy/ development.

Criteria for selecting the proposed locations therefore involved, identifying areas where such facilities currently exist or are beginning to develop. These areas would include The CBD, Liberty Mall, Edendale, Northdale, Camperdown and Hilton all of which are centres within and surrounding the Municipality.

The proposed location for the other Urban Centres is based on identifying areas where the greatest growth and need is expected by 2050. As a result, Urban Centres are proposed in the following key areas: Ambleton, Mkhondeni, Nadi, KwaMncane and Taylors Halt.

It is important to highlight that the aim is for each of these centres to provide a full suite/ range of services and facilities. As a result, people would be able to access both higher-order and lower-order goods.

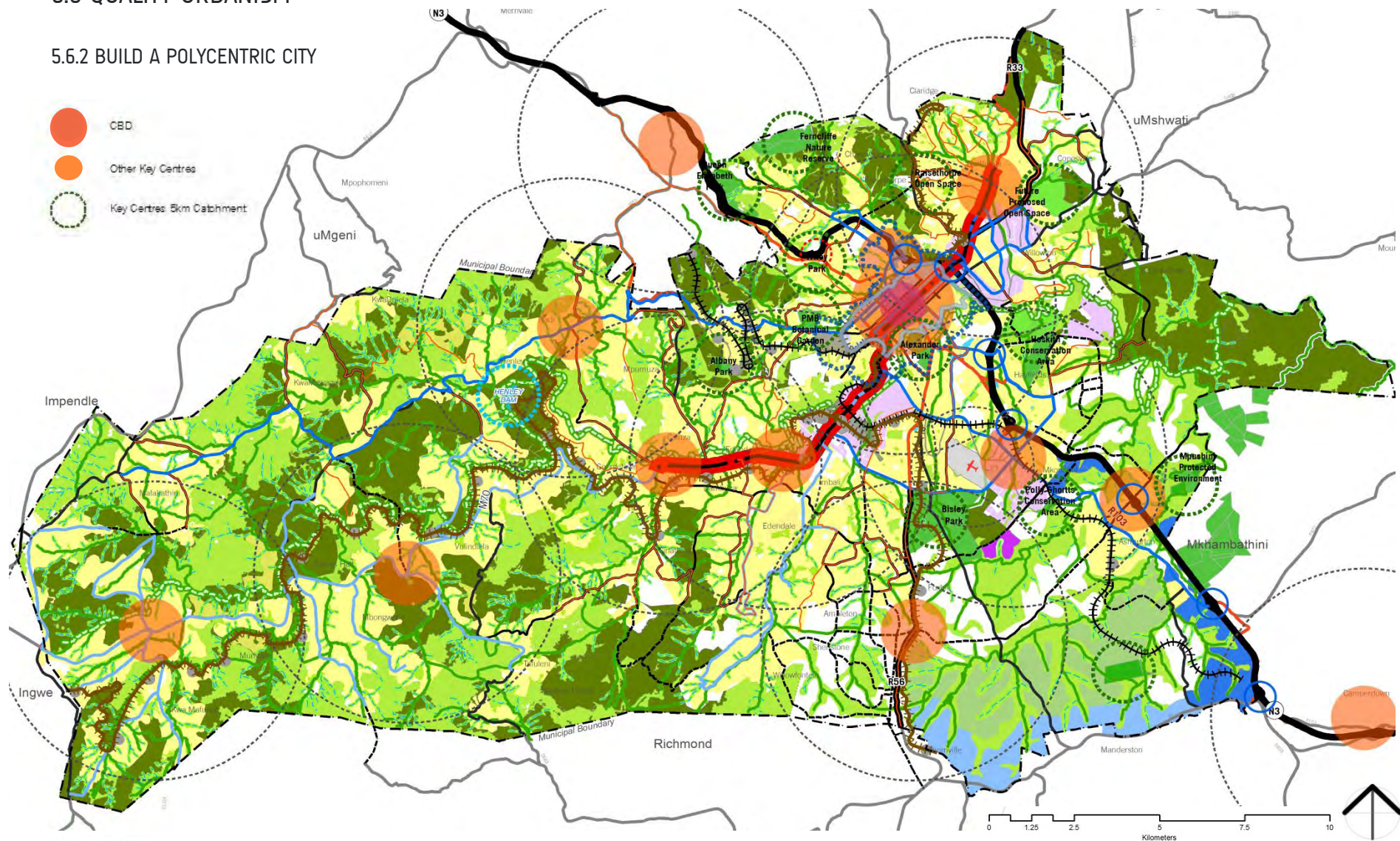
These have been reflected on the plan as having a 2 km range. This means that the SDF proposes that by, 2050, all residents of Msunduzi Municipality should be within a 2km range of an Urban Centre where they can access higher order, but more sustainable, goods (because of densification, sustainable new services available, etc). Having said this, it is also important to note that the development of these centres will only be fully implementable as the need and demand arises with time.



Image: Bridge City New Town Centre (TotalCad, 2007)

5.6 QUALITY URBANISM

5.6.2 BUILD A POLYCENTRIC CITY



5.6 QUALITY URBANISM

5.6.3 CREATE SUSTAINABLE URBAN CENTRES

While access to higher order goods is important for ensuring functional neighbourhoods in the Municipality, it is acknowledged that functional neighbourhoods must also allow people access to essential day to day services and facilities within a walkable distance or through NMT corridors.

The strategy in this regard, at a more local level, is creating Sustainable Local Centres. The local neighbourhood centres are depicted on the adjacent plan with a dashed, 400 meter buffer to indicate general coverage. The purpose of the local centres is to focus and promote access for people to more lower order services and facilities within a 5 minute walking distance.

Important to note, is the high concentration of such centres within the Northern areas, CBD, Ashburton and Eastern areas as well as the Greater Edendale/ Imbali area. The identification of possible local centres in these areas was based on the idea of linking the local centres to IRPTN bus stations.

The proposed local centres within Vulindlela, on the other hand, were identified based on an assessment that identified various activity clusters within the Vulindlela Area. Activity clusters were identified as places where there is a concentration of 3 or more public facilities, as well as a generally high population concentration.

It must be noted that the local centres are not aimed at being major developments but are rather tailored depending on the observed/ anticipated need and demand. Local centres are aimed at being local convenience clusters

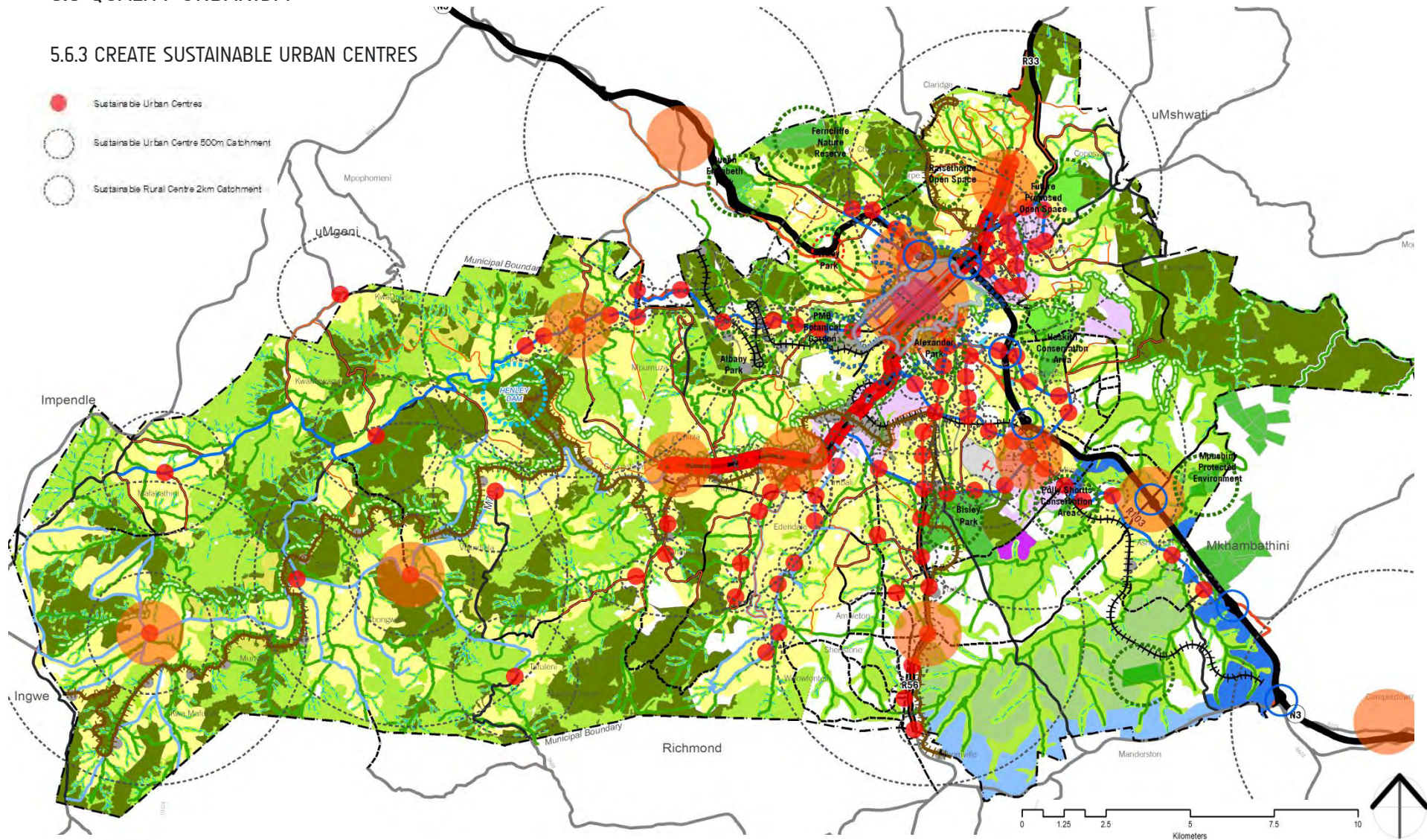
where people can access basic day to day services. They incorporate minimal development to improve the public realm such as, bus shelters, bus stops, trading and incorporating various pedestrian safety measures such as sidewalks, street trees, street furniture and lighting as they will be places where people interact outside their homes, whilst going about their day to day business.



Image: Artist impression of a small scale, sustainable urban centre (Iyer Urban Design Studio, 2013)

5.6 QUALITY URBANISM

5.6.3 CREATE SUSTAINABLE URBAN CENTRES



5.6 QUALITY URBANISM

5.6.4 PROMOTE DENSIFICATION

Another aspect of providing functional places relates to density. Density is critically important in that it allows a larger number of people to have access to the same level of services in a more sustainable manner.

In line with the approach of Sustainable Urbanism, sustainable urban environments are dense and have a strong public transport backbone. It is on this basis that the SDF aims to promote densification along the IRPTN feeder routes reflected on the plan.

The base density required to ensure the efficient running of a BRT is a Gross Density of 26 Du/ Ha. It is important to note that densification does not necessarily mean the development of 20 storey buildings, but rather buildings as low as 4 storey walk-ups to achieve these density levels.

Densification along these routes will have multiple benefits for residents, shop owners, and the municipality as a whole, as a higher concentration of people in key areas will help increase the viability of the urban and local centres as well as the public transport system.

It must be understood that densification is not only important from an accessibility point of view. The reality of land being a critical and finite resource that must be used strategically is an issue that cannot be overlooked.

The Growth Model presented in the earlier sections of this report, highlighted the demand for land for various sectors/ uses by 2050. In terms of land required for residential purposes by 2050, the model reflected that an additional 7 584 Hectares of land are required, based on 25 dwelling

units per Hectare measure. When considering that the Municipal area is 63 400 hectares, the figure may seem almost insignificant. However considering the amount of land already developed in the Municipality as well as the other land uses that still need to be accommodated in the future, the reality of this challenge becomes apparent.

As such, the strategy of promoting densification in the Municipality is a key one as it acknowledges the growth of the Municipal population and presents a way of efficiently accommodating this growth. Densification strategies will not only help accommodate the forecasted population growth of the city but will also ensure that the emerging/ future residential settlements are liveable and complete, allowing

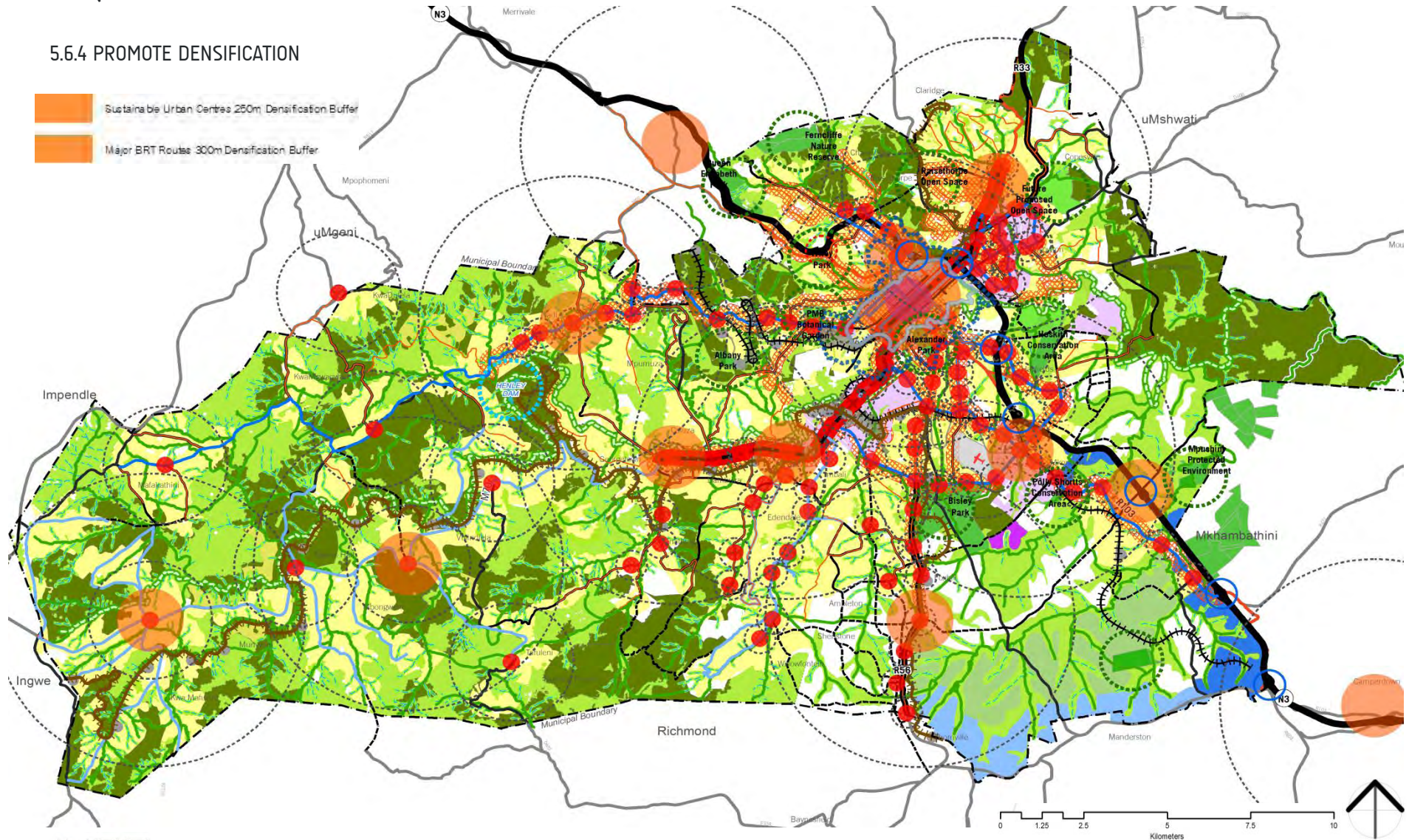
residents reasonable access to public transportation and a variety of other services and facilities, thus continuing with the notion of establishing functional residential neighbourhoods.



Image: Artist impression of corridor development along portions of the identified IRPTN routes (Iyer Urban Design Studio, 2014)

5.6 QUALITY URBANISM

5.6.4 PROMOTE DENSIFICATION



5.6 QUALITY URBANISM

5.6.5 ENHANCE PUBLIC PLACE MAKING

The final aspect of Quality Urbanism that the SDF promotes, is Enhancing Public Place making.

The enhancement of the public realm is key to the successful functioning of neighbourhoods and the city at large. If designed well, these spaces give the neighbourhood and city identity and, in turn, people are drawn to using public places and develop a sense of place and belonging to their neighbourhoods or city. As such Public spaces are integral to the identity of cities.

In light of this, the SDF proposes the enhancement of Public Place Making with a focus on the areas identified as local centres. The prescribed public place making initiatives envisioned might be small scale initiatives that give identity to the different areas through the provision of shelter, shade, seating and lighting with the purpose of enhancing the public realm, or might be larger scale urban spaces that accommodate a range of functions.

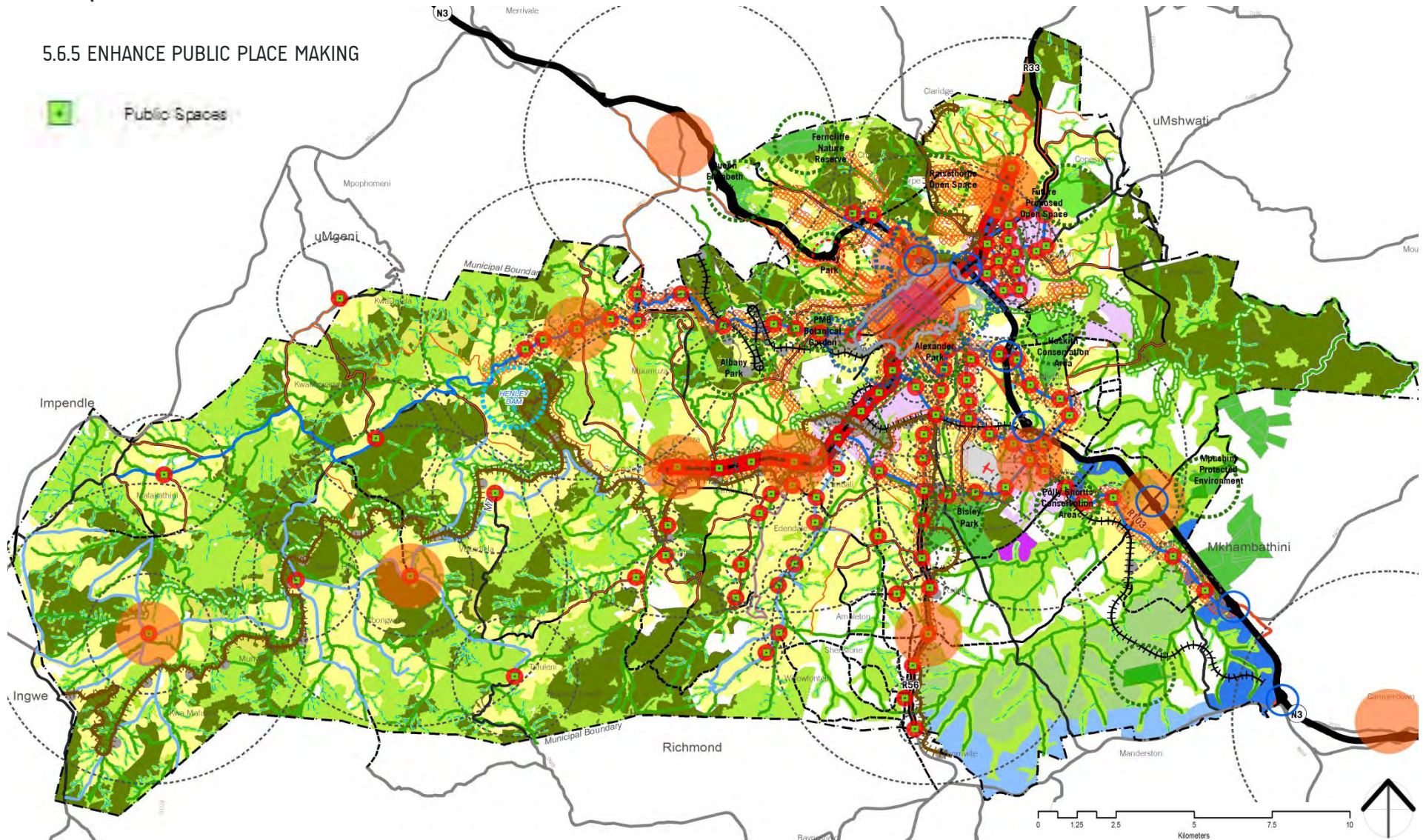
A key aspect of the approach is linking the implementation of the public transport system, particularly their stops/stations, with the making of public spaces. These would then become the nuclei around which a range of urban, social, cultural activities can take form.



Image: Artist impression for Public Space Making in Alexandra Park, Msunduzi Municipality (Iyer Urban Design Studio, 2014)

5.6 QUALITY URBANISM

5.6.5 ENHANCE PUBLIC PLACE MAKING



5.7 SOCIAL INCLUSIVITY

There are many aspects to social inclusivity. At the broadest level; this deals with the notion of people centered cities, whereby citizens have an active role in shaping their futures. Participation in decision-making is therefore an essential aspect of social inclusivity.

The physical environment is an important influencer of social well being and in fostering inclusivity. A fundamental part of social inclusivity is ensuring equity in the distribution of opportunity for all residents. Successful urban places are those that adequately address the needs of the widest range of society, with a particular emphasis on those with limited means – including the young and the old. A key determining feature of socially inclusive environments is the ability of an environment to cater for the youngest, and at the same time, oldest members of society.

Creating physical environments that enhance quality of life, and which afford equal opportunities and enable integration, is paramount to achieving sustainable cities.

To achieve the objectives of Social Inclusivity, the following intervention have been identified:

1. Establish new housing opportunities;
2. Address informal housing; and
3. Equitable distribution of public amenities.



OLD & YOUNG CITIZENS



PARTICIPATIVE PLANNING APPROACHES



PLACES FOR SOCIAL INTERACTION AND MEETING



EQUAL OPPORTUNITIES



QUALITY OF LIFE

A fundamental part of social inclusivity is ensuring equity in the distribution of opportunity for all residents

5.7 SOCIAL INCLUSIVITY

5.7.1 ESTABLISH NEW HOUSING OPPORTUNITIES

As described, one of the main focuses of social inclusivity is ensuring equitable distribution of opportunity for all citizens and that the city addresses the needs of the widest range of society.

The provision of adequate housing is a fundamental aspect of social inclusivity. Given the analysis presented earlier, it is evident that addressing housing needs is a foremost priority within the Municipality.

As emphasized in the Quality Urbanism section, in addition to the backlogs, evidenced in the growth of informal settlements, the population and growth model suggests that by 2050 Msunduzi would need 7584 Ha (based on a average density of 25 du/ Ha) of additional land for a future additional population of 720 433 people. This implies a future need of an additional 189 588 new households.

With a predominantly young population, it is essential that the municipality plans for ways to meet both current and future housing needs particularly in the short term and on-going.

Based on this the SDF proposes the establishment of new housing opportunities in new areas within the Municipality. The exploration of new housing opportunities is key to the development of the city as it will help accommodate the projected city population growth for the coming years.

As reflected in the plan, new housing opportunities are proposed in the following key areas: Ambleton, Foxhill, Ashburton, Hayfields and Willowton. The provision of housing in these areas will support the south-eastern

expansion of the Greater Edendale area and enable future residents better access to employment in the industrial areas located within the Mkhondeni area and along the N3.

Planning for more appropriate integrated housing opportunities will successfully address social inclusivity through the development of a range of housing typologies targeted at the full spectrum of income levels, lifestyles and stages of life.

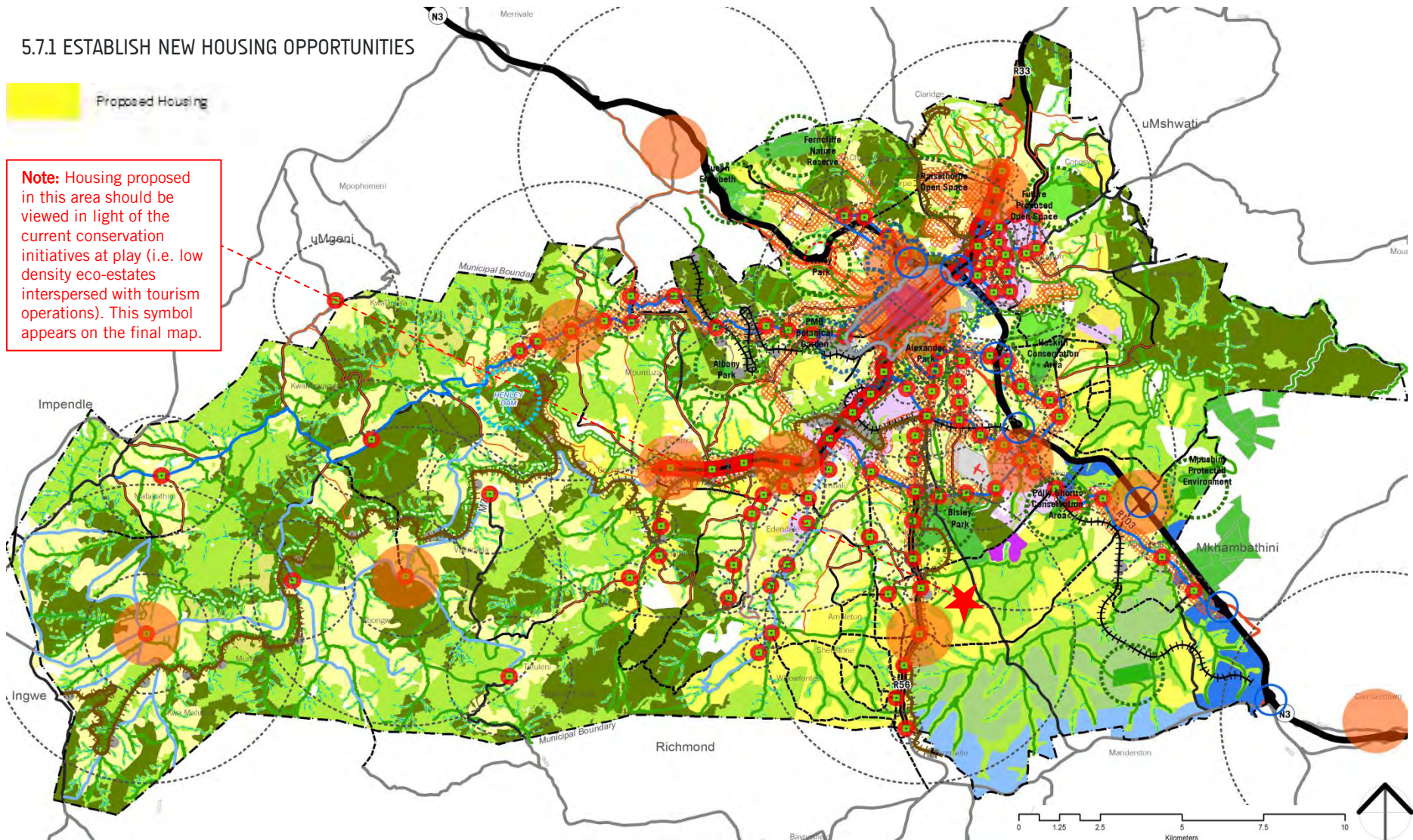
In addition to catering for future needs, this strategy would importantly start to address the imbalances and separation inherent in the present spatial structure. Housing therefore becomes an important strategy in restructuring and transforming past apartheid-driven spaces and creating a more equitable city.

5.7 SOCIAL INCLUSIVITY

5.7.1 ESTABLISH NEW HOUSING OPPORTUNITIES

 Proposed Housing

Note: Housing proposed in this area should be viewed in light of the current conservation initiatives at play (i.e. low density eco-estates interspersed with tourism operations). This symbol appears on the final map.



5.7 SOCIAL INCLUSIVITY

5.7.2 ADDRESS INFORMAL HOUSING

With equality being one of the key principles of Social inclusivity, the present reality of informal settlements in Msunduzi should be regarded a thing of the past by 2050.

In line with Section 26 of Chapter 2 of the Constitution of the Republic of South Africa, outlining the right of citizens to “Adequate Housing”, the SDF identifies the inadequacy of informal settlements as an housing option. The Municipal IDP therefore also aims for 100% eradication of informal settlements by 2050.

It is proposed that this be accomplished through a series of relocation and redevelopment of informal settlements across the city, to enable all citizens to live in dignified, safe quality living environments.

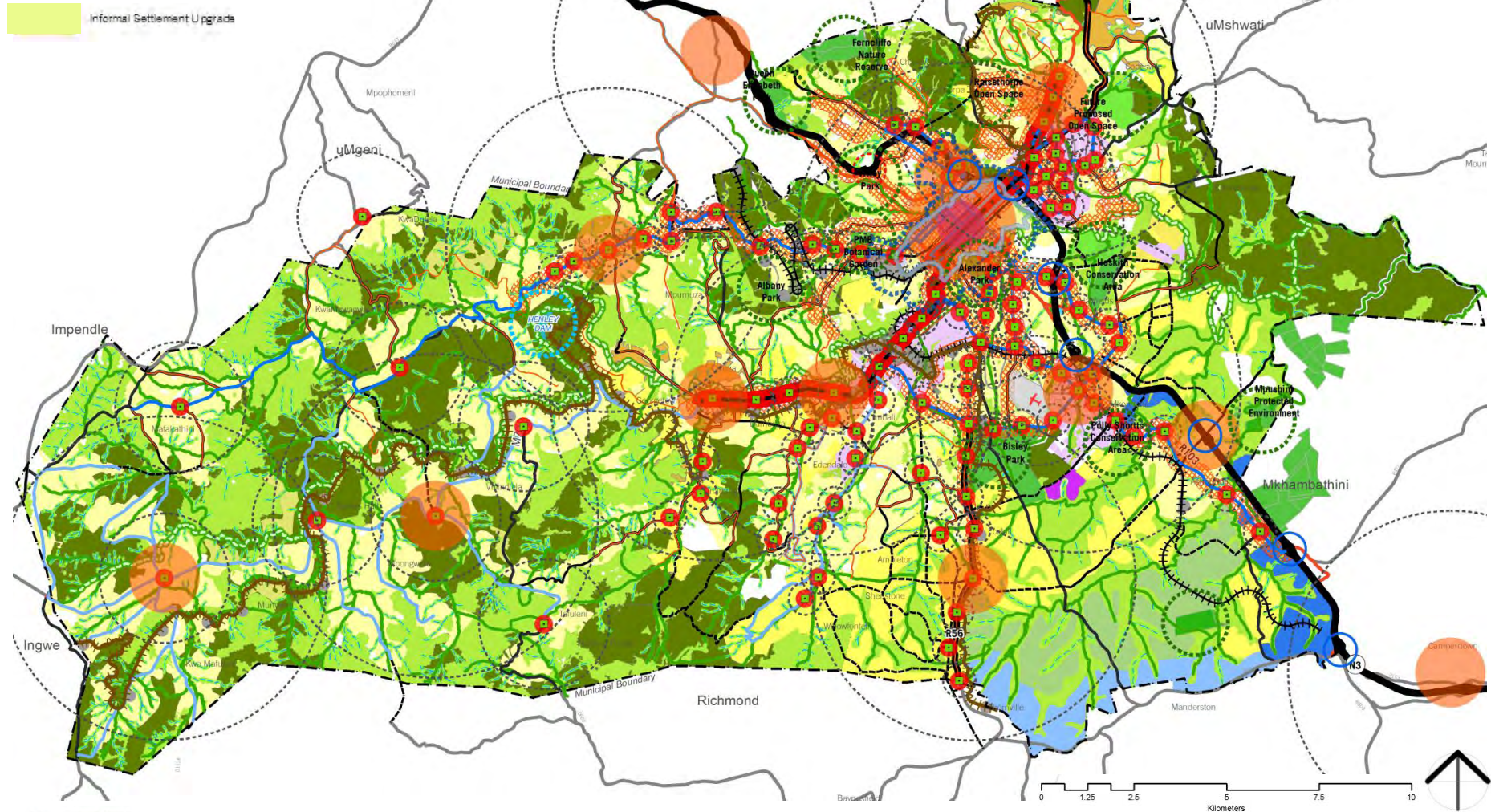
The plan overleaf highlights key areas needing attention in this regard, which includes, Caluza, Edendale as well as Copesville.



Image: Cornubia Development, example of new social housing typologies (Iyer Urban Design Studio, 2014)

5.7 SOCIAL INCLUSIVITY

5.7.2 ADDRESS INFORMAL HOUSING



5.7 SOCIAL INCLUSIVITY

5.7.3 EQUITABLE DISTRIBUTION OF PUBLIC AMENITIES

In terms of public amenities, the plan reflects a wide coverage of facilities across the municipality in terms of existing facilities. While it would appear that the municipality is well serviced in terms of public amenities, the quality and level of functionality of these facilities needs to be evaluated before any conclusive development decisions are made.

The CSIR gives guidelines to the provision of Social Facilities in South African Settlements. Importantly, in order to ensure that the existing facilities are fully adequate and functional, and that the city is in a position to provide more facilities in the future as the need arises, the SDF proposes that a full social facility audit is conducted.

The audit would need to be evaluated against the CSIR guidelines so as to establish the current stock of facilities within the municipality, along with the quality and functionality of these facilities.

This will allow for more well informed and cost effective proposals to be made regarding new facilities that must be developed or old facilities that need to be upgraded/expanded. It will also help identify any areas that may require critical provision of specific facilities.

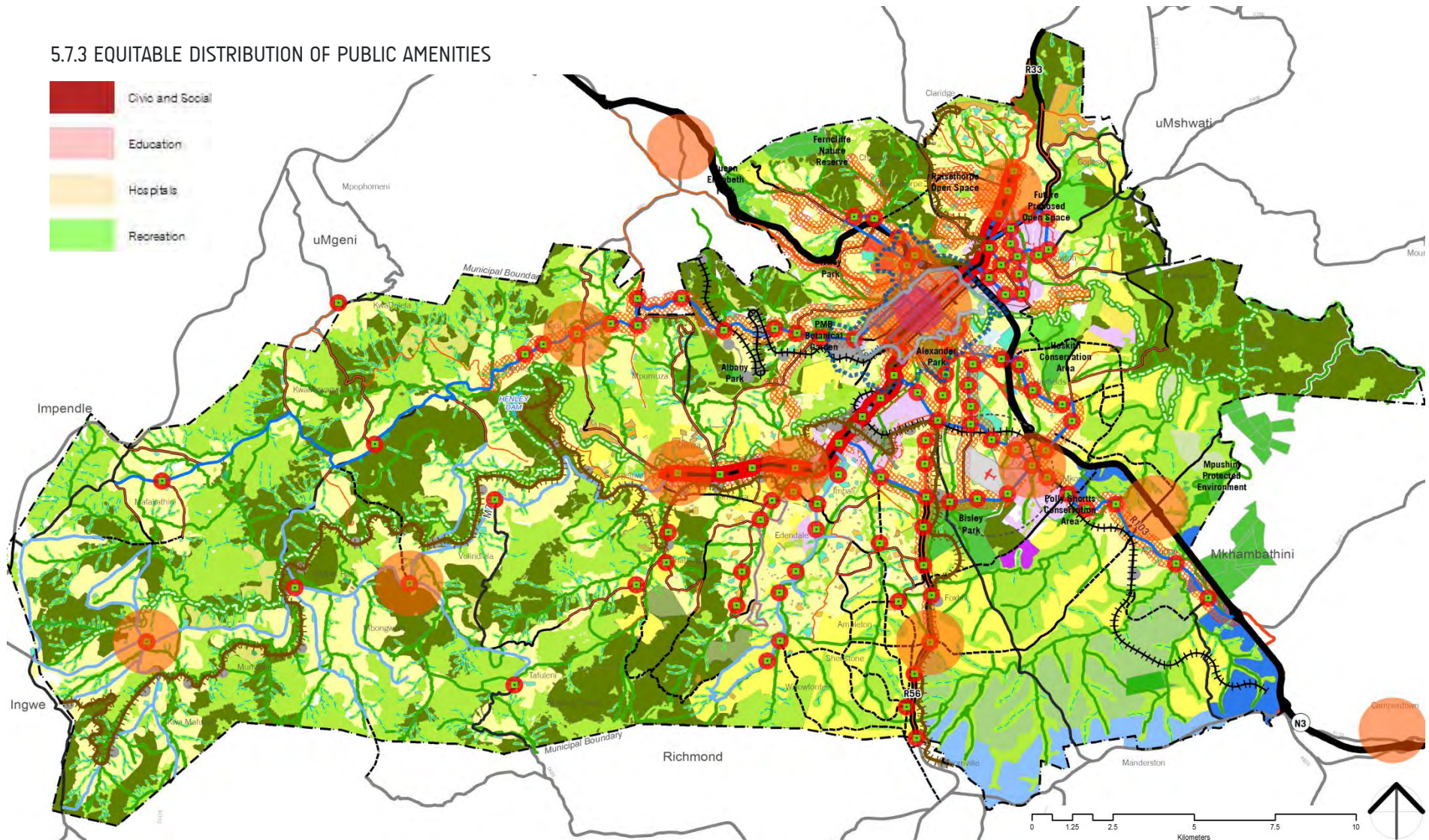
In terms of future population growth, it is envisaged that new facilities will increasingly be required to address the relevant needs at that time. The space standards as well as the extent of facilities required should be based on the particular norms and standards at that time.

A key principle in terms of sustainable urbanism is the shared use of facilities, their multifunctionality and promoting mixed use facilities.

The tables overleaf provide the framework around which the Municipality should prepare their facilities audit.

5.7 SOCIAL INCLUSIVITY

5.7.3 EQUITABLE DISTRIBUTION OF PUBLIC AMENITIES



5.7 SOCIAL INCLUSIVITY

5.7.3 EQUITABLE DISTRIBUTION OF PUBLIC AMENITIES (AS PER CSIR RED BOOK, 2009)

Msunduzi Municipality Social Facility Assessment								
Design Population								
Estimated Households								
Household Size (Assumed)	4							
Projected Population								
Estimated Population	618,533							
TYPE OF FACILITY LARGE CITIES/ SMALL METROS - Catchment Size(350 000- 1 000 000)	POPULATION TRESHOLD	ACCEPTABLE TRAVEL DISTANCE	APPROXIMATE MINIMUM SIZE OF SITE (sqm)	NO. OF SOCIAL FACILITIES REQUIRED	EXISTING FACILITIES IN EDENDALE	SHORTFALL IN NO. OF FACILITIES	FRACTIONAL SIZE OF SITE BASED ON SHORTFALL /SURPLUS (sqm)	PROPOSAL FOR DEALING WITH SHORTFALL
HEALTH AND EMERGENCY SERVICES								
Regional Hospital (L2)	1,770,000			0.3				
Hospital L1 (District)	450,000	30km	50,000	1.4				
Community Health Centre	120,000	90% of population served within 5km	15,000	5.2				
Primary Health Clinic	30,000	90% of population served within 5km	5,000	20.6				
Fire Station (Suburban)	100,000	8-23 minutes response time	5,000	6.2				
Police Station	60,000	16km peri-urban	5,000	10.3				
SOCIAL AND CULTURAL (PUBLIC SERVICE FACILITIES)								
Regional Library- (Reference)	450,000	50km		1.4				
Regional Library	200,000	15km	5,000	3.1				
Local Library	40,000	8km	1,000	15.5				
CIVIC								
Major Public Event Venue	1,000,000	10 km		0.6				
Thusong Centre (One stop development centres)	1 per local municipality	15km	5,000					
Municipal Office / Civic Centre	1 per local Municipality	30km	5,000					
Prison and Place of Safety								
Solid Waste disposal site								
Magistrates court								

5.7 SOCIAL INCLUSIVITY

5.7.3 EQUITABLE DISTRIBUTION OF PUBLIC AMENITIES (AS PER CSIR RED BOOK, 2009)

Msunduzi Municipality Social Facility Assessment								
Design Population								
Estimated Households								
Household Size (Assumed)	4							
Projected Population								
Estimated Population	618,533							
TYPE OF FACILITY LARGE CITIES/ SMALL METROS - Catchment Size(350 000- 1 000 000)	POPULATION TRESHOLD	ACCEPTABLE TRAVEL DISTANCE	APPROXIMATE MINIMUM SIZE OF SITE (sqm)	NO. OF SOCIAL FACILITIES REQUIRED	EXISTING FACILITIES IN EDENDALE	SHORTFALL IN NO. OF FACILITIES	FRACTIONAL SIZE OF SITE BASED ON SHORTFALL /SURPLUS (sqm)	PROPOSAL FOR DEALING WITH SHORTFALL
SOCIAL SERVICES								
Community Hall- Large	60,000	10km	5,000	10.3				
Community Hall- Medium/ Small (Fringe Areas)	15,000	15 km		41.2				
Childrens Home	60,000		10,000	10.3				
Old Age Home	50,000		15,000	12.4				
ICT Access Point	10,000	5km	1,000	61.9				
Post Office- with boxes	15,000	5-10km	1,000	41.2				
Social Grant Pay Point	40,000	5km	500	15.5				
Cemetery (large)	100,000	30km	170,000	6.2				
Cemetery (medium)	50,000	15km	90,000	12.4				
Crematorium	200,000	30km		3.1				
EDUCATION								
University/ University of Technology	1,000,000	up to 500 km		0.6				
Post-matric skills training (i.e. nursing teaching, etc)	400,000	20 km		1.5				
Secondary School	12,500	5km	30,000	49.5				
Primary School	5,500	5km	20,000	112.5				
Creche / Early Childhood Centre	3,000	2km	1,000	206.2				
Tertiary Training not University	100,000	25km	10,000	6.2				
RECREATION (SPORTS AND PARKS)								
Indoor Sports Hall (medium/ large)	500,000	30 km		1.2				
Sports Stadium (regional)	200,000	15km	30,000	3.1				
Sports Fields	7,500	3km	5,500	82.5				
Swimming Pool	60,000	5-10km	1,800	10.3				
District Park	100,000	10km	200,000	6.2				
Community Park	60,000	5km	120,000	10.3				
Neighbourhood Park	15,000	1km	30,000	41.2				

5.8 SUSTAINABLE SERVICES

There are various aspects to enhancing sustainable services such as reducing carbon emissions through energy efficiency and the introduction of new technologies.

Dimensions, for example, include reducing the consumption of water through the harvesting of rainwater. Reducing waste and promoting a culture of recycling is also an important aspect of sustainable urbanism, as is energy efficiency. As part of good urbanism, the incorporation of green architecture in reducing the energy requirements through passive design is also an important aspect of sustainability.

Developing more compact and dense environments as part of sustainable urbanism assists this cause by maximising the use and efficiency of services (as provided for by the National Building Regulation's Part XA Building Standards) for Energy Efficiency.

The following subsection identifies two key interventions for the implementation and integration of sustainable services within the Msunduzi Municipality. These include;

1. Enhancing existing and future infrastructure;
2. Focussed investment on corridors and sustainable urban centres.



Understanding that the planet's resources are finite is a primary starting point for sustainable urbanism. Sustainable services are based on the use of appropriate forms of technology, minimising use and optimising efficiency to achieve economies of scale.

5.8 SUSTAINABLE SERVICES

5.8.1 ENHANCING EXISTING AND FUTURE INFRASTRUCTURE

The status quo assessment highlighted services backlogs in the municipality against the desired benchmarks. The maps used in the Status Quo Report highlighted areas where backlogs in basic services such as water, sanitation, waste removal/facilities, ease of mobility, electricity and internet are lacking most. It was found that Area Based Management (ABM) Zones have either vast similarities or differences in terms of basic service levels.

It was also found that there is a distinct intention of perpetuating what has been done in the past, namely the use of 'old' and typically resource-intensive service delivery solutions, which are not always appropriate to the context of certain areas.

It is suggested that this approach a fairly narrow and short term view of how service backlogs might be improved. The intention of this chapter is therefore primarily to highlight a suite of future approaches to service delivery which may be more appropriate both now and in future to achieve more transformational change (considering that the SDF includes the 2030 and 2050 planning time horizons). Limitations must however be acknowledged when it comes to people's desires, behavioural patterns (requiring detailed study into things such as how to achieve mindset changes – and if this is at all possible within the stipulated planning timeframes).

Furthermore, it should be noted that this chapter considers not only basic services like electricity, water and sanitation, but also broader services which would improve upon quality of life (e.g. street lighting, CCTV, waste and recycling sites, transportation related infrastructure and the enhancement of urban green/ ecological infrastructure with inner city planting programmes).

In terms of the approach, a future-proof approach has been considered. The approach may be summarised as follows:

The approach proposed is that the future of service provision in Msunduzi will be tailored to its communities and their neighbourhoods, whilst considering the global finite natural resource context. It will therefore be as economical, efficient and as low-impact as possible.

In order to achieve the vision for future service provision in Msunduzi, several 'headline' objectives should inform and guide planning level decisions:

- Improve and maintain existing service infrastructure;
- Create enabling conditions for all communities to thrive with innovative and reliable solutions that are tailored to the topography/remoteness of an area;
- Bridge historical gaps;
- Smart, focussed & streamlined delivery – with emphasis on Sustainable Urban Centres and High Density Corridors;
- Selection of service delivery solutions that are tailored; and
- Recognition that waste of any kind is in fact a valuable resource that can be reused and recycled.

It is acknowledged that with the introduction of any new technology or solution, there is an element of risk. It is therefore recommended that, apart from standard economic and risk assessments, pilot studies be conducted as a precursor to any widespread implementation of any new or 'breakthrough' solutions in future.



We can reduce the disparity of service delivery in geographically remote areas through innovation and decentralised systems (e.g. micro-generation through wind turbines)



Recycling and sorting of unwanted goods (e-waste, plastic, glass, organic waste and paper) generates jobs, keeps neighbourhoods tidy and helps people prosper. To this end, waste should be seen as a resource.

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINABLE URBAN CENTRES

Ensuring Efficiency of Infrastructure Provision

As a rule of thumb, it is more economical and therefore desirable to service higher density development. This is because the necessary infrastructure can be installed in a more compact fashion and simultaneously reaches more people – achieving more with less (i.e. reaching more homes with less capital expenditure).

The KZN COGTA developed a useful guideline on corridor development. The theory behind corridor development is that there is an opportunity for more economical service provision if development densities are focused in the corridor area. The figures below provide a schematic example of how corridor development can result in better service provision for a given area.

The Vulindlela, Greater Edendale, Ashburton and Eastern areas might benefit most from these principles as they are the most lacking in adequate service related infrastructure (due in part to their remoteness) and they are in a state of higher developmental flux as well as through past policies of separate development.

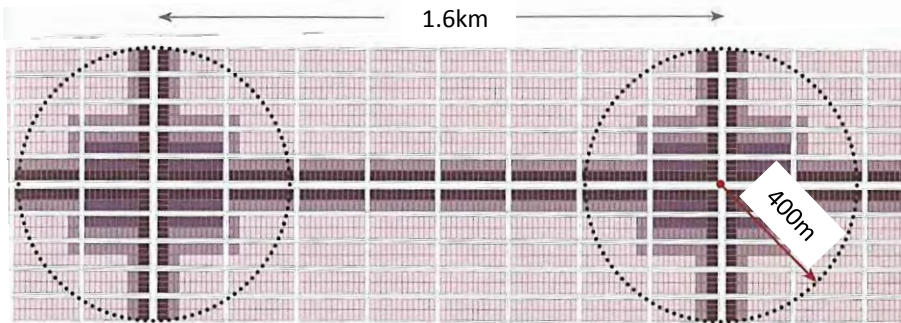
Timing and Selection of Service Infrastructure Provision

Achieving the balance between short term needs with long term needs is of critical importance. For example, it would be wasteful to install a series of new septic tanks in a peri-urban area that is targeted for future densification. Instead, it might be prudent to focus on other service provision or maintenance needs and to later install a decentralised waste water treatment plant once critical densities have been reached. Under this model, no infrastructure investment (in this case, septic tanks) would go to waste.

In line with this, a study by McKinsey & Company found that the debate about the growing global need for infrastructure typically focuses on whether financing is sufficient to meet it. However, it argues that there are in fact clear ways to create more and better infrastructure for less. They suggest that three practical steps could boost productivity in the infrastructure sector by as much as 60%. The study claims that these steps do not require reinventing the wheel. Actions such as eliminating waste, improving the selection of projects, streamlining their delivery and other best-practice examples from around the world have the potential to make a decisive difference if scaled up.

▪ Step 1. Optimise project portfolios:

Avoid investing in projects that neither address clearly defined needs nor deliver sufficient benefits.



A main road typically represents an opportunity for densification along its reach, because of the good access it provides. As such, mixed use development and associated densities would be better suited being in close proximity to the corridor, whilst agricultural land or environmental reserve areas would be best situated 'behind' such development.



Higher density development along corridors has the opportunity of being well-served (albeit with basic services) due to the proximity of development to underground and/or overground services (which typically follow main road corridors).



A well-served corridor provides the right enabling conditions for communities and businesses to thrive. Over time the corridor could begin to support sustainable activity centres which could be enhanced with increasing levels of infrastructure over time – including street lights, street trees, recycling/waste stations and bus stations.



5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINABLE URBAN CENTRES

To choose the right combination of projects and eliminate wasteful ones, the municipality must use detailed selection criteria to ensure that proposed projects meet specific goals, develop sophisticated ways of determining costs and benefits to evaluate and prioritize projects—in a transparent way. Instead of looking at individual projects in isolation it is considered far better to view their potential effects on the entire area/network (beginning with the end in mind).

▪ **Step 2. Streamline delivery:**

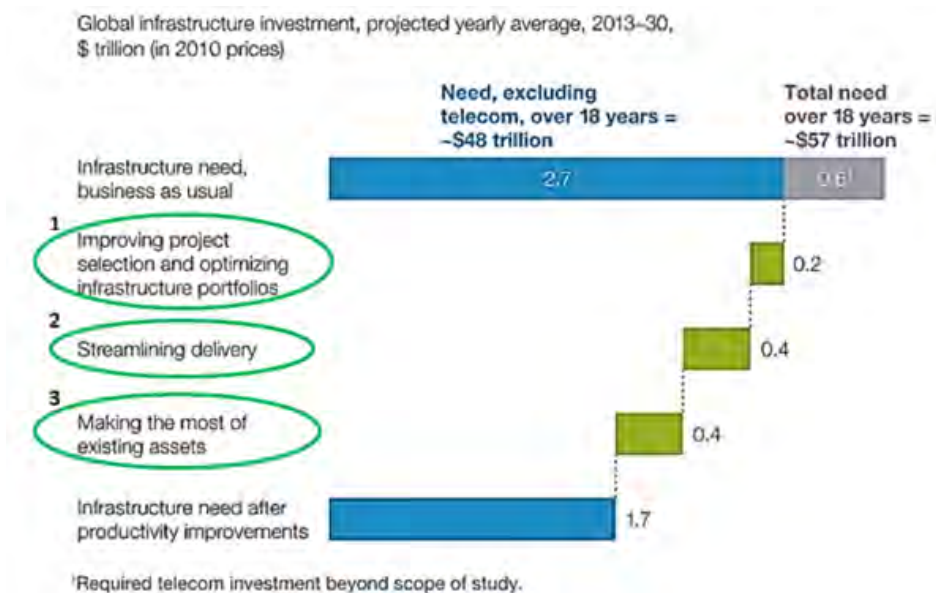
This entails the speeding up of approval processes, investing heavily in the early stages of project planning and design to gather momentum, and the structuring of contracts to encourage time and cost savings. Careful structuring of contracts can lead to cost savings by, for example, encouraging the application of 'lean manufacturing' to the adoption of progressive construction techniques such as prefabrication and/or the use of modular structures.

▪ **Step 3. Make the most of existing infrastructure as a First Step:**

Instead of investing in costly new projects, governments can address (at least some) service provision needs by getting more out of existing capacity. Enhancing asset utilization, optimizing maintenance, forward planning, and expanding the use of demand-side management measures can generate enormous savings (see adjacent global estimate figures).

Other complementary requirements for a well-functioning system include:

- Close coordination between the authorities responsible for different asset classes,
- Clear separation of political and technical responsibilities and clarity about the roles of (and effective engagement between) the public and private sectors,
- Improved stakeholder management,
- Better operational and financial information to guide decisions, and
- Upgraded capabilities across the infrastructure value chain.



Three steps to achieving infrastructural efficiency. Source: McKinsey Global Institute Analysis (2013)

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Structuring the Approach

In order to determine appropriate solutions for different areas of Msunduzi, the idea of meeting service needs will be broken up into Area Based Management (ABM) areas so that proposed infrastructure solutions may be tailored to the geography and /or circumstance of an area. This is because ABM areas of Msunduzi are typically homogenous in terms of their present service delivery backlogs, settlement densities and geography and it is therefore a useful category to consider when planning for future service delivery interventions in the up-coming final phase of the SDF. The ABMs of Msunduzi are:

- Vulindlela;
- Greater Edendale & Imbali;
- Northern Areas; and
- CBD, Ashburton and Eastern Areas*

* Note that, for the purpose of this SDF, the CBD, Ashburton and Eastern Areas ABM will be split into two separate categories (one being the CBD and the other being Ashburton & Eastern Areas) due to different infrastructural backlogs, densities and geographical circumstances within this ABM.

[It must also be noted that infrastructural services may span over catchments that are not aligned perfectly/fully to ABM boundaries.

The windmill is an example of proven, low impact technology that works.

[This image was taken as part of a site recognisance of the Vulindlela Area undertaken by the project team (2014).]



5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

The tables below highlight status quo related deficits per ABM area, followed by possible interventions based on future increased densities (for areas in developmental flux) and interventions for areas that are already well-established, well-developed and well-serviced for the short, medium and long term.

Note that these solutions are suggested (as opposed to recommended). These are by no means exhaustive but merely touch on the vast range of possibilities. Feasibility studies would need to be undertaken for each type of technology to be employed.

In terms of landfill site capacity, it is understood that Msunduzi's New England Road facility is nearing the end of its life span (less than 3 years), but in response to this it is understood that a new district landfill site is being proposed in one of the neighbouring local municipalities of Umgungundlovu. Because the SDF is forward-looking, the current Msunduzi landfill site is mapped as a future open space area.

In terms of cemetery site capacity, it is understood that there is a major capacity constraint in the city for cemetery space. However, a new site is proposed in the south of the municipality and is mapped in the final SDF as it is an important future land use.

(NOTE ON VULINDLELA: Service delivery solutions for this ABM is based on a density scale because it is considered to be in flux, and therefore corridors and neighbourhoods with higher gross densities should be prioritised before certain desirable solutions can become viable for implementation. If the desired long-term densities are seen to be unachievable, the 'nearest', next level of infrastructure provision, in line with more achievable densities, is to be considered.)

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for Vulindlela

Deficits as per Status Quo Findings	Possible Interventions & Solutions associated with Differing Densities		
	Low DU/hectare Gross Density Targets High DU/hectare		
Inadequate Sanitation	Adequate maintenance of VIPs and/or Septic Tanks in remote homesteads; Small new Developments to have Urine Diversion Toilets; Large new developments to have package plants with treated effluent ponds as back up (DEWATS Systems)		Package Plants with treated effluent ponds as back up (DEWATS Systems); OR Waterborne sewage coupled with Bioconversion (if water table cannot handle local treatment of effluent)
Poor Waste Management	Adequate municipal waste depots along main corridor with waste collection once a week	Education on proper waste management; Installation of recycling skips at depots	Further education on waste hierarchy; Recovery of recyclable materials through source separation at households (eventually approaching zero waste to landfill towards 2050); Treatment of organic waste through bio-conversion to create fertiliser and/or animal feed and/or biofuel
Poor Stormwater Infrastructure	Soakaways to drain excess water at household level; Lined stormwater channels with silt traps and energy dissipaters at outlets (where applicable)		Soakaways (where appropriate); Permeable paving structures (where appropriate); Stormwater attenuation and/or detention ponds; Lined stormwater channels with silt traps and energy dissipaters at outlets (where applicable); On-going maintenance
Inadequate Street Lighting/Lighting and CCTV monitoring of neighbourhood walkways (for security and road safety measures)	High Mast Lights & CCTV in strategic areas - particularly along main activity corridors – preferably solar		High Mast Lights & CCTV in strategic areas of neighbourhood clusters – preferably solar
Poorly Maintained Roads & Walkways	Improve & maintain footpaths to public transit stations located on main corridor	Improve & maintain roads and footpaths to other key service points – i.e. stations, schools, libraries, community halls/pension points and clinics	Upgrade roads and footpaths to aforementioned key service points Reinforce walkable neighbourhoods as a first prize option
Inadequate Potable Water Provision	Increase education about water scarcity; Increase the number of windmills (where appropriate – e.g. for use in community gardens); Rainwater tanks with filtration (where appropriate – e.g. remote homesteads); On-going maintenance of existing infrastructure (e.g. standpipes)		On-going education about water scarcity; Re-use of grey water; Rainwater tanks with filtration (where appropriate – e.g. remaining remote homesteads); Reticulated water (where appropriate – e.g. high density corridors); On-going maintenance of existing infrastructure (e.g. standpipes, windmills etc)

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for Vulindlela (continued...)

Deficits as per Status Quo Findings	Possible Interventions & Solutions associated with Differing Densities		
	Low DU/hectare ←	Gross Density Targets	High DU/hectare →
No existing flood attenuation infrastructure	Education of communities around flooding; Proactive increase development setback lines (minimum 40m from river bank and/or 1:100yr flood line)	On-going education of communities around flooding; Increase rehabilitation measures & additional open space/park areas adjacent to watercourses	On-going education of communities around flooding; Installation of floating wetlands in nearby river systems (where appropriate)
Lack of Sidewalk Infrastructure (particularly important on main activity corridor)	Upgrade existing main corridor to have sidewalk infrastructure with embedded cycle track (where applicable), trees and lighting; Ensure on-going maintenance		
Uneven Supply of Electricity to Households	Ensure new electricity connections to households currently without; Install solar geyser & traffic light s (where applicable) to augment electrical supply in line with demand side management; On-going Maintenance of electrified areas	Installation of renewable microgrids in new neighbourhoods where appropriate (<i>NOTE: This requires municipal policy updates as this would potentially lower municipal revenue. However, it may simultaneously ensure electrical supply to future industries and their associated energy demands – thus negating any potential loss of revenue from residential areas and ensuring that everyone has access to electricity of some shape or form</i>); On-going Maintenance of electrified areas; Promote green building design	
A lack of free ICT Connectivity	Increase internet connectivity by installing WiFi hotspots at public transit stations on main corridor; Ensure on-going maintenance	Increase broadband coverage by installing WiFi hotspots at public transit stations, schools, schools, libraries, community halls/pension points, old payphone points and clinics; Ensure on-going maintenance	
Inadequate interaction with - and neglected - green Infrastructure	Increase education on food security and environmental awareness; Promote biodiversity stewardship; Increase public open space; Promote 'one house one garden 'programmes; Alien plant management; Ensure on-going maintenance of green infrastructure	On-going education on food security and environmental awareness; Increase the number of parks, stewardship areas & formal nature reserves for residents; Rehabilitate transformed, unused land to ecologically functional areas and/or active public open space (focus on reviving Msunduzi River Parkway System); Undertake tree planting programmes in more densely populated/built up areas; Alien plant management; Ensure on-going maintenance of green infrastructure	On-going education on food security and environmental awareness; On-going tree planting programmes; On-going parkway, stewardship & nature reserve initiatives; Install roof gardens on buildings along high density corridor; Alien plant management; Ensure on-going maintenance of green infrastructure

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for **Greater Edendale & Imbali**

(NOTE: Service delivery solutions for this ABM is based on a time scale. Because it is considered to be already well-developed and well-served, any improvements and necessary changes to the system would need to occur over time as budget allocations become available.)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time	
	5 Years Time Horizon 35 Years 	
General decay of infrastructure leading to disrupted supply	Proactive planning of infrastructure upgrades & regular maintenance; Promote green building design to take pressure off centralised infrastructure	
Low-moderate Stormwater Infrastructure	Adequate, on-going maintenance of existing stormwater infrastructure (e.g. clearing of catch pits and gutters); Ensure on site attenuation/flood-neutrality of all proposed new developments; Ensure that all stormwater outlets have energy dissipaters (where applicable)	Consideration of soakaway systems (where appropriate); Adequate, on-going maintenance of existing stormwater infrastructure (e.g. clearing of catch pits and gutters); Ensure on site attenuation/flood-neutrality of new developments - including the construction of attenuation and/or detention ponds where applicable; Consideration of permeable paving structures (where appropriate); Ensure that all new stormwater outlets have energy dissipaters (where applicable)
Poor access to reticulated water (particularly Imbali)	Increase education about water scarcity; Install rainwater tanks (with filtration (where appropriate – e.g. more remote homesteads); Increase reticulated water connections (where feasible – preferably if densities are not very low); On-going maintenance of existing infrastructure	
No existing flood attenuation infrastructure	Education of communities around flooding; Proactive increase of development setback lines (minimum 40m from river bank and/or 1:100yr flood line)	On-going education of communities around flooding; Increase rehabilitation measures & additional open space/park areas adjacent to watercourses (with a focus on reviving the Msunduzi River as a regional Parkway System); Installation of floating wetlands in nearby river systems (where appropriate)
Inadequate Sanitation	Adequate maintenance of VIPs and/or Septic Tanks in remote homesteads; Small new Developments to have Urine Diversion Toilets; Large new developments to have package plants with treated effluent ponds as back up (DEWATS Systems)	Dense areas to be shifted from VIPs to Package Plants with treated effluent ponds as back up (DEWATS Systems); OR Waterborne sewage coupled with Bioconversion (if water table cannot handle local treatment of effluent)

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for **Greater Edendale & Imbali** (continued...)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time		
	5 Years Time Horizon 35 Years		
Poor Waste Management	Education on proper waste management; Ensure adequate municipal waste depot sites coupled with installation of recycling skips; Waste collection once a week	Further education on waste hierarchy/waste management; Recovery of recyclable materials through source separation at households (eventually approaching zero waste to landfill towards 2050); Treatment of organic waste through bio-conversion to create fertiliser and/or animal feed and/or biofuel	
Occasional Inadequate Electricity Supply/ Interruptions	On-going Maintenance of electrified areas; Install solar geyser & traffic light s (where applicable) to augment electrical supply in line with demand side management	Installation of renewable microgrids in new neighbourhoods, where appropriate (<i>NOTE: This requires municipal policy updates as this would potentially lower municipal revenue. However, it may simultaneously ensure electrical supply to future industries and their associated energy demands – thus negating any potential loss of revenue from residential areas and ensuring that everyone has access to electricity of some shape or form</i>); On-going Maintenance of electrified areas; Promote Green Building Design	
Inadequate interaction with - and neglected - green Infrastructure	Retain and maintain existing open spaces (e.g. parks, corridors); Increase education on food security and environmental awareness; Promote biodiversity stewardship; Increase public open space; Promote 'one house one garden' programmes; Alien plant management; Ensure on-going maintenance of green infrastructure	On-going education on food security and environmental awareness; Increase the number of parks, stewardship areas & formal nature reserves for residents (where appropriate); Rehabilitate transformed, unused land to ecologically functional areas and/or active public open space (focus on reviving Msunduzi River Parkway System); Undertake tree planting programmes in more densely populated/built up areas; Alien plant management; Ensure on-going maintenance of green infrastructure	On-going education on food security and environmental awareness; On-going tree planting programmes; On-going parkway, stewardship & nature reserve initiatives (where appropriate); Install roof gardens on buildings along high density corridor; Alien plant management; Ensure on-going maintenance of green infrastructure

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for **Northern Areas**

(NOTE: Service delivery solutions for this ABM is based on a time scale. Because it is considered to be already well-developed and well-served, any improvements and necessary changes to the system would need to occur over time as budget allocations become available.)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time	
	5 Years Time Horizon 35 Years	
General decay of infrastructure leading to disrupted supply	Proactive planning of infrastructure upgrades & regular maintenance	
Poor Waste Management	Education on proper waste management; Ensure adequate municipal waste depot sites coupled with installation of recycling skips; Waste collection once a week	Further education on waste hierarchy/waste management; Recovery of recyclable materials through source separation at households (eventually approaching zero waste to landfill towards 2050; Treatment of organic waste through bio-conversion to create fertiliser and/or animal feed and/or biofuel
Inadequate flood protection/attenuation	Education of communities around flooding; Erosion control interventions (using hard and soft engineering); Increase of development setback lines (minimum 40m from river bank and/or 1:100yr flood line); All new developments to be flood-neutral	On-going education of communities around flooding; Continued erosion control, rehabilitation measures & additional open space/park areas adjacent to watercourses; Installation of floating wetlands in nearby river systems (where appropriate) Permeable paving structures (where appropriate); All new developments to be flood-neutral (includes stormwater attenuation and/or detention ponds where applicable); On-going maintenance
Occasional Inadequate Electricity Supply/ Interruptions	On-going Maintenance of electrified areas; Install solar geyser & traffic light s (where applicable) to augment electrical supply in line with demand side management	Installation of renewable microgrids, where appropriate (<i>NOTE: This requires municipal policy updates as this would potentially lower municipal revenue. However, it may simultaneously ensure electrical supply to future industries and their associated energy demands – thus negating any potential loss of revenue from residential areas and ensuring that everyone has access to electricity of some shape or form</i>); On-going Maintenance of electrified areas; Promote Green Building Design

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for **Northern Areas** (continued...)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time		
	5 Years ←	Time Horizon	35 Years →
Inadequate interaction with - and neglected - green Infrastructure	Replace dying street trees with appropriate indigenous trees; Retain and maintain existing open spaces (e.g. parks, corridors); Increase education on food security and environmental awareness; Promote biodiversity stewardship; Increase public open space; Promote 'one house one garden 'programmes; Alien plant management; Ensure on-going maintenance of green infrastructure	Replace dying street trees with appropriate indigenous trees; On-going education on food security and environmental awareness; Increase the number of parks, stewardship areas & formal nature reserves for residents (where appropriate); Rehabilitate transformed, unused land to ecologically functional areas and/or active public open space; Undertake tree planting programmes in more densely populated/built up areas; Alien plant management; Ensure on-going maintenance of green infrastructure	Replace dying street trees with appropriate indigenous trees; On-going education on food security and environmental awareness; On-going tree planting programmes; On-going parkway, stewardship & nature reserve initiatives (where appropriate); Install roof gardens on buildings along high density corridor; Alien plant management; Ensure on-going maintenance of green infrastructure

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for **CBD**

(NOTE: Service delivery solutions for this ABM is based on a time scale. Because it is considered to be already well-developed and well-served, any improvements and necessary changes to the system would need to occur over time as budget allocations become available.)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time	
	5 Years Time Horizon 35 Years	
General decay of infrastructure leading to disrupted supply	Proactive planning of infrastructure upgrades & regular maintenance	
Constrained Road Infrastructure	Congestion and Parking Management Strategy; NMT Circulation and Management Plan	Congestion and Parking Management Strategy Implementation (on-going); NMT Circulation and Management Plan Implementation (on-going)
Inadequate flood protection/attenuation	Education of communities around flooding; Erosion control interventions (using hard and soft engineering); Increase of development setback lines (minimum 40m from river bank and/or 1:100yr flood line); All new developments to be flood-neutral	On-going education of communities around flooding; On-going rehabilitation measures & additional open space/park areas adjacent to watercourses (with a focus on reviving the Msunduzi River as a regional Parkway System); Installation of floating wetlands in nearby river systems (where appropriate) Permeable paving structures (where appropriate); All new developments to be flood-neutral (includes stormwater attenuation and/or detention ponds where applicable); On-going maintenance
Poor Waste Management	Education on proper waste management; Ensure adequately serviced municipal waste depot sites coupled with adequate installation of recycling skips; Waste collection once a week; Enhanced recycling and methane extraction at landfill site	Further education on waste hierarchy/waste management; Recovery of recyclable materials through source separation at households (eventually approaching zero waste to landfill towards 2050); Treatment of organic waste through bio-conversion to create fertiliser and/or animal feed and/or biofuel; Capacity upgrades to landfill site and/or identification of a suitable new regional district landfill & recycling site
Occasional Inadequate Electricity Supply/ Interruptions	On-going Maintenance of electrified areas; Install solar geyser & traffic light s (where applicable) to augment electrical supply in line with demand side management	Installation of renewable microgrids, where appropriate (<i>NOTE: This requires municipal policy updates as this would potentially lower municipal revenue. However, it may simultaneously ensure electrical supply to future industries and their associated energy demands – thus negating any potential loss of revenue from residential areas and ensuring that everyone has access to electricity of some shape or form</i>); On-going Maintenance of electrified areas

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures for **CBD** (continued...)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time		
	5 Years	Time Horizon	35 Years
			
Inadequate interaction with - and neglected – green Infrastructure	Replace dying street trees with appropriate indigenous trees; Re-invest in municipal plant nursery; Retain and maintain existing open spaces (e.g. parks); Educate citizens on food security and environmental awareness; Alien plant management; Ensure on-going maintenance of green infrastructure (including the city's horticultural features)	Replace dying street trees with appropriate indigenous trees; On-going education on food security and environmental awareness; Increase the number of parks (where appropriate); Rehabilitate transformed, unused land to ecologically functional areas and/or active public open space (focus on reviving Msunduzi River Parkway System); Undertake new tree planting programmes in the city to improve aesthetics and curb urban heat island effect; Alien plant management; Ensure on-going maintenance of green infrastructure (including the city's horticultural features)	Replace dying street trees with appropriate indigenous trees; On-going education on food security and environmental awareness; On-going tree planting programmes; On-going parkway, stewardship & nature reserve initiatives (where appropriate); Install roof gardens on buildings along high density corridor; Alien plant management; Ensure on-going maintenance of green infrastructure (including the city's horticultural features); Capping & landscaping of landfill site (once full capacity is reached) for use as a recreation facility

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures **Ashburton and the Eastern Areas**

(NOTE: Service delivery solutions for this ABM is based on a density scale because it is considered to be in developmental flux, and therefore corridors and neighbourhoods with higher gross densities should be prioritised before certain desirable solutions can become viable for implementation. If the desired long-term densities are seen to be unachievable, the next 'nearest' level of infrastructure provision in line with achievable densities is to be considered.)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time		
	Low DU/ha Gross Density Targets High DU/ha		
Inadequate Sanitation	Adequate maintenance of VIPs and/or Septic Tanks in remote homesteads; Small new Developments to have Urine Diversion Toilets; Large new developments to have package plants with treated effluent ponds as back up (DEWATS Systems)		Package Plants with treated effluent ponds as back up (DEWATS Systems); OR Waterborne sewage coupled with Bioconversion (if water table cannot handle local treatment of effluent)
Inadequate Potable Water Provision	Increase education about water scarcity; Increase the number of windmills (where appropriate – e.g. for use in community gardens); Rainwater tanks with filtration (where appropriate – e.g. remote homesteads); On-going maintenance of existing infrastructure (e.g. standpipes)		On-going education about water scarcity; Re-use of grey water; Rainwater tanks with filtration (where appropriate – e.g. remaining remote homesteads); Reticulated water (where appropriate – e.g. high density corridors); On-going maintenance of existing infrastructure (e.g. standpipes, windmills etc)
No existing flood attenuation infrastructure	Education of communities around flooding; Proactive increase development setback lines (minimum 40m from river bank and/or 1:100yr flood line)	On-going education of communities around flooding; Increase rehabilitation measures & additional open space/park areas adjacent to watercourses	On-going education of communities around flooding; Installation of floating wetlands in nearby river systems (where appropriate)
Poor Waste Management	Adequate municipal waste depots along main corridor with waste collection once a week	Education on proper waste management; Installation of recycling skips at depots	Further education on waste hierarchy; Recovery of recyclable materials through source separation at households; Treatment of organic waste through bio-conversion to create fertiliser and/or animal feed and/or biofuel
Uneven Supply of Electricity to Households	Ensure new electricity connections to households that are currently without; On-going Maintenance of electrified areas; Install solar geyser & traffic light s (where applicable) to augment electrical supply in line with demand side management		Installation of renewable microgrids in new neighbourhoods where appropriate (<i>NOTE: This requires municipal policy updates as this would potentially lower municipal revenue. However, it may simultaneously ensure electrical supply to future industries and their associated energy demands – thus negating any potential loss of revenue from residential areas and ensuring that everyone has access to electricity of some shape or form</i>); Promote Green Building Design

5.8 SUSTAINABLE SERVICES

5.8.2 FOCUSSED INVESTMENT ON CORRIDORS & SUSTAINBLE URBAN CENTRES

Table - Guideline Infrastructure Services Planning Measures **Ashburton and the Eastern Areas** (continued...)

Deficits as per Status Quo Findings	Possible Interventions & Solutions Over Time		
	Low DU/ha	Gross Density Targets	High DU/ha
			
Inadequate interaction with - and neglected - green Infrastructure	Increase education on food security and environmental awareness; Promote biodiversity stewardship; Increase public open space; Promote 'one house one garden' programmes; Alien plant management; Ensure on-going maintenance of green infrastructure	On-going education on food security and environmental awareness; Increase the number of parks, stewardship areas & formal nature reserves for residents; Rehabilitate transformed land to ecologically functional areas and/or active public open space (focus on reviving Msunduzi River to a regional Parkway System); Undertake tree planting programmes in more densely populated/built up areas; Alien plant management; Ensure on-going maintenance of green infrastructure	On-going education on food security and environmental awareness; On-going tree planting programmes; On-going parkway, stewardship & nature reserve initiatives; Install roof gardens on buildings along high density corridor; Alien plant management; Ensure on-going maintenance of green infrastructure

5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

The following illustrates the consolidation and amalgamation of all seven pillars into one composite Msunduzi Draft SDF Plan. This plan provides a truly well-rounded, sustainable vision for the future development of the Msunduzi Municipality. The plan is envisaged to provide clear, rational guidance for sustainable growth and development within the Municipality until 2050.

The following set of plans illustrate the build-up of the SDF per pillar from, an oblique view.

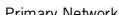
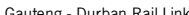


‘There is a fundamental need to understand the collective impact of city form, its shape, footprint, make-up, and ultimately the performance of places in delivering sustainability’.

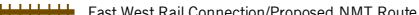
5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.7 CONCLUSION

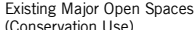
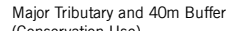
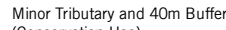
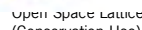
GLOBAL CONNECTIVITY

-  National Route (N3 Corridor)
- GLOBAL CONNECTIVITY**
-  National Route (N3 Corridor)
-  Primary Network
-  Regional Network Linkages
-  Gauteng - Durban Rail Link
-  Railway Stations
-  Oribi Airport
-  Existing Interchanges
-  Proposed Interchanges

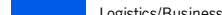
SUSTAINABLE TRANSPORT

-  Secondary Route
-  Distributors/Tertiary Routes
-  Proposed New Linkages
-  Minor Access Routes
-  East West Rail Connection/Proposed NMT Route
-  BRT R.O.W Trunk
-  The Msunduzi Parkway NMT

GREEN STRUCTURE

-  MOSS (Conservation Use)
- GREEN STRUCTURE**
-  MOSS (Conservation Use)
-  Existing Major Open Spaces (Conservation Use)
-  Proposed Major Open Spaces
-  Henley Dam
-  Major Tributary and 40m Buffer (Conservation Use)
-  Minor Tributary and 40m Buffer (Conservation Use)
-  Forged Links
-  Open Space Corridor (Conservation Use)

PRODUCTIVE SYSTEMS

-  Existing CBD
-  Existing Commercial
-  Existing Industry
-  Logistics/Business
-  Agri Business/Commercial
-  Industry
-  Agriculture

QUALITY URBANISM

-  Existing Residential
- QUALITY URBANISM**
-  Existing Residential
-  Densification/Intensification Zones
-  CBD Growth Boundary
-  5 km Catchment Coverage
-  CBD
-  Urban Hubs
-  Sustainable Urban Centres
-  Public Place Making

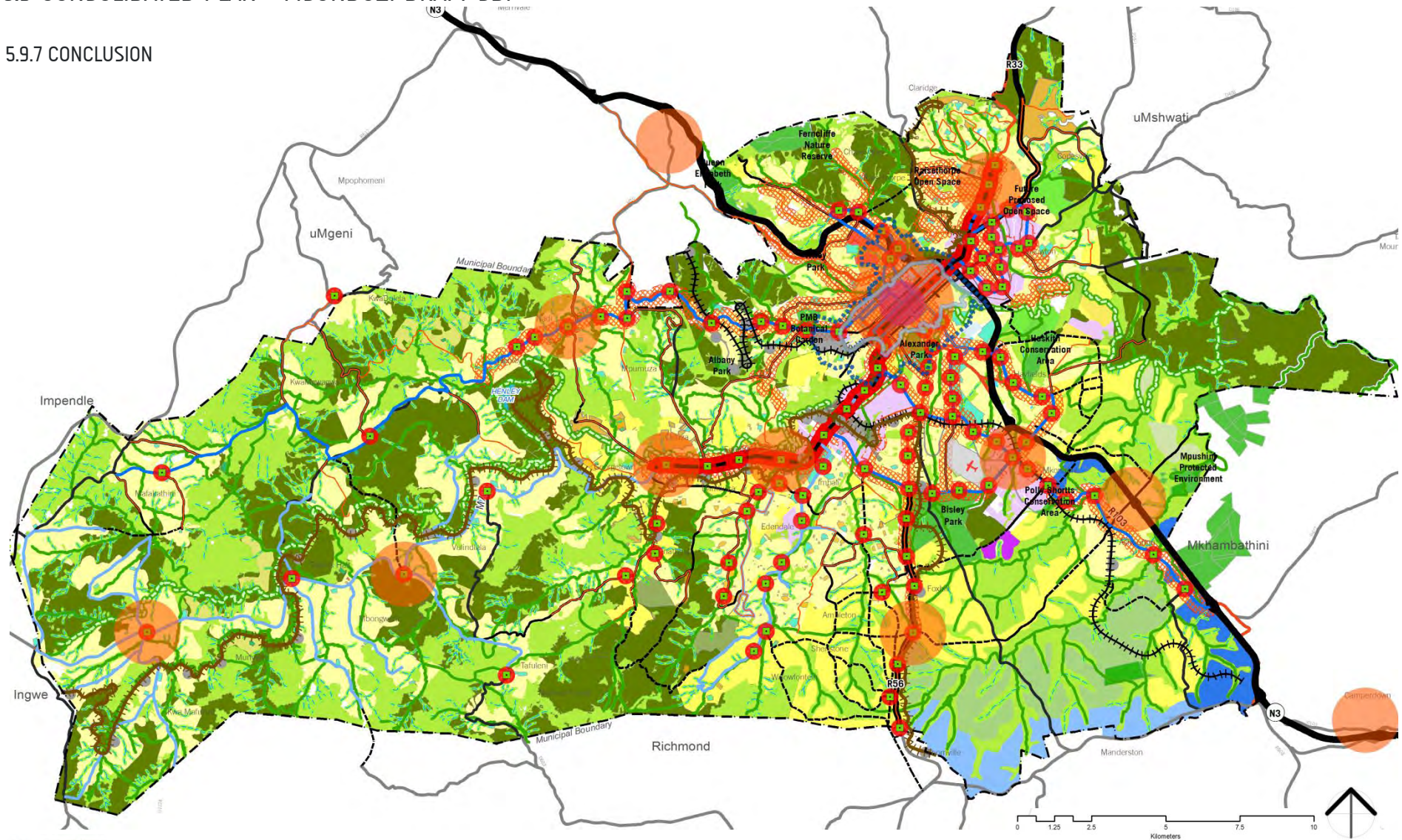
SOCIAL INCLUSIVITY

-  Existing Residential
-  Informal Settlement Redevelopment
-  Proposed Housing
-  Civic and Social
-  Education
-  Hospitals
-  Recreation Land Use
-  Cemeteries
-  Waste Water Treatment Works

Note:
The size of the consolidated SDF legend has resulted in it being enlarged and displayed on this page.

5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

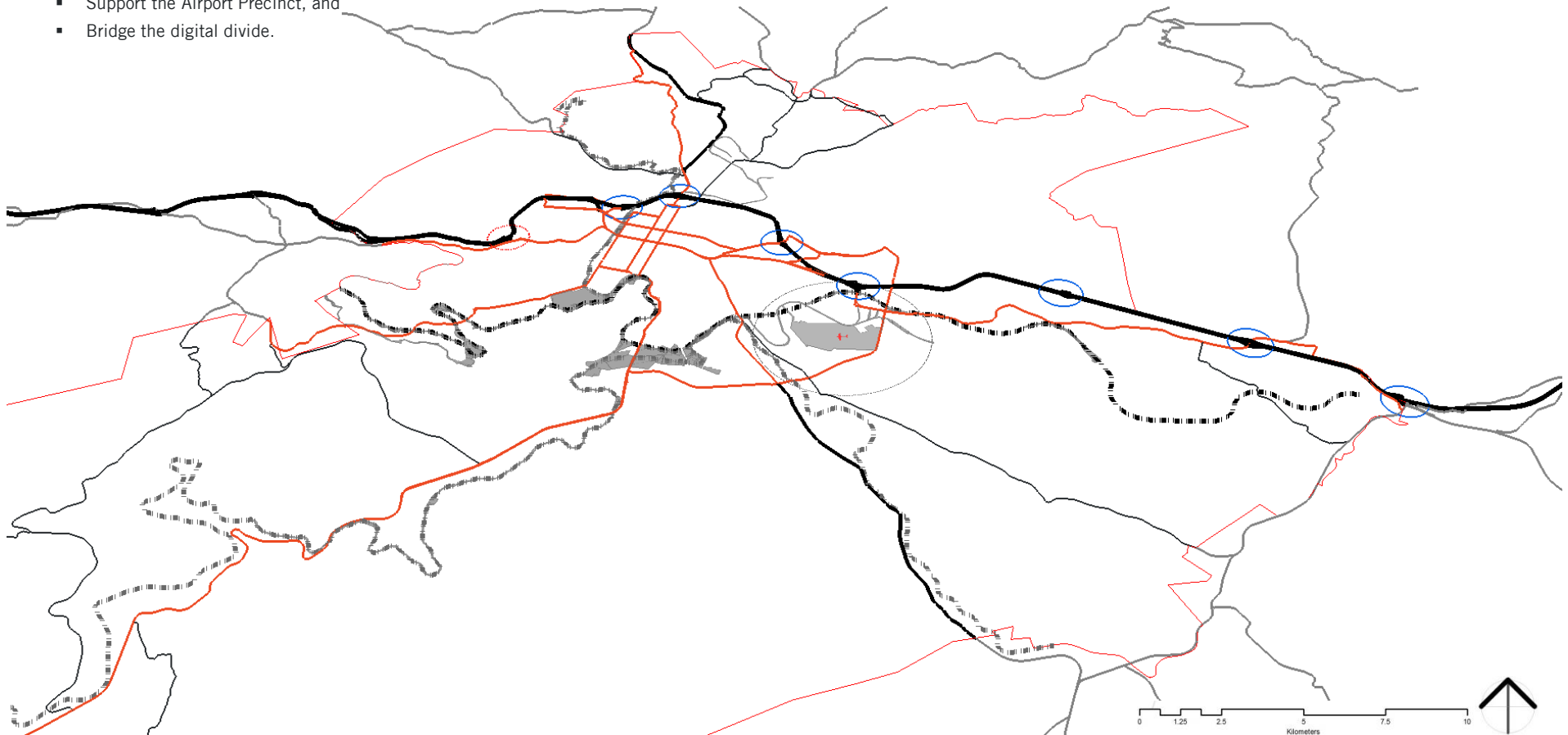
5.9.7 CONCLUSION



5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.1 GLOBAL CONNECTIVITY

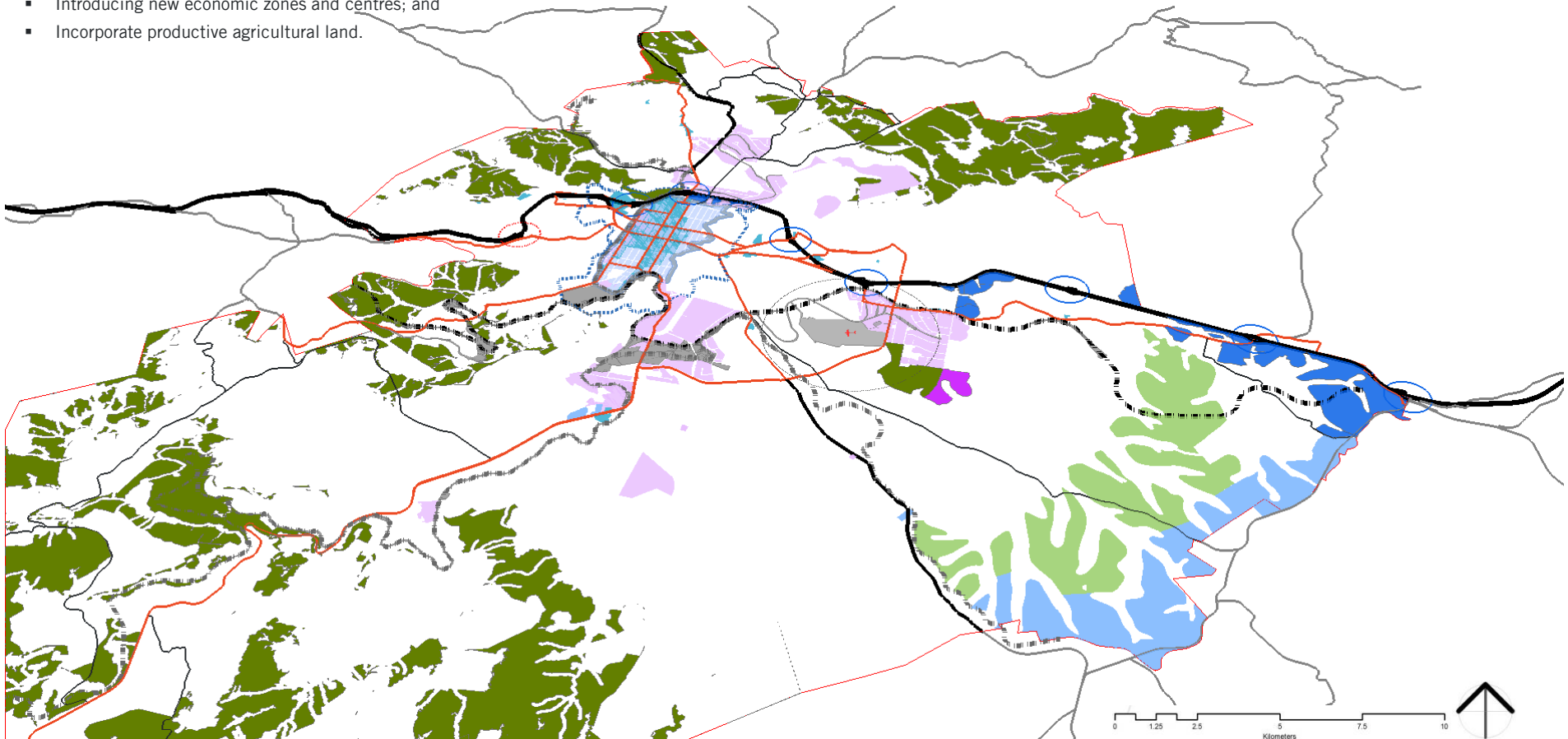
- Enhance the connectivity of the N3,
- Improve regional connectivity,
- Re-envisage the rail routes,
- Support the Airport Precinct, and
- Bridge the digital divide.



5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.2 PRODUCTIVE SYSTEMS

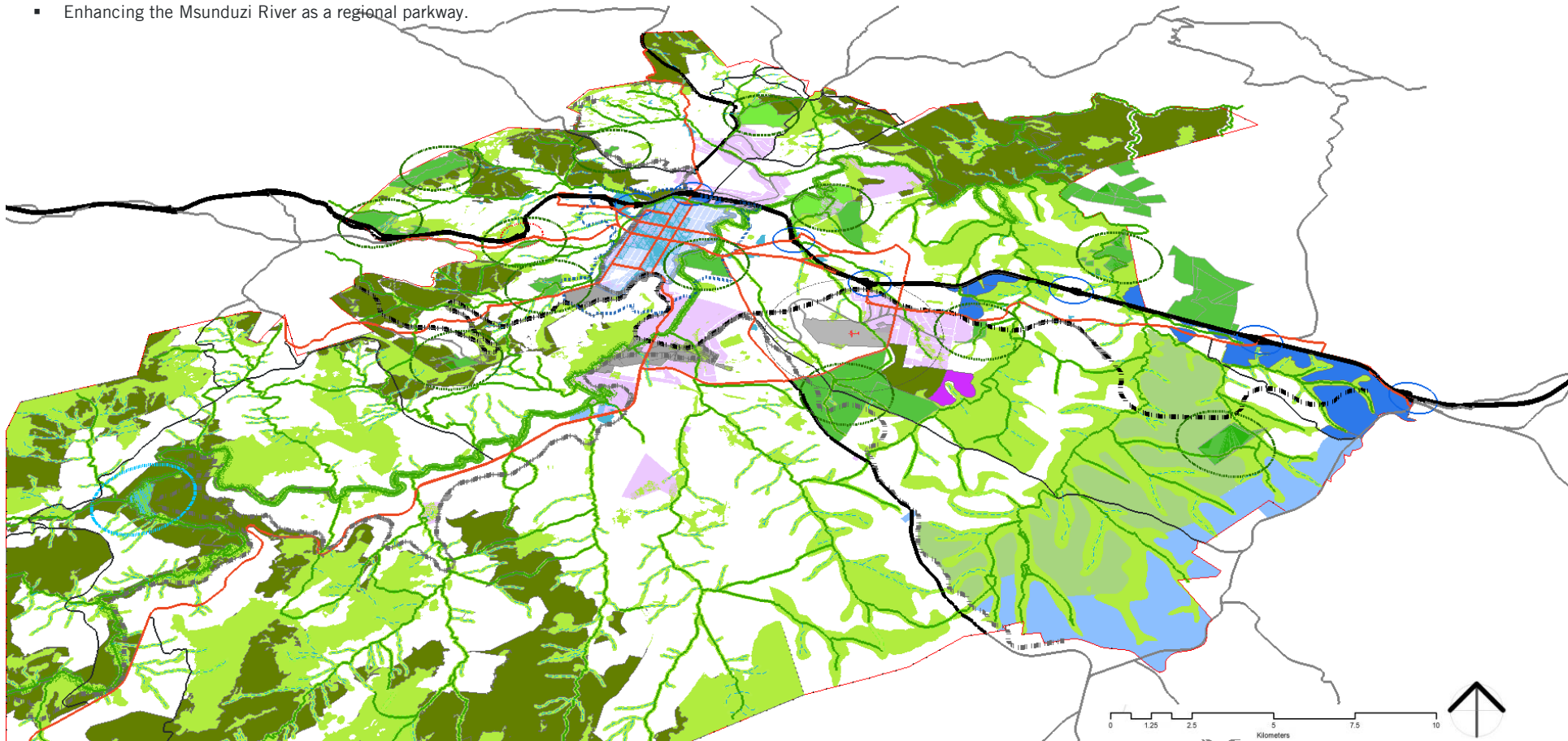
- Land release along the N3 corridor;
- Consolidate and revive the CBD;
- Strengthening Centres of economic activity;
- Introducing new economic zones and centres; and
- Incorporate productive agricultural land.



5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.3 ECOLOGICAL INFRASTRUCTURE

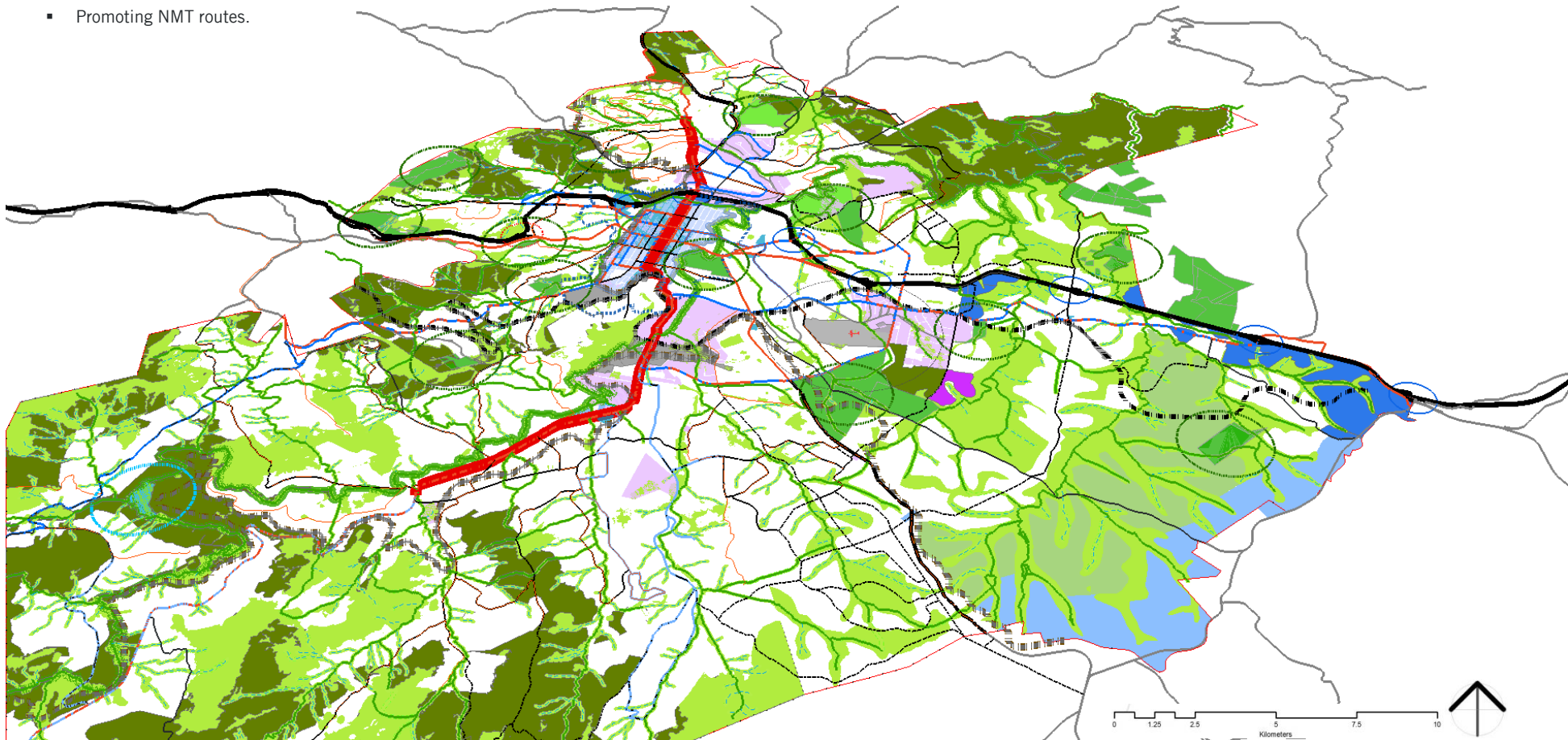
- Securing the natural resource base;
- Project and enhance the Open Space Cores;
- Creating an integrated Open Space System;
- Enhancing the Msunduzi River as a regional parkway.



5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.4 SUSTAINABLE TRANSPORT

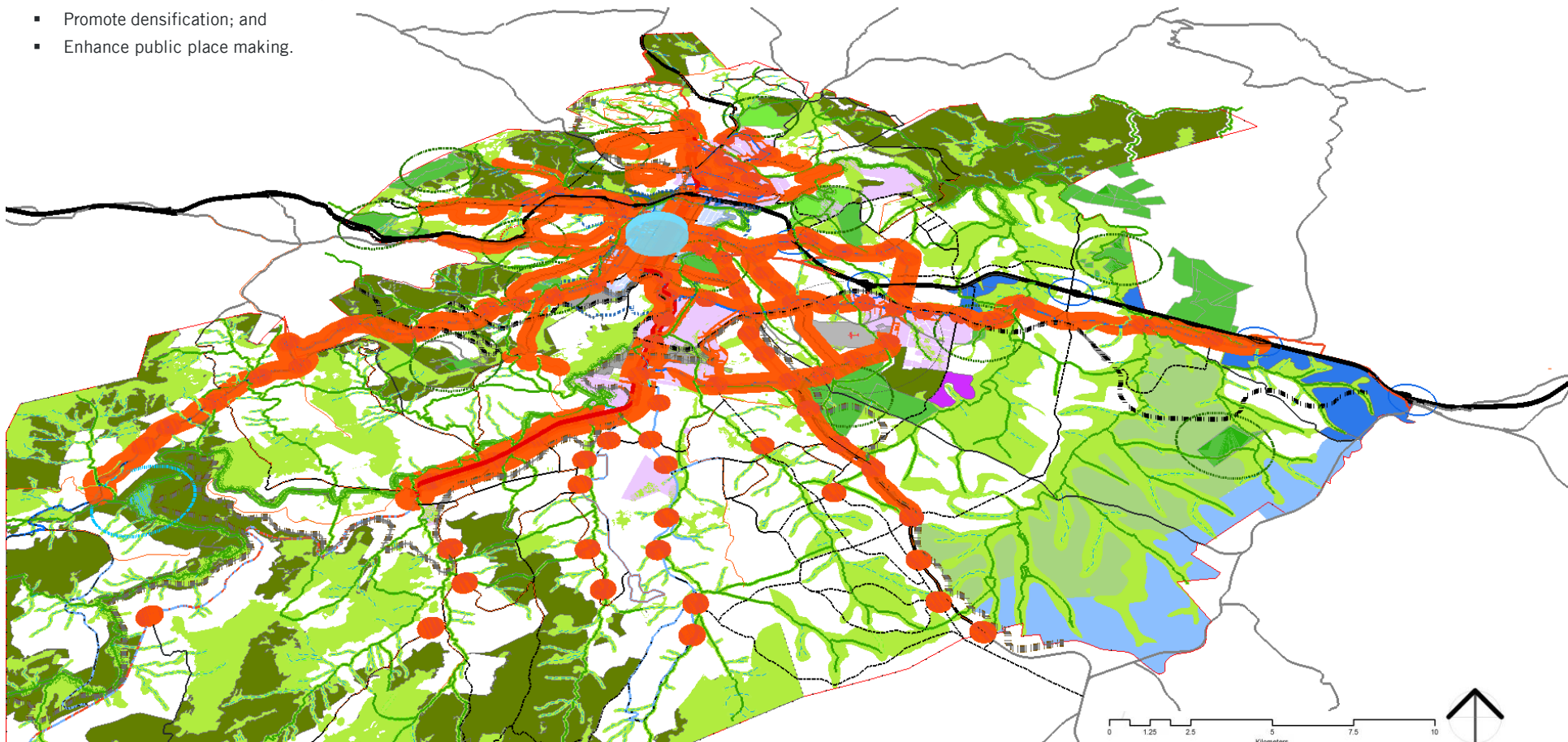
- Equitable movement structure;
- An enhanced public transport backbone;
- Review the rail network; and
- Promoting NMT routes.



5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.5 QUALITY URBANISM

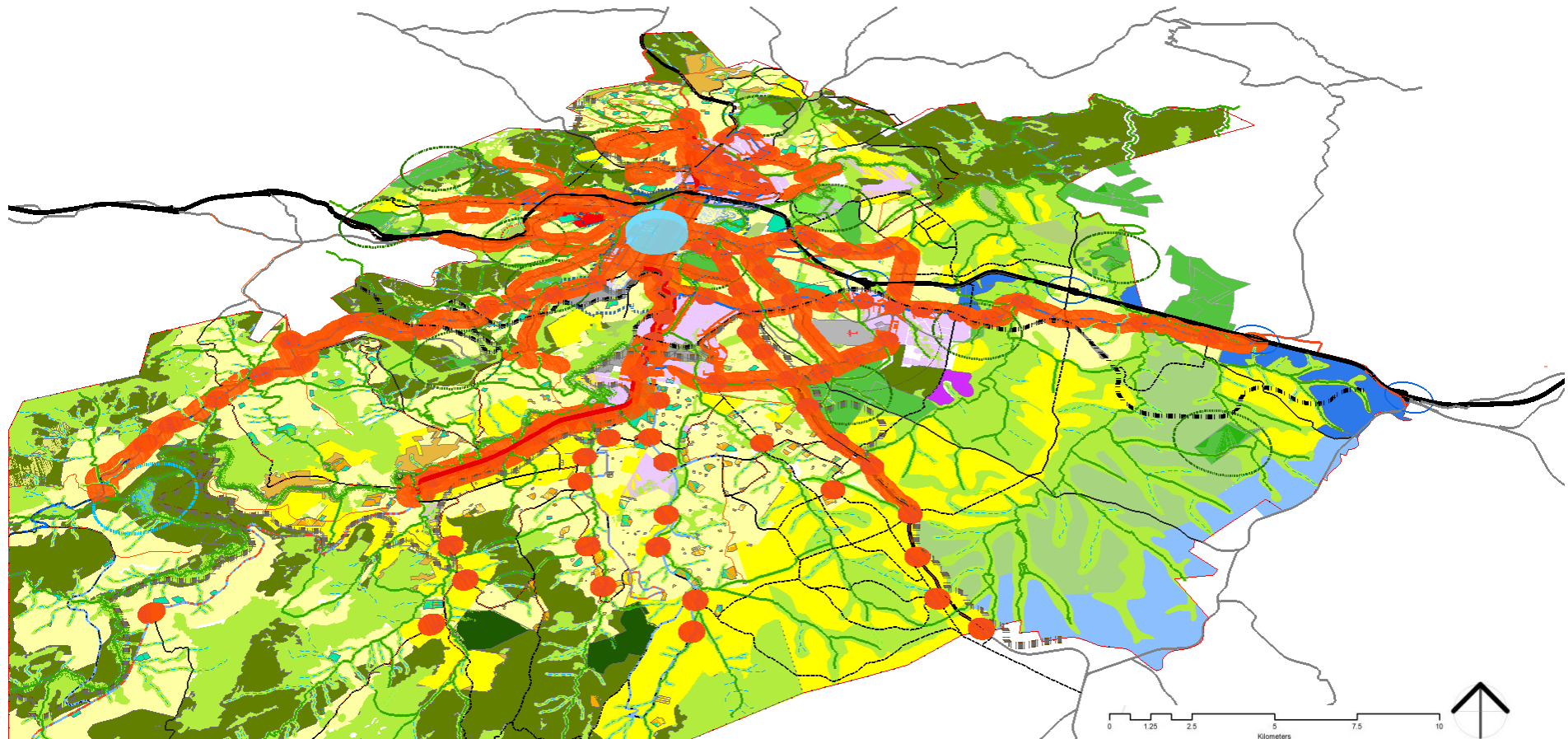
- Creating functional residential neighbourhoods;
- Build Polycentric City;
- Create Sustainable Urban Centres;
- Promote densification; and
- Enhance public place making.



5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.6 SOCIAL INCLUSIVITY

- Establish new housing opportunities;
- Address informal housing; and
- Equitable distribution of public amenities.



5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.7 CONCLUSION

Research and current trends show that future growth and development world wide, will be concentrated in urban centres. The form and shape of this growth and development should be guided and influenced by the principles of Sustainable Urbanism.

As outlined throughout the report, the Msunduzi SDF has been developed as a result of a number of factors, such as global urban growth trends, sustainable urbanism, the Msunduzi Municipal vision as per the IDP and focus areas which is ultimately brought together through professional planning intuition.

The development of the SDF is clearly outlined and developed spatially in terms of the Sustainable Urbanism criteria. Each criterion proposes a number of interventions, which should be implemented to achieve the ultimate state of the Msunduzi environment by 2050. Each intervention can be identified as an umbrella project, under which smaller projects aim to achieve the final vision to be developed.

The pillars within the sustainable urbanism concepts are aligned towards specific line departments for future planning and implementation purposes, for example;

- 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;

- Social Inclusivity – Community Services and Social Equity Committee; and
- Sustainable Services – Infrastructure Services ABM Management and Facilities Committee.

The consolidated Msunduzi SDF plan addresses more than the identified strategic issues acknowledged as the current limitation of the Msunduzi status quo. At the outset of this report, the N3 corridor, the polycentric structure and the understanding of Vulindlela were highlighted and described in light of this.

It also addresses the need for transformation through interventions that seek to bring about growth, development and change and not to merely replicate and reinforce the status quo.

The plan is based on the need to instil equity at all levels and services, through the identification of need, rather than the conventional hierarchical approach, which sees the areas of prominence continually receiving investment. The plan is ultimately prepared to facilitate the 'recycling' and reinventing of space to be more people centred. Developing a plan that works for the community of Msunduzi is the primary objective.

Therefore the plan is based on creating accessible, liveable spaces in which residents can access their daily amenities within their urban environment – to live, work and play. This is the foundation for creating functional residential neighbourhoods within a polycentric structure, based on a solid public transport network.



Example of a Sustainable Urban Environment (Iyer Urban Design Studio, 2013)

5.9 CONSOLIDATED PLAN – MSUNDUZI DRAFT SDF

5.9.7 CONCLUSION

The preparation of these spaces was determined by the Msunduzi Growth Model (Section 5), which quantified the existing and futures needs of the municipality.

The anticipated annual economic growth within the Msunduzi Municipality is 4%. As a result, the municipality (at a precautionary level) is required to facilitate an approximate additional 11 617ha of residential development, and an approximate total of 2858 ha of mixed-use and industrial land to accommodate a future anticipated population of 1 340 000, reflective of an overall population growth rate of 2% until 2050, and 600ha of commercial space. The SDF provides for such expansion, the spatial extent is informed by the quantum's of land area required based on the growth model, and therefore is considered to be 'accurate, realistic' view on future spatial growth.

The adjacent table outlines the current and proposed hectares for mixed-use, industrial and residential land within the municipal area. The additional commercial threshold of 600ha will be made up for (i.e. embedded) within the proposed mixed use areas and the proposed Sustainable Urban Centres.

The proposed SDF provides a dynamic vision for the Msunduzi Municipality until the 2050 horizon. The plan and framework provided is not the ultimate solution, but a structured guide to the sustainable growth and development of the Municipality. The plan should be used as the basis of all future decision making in the city, however it must be reviewed periodically, to update and reaffirm the objectives of the Municipality as it grows and takes on new challenges.

BASIC LAND USE TABLE (As per growth model predictions and subsequent land calculations in-house following SDF mapping)

Mixed-Use – Business/ Logistics/ Industry/Tourism	
Existing	1 557 ha
Proposed	2 858 ha
Total 4 415 ha	
Residential	
Existing	22 453 ha
Proposed	11 617 ha
Total 34 070 ha	

The relative short-term implementation of projects like the IRPTN and associated development will be catalysts and will be testimony to the evolution of the plan and the Municipality as a whole.

Lastly, the SDF presents a compelling spatial vision that realises the objectives of focal areas of the municipal vision, in a way which provides a platform for meaningful development and a sustainable future.



This final figure (4415 ha) is in line with the targeted 4000ha of land required for the 2050 horizon, as calculated. (Extra allowance has been made as a precaution, based on the assumption that certain areas within these tracts of land will not be suitable for development - wetlands, biodiversity hotspots, geotechnical constraints, etc.)



With a minimum 191 007 households required by 2050 (at an average of 20 dwelling units per hectare), the figure of 11617ha is well in line with the targeted 9550 ha of land required for housing, as calculated. (Again, extra allowance has been made as a precaution, based on the same assumptions of a certain degree of undevelopable area.)

5.10 SDF'S RESPONSE TO CLIMATE CHANGE

5.10.1 TABLE OF SPATIAL & MANAGEMENT-BASED ADAPTATION & MITIGATION RESPONSES TO CLIMATE CHANGE

Taking global pressures into account, the SDF has considered climate change in its approach to future planning, by testing its responses against possible impact scenarios. Below is a summary of how climate change mitigation and adaptation is being factored into the plan.

CLIMATE CHANGE IMPACTS	SPATIAL AND MANAGEMENT-BASED RESPONSES
Heat gain	- Urban Greening (proposing tree-lined streets, open space retention & new parkways); - Buffered Open Space Cores by 30m to ensure protection of ecological infrastructure to edge effects including heat radiating from urban/built areas.
Increased wetting	- Buffered watercourses by a <i>minimum</i> of 1:100yr floodline/40m where no development is to be allowed; - All watercourses have been mapped to a highly detailed level using topographic maps and latest wetland mapping to date.
Periods of drought	- Buffering of natural and constructed wetlands to ensure resilience of area to drought through slow release of water in catchments; - Groundwater recharge with proposed permeable paving in future (where appropriate); - Proposed education around water scarcity issues; - Rainwater tanks for water independence (where appropriate).
High winds/violent & heavy storms	- Tree-lined streets and buffered green corridors to protect man-made infrastructure from violent winds; - Communities to be set back from watercourse areas prone to flooding; - Early warnings sent to public via news flashes in WiFi areas/ digital hotspots.
Habitat changes	- Increased corridor linkages over catchments, increased buffers, macro corridors (east-west; north-south); - Retention of steep slopes as natural areas as these areas support habitat diversity (albeit isolated).
Rising GHG levels	- Consideration of alternatives to service provision (e.g. renewable, decentralised and/or low impact technology); - Promotion of education, recycling & re-use of waste; - A robust green infrastructure network with an enhanced ability to sequester CO₂.
Declining natural resource availability	Densification for more efficiency in service delivery (e.g. well-serviced walkable neighbourhoods with BRT option, enhanced efficiency in water, electricity & sanitation provision and waste recycling).
Increased impacts on the poor and marginalised	- Decreasing poverty and inequality is intrinsic in the way the SDF has been designed – communities will be closer to new and improved levels of housing, commercial and industrial areas and a chance to have their jobs, nature and urban agriculture on their door step; - The SDF also promotes increasing levels of education & health facilities in previously under-serviced areas so that citizens may capacitate themselves and be treated at a local clinic without travelling large distances.

MSUNDUZI SDF ALIGNMENT

6.1 UMGUNGUNDLOVU DISTRICT SDF ALIGNMENT

The Status Quo phase of this project highlighted the importance of Msunduzi's role within the context of the Umgungundlovu District. It is important therefore that the alignment between the District SDF and Msunduzi SDF be assessed.

This sections aims to highlight the points of alignment between the two frameworks along with possible conflicts and differences. In order to do this, key areas of alignment - as well as conflicting - aspects of the two frameworks were looked at:

▪ MOVEMENT

In terms of movement, the District SDF acknowledges the importance of the N3 corridor at a District and National level, highlighting its significance as a major corridor and its recognition as a national priority. The District SDF also acknowledges the opportunity for economic development that the N3 corridor presents. In line with this, the Msunduzi SDF acknowledges this by proposing for the enhancement of connectivity to the N3 as well as the release of land for economic development along the N3.

The Msunduzi SDF also aligns with the District SDF in that it acknowledges the importance of strengthening the following regional connections, M70, R56, R33, R617 through necessary maintenance and upgrade initiatives in line with anticipated capacity requirements are envisaged.

▪ AGRICULTURE

Apart from the movement networks, the Msunduzi Municipal SDF aligns with the District SDF in terms of agricultural

land retention/allocations. The Msunduzi SDF identifies agricultural potential along the southern and northern boundaries of the municipality. The consolidated map of the Msunduzi SDF and the District SDF, shows that this proposal aligns with the proposals of the District for the same areas.

▪ NODES / CENTRES

The District SDF identifies the Pietermaritzburg CBD as the most strategic economic development node within the District and goes on also acknowledge a Town Node in Edendale - citing the increased investment that the area has experienced, and will continue to experience. Other aligning nodes the District Framework identified include: Vulindlela as a 'service centre', as well as other smaller Town nodes within the Vulindlela ABM.

The Msunduzi SDF also acknowledges the CBD as a dominant centre within the Municipality and the District at large. In line with the District, the Msunduzi SDF also acknowledges the possibility of a centre in Edendale and proposes two more centres of the same scale in Vulindlela as well as other smaller centres within Vulindlela. However it is important to remember that the Msunduzi SDF presents a 2050 vision of the Municipality and that the development of these centres is dependant on both the need and the capacity to develop in this way.

▪ HOUSING AND SETTLEMENT

Both the District and Msunduzi SDF acknowledge the high settlement concentration within the Msunduzi Municipality, mainly clustering in and around the CBD in a densified manner, and similarly in the Edendale area.

Due to the fact the Msunduzi SDF is at a more refined scale than the District SDF, the framework provides more detail on areas of densification within the existing settlement pattern of the Municipality. Apart from being in line with the District SDF, the Msunduzi SDF also compliments the proposals of the District in a far more detailed manner, as can be expected at the local scale.

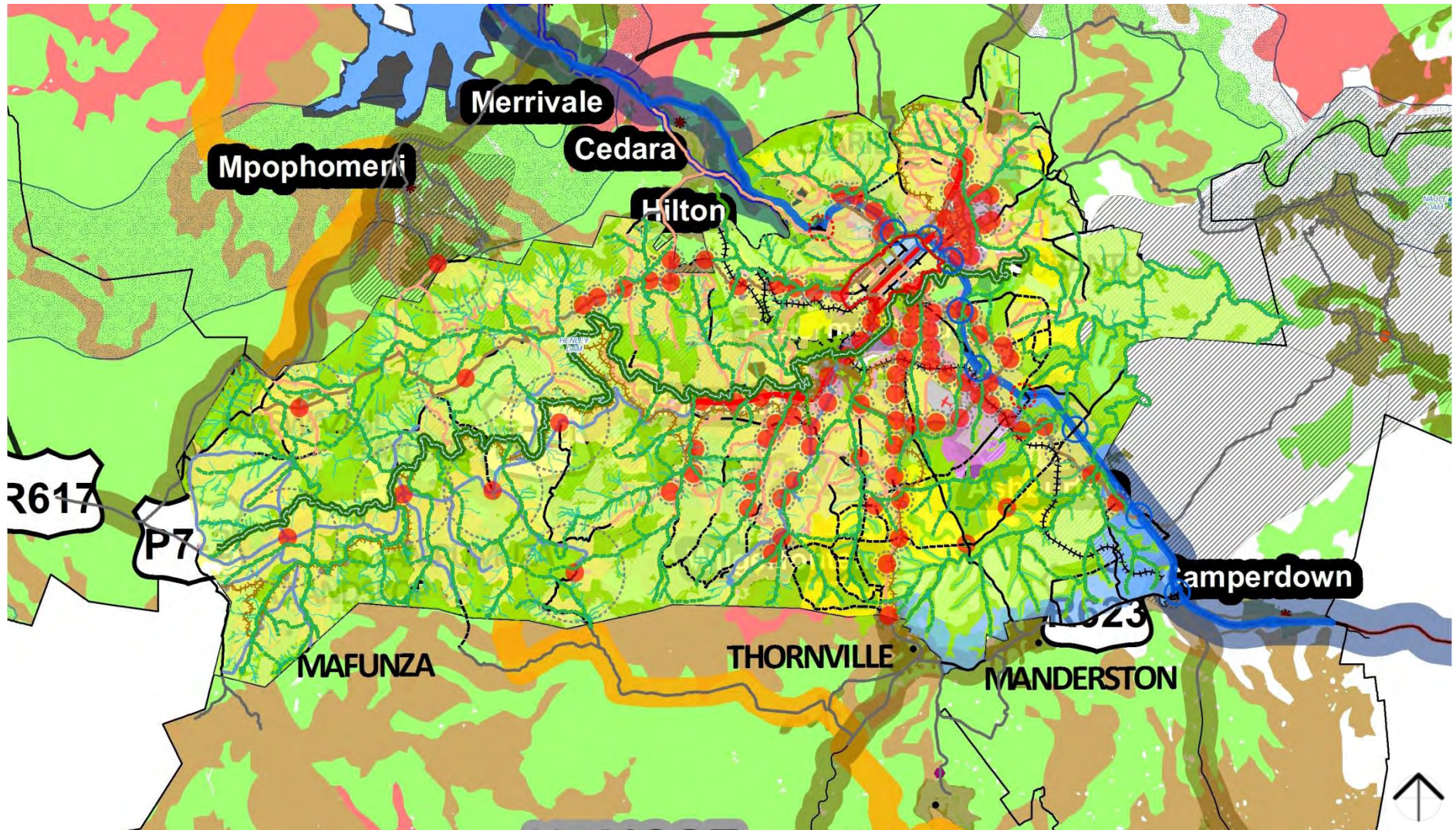
It is observed in the Umngeni Municipal area, North of KwaDulela that infrastructure and housing development is proposed at a District level. The proposed Sustainable Urban centre on the boundary of Msunduzi in KwaDulela compliments this proposal as it would serve the population groups of both municipalities in that area.

The eastern side of the Msunduzi SDF is found to be in conflict with the District as it proposes predominantly Agricultural landuse and preservation of the existing open space cores. The District on the other hand proposes infrastructure and residential development within the same area. This may be attributed to the fact that the drivers and proposals of the District are broader than those of the Local level SDF - hence differing in detail and thus sheer alignment. [Note: A few singular EIA applications suggest possible future alignment but cannot be factored in prior to their explicit authorisation.]

The following page reflects the Msunduzi SDF layered on top of the District SDF so as to better reflect the alignment issues that have been mentioned. An overall comment on alignment between the District and Local SDF would be that the Msunduzi SDF largely aligns with the District and in most cases compliments the proposals of the District.

06 MSUNDUZI SDF ALIGNMENT

6.1 UMGUNGUNDLOVU DISTRICT SDF ALIGNMENT



6.2 SURROUNDING LOCAL MUNICIPAL SDF ALIGNMENT

The various SDFs of the surrounding local municipalities were cross checked spatially with Msunduzi's SDF review. The various SDFs are contained on the following page, in relation to the Msunduzi. The findings on local municipal alignment were as follows:

Msunduzi/ Umgeni:

- Alignment at Mpophomeni: The residential character of the area has been maintained and has been reserved as a residential land use in the Msunduzi SDF;
- Alignment at Winterskloof: Residential development in Umgeni interfacing with higher density corridor development along Msunduzi IRPTN Quality Bus Service route.

Msunduzi/ Impendle:

- The M70 provides mobility along the residential settlement areas of Vulindlela and into Boston. Adjoining land uses complement the existing use of the area. The viability of a services centre at Boston remains promising as the Key Centre proposed is Vulindlela is well over 5km away.

Msunduzi/ uMshwathi:

- Alignment at Claridge and Tourism Linkage: There is a MOSS interface between Msunduzi and the uMshwathi Agricultural priority area. The tourism linkage joins into the existing residential settlement of Northdale;
- Alignment at Whispers and Tourism Linkage: The tourism linkage penetrates into the existing residential settlement of Copesville. However, the informal nature of some of the areas in Copesville would reduce the Tourism potential and therefore must be considered and addressed;

- The above 2 interactions are scheduled as potential economic nodes in the uMshwathi SDF and both SDF's facilitate this through co-operative land use reservation.

Msunduzi/ Ingwe:

- The interface between the Msunduzi and Ingwe is predominantly agricultural. Whilst settlements exist up to the furthest extents of Vulindlela, large ridges fragment the villages from the Agricultural land dominated land uses surrounding them in the adjoining Municipality.

Msunduzi/ uMshwathi:

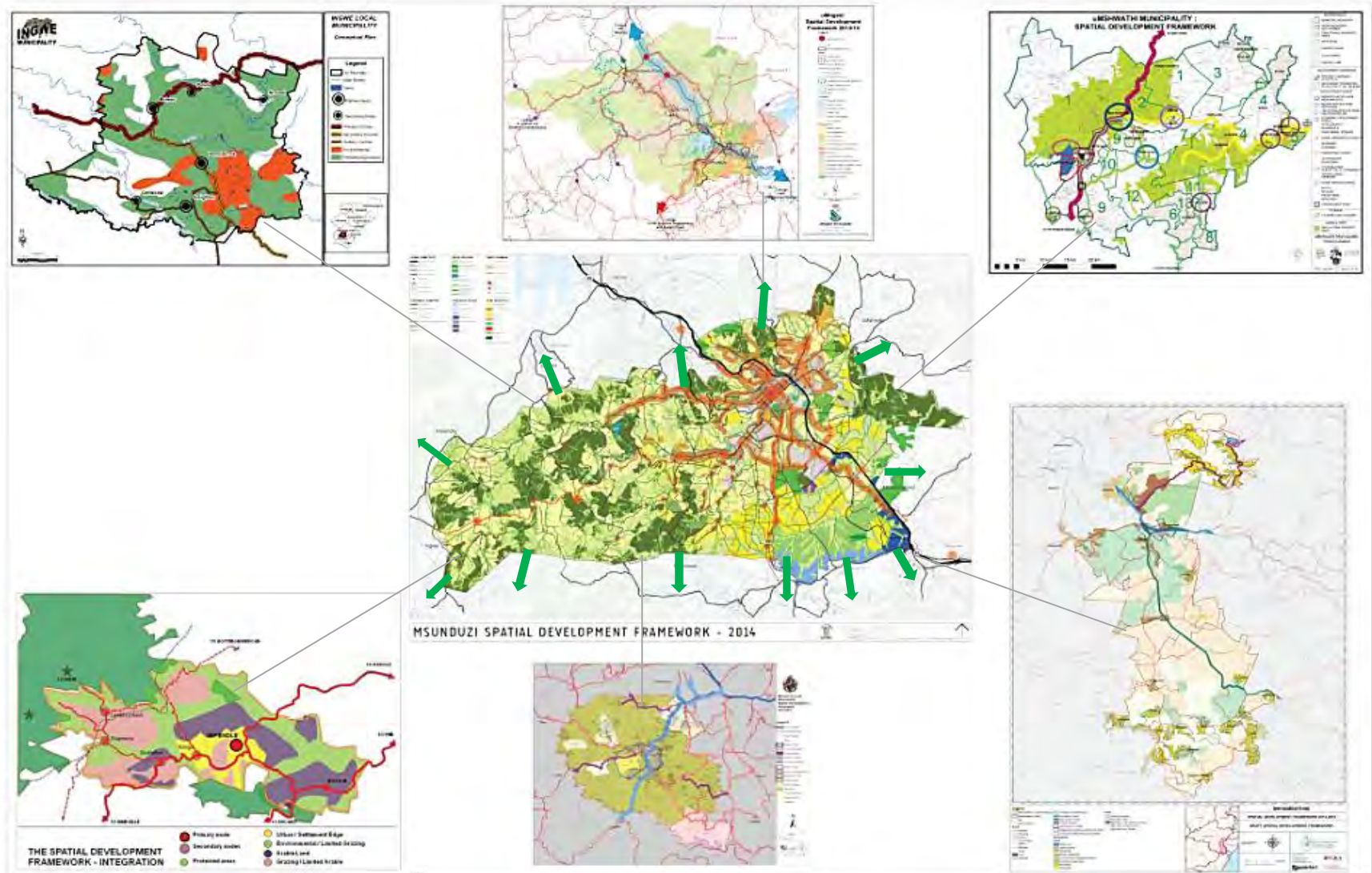
- Alignment at Claridge and Tourism Linkage: There is a MOSS interface between Msunduzi and uMshwathi Agricultural priority area. The tourism linkage joins into the existing residential settlement in Northdale forming a linear spine for potential activities;
- Alignment at Whispers and Tourism Linkage: The tourism linkage penetrates into the existing residential settlement of Copesville. However, the informal nature of some of the areas in Copesville would reduce the Tourism potential and must be considered and addressed in future.

Msunduzi/ Richmond:

- The interface between Msunduzi and Richmond is predominantly agricultural. At the South Eastern boundary of Msunduzi and Northern boundary of Richmond, are settlements such as Thornville and Manderstone. The SDF has identified the interface as potentially Agri-Business/ Commercial in the medium term. The abutting SDF of Richmond views the area as a secondary Node and this facilitates potential wall to wall land use designation.

Note that possible conservation and open space linkages and networks are possible throughout the district. Detailed discussions between each of the local municipalities need to be held in this regard.

6.2 SURROUNDING LOCAL MUNICIPAL SDF ALIGNMENT



6.3 ALIGNMENT WITH CURRENT LEGISLATION, GUIDELINES & POLICY

This section of the report serves to highlight the various Legislation, Guidelines and Policy that were taken into consideration as part of the SDF review process. It is important to note that while there may be a number of development frameworks at Local, Provincial and National level, not every principle enshrined in these that can be applied to the case of the Msunduzi Municipality. While a vast amount of informants were reviewed in the review of this SDF, only key elements and principles were consulted.

The Legislation, Guidelines and Frameworks considered included the following:

GLOBAL AND NATIONAL LEVEL

One of the key elements in the approach adopted for the review of the SDF was the acknowledgement that Msunduzi Municipality is not located in a vacuum. As such it was essential to consider Msunduzi Municipality within a Global and National context. As such it was important to understand that the vision and principles outlined in the various Global and National informants. The following informants were considered in this regard:

- 1) The Millenium Development Goals
- 2) Climate Change Response White Paper Focus areas
- 3) South African National Development Plan (NDP)
- 4) State of the Nation Address 2012-14
- 5) National Spatial Development Perspective (NSDP)
- 6) Spatial Planning and Landuse Management Act (SPLUMA)
- 7) Breaking New Ground (BNG)
- 8) National Environment Management Act (NEMA)
- 9) National Spatial Development Framework Guidelines

PROVINCIAL LEVEL

It was also important to understand Msunduzi Municipality in a Provincial context. The two main informants at this level were:

- 1) The Provincial Growth and Development Strategy (PGDS)
- 2) Provincial Spatial Economic Development Strategy (PSEDS)

DISTRICT/ LOCAL LEVEL

The importance of understanding Msunduzi Municipality at a more local level and need to ensure alignment with plans including the various sector plans) at this level cannot be over emphasized. As such the SDF Review considered the following:

- 1) Umgungundlovu District Municipality (IDP& SDF)
- 2) Umgungundlovu District Municipality Strategic Environmental Assessment (SEA)
- 3) Msunduzi Municipal (IDP & SDF)
- 4) Impendle Municipality (SDF)
- 5) Umngeni Municipality (SDF)
- 6) Umshwathi Municipality (SDF)
- 7) Mkhambathini Municipality (SDF)
- 8) Richmond Municipality (SDF)
- 9) Msunduzi Municipality Housing Sector Plan and Slum Clearance Strategy 2011
- 10) Msunduzi Environmental Management Framework (EMF)
- 11) Msunduzi Transportation Plan (MTP)

The following tables list the various informants considered

and the main issues/ principles they promote as well as a brief description of how the SDF has addressed these.

6.3 ALIGNMENT WITH CURRENT LEGISLATION, GUIDELINES & POLICY

Legislation/ Framework/ Plan	Requirements/ Objectives/ Main Themes Promoted	Response in SDF Review
NATIONAL LEVEL ALIGNMENT		
Millenium Development Goals	To eradicate poverty and hunger	Promoting the strengthening of centres of economic activity and introduction of new economic zones and centres
	To achieve universal primary education	Initiatives aimed at bridging the digital divide and enhancing access to public amenities
	To promote gender equality and empowering women	This might be possible through wifi rollout and its associated education/awareness creation
	To reduce child mortality rates	Promotion of access to public amenities
	To improve maternal health	Promotion of access to public amenities and creation quality urban environments
	To combat HIV/ AIDS, malaria, and other diseases	Promotion of access to public amenities as platforms for awareness
	To ensure environmental sustainability	Various Ecological proposals and underpinning approach to the SDF Review
	To develop a global partnership for development	Various pro-global connectivity proposals
South African National Development Plan (NDP)	Economic Infrastructure	Promotion IRPTN development and various Global connectivity and Productive system proposals
	Environmental sustainability and resilience	The protection of the biological natural resource base, along with the protection and enhancement of the overall public open space system and increased setback lines from watercourses for safety
	Inclusive rural economy	Proposed new perspective on Vulindlela (i.e. not considered rural)
	South Africa in the Region of the world	Various pro-global connectivity proposals
	Transforming Human Settlements	Promotion of the Liveable cities programme
	Building Safer communities	Enhancement of public place making
State of the Nation Address (2012, 2013 & 2014)	Education & Health	Promotion of the equitable distribution of Public amenities
	Unemployment (youth unemployment)	Various Productive system proposals
	Rural Development	Alternate perspective proposed for Vulindlela (i.e. not considered rural)
	Gap Housing provision	Housing opportunities across all sectors proposed as part of the liveable cities programme
	Bulk services & infrastructure provision	Combination of Sustainable transport and services proposals
National Development Plan (NDP)	Rapid economic growth (sustained & inclusive)	Emphasis on the importance of the N3. Economic growth models proposed for Msunduzi and informing the productive system proposals of the SDF
	Basic provision of services	The proposed facilities Audit; sustainable services chapter with new technological/tailored solutions
	Focusses government spending on localities of economic growth/ potential	Productive systems Proposals
	Settlement and Economic development channelled into corridors and nodes, adjacent to or linked to main growth nodes	Densification proposed along the main movement structure and around Sustainable urban centres and other key centres

6.3 ALIGNMENT WITH CURRENT LEGISLATION, GUIDELINES & POLICY

Legislation/ Framework/ Plan	Requirements/ Objectives/ Main Themes Promoted	Response in SDF Review
NATIONAL LEVEL ALIGNMENT		
Climate Change Response White Paper Focus Areas*	Water	Ecological Infrastructure section (detailed mapping of watercourses; buffering) & Sustainable Services section with alternative water provision options
	Agriculture & Commercial forestry	Ecological Infrastructure section (buffering) between conflicting landuses & Productive Systems section (retention and expansion of fertile lands in urban and outlying areas).
	Health	Ecological infrastructure (buffering) with screening-like protection from flooding & other violent weather events/high winds. Vegetation phyto-remediates water, runoff & air.
	Biodiversity & ecosystems	Ecological Infrastructure pillar (cross-catchment linkages, buffering, promoting increased protection levels and their extent).
	Human Settlements	Addressed through Sustainable Transport section, Ecological Infrastructure section and densification strategy.
	Disaster Risk Reduction and Management*	Ecological infrastructure (buffering) with screening-like protection from flooding & other violent weather events/high winds. Sustainable services section 'hedges bets' providing a look into other, more resourceful options for service provision.
* Also see climate response section of SDF		
Spatial Planning and Land- Use Management Act	Principle of Spatial Justice	Mainly addressed through the creation of functional residential environments and building polycentric city initiative.
	Principle of Spatial Sustainability	Addressed across the majority of the 7 pillars mainly evident consolidation of the CBD and numerous Green structure initiatives
	Principle of Efficiency	Addressed across the majority of the 7 pillars
	Principle of Spatial Resilience	Addressed mainly as part of the implementation plan
	Principle of Good Administration	Addressed through as part of the Enhancing Municipal Knowledge and Management component
Breaking New Ground (BNG)	Move from housing to sustainable Human Settlements	Creating functional residential neighbourhoods and sustainable urban centres.as well as the enhancement of public place making
	Promoting Existing and New Housing Instruments	Promoting the establishment of new housing opportunities and addressing informal housing.
National Strategy for Sustainable Development and action Plan (NSSD 1)	Integrated planning, with increased awareness and understanding of the value of ecosystem services to human well-being	Ecological Infrastructure Section focuses on these objectives.

6.3 ALIGNMENT WITH CURRENT LEGISLATION, GUIDELINES & POLICY

Legislation/ Framework/ Plan	Requirements/ Objectives/ Main Themes Promoted	Response in SDF Review
NATIONAL LEVEL ALIGNMENT (continued...)		
National Environmental Management Act	Development that is socially, environmentally and economically sustainable	All 7 pillars of the SDF aim to address these three aspects from a high level planning perspective
	Specific attention to Sensitive, Vulnerable and Highly Dynamic ecosystems	Embedded within Ecological Infrastructure section of SDF.
National Spatial Development Framework Guidelines	Infill development and Densification	Promote densification along major movement routes
	Containment	Promote densification along major movement routes
	Protection	Securing the natural resource base and creation of an integrated Open Space System
	Growth Areas	Land release along the N3 and introduction of New economic zones
National Biodiversity Strategy and Action Plan (NBSAP)	To assess where important biodiversity is, how much to conserve, and whether the current system of protected areas in the country is adequate terrestrial, aquatic and marine. (The latter environment not being applicable to Msunduzi as it is land locked)	Ecological Infrastructure component addresses these objectives in status quo, SDF and implementation phase.
Strategic Infrastructure Projects (SIP)	Specific to Msunduzi are the following objectives: Ecological Infrastructure for water security (proposed as SIP19); and Developing a Durban-Free State-Gauteng logistics and industrial corridor (SIP2)	Ecological Infrastructure and Sustainable Transport Sections feed into these national objectives holistically in the SDF document.
PROVINCIAL LEVEL ALIGNMENT		
2030 Provincial Growth and Development Plan	Job Creation	Launching agricultural and logistics platform and introduction of new economic zones
	Human Resource Development	Enhancement of Municipal knowledge and management as a strategy along with Bridging the digital divide initiatives
	Human and Community Development	Equitable distribution of public amenities and public place making initiatives
	Strategic Infrastructure	Promotion of the IRPTN, Airport Precinct and Digital connectivity
	Environmental Sustainability	Creation of an integrated Open space system and secured resource base
	Governance and Policy	Addressed through the promotion of Enhanced of Municipal knowledge and management systems
	Spatial Equity	Addressed through different initiatives under the Liveable cities programme

6.3 ALIGNMENT WITH CURRENT LEGISLATION, GUIDELINES & POLICY

Legislation/ Framework/ Plan	Requirements/ Objectives/ Main Themes Promoted	Response in SDF Review
LOCAL LEVEL ALIGNMENT		
Umgungundlovu District Municipality IDP/ SDF	Good Governance & Public Participation	Enhancing municipal spatial knowledge and management
	Basic Service Delivery and Infrastructure Development	Addressed in multiple areas of the SDF
	Social Development Services	Creation of functional residential neighbourhoods and sustainable urban centres
	Economic Development Services .	Strengthening centres of economic activity and introducing new economic zones
	Spatial and Environmental Management	Enhancing municipal spatial knowledge and management
	Financial Viability and Management	Enhancing municipal spatial knowledge and management
Umgungundlovu District Municipality (SEA)	Institutional Development and Transformation	The inception of a Rapid delivery agency
	Enhancing systems of integrated planning and implementation	Overall approach adopted in the review of the SDF
	Sustaining our ecosystems and using natural resources efficiently	Protecting and enhancing open-space cores
	Towards a green economy	Launching of an Agriculture and Logistics Platform
	Building Sustainable Communities	Various strategies adopted across all pillars
Neighbouring Municipalities	Responding effectively to climate change	Various consideration adopted in the establishment of the ecological layer (e.g. open space network)
	Impendle Municipality	Proposals to improve regional connectivity
	Umngeni Municipality	Proposals to improve regional connectivity
	Umshwathi Municipality	Proposals to improve regional connectivity
	Mkhambathini Municipality	Proposals to improve regional connectivity
Msunduzi Municipal IDP	Richmond Municipality	Proposals to improve regional connectivity
	Focal Area 1: A well serviced City	The promotion of sustainable urban centres
	Focal Area 2: An accessible and connected city	Promotion of an enhanced public transport backbone
	Focal Area 3: A clean green city	Combination of Quality Urbanism and Ecological initiatives
	Focal Area 4: A friendly safe city	Various initiatives aimed at the enhancement of public place making
	Focal Area 5: An economically prosperous city	Various productive systems proposals
Msunduzi Municipal SDF	Focal Area 6: A financially Viable and well governed city	Various productive systems proposals and Municipal knowledge management
	Compaction	Consolidation and Revival of the CBD and Densification proposals
	Meeting Land-uses	Growth scenarios and Space requirement projections
	Sustainability	Multiple proposals made under the different pillars
	Economic Development Potential	Economic growth projections and land release proposals
	Quality Urban Environments	Various proposals under Quality Urbanism Pillar
Urban Densifications	Urban Densifications	Proposed densification along BRT routes and key centres

6.3 ALIGNMENT WITH CURRENT LEGISLATION, GUIDELINES & POLICY

Legislation/ Framework/ Plan	Requirements/ Objectives/ Main Themes Promoted	Response in SDF Review
LOCAL LEVEL ALIGNMENT		
Msunduzi Environmental Management Framework (EMF)	Strategic Environmental Assessment (SEA)	Various Ecological proposals
	Strategic Environmental Plan (SEMP)	Various Ecological proposals
Msunduzi Municipality Housing Sector Plan (2011)	Sustainability & Integration	A combination of Social inclusivity and Quality Urbanism proposals
	Efficiency & Choice	Liveable cities programme
	Densification & Affordability	Proposed densification along BRT routes and creation of housing opportunities across sectors
	Liveability & Connectivity	Liveable cities program and Polycentric city proposal
	Accessibility	Various Transportation related proposals
Msunduzi Municipality Transportation Plan	Integrated Rapid Public Transit Network: BRT & Quality Bus routes	Various Transportation related proposals
	Densification along Key routes	Promotion of Densification proposals under Quality Urbanism
	Development of smaller Urban Centres across Municipality	The creation of Sustainable urban centres

While a large amount of consideration was given to numerous planning frameworks and legislation to ensure alignment, it is important that the proposals made in the SDF were not given as a checklist with no real planning basis or function. As such what is evident in the SDF is that every proposal made can be linked back to the issues specific to Msunduzi Municipality as observed and outlined as part of the Status Quo. The proposals in the SDF also show that apart from being enshrined in the over-arching Policy and Plans, give substantial substance to the SDF.

While the preceding tables may have reflected alignment with the relevant framework, it must be noted that the information reflected in the tables does not provide a complete explanation as to how the SDF aligns with the required frameworks and policy. A thorough engagement with the full SDF Document would be required in order for one to fully grasp the linkages across the pillars and SDF's alignment to the relevant Plans and Legislation.

IMPLEMENTATION STRATEGY

7.1 INTRODUCTION

The Msunduzi SDF promotes a forward-thinking, sustainable vision and strategy for the growth and re-development of the Municipality over the next 35 years. The prior SDF section identifies a number of strategic interventions for the Municipality. This section - the implementation plan - identifies these strategic interventions as projects for implementation, with a time horizon until 2050.

Additionally, key focus areas have been identified so that priority may be given to certain initiatives over others (if need be) over the short medium and long term (see section 7.2).

It is acknowledged by the Msunduzi Municipality that the full plan cannot be implemented in the short term for a number of reasons, including:

- Implementation of the plan is dependent on the availability of resources, both human and financial;
- Implementation will require the cooperation and buy-in of all stakeholders in the vision and strategy;
- Implementation of certain projects / components of the plan will require others to be concluded and operational;
- Initiating the implementation of activities / projects will be dependent on specific triggers (objectives being achieved);
- Many depend on real/actualised population growth, urbanisation, needs and desirability;
- Many of the plans require further study (pre-feasibility, feasibility, detailed design, approvals; etc); and
- The development of a long-term strategic vision is an iterative process. The continued growth and development of the Municipality and its response to change will determine the continued progression of the plan as it currently stands. It is however important that continued change in the Municipality is recognised and fed back into the strategic planning process in a cyclical manner.

As a result of the phased and iterative strategic planning process, the proposed project programme categorises projects in the following timeframes:

Short Term: 2015 - 2020

Medium Term: 2021 - 2030

Long Term: 2031 – 2050

To ensure the strategic growth and development of the Municipality, through the SDF, the projects identified are targeted and primarily focussed on the short-term. Despite the substantial short-term focus the majority of the projects require planning/ investigation to commence first, with the interventions or implementation in a longer term view. However the planning process can be exhaustive and therefore immediate action is required.

The planning and implementation process is dependent on the annual financial budgetary cycle, therefore ensuring projects are streamlined and identified within the budget process as early as possible is critical to the successful nature of the SDF.

Short Term 2015 - 2020

Short term interventions are anticipated to be scheduled within the financial years of 2015 – 2020. The projects identified for short term intervention ensure that momentum achieved through the SDF process is maintained.

A number of the projects identified within the short-term, have been ear-marked by the Municipality within the IDP as catalytic projects. These projects provide the foundation for the development of the overall strategic vision, developed for the growth and development of the Municipality.

It is not anticipated that the projects identified within the short-term category will be completed within the short-term timeframe, 2015 - 2020. The projects identified have a lifecycle greater than/beyond 2020, however it is imperative for the planning and investigating process to commence as soon as possible to ensure the realisation of the plans.

Medium Term 2021 - 2030

The projects identified for the medium term range from large IDP catalytic projects to implementation projects that are reliant triggers from identified short term projects. The medium term projects are identified to take place between 2021 – 2030. During this time period it would be anticipated that both the planning/ investigation of the project as well as the implementation is completed. Projects identified as medium term are primarily located outside of the strategic focus areas of the CBD and densification zones.

Long Term 2031 – 2050

As with the medium term projects only a minority of the identified projects fall within the medium and long term category. An exhaustive list has not been developed, as it the intention of the plan to focus development on a select set of strategic projects. Therefore, the long term projects identified are those which are reliant on either the short or medium term projects commencing or they are projects which fit in all phases, i.e. large-scale housing projects which are continuous/on-going.

Many of the medium-to-long-term projects are associated with the expected population growth in Msunduzi (i.e. perceived demand). It almost goes without saying that if the demand is not there – the scale and extent of these long term projects will need to be reassessed.

07 IMPLEMENTATION STRATEGY

7.1 INTRODUCTION

The implementation phase is principally based on a directory of projects – each of which was introduced in the SDF phase as key strategies across each of the seven pillars.

This phase thus serves to consolidate these strategies and turn them into defined projects for the short, medium and long term. They have been categorised in an easy-to-use database format (see example at the bottom of this page).

Additionally, several catalytic projects have been added to the directory, based on a recent project team meeting which sought to identify 'top-priority' projects which would add value to implementation planning. As mentioned before, these are explained in Section 7.2, and are highlighted in a different colour in the database.

The suite of table headings for each of the projects are described as follows, in order to categorise/interrogate them better in future:

Code:

In this case, QU01, stands for strategy #01 under the Quality Urbanism pillar (and so it goes for each strategy under each of the 7 Pillars).

Catalytic Projects

These are the projects associated with each strategy of the sustainability pillars, coupled with those identified as 'top

priority' implementation projects. They are all projects which will precipitate positive change in Msunduzi.

Description

Is an overview of what the project aims to achieve (the end goal of the project).

Project Type

The project types are either Planning & Investigation related, or Capital Investment Projects.

Champion Department (s)

This relates to the municipal departments which will need to champion, motivate, drive and project manage the project in question.

Estimated Budget

This relates to budgets for the project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted. Furthermore, some budgets were not possible to estimate at this juncture.

Primary Aligning IDP Code(s)

In terms of the latest IDP scorecard codes, each SDF implementation project has been cross-checked with these objectives for alignment purposes. Some projects align with several IDP codes.

Aligning IDP Strategic Thrusts

Similar to the prior category, and as per the latest IDP's strategic thrusts, each SDF implementation project has been tested against these and

Timeframe

This relates to the short (2015-2020), medium (2021-2030) or long term (2031-2050) nature of the project at hand – as described more fully in the introduction page before.

Note that the full Project Directory is a *summary* of the projects that are proposed in the implementation phase and is used to introduce the full suite of strategies per pillar, their associated projects and codes (e.g. QU01 described before).

MSUNDUZI SDF REVIEW - STRATEGY DIRECTORY		
Quality Urbanism		
Strategies	Related Project Code	Catalytic Projects
Create functional residential neighbourhoods	QU01	Establish an accurate land inventory and social facilities audit

Example of Project Directory Format

Also note that in addition to the 'top-priority' projects added to the directory's *7-Pillar* projects, the directory contains an 8th strategy area dedicated to what is called a Rapid Delivery Unit. This is an overarching project management related proposal, dedicated to fast-track key projects (such as the 'top priority' projects mentioned above).

QUALITY URBANISM							
Catalytic Projects	Description	Project Type	Champion Department(s)	Estimated Budget	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
QU01 Establish an accurate land inventory and social facilities audit	Ensure accurate, up-to-date database of cadastral data social facilities (including infrastructure) in Msunduzi - highlighting deficit areas. Revise all GIS stock to be complete, accurate and refined. Ensure on-going funding for adequate, dedicated human resources. Sanction the capturing of all building footprints and respective floor usage.	Planning / Investigation	Community Services (Recreation & Facilities) Sustainable Development & Municipal Entities (Planning & Environmental Management Entities)	R 3 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of Social Development Services (Code B3) Optimise land usage (Code C3) Improve Municipal Planning and Spatial Development (Code F1)	Well Served City; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)

Example of Implementation Table Format

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.1 OVERVIEW

A uniquely tailored approach to Implementation Planning has been devised for Msunduzi, based on the dynamics and spatial position of the Municipality.

From a project selection perspective, over and above the 7-Pillar projects which will improve overall municipal performance and spatial functioning, the project team have identified a series of strategic 'high priority' programmes based on realising the inherent potential of the capital city. Within each of these programmes, a series of strategies and projects have been earmarked and are described.

They have been selected for their being significantly transformative and catalytic in nature, and are outlined in the adjacent paragraph. As mentioned, these are in some cases *additional* to the projects associated directly with the 7 Pillars.

HIGH PRIORITY PROGRAMMES

Programme 1: Launching an Agriculture & Logistics Platform

Programme 2: Ensuring Liveable Cities

Programme 3: Promoting Land Release Industrial Development

Programme 4: Creating Viable Urban Centres

Programme 5: Inception of Rapid Delivery Agency

Programme 6: Enhancing Municipal Knowledge Management

Programme 7: Revival of the Garden City

The programmes above are the so called 'umbrella programmes' (not unlike the 7 Pillars, but not to be confused with them). These are broken up into several (smaller) priority, catalytic projects, which can be assigned to specific Pillars, municipal department(s) etc. Each of the programmes is un-packed as follows:

- The Motivation;**
- The Context;**
- The Strategic Programme; and**
- Catalytic Projects to address the above.**

The catalytic projects chosen have been selected with the intention of meaningfully bringing change in Msunduzi. Importantly, the Municipal IDP review for 2014/15 – 2016/17 produced a scorecard of key performance areas (KPA's) to track progress with numerous cross-cutting city management objectives.

The key IDP scorecard objectives considered pertinent to this Implementation Section/addressed here are:

- Improve Provision of Social Development Services (**Code B3**)
- Increase Economic Activity (**Code C1**)
- Reduce Unemployment (**Code C2**)
- Optimise Land Usage (**Code C3**)
- Improve Expenditure & Maximise Economies of Scale (**Code D2**)
- Improve Municipal Planning & Spatial Development (**Code F1**)

[Full list available in **Annexure A**]



07 IMPLEMENTATION STRATEGY

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.1 OVERVIEW

THE PRIORITY AREAS OF SDF IMPLEMENTATION IN MSUNDUZI



Launching an Agriculture & Logistics Platform



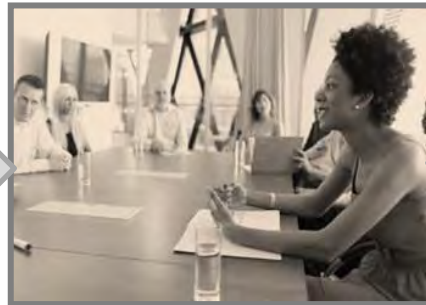
Ensuring Liveable Cities



Promoting Land Release Industrial Development



Creating Viable Urban Centres



Inception of Rapid Delivery Agency



Enhancing Municipal Knowledge Management



Revival of the Garden City

07 IMPLEMENTATION STRATEGY

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.1 AGRICULTURAL & LOGISTICS PLATFORM

PROGRAMME 1: LAUNCHING AN AGRICULTURE & LOGISTICS PLATFORM

a. MOTIVATION

The KwaZulu-Natal Provincial Growth and Development Strategy (PGDS) provides the strategic framework for development in KZN from 2011 through to 2030. It is meant to 'guide the activities and resource allocation of all levels and spheres of government as well as provide suggestions to private sector and non-government agencies that can contribute to development in the Province'. Seven key priorities or strategic goals have been identified as a means to drive this future growth and development. Attached to these goal areas are thirty strategic objectives. Agriculture features prominently at the top of the list as illustrated in the adjacent figure. The first priority area of Job Creation, "unleash[ing] agricultural potential" is the first of five strategic objectives.

b. CONTEXT

The assessment of the province by the Provincial Planning Commission states that 'KwaZulu-Natal has the potential to become an economic power house, not only within South Africa, but also within the rest of Africa'. Msunduzi is positioned centrally to agricultural towns and farming communities in the KZN midlands.

Since it has an active agricultural sector that also forms a priority within the PGDS, it is proposed that the municipal policy and implementation plans align with the PGDS bystrategically driving the growth and development of this

sector. Since the PGDS is also aligned to current provincial, national and global policy frameworks, this will also streamline funding applications to the provincial and national treasury, and potentially attract further investment by other partners aligned to these frameworks.

The 2013/14-2016/17 IDP has made some progress in this regard but more is yet to be achieved.

c. STRATEGY

It is therefore proposed that, within Msunduzi, the agricultural sector be developed hand-in-hand with a logistics platform. This will ensure future sustainability of the agriculture sector within Msunduzi, as a reliable



Strategic Goals and Objectives for KZN until the Year 2030 (Source: PGDS, 2013)

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.1 AGRICULTURAL & LOGISTICS PLATFORM

logistics platform, together with a stream-led supply chain, can support reduced unit input costs to production while expanding access to different markets.

Local Economic Development Studies for the Municipality have already shown that there are opportunities in agriculture and logistics. In terms of agriculture, this opportunity means adding value to local produce taken from the surrounding rural areas and municipalities. With regard to logistics this means growing Msunduzi as a 'logistics centre for breaking bulk between inland and the coast as well as supply chain management services, especially the cold chain with links to Dube Trade Port' (IDP 2014).

The agricultural sector in Msunduzi Municipality currently comprises timber, beef, poultry, dairy, sugarcane, citrus, exotic fruit and cut flowers. According to the IDP (2014), agriculture contributes 4% of the municipal GDP. Commercial agriculture is, however, not as prevalent as in surrounding municipalities. Transportation contributes 13% to the GDP of the Municipality. 2% and 4,2% of formally employed people are employed in agriculture and transportation respectively.

d. OUTLINE OF CATALYTIC PROJECTS

The Msunduzi departments of Economic Development and Tourism have identified catalytic projects which may lead to a bolstering of these figures, and are listed in Table 1.

National Government's Strategic Infrastructure Project (SIP) 2 is also aimed at unlocking economic development

potential by increasing capacity along the Durban-Free State-Gauteng corridor. This is a critical corridor due to the inland demand for goods from the Port of Durban. Future upgrades include increasing capacity along the north-south rail line as well as along the N3.

In light of the above, the development of an agriculture and logistics programme and an associated a management unit, is proposed as a viable and meaningful catalytic project for the municipality to take forward.

The creation of an agriculture and logistics unit will primarily serve to:

- Consolidate areas with higher agricultural potential through land-use management;
- Manage these areas within an over-arching system that seeks to remove duplication of effort and improve efficiency in collection, storage and distribution of goods.
- Drive growth and development of these sectors where alignment to provincial and national frameworks is achieved.

The above will ensure sustainability of agriculture and logistics within Msunduzi, which will in-turn attract further investment into these sectors.

Project	Description	Status
Development of a Logistical Platform	Currently uMgungundlovu products are packaged and loaded in Durban for trips to Johannesburg; this represents as waste of fuel and increased costs; a logistical platform should be established north of PMB	Envisioned
Dedicated, Large Scale Truck Stops	Designated stop for trucks using the N3 Durban-Gauteng corridor	Envisioned
High Speed Train between Durban and Johannesburg	High speed train, as part of the development of the Durban-Free State- Johannesburg Corridor	Planned
Further expansion of Pietermaritzburg Airport	Revamp and expansion of existing airport to make it more accessible and attractive to use for both business and leisure	Planned

Catalytic projects already identified by the department of Economic Development and Tourism (Source: IDP, 2013)

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.1 AGRICULTURAL & LOGISTICS PLATFORM

As per the IDP (2014), a logistics platform is already envisioned for the north of Pietermaritzburg. Consideration must also be given to the proposed inland port at Cato Ridge. While this falls outside of Msunduzi, the municipality can still reap the benefits of interfacing with such a platform, due to the likely need for support services from nearby major urban centres (e.g. logistical or hospitality related). The platform at Cato Ridge could be viewed as the primary road-to-rail intermodal facility, while a secondary platform could be located north of Pietermaritzburg for road-based freight.

In order to reduce the cost of transporting goods to the freight corridor and to reduce the number of heavy-goods vehicles on already-congested roads, the development of logistics hubs and intermodal facilities should also be concentrated along this corridor for rapid, easy access – to avoid ‘dead mileage’ by unnecessarily large vehicles.

Various other existing projects in the area could be associated with - and enhance - the agri-logistics programme, such as those itemised below.

Project: N3 Upgrades

SANRAL has planned upgrades along the N3 and at selected interchanges within Msunduzi. Upgrades to the interchanges will be triggered by increasing levels of demand. The current status is *planned*.

Project: Pietermaritzburg Airport

Upgrades to the airport are under way. Future upgrades have the potential to improve the regional connectivity of Msunduzi. The viability of transporting goods via air-freight would need to be established. Road linkages to and from the airport would also need attention, particularly to rural areas.

There may be a potential for low-volume, high-value goods to be transported via air-freight. The current status is *planned*.

Project: Mixed use precinct between the N3 and R56

It is envisioned that this could become a mixed-used industrial zone that would have logistical ties to both the airport and N3. The current status is also *planned*.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.2 LIVEABLE CITIES PROGRAMME

a. MOTIVATION

Throughout history, cities have been the nucleus for society and represent places of social, economic and cultural exchange. The most successful cities are those that are able to draw people, accommodate people who also benefit from their activities in the city. It is however important to understand that an increase in population alone does not necessarily equal a successful or liveable city.

Liveable cities, are cities that are desirable to live in for those already residing in a city as well as those new to them. These are cities that not only draw new people but cities where the current population is highly satisfied with the living conditions the city offers. This is usually dependant on the functionality of the different components of the city the affect the lives of people.

The basic proposition here, is that there is a direct relationship between successful cities, growth in human capital and liveable cities, where liveability enhances attractiveness.

These components comprise of both tangible and intangible elements within the city. Tangible components are actual physical infrastructure and facilities within the city such as the roads, transportation network, public spaces, schools, and more. Intangible features are non-physical components such as the sense of place or sense of belonging shared by those residing in the city, normally resulting from the adequacy or inadequacy of the tangible components.

Planning at a city scale must ensure that there the correct tangible components are provided and maintained in the city so as to ensure that the intangible aspects naturally develop.

As an African city, it is important that Pietermaritzburg develops a distinct identity that is truly African but is able to see it develop into the liveable city it has potential to become.

African cities are different from most global cities in that, the life of the city is hinged on engagement and interaction of people within public spaces such as taxi ranks, market places, road sides and public squares. As a result one of the key elements for an African city to be liveable is a **celebrated public domain**. The public spaces within an African City serve the people in multiple ways. They must serve as recreational spaces, and places of business where people are able to engage in activities that allow them a livelihood. They must also serve as places of safety, securing and beauty so as to evoke a sense of belonging to those who experience them.

Apart from the public realm, another element that is essential for the realisation of a truly liveable African urban environment is an integrated housing environment that provides housing options for all sectors coupled with an efficient public transportation backbone. South African cities tend to have high inequality levels normally observed through the living conditions of the poor and the rich. The limited access to decent housing, services and facilities that the poor are commonly faced with, often leads to the emergence of informal settlements that are both a health risk to those residing in them and a safety concern. This must not be the case in truly liveable African Urban environments. The city must be a place where people have easy access to a range of the services and facilities. One of the ways of doing this is ensuring that the city has a well-established and functioning public transport system diverse housing opportunities.

The proposed Liveable Cities Programme for Msunduzi Municipality will be a programme dedicated to facilitating projects

that are aimed at transforming the city into a truly distinct African Urban environment.

b. CONTEXT

The present state of Msunduzi Municipality brings about both challenges and opportunities to it becoming a truly Liveable African Urban Environment. While the Status Quo analysis highlighted some of the following issues in detail, it is important to re-cap on some of the opportunities and challenges the Municipality is presently faced with, before identifying the strategies.

The existing spatial segregation within the municipality is a challenge stemming from the Apartheid era policies. The CBD is meant to be a very vibrant and active part of the city. However currently there are parts of the CBD that are underperforming. The limited economic opportunities within the Municipality are located in the CBD, Ashburton and Eastern areas and therefore not easily accessible to all.

Pietermaritzburg was once known as the Garden City, however this identity seems to have fallen away. The city does however at present have an under-utilised green infrastructure in the form of, the Msunduzi River, Alexandra and Bisley park. These assets can be better utilised to give the city better identity if integrated into the life of the city and its inhabitants.

From a quality urbanism point of view, the spatial form of the city still resembles the apartheid city as it is evident that the Northern areas are better developed and serviced than the areas south and south-west of the CBD. There are still areas in the city that lack access to basic services such as water, sanitation and the presence of informal settlements

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.2 LIVEABLE CITIES PROGRAMME

across the municipality is one that lowers its level of liveability.

The IRPTN however, casts a more positive light on the municipality as it shows that there are already steps in the right direction being taken to improve the present state of the municipality. Along with this, the Development of the Informal Settlement and Controls strategy also shows that while there are challenges the city is faced with, there is a realisation of this and some attempts are already being put into play to help transform the City into a truly liveable city.

c. STRATEGY

Having established what the city should be aspiring to and where Pietermaritzburg has come from and is now, the following strategies are proposed as ways in which the ideal level of liveability may be achieved.

Enhance the CBD and environments as places for new investment in the form of office and commercial developments:

The success of any city is largely dependent in its level of productivity. As the CBD is often seen as the economic Hub of a city, it is important the Municipality implements measures that will see the CBD becoming more attractive to investors. By providing specific incentives to developers, development within the CBD becomes more attractive and viable to private investors.

However it is important to point out that investment in the CBD is not limited to the private sector but the combination of public and private investment, is what brings about lasting development and vibrant activity in an area.

Create Housing opportunities across sectors that are mixed:

Due to the historical challenges that led to inequality in terms of housing opportunities, the state has prioritised the provision of low income housing opportunities. In order to grow the economic base of the city, it is important that the Municipality begins to also provide housing opportunities for the High and Medium income groups along with those for lower income groups. The significant economic growth of a city is highly influenced by the increase in business investments by the high and middle income earners as well as to provide accommodation for people working in the tertiary sectors. As such it is important that Msunduzi Municipality begins to establish opportunities for the development of housing options that are attractive to the medium and higher income groups. This will lead to an influx of people with the buying and skills set necessary to stimulate growth in the different sectors of the city.

Provide access to Wi-Fi and high speed connectivity:

The role and power that the internet has in the lives of people in today's modern world is something that cannot be overstated. Access to high speed internet has become an essential element of day to day living for people within the both urban and rural environments but, more so with urban business environments.

Improved access to affordable high speed internet connectivity around all public facilities such as libraries, community centres and especially public transport bus stops would go a long way in improving the human capital of the people within the Municipality. This will translate to a better educated and informed population with the ability to increase their life choices.

Apart from the multiple opportunities that will be afforded to the citizens on the internet, it is anticipated that as a result of the activity that will be generated around the different hotspots, other economic activities will soon agglomerate around these points.

Promote integrated and permeable places that enhance choice and equity of access:

The issue of access and choice is key to ensuring the realisation of a liveable city. The establishment of a public transport system for the city coupled with the introduction of new road linkages within the municipality will enable people easy access to the different areas within the city and improve permeability of the city. This will also allow the population multiple benefits necessary for their livelihood.

Develop an enhanced public places programme:

As mentioned earlier, one of the key elements of African urban environments is the engagement that takes place in the public realm. When designed well, public spaces give identity to the city as people are drawn to using them. As a result an enhanced public place programme is proposed. The programme will be aimed at promoting the development of key public spaces through the implementation of small scale projects that will provide shade, street furniture or lighting in and landscaping in key public spaces around the city.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.2 LIVEABLE CITIES PROGRAMME

d. OUTLINE OF CATALYTIC PROJECTS

Considering the different strategies raised as part of the Liveable Cities, programme it is proposed that the Catalytic projects that will set the City on the right trajectory to becoming a liveable city, would be the pursuit of the key projects which follow.

Project: Extended CBD Urban Renewal Project

The project will be focused on renewing key areas within the CBD and creating an environment that is able to attract investment back into the CBD with the aim of further growing it as the economic core of both the Municipality and District. This project must identify key areas within the CBD that will be prioritised for renewal and the municipality should create necessary policy and zoning incentives to make it more attractive and viable for investors to invest.

Considering the different strategies raised as part of the Liveable Cities, programme it is proposed that the Catalytic project that will set the City on the right trajectory to becoming a liveable city, would be the pursuit of an Extended CBD Urban Renewal Project.

The project will be focused on renewing key areas within the CBD as well establishing precinct plans for selected areas so as to allow for the amendment or adjusting of development controls in selected zones. This will be done as a means of creating an environment that is able to attract investment back into the CBD and support and build on existing or approved initiatives that are aimed at the development or renewal of the CBD.

Project: Integrated Rapid Public Transport System

The IRPTN will see the roll out of a reliable and efficient public transport system. However one of the elements that is essential to ensuring that the system is viable is adequate residential densities along the route. As such the exploration of densification strategies within a 400 meter (5 minute walk) around stations 7-12 is proposed.

The proposed areas around the BRT stations can thus be identified as Sustainable Urban Centres within the CBD. The area will be targeted for the development of precinct plans that will provide a set of development controls that are aimed at attracting specific investment.

Project: International Convention Centre and 5 Star Hotel

This is a project that has been identified as a catalyst project in the IDP. As a means of integrating it with the Extended CBD Urban Renewal Project, it is proposed that the location of the ICC PMB be identified in one of the Strategic Investment Zones (SIZ).

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.3 LAND RELEASE & INDUSTRIAL DEVELOPMENT

PROGRAMME 3: PROMOTING LAND RELEASE & INDUSTRIAL DEVELOPMENT

a. MOTIVATION

From an economic development and specifically a spatial economic perspective it is evident that since its establishment in the 1800s, up until the 1990s, Msunduzi presented a strong location for attracting investment. The City has, however, developed a strong colonial / apartheid city structure causing a number of spatial economic inefficiencies.

b. CONTEXT

The development of the Msunduzi economy is currently impacted on by the fact that serviced land for new development / investment in key economic sectors such as manufacturing, logistics, government and commerce is generally not available. For this reason Msunduzi cannot currently or in the short term future benefit from its location on a corridor of national significance (part of the Special Investment Project (SIP) 2 stretching from Durban through to Gauteng). There is then also no clear strategic spatial planning guiding investors to the land development opportunities required to revive the economy and maintain reasonable growth rates.

It is suggested that apart from the obvious focus on supporting the development of the small business sector it is then the responsibility of the economic cluster leaders to ensure that land for future economic investment and development is available. Perhaps the most important issue in the planning of future economic investment and

land development is that the leadership of Msunduzi must plan and act on the basis that Msunduzi is:

- The capital of a province with 1/5th of the national population, this implying that a public sector serving a fifth of the South African population should potentially be based in Msunduzi (despite this there has been very limited investment in government facilities in Msunduzi over the past two decades) (Draft LED, 2014);
- One of three major economic hubs in a province that has a high, if not the highest in the country, economic potential (Draft LED, 2014);
- The regional service node for at least four of the KwaZulu-Natal Districts, generally serving all inland areas, but also providing some service functions for eThekweni and coastal areas;
- Located on the most significant development corridor in the country, a corridor acknowledged in national planning; and, against the above background
- Located in South Africa, which is potentially the powerhouse that will drive the African Renaissance over the next 50 years.

Following on from the above it is evident that the need for additional space for investment / development in Msunduzi is potentially immense.

c. STRATEGY

Whether the implicit space requirements will indeed be needed or, conversely, prove adequate in 40 years as proposed in the current SDF modelling or 20, 90, or 140 years from now, is open for debate, but it should at least be

planned for now. This planning includes the identification and prioritisation of land for future development.

At an economic growth rate of 4% the requirement for space to accommodate specifically the manufacturing, logistics, commerce and government sectors will continue to place pressure on well-located land in specifically the N3 Corridor (potentially 5 times the current land area for industrial development may be required). The District SDF (Umgungundlovu 2014) suggests that, considering the transport capacity constraints on this corridor, it is evident that alternative corridors and nodes, with the required access and bulk infrastructure for the expansion of these sectors will have to be provided for.

d. OUTLINE OF CATALYTIC PROJECTS

The Msunduzi Productive Land Identification Programme will include five specific components with each having a focus on the identification of land for specific type of development. These types of development have been identified as the priorities for the future growth and development of Msunduzi and projects include:

- *Industrial development;*
- *Government sector expansion;*
- *Commercial / business sector expansion;*
- *Brownfields redevelopment (potentially linked to each of the above); and*
- *Agricultural land.*

Each of these is expanded overleaf.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.3 LAND RELEASE & INDUSTRIAL DEVELOPMENT

(Although not identified as a specific component of the Productive Land Identification Programme it goes without saying that higher density residential development is an important component of this programme and the mistakes of the past, specifically separating job opportunities from where people live, should not be repeated.)

Project: Industrial Development

The Goal of this Sub-programme is: Using the SDF as a base, develop a programme for the release of at least 50ha of industrial land per annum.

This goal is based on the modelling exercise that established that in order to accommodate moderate growth in the manufacturing sector the land area available for this use should at least be doubled over the next 30 to 40 years.

MANUFACTURING SECTOR	GVA (Rm)	LAND (HA)
CURRENT	R 4,804	1,856
2050 @ 4% p.a.	R 23,056	8,909
INCREASE	480.0%	480%
SUGGEST AT LEAST A DOUBLING OF INDUSTRIAL LAND TO APPROX 4 000ha		

Industrial Land Requirements for the 2050 Horizon

Criteria to be applied in the identification of the industrial land will include that the land will:

- Provide easy access from major transport routes with the focus then being on the interchanges (current and potential future) along the N3 corridor and future regional development corridors;
- Present larger development opportunities with sites offering 50 hectares and more of developable land being targeted; and
- From a topographical and geological perspective be suitable for industrial development.

It is acknowledged that the nature of manufacturing sector activity will in probability change dramatically over the next 30 to 40 years and therefore flexibility must be allowed for in terms of specifically longer term infrastructure planning for industrial development.

Project: Government Sector Expansion

(Note that this should be investigated as part of a redevelopment strategy for the CBD.)

The Goal of this sub-programme is to: Establish a government precinct/precincts that can accommodate the future expansion of this sector in Msunduzi.

This goal is based on the modelling exercise that illustrated that the government sector will continue to be an important contributor to the economy of Msunduzi and that, in order for it to expand, land will have to be made available.

GOVERNMENT SECTOR	GVA (Rm)	LAND (HA)
CURRENT	R 4,218	TBD
2050 @ 4% p.a.	R 15,720	TBD
INCREASE	372.7%	TBD
DEDICATED LAND FOR THE DEVELOPMENT OF THE GOVERNMENT SECTOR TO BE IDENTIFIED BASED ON MORE DETAILED ASSESSMENT OF NEEDS		

Government Sector Land Requirements for the 2050 Horizon

Although a large number of government, both national and provincial, are located in Msunduzi it is generally acknowledged that the current supply of space for this sector is limited and that additional provision will have to be made for this purpose. Often existing facilities are too small to accommodate departments and therefore offices of one department can be spread throughout the CBD.

Whilst office stock is also dated and not suitable for accommodating modern office functions, a redevelopment programme could target out-dated stock as sites for redevelopment.

Project: Commercial/Business Sector Expansion

The Goal of this Sub-programme is: Provide adequate land for the growth of the commercial (office and retail) sector in Msunduzi to continue to support the development of other sectors.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.3 LAND RELEASE & INDUSTRIAL DEVELOPMENT

This goal is based on the modelling exercise that established that in order to accommodate moderate growth in the commercial sector the land area available for this use should at least be doubled over the next 30 to 40 years. This suggests some 300 hectares of land to be developed. Considering the anticipated development in specifically the manufacturing and government sectors it is then also necessary to ensure that land for the commercial support sector is provided. This land will potentially also provide for the expansion of the government sector in Msunduzi.

Project: Brownfields Redevelopment

The goal of this sub-programme is: Redevelop well located land not optimally utilised for:

- High density housing
- Mixed use development
- Prioritised sectors

COMMERCIAL SECTOR (FINANCE, RETAIL, SERVICES ETC)	GVA (Rm)	LAND (HA)
CURRENT	R 8,126	293
2050 @ 4% p.a.	R 39,824	1,436
INCREASE	490.1%	490%
SUGGEST AT LEAST A DOUBLING OF COMMERCIAL LAND TO APPROX 600ha		

Commercial Land Requirements for the 2050 Horizon

The urban areas of Msunduzi have developed over a period of 150 years in terms of very specific planning regimes. Some well-located areas within the city are currently not optimally utilised due to aging infrastructure and inappropriate configurations. These areas present opportunities for brownfield redevelopment.

It is suggested that the redevelopment of these areas should then specifically be considered with the view to develop higher density housing and mixed use areas (including higher density residential development). The areas identified for brownfields redevelopment can also potentially contribute to the space needed for the development of the manufacturing and government sectors as reflected on in more detail in other sub-programmes.

Project: Agricultural Land Conservation

The goal of this sub-programme is: Conserve land for agricultural production in the Municipality to not only support the regional agricultural economy, but to provide alternative entry points for previously disadvantaged people into the economy.

Msunduzi as a City has been established as an agricultural service centre and the municipality has retained the role as the primary agricultural service centre for the sector in KwaZulu-Natal. Agricultural development in Msunduzi therefore potentially has a strong competitive advantage. Unfortunately, with the current rate of urban expansion, agricultural land has come under threat.

Although it is acknowledged that the urban development pressure will to some extent have to be accommodated on agricultural land, it is also understood that agricultural land

should be conserved for productive use for as long as possible. Land with agricultural potential therefore needs to be identified and secured.

Importantly, the productive use of land with active uses also present an opportunity for “banking” or protecting the land and preventing illegal settlement on land that could in future be developed for alternative uses.

The most basic project emerging from the above is the further development of the identified sub-programmes and the implementation thereof.

The value and importance of urban agriculture at the household level is a viable first option and must not be forgotten in planning for food security and future state driven agriculture programmes.

A preliminary listing of key projects (existing and new) to be linked to the above sub-programmes might include:

- Mbali Industrial Brownfield Redevelopment
- Mbali Government Precinct Development
- Campsdrift Government Precinct
- Mayors Walk High Density Residential
- CBD Brownfield Redevelopment Opportunities
- Public Sector Land Bank Establishment
- Vulindlela Agricultural Land Conservation

These and other projects are to be further explored and ratified in future by the proposed Rapid Delivery Agency mentioned in Programme 5 below.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.4 CREATING VIABLE URBAN CENTRES

PROGRAMME 4: CREATING VIABLE URBAN CENTRES

a. MOTIVATION

The Urban Centres Programme has been developed out of a need to provide equal opportunities throughout the Municipality. The programme is a response to a series of historically structured elements and policies that have impacted on the spatial development of the Msunduzi Municipality.

Over a period of more than 150 years the city was shaped by colonial and apartheid spatial development policies, with segregated development areas being one of the most significant characteristics of the spatial economy.

Segregated development areas have resulted in unrelated pockets of development scattered across the Municipality. The spatial disjunction forces residents to travel substantial distances to meet their basic daily needs, as places of work and places of residents are located vast distances away.

The apartheid spatial development policies not only resulted in the spatial disjunction between place of work and residents but also a large disparity between the availability and quality of social infrastructure.

Social amenities throughout the Municipality vary substantially with larger coverage and quality of services located in predominately formal white areas, whilst lower levels of service are located in formal black areas and very limited provision is located in informal areas and traditional areas, particularly in Vulindlela.

The apartheid planning legacy remains ingrained within the Msunduzi society and as a result has the continuing effect on the population:

- 33% of the population being formally educated;
- 33% of the population having a matric certificate;
- 60% of the population earning between R 1 – R 1600 per month; and
- 33% of the population do not live in formal housing.

To correct the ills of the past and to meaningfully direct development opportunities within the Municipality, a new approach needs to be adopted when investing in areas of interest or opportunity – therefore the need to development the Urban Centres Programme.

b. CONTEXT

Municipal budgets and financing are usually structured around nodal development, for example the identification of primary, secondary and tertiary nodes through various spatial planning exercisers such as the IDP, SDF and LAP's elevate specific areas to prominence. The identification of primary, secondary and tertiary nodes are at the expense of other areas within the Municipality, which do not fit this criteria however have a degree of activity located at specific points of interest, therefore a new approach is suggested.

To correct the ills of the past and develop equal opportunities across the Municipality requires the introduction of a new concept - 'Sustainable Urban Centres'.

'Sustainable Urban Centres' are identified as existing places of interest where social facilities or public interchange points are located. The 'Sustainable Urban Centres' have been aligned to existing and planned facilities as well as the proposed implementation of the Msunduzi IRPTN stations along all routes types. The Urban Centres Programme requires each 'Sustainable Urban Centre' to receive the same level of

basic initial interventions, such as paving, lighting, shelter, landscaping and street furniture – bins and benches. A 'Sustainable Urban Centre' is acknowledged as an area around the identified point of activity, for example a public transport stop or existing social facility. The continued development of these 'Sustainable Urban Centres' will be subject to the response from both public and private sector within each location.

This approach also does not predicate a 'limit' to growth by a standardised hierarchical approach, but rather seeks to create an 'even', minimum basis from which local initiative and investment will direct each centre's future.

The new approach provides equal opportunities, at a lower scale, across the Municipality. This approach ensures that the areas identified as primary, secondary and tertiary nodes do not continually receive investment at the expense of outer lying areas.

c. STRATEGY

In an attempt to restructure the current urban quality and environment, new urban centres acknowledged as 'Sustainable Urban Centre', have been identified throughout the Municipality.

The intention of the 'Sustainable Urban Centres' is to allow for 'twinning' of facilities such as, IRPTN Station and social facilities. Despite the concentration of IRPTN Stations along the route running from Georgetown in Edendale through CBD to Northdale, for approximately 17 kilometers, smaller facilities will be located along the feeder and complimentary routes providing a lower level of service. The primary objective of the 'Sustainable Urban Centres' are to use the

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.4 CREATING VIABLE URBAN CENTRES

identified IRPTN stations, together with the feeder and complimentary services and existing social facilities as the basis to the development, from which organic development can grow.

The concept aspires to develop a sense of place and identity within every community. Public space within the less formally developed communities as well as those falling outside of the traditional nodal hierarchy are limited, therefore the provision of a safe, paved, well lit gathering points within each community will start providing basic opportunities and dignity for all.

As identified above, the progression and continued growth and development of each of the 'Sustainable Urban Centres' will be subject to the response of that community. Continued development of each cluster, after the initially implementation, will be monitored and reviewed through varies spatial planning tools such as the SDF Review as well as Local Area Plans.

d. CATALYTIC PROJECT

Project: A Sustainable Urban Centres Framework

The development of 'The Urban Centre Programme' is in recognition of the need for equal opportunities across the Municipality. Therefore, the following projects have been identified to support the development of 'Sustainable Urban Centres'.

The required Framework project would be aligned to a social facilities audit (mentioned further on in the report) and would involve:

- The identification/confirmation of the locality/positioning and extend/boundary of each Sustainable Urban Centre;
- Development of a toolkit for various types of interventions, tailored to each site; and
- Developing a phasing and implementation plan for coordinated development.

Sustainable Urban Centres are principally located along main transport routes throughout the Municipality. The exact location of each Sustainable Urban Centre should therefore be determined through detailed planning. As a guide, Sustainable Urban Centres should be designed around an activity point such as a public transport interchange or a social facility, regardless of the size of the facility. The location is based on areas of interest or congregation.

Each 'Sustainable Urban Centre' should be developed to an equal minimum level of opportunity in a defined 'radius' or boundary from identified points of interest (e.g. a social facility or transport interchange) where paving, lighting, WiFi access, CCTV surveillance (where appropriate), landscaping and street furniture should be installed.

The intention of the 'Sustainable Urban Centre' should not be to provide a public space within the middle of no-where. The installation should meaningfully link existing facilities, open spaces and residential neighbourhoods together to provide cohesion and a greater sense place and community.

Associated projects are likely to align with a number of identified catalytic projects emanating from the IDP, namely:

- **Integrated Rapid Public Transport System** - This is a short to medium term project which will see the roll-out of reliable and efficient public transport between key points in the city. Enhanced business & tourism opportunities may arise at these intercepts with (for example) the installation of wi-fi access , the promotion of surrounding densification and mixed use activities, leading to improved citizen well-being
- **Fibre Optic Cable Network** - The roll-out of this project is encouraging equal access to 'Global Connectivity – Bridging the digital divide that will see the development of a leading-edge technology fibre optic telecommunications network, leading to increased connectivity and usage, decrease costs and stimulate growth and development'.
- **City-Wide CCTV System** - Camera surveillance of areas within the Msunduzi Municipality is already under way, and the continuation and expansion of this will almost certainly encourage 'a crime-free environment'. This ties in with the Municipal Knowledge Management System programme which is covered further below.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.5 INCEPTION OF A RAPID DELIVERY AGENCY

PROGRAMME 5: INCEPTION OF A RAPID DELIVERY AGENCY

a. MOTIVATION

The formulation of a vision is often where most initiatives start and stop. The translation of vision into action and that action into lasting value is one of the major challenges facing governments globally and within the South African context. From this perspective, while the Spatial Development Framework (SDF) defines a vision, goals and objectives that set the future trajectory of development in Msunduzi, it requires a clear focus and coordinated set of actions to ensure lasting value through the realization of the SDF.

b. CONTEXT

Apart from identifying social and infrastructure initiatives, it was considered important to identify a programme that seeks to address governance and coordinate delivery in a way that transcends the short-comings of sector based planning, prioritization and delivery. This programme is focused on establishing a new delivery agency that can:

- Address cross sector prioritisation issues more efficiently.
- Programme Manage the implementation of strategic projects and programmes.
- Streamline budgets and develop focused funding and finance strategies.

c. STRATEGY

According to the McKinsey Global Institute (2013), the world needs to increase its investment in infrastructure by nearly 60 percent over the next 18 years [USD36trillion to USD57trillion] to support economic growth. While this is required, the challenge is to curb expenditure within the context of dwindling resources and growing needs without compromising economic progress. Msunduzi Municipality not exempt from this challenge. From this perspective, the following same levers to curb expenditure without stifling economic growth and social prosperity are applicable: Better decisions about project selection (socio-economic priorities, cost-benefit analysis, multi-criterial analysis, etc.) Streamlining project delivery (strategic outsourcing, contractor selection, investment in upfront planning, etc.) Making the most out of existing infrastructure (demand management, maximizing capacity utilization, etc.)

d. OUTLINE OF CATALYTIC PROJECTS

This programme involves the establishment of a Rapid Delivery Agency (RDA) with three main functions that work in a supportive way with each other to achieve the vision, goals and objectives of the SDF. These functions are described below as follows:

Project (Strategy): Careful Project Selection, Prioritisation and Packaging

Making better choices from a project selection, prioritization and packaging perspective greatly enhances the probability of achieving a better cost to benefit ratio for the investment of public funds. Prioritizing projects using a consistent framework that endeavours to prioritise on the basis of their fit with the SDF vision and their risk profile will limit wasted

investment and ensure projects ultimately work toward the realisation of the vision. The main outputs from this function of the RDA could include inter-alia:

- On-going scheduling of projects prioritised from a cross sector perspective;
- A focus of resources on catalytic projects;
- Realising lasting benefit with limited resources;
- Projects packaged in a way that facilitates better stakeholder management and contribution; and
- Projects packaged in a way that facilitate the utilisation of alternative funding models.

Project (Strategy): Portfolio Management

Programme Management is ultimately a focus that ensures desired outcomes of a collection of projects are met. This requires the establishment of a set of indicators that will be applied to measure progress in achieving the vision. The setting of targets and identifying strategic interventions to ensure these targets have been met, all go towards driving the more efficient delivery of projects and ultimately programmes of the SDF.

Project (Strategy): Smart Project Funding

The efficient funding of projects is often a constraint to achieving the best of visions. The sole reliance on traditional funding sources such as Division of Revenues Act (DoRA) allocations, municipal rates and taxes is emerging as a risk to numerous public sector projects within the context of competing needs and dwindling resources. To this end, a creative, holistic approach to addressing funding short comings is essential to achieving the successful delivery of a vision.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.5 INCEPTION OF A RAPID DELIVERY AGENCY

The project funding function of the RDA is there envisaged to provide the following output:

- Coordinated and streamlined budgets for programmes.
- Gap funding strategy development.
- Finance options analysis.
- Funding applications.
- Feedback loop in terms of affordability.
- Close coordination with Project Packaging Stream to ensure investor friendly project packages.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.6 ENHANCING MUNICIPAL SPATIAL KNOWLEDGE MANAGEMENT

PROGRAMME 6: ENHANCING MUNICIPAL SPATIAL KNOWLEDGE MANAGEMENT

a. MOTIVATION

This section is about enhancing the information base of The Municipality so as to facilitate better spatial decision-making. Through an understanding of geography and people's relationship to location, more informed decisions can be made about the way we live on our planet.

Geographic and spatial information is of fundamental importance to urban growth management, particularly in deducing relationships and allocating resources efficiently. Advancements in technology have provided the capacity to visualize and assess an area's urban built conditions translating into ensuring that there is sufficient land to meet anticipated population and economic growth, whilst providing a good living environment (GIS Best Practices, 2011).

GIS is a powerful tool for systematically storing and comprehending geographic information in order to make more intelligent spatial decisions and has gained prominence from the late 1990's and early 2000's (Cooke, K. 2014). In particular relation to planning, GIS addresses the day to day needs of basic map making whilst also fostering the ability to effectively predict and respond to chronic urban problems (GIS Best Practices, 2011).

An example in the application of GIS to determine growth potential is found in the use of the Build-Out Analysis. By definition, a Build-Out Analysis is an impact assessment of the current zoning criteria of a locality. The purpose of a build-out analysis is to show a locality, in a worst case

scenario fashion, what land is available for development, how much development can occur and at what densities, and what consequences may result when complete build-out of available land occurs according to the zoning ordinance. A build-out analysis can reflect changes in the zoning ordinance to illustrate the effects of those changes on future resources. A build-out analysis can also help quantify the costs of growth (Zirkle, M.A. 2003).

b. CONTEXT

Efficient and successful decision making is predicated on up to date, reliable data. In relation to Msunduzi, the state of data is undeniably outdated. During the status quo assessment of the Municipality, GIS data provided by the Municipality, albeit well structured, was not entirely accurate. Outdated or duplicated GIS datasets results in the integrity of the data becoming questionable. Some of the pertinent challenges encountered with the current GIS data, during the SDF formulation, circulated around the following:

Data pertaining to the location and provision of essential services such as water, electricity and sanitation services offered little or no benefit in determining those areas with or without service provisions.

Social facility data, which served to identify the location of fire stations, police stations, pension pay out points and post offices, were often proved inaccurate, inadequate or out of date.

Another major challenge revolved around existing zoning data. The problem is that current land use records are broken down into numerous schemes which reflect old administrative boundaries. There is a lack of a composite

Land Use Management Scheme. The individual TPS that form part of the Msunduzi region include:

- Ashburton
- Pietermaritzburg
- Plessislaer
- Edendale

These four TPS do not cover the entire study area and only provide zoning information within particular segments. Different naming conventions in each of the scheme for similar land uses result in inefficiency when trying to identify land potential for future growth.

c. STRATEGY

Until a municipality can successfully locate where the problems of service delivery exist, it cannot efficiently allocate resources that will address these challenges effectively. As a starting point, it is imperative that The Municipality review its data asset management registry (Martin, S.M & Tengbhe, S.M. 2008).

Utilising *what if* scenarios, models can be generated to show what a concept would look like, whom it would it affect and how it will help the problem. Such visualisations go a long way when demonstrating an idea to the public, particularly in engendering a sense of community participation in planning (GIS Best Practices, 2011).

The aspect of skills shortages cannot go un-addressed. Training of staff, from Senior to Middle Managers, to become more geographically literate will develop a stronger spatial awareness. It is understandable that a person with no or little knowledge or understanding of what spatial analysis and modelling entails will shy away from such an unknown

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.6 ENHANCING MUNICIPAL SPATIAL KNOWLEDGE MANAGEMENT

approach. Because they are unaware of the capabilities of GIS, they won't know what questions to ask and what responses to expect.

The dependence on professional GIS consultants is a reality that the Municipality may need to accept (in the same manner that they depend on Engineering consultants), until such time the skills shortages are addressed. Emphasis is therefore placed on acquiring expertise to establish a GIS database with the underlying assumptions that a skills transfer programme accompanies the specialist's appointment (Martin, S.M & Tengbhe, S.M. 2008).

d. OUTLINE OF CATALYTIC PROJECTS

Project: Creating an up to date LUMS

In terms of The Municipal Systems Act (32 of 2000), Municipalities are required to have 'wall-to-wall' schemes in place. The Planning and Development Act (6 of 2008), pursuant to the MSA (32 of 2000), specifies the procedures for Municipalities to adopt a Land Use Management System that consolidates all schemes into a composite LUMS. This legislation received further reinforcement with the approval of the Spatial Planning and Land Use Management Act (2013).

A wall to wall scheme has the effect of integrating all land uses under a seamless database, which allows for ease of information analysis, particularly when performing a Build-Out Analysis to determine what potential and impact the current zoning regulations have on the Municipality.

Project: Establishing an accurate and up to date land inventory

As a starting point, The Municipality first major task should be to perform a comprehensive audit of its land inventory. Land records information can be obtained from the Deeds Office and that could then be used to verify and update ownership information and property boundaries. This data should include aspects such as the occupancy status of the parcel, existing density yield, its current land use as well the prescribed zoning, parameters and controls (ArcNews, 2013).

A fundamental aspect of the data capturing is consistency. Naming conventions for land uses as well as methods of capturing data should be continuous across the entire study.

Equipped with the approved cadastral layer, The Municipality will then need to survey and record information related to community facilities, water infrastructure, electricity provision and sanitation pipelines to create a complete GIS database for the municipality. When conducting field work, it is recommended that an investment be made into purchasing a GPS unit which will assist in mapping out the facilities and utilities in real time and directly into GIS, pin pointed to precise co-ordinates. Naturally, staff would have to be trained in order to utilise the hardware efficiently but such a project would have the joint effect of developing accurate data for the municipality and further promoting technical education for its staff (ArcNews, 2013).

Many benefits accrue from a more up to date and accurate land inventory. Service delivery for the Municipality would improve, as the Municipality now has a better understanding

of where its customers are located and how many of them are being serviced. This also leads to more accurate billing, which in turn creates a better revenue stream (ArcNews, 2013). The local authority can use this information for planning, decision making and asset verification.

The updated data can also be shared with the public via online GIS portals, conveniently allowing citizens to view their property information such zoning, parameters and controls, whilst also enhancing community participation and achieving goals towards transparent governance.

Project: ICT and e-Governance

With the advent of the smart phone, the possibilities of enhancing public engagement for the betterment of the municipality have increased drastically. Numerous local authorities are establishing social media accounts to convey important messages, interact with their citizens in a more personalised manner, showcase success stories which sometimes may go un-noticed and help organise events.

Utilising smart phone applications, a government can become more interactive with its population, particularly in enhancing service delivery. Applications which allow citizens to report broken pipelines, faulty street lights, unsightly graffiti and potholes are amongst the many possibilities to increased government capacity to include the public as part of its human resource base.

A good example of how the municipality could utilise smart phone applications is during the introduction of the scheduled BRT system.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.6 ENHANCING MUNICIPAL SPATIAL KNOWLEDGE MANAGEMENT

An application operating across all platform (Android, iOS, Windows Mobile) which inform commuters on the arrival and departure times as well providing maps of routes, are an easy way to make the system more user-friendly and reliable, potentially encouraging more users to opt for the sustainable mode to transportation.

Project: Traffic Management

Utilisation of sensors on robots to determine the number of cars in line at major traffic signals is a technological innovation currently being piloted by New York City. The data is relayed to the traffic control department which allows for real time adjustments to robot timings in order to improve the flow of traffic (5 Urban Technology Trends Impacting Urban Planning. 2013).

The possibilities are endless but the benefits translate into the same wins; a more liveable, well run, workable, friendly city.

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.7 REVIVING THE GARDEN CITY

PROGRAMME 7: REVIVING THE GARDEN CITY

a. MOTIVATION

It is the ecological infrastructure of a city which provides people with an overall sense of wellbeing. These areas prompt a connection to nature, soften the hard edges of development, and provide a range of otherwise costly services – including flood attenuation, water and atmospheric purification.

b. CONTEXT

Historically, Pietermaritzburg was celebrated and known as being a Garden City – a place where development and nature met and complemented each other with desirable outcomes (Alcock, 2014). The City has developed extensively over the years and while the ecological infrastructure has remained a key element of the city, it needs to become a point of focus once again.

The High line in New York city and the revival of the Cheonggyecheon stream in South Korea are two remarkable examples of how green parkways were pulled back into these cities' densely built environments, with extremely positive economic, social and environmental outcomes. Tourism, urban renewal, business, job-creation, city pride and local well-being were all a result of these bold, transformational interventions.

c. STRATEGY

The projects identified under the Garden City Revival programme are aimed at improving and refining the knowledge on ecologically sensitive areas within the city, reinforcing the importance of the Msunduzi River system and establishing more active and passive open spaces within dense built environments.

d. OUTLINE OF CATALYTIC PROJECTS

Project: Refining the Ecosystem Services Plan

The Msunduzi Municipality recently developed an Environmental Management Framework (EMF) in response to the high development pressure that the city is experiencing. It has also developed an Environmental Services Plan (ESP) (also more commonly referred to as a Municipal Open Space System (MOSS)) as part of its EMF - the purpose of which is to meet ecological targets by systematically securing/protecting the land that falls within it from inappropriate development and/or neglect.

While the ESP provides valuable information to the municipality and stakeholders, many areas are based on high-level data which, in some cases, allows decisions against development in certain areas to be brought into question.

There is therefore a need to refine the ESP so that there is more detailed and up-to-date information on these areas of key concern. The Environmental Management Unit of the

municipality has been working towards this goal and has updated some areas through a process of ground-truthing. However, given the size and extent of areas needing refinement, and the capacity constraints of the Environmental Management Unit, there is a critical need for funding and resources to roll this process out across the entire municipal area. As such, due to urgency of need, this project is proposed for the immediate short term of the next 2-3 years.

In terms of phasing, priority should be given first to the areas of key concern which are subject to immediate development pressures. Once information has been obtained for these areas, the second/remaining priority areas should be investigated.

A budget allowance should be provided for the initial (urgent) work which would cover specialist inputs as well as municipal staff time (2015/16 budget cycle). Thereafter, additional budget should be allocated to subsidize the study of the remaining areas (2016/17 budget cycle).

Project: Reviving the Msunduzi River

The Msunduzi River is a defining, key ecological feature of the municipality and one which has the potential to provide a prominent variety of ecological goods and services. However, considering recent water quality readings and poor catchment management practices, the river corridor has become neglected and seen as a common 'backyard' issue. The river corridor needs rejuvenation and rehabilitation so that it becomes a place for active participation, generating a combined sense of ownership, and a place which people enjoy both spiritually and physically. If implemented fully, a co-benefit of restoring the Msunduzi River to a more natural,



The High line is a wonderful example of 'transformational' ecological infrastructure

7.2 HIGH-PRIORITY FOCUS AREAS

7.2.7 REVIVING THE GARDEN CITY

buffered state, is that it could potentially go a long way towards improving regional water quality, flood attenuation and aquatic ecology. Additionally, it could serve to promote tourism and to attract key investors and professionals to the area.

Apart from more 'reactive' projects aimed at cleaning up the river corridor (e.g. litter clean-ups), there is the need for greater intervention with respect to rehabilitation of the corridor, i.e. increased setback lines, removing alien vegetation, replanting and beautification programmes,

ensuring that stormwater inflows are appropriately built and managed so as to avoid - and increased turbidity/pollution levels, interactive community education programmes and erosion control.

There are already initiatives underway which the Municipality should continue to support as well as seek gap funding for independent projects aimed at improving the Msunduzi River and its banks. The work of the Dusi-Umngeni Conservation Trust (DUCT) is worth mentioning in this case. DUCT is a non-profit organisation which actively aims to raise awareness of problems with river health in the area, to develop, demonstrate and encourage the adoption of solutions to these problems, to support and learn from people and communities who wish to make a difference or are already making a difference to the health of their rivers, and actively engage in river health projects, education and capacity building. They are a respected group within the area with regard to rehabilitation projects (e.g. projects to combat soil erosion, clear alien vegetation, plant indigenous trees, etc.). They also work in partnership with local government, developers (who increasingly need to provide measurable offsets) and

other NGOs such as the Wildlands Conservation Trust to roll out initiatives that serve to improve ecological functionality of the riparian environment and its surrounds.

Also worth noting are the efforts of the SANBI's Umngeni Ecological Infrastructure project, and Msunduzi's progressive planning approaches to rehabilitate the Baynespruit river system.

As mentioned, revival of the river corridor should equally look at encouraging the public to enter the area, i.e. provision of walking and cycling tracks so that the corridor becomes an accessible, safe place to visit in order to access nature within an otherwise developed area.

In terms of phasing, projects will need to be packaged into manageable priority areas along the river corridor and prioritized. Immediate, easy wins would be establishing alien removal programmes, while longer-term, meaningful reform will come with robust catchment management and systematic implementation of 'no-go' setback lines from the river which are rehabilitated and/or landscaped for both ecological reasons and active community use reasons. These initiatives could be tied into community/ business initiatives which would assist in the funding thereof.

Budgeting and planning for these types of interventions would need to fall (in part) under the realm of the proposed Rapid Delivery Agency (RDA) mentioned earlier in Programme 5.

Project: Establishing More Public Open Spaces

To ensure that the people of Msunduzi develop an enhanced appreciation for the natural environment and the range of services it offers, the Municipality has recognised the need

for more active and passive public open space areas, especially in higher-density built up areas. Here, there is a need to provide citizens with an outlook onto green lungs/open space, and to provide increased recreational facilities for communities. This is not only with respect to sports fields or parks, but also areas where the public can gather and obtain information on local and international events, watch movies, sports events, etc. in an area that is both safe and welcoming. Additionally, the promotion of street greening (with avenues of trees and general enhancement of streetscapes) is considered a key way to enhance people's daily appreciation of their city of choice as they commute - to increasingly allow them to take delight in it.

One project already identified in this regard (and which ties into the above-mentioned Msunduzi Parkway, is developing a large recreational ground in the floodplain of Caluza, near Edendale. This project will require funding for the establishment and on-going maintenance of the facilities identified. Public toilets and lighting should be included to ensure that the space encourages use by the local communities, providing a safe area where people can gather.

In bringing the 'Garden City' concept to prominence once again, another key initiative required for this particular open space programme, is the revival of the nursery at the Municipal Parks Department. Is currently not considered adequately functional, and which will therefore require additional human and financial resources to actively kick-start once again. It is envisaged that detailed budgeting and phasing/planning for this initiative would again need to be facilitated in part by the proposed Rapid Delivery Agency (RDA) mentioned in this chapter.

7.3 IMPLEMENTATION PROJECTS

7.3.1 INTRODUCTION

The full Project Directory (summary directory) described in Section 7.1 follows overleaf. Thereafter, the more detailed project lists describing the 50 projects identified follow.

The 'top priority' projects identified in Section 7.2 are highlighted in orange and have been embedded within the '7 Pillar' projects making up the full Project Directory (apart from the Rapid Delivery Unit which is defined as a separate management category entirely). These top priority projects are not necessarily in addition to the 7-Pillar projects – many of them complement these projects, and only a few have been introduced as purely 'additional'.

It is important to note that these projects are forward-looking, and do not pertain to current municipal projects already funded and being implemented. These are dealt with in a later section which looks at current Municipal & Grant projects, which is merely for noting purposes.

07 IMPLEMENTATION STRATEGY

7.3 IMPLEMENTATION PROJECTS

7.3.2 FULL PROJECT DIRECTORY (PAGE 1)

MSUNDUZI SDF REVIEW - STRATEGY DIRECTORY		
Global Connectivity		
Strategies	Related Project Code	Catalytic Projects
Enhance connectivity to the N3	GC01	Investigate the capacity of existing and proposed interchanges along the N3
	GC02	N3 upgrades (including freeway nodal development)
Improve regional connectivity	GC03	Investigate increased regional connectivity to surrounding Municipalities via regional connecting roads & rail
Re-envisage the rail routes	GC04	High speed train between Durban and Johannesburg
Support the airport precinct	GC05	Further expansion of Pietermaritzburg Airport
	GC06	Develop a framework plan for the establishment of a supportive Airport Precinct
Bridge the digital divide	GC07	Implementation of a Fibre Optic Cable Network
	GC08	Installation of WiFi connectivity to all public facilities including IRPTN stations
Productive Systems		
Strategies	Related Project Code	Catalytic Projects
Land release along the N3 corridor	PS01	Development of a logistical platform along the N3
	PS02	Development of a dedicated, large scale truck stop along the N3
	PS03	Development of a mixed use precinct between N3 and R56
Consolidate and revive the CBD	PS04	Extend CBD urban renewal project
Strengthening centres of economic activity	PS05	Mkondeni industrial precinct expansion project
	PS06	Industrial land identification project
	PS07	Government sector expansion
	PS08	Commercial/ business sector expansion
	PS09	CBD Brownfields redevelopment project
Introducing new economic zones and centres	PS10	Development of a agri-business precinct between the R56 and N3, north of Manderston
	PS11	Develop a framework plan for the interface with the proposed inland port in Cato Ridge
Incorporate productive agricultural land	PS12	Investigate Agricultural /Conservation Land in Vulindlela
Ecological Infrastructure		
Strategies	Related Project Code	Catalytic Projects
Securing the natural resource base	EI01	Refining the ecosystem services plan for improved ecological infrastructure
Protect and enhance open space cores (large and small)	EI02	Passive and Active Public Open Space Framework Expansion Study
Creating an integrated open space system	EI03	Recycling of the east/ west rail route as a recreational NMT system
	EI04	Contiguity study for cross-catchment biodiversity linkages (possibility of linking this with EI01 above)
Enhancing the Msunduzi River as a regional parkway	EI05	Reviving the Msunduzi River
Sustainable Transport		
Strategies	Related Project Code	Catalytic Projects
Equitable movement structure	ST01	Test the viability of all the new proposed linkages identified
	ST02	Improved Traffic Management system
An enhanced public transport backbone	ST03	Development and implementation of Msunduzi Integrated Rapid Public Transport System (IRPTN) as a catalyst for wider change
Review the rail network	ST04	Investigate the viability of the east/ west rail link from the CBD through Edendale to Vulindlela
Promoting NMT routes	ST05	Develop an MNT Master Plan for Municipality

07 IMPLEMENTATION STRATEGY

7.3 IMPLEMENTATION PROJECTS

7.3.2 FULL PROJECT DIRECTORY (PAGE 2)

Quality Urbanism		
Strategies	Related Project Code	Catalytic Projects
Create functional residential neighbourhoods	QU01	Establish an accurate land inventory and social facilities audit
	QU02	Investigate proposed new road linkages to unlock Edendale/ Shenstone area
	QU03	Creating an up-to-date LUMS
	QU04	Urban Centres Framework
Build polycentric city	QU05	Vulindlela Sustainable Urban Centre
Create sustainable urban centres	QU06	Edendale Sustainable Urban Centre
	QU07	Raisethorpe Sustainable Urban Centre
	QU08	Ashburton/ N3 Sustainable Urban Centre
	QU09	Shenstone Sustainable Urban Centre
Promote densification	QU10	Densification Study
Enhance public space making	QU11	Urban Design for public place making guidelines
Social Inclusivity		
Strategies	Related Project Code	Catalytic Projects
Establish new housing opportunities	SI01	Develop a housing Master Plan
Address informal housing	SI02	Informal Housing Programme
Equitable distribution of public amenities	SI03	ICT and eGovernance Project
Sustainable Services		
Strategies	Related Project Code	Catalytic Projects
Enhancing existing and future infrastructure	SS01	Conduct a full infrastructure audit
	SS02	Generate a Stormwater Policy Document and associated By-Laws
Focussed investment on corridor and sustainable urban centres	SS03	Develop and implement alternative energy pilot projects
Rapid Delivery Unit		
Strategies	Related Project Code	Catalytic Project Management Areas
N/A due to it not being a Sustainability Pillar. This has only been introduced as a strategy in Implementation Phase	RDU01	Careful project prioritisation and selection (prioritisation model)
	RDU02	Portfolio management
	RDU03	Smart project funding

7.3 IMPLEMENTATION PROJECTS

7.3.3 GLOBAL CONNECTIVITY PROJECTS

GLOBAL CONNECTIVITY								
Catalytic Projects		Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
GC01	Investigate the capacity of existing and proposed interchanges along the N3	The SDF Review identified the need for two new interchanges as well as all existing interchanges, along the N3, to be upgraded to full interchanges. An investigation into the needs and demands along the N3 is therefore required to identify the phasing and implementation.	Planning / Investigation	Infrastructure Services (Roads and Transportation)	R 3 000 000.00	Improve the state of Municipal Infrastructure (Code B2) Increased Economic Activity (Code C2)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City.	Short Term (2015 - 2020)
GC02	N3 upgrades (including freeway nodal development)	SANRAL has planned upgrades along the N3 and at selected interchanges within Msunduzi. Upgrades to the interchanges will be triggered by increasing levels of demand.	Capital Investment Project	Infrastructure Services (Roads and Transportation)	Budget to be determined through detailed costing and tender process	Improve the state of Municipal Infrastructure (Code B2) Increased economic Activity (Code C2)	A Well Served; An Accessible and Connected City; Clean Green City; An Economically Prosperous City.	Short Term (2015 - 2020)
GC03	Investigate increased regional connectivity to surrounding Municipalities via regional connecting roads & rail	Enhance the 'porosity' of Msunduzi for the greater Umgungundlovu region, and accessibility to surrounding towns by local Msunduzi residents and tourists alike for enhanced trade, tourism and general exchange.	Planning / Investigation	Infrastructure Services (Roads & Transportation); Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services; City Entities)	Budget to be determined through detailed costing and tender process	Increase economic activity (Code C2)	An Accessible and Connected City; An Economically Prosperous City	Short Term (2015 - 2020)
GC04	High speed train between Durban and Johannesburg	Promote a high speed train network as part of the development of the Durban - Free State - Johannesburg Corridor (SIPS 2).	Capital Investment Project	Infrastructure Services (Roads and Transportation) Sustainable Development and Municipal Entities (Planning and Environmental Management)	Budget to be determined through detailed costing and tender process	Improve the state of Municipal infrastructure (Code B2) Increase economic activity (Code C2)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City.	Medium Term (2021 - 2030)
GC05	Further expansion of Pietermaritzburg Airport	Ensure the revamp and expansion of existing airport to make it more accessible and attractive to use for both business and leisure. Upgrades to the airport are underway. Further upgrades have the potential to improve the regional connectivity of Msunduzi.	Capital Investment Project	Infrastructure Services (Roads and Transportation) Sustainable Development and Municipal Entities (Planning and Environmental Management)	Budget to be determined through detailed costing and tender process	Improve the state of Municipal Infrastructure (Code B2) Reduce Unemployment (Code C1) Increase economic activity (Code C2) Increase revenue (Code D1)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City.	Short Term (2015 - 2020)
GC06	Development of a supportive Airport Precinct	Strengthening the Airport Precinct becomes a key contributing factor to enhancing the global reach the Municipality. The growth and development of the precinct is not confined to aviation related industries, but to industries as a whole. The introduction and upgrading of the adjacent N3 interchanges plays an important role in supporting this precinct.	Planning / Investigation	Sustainable Development and Municipal Entities (Planning and Environmental Management) Infrastructure Services (Roads and Transportation)	R 1 500 000.00	Improve the state of Municipal Infrastructure (Code B2) Reduce Unemployment (Code C1) Increase Economic Activity (Code C2)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City.	Short Term (2015 - 2020)
GC07	Fibre Optic Cable Network	The development of a lead-edge technology fibre optic telecommunications network leading to increased connectivity and usage, decreased costs and stimulating growth and development.	Capital Investment Project	Corporate Services (ICT)	Budget to be determined through detailed costing and tender process	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Increase economic activity (Code C2) Promote public knowledge and awareness (Code E3)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City.	Short Term (2015 - 2020)
GC08	Install WiFi connectivity to all public facilities including IRPTN stations	Digital connectivity also has far reaching consequences for education, social and economic development and with the availability and affordability of mobile phones, smartphones, tablets, ipads, laptops and other portable devices makes communication technology accessible to a wide range of users. Therefore the installation of free WiFi at all social facilities will enable the library of the future is assessable to all residents of the Msunduzi Municipality.	Capital Investment Project	Corporate Services (ICT) Community Services (Recreation & Facilities) Infrastructure Services (Roads and Transportation)	Budget to be determined through detailed costing and tender process	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Increase economic activity (Code C2) Promote public knowledge and awareness (Code E3)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City.	Short Term (2015 - 2020)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted

7.3 IMPLEMENTATION PROJECTS

7.3.4 PRODUCTIVE SYSTEMS PROJECTS

PRODUCTIVE SYSTEMS									
	Catalytic Projects	Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe	
	PS01	Development of a logistical platform along the N3	A logistical platform should be established north of PMB as, currently, uMgungundlovu products are packaged and loaded in Durban for trip to Johannesburg. This represents a waste of fuel and a vastly increased cost	Capital Investment Project	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management)	Budget to be determined through detailed costing and tender process	Reduce unemployment (Code C1) Increase economic activity (Code C2) Increase revenue (Code D1)	An Economically Prosperous City; A Financially Viable and Well-Governed City.	Short Term (2015 - 2020)
	PS02	Development of a dedicated, large scale truck stop along the N3	Ensure designated stops for trucking using the N3 Durban - Gauteng corridor	Capital Investment Project	Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management) Sustainable Development & Municipal Entities (Planning & Environmental Management)	Budget to be determined through detailed costing and tender process	Increase economic activity (Code C2)	An Economically Prosperous City	Medium Term (2021 - 2030)
	PS03	Development of a mixed use precinct between N3 and R56	It is envisaged that this could become a mixed used industrial zone that would have logistical ties to both the airport and the N3	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management)	R 2 000 000.00	Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Medium Term (2021 - 2030)
	PS04	Extend CBD urban renewal project	Attract investment into the CBD by renewing and activating key areas within it. This will involve establishing precinct plans for selected areas (thus allowing for the amendment of development controls in selected zones).	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services)	R 2 500 000.00	Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
	PS05	Mkondeni industrial precinct expansion project	The intention of new land opportunities identified for Mkondeni is to provide additional support in strengthening and reinforcing the existing Airport Precinct as well as the increasing demand for industrial land within the Municipality. The land use focus for this zone should be structured around industrial and logistic types of uses, as well as commercial uses between the R103 and the N3.	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management)	R 2 000 000.00	Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
	PS06	Industrial land identification project	Identify and/or release suitable industrial land in Msunduzi, starting with Mbali Industrial Brownfield Redevelopment	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management)	R 1 000 000.00	Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
	PS07	Government sector expansion	Investigation into the establishment of a Government Precinct within the CBD	Capital Investment Project	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services)	R 1 500 000.00	Increase economic activity (Code C2) Optimise land usage (Code C3) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)

7.3 IMPLEMENTATION PROJECTS

7.3.4 PRODUCTIVE SYSTEMS PROJECTS

PRODUCTIVE SYSTEMS								
	Catalytic Projects	Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
PS08	Commercial/ business sector expansion	Promote more commercial and business expansion, starting with establishment of a Public Sector Land Bank. Create more enabling circumstances for development to occur - such as availability of critical services.	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management)	R 1 200 000.00	Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
PS09	CBD brownfields redevelopment project	Promote re-purposing of old, previously-developed sites such as exploring CBD Brownfield Redevelopment Opportunities and a Mayors Walk High density Residential Development (Project linked to 'Quality Urbanism - Extended CBD Urban Renewal Project')	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services)	R 1 500 000.00	Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
PS10	Development of a agri-business precinct between the R56 and N3, north of Manderston	The development of more intensive agricultural production is located between the N3 and R56, adjacent to the proposed agri-processing hub. The structured development of agricultural land is critical in the complete development of the economic productivity of the Municipality.	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services; City Entities)	R 1 500 000.00	Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Medium Term (2021 - 2030)
PS11	Develop a framework plan for the interface with the proposed inland port in Cato Ridge	The development of a Framework Plan will ensure direct connections/ linkages to the proposed inland port for economic stimulation.	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services; City Entities)	R 1 500 000.00	Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
PS12	Agriculture /Conservation Land	Activate agricultural and conservation related land practices, starting with a Vulindlela Agricultural Land Conservation Project	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services; City Entities)	R 1 000 000.00	Increase economic activity (Code C2) Optimise Land Usage (Code C3) Increase revenue (Code D1)	An Economically Prosperous City; A Financially Viable and Well-Governed City.	Short Term (2015 - 2020)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

7.3 IMPLEMENTATION PROJECTS

7.3.5 ECOLOGICAL INFRASTRUCTURE PROJECTS

ECOLOGICAL INFRASTRUCTURE								
Catalytic Projects		Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
EI01	Refining the ecosystem services plan for improved ecological infrastructure	Ground-truthing studies to ensure more detailed and up-to-date information on biodiversity areas of key concern for improved decision-making. Must include refinement of wetland areas, additional floodline mapping for small streams where there is an absence of data and guideline buffer areas.	Planning / Investigation	Msunduzi Environmental Management Unit	R 1 500 000.00	Optimise land usage (Code C3) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
EI02	Passive and Active Public Open Space Framework Expansion Study	Study opportunities for creating more active and passive public open spaces areas throughout Msunduzi to revive Garden City status, especially in higher-density, built up areas. Once areas are confirmed, areas are to firstly be formalised and zoned, physically established/ maintained, adequately maintained and enhanced in terms of visual amenity. Will require additional investment into the municipal nursery.	Planning / Investigation	Msunduzi Environmental Management Unit	R 1 000 000.00	Improve provision of social development services (Code B3) Improve Municipal planning and spatial development (Code F1)	A Well Served; An Accessible and Connected City; A Clean, Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
EI03	Recycling of the east/ west rail route as a recreational NMT system	Repurpose the railway route to allow for recreational activity along its length (running, cycling, etc). Enhance its visual amenity for popular uptake by citizens and tourists.	Planning / Investigation	Msunduzi Environmental Management Unit Municipal Parks Department	R 2 000 000.00	Improve provision of social development services (Code B3) Improve Municipal planning and spatial development (Code F1)	A Well Served; An Accessible and Connected City; A Clean, Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
EI04	Contiguity study for cross-catchment biodiversity linkages (possibility of linking this with EI01 above)	Study opportunity areas for cross-catchment linkages, where the threat of future climate change impacts may prompt fauna to adapt or move to more desirable, habitable areas within (or beyond) the municipality.	Planning / Investigation	Msunduzi Environmental Management Unit Municipal Parks Department	R 500 000.00	Improve provision of social development services (Code B3) Improve Municipal planning and spatial development (Code F1)	A Well Served; An Accessible and Connected City; A Clean, Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
EI05	Reviving the Msunduzi River	Restoring the Msunduzi River and its banks to a more natural, functional state, with significantly increased buffers. The first step would be to complete a detailed, proposed action plan and motivate to Council. Therefore, kickstart process with the acquisition of key parcels of land, educational drives and marketing. Include a tourism/recreation plan around the Henley dam area.	Capital Investment Project	Msunduzi Environmental Management Unit Municipal Parks Department	R 2 000 000.00	Improve provision of social development services (Code B3) Improve Municipal planning and spatial development (Code F1)	A Well Served; An Accessible and Connected City; A Clean, Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted

7.3 IMPLEMENTATION PROJECTS

7.3.6 SUSTAINABLE TRANSPORT PROJECTS

SUSTAINABLE TRANSPORT								
Catalytic Projects		Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
ST01	Test the viability of all the new proposed linkages identified	A number of new road linkages have been proposed (identified with a dotted line of the plans). The intention of these new linkages are to increased connectivity between the existing road infrastructure to create superior network that provides greater choice and flexibility. Increasing choice also allows greater integration between disparate parts of the city space previously fragmented through spatial policy, and improves connectivity between places of residence and work.	Planning / Investigation	Infrastructure Services (Roads and Transportation)	R 2 000 000.00	Improve the state of Municipal infrastructure (Code B2) Increase economic activity (Code C2) Optimise land usage (Code C3) Improve Municipal planning and spatial development (Code F1)	A Well Serviced; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)
ST02	Improved Traffic Management	Installation of real time sensors and monitoring devices for traffic flow. The latest, up-to-date technology will allow for great management of facilities and ultimately increase economic productivity in the region through the avoidance of unnecessary time wastage.	Planning / Investigation	Corporate Services (ICT) Infrastructure Services (Roads and Transportation)	Budget to be determined through detailed costing and tender process	Improve provision of social development services (Code B3) Increase economic activity (Code C2)	A Well Serviced; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City.	Medium Term (2021 - 2030)
ST03	Development and Implementation of Msunduzi Integrated Rapid Public Transport System (IRPTN) as a catalyst for wider change	The roll-out of a reliable and efficient public transport system between key points within the city. The main route runs from Georgetown through the CBD to Northdale, approximately 17 kilometres.	Capital Investment Project	Infrastructure Services (Roads and Transportation) Sustainable Development & Municipal Entities (Development Services; Planning & Environmental Management; Human Settlements; City Entities)	Budget to be determined through detailed costing and tender process	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Increase economic activity (Code C2) Optimise land usage (Code C3) Improve Municipal planning and spatial development (Code F1)	A Well Serviced; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)
ST04	Investigate the viability of the east/ west rail link from the CBD through Edendale to Vulindlela	The rail line running in a east/ west direction should be reviewed with the recommendation that it be decommissioned and removed. The existing and future demand on this line, with the introduction of the Msunduzi IRPTN system will not be sufficient enough to warrant the cost for upgrading and maintenance. It is therefore proposed that the infrastructure be removed to allow for new opportunities to take advantage of the land and stimulate integration between communities and areas that were previously separated by the rail barrier.	Planning / Investigation	Infrastructure Services (Roads and Transportation)	R 1 000 000.00	Increase economic activity (Code C2) Optimise land usage (Code C3)	An Economically Prosperous City.	Short Term (2015 - 2020)
ST05	Develop an MNT Master Plan for Municipality	Prepare an NMT Master Plan for the Municipality which provides a basic NMT framework as well as detail NMT routing for all identified Sustainable Urban Centres. Detailed plans should connect all Sustainable Urban Centres to their surrounding communities.	Planning / Investigation	Infrastructure Services (Roads and Transportation) Sustainable Development & Municipal Entities (Development Services; Planning & Environmental Management; Human Settlements; City Entities)	R 2 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Increase economic activity (Code C2) Optimise land usage (Code C3) Improve Municipal planning and spatial development (Code F1)	A Well Serviced; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

7.3 IMPLEMENTATION PROJECTS

7.3.7 QUALITY URBANISM PROJECTS

QUALITY URBANISM							
Catalytic Projects	Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
QU01	Establish an accurate and inventory and social facilities audit	Planning / Investigation	Community Services (Recreation & Facilities) Sustainable Development & Municipal Entities (Planning & Environmental Management Entities)	R 3 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of Social Development Services (Code B3) Optimise land usage (Code C3) Improve Municipal Planning and Spatial Development (Code F1)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)
QU02	Investigate proposed new road linkages to unlock Edendale/ Shenstone area	Planning / Investigation	Infrastructure Services (Roads & Transportation)	R 1 500 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Optimise land usage (Code C3) Improve Municipal Planning and Spatial Development (Code F1)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)
QU03	Creating an up-to-date LUMS	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management)	R 2 500 000.00	Optimise land usage (Code C3) Improve Municipal Planning & Spatial Development (Code F1)	An Economically Prosperous City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
QU04	Urban Centres Framework	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Community Services (Recreation & Facilities) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit)	R 2 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1) Improve community and environmental health and safety (Code F2)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City; A Friendly, Safe City.	Short Term (2015 - 2020)
QU05	Mulindela Sustainable Urban Centre	Capital Investment Project	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Community Services (Recreation & Facilities) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit)	R 1 500 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1) Improve community and environmental health and safety (Code F2)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City; A Friendly, Safe City.	Short Term (2015 - 2020)
QU06	Edendale Sustainable Urban Centre	Capital Investment Project	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Community Services (Recreation & Facilities) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit)	R 1 500 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1) Improve community and environmental health and safety (Code F2)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City; A Friendly, Safe City.	Short Term (2015 - 2020)

* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted

7.3 IMPLEMENTATION PROJECTS

7.3.7 QUALITY URBANISM PROJECTS

QUALITY URBANISM								
	Catalytic Projects	Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
QU07	Raisethorpe Sustainable Urban Centre	A precinct plan is required, identifying specific needs and demands of the community. The precinct plan should identify large scale interventions such as the identification of specific social facilities (of particular need for this community as a result of intensive public participation, census data as well as the Municipal needs and demands analysis) as well as small scale essentials such as landscaping, paving, lighting etc.	Capital Investment Project	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Community Services (Recreation & Facilities) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit)	R 1 500 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1) Improve community and environmental health and safety (Code F2)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City; A Friendly, Safe City.	Short Term (2015 - 2020)
QU08	Ashburton/ N3 Sustainable Urban Centre	A precinct plan is required, identifying specific needs and demands of the community. The precinct plan should identify large scale interventions such as the identification of specific social facilities (of particular need for this community as a result of intensive public participation, census data as well as the Municipal needs and demands analysis) as well as small scale essentials such as landscaping, paving, lighting etc.	Capital Investment Project	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Community Services (Recreation & Facilities) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit)	R 1 500 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1) Improve community and environmental health and safety (Code F2)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City; A Friendly, Safe City.	Long Term (2031 - 2050)
QU09	Shenstone Sustainable Urban Centre	A precinct plan is required, identifying specific needs and demands of the community. The precinct plan should identify large scale interventions such as the identification of specific social facilities (of particular need for this community as a result of intensive public participation, census data as well as the Municipal needs and demands analysis) as well as small scale essentials such as landscaping, paving, lighting etc. This particular Sustainable Urban Centre, due to its size and location will provide a greater function with larger scale interventions such as larger scale facilities and commercial/ business uses.	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services) Community Services (Recreation & Facilities) Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit)	R 1 500 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1) Improve community and environmental health and safety (Code F2)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City; A Friendly, Safe City.	Long Term (2031 - 2050)
QU10	Densification Study	Ensure adequate residential densities along the IRPTN route. The exploration of densification strategies within a 400 meter (5 minute walk) particularly around stations 7 - 12 is proposed. The proposed areas around the BRT stations should be viewed as Strategic Investment Zones.	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services)	R 3 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Reduce unemployment (Code C1) Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1) Improve community and environmental health and safety (Code F2)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Financially Viable and Well-Governed City; A Friendly, Safe City.	Short Term (2015 - 2020)
QU11	Urban Design for public place making guidelines	An Urban Design Framework needs to be established for the Municipality. The purpose of the Framework is to provide guidelines for the development of public spaces through out the Municipality. The guidelines should be adopted by all line departments and projects run through the Municipality, to ensure an appropriate response is generated for all implementation projects.	Planning / Investigation	Sustainable Development & Municipal Entities (Planning & Environmental Management; Development Services)	R 1 500 000.00	Increase economic activity (Code C2) Optimise land usage (Code C3) Increase revenue (Code D1) Improve Municipal planning and spatial development (Code F1)	An Economically Prosperous City; A Financially Viable and Well-Governed City; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

7.3 IMPLEMENTATION PROJECTS

7.3.8 SOCIAL INCLUSIVITY PROJECTS

SOCIAL INCLUSIVITY								
Catalytic Projects		Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
SI01	Develop a housing Master Plan	The development of an Msunduzi Municipality Housing Master Plan will provide a framework for the densification, application and roll-out of various housing projects through out the municipality to achieve the increasing demands for housing - an additional 7584 ha of residential land is required at a minimum density of 25 du/ha by 2050, at the current projections.	Planning / Investigation	Sustainable Development & Municipal Entities (Human Settlements)	R 2 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Optimise land Usage (Code C3) Improve Municipal planning and spatial development (Code F1) Increase access to housing units (Code F3)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020) Medium Term (2021 - 2030) Long Term (2031 - 2050)
SI02	Informal Housing Programme	An Informal Housing Programme Project should identify all existing informal housing settlements within the Municipality. The programme should establish the suitability of each informal settlement for appropriate redevelopment into formal housing stock or alternatively declare the area unfit for inhabitants and identify an alternative location for the inhabitants within formal housing structures.	Planning / Investigation	Sustainable Development & Municipal Entities (Human Settlements)	R 3 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Optimise land Usage (Code C3) Improve Municipal planning and spatial development (Code F1) Increase access to housing units (Code F3)	Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020) Medium Term (2021 - 2030) Long Term (2031 - 2050)
SI03	ICT and eGovernance Project	Development of a real-time logging and mapping system (app) for citizens to communicate service related issues with ease.	Capital Investment Project	Corporate Services (ICT) Sustainable Development & Municipal Entities (Planning & Environmental Management Entities)	Budget to be determined through detailed costing and tender process	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of social development services (Code B3) Improve budgeting and reporting (Code D3) Improve the customer experience and public participation (Code E2) Promote public knowledge and awareness (Code E3)	Well Served; An Accessible and Connected City; A Clean Green City; A Financially Viable and Well-Governed City.	Medium Term (2021 - 2030)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

7.3 IMPLEMENTATION PROJECTS

7.3.9 SUSTAINABLE SERVICES PROJECTS

SUSTAINABLE SERVICES								
Catalytic Projects		Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
SS01	Conduct a full infrastructure audit	Existing infrastructure audit, including a future demand analysis with alternative solutions to delivery and implementation	Planning / Investigation	Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit)	R 5 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of Social development Services (Code B3) Increase economic activity (Code C2) Optimise land usage (Code C3) Improve Municipal planning and spatial development (Code F1)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)
SS02	Generate a Stormwater Policy Document and associated By-Laws	Comprehensive study of stormwater systems, their capacity, constraint areas, maintenance and upgrades/new systems required. Linked to this, by-laws must be developed (preferably in-house) for best practice urban stormwater management going forward.	Planning/Investigation	Infrastructure Services (Roads & Transportation; Water & Sanitation) Legal Department	R4 000 000.00	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of Social development Services (Code B3)	A Well Served; A Clean Green City; A Friendly, Safe City.	Short Term (2015 - 2020)
SS03	Develop and implement alternative energy pilot projects	Implementation of pilot projects for alternative infrastructure (water/ electricity/ waste) at key Sustainable Urban Centres (e.g. Vulindlela, Raisethorpe, Imbali)	Capital Investment Project	Infrastructure Services (Roads & Transportation; Water & Sanitation; Electricity; Project Management Unit) Community Services (Waste Management)	Budget to be determined through detailed costing and tender process	Increase provision of Municipal services (Code B1) Improve the state of Municipal infrastructure (Code B2) Improve provision of Social development Services (Code B3) Increase economic activity (Code C2) Optimise land usage (Code C3) Improve Municipal planning and spatial development (Code F1)	A Well Served; An Accessible and Connected City; A Clean Green City; An Economically Prosperous City; A Friendly, Safe City.	Short Term (2015 - 2020)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

7.3 IMPLEMENTATION PROJECTS

7.3.10 RAPID DELIVERY UNIT STRATEGIES

RAPID DELIVERY UNIT								
Catalytic Projects		Description	Project Type	Champion Department(s)	Estimated Budget*	Primary Aligning IDP Code(s)	Aligning IDP Strategic Thrusts	Timeframe
RDU01	Careful project prioritisation and selection (prioritisation model)	Making better choices from project selection, prioritisation and packaging - ensuring lasting benefits with limited resources.	Capital Investment Project	MM's Office	Budget to be determined through detailed costing	Increase institutional capacity and promote transformation (Code A1) Optimise system, procedures and processes (Code A2) Increase performance (Code A3) Improve expenditure and SCM (Code D2) Improve budgeting and reporting (Code D3) Strengthen governance (Code E1)	A Financially Viable and Well Governed City.	Short Term (2015 - 2020)
RDU02	Portfolio management	Ensure desired outcomes of a collection of projects are met through establishment of a set of indicators that will be applied to measure progress in achieving set targets	Capital Investment Project	MM's Office	Budget to be determined through detailed costing	Increase institutional capacity and promote transformation (Code A1) Optimise system, procedures and processes (Code A2) Increase performance (Code A3) Improve expenditure and SCM (Code D2) Improve budgeting and reporting (Code D3) Strengthen governance (Code E1)	A Financially Viable and Well Governed City.	Short Term (2015 - 2020)
RDU03	Smart project funding	Development of holistic funding mechanisms inter alia through: coordinated and streamlined budgets for programmes; gap funding strategy development; finance options analysis; funding applications	Capital Investment Project	MM's Office	Budget to be determined through detailed costing	Increase institutional capacity and promote transformation (Code A1) Optimise system, procedures and processes (Code A2) Increase performance (Code A3) Improve expenditure and SCM (Code D2) Improve budgeting and reporting (Code D3) Strengthen governance (Code E1)	A Financially Viable and Well Governed City.	Short Term (2015 - 2020)
* Relates to project's associated Short, Medium or Long Term phasing - bearing in mind that the budget is in 'today's' terms and not forecasted								

7.4 CAPITAL INVESTMENT FRAMEWORK & PHASING PLAN

The phasing of the above projects needs to be a considered and well-thought out process. To ultimately have transformational change in a city, the right enabling conditions need to be created in a step-wise manner.

For example, while densification is a key strategy of the Msunduzi SDF, certain infrastructural upgrades need to occur before it can be fully rolled out. As such, while incremental densification may occur in the short term (and is encouraged), significant densification of key corridors can only occur and operate successfully if there is supporting infrastructure (e.g. an efficient transport system which will significantly help to reduce traffic build-up.)

In this section, it needs to be noted that the **phasing of the projects was mapped across land use categories** (table below), and not necessarily on a discreet project-by-project basis. Generally, projects of a spatial nature were assigned to the individual land use categories in the table below, and mapped in terms of their 'release' phase (being short, medium or long term).

As mentioned, **many of the projects in the preceding tables are assigned to the short term** because, at minimum, planning needs to start taking place within this time frame. However, their **physical manifestation may only take place in the medium & long term** – thus explaining why certain perceivably 'short-term projects' only appear on the maps displaying medium and long term installations.

The table below is a summary of the various interventions across land-uses and timeframes, and is colour-coded to match their spatial extents displayed in the maps which follow.

The map for the short term indicates a key focus on land use planning/ land release for lower density housing projects and agriculture. To a lesser degree, sustainable urban centres, agri-business/commercial, industrial and logistics/business land uses are also proposed for the short term.

Implicit in the short and medium term are the major infrastructure projects mentioned in the preceding tables (IRPTN, infrastructure audits and social facilities audits for

sustainable service provision to create the enabling conditions described earlier).

The map for the medium term indicates a need for vast densification roll-out along key, local transport corridors, additional low density residential, sustainable urban centres, agri-business/commercial and a significant focus on tourism areas in the south-east areas. The Msunduzi Parkway system is also expected to be incepted in this phase (the relatively large figure for the Parkway is attributed to its large buffer zone – for precautionary reasons).

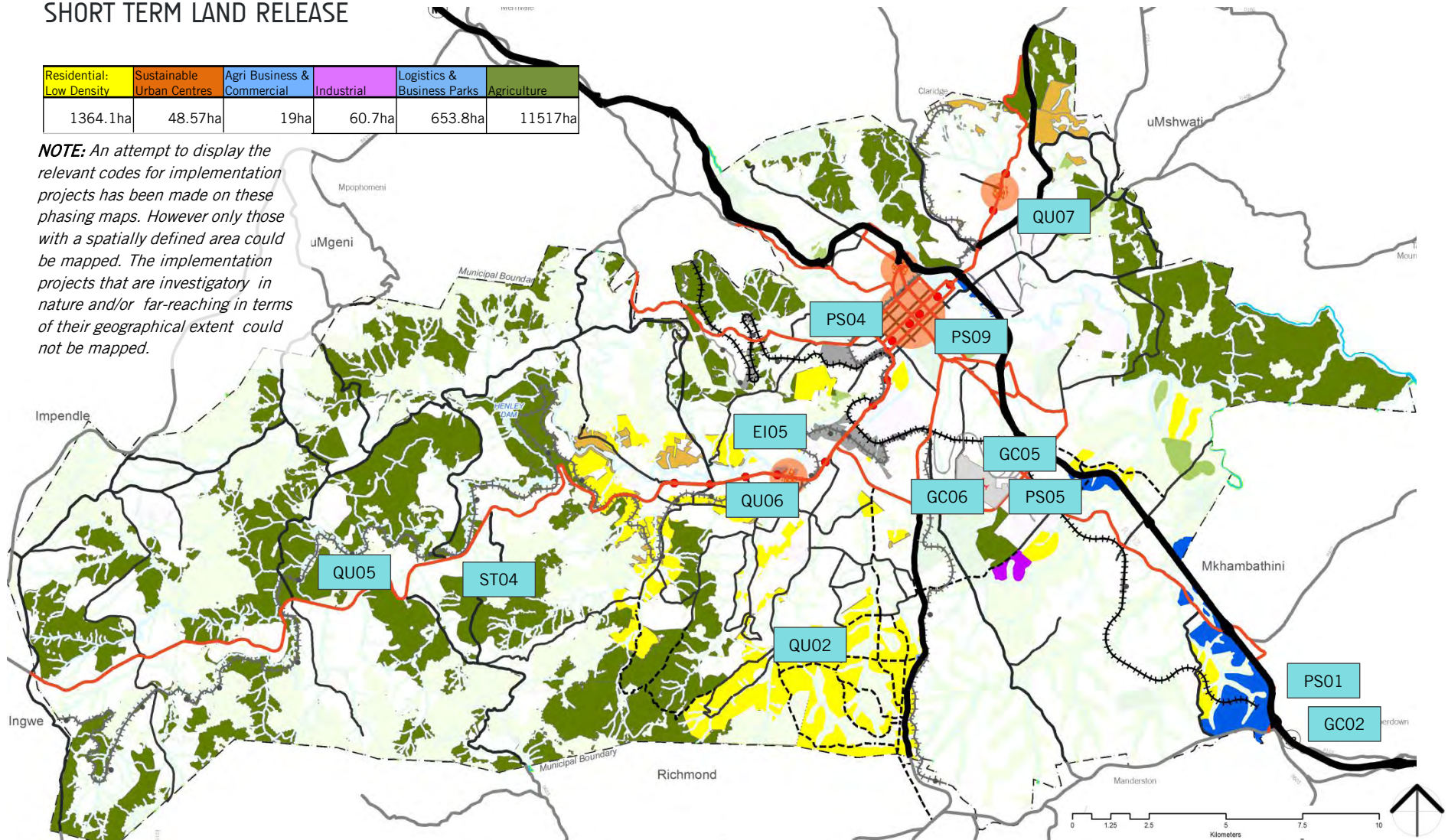
Finally, the map for the long term focusses land release/land-use related efforts on more residential development, which in this time frame is very much dependant on the expected population numbers being realised. Two large open space cores are mapped 'over' the landfill site and quarry which by this time will be closed-out/approaching close out. This, along with densification, aligns strongly with the idea of recycling/up-cycling of land.

TIMEFRAME:	Residential: Low Density	Residential: High Density Along BRT	Sustainable Urban Centres	Agri Business & Commercial	Industrial	Logistics & Business Parks	Tourism	Agriculture	Recreational Parks	Environmental Corridors
Short Term	1364.1ha		48.6ha	19ha	60.7ha	653.8ha		11517ha		
Medium Term	810.4ha	5860.4ha	461.9ha	845.4ha			1279.5ha			1625ha
Long Term	959.5ha								2.4ha	
TOTAL AREA:	3134 ha	5860.4 ha	510.5 ha	864.4 ha	60.7 ha	653.8 ha	1279.5 ha	11517 ha	2.4 ha	1625ha

7.4 CAPITAL INVESTMENT FRAMEWORK & PHASING PLAN – SHORT TERM LAND RELEASE

Residential: Low Density	Sustainable Urban Centres	Agri Business & Commercial	Industrial	Logistics & Business Parks	Agriculture
1364.1ha	48.57ha	19ha	60.7ha	653.8ha	11517ha

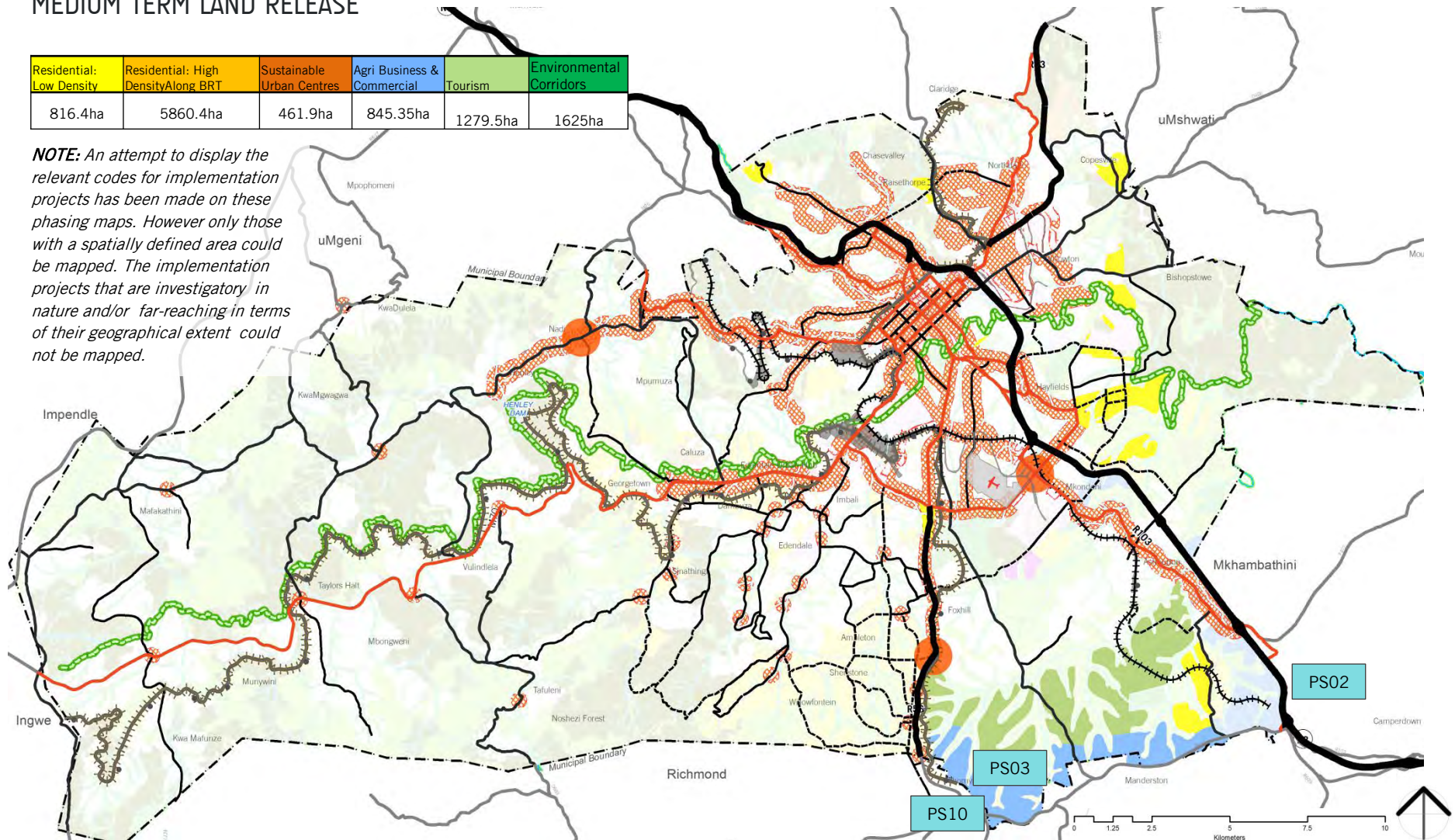
NOTE: An attempt to display the relevant codes for implementation projects has been made on these phasing maps. However only those with a spatially defined area could be mapped. The implementation projects that are investigatory in nature and/or far-reaching in terms of their geographical extent could not be mapped.



7.4 CAPITAL INVESTMENT FRAMEWORK & PHASING PLAN – MEDIUM TERM LAND RELEASE

Residential: Low Density	Residential: High Density Along BRT	Sustainable Urban Centres	Agri Business & Commercial	Tourism	Environmental Corridors
816.4ha	5860.4ha	461.9ha	845.35ha	1279.5ha	1625ha

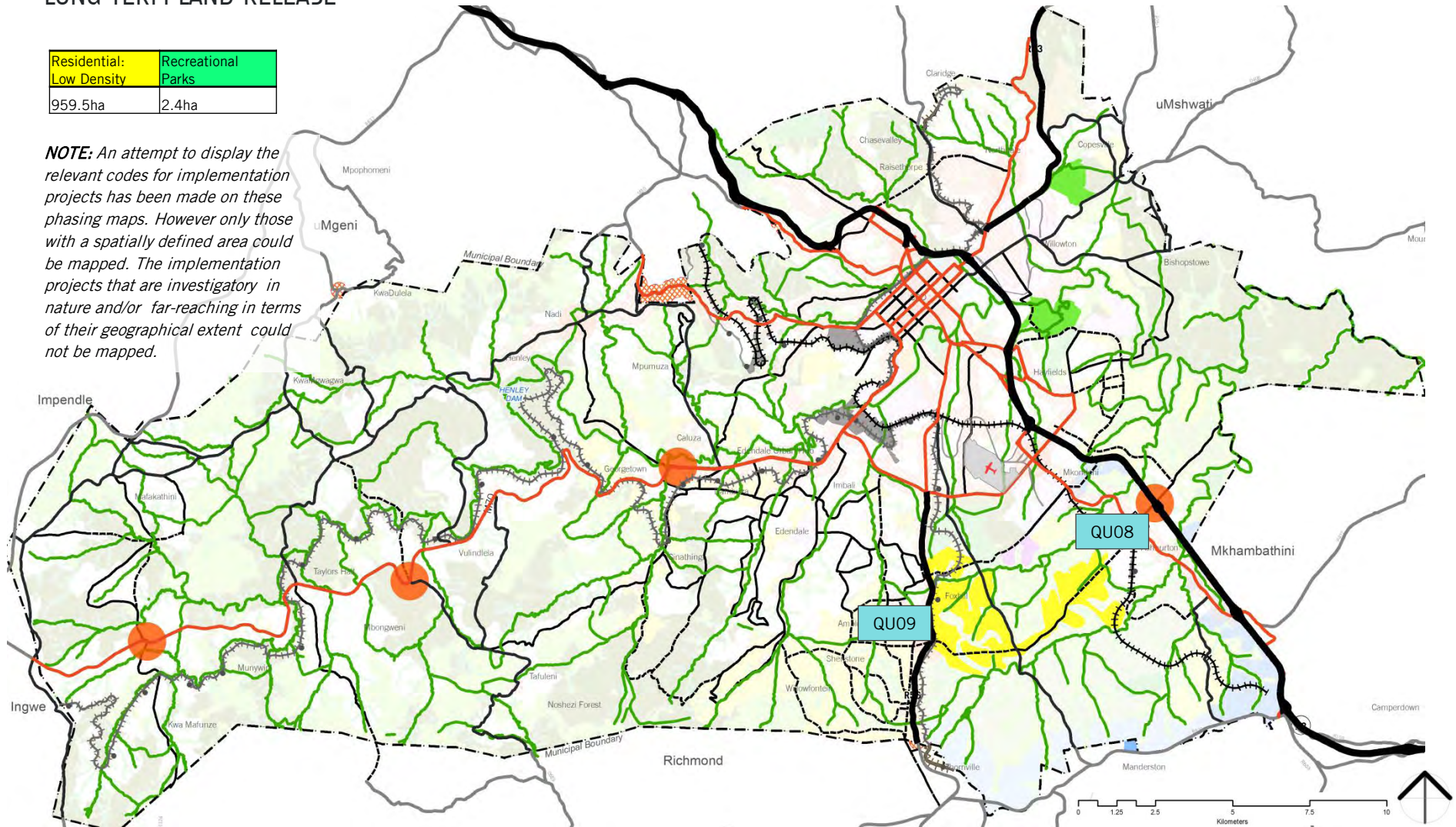
NOTE: An attempt to display the relevant codes for implementation projects has been made on these phasing maps. However only those with a spatially defined area could be mapped. The implementation projects that are investigatory in nature and/or far-reaching in terms of their geographical extent could not be mapped.



7.4 CAPITAL INVESTMENT FRAMEWORK & PHASING PLAN – LONG TERM LAND RELEASE

Residential: Low Density	Recreational Parks
959.5ha	2.4ha

NOTE: An attempt to display the relevant codes for implementation projects has been made on these phasing maps. However only those with a spatially defined area could be mapped. The implementation projects that are investigatory in nature and/or far-reaching in terms of their geographical extent could not be mapped.



7.5 BROAD LAND USE GUIDELINES

Note that the following section is not a scheme, but merely a guide using **Statements of Intent**. These are based on how the various land areas and/or parcels of land might unfold in future (in terms of the level and type of development they should attract at a high level).

Existing land uses are included and broad on-going guidance for these is also given (see pages overleaf).

07 IMPLEMENTATION STRATEGY

Colour & Notation of Land Release Category	Aligning Colour & Notation on SDF Legend	Description of Land Use/Statement of Intent
Low Density Residential	 Existing Residential  Proposed Housing  Informal Settlement Upgrade	This zone permits the development of primarily detached dwelling units, but does permit multi-family dwellings; and a limited number of compatible uses may be allowed provided they do not have a disruptive impact on the neighbourhood amenity. This zone might also include development of attached and detached dwelling units as part of a larger planned residential development. Also includes smallholdings and that sets aside land for low-density housing and related urban-scale agriculture, Traditional Council Land, and including traditional homesteads and includes home based economic activities, limited cropping and grazing.
High Density Residential (principally along BRT & Sustainable Urban Centres)	 Existing Residential  Proposed Housing  Informal Settlement Upgrade  Major BRT Routes 300m Densification Buffer	A zone that is intended to facilitate the development of multi-unit residential units for a wide range of residential accommodation at a high density; together with a mix of activities to cater for broader community needs
Sustainable Urban Centres	 CBD  Other Key Centres  Sustainable Urban Centres  Public Spaces  Sustainable Urban Centres 250m Densification Buffer  Major BRT Routes 300m Densification Buffer	A zone that retains a high incidence of residential land uses with an increasing number of appropriate ancillary commercial land uses to satisfy local demands and convenience - but excludes industrial uses. The residential density may increase in these areas. This is essentially a hybrid/mixed-use transition zone where change of use is permitted, in certain places this would need to be within a stipulated degree of preservation of the existing format. These zones will typically include a clustering of social facilities and public spaces. The Sustainable Urban Centres are to have a distinct public realm focus (to be developed largely by the municipality, providing for basic amenities to enable the establishment of an urban centre). Each centre would be unique based on local context but should contain the basic necessary urban functions of public transport, trading facilities and public amenities. Investment in community facilities should be aligned with the distribution of these centres.
Agri Business & Commercial	 High Potential for Economic Development  The CBD  Existing Commerce Sector  Future Commerce Land  Future Industrial Land	A zone intended to provide for land and buildings where the primary activity is - The agricultural production of crops, livestock or products - The processing/packaging of agricultural produce - Commercial development (offices, retail, personal services, entertainment, strategic economic zones, etc)

07 IMPLEMENTATION STRATEGY

Colour & Notation of Land Release Category	Aligning Colour & Notation on SDF Legend	Description of Land Use/Statement of Intent
Industrial	 Existing Industrial Sector  Future Industrial Land	The Industrial zone principally permits manufacturing uses. As a cumulative industrial zone, it would permit a combination of light manufacturing uses found in other zones and more intensive manufacturing uses that would normally be considered incompatible with sensitive land uses, such as those uses found in the residential and open space zones. Warehousing of materials considered non-noxious or non-hazardous are permitted in buildings in this zone. Very limited noxious and extractive land uses would be allowed in this zone due to the municipality's inversion layer and other limiting factors such as prevailing water quality readings.
Logistics & Business Parks	 High Potential for Economic Development  Primary Network  Regional Network Linkages  Gauteng - Durban Link  East - West Connection  Railway Stations  Oribi Airport  Airport Extent	A zone that permits the warehousing of materials considered non-noxious or non-hazardous are permitted in buildings in this zone. Transportation, transshipment and related uses are permitted. Outdoor storage, as both an independent and an ancillary use, may be permitted in the zone, subject to certain restrictions involving the amount of area permitted on a lot, setbacks, screening, and possibly the type of materials permitted to be stored outdoors. Office uses, retail stores, and certain eating establishments will be permitted in the zone with certain conditions. National, regional and local connectors are critical elements found in this zone (including road, rail and air transport links). The Business Park zone is a mixed-use zone that, like the commercial zone, also permits a range of office uses, which are generally compatible with each other, as well as adjacent sensitive zones, such as residential, commercial, mixed use, and open space zones. These areas are typically described as 'office business parks' and involve large campus-like developments in prestigious landscaped settings. Financial institutions, hotels, and personal service shops would be permitted in the zone; retail stores and eating establishments would be the kind of uses permitted but with conditions or specific limitations
Tourism	 Tourism  Recreation  Civic and Social  The Henly Dam  BRT Route  Quality Bus Service  East West Connection/NMT Route	Existing and future areas with an element of natural and/or cultural history, as well as areas of natural beauty and areas with elements of nature conservation. Arts & crafts areas, tourism kiosks/the tourist information centre(s) and –in general - commercial centres would be included in this zone. Again, functional, clean and rapid transport routes would be a critical layer aligning with the tourism industry. Other more detailed uses might include: conference facilities, wellness centres, hydro's, spas, caravan parks, tented camps, health resorts, various public entertainment areas, golfing, sport, water sports and gambling.

07 IMPLEMENTATION STRATEGY

Colour & Notation of Land Release Category	Aligning Colour & Notation on SDF Legend	Description of Land Use/Statement of Intent
Agriculture	 Agricultural Land Holdings	A zone intended to provide for land and buildings where the primary activity is both intensive and extensive agricultural production of crops, livestock or products. In parts it may include land that is used for low intensity and small scale agricultural practices in association with other related uses in Traditional Council areas and may include market gardening, wood lots the production of small areas of sugar cane and livestock. Furthermore, it may include land used for market gardening, horticulture, aquaculture, the keeping of limited livestock and community gardens.
Parks	 Existing Major Open Spaces  Proposed Major Open Spaces  1 km Coverage Buffer	This is a zone for current & future sight-seeing, formal & informal open space opportunities, sporting and recreational needs and permits a limited range of associated development and parking space. The zone also includes formal nature reserves – also going by the name ‘cores’. 1km buffers are precautionary areas to schematically indicate that no conflicting land uses should be close to biodiversity hotspot areas/reserves (e.g. heavy industry). Private open space zones accommodate any open space owned and maintained by a private public agency for recreational purposes that is used and enjoyed by member of a club and the general public and may include ancillary facilities or buildings.
Environmental Corridors	 Major Tributary and 40m Buffer  Minor Tributary and 40m Buffer  The Open Space Framework  The Msunduzi Parkway	This is a zone that provides part of the sustainable open space system, which includes independent or linked open space areas of biodiversity value, micro and macro corridor linkages; and permits only limited and specific developments. The various environmental zones may provide opportunities for conservation management, Stewardship programmes, very low density development (e.g. for eco-tourism), and in formal reserves/biodiversity hot spot areas, zero development. In terms of 1:100yr floodlines and precautionary 40m buffers from watercourses (i.e streams, rivers, wetlands, dams), no development should be erected below the stipulated floodline/buffer, without the prior approval of the Local Authority & Provincial/National environmental body.
N/A or OTHER (Not Discreetly Mapped in Phasing Plan, in most cases cause these are existing)	 N3  Existing  Proposed  Primary Network  Regional Network Linkages  Internal Circulatory Links  Distributors  Proposed Additions to the Movement Framework	These zones make provision for the protection of roads, intersections and road reserves for the free movement of vehicular and pedestrian transport. These zones also make provision for the reservation of land designated as proposed new roads and areas for road widening, and future intersections.

07 IMPLEMENTATION STRATEGY

Colour & Notation of Land Release Category	Aligning Colour & Notation on SDF Legend	Description of Land Use/Statement of Intent
N/A or OTHER (Not Discreetly Mapped in Phasing Plan, in most cases because these are existing)	 BRT Route  Quality Bus Service  Express Routes  Feeder Routes  IRPTN Stops  East West Connection/NMT Route	BRT zones that make provision for the parking, drop off and collection of passengers by public and private bus services and mini bus taxis. NMT zones allow for carbon competitive and more physical mobility routes – for both access and recreation reasons.
	 Gauteng - Durban Link  East - West Connection	Railway zones make provision for the parking, drop off and collection of passengers by public and private bus services and mini bus taxis.
	 Civic and Social  Education  Hospitals	These zones are intended for the full suite governmental & non-governmental service uses, the full range of public and private hospitals, medical centres, clinics, sanatoria, community care, welfare and social requirements including pension pay points, buildings for the accommodation and care of the frail/aged, places of safety and orphanages. These zones also include places of worship & educational facilities (including, infants, pre-primary, primary, secondary, tertiary and adult education and training with associated buildings and recreational facilities).

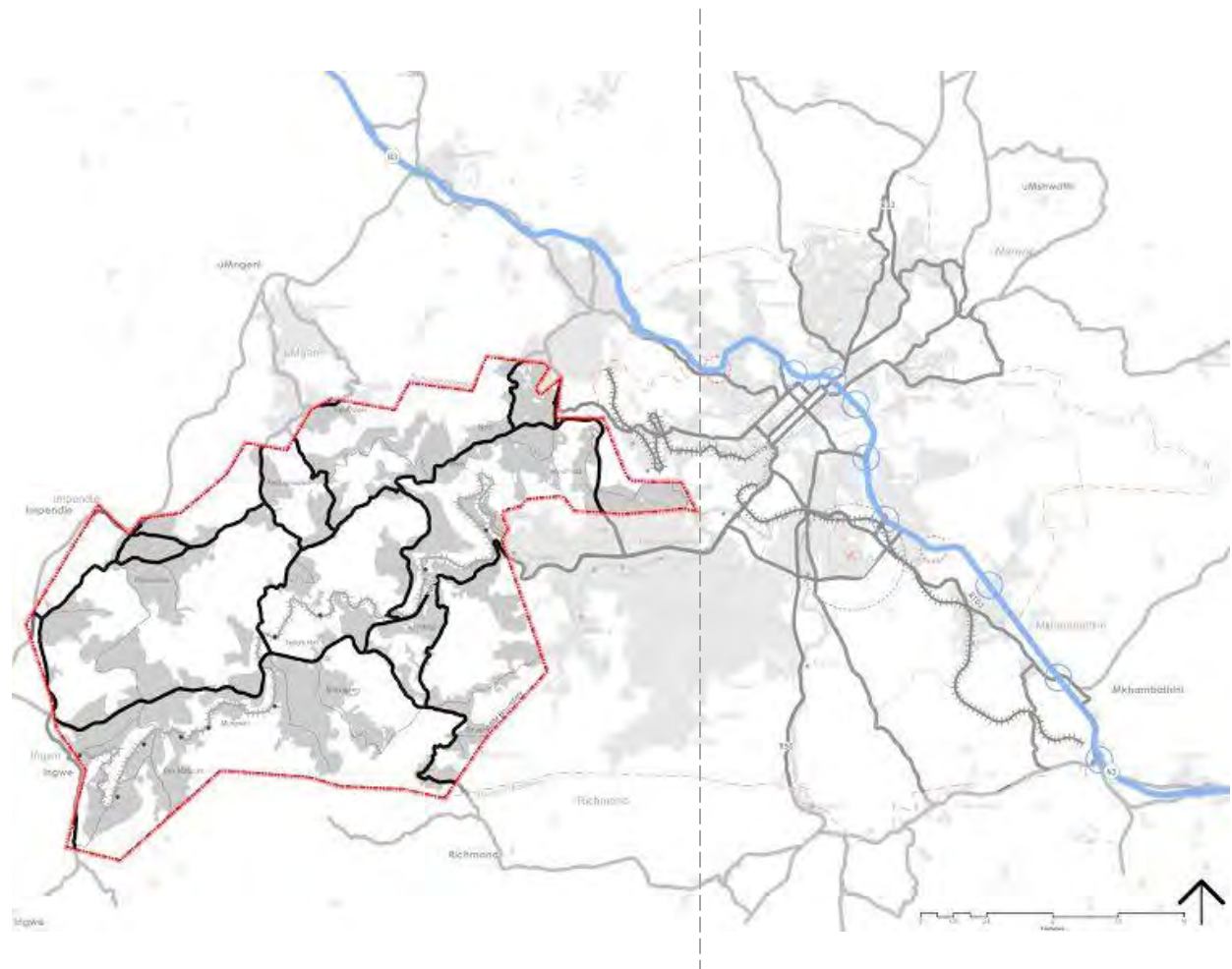
7.5 BROAD LAND USE GUIDELINES

7.5.1 INGONYAMA TRUST LAND

Important to note is the extent of Ingonyama Trust Land in Musnduzi as this will have management implications when it comes to more detailed planning interventions.

The Ingonyama Trust Land covers the western extent of the municipality (heading west from Edendale – essentially comprising the Vulindlela ABM area).

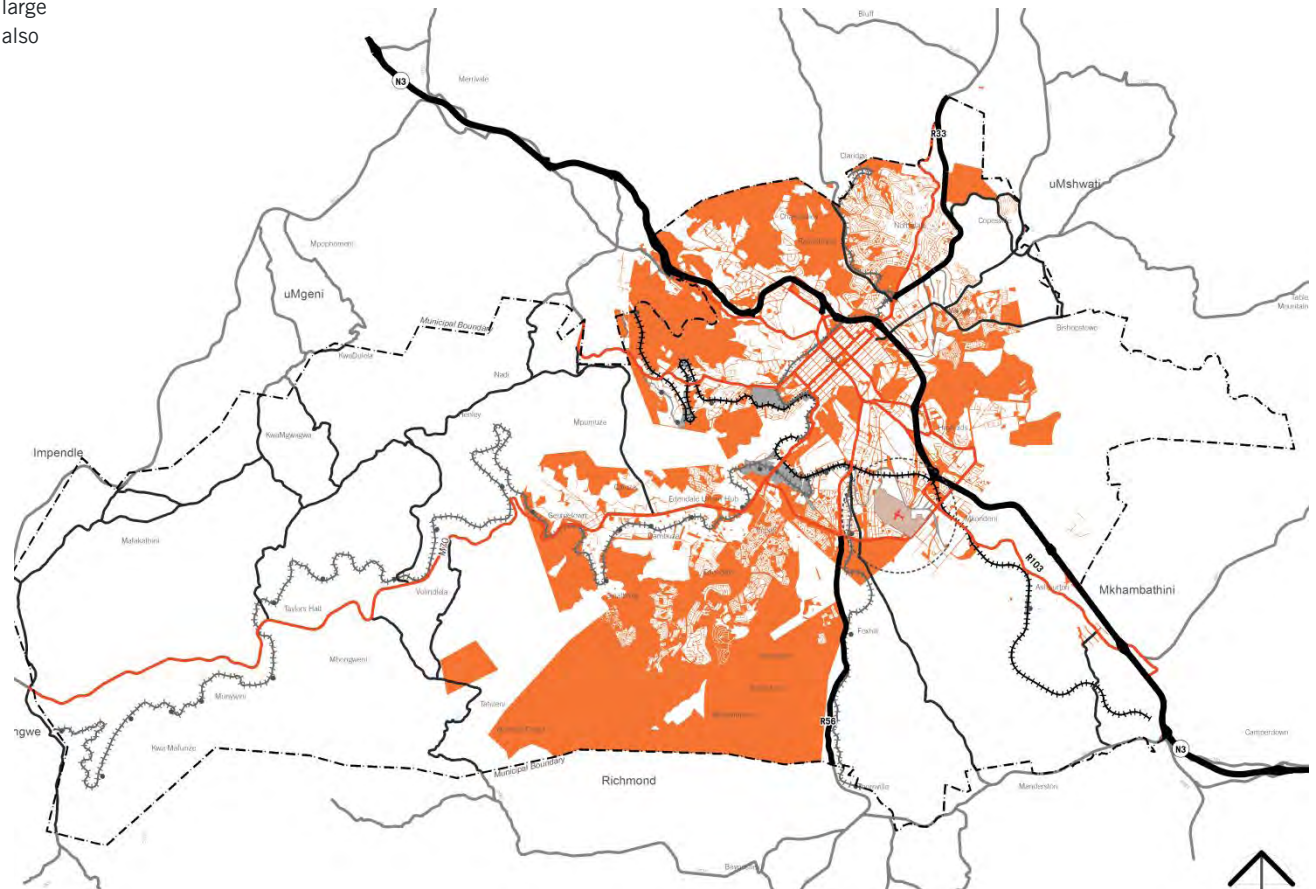
The adjacent map indicates spatially the area in question.



7.5 BROAD LAND USE GUIDELINES

7.5.2 MUNICIPAL OWNED LAND

The adjacent map indicates the spatial extent of the municipality's land ownership. It is essentially concentrated in the middle section of the municipality, with particularly large tracts of land located in the Greater Edendale area, and also in the north (although much of this is leased to forestry companies).



07 IMPLEMENTATION STRATEGY

7.5 BROAD LAND USE GUIDELINES

7.5.3 CURRENT SPATIAL PLANS IN MSNDUZI

The adjacent map indicates the current spatial plans that are either currently in place, currently underway or imminent for the municipality. Note that these plans are as at February 2015.

These plans have been assimilated into the SDF as far as possible, but are to be further consulted and used for more detailed future planning, at the appropriate scale of planning for a given area.

Msunduzi SDF
Status: Near Completion

(Note: Several other spatial/sector plans exist at this level such as the Msunduzi EMF, Housing Sector Plan and Integrated Transport Plan – consult accordingly)

Vulindlela LAP
Status: Imminent

Edendale Town Planning Scheme
Status: Complete
(up for review)

Pietermaritzburg Town Planning Scheme
Status: Complete (up for review)

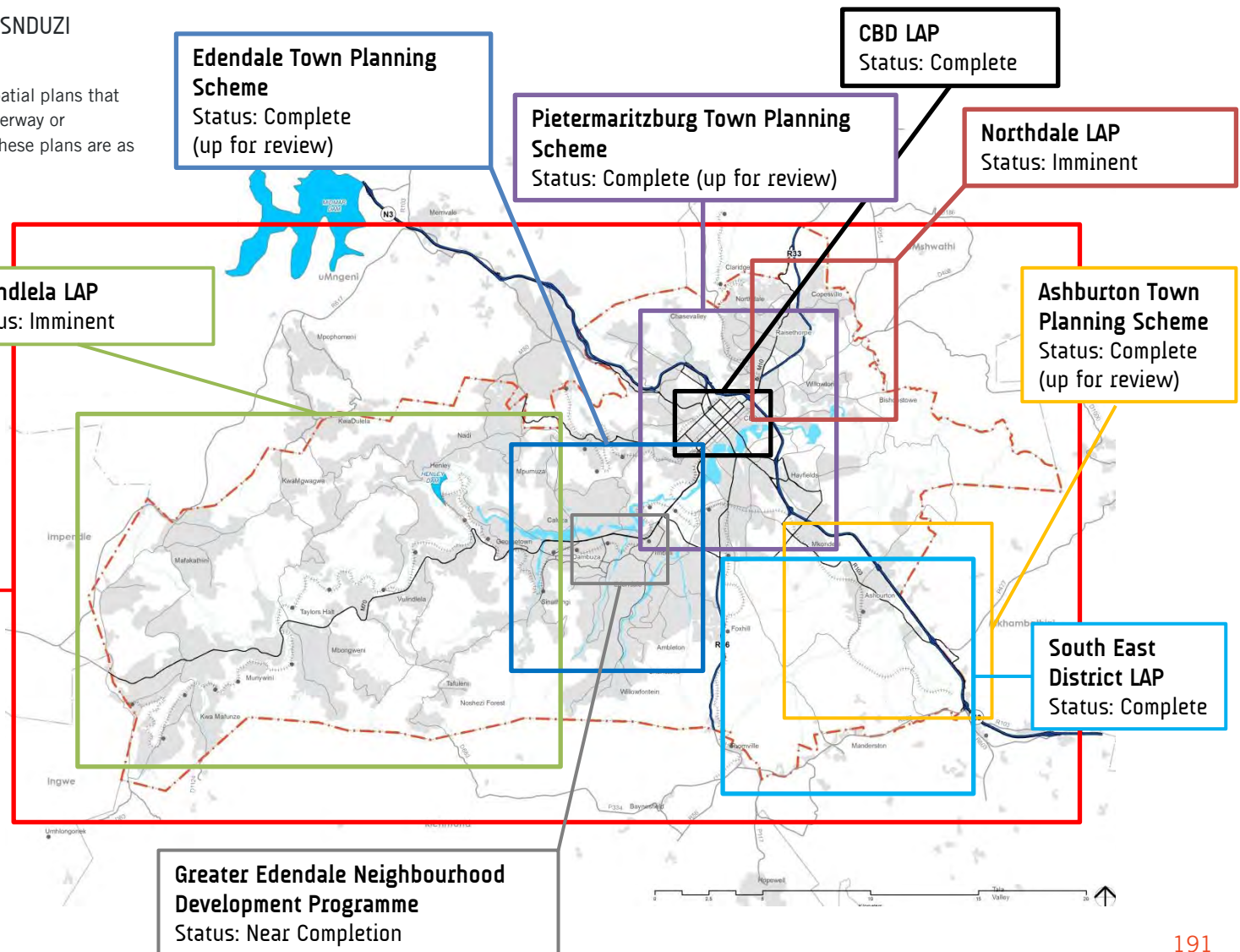
CBD LAP
Status: Complete

Northdale LAP
Status: Imminent

Ashburton Town Planning Scheme
Status: Complete
(up for review)

South East District LAP
Status: Complete

Greater Edendale Neighbourhood Development Programme
Status: Near Completion



7.6 SDF IMPLEMENTATION PLAN ALIGNMENT

The alignment of the SDF implementation framework took place by considering all of the existing catalytic projects and objectives identified in local key plans, by summarising them and cross referencing them with key projects identified to take forward for this SDF.

The following key documents & tools were used for alignment purposes:

- Municipal IDP catalytic projects;
- IDP Scorecard;
- DEDT catalytic projects for Msunduzi;
- CBD LAP implementation projects;
- SEDIS LAP implementation projects;
- Recently summarised Municipal Grant & CAPEX reports (the focus being on more significant projects with a spatial aspect); and
- A final assessment against the EMF SEA Sustainability Indicators checklist.

Each of these are contained in the Annexures section of the report. SDF implementation projects which 'match' existing IDP, DEDT and LAP projects are highlighted in the main SDF Implementation table. Likewise, the projects in these local plans which match the SDF projects are also highlighted in the Annexures section (see figure adjacent and **Annexures B1-B7**).

[Note: Projects which are not spatially referenced or defined (i.e. management or operational-related projects) are noted but not considered influential upon an SDF. As such, many of the Capital Grant/CAPEX projects were reduced to only those with a spatial signature.]

MSUNDUZI IDP CATALYTIC PROJECTS					
Project*	Description	Estimated Budget(2014/15 - 2016/17)	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas	*Projects highlighted in light orange are directly linked to SDF's catalytic 'focus' projects
Legislative Precinct Development	This is a medium to long-term initiative which will see the development of a new legislative precinct that will better cater for the needs of the legislature and facilitate good governance.	R2 Billion	Quality Urbanism; Social Inclusivity	A financially viable and well-governed city	
Pietermaritzburg Airport Upgrade	This is a short-term project that will see the extension of the existing runway, together with the terminal buildings. This will allow for larger aeroplanes to make use of the airport, thereby attracting additional operators and increasing the amount of feet through the airport.	R0.5 Billion	Global Connectivity; Productive Systems; Sustainable Transport; Social Inclusivity	An accessible, connected city	
Harry Gwala Stadium Upgrade Phase 2	This is a medium to long-term project which will see the development of further stands at the stadium. Associated with this project, in the short to medium term, is the further development and upgrading of the Alexander Park Sports Precinct with additional parking.	R0.5 Billion	Quality Urbanism; Social Inclusivity; Sustainable Services	A friendly, safe city; A well-serviced city	

07 IMPLEMENTATION STRATEGY

7.6 SDF IMPLEMENTATION PLAN ALIGNMENT

The same has been done for the objectives of each plan (respectively), whereby columns have been added to each table indicating which of the 7 Pillars of the SDF and which of the IDP Strategic Thrusts are being addressed by each project (figure below left).

IDP Scorecard objectives (already coded) have been used to cross-reference how the SDF projects align with the IDP objectives (figure below right).

Project code.	Project Name	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas
URBAN MANAGEMENT PROJECTS			
UM01	Improved Service Delivery	Sustainable Services	A Well-Serviced City
UM02	Better Buildings Programme	Quality Urbanism	A Clean, Green City; A Friendly, Safe City
PRECINCT AND STATUTORY PLANNING			
PP01	Review of the Msunduzi Town Planning Scheme	Productive Systems; Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City

IDP REP	STRATEGIC OBJECTIVE
A1	Increase institutional capacity and promote transformation
A2	Optimise system, procedures and processes
A3	Increase performance
B1	Increase Provision of Municipal Services
B2	Improve the state of Municipal Infrastructure
B3	Improve provision of Social Development Services
C1	Reduce unemployment
C2	Increase economic activity
C3	Optimise land usage
D1	Increase revenue
D2	Improve expenditure and SCM
D3	Improve budgeting and reporting
E1	Strengthen Governance
E2	Improve the Customer experience & Public participation
E3	Promote public knowledge and awareness
F1	Improve Municipal Planning and spatial development
F2	Improve community and environmental health and safety

7.6 SDF IMPLEMENTATION PLAN ALIGNMENT

The Msunduzi Capital Projects and Msunduzi Grant Funded Capital Projects with spatial implications were summarised and categorised into a more useful table format.

The most important thing to note about these are that they do not necessarily represent what would traditionally be a Capital Investment Framework as they are current projects and will soon be completed. These projects are thus not in direct alignment to the SDF because the SDF is a forward-looking plan. Inserting them will not make a material change to the SDF or add much value, but it may be useful for the purposes of simply understanding the current initiatives at play in the city.

The Msunduzi project lists were in a highly disorganised state and a recommendation going forward in the implementation plan is that these be 'tidied up' and appropriately detail the projects (if this has not been done elsewhere).

Principally, the spreadsheets supplied by the municipality:

- Were not in a database format – thus could not be analysed (we have now converted this);
- Projects were not all of a capital nature and thus a large number have been removed as they are more operational (sometimes relating to equipment) - we have kept these on separate excel spreadsheets for future use (should these be required);
- There was no standardisation of project types so a column was inserted for this purpose;

- Project descriptions in the furnished spreadsheets are not very descriptive and it is thus difficult to pin-down what the funding will specifically be used for;
- Some project descriptions included a spatial description, but as this does not apply to all. We did not try to spatially locate the projects due to the inadequate details/descriptions - this is something that the municipality should do as a matter of priority;
- It is unclear whether budgets reflect remaining budgets or full project budgets; and
- We took the assumption that all the projects are current as no multi-year budgets were evident.

Finally, the sustainability of the SDF has been tested against the EMF SEA (2010) objectives and answered as either a yes (Y), no (N), partial (P) or not applicable (N/A), with comments provided adjacent to each of these (see an example of this in the figure below).

The SDF has essentially responded positively to many of the objectives (albeit the spatially defined objectives) of the key local planning documents such as the IDP, recent LAPs for the CBD and South-East Areas and the EMF. As such. One could say that it is largely aligned with local planning objectives.

SUSTAINABILITY CRITERIA	Y/N/P or N/A	COMMENT
Biophysical: Efficient and sustainable use of natural resources		
Degraded areas are identified and rehabilitated to limit soil erosion and promote land productivity	N/A	This is implicit throughout the SDF but requires detailed ground-truthing (to be spatially defined) and requires management related intervention
Aquatic ecosystems are in a healthy state to ensure that the resource remains fit for all other uses and minimum water quality targets are maintained	N/A	Management related intervention (not able to be spatially defined)
Areas of high biological diversity, are utilised and managed to promote the ecosystem goods and services they supply	Y	The ecological infrastructure component of the SDF fully encompasses areas of high biological diversity
Alien invasive species are controlled and managed to prevent further infestation	N/A	Management related intervention following detailed ground-truthing
Wetland areas, streams and rivers are preserved, rehabilitated and managed to maintain ecological function	Y	Spatially, these areas have been defined and are in theory to be preserved (through adequate management)
Flood prone areas are managed to promote ecosystem goods and services and minimise flood risks and impacts to flood regimes	Y	1:100yr floodlines are spatially represented and additional watercourses identified have precautionary buffer lines
Areas of geotechnical or geological risk or instability are delineated and are avoided in land development	Y	While no empirical data capture was undertaken on geology, a 1:3 slope analysis was undertaken and these steep areas are represented on the map.

7.7 APPROACH TO PROJECT ROLL-OUT

APPROACH TO PROJECT ROLL-OUT

Selecting and 'running' with projects can be a complex undertaking. The basic approach for implementation should include, or at least consider, the following steps:

- Step 1: Explore Approaches to Project Development**
- Step 2: Establish Targets for Project Development**
- Step 3: Identify Prioritisation Criteria**
- Step 4: Develop an Accurate Inventory of Information for the City**
- Step 5: Prepare Action Plans for Identified Priority Projects**
- Step 6: Request Development Proposals / Tenders**
- Step 7: Project Rollout**

STEP 1: EXPLORE APPROACHES TO PROJECT DEVELOPMENT

For each project identified through this planning process, the most appropriate approach to their development will have to be determined. The key role players identified within the municipality will need to rigorously budget for - and champion - these projects and decipher the best & most efficient means of seeing it through to completion. Options for private sector involvement in this space must never be ruled out.

Within the realm of project development, private-public represents a very promising (albeit complex) continuum for the implementation of projects & associated developments. There exist three basic options for private public partnerships. The public-private sector partnership continuum is reflected in the Diagram below.

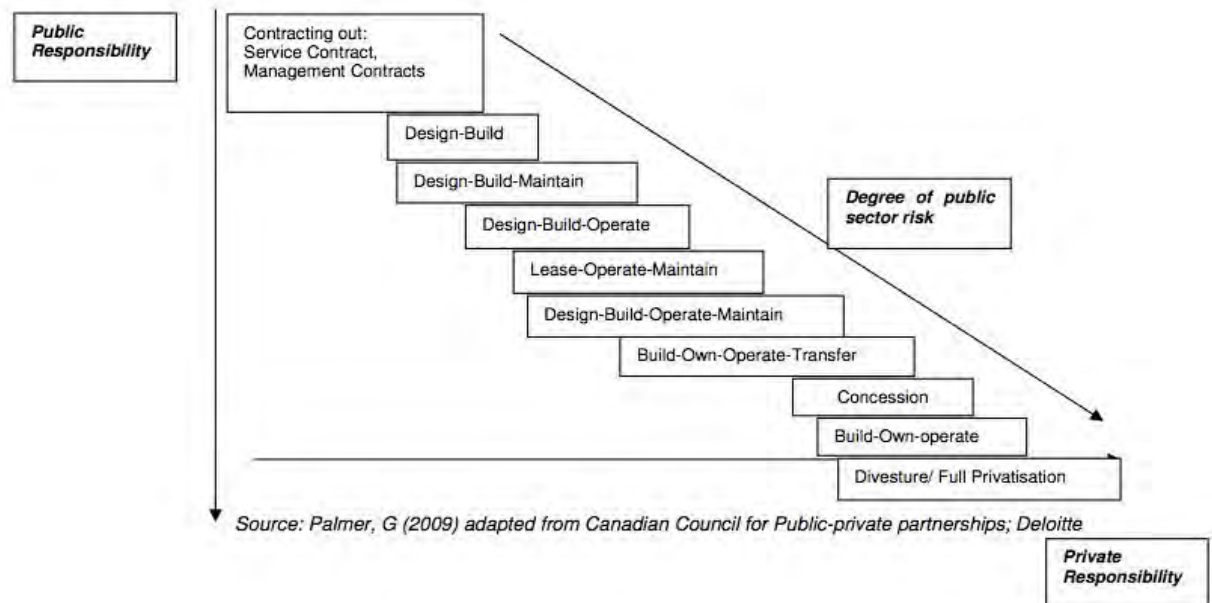
Within this continuum the three broad options then available are:

- Public sector development;
- Public private sector development;
- Private sector development.

While PPPs have found their way into urban development, they are not without complexities and require rigorous commitment.

STEP 2: ESTABLISH TARGETS FOR PROJECT DEVELOPMENT

Development targets will have to be established for each project. These targets will have to be reviewed on a regular basis by the championing department/body at the municipality, it is suggested every year, to ensure that targets are based on current need and actual take-up/successes on the ground. The review of targets are an integral part of Integrated Development Planning and thus Spatial Development Planning processes.



The Private Public Partnership Continuum (Infrastructure Investment Example)

7.7 APPROACH TO PROJECT ROLL-OUT

STEP 3: IDENTIFY PRIORITISATION CRITERIA

For the identification and prioritisation of projects, it is suggested that more detailed criteria for the identification of projects is to be developed for each. Selection criteria should include careful decisions, bearing in mind: sustainability, socio-economic priorities, cost-benefit analyses, multi-criteria analysis, etc. Ultimately, projects selected must be responsive, future-minded and result in meaningful change.

STEP 4: PREPARE ACTION PLANS FOR IDENTIFIED PRIORITY PROJECTS

The action plans for selected 'priority projects' will set out:

- Project motivation;
- Project approach; and
- Requirements to see the project through – budget, resources, approvals etc.

While some projects may be simple to roll-out, others involving larger infrastructure and development may include any, or all, of the following processes (not necessarily in order):

- Project initiation;
- Tender process;
- Planning and concept design;
- Environmental impact assessment;

- Land development application (PDA / SPLUMA);
- Detailed design;
- Building plan approval;
- Construction;
- Occupation;
- Appropriate management; and
- On-going maintenance.

STEP 5: REQUEST DEVELOPMENT PROPOSALS / TENDERS

Where a project is best suited to a private public partnership arrangement, a tailored process will be required. Where the identified project is purely in public sector ownership and is to be made available to the private sector for development/roll-out, a tender process will have to be initiated.

STEP 6: PROJECT ROLLOUT

This is the final step in the process involving the actual implementation of the Action Plan as set out above.

It is to be noted that the above process can take anything between a few months to a few years depending on the amount of internal support, the nature and number of approvals required and, ultimately, the availability of funding.

STEP 7: DEVELOP AN ACCURATE INVENTORY OF INFORMATION FOR THE CITY

In keeping in line with the idea of accurate and up-to-date municipal knowledge management, a detailed, centralised inventory must be set up to keep a detailed record of each of the projects selected. This will allow for seamless knowledge transfer/sharing if handover by the champion/ PM needs to take place.

The inventory should, at minimum, include a database of the following information relating to each of the projects:

- Location & Description of Project;
- Project Champion;
- Stakeholders & Role Players;
- Minutes of Meetings;
- Signed Contracts;
- Project Programme;
- Progress Reports;
- Financial Information & Budgets; and
- Other Relevant Data.

As outlined under one of the objectives of the RAPID DELIVERY AGENCY, the importance of a **long-term funding plan** in achieving any of these implementation projects cannot be over-emphasised. Close liaison with Treasury, the KZN Infrastructure Coordination Group, private developers and other banks will be needed, in addition to accurate budgetary forecasting /financial planning based on the rates base, any shortfalls or areas or mismanagement, any alternate funding mechanisms available at the time. The **BEPP** investment framework for Msunduzi should also be referred to in this regard.

7.8 MONITORING & EVALUATION

INTRODUCTION

Monitoring and evaluation (M&E) is critical to the successful implementation of the Msunduzi SDF. As a longer term strategic plan it will be necessary to update and review the SDF on a regular basis and M&E is the basic tool through which this will be achieved.

Monitoring and evaluation is a process that helps improving performance and achieving results. Its goal is to improve current and future management of outputs, outcomes and impact. It is mainly used to assess the performance of the SDF, specific projects featuring as part of the SDF and the institutions involved in implementing the SDF. M&E then also establishes the links between the past, present and future actions.

THE PURPOSE OF M&E

The M&E is, as its name indicates, separated into two distinct activities, viz. Evaluation and Monitoring. Both the Monitoring and Evaluation components of the M&E process have a specific purpose. The purposes of M&E are described as below (adapted from Wikipedia 2014).

THE PURPOSE OF EVALUATION

An evaluation is a systematic and objective examination concerning the relevance, effectiveness, efficiency and impact of activities in the light of specified objectives. In the case of the Msunduzi SDF these are the objectives of Global Competitiveness, Productive Systems etc. The idea in evaluating the SDF and specific projects is to isolate errors as to not to reproduce them and to underline and promote the successful mechanisms for current and future projects.

An important goal of the evaluation is to provide recommendations and lessons to the line departments, project managers and implementation teams working on

implementing the SDF and SDF projects and for the ones that will implement and work on similar projects.

Evaluations are also indirectly a means to report to stakeholders about the activities implemented. It is a means to verify that the money donated is being well managed and transparently spent. The evaluators are supposed to check and analyse the budget lines and to report the findings in their work.

THE PURPOSE OF MONITORING

Monitoring is a continuous assessment that aims at providing all stakeholders, with early detailed information on the progress or delay of the ongoing assessed activity. It is an oversight of the implementation stage of the activity. Its purpose is to determine if the outputs, deliveries and schedules planned have been reached so that action can be taken to correct the deficiencies as quickly as possible.

KEY COMPONENTS OF THE MSUNDUZI SDF M&E SYSTEM

Within the context of the above, and based on previous work undertaken in the field, it is proposed that the Msunduzi SDF M&E system include the following components:

- Indicators for evaluating overall performance (benchmarks);
- Indicators for monitoring project implementation;
- Institutional structuring for monitoring and evaluation; and
- Appropriate monitoring and evaluation systems.

Each of the above components is discussed below.

INDICATORS FOR EVALUATING OVERALL PERFORMANCE

Indicators are needed to rate the success achieved in terms of reaching the specified objectives.

Specific performance indicators are required in order to evaluate the overall impact of SDF implementation. The performance indicators must be selected prior to implementation and must be agreed to by key stakeholders. Performance assessments / appraisals of key staff are to be linked to the performance indicators.

The table below presents a basic list of key performance indicators (KPIs) to be considered by the Msunduzi Municipality and stakeholders. This list should be reviewed as appropriate and the 2015 baseline for measurement established (see table overleaf).

M&E: PROJECT IMPLEMENTATION

Ongoing monitoring of project implementation is key to ultimately achieving the set objectives (as measured in terms of the key performance indicators). The Implementation Plan for the Msunduzi SDF makes provision for two types of projects, viz.

- High Priority Focus Areas and Catalytic Projects
- Implementation Projects

The full list of these projects and relevant information are reflected in the preceding pages of the SDF Implementation Section.

Projects will be monitored and evaluated based on a set of clearly measurable:

- Project objectives;
- Project budget;
- Project timeframes; and
- Contribution to achieving the set benchmarks.

This system of monitoring SDF projects will be integrated into the current project management system of the Msunduzi Municipality.

7.8 MONITORING & EVALUATION

OVERALL KEY PERFORMANCE INDICATORS FOR CONSIDERATION

KPIs	MEASURE	2030 MEASUREMENTS / TARGETS	2015 BASELINE	2020 TARGETS
GLOBAL CONNECTIVITY				
Promoting global connectivity	Distance	Universal access to ICT and broadband within 15 minutes travel		
PRODUCTIVE SYSTEMS				
A diverse economy (range of employment opportunities)	GDP	10 to 15% contribution (at least) by each of the four key economic sectors		
An employed workforce	Jobs	90% of workforce employed (formal and informal sector)		
Liveable household incomes	Income	95% of households above household subsistence level		
ECOLOGICAL INFRASTRUCTURE				
Access to nature	Distance	All households have access to an open space resource (active or passive) within one kilometre		
Green development	Carbon Footprint	By 2025, all new development and existing structures are 40% less carbon intensive than 2010 footprints and all will be 50% less carbon intensive by 2030.		
Climate Change Risk Assessment	A Well- informed Government and Local Population	By 2015 all climate change related risks will be identified, with clear mitigation and adaptation plans in place.		
Recycling and Waste Minimisation	Waste to Landfill by 2030	All waste will be recycled and/or biodegradable such that no waste enters landfill sites by 2050.		
SUSTAINABLE TRANSPORT				
Ease of access to amenities	Distance	80% of population within 15 minute walk from range of amenities (permanent or periodic)		
Ease of access to work opportunities	Distance	100% of the population will be within an average of 30 minutes travel time to places of employment.		
QUALITY URBANISM				
Choice in activities	Distance	100% of households have access to a full range of amenities within 15 minutes travel		
Choice in accommodation	Quality housing	100% of households appropriately accommodated		
Choice in movement	Distance	80% of population within 5 minute walk from a component of an integrated transport system		
SOCIAL INCLUSIVITY				
Build human capital	Distance and Access	All children and young adults have equal access to relevant educational institutions in the District		
Promote social development (greater levels of equality)	Gini Coefficient	Gini Coefficient of 0.4 (currently South Africa's the highest in the world at 0.7)		
Ensure food security	Food secure households	All households in the Municipality have food security.		
SUSTAINABLE SERVICES				
Access to urban infrastructure	Infrastructure	100% off households in settlement areas have access to urban infrastructure (grid or off-grid)		

INSTITUTIONAL STRUCTURING FOR M&E

Monitoring and evaluation of SDF implementation will be undertaken through existing established Council Structures. The Champion Department of the Monitoring and Evaluation of SDF Implementation will be the Planning and Environmental Management Department.

The structures for SDF related M&E will include:

- Internal Departmental reporting structures: This will primarily be regular feedback meetings / reports in the Planning and Environmental Management Department;
- SDF Implementation Committee (new): This will be the current SDF Steering Committee, the functions of which will be expanded to also monitor and evaluate implementation of the SDF;
- Municipal management structures: This will be feedback sessions to Management of the Msunduzi Municipality; and
- Council reporting structures: This will include specifically regular feedback to the relevant Portfolio Committee meetings where SDF implementation should be a standing item on the agenda of this Committee. As required, the Portfolio Committee will report to EXCO and full Council.

SYSTEMS FOR IMPLEMENTING M&E

A fully functional monitoring and evaluation system requires:

- **An Information component:** The information component of the M&E system will be GIS based and will draw from the spatial information database of the municipality. The information component will spatially reflect key land, land development, economic, socio-economic, infrastructure, facilities and related information updated through the various information systems already employed by the Municipality, as well as StatsSA and other recognized sources of metadata. It is suggested that the system should be set up to monitor KPIs, where appropriate, on a ward level.

7.8 MONITORING & EVALUATION

- **An assessment model:** Based on the information generated performance will be assessed. A basis assessment model will have to be developed for this purpose.
- **Reporting component:** The reporting component of the M&E system will establish a series of basic reporting formats for the various structures to be reported to. The level / detail of information to be provided will relate directly to the functions of the specific structure to be targeted.
- **A human resources component:** Lastly, but probably most importantly, if an M&E system for the SDF is to be further developed and implemented, existing staff involved with the Spatial Development Framework will have to be augmented with a staff component specifically responsible for M&E. Without such dedicated capacity appropriate M&E will not be implemented.

7.7 REFERENCES

- Alcock, P.G. 2014. *The Hills Above Pietermaritzburg: An Appreciation*. Pietermaritzburg.
- ArcNews, 2012/2013. <http://www.esri.com/esri-news/arcnews/winter1213/articles/improving-service-delivery-and-collaboration-in-south-africa> (Accessed 9 October 2014)
- Cooke, K. http://blogs.esri.com/esri/esri-insider/2014/09/29/engaging-with-executives-a-how-to-for-gis-professionals/?utm_source=esri&utm_medium=email&utm_term=67806&utm_content=article&utm_campaign=globe_2014 (Accessed 9 October 2014)
- CSIR, 2009. *Human Settlement Planning Red Book*. Pretoria.
- Farr, 2007. *Sustainable Urbanism: Urban Design With Nature*. New Jersey.
- GIS Best Practices. GIS for Urban and Regional Planning. <http://www.esri.com/library/bestpractices/urban-regional-planning.pdf> (Accessed 04 November 2014)
- Iyer, 2014. *Musunduzi SDF Draft Status Quo Report*. Durban.
- Martin, S.M & Tengbhe, S.M. 2008. <http://www.ee.co.za/article/how-to-successfully-implement-gis-in-local-government.html> (Accessed 9 October 2014)
- McKinsey Global Institute, McKinsey Infrastructure Practice, 2013. *Infrastructure productivity: How to save \$1 Trillion a Year*. New York.
- Msunduzi Municipality, 2009. *Msunduzi Spatial Development Framework Review Consolidated Report*. Pietermaritzburg.
- Msunduzi Municipality, 2010. *Environmental Management Framework*. Pietermaritzburg.
- Msunduzi Municipality, 2013. *Integrated Development Plan (IDP) for 2013/14-2015/16*. Pietermaritzburg.
- Msunduzi Municipality, 2014. *Integrated Development Plan (IDP) Review for 2014/15*. Pietermaritzburg.
- Msunduzi Municipality, 2012. *Annual Report 2013/2013*. Pietermaritzburg.
- Provincial Planning Commission, 2013. *KwaZulu-Natal Provincial Growth and Development Plan*. Pietermaritzburg.
- SANBI, 2014. *National Ecological Infrastructure Dialogue*. Pretoria.
- Stratplan, 2014. *Draft LED Strategy for Msunduzi*. Durban.
- Zirkle, M.A. 2003. *Build-Out Analysis in GIS as a Planning Tool With a Demonstration for Roanoke County, Virginia*. http://scholar.lib.vt.edu/theses/available/etd-04252003-140728/unrestricted/Zirkle_Build-Out_ETD.pdf (Accessed 29 October 2014)
- 5 Urban Technology Trends Impacting Urban Planning. 2013. <http://www.streetline.com/blog/5-urban-technology-trends/> (Accessed 29 October 2014)
- World Bank: Urban Populations Statistics, <http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS> (Accessed 08 July 2014)

ANNEXURES

ANNEXURE A:

A1 IDP SCORECARD CODES

INDEX	NATIONAL KEY PERFORMANCE AREAS	STRATEGIC PRIORITY	IDP REF	STRATEGIC OBJECTIVE	OUTCOME & OUTPUT
A	MUNICIPAL TRANSFORMATION AND ORGANISATIONAL DEVELOPMENT	Financially viable and well governed City	A1	Increase institutional capacity and promote transformation	Implement a differential approach to Municipal Financing, planning and support
			A2	Optimise system, procedures and processes	
			A3	Increase performance	
B	BASIC SERVICE DELIVERY	Well serviced; An accessible and connected city; Clean green city	B1	Increase Provision of Municipal Services	Improved access to basic services
			B2	Improve the state of Municipal Infrastructure	
			B3	Improve provision of Social Development Services	
C	LOCAL ECONOMIC DEVELOPMENT	An economically prosperous city	C1	Reduce unemployment	Implementation of Community works Programme and supported Cooperatives
			C2	Increase economic activity	
			C3	Optimise land usage	
D	FINANCIAL VIABILITY AND FINANCIAL MANAGEMENT	A Financially viable and well-governed city	D1	Increase revenue	Improve Municipal Financial and Administrative Capability
			D2	Improve expenditure and SCM	
			D3	Improve budgeting and reporting	
E	GOOD GOVERNANCE AND PUBLIC PARTICIPATION	A Financially viable and well-governed city	E1	Strengthen Governance	Deepen Democracy through a refines Ward Committee System
			E2	Improve the Customer experience & Public participation	
			E3	Promote public knowledge and awareness	
F	CROSS CUTTING ISSUES	A clean green city A Friendly, Safe City	F1	Improve Municipal Planning and spatial development	One window of co-ordination
			F2	Improve community and environmental health and safety	
			F3	Increase access to housing units	

ANNEXURE B:

B1 ALIGNMENT WITH IDP CATALYTIC PROJECTS

MSUNDUZI IDP CATALYTIC PROJECTS					*Projects highlighted in light orange are directly linked to SDF's catalytic 'focus' projects
Project*	Description	Estimated Budget(2014/15 -2016/17)	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas	
Legislative Precinct Development	This is a medium to long-term initiative which will see the development of a new legislative precinct that will better cater for the needs of the legislature and facilitate good governance.	R2 Billion	Quality Urbanism; Social Inclusivity	A financially viable and well-governed city	
Pietermaritzburg Airport Upgrade	This is a short-term project that will see the extension of the existing runway, together with the terminal buildings. This will allow for larger aeroplanes to make use of the airport, thereby attracting additional operators and increasing the amount of feet through the airport.	R0.5 Billion	Global Connectivity; Productive Systems; Sustainable Transport; Social Inclusivity	An accessible, connected city	
Harry Gwala Stadium Upgrade Phase 2	This is a medium to long-term project which will see the development of further stands at the stadium. Associated with this project, in the short to medium term, is the further development and upgrading of the Alexander Park Sports Precinct with additional parking.	R0.5 Billion	Quality Urbanism; Social Inclusivity; Sustainable Services	A friendly, safe city; A well-served city	
International Convention Centre and 5 star Hotel	This is a medium to long-term project that will see the development of an international calibre conference centre- which will allow the city to host international-standard conferences. In the short to medium-term, a 5 star hotel associated with this will be developed.	Private Investment	Global Connectivity; Productive Systems; Social Inclusivity	An economically prosperous city	
Council Civic Centre	This is a medium-term project and will see the further development of the Council Civic Centre to cater for additional needs and demands.	R1.2 Billion	Productive Systems; Social Inclusivity; Sustainable Services	A financially viable and well-governed city	
Integrated Rapid Public Transport System	This project is a short to medium-term project which will see the roll-out of reliable and efficient public transport between key points in the city, thereby reducing resident's commuting times.	R3.2 Billion	Sustainable Transport; Productive Systems; Quality Urbanism; Social Inclusivity	A well-served city; A clean, green city	
Fibre Optic Cable Network	This is a short to medium-term project that will see the development of a leading-edge technology fibre optic telecommunications network leading to increased connectivity and usage, decreased costs, and stimulating growth and development.	R0.5 Billion	Global Connectivity; Productive Systems; Quality Urbanism; Social Inclusivity; Sustainable Services	An accessible, connected city; A well-served city	
Electrical Infrastructure Upgrade	This is a short to medium-term project that will see the rehabilitation and upgrading of the Municipality's electrical infrastructure.	R0.9 Billion	Productive Systems; Quality Urbanism; Sustainable Services	A well-served city	
City- wide CCTV System	Camera surveillance of areas within the Msunduzi Municipality so as to encourage a crime-free environment.	R0.5 Billion	Quality Urbanism; Sustainable Services	A friendly, safe city; A well-served city	
Hero's Acre	This project was mentioned by the KZN Premier in the 2013 State of the Province address, and will be a museum commemorating the Heroes of the Struggle. It will include a wall commemorating the "Seven Days War" on the site where the remains of Moses Mabhida and Jonny Makhathini are buried. The proposed development will cover a developed area of at least 102,000 m2.	R1 Billion	Quality Urbanism; Social Inclusivity	A friendly, safe city; A well-served city	
Freeway Node Development	This is a medium-term project that involves the upgrade of key freeway interchanges within the Municipality so as to ensure more efficient movement of traffic, as well as unlocking strategically located adjacent land for the development of commercial, residential, and associated activities.	R1 Bill	Global Connectivity; Sustainable Transport; Social Inclusivity; Sustainable Services	An accessible, connected city	
Non- Revenue Water Reduction Project	This is a medium to long-term project that will simultaneously increase revenue and reduce water losses. The reduction of water losses will ultimately reduce the demand on our source (dams), which will have a catalytic benefit to the catchment.	R0.5 Bill	Sustainable Services	A financially viable and well-governed city	

ANNEXURE B:

B2 ALIGNMENT WITH DEDT CATALYTIC PROJECTS

DEDT CATALYTIC PROJECTS					
Strategy	Project*	Description	Status	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas
EXPLOIT OPPORTUNITIES ASSOCIATED WITH THE N3 CORRIDOR	Dedicated, large scale truck stops	Designated stop for trucks using the N3 Durban-Gauteng corridor	Envisioned	Sustainable transport	A well-served city; An accessible, connected city
	Development of logistical platforms	Currently uMgungundlovu products are packaged and loaded in Durban for trips to Johannesburg; this represents as waste of fuel and increased costs; a logistical platform should be established north of PMB	Envisioned	Global Connectivity; Productive Systems; Sustainable Transport	A well-served city; An accessible, connected city; An economically prosperous city
	High Speed train between Durban and Johannesburg	High speed train, as part of the development of the Durban-Free State Johannesburg Corridor	Planned	Global Connectivity; Sustainable transport; Quality Urbanism	A well-served city; An accessible, connected city; A clean, green city
	Train coach manufacturing at Mason's Mill	Encourage the manufacture of coaches and rail components at Mason's Mill, and link this to Prasa's refurbishment plan	Envisioned	Productive Systems	An economically prosperous city.
DEVELOPMENT OF LEATHER AND SHOE INDUSTRY	SEZ for leather and footwear companies	Vertical integration of companies in this sector to include entire production process: tanneries, trims, adhesives and retail	Envisioned	Productive systems	An economically prosperous city.
EXPLOIT CAPITAL CITY STATUS OF MUSUNDUZI	CBD Revitalisation	PMB CBD needs to reflect its importance as a provincial capital. Derelict buildings should be restored to their Victorian splendour and the city should be positioned as a preferred location for companies to operate.	Envisioned	Productive Systems; Quality Urbanism	A clean, green city; A friendly, safe city
	Development of a Five Star Hotel	Currently there are a shortage of high-class hotels in the city; this limits business tourism growth	Envisioned	Productive Systems; Quality urbanism	A well-served city
	Further Expansion of PMB Airport	Revamp and expansion of existing airport to make it more accessible and attractive to use for both business and leisure	Planned	Global connectivity; Sustainable Transport; Productive Systems; ; Social Inclusivity	A well-served city; An accessible, connected city
	Establish a Museum & Heritage Cluster	Consolidate a number of the disjointed collections into a modern and iconic world class museum	Envisioned	Quality Urbanism	A well-served city
	Development of a Large Scale Conference Centre	Despite being an events capital; PMB offers very few conferencing options. The development of a conference centre at the Royal Show Grounds could offer greater opportunities for hosting more sporting events	Envisioned	Global connectivity; Quality Urbanism	A well-served city; An accessible, connected city
	Development of an Eco-Estate in PMB	PMB needs an up-market residential estate so as to attract top business people.	Envisioned	Productive Systems; Quality Urbanism; Sustainable Services	A clean, green city; A safe, friendly city
DEVELOPMENT OF EDUCATIONAL NICHE MARKETS	Film School	The development of a world class film school.	Envisioned	Productive systems	An economically prosperous city
	Development of a Flight School	The development of a flight school at Oribi Airport.	Envisioned	Productive systems	An economically prosperous city
UTILISE ENGINEERING SKILLS	Encourage the location of an airline manufacturer in the Municipality	This would be beneficial to the downstream component manufacturers already located in the Municipality	Envisioned	Productive systems	An economically prosperous city
	Establish an electronics hub	Cluster companies which supply electronic components for the motor industry	Envisioned	Productive systems	An economically prosperous city
DEVELOP THE ICT SECTOR	Msunduzi ICT incubator	To provide an enabling environment for the emerging ICT small business to be sustainable and competitive in regional, provincial and nations markets	Exploratory	Global connectivity; Productive systems	An economically prosperous city

*Projects highlighted in light orange are directly linked to SDF's catalytic 'focus' projects

ANNEXURE B:

B3 ALIGNMENT WITH THE MSUNDUZI CBD LAP

Project code.	Project Name	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas	*Projects highlighted in light orange are directly linked to SDF's catalytic focus projects
URBAN MANAGEMENT PROJECTS				
UM01	Improved Service Delivery	Sustainable Services	A Well-Serviced City	
UM02	Better Buildings Programme	Quality Urbanism	A Clean, Green City; A Friendly, Safe City	
PRECINCT AND STATUTORY PLANNING				
PP01	Review of the Msunduzi Town Planning Scheme	Productive Systems; Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City	
PP02	Northern Gateway (Masukwana/East Street) Precinct Plan	Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City	
PP03	Dales Park Precinct Plan	Quality Urbanism; Ecological Infrastructure	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City	
PP04	Alexandra Park Precinct Plan	Quality Urbanism; Ecological Infrastructure	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City	
PP05	Architectural Heritage Assessment	Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City	
STRATEGIC DEVELOPMENT PROJECTS				
SP01	Pietermaritzburg Urban Renewal Project*	Quality Urbanism	A Friendly, Safe City	
SP02	Legislature Precinct Development*	Quality Urbanism; Social Inclusivity	A Financially Viable and Well- Governed City	
SP03	Harry Gwala Stadium Upgrade Phase 2*	Quality Urbanism	A Friendly, Safe City;	
SP04	International Convention Centre and 5 star Hotel*	Global Connectivity	A Well-Serviced City; An Accessible, Connected City	
SP05	Council Civic Centre*	Quality Urbanism; Sustainable Services	A Friendly, Safe City	
SP06	Freedom Square Redevelopment	Quality Urbanism; Ecological Infrastructure	A Friendly, Safe City	
SP07	Intersite Station Precinct Upgrade	Sustainable Transport	An Economically Prosperous City	
SP08	Campsdrift Waterfront	Quality Urbanism	An Economically Prosperous City	
SP09	Dorpspruit Waterfront	Quality Urbanism	An Economically Prosperous City	
SP10	Foundry Park	Quality Urbanism; Ecological Infrastructure	An Economically Prosperous City	
SP11	Alexandra Park	Quality Urbanism; Ecological Infrastructure	An Economically Prosperous City	
TRANSPORTATION				
TR01	Integrated Rapid Public Transport System	Sustainable Transport; Quality Urbanism	A Well-Serviced City; An Accessible, Connected City	
TR02	Parking Impact Study	Sustainable Transport; Quality Urbanism	An Accessible, Connected City	
TR03	Burger Street Extension	Sustainable Transport; Quality Urbanism	An Accessible, Connected City	
TR04	Burger Street to Manning Avenue/Larch Ave	Sustainable Transport; Quality Urbanism	An Accessible, Connected City	
TR05	Retief Street Extension	Sustainable Transport; Quality Urbanism	An Accessible, Connected City	
TR06	College Road Extension (outside study area)	Sustainable Transport; Quality Urbanism	An Accessible, Connected City	

* Planning already underway

ANNEXURE B:

B3 ALIGNMENT WITH THE MSUNDUZI CBD LAP (continued)

Project code.	Project Name	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas	*Projects highlighted in light orange are directly linked to SDF's catalytic focus projects
INFRASTRUCTURE				
IN01	Non- Revenue Water Reduction Project	Sustainable Services	A Well-Serviced City; A Friendly, Safe City	
IN02	City- wide CCTV System	Quality Urbanism	A Well-Serviced City	
IN03	Electrical Infrastructure Upgrade	Sustainable Services	A Well-Serviced City	
IN04	Optic Fibre Cable Network	Global Connectivity; Sustainable Services	A Well-Serviced City, An Accessible, Connected City	
ENVIRONMENT & POS				
E01	CACEN Open Space System	Quality Urbanism; Ecological Infrastructure	A Clean, Green City	
E02	Dorpsruit River Park	Quality Urbanism; Ecological Infrastructure	A Clean, Green City	
E03	Protection of Urban Parks	Quality Urbanism; Ecological Infrastructure	A Clean, Green City	
E04	Water Quality Monitoring Programme	Quality Urbanism; Ecological Infrastructure	A Clean, Green City; A Friendly, Safe City	
E05	Tree Planting	Quality Urbanism; Ecological Infrastructure	A Clean, Green City	
HOUSING				
HH01	CRU Development at Northern Gateway	Productive Systems; Social Inclusivity; Sustainable Services	A Well-Serviced City; An Accessible, Connected City; A Friendly, Safe City	
HH02	CRU Development at Dales Park	Productive Systems; Social Inclusivity; Sustainable Services	A Well-Serviced City; An Accessible, Connected City; A Friendly, Safe City	
HH03	GAP Housing Pilot Projects	Productive Systems; Social Inclusivity; Sustainable Services	A Well-Serviced City; An Accessible, Connected City; A Friendly, Safe City	

ANNEXURE B:

B4 ALIGNMENT WITH THE MSUNDUZI SEDIS LAP

Project code.	Project Name	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas	*Projects highlighted in light orange are directly linked to SDF's catalytic focus projects
PRECINCT AND STATUTORY PLANNING				
SED-P01	R56 Richmond Road Precinct Plan	Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City	
SED-P02	R103 Lynnfield Park/Umlaas Road Precinct Plan	Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City	
SED-P03	R103 Ashburton Precinct Plan	Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City	
SED-P04	North East Precinct Plan	Quality Urbanism	A Well-serviced City; An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City	
SED-P05	Review of Ashburton/Lynnfield Park TPS	Quality Urbanism	A Financially Viable and Well- Governed City	
SED-P06	Review of Edendale LUF and Extension of Pietermaritzburg TPS to include Greater Edendale	Quality Urbanism	A Financially Viable and Well- Governed City	
TRANSPORTATION				
ED-T01	Integrated Rapid Public Transport System	Sustainable Transport; Quality Urbanism; Sustainable Services	An Accessible, Connected City; An Economically Prosperous City; A Clean, Green City; A Friendly, Safe City; A Financially Viable and Well- Governed City	
SED-T02	Ambleton – Shenstone Activity Spine and Bus Route	Sustainable Transport; Quality Urbanism; Sustainable Services	An Accessible, Connected City; A Clean, Green City; A Friendly, Safe City	
SED-T03	Ambleton/Shenstone – Edendale Link Roads and Street Network	Sustainable Transport; Quality Urbanism; Sustainable Services	An Accessible, Connected City; A friendly, safe city; An Economically prosperous City	
SED-T04	Fox Hill – Shortts Retreat Link	Sustainable Transport; Quality Urbanism; Sustainable Services	An Accessible, Connected City	
SED-T05	P478 Realignment	Sustainable Transport; Sustainable Services	An Accessible, Connected City	
SED-T06	D354 Upgrade	Sustainable Transport; Sustainable Services	An Accessible, Connected City	
SED-T07	Northeast Precinct Link Roads and Street Network	Sustainable Transport; Quality Urbanism; Sustainable Services	An Accessible, Connected City; A friendly, safe city; An Economically prosperous City	
SED-T08	N3 Interchanges	Sustainable Transport; Sustainable Services	An Accessible, Connected City; An Economically Prosperous City	
SED-T09	Traffic Management System	Sustainable Transport; Quality Urbanism; Sustainable Services	An Accessible, Connected City; A Clean Green City; A Friendly, Safe City	
INFRASTRUCTURE				
SED-I01	61 Pipeline Off-Takes	Sustainable Services	A Well-Serviced City; An Economically Prosperous City; A Financially Viable and Well-Governed City	
SED-I02	Lynnfield Park WWTW	Sustainable Services	A Well-Serviced City; A Clean, Green City	
SED-I03	Ambleton/Shenstone Sanitation System	Sustainable Services	A Well-Serviced City; A Clean, Green City	
SED-I04	Mpushini/Malkopspuit WWTW/Sewers	Sustainable Services	A Well-Serviced City; A Clean, Green City; An Economically Prosperous City	
SED-I05	Mkhondeni/Mpushini/Msunduzi WWTW/Sewers	Sustainable Services	A Well-Serviced City; A Clean, Green City; An Economically Prosperous City	
SED-I06	Msunduzi Water Savings Programme	Sustainable Services	A Well-Serviced City; A Clean, Green City	
SED-I07	Eastern Electricity Substations	Sustainable Services	A Well-Serviced City; An Economically Prosperous City; A Financially Viable and Well-Governed City	
SED-I08	Northern and Western Electricity Network	Sustainable Services	A Well-Serviced City	
SED-I09	Richmond Road Cemetery	Sustainable Services	A Well-Serviced City; An Accessible, Connected City	

ANNEXURE B:

B4 ALIGNMENT WITH THE MSUNDUZI SEDIS LAP (continued)

Project code.	Project Name	Alignment with SDF 7 Pillars of Sustainable Cities	Alignment with IDP Strategic Priority Areas	Projects highlighted in light orange are directly linked to SED's catalytic focus projects
ENVIRONMENT				
SED-E01	SEDis Open Space System	Ecological Infrastructure; Quality Urbanism	A Well-Serviced City; An Accessible, Connected City; A Clean, Green City; A Friendly, Safe City	
SED-E02	Mpushini SEA and SEMP	Ecological Infrastructure	A Clean, Green City	
SED-E03	Conservation Management Initiative	Ecological Infrastructure; Quality Urbanism	A Clean, Green City; A Friendly, Safe City	
SED-E04	Water Quality Monitoring Programme	Ecological Infrastructure; Quality Urbanism; Sustainable Services	A Well-Serviced City; A Clean, Green City	
HOUSING				
SED-H01	Ambleton/Shenstone Housing Development and Informal Settlement Upgrade	Productive Systems; Social Inclusivity; Sustainable Services	A Well-Serviced City; An Accessible, Connected City; A Clean, Green City; A Friendly, Safe City	
SED-H02	Sakha Informal Settlement Upgrade	Productive Systems; Social Inclusivity; Sustainable Services	A Well-Serviced City; An Accessible, Connected City; A Clean, Green City; A Friendly, Safe City	
SED-H03	R103 Precinct Greenfield Housing Development	Productive Systems; Social Inclusivity; Sustainable Services	An Accessible, Connected City; A Friendly, Safe City	
SED-H04	Northeast Precinct Greenfield Housing Development	Productive Systems; Social Inclusivity; Sustainable Services	An Accessible, Connected City; A Friendly, Safe City	

ANNEXURE B:

B5 CURRENT MSUNDUZI CAPITAL PROJECTS (RELEVANT TO SDF PLANNING)

MSUNDUZI GRANT FUNDED CAPITAL PROJECT WITH SPATIAL IMPLICATIONS				
NO	PROJECT DESCRIPTION	Project No	FUNDER	BUDGET/Rands
CEMETERIES				
1	CNL - Cemeteries & Crematoria Sector plan-App of Consultant-Investigate & Identify land for new Cemeteries	3926411502	Msunduzi	100 000
2	CNL - Hollingwood Cemetery	3926411501	Msunduzi	7 000 000
3	CNL - Survey-Perimeter Fencing & gates all cemeteries	3926411503	Msunduzi	300 000
FACILITIES				
4	CNL - Alarm system on council property	3286291501	Msunduzi	250 000
5	CNL - CCTV Surveillance cameras	4806561501	Msunduzi	250 000
6	CNL - Upgrade Electronic timing system Alexandra pool	4326561501	Msunduzi	200 000
7	CNL - Air Pollution Monitoring Station	3476301501	Msunduzi	200 000
8	CNL - BUILDINGS	5016301501	Msunduzi	250 000
9	CNL - COMPLETION OF MOSES MABHIDA MULTI-PURPOSE BUILDING	4666301503	Msunduzi	2 000 000
10	CNL - Fencing of Parks Lotus park	4026301501	Msunduzi	1 500 000
11	CNL - Parking and Tatham Gallery Grounds	4806411501	Msunduzi	750 000
12	CNL - Parks Offices-Resurface driveway and parking	3906301501	Msunduzi	500 000
13	CNL - Refurbishment of Airconditioning Plant	4806301502	Msunduzi	300 000
14	CNL - REFURBISHMENT OF CITY HALL BUILDING - (Door, Windows, Gutters, Down Pipe, Moldings, Toilets Etc) Appt AMAFA Consultant for application and costing	5046301501	Msunduzi	250 000
15	CNL - Refurbishment of Tatham Gallery & Old Presbyterian Church Facade and Exterior of Bldg	4806301504	Msunduzi	1 000 000
16	CNL - Training Facility-MUFC-Toilets, changeroom, fencing	4666301502	Msunduzi	1 000 000
17	CNL - Upgrade of Communication Centre	2966301501	Msunduzi	1 000 000
18	CNL - REPAIRS TO BRICKWORK PROFESSOR NYEMBEZI BUILDING	2206301502	Msunduzi	500 000
19	CNL - REPLACEMENT EDENDALE ROAD DEPOT ROOF - DAMAGED BY WHITE ANTS	1646301502	Msunduzi	400 000
20	CNL - Alex Park revitalisation master plan implementation	3906561501	Msunduzi	500 000
ROADS / TRANSPORT				
21	CNL - BROOKSIDE TAXI HOLDING AREA	1316311503	Msunduzi	4 500 000
22	CNL - BURGER ST EXTENSION	1256011502	Msunduzi	10 000 000
23	CNL - CHOTA MOTALA INTERCHANGE	1316311502	Msunduzi	7 121 832
24	CNL - CONNOR - OTTO'S BLUFF ROADS - LINK	1256011535	Msunduzi	2 000 000
25	CNL - INSTALLATION OF TRAFFIC SIGNALS	1316541501	Msunduzi	1 000 000
26	CNL - LESTER BROWN LINK ROAD	1256011536	Msunduzi	5 000 000
27	CNL - NON MOTORISED TRANSPORT INFRASTRUCTURE DESIGN	1316311505	Msunduzi	500 000
28	CNL - ROAD REHABILITATION - PMS	1256011534	Msunduzi	12 047 168
29	CNL - TRAFFIC CALMING MEASURES	1316011501	Msunduzi	1 500 000
30	CNL - Upgrade SWD system in the CBD Roads - Chapel Street floods, etc	1266021503	Msunduzi	350 000
31	CNL - Upgrade SWD system in the Imbali Roads - Lower Sinkwazi Rd flooding, etc	1266021502	Msunduzi	300 000
32	CNL - UPGRADING OF ROADS IN ASHBURTON - Design	1256011516	Msunduzi	800 000
SOLID WASTE				
33	CNL - Develop new Edn garden site/recycling centre	1846411501	Msunduzi	500 000
34	CNL - Revamping of Ritchie, Link & Prestbury G/Sites	1846411502	Msunduzi	1 000 000
SPORT FACILITY				
35	CNL - Build new pool in Edendale Valley	4316411503	Msunduzi	1 000 000
36	CNL - Msunduzi Regional Athletics Track-Alexandra Park	4316411501	Msunduzi	10 200 000
37	CNL - Relocate parking and entrance Olympic pool	4366411501	Msunduzi	200 000
38	CNL - Sustainability plan-Harry Gwala Stadium	4666301501	Msunduzi	5 000 000
ELECTRICITY				
39	CNL - STREETLIGHTING	7136181501	Msunduzi	6 000 000
WATER				
40	CNL - REHABILITATION OF WATER INFRASTRUCTURE	7876051505	Msunduzi	2 000 000

ANNEXURE B:

B6 CURRENT GRANT-FUNDED PROJECTS (RELEVANT TO SDF PLANNING)

MSUNDUZI GRANT FUNDED CAPITAL PROJECT WITH SPATIAL IMPLICATIONS				
	Project Description	Project No	Funder	CURRENT BUDGET
	CEMETERIES			
1	MIG - INSTALLING NEW CREMATOR AT CREMATOR ONE	3946561504	MIG	R1 800 000.00
	ECONOMIC			
2	MARKET BUILDINGS		COGTA	R4 166 901.00
3	MARKET PLANT AND EQUIPMENT		COGTA	R2 338 462.00
4	MASSIFICATION		COGTA	R4 277 000.00
	ELECTRICITY			
5	INST OF SOLAR POWER STREET AND TRAFFIC LIGHTS		COGTA	R8 932 075.00
6	ELECTRICITY DEMAND SIDE MANAGEMENT GRANT		NAT TREASURY	R2 019 541.00
7	NHLALAKAHLE ELECTRIFICATION		KZN PROVINCIAL TREASURY	R5 318 058.00
8	INTEGRATED NATIONAL ELECTRICITY PROGRAMME - ELECTRIFICATION		NAT TREASURY	R18 002 632.00
9	INTEGRATED NATIONAL ELECTRICITY PROGRAMME - UPGRADE OF AGEING INFRASTRUCTURE		NAT TREASURY	R94 881 875.00
10	INTEGRATED NATIONAL ELECTRICITY PROGRAMME - PEACE VALLEY 3		NAT TREASURY	R3 000 000.00
11	MIG - HIGH MAST LIGHTS IN VULINDLELA & GREATER EDENDALE	7136181502	MIG	R10 000 000.00
	HOUSING			
12	EDENDALE PRIVATE LAND INITIATIVE - CAPITAL COSTS - DOHS		DOHS	R1 387 597.00
13	WOODLANDS EXT 1	K 1997 0025	DOHS	R126 558.00
14	COPEVILLE		DOHS	R8 385 843.00
15	EDENDALE UNIT H	K 2002 0014	DOHS	R24 498 103.00
16	CINDERELLA PARK PH1	K 1994 0057	DOHS	R227 724.00
17	SITE 11	K 1994 0058	DOHS	R325 364.00
18	TAMBOVILLE	K 1994 0379	DOHS	R217 797.00
19	WILLOWFOUNTAIN EE PH1	K 1995 0472	DOHS	R125 276.00
20	WILLOWFOUNTAIN EE - PH2	K 1999 0041	DOHS	R1 873 816.00
21	SHENTON AMBLETON		DOHS	R123 565.00
22	AMBLETON PHASE 2	K 2002 0015	DOHS	R1 296 768.00
23	JIKA JOE INFORMAL SETTLEMENTS		DOHS	-
	ROADS / TRANSPORT			
24	INTEGRATED RAPID PUBLIC TRANSPORT NETWORK PLANNING		NAT TREASURY	R195 643 464.00
25	UPGRADING OF NEW ENGLAND ROAD: INVESTIGATION AND DESIGN PH 11		PROVINCIAL	R2 963.00
26	MIG - UPGRADE DESIGN OF GRAVEL ROADS - VULINDLELA - D 1128 (Phase 1, 2 and 3)	1256011503	MIG	R3 000 000.00
27	MIG - UPGRADE OF GRAVEL ROADS - WILLOWFOUNTAIN ROADS	1256011504	MIG	R5 000 000.00
28	MIG - HORSE SHOE ACCESS RD AND PASSAGES IN IMBALI STAGE 1 & 2	1256011505	MIG	R1 000 000.00
29	MIG - UPGRADE OF GRAVEL RDS - EDN - WARD 12 - MOSCOW AREA RDS	1256011506	MIG	R4 500 000.00
30	MIG - UPGRADE OF ROADS IN EDENDALE - KWANYAMAZANE ROADS	1256011507	MIG	R2 700 000.00
31	MIG - UPGRADE OF ROADS IN EDENDALE - Route 7B	1256011508	MIG	R300 000.00
32	MIG - UPGRADE OF GRAVEL ROADS - EDENDALE - WARD 16	1256011509	MIG	R1 500 000.00
33	MIG - UPGRADE OF INTERNAL ROADS - HANIVILLE	1256011510	MIG	R1 500 000.00
34	MIG - UPGRADE GRAVEL ROADS IN EDENDALE IN ESIGODINI	1256011511	MIG	R5 000 000.00
35	MIG - UPGRADE OF GRAVEL ROADS - EDENDALE - STATION RD	1256011512	MIG	R9 500 000.00
36	MIG - REHABILITATION OF ROADS IN ASHDOWN	1256011513	MIG	R2 500 000.00
37	MIG - UPGRADE OF GRAVEL ROADS - EDENDALE - Roads in Unit 14/Unit P - Design	1256011514	MIG	R450 000.00
38	MIG - UPGRADE OF GRAVEL ROADS - EDENDALE - MACHIBISA / DAMBUZA RDS	1256011515	MIG	R400 000.00
39	MIG - UPGRADE OF ROADS IN PEACE VALLEY - (Plan & Design in 2014/15) - 10km	1256011517	MIG	R250 000.00
40	MIG - UPGRADE OF GRAVEL ROADS - GREATER EDENDALE - WARD 17 Roads (Phase 3, Unit 13)	1256011518	MIG	R1 500 000.00
41	MIG - UPGRADE OF GRAVEL ROADS - EDENDALE - DAMBUZA MAIN ROAD Major SWD Upgrade	1256021519	MIG	R300 000.00
42	MIG - UPGRADE OF GRAVEL ROADS - GREATER EDENDALE - GEORGETOWN & SURROUNDING AREA	1256011520	MIG	R800 000.00
43	MIG - UPGRADE OF GRAVEL ROADS - VULINDLELA - D2069 (MTHALANE RD) -Phase2	1256011521	MIG	R5 000 000.00
44	MIG - UPGRADE OF GRAVEL ROADS - GREATER EDENDALE - CALUZA ROADS	1256011522	MIG	R1 500 000.00
45	MIG - UPGRADE OF GRAVEL ROADS - GREATER EDENDALE - Ward 10 Roads - Stormwater upgrade	1256011523	MIG	R1 000 000.00
46	MIG - UPGRADE OF GRAVEL ROADS - GREATER EDENDALE - Snathing Rds - 5.0km - (Mvubu Rd - 0.3km, Gudintaba Rd - 0.4km, Gudintaba 2 Rd - 0.4km, Mpompini Rd - 0.6km, Khoza Rd - 0.8km, Magaba Rd - 0.8km and Hlathini Ext Rd - 2.0km)	1256011524	MIG	R800 000.00
47	MIG - UPGRADE OF GRAVEL ROADS - VULINDLELA - WARD 3 ROADS	1256011525	MIG	R1 000 000.00

ANNEXURE B:

B6 CURRENT GRANT-FUNDED PROJECTS (RELEVANT TO SDF PLANNING) (continued)

48	MIG - UPGRADING OF GRAVEL ROADS - GREATER EDENDALE - HAREWOOD AREA	1256011526	MIG	R400 000.00
49	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - WARD 1 ROADS	1256011527	MIG	R2 000 000.00
50	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - WARD 4 ROADS	1256011528	MIG	R350 000.00
51	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - WARD 5 ROADS - incl. Henley Dam Area	1256011529	MIG	R350 000.00
52	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - WARD 6 ROADS	1256011530	MIG	R350 000.00
53	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - WARD 7 ROADS	1256011531	MIG	R350 000.00
54	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - WARD 8 ROADS - Masoyi Rd, etc	1256011532	MIG	R350 000.00
55	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - WARD 9 ROADS	1256011533	MIG	R350 000.00
56	MIG - UPGRADING OF GRAVEL ROADS - EDENDALE - WARD 22 - 8,4km roads - Storm-water drainage provision	1256021537	MIG	R300 000.00
57	NEW FOOTPATHS, PASSAGES, KERBING & CHANNELING - SOBANTU	1256131501	MIG	R300 000.00
58	ASHDOWN BANK PROTECTION AGAINST COLLAPSING OF ADJACENT HOUSES - P15	1266021501	MIG	R800 000.00
59	MIG - UPGRADE SWD IN GREATER EDENDALE - FLOODING HOUSES IN SIYAMU	1266021504	MIG	R300 000.00
60	MIG - UPGRADE OF BRIDGES - Pedestrian Bridge Over River - Smero/Esigodini	1296141501	MIG	R300 000.00
61	MIG - WOODHOUSE PEDESTRIAN BRIDGE	1296141502	MIG	R2 700 000.00
62	MIG - BUS STOP SHELTERS	1316311501	MIG	R1 000 000.00
63	MIG - UPGRADING OF GRAVEL ROADS - VULINDLELA - D2069 (MTHALANE RD) -Phase2	1256011538	MIG	R635 663.00
SEWERAGE				
64	SANITATION BUCKET ERADICATION - VIP INSTALLATIONS		COGTA	R3 535.00
65	MIG - REHABILITATION OF PUBLIC ABLUTIONS	1416301501	MIG	R500 000.00
66	MIG - REHABILITATION OF SANITATION INFRASTRUCTURE	2026051502	MIG	R9 168 000.00
67	MIG - SEWER PIPES UNIT H	2026051503	MIG	R7 850 000.00
68	MIG - SEWER PIPES AZALEA - PHASE 2	2026051504	MIG	R8 970 000.00
69	MIG - ELIMINATION OF CONSERVANCY TANKS - (SEWER)	2026081501	MIG	R1 000 000.00
70	MIG - SERVICE MIDBLOCK ERADICATION IN SOBANTU, ASHDOWN & IMBALI (SEWER)	2026081502	MIG	R8 000 000.00
SOLID WASTE				
71	MIG - LANDFILL UPGRADE	1856421501	MIG	R8 163 550.00
SPORT FACILITY				
72	PROVISION OF SPORTS FACILITIES - ALEXANDRA PARK ATHLETIC TRACK		SPORTS	R19 075.00
73	WADLEY STADIUM		SPORTS	R121 000.00
74	MIG - REFURBISH PLANT ROOM AND BUILDINGS AT BERG ST POOL	4356301501	MIG	R2 000 000.00
75	MIG - CALUZA SPORTS FACILITY	4506301501	MIG	R6 500 000.00
76	MIG - REGIONAL ATHLETIC TRACK SPORT COMPLEX	4666411501	MIG	R11 203 225.00
77	MIG - REGIONAL ATHLETIC TRACK SPORT COMPLEX	4666411502	MIG	R748 795.00
URBAN REDEVELOPMENT				
78	SPOORNET - RELOCATION OF BENEFICIARIES		SPOORNET	R382 077.00
79	PUBLICITY HOUSE RENOVATIONS		COGTA	R1 417 166.00
80	NEIGHBOURHOOD DEVELOPMENT PARTNERSHIP GRANT		NAT TREASURY	R16 243 233.00
81	PMB URBAN REGENERATION PROJECT PHASE 2		COGTA	R8 000 000.00
WATER				
82	MUNICIPAL WATER INFRASTRUCTURE SERVICE GRANT		NAT TREASURY	R11 389 010.00
83	MIG - REDUCTION OF NON REVENUE WATER	7876051506	MIG	R11 203 225.00
84	MIG - SERVICE MIDBLOCK ERADICATION IN SOBANTU, ASHDOWN & IMBALI (WATER)	7876051507	MIG	R300 000.00
85	MIG - EDENDALE PROPER NEW MAINS & RETICULATION	7876051503	MIG	R500 000.00
86	MIG - COPESVILLE RESERVOIR	7876061501	MIG	R300 000.00

ANNEXURE B:

B7 ALIGNMENT WITH THE MSUNDUZI SEA INDICATORS CHECKLIST

SUSTAINABILITY CRITERIA	Y/N/P or N/A	COMMENT
Biophysical: Efficient and sustainable use of natural resources		
Degraded areas are identified and rehabilitated to limit soil erosion and promote land productivity	N/A	This is implicit throughout the SDF but requires detailed ground-truthing (to be spatially defined) and requires management related intervention
Aquatic ecosystems are in a healthy state to ensure that the resource remains fit for all other uses and minimum water quality targets are maintained	N/A	Management related intervention (not able to be spatially defined)
Areas of high biological diversity, are utilised and managed to promote the ecosystem goods and services they supply	Y	The ecological infrastucture component of the SDF fully encompasses areas of high biological diversity
Alien invasive species are controlled and managed to prevent further infestation	N/A	Management related intervention following detailed ground-truthing
Wetland areas, streams and rivers are preserved, rehabilitated and managed to maintain ecological function	Y	Spatially, these areas have been defined and are in theory to be preserved (through adequate management)
Flood prone areas are managed to promote ecosystem goods and services and minimise flood risks and impacts to flood regimes	Y	1:100yr floodlines are spatially represented and additional watercourses identified have precautionary buffer lines
Areas of geotechnical or geological risk or instability are delineated and are avoided in land development	Y	While no empiracle data capture was undertaken on geology, a 1:3 slope analysis was undertaken and these steep areas are represented on the map.
High potential agricultural land is used (or can potentially be used) for sustainable agricultural production	Y	This has been mapped.
Compact, human-orientated land development patterns use land efficiently	Y	Densification is a hallmark of the 2014 SDF.
Minimum air quality standards for the protection of human health and wellbeing and natural systems are maintained	N/A	Management related intervention (not spatially defined)
A carbon neutral state is achieved through appropriate greenhouse gas emission reductions, the use of alternative technology and carbon off-setting schemes	N/A	Management related intervention (not achieved as yet and not spatially defined)
The use of renewable resources is promoted and the reliance on non-renewable resources is reduced	Y	While it is promoted in the sustainable services section, this is not spatially represented in the SDF as it is a management related intervention
Social: Basic human needs must be met to ensure resources necessary for long-term survival are not destroyed for short term gain	Y/N/P or N/A	COMMENT
A basic level of water supply is provided to all residents without affecting the integrity of natural ecosystems	N/A	Promoted in Sustainable services section but requires detailed management planning
All residents have an income; access to appropriate, secure and affordable housing; and, have access to public services to meet basic needs and live with dignity	N/A	Promoted in Sustainable services section but requires detailed management planning
Communities vulnerable to environmental risk are identified and strategies are developed to minimise risk and promote human well-being.	Y	Steep slopes and floodlines are mapped, with additional buffering in previously unmapped watercourse areas
The waste stream to landfill has been reduced to a minimum, with recovery, re-use and recycling of materials undertaken as standard practice.	N/A	Promoted in Sustainable services section but requires detailed management planning
Efficient and effective liquid waste management protects human health and the natural environment	N/A	Promoted in Sustainable services section but requires detailed management planning
An efficient, safe, integrated and convenient network of public transport, bicycle routes and pedestrian access is provided	Y	This is a key recommendation of the SDF which is spatially represented (albeit schematically in parts) - sustainable transport section refers.
Services, amenities, buildings, facilities, community parks and open spaces are accessible to all people; and, safe, clean and pleasant environments are provided that protect and enhance human health and wellbeing and improve the overall quality of life.	Y	The quality urbanism section of the SDF is dedicated to these objectives - and spatially represented as far as possible (e.g. sustainable urban centres).
High quality, affordable formal education is available and accessible for students of all ages	N/A	While this is implicit (spatially & quantitatively) in the section which un-packs social facilities it is not tackled any further in the SDF in a qualitative sense. A highly detailed sector plan is needed for this, coupeld with adequate funding & management.
Indigenous ecological and cultural knowledge is developed and integrated with planning and management processes	Y	Key stakeholder & community consultation aimed to achieve this as far as reasonably practicable.
The city's sense of place and cultural and natural heritage resources are protected and maintained	Y	Retaining the city's historical charm has been a focal point of the SDF - as well as reviving it.

ANNEXURE D:

B7 ALIGNMENT WITH THE MSUNDUZI SEA INDICATORS CHECKLIST (continued)

Economic: Socio-economic systems are embedded within, and dependent upon, eco-systems	Y/N/P or N/A	COMMENT
Development is informed by social needs and the improvement of quality of life and does not compromise the biophysical environment	Y	Population growth & associated individual & city-wide developmental needs have been carefully calculated, so that future land release requirements may be understood and mitigated. Densification along key corridors is the first strategy to accommodate additional population numbers, followed by strategically located land parcels - being careful to avoid rich biodiversity areas, watercourses etc. In areas where there is some unavoidable conflict, it needs to be understood that this plan is projecting to the 2050 time horizon and is thus not necessarily set in stone. Mitigation hierarchy must be considered here, and dealt with on a case by case basis - but bearing the cumulative impacts of each in mind (e.g. with further SEA studies such as that which was done for Mkhondeni).
Alternative sustainable livelihood strategies are promoted.	P	This is implicit in the Quality Urbanism pillar of the SDF
An equitable and broad range of employment opportunities exist that provide workers with income to support themselves and their families.	P	This is implicit in the Quality Urbanism pillar of the SDF
Infrastructure and facilities are well-maintained to meet the needs of residents and business in ways that reduce environmental impacts	P	This is implicit in the Sustainable Services pillar of the SDF
Most of the daily food needs of Msunduzi are sustainably grown, processed and packaged in urban and rural agricultural schemes in the city and surrounding agricultural areas	P	Urban & subsistence agriculture are accommodated in the SDF spatially & in the Productive Systems pillar.
Green design principles are used to ensure environmental efficiency and minimise use of resources	P	While the Sustainable Services section speaks to this generally, this is a management/operational item which must be realised in future with additional policies, by-laws etc.
Clean, renewable and efficient energy sources; and, transportation options that reduce fossil fuel dependence are promoted, so as to reduce energy costs and produce low greenhouse gas emissions and other air contaminants	N/A	While the Sustainable Services section speaks to this generally, this is a purely management/operational item.
City finances are managed responsibly and include full life-cycle cost perspectives, including long-term maintenance, repair and replacement costs	P	The implementation strategy considers these thrusts, looking at CAPEX & OPEX related budgets, and various sources of funding.
The cost of ecosystem goods and services are integrated into development planning	Y	The Ecological Infrastructure pillar is dedicated to this.
Governance: An enabling environment for ongoing dialogue between all role players is created	Y/N/P or N/A	COMMENT
Environmental issues are prioritised and the Msunduzi council is committed to achieving environmental sustainability	Y	They are prioritised adjacent to other key developmental requirements (e.g. housing). Climate change is also recognised as a threat and has been prioritised for incorporation into all municipal plans. The IDP sets into place the idea of a clean, green city - as does the aligning Ecological Infrastructure pillar of the SDF.
Environmental issues and priorities are embedded in the Performance Management System and Key Performance Areas of all components of the municipality; and, are integrated into municipal planning	Y	In terms of the SDF plan, this has been done throughout the series of planning phases.
Decision-making processes are defensible, clear and transparent	N/A	Not within the ambit of an SDF
Participation in LA21 is increased and the public is encouraged to participate in municipal planning initiatives	N/A	The LA21 platform is acknowledged in the SDF report but this is the extent of its incorporation.
Capital investment projects undertaken or facilitated by the Municipality adhere to legislated requirements and Integrated Environmental Management principles	N/A	At a high-level, this is the case. However in reality this can only be ascertained/realised when individual projects kick-off.
Msunduzi is prepared to respond rapidly and to deal effectively with known hazards and emerging threats, to limit the adverse impacts of events and effectively manage emergencies	N/A	Requires a disaster management plan.
Access to environmental information is facilitated and encouraged	Y	Numerous presentations, key stakeholder & community consultation aimed to achieve this.
Regular monitoring is undertaken to report on progress towards sustainability so that the city can learn and adapt as needed.	N/A	This is an internal departmental requirement.
Communities are informed, empowered and involved in the process of democratic governance	Y	Community consultation with translation aimed to achieve this during the 2014 SDF.