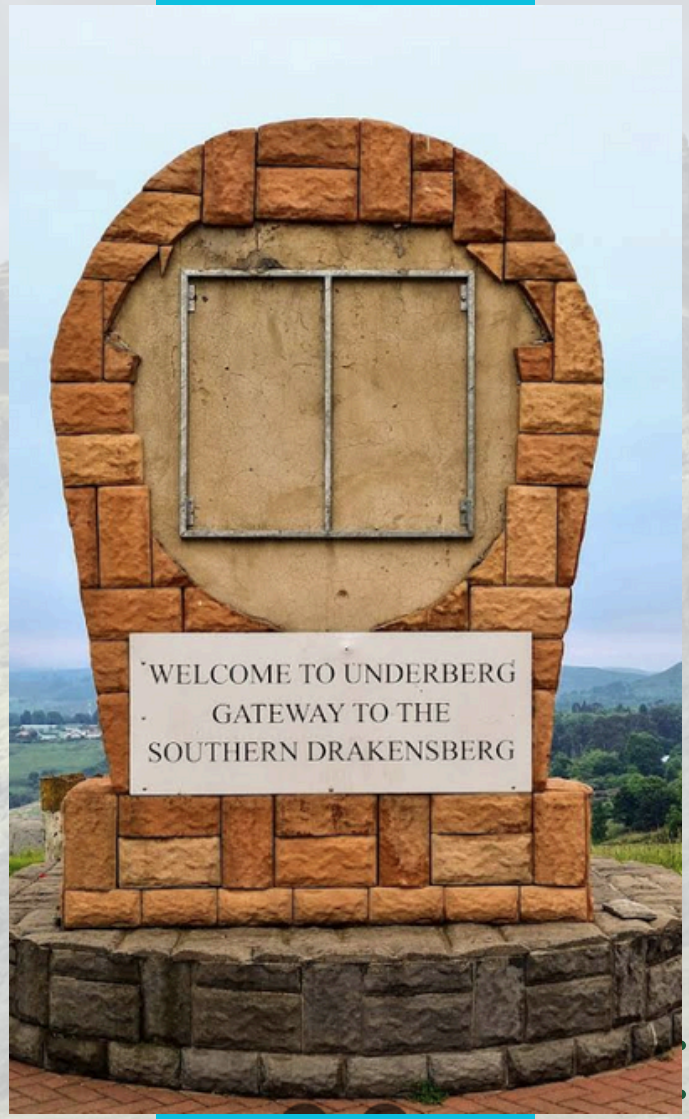
A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

SPATIAL DEVELOPMENT FRAMEWORK

2026/27 - 2046/47



"A Spatial Development Framework (SDF) is a high-level strategic planning tool used by governments and local authorities to guide the long-term physical layout and development of a specific region, city, or municipality.

It acts as a bridge between broad policy goals and the actual physical environment, providing a visual and text-based roadmap for how land should be used, where people should live, and where infrastructure—such as roads, parks, and utilities—should be prioritized.

By establishing a clear spatial logic, the framework ensures that growth is not haphazard, but rather directed toward creating efficient, integrated, and sustainable communities."

LIST OF ACRONYMS

CBA	Critical Biodiversity Areas
CEF	Capital Expenditure Framework
CIF	Capital Investment Framework
CoGTA	Department of Cooperative Governance and Traditional Affairs
CSIR	Council for Scientific and Industrial Research
DALRRD	Department of Agriculture, Land Reform and Rural Development
DARD	Department of Agriculture and Rural Development
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DOT	Department of Transport
DRM	Disaster Risk Management
EMF	Environmental Management Framework
EPWP	Expanded Public Works Programme
ESTA	Extension of Security of Tenure Act

FPSU	Farmer Production Support Unit
GDP-R	Gross Domestic Product by Region
GVA	Gross Value-Added
HGDM	Harry Gwala District Municipality
HH	Household(s)
ICT	Information and Communication Technology
IDP	Integrated Development Plan
IWMP	Integrated Waste Management Plan
KZN	KwaZulu-Natal
LED	Local Economic Development
M&E	Monitoring and Evaluation
MIG	Municipal Infrastructure Grant
MRF	Material Recovery Facility
MSDF	Municipal Spatial Development Framework
NDZ	Dr. Nkosazana Dlamini Zuma (Local Municipality)

NFEPA	National Freshwater Ecosystem Priority Areas
NRW	Non-Revenue Water
OHS	Occupational Health and Safety
PGDF	Provincial Growth and Development Framework
PIA	Priority Intervention Areas
PPP	Public-Private Partnership
PSDF	Provincial Spatial Development Framework
RDP	Reconstruction and Development Programme
SDF	Spatial Development Framework
SDG	Sustainable Development Goals
SDP	Spatial Development Plan
SPLUMA	Spatial Planning and Land Use Management Act, 2013
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TSMP	Traditional Settlement Master Plan
URP	Urban Renewal Project

WSDP	Water Services Development Plan
WTW	Water Treatment Works

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1. EXECUTIVE SUMMARY

1.1. PURPOSE AND STATUTORY CONTEXT

This Spatial Development Framework (SDF) constitutes the principal long-term spatial policy instrument of the Dr Nkosazana Dlamini Zuma Local Municipality and has been prepared in accordance with the requirements of the Spatial Planning and Land Use Management Act, 2013 (SPLUMA). The SDF provides spatial expression to the municipality's development vision and serves as a guiding framework for land use management, infrastructure investment, sector planning, and intergovernmental coordination within the municipal area of jurisdiction.

In terms of SPLUMA, the SDF forms a core component of the municipal Integrated Development Plan (IDP) and must guide all decisions relating to spatial planning, land development, and land use management. The SDF does not replace the IDP or sector plans; rather, it integrates and spatially aligns these instruments to ensure coherent, efficient, and sustainable development outcomes. All spheres of government and state-owned entities operating within the municipality are required to consider and align their planning, budgeting, and investment decisions with the spatial directives contained in this framework.

The Phase 5 SDF represents the culmination of an evidence-based planning process that synthesises socio-economic analysis, spatial challenges and opportunities, environmental considerations, and development pressures into a consolidated spatial strategy. It provides a long-term spatial logic that balances growth and development imperatives with environmental sustainability, service delivery realities, and institutional capacity constraints, while remaining responsive to national and provincial policy direction.

1.2. MUNICIPAL SPATIAL CONTEXT: KEY CHALLENGES AND OPPORTUNITIES

The Dr Nkosazana Dlamini Zuma Local Municipality is characterised by a predominantly rural settlement pattern, dispersed populations, and a limited number of small towns and service centres. This spatial reality presents significant challenges in terms of equitable service delivery, infrastructure efficiency, and economic accessibility. Large portions of the municipal area fall under traditional authority jurisdiction, requiring sensitive alignment between statutory planning frameworks and customary land management systems.

Key spatial challenges identified in the SDF include persistent poverty and unemployment, limited economic diversification, and uneven access to basic services and social facilities. Settlement dispersion and low densities in many areas increase the cost of infrastructure provision and strain municipal resources, while legacy spatial patterns continue to reinforce socio-economic exclusion and spatial inefficiencies. Infrastructure backlogs, particularly in water, sanitation, roads, and public transport accessibility, further constrain development potential and quality of life.

Environmental sensitivity represents both a constraint and an opportunity. The municipality contains areas of high ecological value, including protected landscapes, critical biodiversity areas, and productive agricultural land. Unmanaged settlement expansion, inappropriate land use, and climate-related risks pose threats to these assets, necessitating a strong spatial policy response. At the same time, these environmental and agricultural resources offer opportunities for sustainable livelihoods, tourism development, and climate-resilient growth if appropriately protected and leveraged.

Opportunities identified in the SDF include the strengthening of existing towns and activity areas as service and economic anchors, the alignment of

infrastructure investment with spatial priorities, and the promotion of agriculture, tourism, and related value chains as key economic drivers. Improved spatial integration, coordinated public investment, and strategic land use management are identified as critical enablers to unlock these opportunities.

1.3. SPATIAL VISION AND STRATEGIC INTENT

The spatial vision articulated in the SDF is one of a resilient, inclusive, and spatially efficient municipality that supports sustainable livelihoods, equitable access to services, and long-term environmental stewardship. The SDF seeks to restructure and guide development in a manner that responds to the municipality's rural character while promoting more coherent settlement patterns and improved accessibility to economic and social opportunities.

Strategically, the SDF aims to direct growth to appropriate locations, optimise the use of existing infrastructure, and reduce the spatial marginalisation of communities. It emphasises the importance of consolidating development in areas with existing or planned service capacity, protecting environmentally sensitive and agriculturally productive land, and promoting integrated human settlements that are socially, economically, and environmentally sustainable.

The spatial intent of the framework is to provide clear policy direction that supports decision-making across all spheres of government, ensuring that development initiatives contribute positively to the municipality's long-term spatial objectives rather than reinforcing fragmented or inefficient patterns of growth.

1.4. SPATIAL DEVELOPMENT STRATEGY AND CONCEPT

The spatial development strategy underpinning the SDF is based on a differentiated and place-specific approach to development. Recognising the diversity of settlement types, environmental conditions, and development pressures across the municipal area, the SDF adopts a strategic spatial logic that balances consolidation, protection, and targeted growth.

Central to this strategy is the prioritisation of existing urban areas and service centres as focal points for development, investment, and service provision. These areas are identified as key platforms for economic activity, social services, and institutional functions, and are therefore prioritised for infrastructure upgrading and land use intensification where appropriate. This approach seeks to improve spatial efficiency, reduce service delivery costs, and enhance accessibility for surrounding rural communities.

The SDF places strong emphasis on environmental management and the protection of natural resources. Spatial directives clearly distinguish between areas suitable for development and those requiring protection or careful management, including biodiversity corridors, water catchments, and high-potential agricultural land. Development proposals are required to respect these constraints and contribute to long-term environmental resilience.

Movement and access form an integral component of the spatial concept, with the SDF recognising the importance of connectivity between settlements, service centres, and economic nodes. While not prescribing detailed transport projects, the framework provides strategic guidance on reinforcing key movement routes and improving accessibility in a manner that supports spatial integration and economic participation.

1.5. PRIORITY SPATIAL INTERVENTIONS AND CATALYTIC PROPOSALS

The SDF identifies a set of priority spatial interventions and catalytic proposals intended to unlock development potential and support spatial transformation. These interventions are not presented as implementation plans, but as strategic spatial priorities that should guide public and private sector investment over the long term.

Priority interventions focus on the strengthening and revitalisation of existing towns and activity areas, the development of strategically located precincts, and the improvement of public environments and service infrastructure in areas of greatest need and opportunity. These proposals are intended to stimulate economic activity, improve quality of life, and reinforce the municipality's spatial structure.

Catalytic spatial proposals are framed to support key economic sectors, particularly agriculture and tourism, by enhancing access, supporting complementary land uses, and protecting the environmental assets upon which these sectors depend. The SDF emphasises that such interventions should be pursued in a coordinated manner, aligned with broader spatial objectives and institutional capacity.

1.6. INTERGOVERNMENTAL ALIGNMENT AND STRATEGIC COHERENCE

A core function of the SDF is to ensure alignment between municipal spatial priorities and district, provincial, and national planning frameworks. The SDF demonstrates clear coherence with district-level spatial strategies and development priorities, reinforcing the municipality's role within the broader regional context.

At a provincial level, the SDF aligns with spatial directives aimed at promoting inclusive growth, protecting strategic environmental assets, and strengthening rural economies. The framework positions the municipality as an integral component of wider spatial systems, ensuring that development initiatives contribute to provincial objectives while addressing local needs.

Intergovernmental alignment is further reinforced through the SDF's role as a reference point for sector planning and infrastructure investment. By providing a clear spatial policy framework, the SDF facilitates coordinated decision-making across spheres of government and supports more efficient allocation of limited public resources.

1.7. ROLE OF THE SDF AS AN IMPLEMENTATION GUIDE

This Spatial Development Framework provides a clear, coherent, and statutory spatial policy framework to guide development within the Dr Nkosazana Dlamini Zuma Local Municipality. It establishes a long-term spatial vision, articulates strategic priorities, and provides decision-makers with the necessary spatial logic to evaluate development proposals and public investment initiatives.

While not an implementation or funding plan, the SDF plays a critical role in informing land use management decisions, guiding sectoral planning, and aligning intergovernmental action. Its successful application will depend on consistent use by the municipality, adherence by other spheres of government, and ongoing monitoring to ensure responsiveness to changing conditions.

As a core component of the municipal planning system, the SDF provides the spatial foundation upon which sustainable, inclusive, and resilient development can be achieved over the long term.

2. INTRODUCTION & BACKGROUND

The Dr. Nkosazana Dlamini Zuma Local Municipality is currently developing its Municipal Spatial Development Framework (MSDF), a strategic planning tool essential for guiding the sustainable and equitable distribution of land uses, infrastructure, and services within the municipality.

An MSDF integrates socio-economic, environmental, and governance considerations to shape long-term spatial patterns, ensuring efficient resource allocation and balanced regional growth. By analysing existing conditions, future trends, and policy objectives, the MSDF provides a structured vision for urbanization, rural development, and environmental conservation.

It includes zoning regulations, transport networks, and investment priorities to mitigate spatial inequalities and promote resilience. Developed in accordance with the Spatial Planning and Land Use Management Act, 2013 (SPLUMA), which mandates that all municipalities create and adopt a spatial development framework, the MSDF is a participatory and evidence-based instrument. It aligns stakeholders toward cohesive, inclusive, and climate-responsive spatial planning, ensuring that the views and needs of the community are considered. This initiative marks a significant step towards sustainable and inclusive growth, benefiting all residents with improved infrastructure, services, and opportunities.

2.1. BACKGROUND TO THE PROJECT

The Dr. Nkosazana Dlamini Zuma Municipality developed its Municipal Spatial Development Framework (SDF) at the beginning of the 2022/2026 financial year. However, the SDF has not been published in the Provincial Gazette as required by Section 20 (1) of SPLUMA. Additionally, the Municipality did not comply with Section 20 (3) of SPLUMA, which mandates that Municipal Councils invite written representations within 60 days after the publication of a public notice. Consequently, the SDF does not fully comply with SPLUMA provisions. The SDF has also struggled to align all capital and spatial projects within the Capital Expenditure Framework (CEF), Capital Investment Framework (CIF), and Spatial Development Plan (SDP), leading to recurring negative findings in annual assessments by the Department of Cooperative Governance and Traditional Affairs (CoGTA).

Beyond legislative non-compliance, the Municipality faces significant challenges highlighted by the latest Census data. The population has increased from 103,318 in 2011 to 128,565 in 2022, with most growth concentrated in Underberg and Bulwer. This urbanization trend has put immense pressure on these towns, resulting in the mushrooming of informal settlements. The Census data also reveals a high dependency ratio, with many young children and elderly residents requiring increased investment in social services. Despite improvements in infrastructure, many residents still lack basic services like piped water, sanitation, and refuse disposal, hindering sustainable development and exacerbating social inequalities.

To address these challenges, the SDF must be organic and adaptable, allowing for updates in response to changing circumstances. There is also a pressing need for robust participation and consultation mechanisms to promote collaboration between public, private, and community stakeholders, building a social compact for cohesive and inclusive development. Additionally, the SDF should incorporate a comprehensive Monitoring and Evaluation (M&E) system with clear implementation targets, timelines, and monitoring indicators to ensure continuous improvement.

As such, comprehensive and legally compliant SDF is essential not only to fulfil statutory obligations but also to meet the current and future needs of the population. This includes ensuring equitable access to essential services, promoting sustainable economic growth in key urban nodes, and integrating human settlement plans within a dynamic, inclusive spatial framework capable of evolving with the community it serves.

2.2. PROJECT OBJECTIVES

The primary goal of the project is to develop a credible, comprehensive, and legally compliant long-term Spatial Development Framework (SDF) and short-term Spatial Development Plans (SDPs) that meet statutory obligations under SPLUMA and the Municipal Systems Act (MSA), while addressing the current and future needs of the population. The SDF must be dynamic and adaptable, allowing for easy updates in response to changing circumstances and emerging needs.

It should serve as a practical spatial tool to achieve the desired spatial form for the Dr. Nkosazana Dlamini Zuma Local Municipality. The public consultation process for the SDF must demonstrate mechanisms that foster collaboration among public, private, and business sectors, as well as the community, to build a social compact that supports cohesive and inclusive development. Additionally, the SDF must incorporate a comprehensive Monitoring and Evaluation (M&E) system to ensure continuous improvement in its execution and implementation. In addition to the above, the following objectives are noteworthy:

The development process for the SDF should be guided by the 2017 Spatial Development Framework Guidelines titled "SDF Guidelines: Guidelines for the Development of Provincial, Regional and Municipal Spatial Development Frameworks and Precinct Plans," prepared by the former Department of Rural Development and Land Reform (DRDLR). These guidelines are an integral part of the Terms of Reference. Additionally, the Municipality finds it appropriate to adopt the guidelines from the Provincial Department of Cooperative Governance and Traditional Affairs (CoGTA) titled "A Guideline Document for the Municipal Spatial Development Framework and Spatial Development Plan Monitoring Tools." This ensures that the SDF aligns with the assessment requirements established by CoGTA as outlined in SPLUMA. The SDF must address the MEC comments from 2024/2025 and any previous comments and gaps identified during the SDF assessment process.

The sub-objectives derived from the Municipal Systems Act (MSA) and the Municipal Planning and Performance Management Regulations include addressing spatial reconstruction by identifying and categorizing settlements based on their service levels and proposing alternative service delivery methods in remote areas. This aims to discourage further expansion of settlements where urban sprawl negatively impacts service provision, agricultural land, or environmentally sensitive areas. The service provider must classify settlements according to infrastructure and service delivery levels and suggest alternative methods for remote or under-serviced areas.

The SDF must ensure spatial alignment with the Integrated Development Plans (IDPs) and SDFs of neighbouring municipalities, including Harry Gwala and uMgungundlovu Districts. This involves reviewing neighbouring municipalities' SDFs and IDPs to identify bulk services, cross-border settlement patterns, and service provision priorities, and recommending cross-border planning interventions. The service provider should prepare thematic spatial maps differentiating between desired and undesired land use based on environmental risk, agricultural potential, and other criteria. This includes mapping disaster-prone areas, identifying agricultural areas at risk of encroachment, and designating areas for urban expansion, agricultural use, and environmental conservation.

The SDF should delineate urban edges and development boundaries for growth centres in main urban and rural settlements, analyse growth patterns, and designate development boundaries to prevent unchecked urban sprawl. It must identify and prioritize areas for strategic interventions and public investment, aligning municipal priority areas with provincial spending priorities. The service provider should set out a comprehensive Capital Investment Framework (CIF) and Capital Expenditure Framework (CEF) for the municipality's development programs, covering municipal intentions, plans, and projects over segmented intervals and spatially mapping these projects.

Detailed spatial linkage plans for core areas and guidelines for priority intervention areas that will inform the Land Use Scheme (LUS) must be developed. The SDF should address the spatial integration of sector-specific mandates such as land reform, environmental conservation, infrastructure development, and socio-economic planning. Finally, the SDF must set out basic guidelines for the Land Use Management System (LUMS), showing desired patterns of land use and potential zoning overlays for future development, ensuring alignment with the SDF.

Compliance with the requirements set out under Chapter 4 of SPLUMA is mandatory. The sub-objectives derived from SPLUMA include the following:

- Ensure Inclusive Public Participation: During the drafting of the SDF, the service provider will facilitate the publication of a notice in the Provincial Gazette (at municipal expense) inviting public comments on the draft SDF within 60 days of publication. The notice should be in both English and isiZulu. A similar notice will be placed in a local newspaper, also in two official languages, inviting written representations from the public and stakeholders. This notice will be made available on accessible platforms for viewing the SDF, including the municipal website and public venues like libraries or municipal offices.
- Develop a Long-Term Spatial Development Vision: The service provider must formulate a 20-year vision (2026-2046) detailing the desired spatial growth and development pattern of the municipality, broken down into 5-year intervals with spatially mapped objectives, strategies, and projects.
- Include Written and Spatial Representation: The SDF must include both written and spatial representation for the 5-year spatial development plan (SDP) and capital investment framework (CIF). The service provider must develop a spatial development plan for the 2026-2031 period, extracted as a 5-year interval plan from the detailed Capital Expenditure Framework (CEF) for 2026-2046.
- Identify Key Structuring and Restructuring Elements: The service provider is expected to highlight areas where public and private investments should be prioritized, such as economic nodes, corridors, and activity spines, and prioritize structuring elements like roads, transport hubs, commercial zones, and employment centres to stimulate economic growth.
- Forecast Population Growth and Housing Demand: Using demographic data from Stats SA, the service provider will estimate population growth for 2026-2031, factoring in urban and rural migration patterns, estimate housing demand across income levels, and provide recommendations for the location, density, and type of housing developments needed, aligning housing plans with existing and planned infrastructure.
- Estimate Economic Activity and Employment Trends: The service provider must conduct an economic analysis of current and projected trends in key sectors, highlighting economic nodes and employment hubs where development and investment should be concentrated.
- Identify and Quantify Bulk Engineering Infrastructure: The service provider must conduct a desktop analysis of existing road, water, sanitation, stormwater, and electricity infrastructure, and forecast future infrastructure needs based on settlement growth patterns and projected housing and economic development.
- Conduct a Strategic Assessment of Environmental Sensitivities and Agricultural Land: The service provider must identify disaster-prone areas and other environmental sensitivities that should be protected, and map high-potential agricultural land to prevent encroachment and ensure long-term food security.
- Identify Areas for Incremental Upgrading of Informal Settlements: The service provider must map informal settlements and categorize them based on potential for upgrading, formalization, or relocation, and develop an incremental upgrading strategy that aligns with the provision of essential services and infrastructure.

- Designation of Areas Requiring Detailed Local Plans and Shortened Land Use Management Procedures: The service provider must define priority areas where detailed local planning and land use management systems (LUMS) will be applied and develop shortened land use procedures for these areas to fast-track development and service delivery.
- Establish a 20-Year Capital Expenditure Framework: The service provider must develop a spatially represented CEF that identifies strategic capital investments and infrastructure projects (2026-2046), ensuring alignment with sectoral policies and annual updates to reflect municipal priorities and budget allocations.
- Define the Purpose, Structure, and Desired Impact of the Land Use Management Scheme (LUMS): The service provider must provide clear guidelines for land use zoning and overlays based on desired patterns of growth, ensuring that the LUMS supports the SDF's spatial vision and development objectives.
- Develop a Comprehensive Implementation Plan: The service provider must develop an implementation framework that includes policy improvements, institutional arrangements, priority investment areas mapped, and project timelines, and establish a monitoring and evaluation system to track progress against implementation targets and indicators.

The SDF must give effect to the five development principles contained in the Spatial Planning and Land Use Management Act No. 16 of 2013: Spatial Justice, Spatial Sustainability, Efficiency, Spatial Resilience, and Good Administration.

The SDF must align with National, Provincial, District, and Municipal Plans and Policies, including but not limited to the National Development Plan (NDP), National Spatial Development Framework (NSDF), Integrated Urban Development Framework (IUDF), Provincial Growth and Development Strategy (PGDS), Provincial Spatial Development Framework (PSDF), Provincial Transport Masterplan, Regional Spatial Development Framework (RSDF), Eastern Seaboard, District Growth and Development Strategy (DGDP), District Spatial Development Framework, District Development Model (DDM), and District and Municipal IDPs.

The Provincial Spatial Development Framework is a key informant and requires alignment, particularly with the Provincial Priority Intervention areas, which must be spatially compared to the Municipal Priority Intervention areas to highlight areas of alignment and non-alignment. Additionally, the priority intervention areas of the municipality need to spatially show past projects (2021-2026), current projects (2026-2031), and future projects (2032-2046).

The SDF must adhere to provincial norms and standards, including Spatial Integration, Environmental Climate Change, Cemeteries, and Crematoria. The agricultural categories in the SDF should inform the agriculture sector and generate benefits for existing agricultural activities.

The SDF must also guide the development of new networks, moving towards smart city innovations, such as introducing free Wi-Fi for communities and developing applications to assist in reporting faults. These new networks should link future economic activities to people and other affected land uses. The SDF is a spatial product that requires a logical and systematic approach to mapping, with careful consideration given to the layout and design of maps, adhering to standard map protocols. Legibility and referencing data are essential.

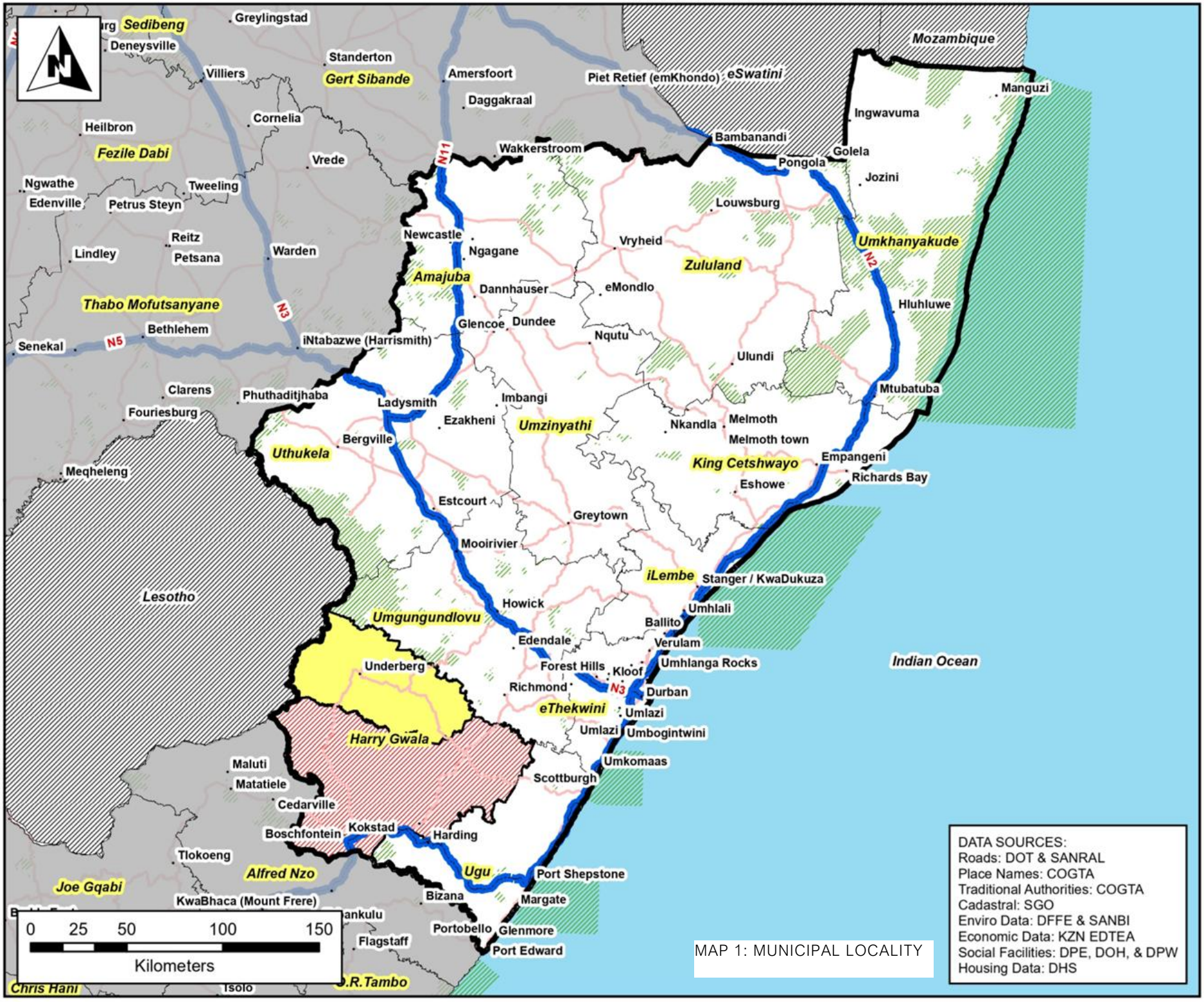
2.3. THE STUDY AREA

Dr. Nkosazana Dlamini Zuma Local Municipality is a newly established entity formed from the merger of the former KwaSani and Ingwe Local Municipalities. The administrative seat of the municipality is in Creighton, located 112 km southwest of Howick and 176 km northeast of Kokstad. As a Category B municipality within the Harry Gwala District Municipality, it is situated in the

southern part of the district, approximately 80 km southwest of Pietermaritzburg, the provincial capital. The municipality is bordered by Impendle Municipality to the north, Richmond Municipality to the northeast, Ubuhlebezwe Municipality to the southeast, Greater Kokstad Municipality to the south, and the Kingdom of Lesotho to the west. Covering an area of approximately 3,200 km², it had an estimated population of 118,480 according to the 2016 Community Survey.

Predominantly rural in nature, Dr. Nkosazana Dlamini Zuma Municipality is the largest local municipality within the district, constituting 35% of the area. It comprises 15 wards with 29 councillors, including 15 Ward Councillors and 14 PR Councillors. The municipality is characterized by numerous tribal areas, including Batlokoa, Isiminza, Nxamalala, Madzikane-Bhaca T.A, Isibonela Esihle T.A, Amakuze T.A, Sizanani T.A, UMacala-Gwala T.A, Zashuke T.A, Qadi T.A, Bidla T.A, Vukani T.A, Amangwane T.A, and Vezakuhle T.A. These tribal areas host several rural settlements where the majority of the population resides. Additionally, areas such as Thunzi, Ngqiya, Ridge, and Stepmore will be reincorporated from Impendle due to the amalgamation.

Dr. Nkosazana Dlamini Zuma Local Municipality serves as the administrative and commercial center for the district. The land use is predominantly commercial agriculture, owing to the medium to high agricultural potential of much of the area. Forestry plantations are widespread, and sugarcane is cultivated in the eastern half of the municipality. Smaller irrigated areas for commercial purposes are scattered throughout the region. The municipality is renowned for the uKhahlamba World Heritage Site, attracting both local and international tourists to its mountainous areas. The relatively unspoiled natural environment offers significant potential for eco-tourism and adventure tourism. The district's tourism diversity could be enhanced through a variety of facilities and attractions, including historical and cultural events, as well as eco-tourism adventures.



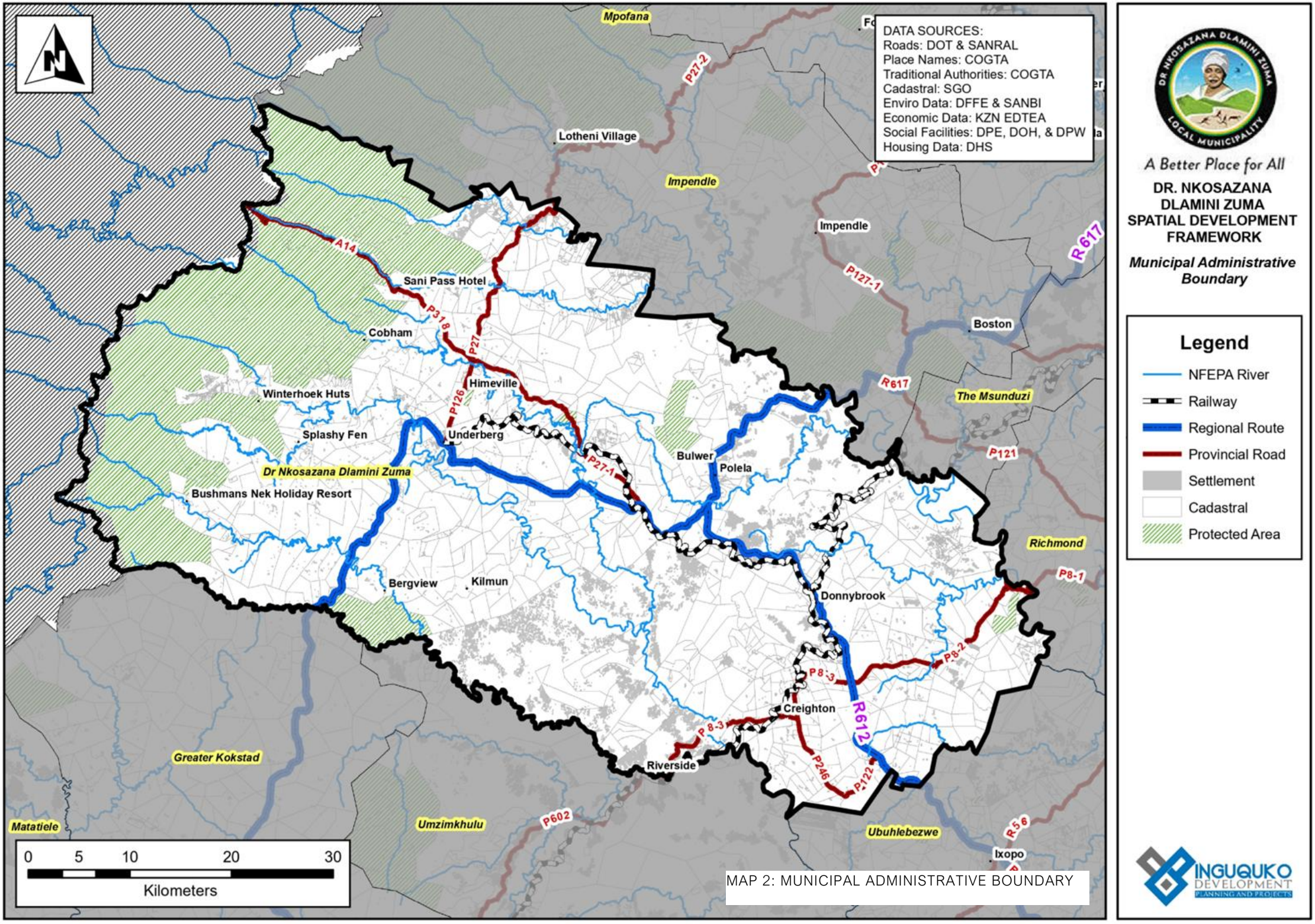
MAP 1: MUNICIPAL LOCALITY

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Municipal Locality

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 2: MUNICIPAL ADMINISTRATIVE BOUNDARY

A Better Place for All

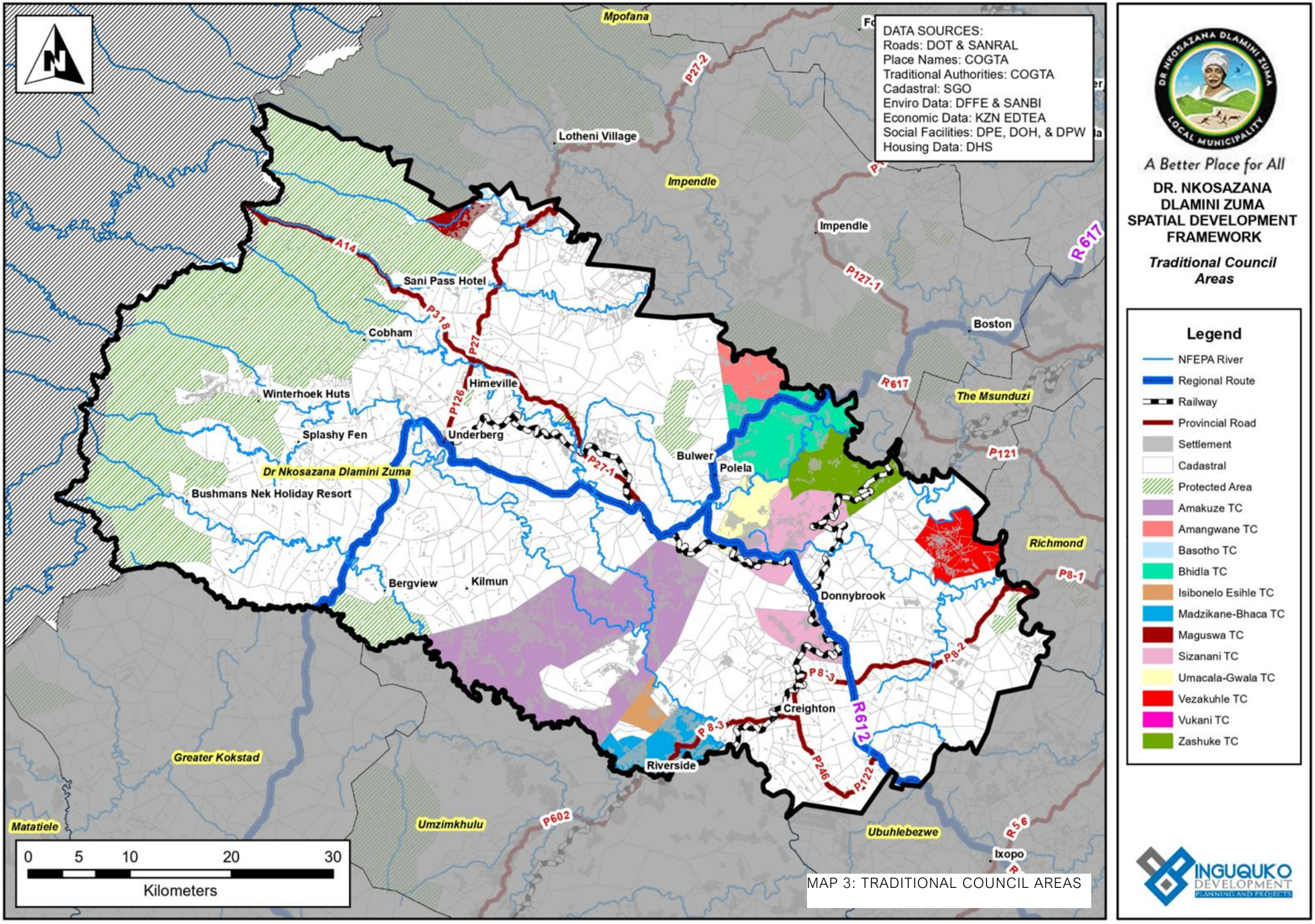
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Municipal Administrative Boundary

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Traditional Council Areas

Legend

- NFEPA River
- Regional Route
- Railway
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Amakuze TC
- Amangwane TC
- Basotho TC
- Bhidla TC
- Isibonelo Esihle TC
- Madzikane-Bhaca TC
- Maguswa TC
- Sizanani TC
- Umacala-Gwala TC
- Vezakuhle TC
- Vukani TC
- Zashuke TC

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

MAP 3: TRADITIONAL COUNCIL AREAS

3. POLICY & LEGISLATIVE FRAMEWORK

3.1. BACKGROUND TO THE POLICY & LEGISLATIVE FRAMEWORK

Spatial planning policy and legislation in South Africa is deeply rooted in the country's historical context and aims to address the spatial inequalities created by apartheid. The primary legislative framework guiding spatial planning in South Africa is the Spatial Planning and Land Use Management Act (SPLUMA) of 2013. SPLUMA provides a comprehensive framework for spatial planning and land use management across all spheres of government, promoting inclusive, developmental, equitable, and efficient spatial planning. This legislation is designed to ensure that spatial planning and land use management systems are consistent, transparent, and aligned with broader developmental goals.

Internationally, spatial planning policies are increasingly influenced by global development agendas such as the United Nations' Sustainable Development Goals (SDGs). The SDGs, adopted in 2015, provide a universal framework for sustainable development, encompassing 17 goals aimed at addressing global challenges such as poverty, inequality, climate change, environmental degradation, peace, and justice. South Africa's spatial planning policies, including SPLUMA, align with these international goals by promoting sustainable urban and rural development, reducing spatial inequalities, and fostering economic growth and social inclusion.

The National Development Plan (NDP) 2030 further integrates these international development goals into South Africa's national policy framework. The NDP emphasizes the creation of liveable, equitable, sustainable, resilient, and efficient spaces that support economic opportunities and social cohesion. This alignment ensures that South Africa's spatial planning policies contribute to the achievement of the SDGs, particularly those related to sustainable cities and communities (SDG 11), reduced inequalities (SDG 10), and climate action (SDG 13).



At the local level, the Dr. Nkosazana Dlamini Zuma Local Municipality's Spatial Development Framework (SDF) plays a crucial role in translating these national and international policies into actionable plans. The SDF is a strategic tool that guides land use and development within the municipality, ensuring that growth is managed in a sustainable and equitable manner. Aligning the SDF with SPLUMA and the SDGs is essential for several reasons.

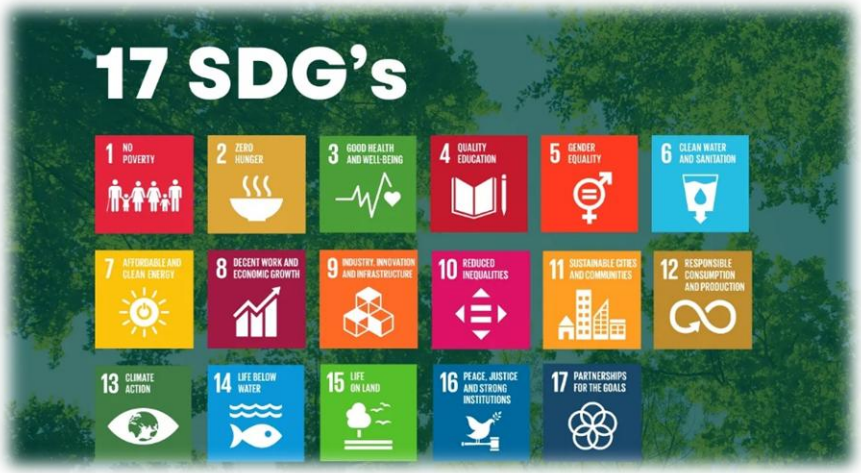
Firstly, it ensures that local development initiatives are consistent with national and international priorities, promoting coherence and synergy across different levels of government. This alignment helps to streamline planning processes, reduce duplication of efforts, and enhance the effectiveness of development interventions. For instance, by aligning with SDG 11, the SDF can promote the development of inclusive, safe, resilient, and sustainable urban areas, addressing issues such as housing, infrastructure, and public services.

Secondly, aligning the SDF with SPLUMA and the SDGs supports the municipality's efforts to address historical spatial inequalities and promote social justice. By prioritizing equitable access to land, housing, and services, the SDF can help to rectify the spatial imbalances created by apartheid, fostering more inclusive and integrated communities. This is particularly important in rural areas, where access to basic services and economic opportunities is often limited.

Thirdly, the alignment of the SDF with international development policies enhances the municipality's ability to attract funding and investment. Many international donors and development agencies prioritize projects that align with the SDGs, providing financial and technical support for initiatives that contribute to sustainable development. By demonstrating a commitment to these global goals, the Dr. Nkosazana Dlamini Zuma Local Municipality can leverage additional resources to support its development objectives.

Finally, aligning the SDF with SPLUMA and the SDGs promotes environmental sustainability and resilience. The SDGs emphasize the importance of protecting natural resources, mitigating climate change, and enhancing resilience to environmental shocks. By incorporating these principles into the SDF, the municipality can ensure that development is environmentally sustainable, reducing the risk of environmental degradation and enhancing the community's ability to adapt to climate change.

The alignment of spatial planning policy and legislation in South Africa with international development policies such as the SDGs is essential for promoting sustainable, inclusive, and equitable development. The Dr. Nkosazana Dlamini Zuma Local Municipality's Spatial Development Framework plays a critical role in this process, translating national and international policies into local action. By aligning the SDF with SPLUMA and the SDGs, the municipality can enhance the coherence and effectiveness of its development initiatives, address historical spatial inequalities, attract funding and investment, and promote environmental sustainability and resilience. This integrated approach to spatial planning is vital for achieving the broader goals of sustainable development and improving the quality of life for all South Africans.



3.2. NATIONAL FRAMEWORK OF POLICIES AND LEGISLATION

TABLE 1: NATIONAL FRAMEWORK OF POLICIES AND LEGISLATION

POLICY / LEGISLATION	DESCRIPTION	IMPLICATIONS FOR DR NDZ	SPATIAL DIRECTIVES
Constitution of the Republic of South Africa (1996)	Establishes developmental local government and the environmental right; frames cooperative governance and basic service obligations.	Requires spatial planning to advance equity, sustainability, and access to services; strengthens defensibility of environmental protection and risk-based land use decisions.	Prioritise spatial justice (servicing historically marginalised rural settlements); embed environmental protection and resilience in land-use decisions; align municipal plans with cooperative governance duties.
National Development Plan (NDP): Vision 2030	Long-term national plan addressing poverty, inequality, unemployment; includes spatial transformation imperatives.	Reinforces need to restructure settlement patterns, target infrastructure investment, and improve municipal capacity to implement spatial plans.	Concentrate growth in viable nodes; align public investment with spatial priorities; prioritise inclusive access to opportunities and services; build municipal implementation capacity.
National Spatial Development Framework (NSDF)	National spatial policy framework guiding spatial transformation, integrated planning, environmental sustainability, and infrastructure alignment.	Positions the region in broader national spatial logics (e.g., eco-resource production); supports protecting strategic natural assets while enabling rural livelihoods.	Protect strategic water source/ecosystem areas; manage land uses to sustain agriculture and livelihoods; improve rural connectivity; focus investment in strategic nodes and corridors to avoid dispersed sprawl.
Spatial Planning and Land Use Management Act (SPLUMA) (2013)	Establishes norms/standards for spatial planning and land-use management; requires municipal SDF content and alignment.	Requires NDZ SDF to provide clear spatial vision, desired form, investment areas, land-use guidelines, and alignment with neighbours; strengthens tribunal-led, rules-based decisions.	Define and enforce an urban edge/settlement edge where appropriate; identify priority investment zones and undesired land uses; direct growth to nodes/corridors; align SDF with LUMS and neighbouring SDFs.
Municipal Systems Act (MSA) (2000)	Requires IDP (including SDF) and participatory planning; mandates alignment and performance-oriented governance.	Compels NDZ to integrate spatial priorities into IDP programmes/budgets and ensure community participation supports implementable spatial choices.	Use the SDF as the spatial "engine" of the IDP; tie capital budgets to priority nodes/corridors; strengthen participatory spatial planning and monitoring.
National Environmental Management Act (NEMA) (1998)	Framework environmental law; embeds sustainable development principles and EIA-based decision-making.	Requires NDZ to integrate environmental constraints and mitigation into land-use decisions, especially in sensitive landscapes and tourism/ecosystem assets.	Avoid/limit development in sensitive areas; require environmental screening for development proposals; maintain ecological buffers; promote green infrastructure and climate-resilient settlement planning.
Disaster Management Act (2002)	Establishes disaster risk reduction and preparedness obligations across spheres of government.	Requires risk-informed land-use planning and protection of critical infrastructure and access routes in hazard-prone areas.	Map hazard-prone areas and restrict/condition development; integrate DRR into zoning and settlement planning; site emergency infrastructure strategically; protect access and redundancy in networks.

POLICY / LEGISLATION	DESCRIPTION	IMPLICATIONS FOR DR NDZ	SPATIAL DIRECTIVES
Integrated Urban Development Framework (IUDF) (2016)	National policy to guide inclusive, compact, connected, sustainable urban development and governance.	Informs small-town strengthening (Underberg/Himeville, Bulwer, Donnybrook, Creighton) and better integration of housing, transport, and economic functions.	Strengthen mixed-use and walkable town cores; prioritise infill and consolidation over leapfrog growth; align transport, housing and services around nodes; upgrade public realm and place-making.
Breaking New Ground (BNG) / National Housing policy suite	National approach to sustainable human settlements and integrated housing delivery.	Reinforces need to align housing projects with services, access to livelihoods, and town function—reducing informal settlement risk.	Locate housing within/adjacent to serviceable nodes; integrate housing with public transport and social facilities; avoid peripheral, infrastructure-intensive layouts.
Comprehensive Rural Development Programme (CRDP)	National programme for rural livelihoods, service delivery improvement, and agrarian development.	Supports targeted rural investment, productive land use, and service access in dispersed settlements.	Cluster rural services at accessible service points; prioritise rural road connectivity; support agri-value chains through nodal investment and land capability protection.

3.3. PROVINCIAL FRAMEWORK OF POLICIES AND LEGISLATION

TABLE 2: PROVINCIAL FRAMEWORK OF POLICIES AND LEGISLATION

POLICY / LEGISLATION	DESCRIPTION	IMPLICATIONS FOR DR NDZ	SPATIAL DIRECTIVES
KwaZulu-Natal Provincial Growth and Development Strategy (PGDS)	Provincial strategy aligning economic, social, environmental and governance priorities; includes spatial integration focus.	Reinforces rural infrastructure prioritisation, sustainable settlements, and district-based transformative programmes relevant to Harry Gwala/NDZ.	Target infrastructure and services to underdeveloped rural areas; strengthen mixed-use settlement development; protect environmental assets; support agriculture and tourism as provincial drivers.
KwaZulu-Natal Provincial Growth and Development Plan (PGDP)	Provincial implementation framework to 2030 aligned with national priorities.	Provides project/programme alignment lens for NDZ investment sequencing and intergovernmental coordination.	Align municipal capital programmes to PGDP spatial priorities; prioritise catalytic projects in designated nodes/corridors; integrate social/economic targets spatially.
KwaZulu-Natal Provincial Spatial Development Framework (PSDF)	Provincial spatial vision and land development policy representation aligned to NSDF/PGDS.	Identifies NDZ settlements (e.g., Bulwer, Donnybrook, Underberg) within small-town logic; supports differentiated roles and investment focus.	Reinforce settlement hierarchy; consolidate growth in identified towns/service points; protect critical natural resources; align corridors and nodes with service investment.
KwaZulu-Natal Provincial Infrastructure Master Plan	Guides coordinated infrastructure provision and prioritisation across the province, integrated with spatial frameworks.	Supports targeting bulk/strategic infrastructure to unlock economic nodes and improve rural access while addressing historic spatial imbalances.	Prioritise infrastructure in rural backlogs and strategic nodes; develop infrastructure corridors that support economic activity; integrate green infrastructure; sequence investment to match settlement hierarchy.

POLICY / LEGISLATION	DESCRIPTION	IMPLICATIONS FOR DR NDZ	SPATIAL DIRECTIVES
Draft Small Town Socio-Economic Revitalisation Strategy (referenced via PSDF)	Provincial small-town revitalisation approach focusing on towns as service/economic support centres.	Supports targeted regeneration of NDZ small towns (public realm, local economies, facilities, precincts).	Prioritise town centre regeneration; focus on place-making, streetscape, and market support; strengthen service functions and local enterprise; prevent strip/leapfrog growth that weakens cores.
KwaZulu-Natal climate/environmental policy suite (as applicable to SDF practice)	Provincial policy direction typically emphasising resilience, biodiversity stewardship, and sustainable land management.	Reinforces climate-resilient settlement planning, catchment protection, and tourism-environment synergy in NDZ.	Integrate climate risk layers into land-use controls; protect ecological corridors and buffers; promote nature-based solutions in settlements and infrastructure planning.

3.4. LOCAL MUNICIPAL FRAMEWORK OF POLICIES AND LEGISLATION

TABLE 3: LOCAL MUNICIPAL FRAMEWORK OF POLICIES AND LEGISLATION

POLICY / LEGISLATION	DESCRIPTION	IMPLICATIONS FOR DR NDZ	SPATIAL DIRECTIVES
Dr Nkosazana Dlamini Zuma LM Integrated Development Plan (IDP) (2025/26)	Municipality's principal strategic plan guiding service delivery, LED, and institutional programmes.	Highlights infrastructure backlogs, housing delivery pressures, weak investment readiness, climate and environmental risks, and limited planning tools (e.g., GIS).	Tie capital budgeting to priority nodes/corridors; prioritise rural service backlogs via clustered service points; allocate land for economic zones (agro-processing, tourism, SMMEs); integrate climate resilience and green infrastructure.
Dr Nkosazana Dlamini Zuma LM Spatial Development Framework (SDF)	Statutory spatial framework (MSA + SPLUMA) guiding desired form, land use, and investment focus.	Must address small-town disrepair, housing growth management, tourism potential, and agricultural competitiveness.	Rehabilitate and consolidate town cores; strengthen nodal hierarchy and service centres; plan housing to prevent informal settlement expansion; protect high-value agricultural land; structure tourism nodes and routes.
Dr Nkosazana Dlamini Zuma LM Local Economic Development (LED) Strategy	Framework to grow competitiveness across key towns and sectors (tourism, agriculture, services, etc.).	Requires spatially-enabled LED (land, infrastructure, access, precinct upgrades) to unlock local enterprise and job creation.	Designate and service economic precincts in nodes; protect/enable agro-value chains (agro-processing sites, logistics access); structure tourism nodes, gateways and experience routes; formalise trading/market spaces in town centres.
Dr Nkosazana Dlamini Zuma LM Integrated Waste Management Plan (IWMP)	Guides waste minimisation, collection, disposal, and recycling system planning.	Notes landfill sites (Creighton, Bulwer) and plans such as buy-back centres; requires land and service planning integration.	Reserve/zone waste management sites with buffers; locate buy-back/recycling centres at accessible nodes; reduce illegal dumping through service coverage planning; integrate waste facilities into settlement and corridor planning.
Dr Nkosazana Dlamini Zuma LM Integrated Waste Management By-law	Local regulatory framework for waste governance, service delivery, and environmental compliance.	Requires enforceable controls, equitable service access, and integration of waste management into spatial planning.	Enforce waste service standards spatially (especially rural settlements); protect receptors via buffers; identify compliant

POLICY / LEGISLATION	DESCRIPTION	IMPLICATIONS FOR DR NDZ	SPATIAL DIRECTIVES
			sites for waste activities; integrate enforcement hotspots into LUMS.
Dr Nkosazana Dlamini Zuma LM Disaster Management Sector Plan	Local sector plan aligned to Disaster Management Act requirements.	Requires hazard awareness, community preparedness, and risk-informed spatial decision-making.	Apply hazard overlays to development control; site emergency facilities strategically; protect evacuation routes and critical infrastructure; avoid settlement expansion in high-risk flood/landslide/fire zones.
Harry Gwala District Disaster Management Framework (DMF)	District framework for hazard mapping, preparedness, response coordination, and communication systems.	Emphasises mapping hazard-prone areas, improving connectivity for response, and cross-border coordination (incl. Lesotho).	Integrate district hazard maps into NDZ SDF and LUMS; prioritise resilient access roads and communications infrastructure; focus preparedness initiatives in remote rural settlements; plan border-area coordination nodes.
Harry Gwala District Water Services Development Plan (WSDP)	District strategy for water services assessment, backlogs, and interventions over a typical five-year period.	Requires NDZ settlement growth and land use to align with realistic water service capacity, upgrading needs, and topographic constraints.	Direct new growth to areas with serviceable water capacity; prioritise upgrading in identified growth nodes; protect catchments and strategic water source areas; avoid low-density sprawl that escalates per-household servicing costs.
Harry Gwala District Rural Development Plan	District plan targeting rural poverty, service backlogs, and economic interventions.	Reinforces NDZ focus on rural settlements and targeted investment, aligned with SDF goals.	Identify rural priority areas and service points; cluster facilities to maximise reach; strengthen rural connectivity; support productive land uses and local livelihoods through spatial targeting.

4. DR. NDZ LM IN THE KZN PROVINCIAL SPATIAL DEVELOPMENT FRAMWORK

The Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM) plays a pivotal role within the Harry Gwala District, situated in the southwestern region of KwaZulu-Natal and bordering Lesotho. While the KwaZulu-Natal Provincial Spatial Development Framework (2021) does reference NDZ by name—particularly in spatial proposal maps that connect it with neighbouring nodes such as Donnybrook and those within the Harry Gwala District—detailed socio-economic or infrastructural profiling at the municipal level remains limited. As a result, this section aligns provincial spatial priorities—namely, economic node consolidation, rural-urban integration, and infrastructure corridor strengthening—with NDZ's own spatial development focus, underscoring both areas of alignment and where NDZ's SDF currently lacks explicit responses.

TABLE 4: KZN PROVINCIAL SDF ALIGNMENT

Provincial Priority	Provincial SDF Reference	NDZ SDF Alignment / Action	Notes on Gaps or Opportunities
Strengthen rural service nodes (e.g., Donnybrook, Creighton)	Spatial proposals map including NDZ, Donnybrook, Harry Gwala District	NDZ SDF plans to develop service infrastructure in peri-urban settlements like Donnybrook and Creighton.	Alignment present
Enhance cross-municipal connectivity corridors	Provincial maps show network routes passing through NDZ	NDZ SDF proposes upgrading district and provincial road linkages to bolster regional travel and trade.	Good alignment; opportunity to explicitly reference provincial corridor networks for stronger cohesion.
Promote agricultural and tourism economic linkages	Provincial modal map highlights tourism zones in Drakensberg/NDZ area	NDZ SDF includes tourism enhancement strategies for Underberg and Himeville and mentions agriculture-based livelihoods.	Partial alignment; clearer provincial-municipal sector synergy (e.g., marketing and funding) could be stated.
Environmental and conservation corridors	Provincial SDF vision builds on conservation-investment corridor development.	NDZ SDF notes the need for environmental protection but lacks formal conservation corridor planning.	Gap: NDZ SDF should integrate targeted conservation corridor initiatives aligned with provincial strategic zones.
Integrated rural development (inclusive of Ingonyama Trust areas and small settlements)	Provincial SDF emphasises inclusive development but mentions NDZ only in maps	NDZ SDF includes strategies addressing traditional and informal settlements and improving service delivery.	Alignment exists; opportunity to reference provincial frameworks for rural development financing and support.

4.1. PRIORITY INTERVENTION AREAS FROM THE KZN PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK

This section provides a comprehensive alignment analysis between the KwaZulu-Natal Provincial Spatial Development Framework / Provincial Spatial Development Strategy and the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) Spatial Development Framework (SDF) and Integrated Development Plan (IDP). The purpose is to ensure that NDZ's municipal spatial planning framework is fully integrated within the provincial development vision, priorities, and interventions. The report is structured to inform internal technical review, council submission, and integration into the NDZ SDF.

The analysis recognises that NDZ Municipality occupies a strategic location within southern KwaZulu-Natal, encompassing settlements such as Ixopo, Underberg, Bulwer, and Creighton, which function as important service and administrative centres. Despite its rural character and challenging topography, NDZ plays a significant role in linking the Drakensberg tourism corridor, agricultural hinterlands, and emerging regional economic hubs.

Key findings of the report include:

- Provincial Alignment: NDZ falls within the PSDF hierarchy as a Quaternary Node with multiple Rural Service Centres, but is strategically connected to Tertiary Nodes such as Kokstad, Howick, and Estcourt. This positioning provides both challenges and opportunities for integration.
- Priority Intervention Areas: Provincial priorities such as compact urban development, rural service delivery, densification, and infrastructure upgrading are directly applicable to NDZ, where dispersed rural settlements and backlogs in basic services remain critical challenges.
- Cross-Referencing Analysis: The alignment exercise demonstrates that NDZ's SDF and IDP already respond to many provincial priorities, particularly in areas of rural service delivery, agricultural support, and environmental management. However, notable gaps exist in terms of integrated transport planning, corridor development, and structured densification strategies.
- Opportunities for NDZ: The municipality has considerable opportunities to leverage provincial interventions, including positioning Ixopo and Underberg as higher-order service centres, expanding agro-processing and agricultural markets, and promoting Drakensberg-linked tourism as a key growth sector.
- Constraints: Key constraints include a highly dispersed settlement pattern, steep topography, service delivery backlogs, poverty concentrations, and limited municipal resources for infrastructure investment.
- Strategic Recommendations: The report proposes targeted interventions such as strengthening NDZ's role in provincial corridor development, aligning rural service centre strategies with traditional authority areas, prioritising bulk infrastructure investment, and adopting a phased implementation framework.

4.1.1. AN OVERVIEW OF THE PSDF

The KwaZulu-Natal Provincial Spatial Development Framework (PSDF) form the central planning instruments guiding spatial and economic development in the province. These documents established a long-term vision for coordinated development, improved service delivery, economic competitiveness, and social equity.

The PSDF integrates sectoral priorities into a provincial vision, while the PSDF translates this into spatial terms, identifying priority intervention areas, development nodes, and corridors. Together, they guide investment, resource allocation, and policy implementation across all three spheres of government.

The strategies are framed around three interrelated themes:

- **Economic Growth and Development** – leveraging provincial comparative advantages, stimulating industrial and agricultural growth, and promoting tourism.
- **Spatial Equity and Inclusion** – ensuring that historically marginalised areas, particularly rural communities, benefit from targeted public investment.
- **Infrastructure and Service Delivery** – addressing infrastructure backlogs and aligning investments with economic nodes and settlement hierarchies.

4.1.2. PROVINCIAL SPATIAL PRINCIPLES

The PSDF is underpinned by spatial planning principles aligned with SPLUMA and national policy:

- **Hierarchy of Nodes**: structuring settlements into Primary, Secondary, Tertiary, Quaternary, and Rural Service Centres.
- **Corridor Development**: prioritising investment along strategic economic and transport corridors.
- **Compact Urban Development**: reducing sprawl, densifying existing settlements, and promoting infill development.
- **Equitable Access to Services**: directing resources to rural and historically marginalised communities.
- **Integration of Land Use and Infrastructure**: aligning infrastructure investment with spatial priorities.

4.1.3. PRIORITY INTERVENTION AREAS

The PGDF identifies Priority Intervention Areas (PIAs) as the focal points for short- to medium-term interventions. These are determined by weighting indicators such as poverty concentration, infrastructure backlogs, economic potential, and population density.

- **Level 1 PIAs**: Areas requiring urgent concentration of interventions due to severe poverty, service backlogs, and economic underperformance.
- **Level 2 PIAs**: Areas requiring medium-level interventions to consolidate gains, improve service delivery, and stimulate local economies.

For NDZ Municipality, the PSDF maps sections of the southern interior (Ixopo, Underberg, Umzimkhulu) as Level 1 intervention areas, reflecting both high poverty concentrations and the need for service delivery expansion.

4.1.4. PROVINCIAL NODE HIERARCHY

The PSDF defines a hierarchy of nodes that structure the province's settlement system:

- **Primary Node**: eThekwini – the economic hub of KZN, linked to global trade, industrial growth, and major service provision.
- **Secondary Nodes**: Richards Bay, Msunduzi (Pietermaritzburg), Newcastle, and Port Shepstone – regional service and economic centres.
- **Tertiary Nodes**: Towns such as Kokstad, Ladysmith, Estcourt, Vryheid, and Howick – sub-regional hubs with diversified services.
- **Quaternary Nodes**: Towns such as Ixopo, Underberg, Umzimkhulu, and others – local service centres serving dispersed rural hinterlands.
- **Rural Service Centres (RSCs)**: Smaller rural settlements, often linked to traditional authority areas, providing first-level access to services such as clinics, schools, markets, and administrative offices.

NDZ's Underberg, Bulwer, and Creighton are recognised as Quaternary Nodes, while surrounding villages (e.g., traditional council centres) function as Rural Service Centres.

4.1.5. IMPLICATIONS FOR LOCAL MUNICIPALITIES

The PSDF explicitly recognises that provincial development cannot be concentrated only in major urban nodes. Instead, all levels of nodes and service centres must benefit from coordinated interventions.

For local municipalities such as NDZ, this means:

- Directing public investment to strengthen Quaternary Nodes and Rural Service Centres.
- Promoting compact settlement patterns to reduce infrastructure costs.
- Supporting corridor development to integrate local economies into regional flows.
- Prioritising basic service delivery (water, sanitation, energy, ICT) in rural areas.
- Enhancing transport linkages between NDZ and Tertiary Nodes such as Kokstad and Howick.

4.1.6. RELEVANCE TO NDZ MUNICIPALITY

The provincial framework situates NDZ as:

- A rural service municipality with strong agricultural and tourism potential.
- A Quaternary Node cluster (Ixopo, Underberg, Creighton, Bulwer) that requires investment in service delivery, infrastructure, and socio-economic upliftment.
- A connector between provincial corridors, linking the Drakensberg region, the southern inland agricultural belt, and routes towards eThekwini and Pietermaritzburg.
- A focus area for rural poverty alleviation, given high unemployment, service backlogs, and dispersed settlement patterns.

4.2. LOCAL CONTEXT: DR NDZ PROFILE

4.2.1. SETTLEMENT PATTERNS

NDZ exhibits a dispersed rural settlement structure typical of former homeland areas, interspersed with small towns that function as service centres.

- Urban/Quaternary Nodes:
    - Underberg – a gateway to the Drakensberg and Lesotho, with strong tourism potential.
    - Creighton and Bulwer – Creighton is the municipal seat, and Bulwer forms part of the smaller towns functioning as service hubs for surrounding rural villages.

Rural Settlements:

- Numerous traditional authority areas under AmaXhosa and AmaHlubi leadership, with villages characterised by low-density, scattered housing.
- Informal and semi-formal settlements exist near Ixopo and Umzimkhulu, often lacking full-service infrastructure.

- Rural Service Centres:
    - These are emerging nodes around traditional council offices, clinics, schools, and taxi/bus stops, aligning with the provincial PSDF definition of entry-level access points for services.

The dispersed settlement pattern creates a high cost of infrastructure provision, reinforcing the need for nodal development strategies that concentrate investment.

4.3. PROVINCIAL PRIORTIES IN RELATION TO THE DR. NDZ MUNICIPALITY

The KwaZulu-Natal Provincial Spatial Development Framework (PSDF) identifies a hierarchy of nodes, corridors, and priority intervention areas designed to guide provincial investment and spatial transformation. For NDZ, understanding and aligning with these priorities is critical for ensuring that municipal planning is integrated within the provincial development framework. This section analyses NDZ's positioning within the PSDF spatial hierarchy, the relevance of provincial priorities to local development, and the implications for settlement restructuring, infrastructure investment, and service delivery.



4.3.1. NDZ WITHIN THE PROVINCIAL NODE HIERARCHY

The PSDF identifies Quaternary Nodes and Rural Service Centres (RSCs) as the primary focus of intervention for municipalities like NDZ.

- Quaternary Nodes in NDZ:
  - Ixopo: functions as the administrative and commercial hub, serving both as a municipal seat and a service node for the rural hinterland.
  - Underberg: tourism-oriented town, gateway to the Drakensberg World Heritage Site, with cross-border linkages via Sani Pass to Lesotho.
  - Bulwer and Creighton: small towns that provide localised service functions for rural populations.

- Rural Service Centres (RSCs):
  - Smaller, dispersed service points associated with traditional council offices, schools, clinics, and markets.
  - Provide first-level access to services, especially in areas where settlements are too dispersed for higher-order nodes to be efficient.

- Linkages to Tertiary Nodes:
  - NDZ is strategically positioned between Kokstad (south), Howick (north), and Estcourt (north-west). These tertiary nodes provide extended services, higher education facilities, hospitals, and retail services beyond what NDZ can provide internally.

This positioning demonstrates that NDZ is a secondary service municipality within the broader provincial framework, acting as a connector between major regional centres and dispersed rural areas.

4.3.2. PRIORITY INTERVENTION AREAS (PIA)

The KwaZulu-Natal Provincial Spatial Development Framework (PSDF) applies a weighted set of criteria to identify Priority Intervention Areas (PIAs) across the province. These criteria include poverty levels, infrastructure backlogs, economic potential, environmental sensitivity, and settlement density. Based on this framework, parts of the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) are classified as Level 1 PIAs, indicating urgent need for coordinated, short- to medium-term interventions.

4.3.2.1. SPATIAL LOCATION OF PIAS IN NDZ

The PSDF mapping exercise highlights three broad zones within NDZ as critical intervention areas:

- Ixopo–Creighton belt: Centre of municipal administration and trade, but with surrounding high-poverty rural settlements and infrastructure deficits.
- Underberg–Bulwer corridor: Gateway to the Drakensberg and tourism economy, with potential for significant growth but limited bulk infrastructure and rural service access.
- Umzimkhulu-adjacent rural settlements (eastern NDZ): Bordering the district-level node of Umzimkhulu, where socio-economic deprivation is acute and public services are limited.

4.3.2.2. DRIVERS OF INTERVENTION IN NDZ PIAS

The classification of NDZ as containing Level 1 PIAs stems from several interrelated factors:

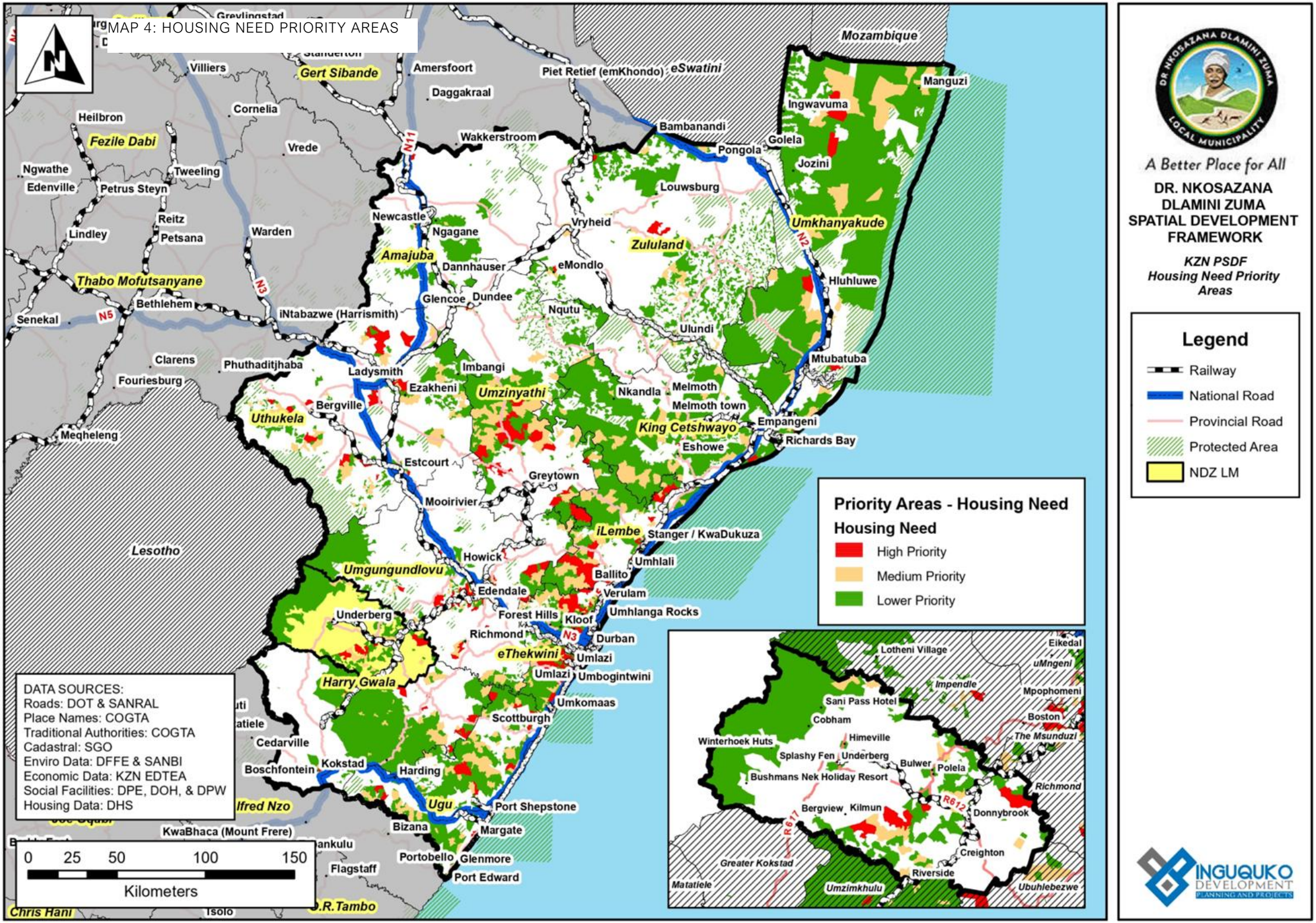
1. Poverty Concentrations
    - NDZ records one of the highest poverty rates within Harry Gwala District, with more than 60% of households dependent on social grants.
    - Rural settlements in the municipality exhibit chronic underdevelopment, reinforcing NDZ's placement as a priority for socio-economic upliftment.
2. Infrastructure Backlogs
    - Widespread deficits in water and sanitation, especially in dispersed rural areas.
    - Rural roads and bridges remain inadequate, hampering connectivity and economic participation.
    - ICT and energy access are uneven, leaving remote communities marginalised.
3. Economic Potential
    - Despite backlogs, NDZ has strong potential in agriculture (dairy, beef, timber, maize) and tourism (Drakensberg, Sani Pass).
    - Agro-processing facilities and tourism infrastructure can create jobs and reduce dependency but require upfront investment.
4. Settlement Patterns
    - NDZ's dispersed rural settlement structure results in high per-capita costs for service delivery.
    - Provincial emphasis is therefore placed on nodal consolidation (Ixopo, Underberg, Bulwer, Creighton) to create economies of scale.
5. Environmental Sensitivity
    - The municipality lies within critical catchment areas for the uMkhomazi and uMzimkhulu Rivers, both vital for provincial water supply.

- Environmental protection must therefore be balanced with development needs, requiring carefully targeted interventions.

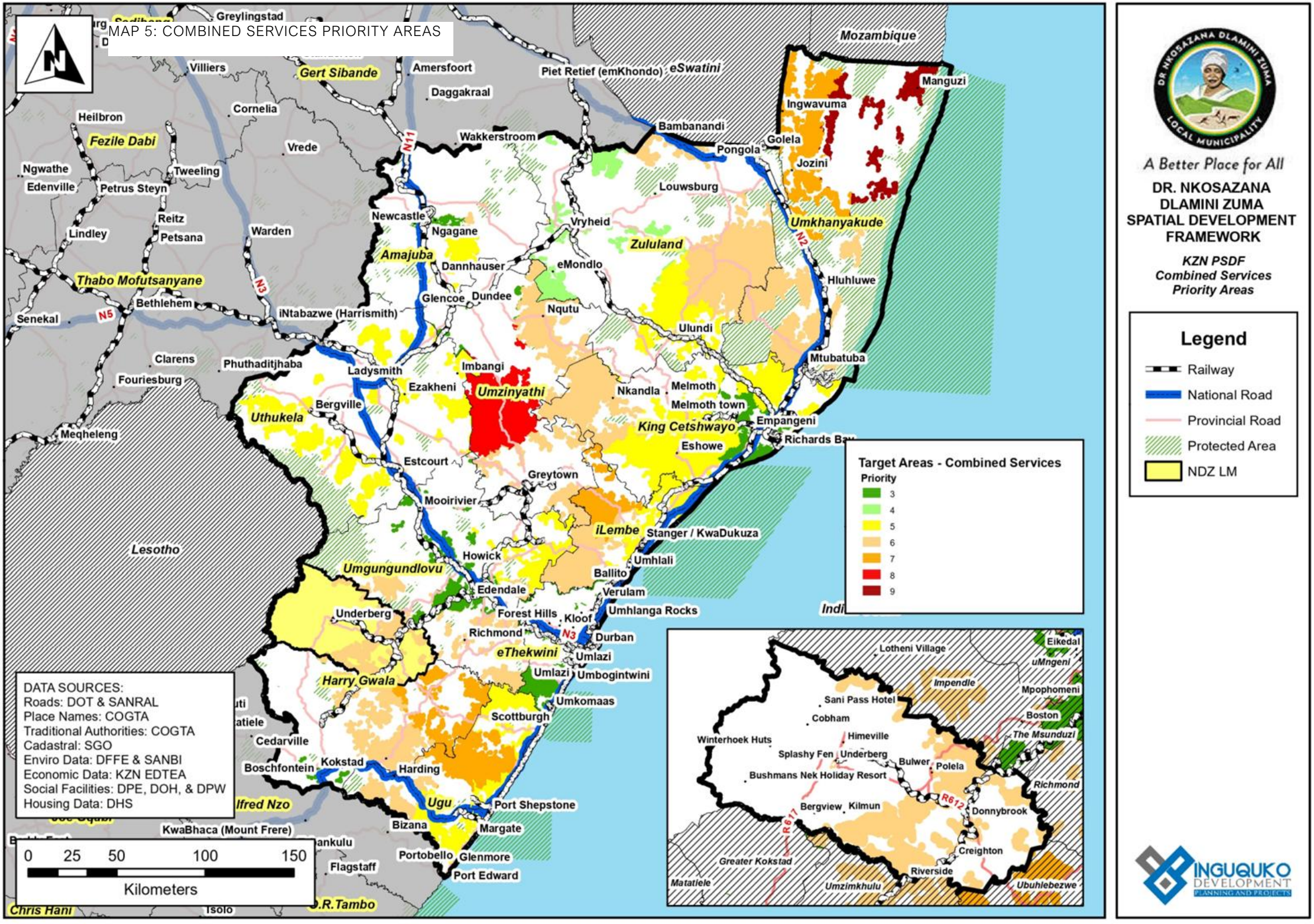
4.3.2.3. THEMATIC PRIORITIES FOR INTERVENTION

Based on PSDF criteria, the following thematic areas of intervention are most relevant for NDZ PIAs:

- Human Settlements and Housing
  - Consolidate growth in Quaternary Nodes to reduce sprawl.
  - Prioritise informal settlement upgrading around Ixopo and Creighton.
  - Support rural service centres in traditional authority areas with housing programmes and basic infrastructure.
- Basic Services and Infrastructure
  - Accelerate provision of potable water (bulk and household connections).
  - Address sanitation backlogs, with phased transition from pit latrines to VIPs and waterborne systems in dense nodes.
  - Expand rural electrification and strengthen Eskom's rural grid.
  - Upgrade gravel roads to all-weather access routes, prioritising feeder routes into Ixopo, Underberg, and Bulwer.
- Economic Development
  - Establish agro-processing hubs for dairy and timber industries in Ixopo and Creighton.
  - Promote tourism infrastructure in Underberg and Bulwer (lodges, trails, cultural heritage sites).
  - Strengthen informal and small-scale trading through market facilities in rural service centres.
- Social Development and Facilities
  - Expand access to clinics, mobile health services, and schools in underserved areas.
  - Invest in multipurpose community centres (clinics, libraries, social grants pay-points, sports facilities).
- Environmental Management
  - Protect wetlands, grasslands, and biodiversity hotspots within NDZ's mountain and valley systems.
  - Integrate conservation and eco-tourism development as dual strategies.


MAP 4: HOUSING NEED PRIORITY AREAS
Mozambique
eSwatini
Lesotho
Greylingstad
Villiers
Gert Sibande
Amersfoort
Piet Retief (emKhondo)
Daggakraal
Cornelia
Heilbron
Fezile Dabi
Vrede
Wakkerstroom
Bambanandi
Manguzi
Ingwavuma
Golela
Pongola
Jozini
Ngwathe
Edenville
Tweeling
Petrus Steyn
Louwsburg
Reitz
Lindley
Petsana
Warden
Newcastle
Ngagane
Vryheid
Umkhanyakude
Zululand
Amajuba
Dannhauser
eMondlo
Hluhluwe
Thabo Mofutsanyane
Bethlehem
Glencoe
Dundee
Nqutu
Senekal
iNtabazwe (Harrismith)
Ulundi
Clarens
Phuthaditjhaba
Ladysmith
Imbangi
Mtubatuba
Fouriesburg
Ezakheni
Umzinyathi
Nkandla
Melmoth
Melmoth town
Bergville
Uthukela
Empangeni
King Cetshwayo
Meqheleng
Richards Bay
Eshowe
Estcourt
Greytown
Mooirivier
iLembe
Stanger / KwaDukuza
Howick
Umhlali
Umgungundlovu
Ballito
Edendale
Verulam
Underberg
Forest Hills
Kloof
Umhlanga Rocks
Richmond
Durban
eThekwini
Umlazi
Umlazi
Umbogintwini
Harry Gwala
Umkomaas
Scottburgh
Cedarville
Boschfontein
Kokstad
Harding
Ugu
Port Shepstone
Bizana
Margate
KwaBhaca (Mount Frere)
Portobello
Glenmore
Flagstaff
Port Edward
Chris Hani
Isolo
O.R.Tambo
Priority Areas - Housing Need
Housing Need
High Priority
Medium Priority
Lower Priority
DATA SOURCES:
Roads: DOT & SANRAL
Place Names: COGTA
Traditional Authorities: COGTA
Cadastral: SGO
Enviro Data: DFFE & SANBI
Economic Data: KZN EDTEA
Social Facilities: DPE, DOH, & DPW
Housing Data: DHS
0 25 50 100 150
Kilometers
Lotheni Village
Eikedal
uMngeni
Impendle
Mpophomeni
Sani Pass Hotel
Cobham
Boston
Himeville
The Msunduzi
Winterhoek Huts
Splashy Fen
Underberg
Bulwer
Polela
Bushmans Nek Holiday Resort
Richmond
R612
Bergview
Kilmun
Donnybrook
R617
Creighton
Greater Kokstad
Riverside
Matatiele
Umzimkhulu
Ubuhlebezwe
DR NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY
A Better Place for All
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK
KZN PSDF
Housing Need Priority Areas
Legend
Railway
National Road
Provincial Road
Protected Area
NDZ LM
INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS

MAP 5: COMBINED SERVICES PRIORITY AREAS



A Better Place for All

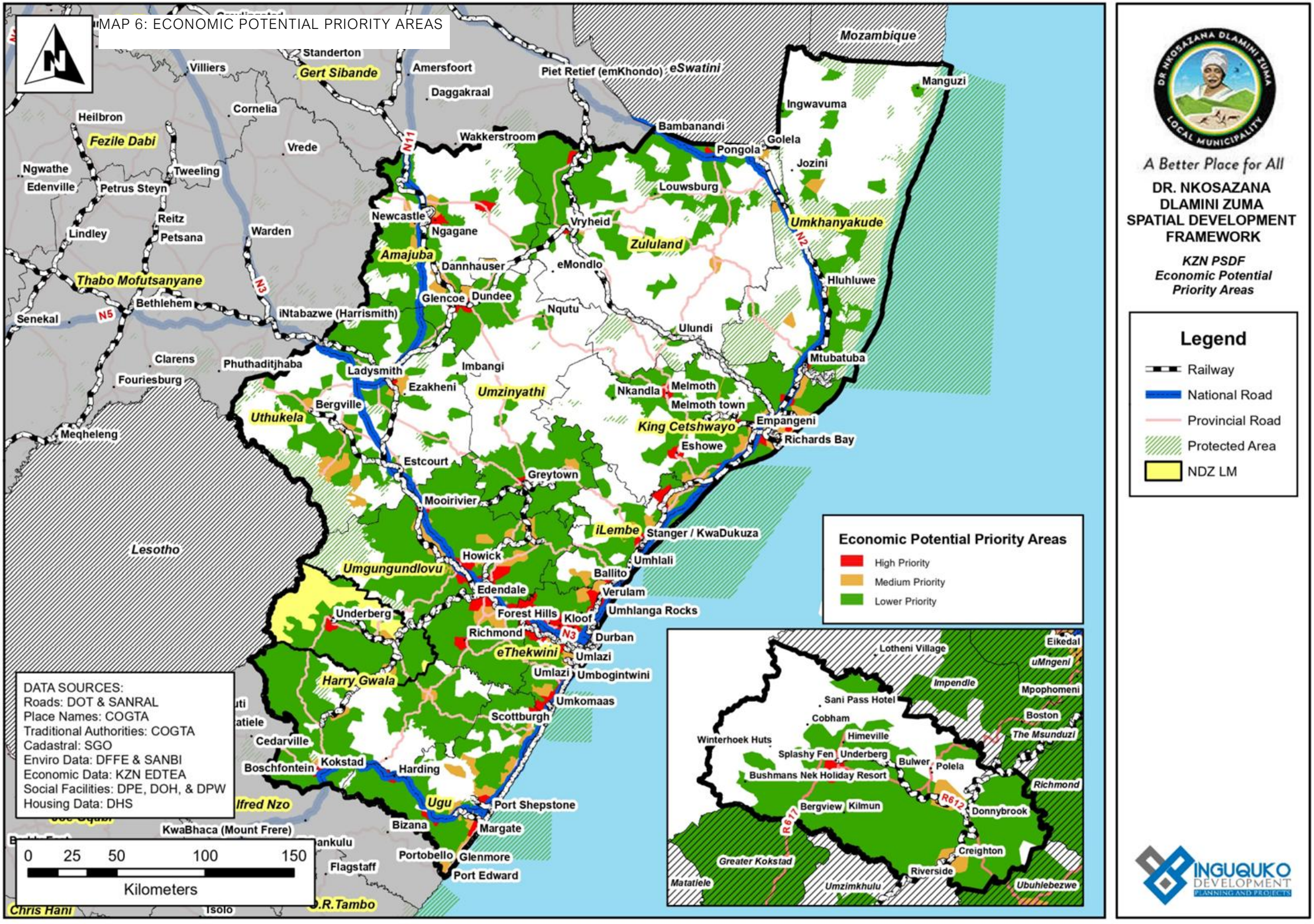
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

KZN PSDF Combined Services Priority Areas

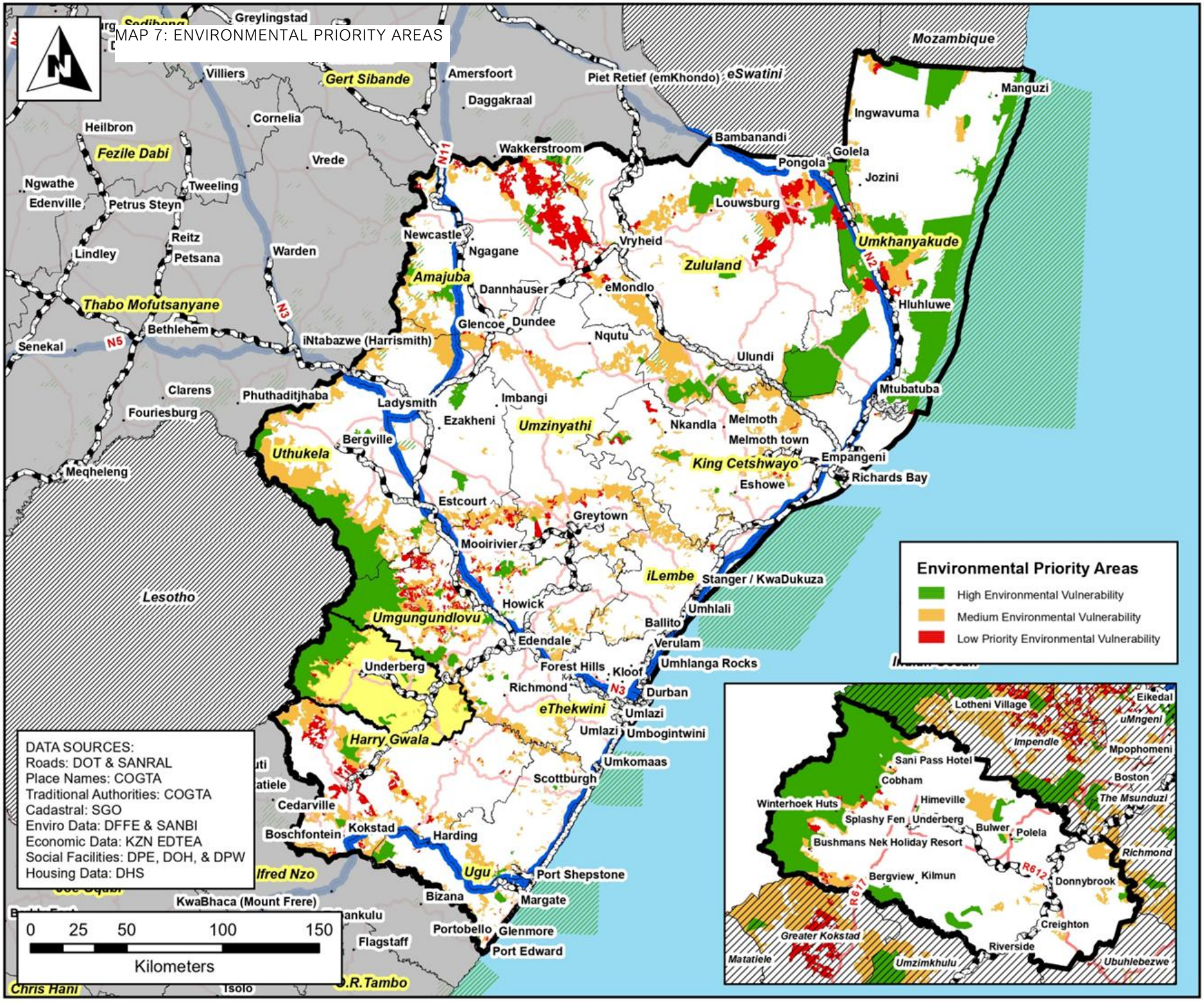
Legend

- Railway
- National Road
- Provincial Road
- Protected Area
- NDZ LM

INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS


MAP 6: ECONOMIC POTENTIAL PRIORITY AREAS
Mozambique
eSwatini
Lesotho
Standerton
Villiers
Gert Sibande
Amersfoort
Piet Retief (emKhondo)
Daggakraal
Cornelia
Heilbron
Fezile Dabi
Vrede
Wakkerstroom
Bambanandi
Manguzi
Ingwavuma
Golela
Pongola
Jozini
Ngwathe
Edenville
Tweeling
Petrus Steyn
Louwsburg
Reitz
Lindley
Petsana
Warden
Newcastle
Ngagane
Vryheid
Zululand
Umkhanyakude
Amajuba
Dannhauser
eMondlo
Thabo Mofutsanyane
Glencoe
Dundee
Hluhluwe
Bethlehem
Senekal
iNtabazwe (Harrismith)
Nqutu
Ulundi
Clarens
Phuthaditjhaba
Ladysmith
Imbangi
Mtubatuba
Fouriesburg
Ezakheni
Umzinyathi
Nkandla
Melmoth
Melmoth town
Bergville
Uthukela
King Cetshwayo
Empangeni
Meqheleng
Eshowe
Richards Bay
Estcourt
Greytown
Mooirivier
iLembe
Stanger / KwaDukuza
Howick
Umhlali
Umgungundlovu
Ballito
Edendale
Verulam
Underberg
Forest Hills
Kloof
Umhlanga Rocks
Richmond
Durban
eThekwini
Umlazi
Umbogintwini
Harry Gwala
Umkomaas
Scottburgh
Cedarville
Boschfontein
Kokstad
Harding
Ugu
Port Shepstone
Bizana
Margate
KwaBhaca (Mount Frere)
Portobello
Glenmore
Flagstaff
Port Edward
Chris Hani
Isolo
O.R.Tambo
Economic Potential Priority Areas
High Priority
Medium Priority
Lower Priority
Lotheni Village
Eikedal
uMngeni
Impendle
Mpophomeni
Sani Pass Hotel
Cobham
Boston
The Msunduzi
Himeville
Winterhoek Huts
Splashy Fen
Underberg
Bulwer
Polela
Bushmans Nek Holiday Resort
Richmond
R612
Bergview
Kilmun
Donnybrook
R617
Creighton
Greater Kokstad
Riverside
Matatiele
Umzimkhulu
Ubuhlebezwe
DATA SOURCES:
Roads: DOT & SANRAL
Place Names: COGTA
Traditional Authorities: COGTA
Cadastral: SGO
Enviro Data: DFFE & SANBI
Economic Data: KZN EDTEA
Social Facilities: DPE, DOH, & DPW
Housing Data: DHS
0 25 50 100 150
Kilometers
A Better Place for All
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK
KZN PSDF
Economic Potential Priority Areas
Legend
Railway
National Road
Provincial Road
Protected Area
NDZ LM
INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS

MAP 7: ENVIRONMENTAL PRIORITY AREAS



A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

KZN PSDF Environmental Priority Areas

Legend

- Railway
- National Road
- Provincial Road
- Protected Area
- NDZ LM

INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS

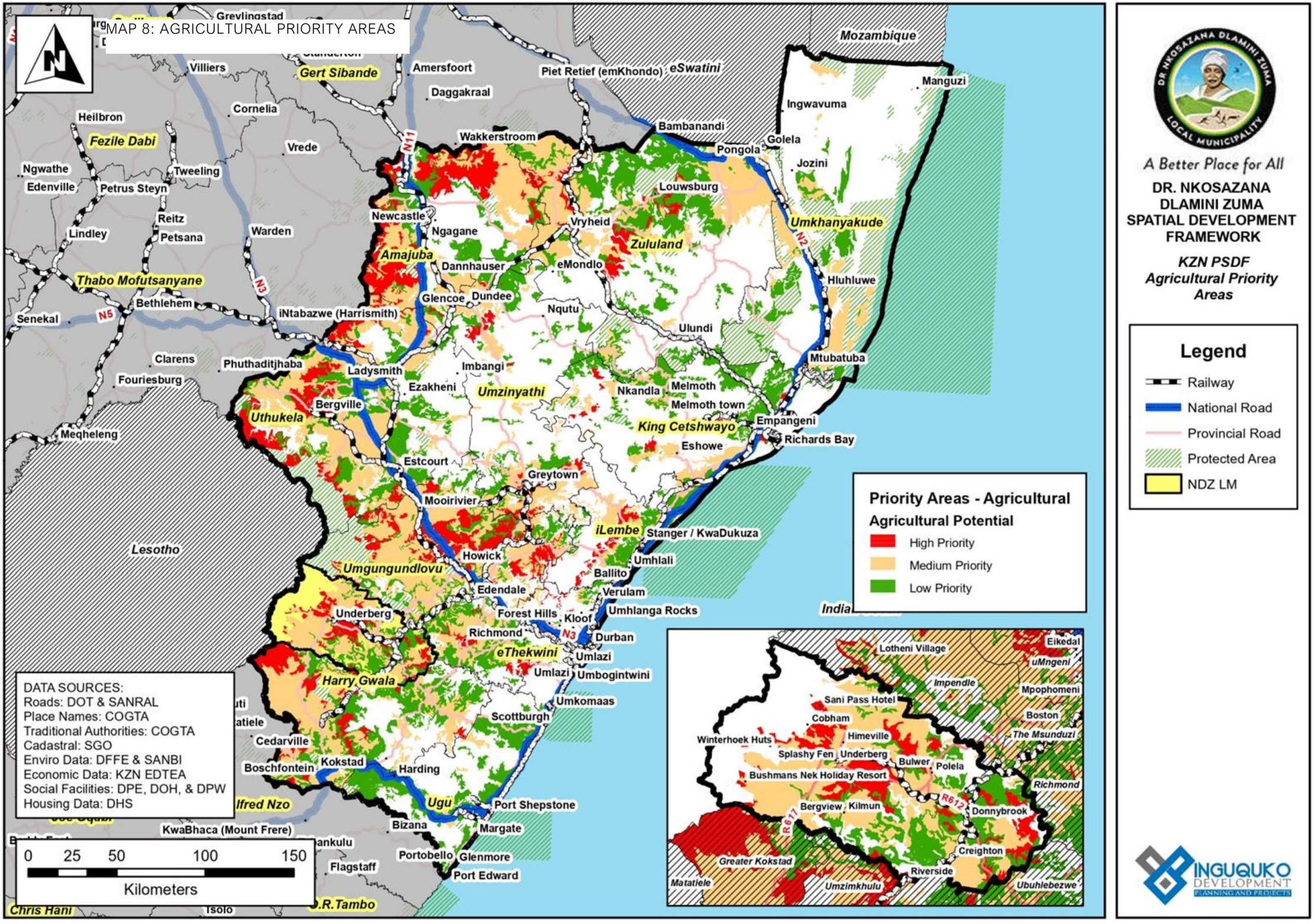

MAP 8: AGRICULTURAL PRIORITY AREAS
Mozambique
eSwatini
India
Lesotho
Gert Sibande
Fezile Dabi
Thabo Mofutsanyane
Amajuba
Zululand
Umkhanyakude
Umzinyathi
Uthukela
King Cetshwayo
iLembe
Umgungundlovu
eThekwini
Harry Gwala
Ugu
Ifred Nzo
Chris Hani
O.R.Tambo
Grevlingstad
Villiers
Amersfoort
Piet Retief (emKhondo)
Daggakraal
Cornelia
Heilbron
Vrede
Wakkerstroom
Bambanandi
Manguzi
Ingwavuma
Golela
Pongola
Jozini
Louwsburg
Ngwathe
Edenville
Petrus Steyn
Tweeling
Reitz
Lindley
Petsana
Warden
Newcastle
Ngagane
Vryheid
Dannhauser
eMondlo
Hluhluwe
Senekal
Bethlehem
iNtabazwe (Harrismith)
Glencoe
Dundee
Nqutu
Ulundi
Mtubatuba
Clarens
Phuthaditjhaba
Fouriesburg
Ladysmith
Imbangi
Ezakheni
Nkandla
Melmoth
Melmoth town
Empangeni
Richards Bay
Eshowe
Bergville
Meqheleng
Estcourt
Greytown
Mooirivier
Howick
Umhlali
Stanger / KwaDukuza
Ballito
Verulam
Umhlanga Rocks
Underberg
Forest Hills
Kloof
Richmond
Durban
Umlazi
Umbogintwini
Umkomaas
Scottburgh
Cedarville
Boschfontein
Kokstad
Harding
Port Shepstone
Bizana
Margate
KwaBhaca (Mount Frere)
Portobello
Glenmore
Flagstaff
Port Edward
Tsolo
N11
N3
N5
N2
R617
R612
Priority Areas - Agricultural
Agricultural Potential
High Priority
Medium Priority
Low Priority
DATA SOURCES:
Roads: DOT & SANRAL
Place Names: COGTA
Traditional Authorities: COGTA
Cadastral: SGO
Enviro Data: DFFE & SANBI
Economic Data: KZN EDTEA
Social Facilities: DPE, DOH, & DPW
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0 25 50 100 150
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Lotheni Village
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Mpophomeni
Sani Pass Hotel
Cobham
Boston
The Msunduzi
Winterhoek Huts
Himeville
Splashy Fen
Underberg
Bulwer
Polela
Bushmans Nek Holiday Resort
Richmond
Bergview
Kilmun
Donnybrook
Creighton
Greater Kokstad
Riverside
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KZN PSDF Agricultural Priority Areas
Legend
Railway
National Road
Provincial Road
Protected Area
NDZ LM
INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS

TABLE 5: PRIORITY INTERVENTION AREAS (PIAS) – PSDF ALIGNMENT WITH NDZ CONTEXT

PSDF INTERVENTION AREA	NDZ LOCAL TRANSLATION	ILLUSTRATIVE PRIORITY PROJECT EXAMPLES
Human Settlements & Housing	Consolidate Quaternary Nodes (Ixopo, Underberg, Bulwer, Creighton) as growth points; upgrade informal settlements.	• Formalisation & upgrading of informal settlement near Ixopo. • Nodal housing projects in Creighton & Bulwer. • Rural housing linked to traditional council areas.
Basic Services & Infrastructure	Address backlogs in water, sanitation, electricity, and rural roads.	• Ixopo bulk water scheme expansion. • VIP sanitation rollout in rural villages. • Eskom rural electrification extension to deep rural areas. • Gravel-to-tar upgrade of Ixopo–Bulwer access road.
Economic Development	Strengthen agriculture and tourism as economic anchors; promote agro-processing and informal trade.	• Agro-processing hub for dairy and timber in Ixopo/Creighton. • Tourism facilities in Underberg (lodges, cultural village, eco-trails). • Development of rural markets in traditional council areas.
Social Development & Facilities	Improve access to education, health, and community facilities in dispersed settlements.	• Multipurpose community centre (clinic, library, pay-point) in Bulwer. • New secondary school near Creighton. • Expansion of mobile clinic services in rural service centres.
Environmental Management	Conserve biodiversity, catchments, and heritage assets while linking to eco-tourism.	• Wetland rehabilitation project near Umzimkhulu River catchment. • Drakensberg eco-tourism hiking and biking trails. • Environmental awareness programmes in rural schools.

4.3.2.4. IMPLEMENTATION CHALLENGES IN PIAS

Despite the provincial prioritisation, several barriers could slow effective intervention in NDZ:

- Limited municipal capacity to implement and coordinate large-scale infrastructure projects.
- Fiscal constraints, with NDZ dependent on transfers and grants rather than a strong local revenue base.
- Topographic constraints, with steep terrain increasing infrastructure costs.
- Governance and coordination challenges, particularly in synchronising efforts between provincial departments, Harry Gwala District, and NDZ Municipality.

4.3.2.5. STRATEGIC IMPLICATIONS FOR NDZ

The identification of NDZ as a Level 1 PIA has significant implications for municipal planning:

- Prioritisation of investment: Ixopo, Underberg, Creighton, and Bulwer must be reinforced as consolidated nodes for development.
- Service delivery planning: Rural Service Centres should be strengthened as first-access points, ensuring equity across dispersed villages.
- Integration with corridors: PIAs should be directly linked with the R56 and R617 corridors, enabling NDZ to plug into regional economic flows.
- Alignment with SDF/IDP: NDZ must embed PIA interventions in its SDF and IDP, aligning municipal priorities with provincial resource flows.

4.4. SUMMARY OF PROVINCIAL ALIGNMENT KEY CHALLENGES AND OPPORTUNITIES

4.4.1. KEY CHALLENGES

- Peripheral location relative to provincial growth cores and logistics spines, creating distance-penalties for firms and households.
- Fragmented settlement system with multiple small towns and extensive rural settlement, limiting economies of scale for service delivery.
- Environmental sensitivities (World Heritage Site setting, critical biodiversity areas, steep slopes, wetlands) constrain unconstrained urban expansion.
- Provincial corridors (e.g., R617, R612) underperform as integrated economic corridors; weak logistics, limited modal integration, constrained last-mile access from rural nodes.
- Limited institutional capacity to consistently package bankable catalytic projects at a scale that attracts provincial co-investment.

4.4.2. KEY OPPORTUNITIES

- Provincial tourism gateway to the uKhahlamba-Drakensberg and Lesotho border, positioning NDZ within PSDF's tourism and nature-based economy thrusts.
- Comparative advantages in agriculture (dairy, forestry, niche horticulture), agro-processing, and adventure/ecotourism.
- PSDF's nodal hierarchy and corridor approach legitimates targeted densification, mixed-use intensification and logistics support at priority nodes (Underberg-Himeville, Bulwer, Creighton, Donnybrook).
- Green economy transition (ecosystem services, carbon sinks, land rehabilitation, water stewardship) aligns with provincial climate policy and opens funding channels.

4.4.3. SHORT-TERM RECOMMENDATIONS (1–5 YRS)

- Prepare concise "PSDF-alignment briefs" for top 6–8 catalytic projects (tourism gateways, agro-processing sites, small-town main-street upgrades) to unlock KZN COGTA/EDTEA support.
- Quick corridor wins: signage, traffic calming, pedestrian facilities, market stalls and taxi rank micro-upgrades at strategic intersections along R617/R612 to improve safety, legibility and trade.
- Town-entry landscape treatments and tourism wayfinding (Underberg-Himeville, Bulwer) to amplify gateway identity.
- Standardised development control guidelines for scenic/heritage landscapes to fast-track compliant private investment while protecting assets.

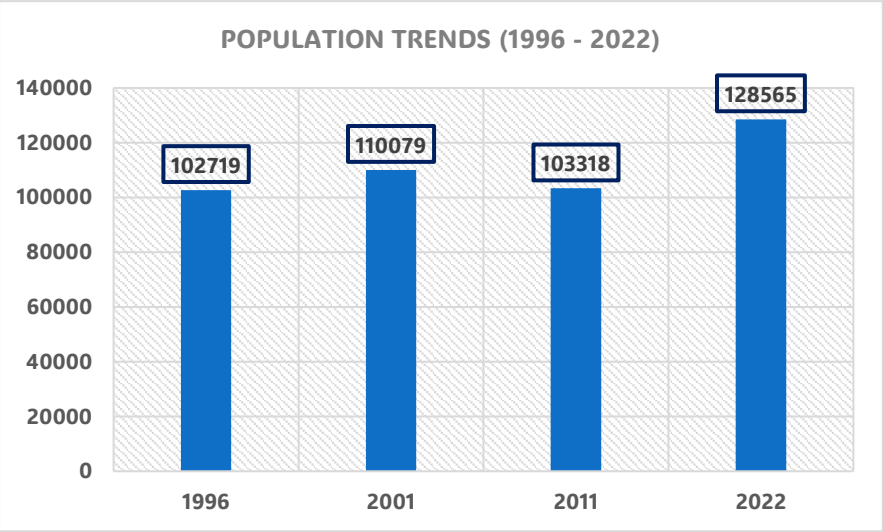
4.4.4. MEDIUM/LONG-TERM RECOMMENDATIONS (5–20 YRS)

- Full corridor revitalisation packages (road safety, logistics lay-bys, NMT networks, fibre/telecoms spines, market platforms), prioritised by freight and tourism demand.
- Spatial targeting and densification frameworks for priority nodes (medium-density residential, mixed-use blocks, brownfield infill).
- Programmatic biodiversity stewardship and ecological infrastructure investment program (catchment rehab, invasive control, wetland buffers) under a municipal-district climate finance umbrella.
- Cross-border tourism and trade compacts (Lesotho interface) and provincial "Drakensberg-to-Coast" route integration.

5. SOCIOECONOMIC & DEMOGRAPHIC ANALYSIS

5.1. DEMOGRAPHIC ANALYSIS

5.1.1. POPULATION TRENDS



GRAPH 1: MUNICIPAL POPULATION TRENDS

Source: Census 1996, 2001, 2011 & 2022

The above graph shows that the population increased from 102,719 in 1996 to 110,079 in 2001, followed by a decline to 103,318 in 2011, and then a sharp rise to 128,565 in 2022. This pattern suggests a municipality that has experienced both demographic contraction and expansion, with the most recent decade showing robust growth.

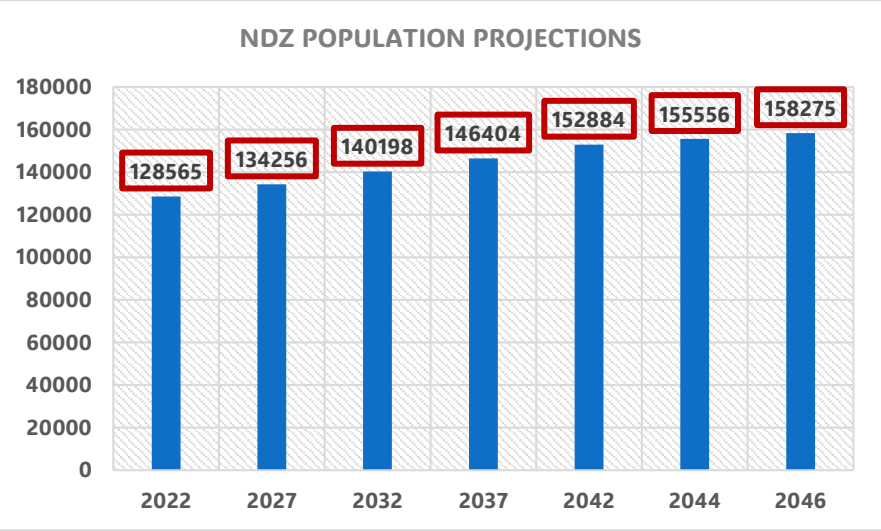
The initial growth from 1996 to 2001 may reflect post-apartheid settlement patterns, improved access to services, or natural population growth. However, the decline between 2001 and 2011 could be attributed to out-migration, economic stagnation, or limited employment opportunities, prompting residents to seek better prospects elsewhere. The significant increase from 2011 to 2022—an approximate 25% growth—indicates a reversal of this trend, possibly due to improved local governance, infrastructure development, or regional economic initiatives attracting people back to the area.

SHORT-TERM IMPLICATIONS: Short-term implications (0–5 years) for spatial planning include the urgent need to accommodate this recent population surge. The municipality must prioritize housing development, particularly affordable and inclusive housing, to prevent informal settlements and overcrowding. Basic services such as water, sanitation, electricity, and waste management must be scaled up to meet increased demand. Additionally, healthcare and education facilities will need expansion to serve a growing population, especially in rural and peri-urban areas.

MEDIUM-TERM IMPLICATIONS: Medium-term planning (5–15 years) should focus on sustainable urban development. The municipality must invest in transport infrastructure, including roads and public transit systems, to improve mobility and reduce congestion. Spatial planning should promote mixed-use development, integrating residential, commercial, and recreational spaces to foster vibrant, economically active communities. Land use management will be critical to prevent urban sprawl and protect agricultural and environmentally sensitive areas. Moreover, the municipality should consider economic development zones to stimulate job creation and reduce dependency on external labour markets.

LONG-TERM IMPLICATIONS: Long-term planning (15+ years) must aim for resilience and adaptability. With climate change and technological shifts on the horizon, spatial planning should incorporate green infrastructure, such as parks, wetlands, and renewable energy systems, to enhance environmental sustainability. The municipality should explore smart city technologies to improve service delivery and resource management. Planning must also anticipate demographic shifts, such as aging populations or youth bulges, and ensure that infrastructure and services remain responsive to changing needs. Disaster risk reduction, including flood management and fire safety, should be embedded in long-term spatial strategies gender structure

5.1.2. POPULATION PROJECTIONS



GRAPH 2: POPULATION PROJECTIONS

The population projections for the Dr. Nkosazana Dlamini Zuma (NDZ) Municipality from 2022 to 2046 reveal a steady but moderate growth trajectory, based on a Compound Annual Growth Rate (CAGR) of 0.87%. In 2022, the municipal population stood at approximately 128,565 and is expected to increase to 158,275 by 2046. This represents an overall growth of 29,710 people over the 24-year period. Although the growth rate is relatively modest compared to urbanising municipalities in the province, the upward trajectory carries important implications for spatial planning, service delivery, and land use management in the NDZ area.

SHORT-TERM IMPLICATIONS: In the short term (2022–2027), the municipality experiences incremental growth from 128,565 to 134,256 people. This early phase is characterised by manageable increases in demand for infrastructure and services. The focus during this period should be on efficiency and consolidation of existing settlements, in line with SPLUMA principles. Incremental growth creates an opportunity to prioritise infill development, optimise under-utilised land in existing service nodes, and upgrade basic infrastructure in small towns such as Underberg, Himeville, and Bulwer. Short-term growth also implies that housing backlogs and informal settlement pressures will persist, requiring targeted responses through coordinated housing programmes.

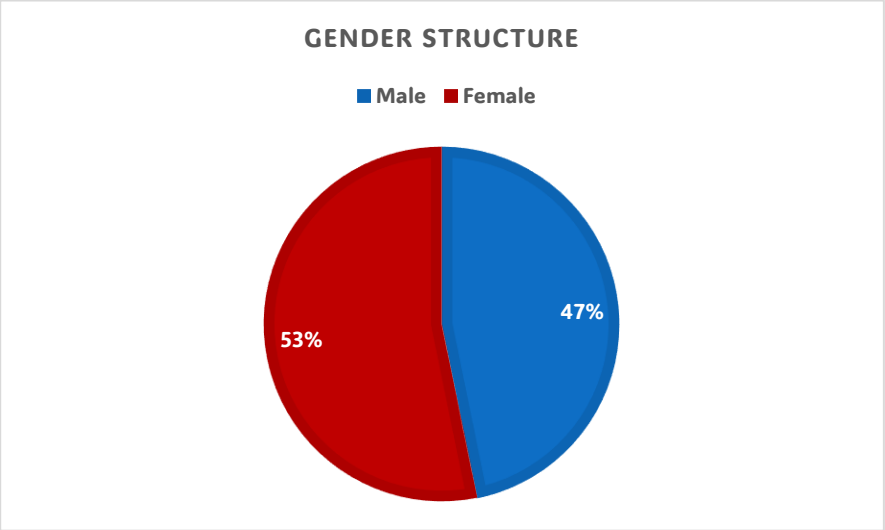
MEDIUM-TERM IMPLICATIONS: By the medium term (2028–2037), population growth accelerates from 140,198 in 2032 to 146,404 in 2037, resulting in an additional 12,000 people over the decade. This phase places increasing pressure on service delivery systems, particularly water supply, sanitation, electricity, and solid waste management. Spatially, the municipality will need to reinforce integration between dispersed rural settlements and its service towns, ensuring that public investment in infrastructure and services is aligned with settlement hierarchies. As growth persists, the risk of unplanned sprawl in peri-urban and rural areas may intensify. Spatial planning must therefore promote compact settlement development, densification along transport corridors, and functional linkages between economic opportunities and residential areas. The principle of sustainability becomes critical in this

phase, as infrastructure systems face greater demands and environmental resources require careful management.

LONG-TERM IMPLICATIONS: In the long term (2038–2046), the population is projected to reach 158,275, with annual increments tapering off compared to the medium term. Growth will continue to drive demand for housing, social facilities, and economic opportunities, but the pace of increase allows for more strategic planning. At this stage, the emphasis must shift toward building resilience in spatial systems — particularly with respect to climate change adaptation, food security in rural settlements, and disaster risk management in environmentally sensitive areas. The municipality must safeguard Critical Biodiversity Areas, water catchments, and agricultural land while accommodating incremental settlement expansion. A further priority is to ensure that long-term infrastructure investments are spatially aligned to reinforce sustainable nodes of development, reducing the cost burden of servicing scattered rural settlements.

Overall, while NDZ Municipality's population growth is modest, its dispersed settlement pattern magnifies service delivery challenges. The projections underscore the need for spatial planning strategies that consolidate development in existing nodes, manage rural settlement growth, and align infrastructure provision with SPLUMA principles of sustainability, efficiency, integration, and resilience.

5.1.3. GENDER STRUCTURE



GRAPH 3: GENDER STRUCTURE

Source: Census 2022

The above graph reveals a relatively balanced gender distribution, with females comprising 53% of the population and males 47%. While the difference is not extreme, this slight female majority has meaningful implications for spatial planning across short, medium, and long-term horizons.

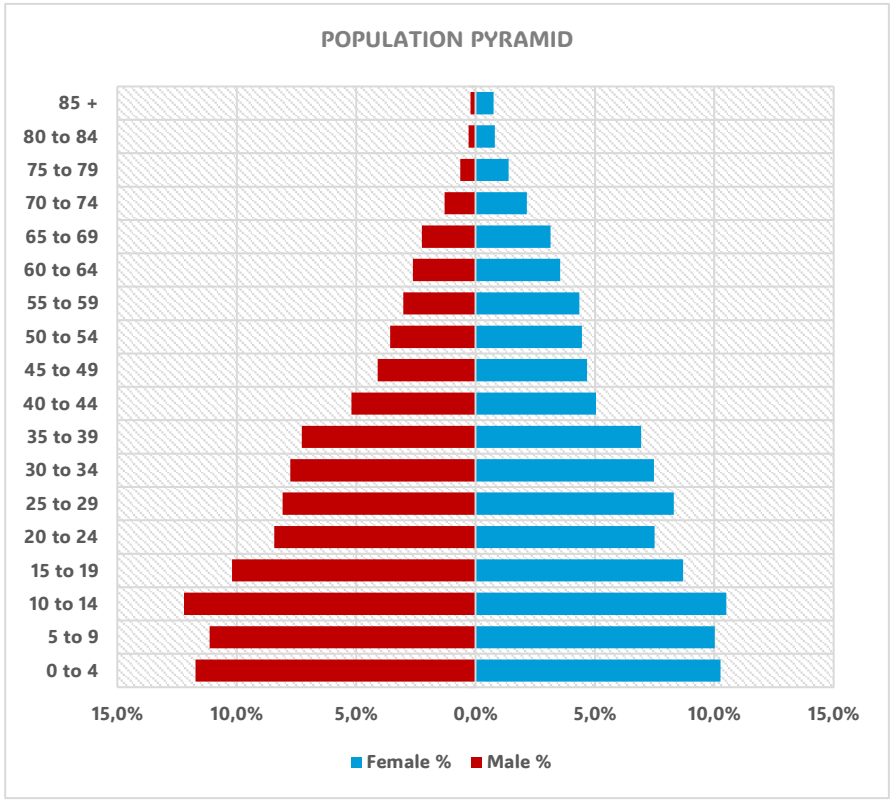
SHORT-TERM IMPLICATIONS: In the short term (0–5 years), spatial planning must consider the immediate needs of women, particularly in terms of healthcare, safety, and access to services. Facilities such as maternal and reproductive health clinics, early childhood development centres, and safe public transport systems should be prioritized. Urban design should incorporate well-lit streets, safe pedestrian pathways, and accessible public spaces to ensure women feel secure and included in public life. Additionally,

planning should support economic empowerment initiatives for women, such as market spaces, training centres, and small business hubs, especially in rural and peri-urban areas where access to formal employment may be limited.

MEDIUM-TERM IMPLICATIONS: In the medium term (5–15 years), the municipality should focus on gender-responsive infrastructure and policy development. This includes integrating gender considerations into housing projects, education facilities, and employment zones. For example, schools and vocational training centres should be equitably distributed and designed to support girls' education and women's skill development. Spatial planning should also promote inclusive governance, ensuring that women are represented in decision-making processes related to land use, development priorities, and service delivery. Furthermore, transport planning should consider the mobility patterns of women, who often travel shorter distances but make more frequent trips for caregiving and household responsibilities.

LONG-TERM IMPLICATIONS: In the long term (15+ years), spatial planning must aim for gender equity and resilience. This involves creating environments that support equal opportunities for all genders in education, employment, and civic participation. Planning should anticipate demographic shifts, such as aging populations, and ensure that elderly women, who often outlive men, have access to age-friendly housing, healthcare, and social support systems. Long-term strategies should also address climate resilience with a gender lens, recognizing that women, particularly in rural areas, are disproportionately affected by environmental changes. Investments in sustainable agriculture, water access, and renewable energy can empower women and enhance community resilience.

5.1.4. POPULATION PYRAMID



GRAPH 4: POPULATION PYRAMID

Source: Census 2022

The above graph shows the population pyramid for the Dr. Nkosazana Dlamini Zuma Local Municipality and reveals a classic youthful demographic structure, characterized by a broad base and a narrow apex. This indicates a high proportion of children and youth, with the largest age cohorts being 0–4, 5–9, and 10–14 years, and a progressively smaller representation in older age

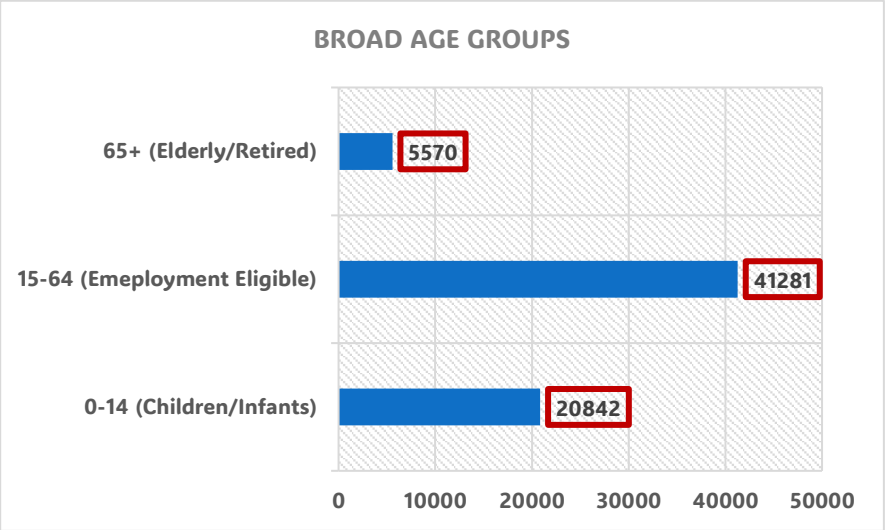
groups, especially those 60 years and above. The gender distribution is relatively balanced across most age groups, with minor variations that do not significantly skew the overall structure.

SHORT-TERM IMPLICATIONS: The immediate priority must be to accommodate the needs of a predominantly young population. This includes expanding early childhood development centres, primary and secondary schools, and maternal and child healthcare services. Spatial planning should ensure that these facilities are equitably distributed across both urban and rural areas to reduce access disparities. Additionally, safe recreational spaces, such as parks and sports facilities, should be integrated into community layouts to support healthy development and social cohesion among youth. Public transport routes must be designed to connect residential areas with schools and clinics efficiently.

MEDIUM-TERM IMPLICATIONS: As the current youth cohort transitions into adulthood, the municipality will face increased demand for employment opportunities, tertiary education, and housing. Spatial planning must therefore prioritize the development of economic hubs, industrial zones, and vocational training centres to absorb the growing labour force. Mixed-use developments that combine residential, commercial, and educational functions will be essential to support young families and reduce commuting times. Planning should also include affordable housing schemes and public infrastructure upgrades, such as roads, electricity, and digital connectivity, to support economic activity and improve quality of life.

LONG-TERM IMPLICATIONS: Over time, the youthful population will age, and the municipality must prepare for a gradual increase in the elderly population. Long-term spatial planning should incorporate healthcare infrastructure capable of managing chronic diseases and providing elderly care services, including clinics, assisted living facilities, and social support centres. Additionally, urban design must evolve to be more age-friendly, with accessible public spaces, walkable neighbourhoods, and inclusive transport systems. The municipality should also invest in sustainable development strategies, such as green infrastructure and climate-resilient housing, to ensure long-term environmental and economic sustainability.

5.1.5. BROAD AGE GROUPS



GRAPH 5: BROAD AGE GROUPS

Source: Census 2022

The Broad Age Groups bar graph for the Dr. Nkosazana Dlamini Zuma Local Municipality provides a clear snapshot of the population distribution across three key demographic segments: children (0–14 years), working-age population (15–64 years), and the elderly (65+ years). The data shows that the working-age group dominates, with 41,281 individuals, followed by children at 20,842, and a relatively small elderly population of 5,570. This structure reflects a municipality with a young and economically active population, which

has significant implications for spatial planning across short, medium, and long-term horizons.

LONG-TERM IMPLICATIONS: In the immediate future, spatial planning must focus on supporting the large youth and working-age population. For children, this means expanding educational infrastructure, including early childhood development centres, primary schools, and recreational facilities. For the working-age group, the priority should be job creation, skills development, and access to affordable housing. Planning should also ensure efficient transport systems that connect residential areas to employment hubs. Given the relatively small elderly population, healthcare services can focus more on maternal and child health, preventative care, and youth wellness programs.

MEDIUM-TERM IMPLICATIONS: As the current youth cohort transitions into the working-age group, the demand for employment opportunities, higher education, and housing will increase significantly. Spatial planning must therefore support the development of economic zones, industrial parks, and entrepreneurship hubs. Mixed-use developments that integrate residential, commercial, and educational functions will be essential to accommodate young families and reduce commuting times. The municipality should also invest in infrastructure upgrades, including roads, digital connectivity, and public services, to support economic growth and improve quality of life.

LONG-TERM IMPLICATIONS: Over time, the working-age population will age, and the municipality must prepare for a gradual increase in the elderly population. Long-term spatial planning should incorporate age-friendly infrastructure, such as accessible housing, healthcare facilities for chronic conditions, and social support centres. Public spaces should be designed to be inclusive and safe for older adults. Additionally, the municipality should invest in sustainable development strategies, including green infrastructure, renewable energy, and climate-resilient housing, to ensure long-term environmental and economic sustainability.





5.1.6. SPATIAL PLANNING IMPLICATIONS

Spatial planning involves the strategic allocation of land and resources to meet the needs of the population, and understanding demographic trends is crucial for effective planning. The municipal shows a general increase in population over the years, with a notable rise from 2011 to 2022. This indicates a growing population that will require expanded infrastructure, housing, and services. The slight decline in 2011 suggests that planners should also consider factors that might cause population fluctuations, such as economic downturns or migration patterns. Ensuring that there is flexibility in planning to accommodate such changes is essential.

The population pyramid graph provides insights into the age distribution of the population. The broad base of the pyramid, indicating a high percentage of younger individuals, suggests a need for substantial investment in educational facilities, childcare services, and recreational areas for children and adolescents. As these young individuals age, there will be a continuous demand for educational institutions, from primary schools to universities. Additionally, the relatively balanced gender distribution across most age groups implies that spatial planning should consider the needs of both males and females equally, ensuring that facilities and services are accessible and beneficial to all.

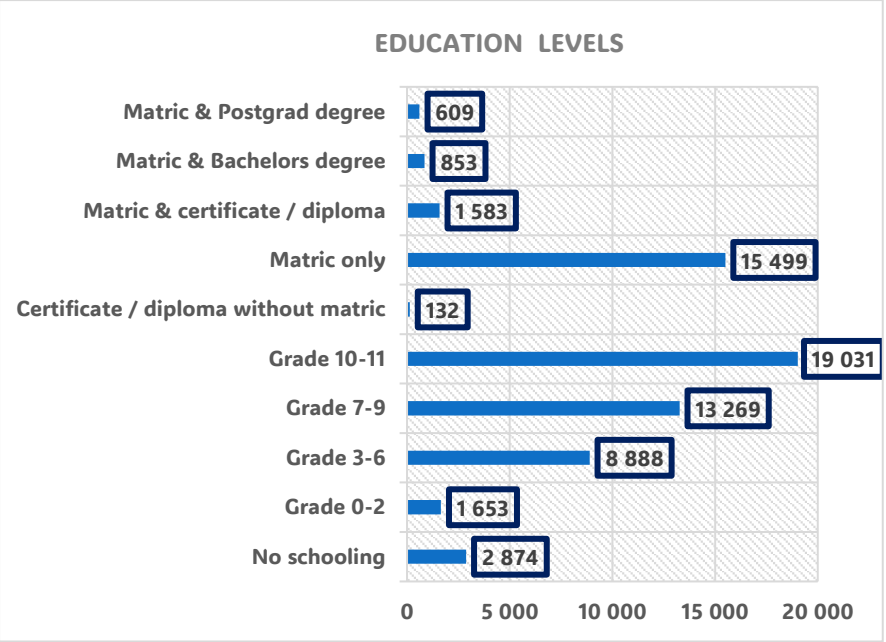
The broad age groups highlight the significant proportion of the population that is employment-eligible (15-64 years). This demographic is crucial for economic productivity and will require adequate employment opportunities, transportation infrastructure, and housing. The large size of this group suggests that urban areas may need to expand to accommodate a growing workforce, with considerations for public transportation systems, commercial spaces, and residential developments. The substantial number of children (0-14 years) also indicates a future influx into the employment-eligible group, necessitating long-term planning for job creation and economic development.

The smaller elderly population (65+) suggests that while there is currently less demand for retirement facilities and healthcare services for the elderly, this will change as the population ages. Planners should anticipate an increase in the elderly population in the coming decades and ensure that there are adequate healthcare facilities, senior housing, and social services to support this demographic. The slight predominance of females in the elderly group, as indicated by the population pyramid, also suggests a need for gender-specific healthcare and support services.

The gender structure shows a nearly balanced gender distribution, with females slightly outnumbering males. This balance implies that spatial planning should be inclusive and consider the needs of both genders. For instance, ensuring that public spaces are safe and accessible for women, providing equal opportunities for employment, and addressing gender-specific health issues are all important considerations.

5.2. SOCIOECONOMIC ANALYSIS

5.2.1. EDUCATION LEVELS



GRAPH 6: EDUCATION LEVELS

Source: IHS Markit, 2024

The above graph provides a detailed overview of the educational attainment within the municipality. The data reveals that the majority of individuals have completed Grade 10-11, with a significant number of 19,031. This is followed by those who have completed "Matric only," totalling 15,499 individuals. The next largest group consists of individuals with education levels between Grade 7-9, numbering 13,269. These figures indicate that a substantial portion of the population has attained at least some level of secondary education.

However, there is a noticeable drop in the number of individuals with higher education qualifications. Only 1,583 individuals have a "Matric & certificate/diploma," 853 have a "Matric & Bachelor's degree," and a mere 609 have a "Matric & Postgrad degree." This suggests that while many individuals complete secondary education, fewer pursue higher education degrees.

The graph also highlights the lower end of the educational spectrum, with 8,888 individuals having completed Grades 3-6, 1,653 having completed Grades 0-2, and 2,874 having no schooling at all. The small number of individuals with a "Certificate/diploma without matric" (132) further emphasizes the gap in higher education attainment.

Thus, the graph indicates a strong foundation in basic and secondary education within the municipality, but it also underscores the need for initiatives to encourage higher education attainment. Addressing this gap could involve improving access to tertiary education, providing financial support for students, and creating awareness about the benefits of higher education. By focusing on these areas, the municipality can work towards a more educated and skilled workforce, which is essential for sustainable economic development and social progress.

The educational attainment levels in the Dr. Nkosazana Dlamini Zuma Municipality, as depicted in the graph, have significant implications for spatial planning. The high number of individuals with only secondary education and the relatively low number of those with higher education degrees suggest a need for targeted interventions to enhance educational opportunities. Spatial planning must prioritize the development of educational infrastructure, including schools, vocational training centres, and higher education institutions, to improve access to quality education across the municipality.

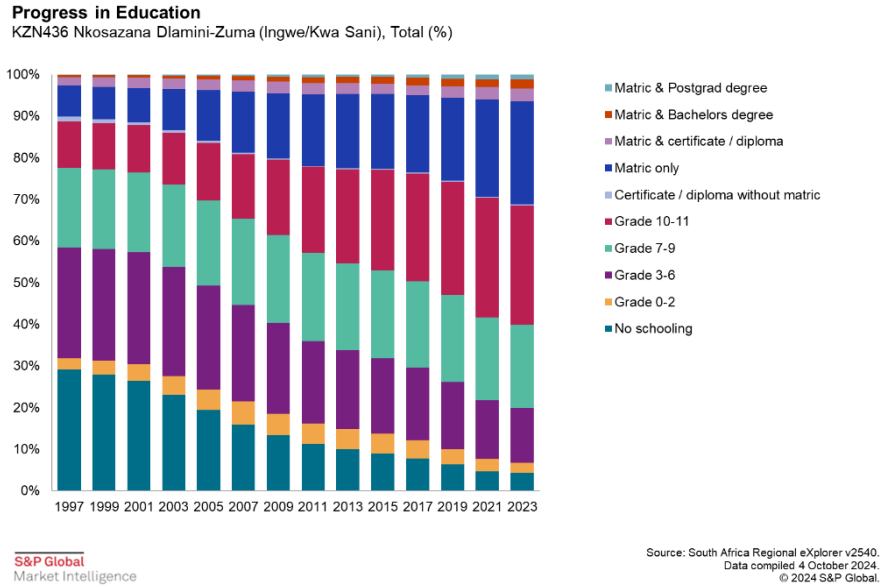
The Spatial Development Framework (SDF) can play a crucial role in addressing these challenges by integrating educational facilities into urban and rural planning. This includes ensuring that new residential developments are

accompanied by adequate educational amenities, promoting mixed-use developments that combine housing, education, and commercial spaces, and improving transportation networks to facilitate easy access to educational institutions. Additionally, the SDF can support the establishment of community learning centres and libraries to provide lifelong learning opportunities for residents of all ages.

To foster economic development and address the educational challenges, the SDF can also focus on creating partnerships with local businesses and industries to develop vocational training programs that align with the region's economic needs. By providing incentives for businesses to invest in education and training, the municipality can enhance the skills of its workforce, making it more competitive and capable of supporting diverse economic activities. Furthermore, the SDF can advocate for policies that provide financial support and scholarships for students pursuing higher education, ensuring that financial barriers do not hinder access to advanced learning opportunities.



5.2.2. PROGRESS IN EDUCATION



GRAPH 7: PROGRESS IN EDUCATION

Source: IHS Markit, 2024

The above graph illustrates the total percentage of educational attainment from 1997 to 2023. The graph categorizes educational levels into Matric & Postgrad degree, Matric & bachelor's degree, Matric & certificate/diploma, Matric only, Certificate/diploma without matric, Grade 10-11, Grade 7-9, Grade 3-6, Grade 0-2, and No schooling.

Over the years, there has been a significant increase in the percentage of people attaining higher education levels, such as Matric & Postgrad degree and Matric & bachelor's degree. Conversely, there has been a noticeable decrease in the percentage of individuals with no schooling or only primary education (Grade 0-2). This trend indicates an overall improvement in educational attainment within the region, reflecting successful educational

policies and initiatives aimed at enhancing access to and the quality of education over the past decades.

5.2.3. EDUCATION, CONNECTIVITY, AND BASIC SERVICES AS ENABLERS OF SPATIAL DEVELOPMENT

It is noteworthy that education and skills development, connectivity, access routes to schools, and basic services such as water and food security are central to achieving meaningful spatial transformation in Dr. Nkosazana Dlamini Zuma Municipality. While the SDF is primarily a spatial planning tool, it must integrate these dimensions into its framework to ensure that projects and proposals address not only the location of development but also the conditions that enable social and economic progress. This section addresses each of the four priority areas, highlighting their challenges, spatial implications, and possible interventions that can be incorporated into the SDF.

5.2.3.1. IMPROVING ACCESS TO EDUCATION AND SKILLS DEVELOPMENT

Educational access in NDZ is constrained by the Municipality's scattered settlement pattern, which forces learners to travel long distances to reach schools and tertiary institutions. Facilities are concentrated in larger nodes such as Bulwer, Underberg/Himeville, and Creighton, leaving many rural communities underserved. For adults aged 25–60, opportunities for skills upgrading and vocational training are limited, despite the needs of local industries such as dairy, forestry, tourism, and commerce. This mismatch between skills supply and labour market demand undermines local economic development.

SPATIAL IMPLICATIONS: The spatial implication is that educational and training opportunities must be better aligned with the Municipality's nodal hierarchy. Secondary nodes and rural service centres can host satellite learning hubs, reducing travel distances and linking skills development to local economies.

POSSIBLE INTERVENTIONS: In response, the SDF can designate Bulwer as a tertiary education support hub with vocational training focused on forestry and dairy, while Creighton can expand its role as a training centre for agriculture and enterprise development. Donnybrook can be positioned as a node for timber-related skills and technical workshops.

In addition, community-based adult learning centres could be introduced in rural service centres such as Centocow, Kilmon, and Sandanezwe, supported by ICT infrastructure to enable digital learning. Partnerships with TVET colleges, universities, and industry associations would ensure that training programmes are aligned with local sectoral demands.

5.2.3.2. IMPROVING CONNECTIVITY ACROSS THE MUNICIPALITY

Connectivity is a major challenge in NDZ due to its mountainous terrain and dispersed settlement pattern. Physical connectivity is limited by poor road and bridge infrastructure, while digital connectivity is constrained by inadequate ICT coverage in rural areas. These factors directly hinder access to education, as learners struggle to reach schools and adults have limited access to online training and information.

SPATIAL IMPLICATIONS: The spatial implication is that both physical and digital connectivity must be integrated into the SDF's corridor and nodal development framework.

POSSIBLE INTERVENTIONS: Interventions can include upgrading primary corridors that link Creighton, Donnybrook, Bulwer, and Underberg/Himeville, with spurs into rural settlements. Bridge rehabilitation and stormwater management must also be prioritised to prevent isolation during floods. Expanding scholar transport routes, supported by improved road conditions,

can make schools more accessible. On the digital side, the SDF can support the roll-out of public Wi-Fi hotspots in towns and service centres, aligned with national broadband initiatives, and promote the development of e-learning hubs linked to schools, libraries, and municipal centres.

5.2.3.3. IMPROVING KEY ACCESS ROUTES TO EDUCATION CENTRES

Access to education is further limited by the poor condition of many rural access roads, which forces learners to walk long distances along unsafe routes. Gravel roads often become impassable during heavy rainfall, and public transport options remain limited. These conditions create significant barriers to education for rural learners.

SPATIAL IMPLICATIONS: Spatially, the improvement of key access routes to schools represents both a social equity intervention and a spatial restructuring measure, enhancing the functionality of service nodes and reducing pressure on urban migration.

POSSIBLE INTERVENTIONS: The SDF can identify and prioritise the upgrading of critical school access roads, particularly those linking rural settlements in Centocow, Kilmon, and Sandanezwe to secondary nodes such as Bulwer, Creighton, and Donnybrook. Labour-intensive construction methods should be promoted, creating employment while improving infrastructure. Scholar transport corridors can be mapped within the SDF to guide investment, ensuring safe pedestrian routes with footbridges, sidewalks, and lighting. Finally, the siting of new schools should follow the settlement hierarchy to ensure that facilities remain within walking or public transport range of the communities they serve.

5.2.3.4. LINKING WATER AND FOOD SECURITY TO EDUCATION

Many schools in NDZ still lack reliable water supply, undermining sanitation and the ability to run effective nutrition programmes. School feeding schemes are further constrained by food insecurity in surrounding communities, while malnutrition continues to affect learner performance. These challenges show that water and food security are not only health issues but also critical educational enablers.

SPATIAL IMPLICATIONS: Spatially, the SDF must link water and food interventions directly to schools and learning centres. Interventions can include prioritising water reticulation upgrades for schools in Donnybrook, Creighton, and surrounding rural areas, as well as installing rainwater harvesting systems and storage tanks at schools and community centres.

POSSIBLE INTERVENTIONS: School nutrition programmes can be strengthened by linking them to local smallholder farmers, particularly those producing dairy, crops, and vegetables. This would create a localised value chain that benefits both learners and farmers. In addition, school gardens can be promoted as learning platforms, supported by agricultural extension services. Climate-resilient sanitation facilities should be rolled out to all schools, while nutrition and water security should be incorporated into municipal social development programmes in partnership with the Department of Education.

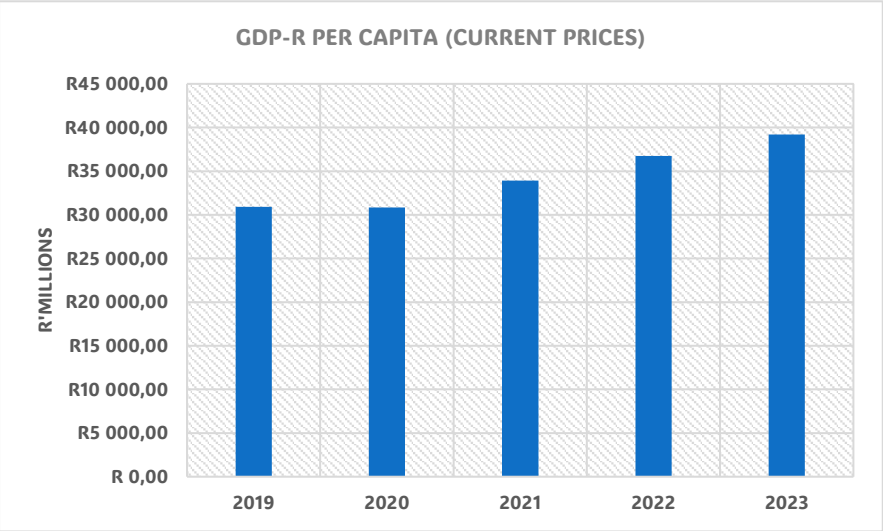
5.2.3.5. CROSS-CUTTING INSTITUTIONAL CONSIDERATIONS

The implementation of these interventions depends on the Municipality's institutional capacity. Existing governance structures, such as ward committees, LED forums, and intergovernmental platforms, must be mobilised to support planning, monitoring, and community engagement. Partnerships with provincial departments of Education and Transport, Harry Gwala District Municipality for water services, and private sector actors in agriculture and ICT are critical. The SDF must therefore embed education, connectivity, and

service-related interventions within a phased implementation framework, ensuring that catalytic projects are supported by provincial and donor funding while being realistic about the Municipality's current capacity.

5.3. ECONOMIC ANALYSIS

5.3.1. GROSS DOMESTIC PRODUCT BY REGION (GDP-R) PER CAPITA



GRAPH 8: GDP-R PER CAPITA
Source: IHS Markit, 2024

The above graph shows the GDP-R per capita for the years 2019 to 2023 for the Dr NDZ LM. The data indicates a relatively stable GDP-R per capita in 2019 and 2020, with values of approximately R30,923,000 and R30,823,000 respectively. However, from 2021 onwards, there is a noticeable upward trend.

In 2021, the GDP-R per capita in the municipality increased to about R33,931,000, followed by a further rise to approximately R36,728,000 in 2022. The highest value is observed in 2023, reaching around R39,187,000. This consistent growth over the five-year period suggests positive economic development and resilience, reflecting strong underlying fundamentals driving sustained improvements in national income levels.

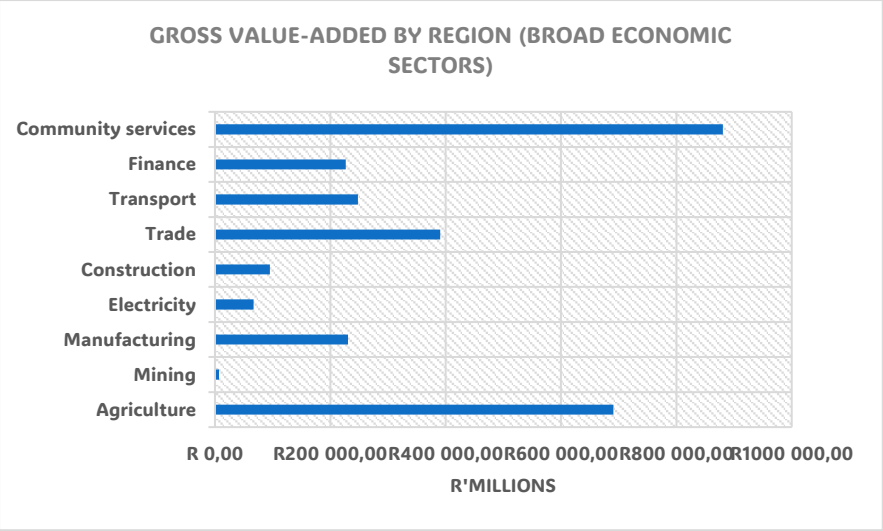
The upward trend in GDP-R per capita from 2019 to 2023 has significant implications for spatial planning. As economic growth continues, there is likely to be increased demand for infrastructure, housing, and commercial spaces. The SDF will therefore need to accommodate this growth by ensuring that urban and rural areas are developed sustainably, with a focus on efficient land use and the integration of green spaces.

Additionally, the rise in income levels may lead to greater investment in public services and amenities, necessitating careful planning to enhance the quality of life for residents. This economic development also presents an opportunity to address spatial inequalities by directing resources to underdeveloped areas, promoting balanced regional growth and reducing disparities.

5.3.2. GROSS VALUE-ADDED BY REGION IN BROAD SECTORS

Gross Value Added (GVA) by region measures the economic contribution of each region to the overall economy. It represents the value of goods and services produced in a region, minus the cost of inputs and raw materials used in production. GVA is a crucial indicator for understanding regional economic performance and disparities.

By analysing GVA, policymakers can identify which regions are thriving and which may need targeted interventions to stimulate growth. It also helps in assessing the impact of regional policies and investments on economic development. Higher GVA in a region typically indicates a robust economy with strong industrial, commercial, and service sectors, while lower GVA may highlight areas that require economic revitalization. Understanding GVA by region is essential for balanced regional development and effective resource allocation.



GRAPH 9: GROSS VALUE-ADDED BY REGION

Source: IHS Markit, 2024

The above graph provides a detailed breakdown of the economic contributions of various sectors within the municipality. The data reveals that Community services is the most significant contributor to the municipality's gross value added (GVA), with a substantial value of R880,408,000.00. This indicates a strong emphasis on public services, healthcare, education, and other community-related activities. Agriculture follows closely with a notable contribution of R690,883,000.00, highlighting the importance of farming and related activities in the region's economy.

Trade and Transport sectors also play crucial roles, contributing R390,392.94 million and R247,978,000.00, respectively. These sectors are vital for the movement of goods and services, both within and outside the municipality, supporting economic growth and connectivity. The Finance sector, with a contribution of R226,772,000.00, underscores the significance of financial services, banking, and insurance in the local economy.

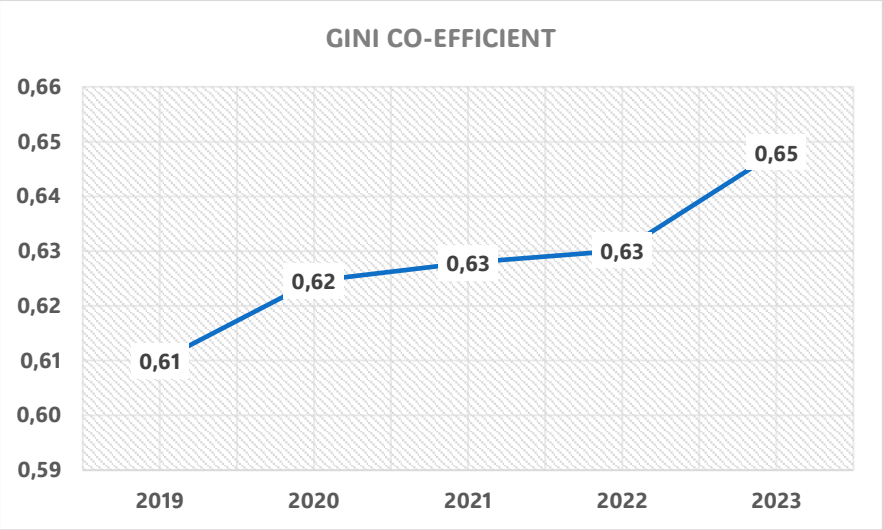
Manufacturing, with a value of R230,887,000.00, indicates a robust industrial base, while Construction (R95,512,000.00) and Electricity (R67,035,000.00) sectors, though smaller in comparison, are essential for infrastructure development and energy supply. Mining, with the smallest contribution of R7,198,000.00, suggests limited mining activities in the region.

The diverse economic contributions highlighted in the graph have significant implications for spatial planning in the Dr. Nkosazana Dlamini Zuma Municipality. The strong emphasis on community services and agriculture suggests a need for extensive public infrastructure and rural development initiatives.

The SDF must ensure that healthcare, education, and other community facilities are adequately distributed to meet the population's needs. The substantial role of agriculture indicates the importance of preserving agricultural land and supporting farming activities through efficient land use policies. The notable contributions from trade, transport, and manufacturing sectors necessitate the development of robust transportation networks and industrial zones to facilitate economic activities and connectivity.

Additionally, the presence of finance and construction sectors underscores the need for commercial hubs and residential developments to accommodate growing economic activities and population. Spatial planning, thus, must focus on creating a balanced and sustainable environment that supports diverse economic sectors, promotes regional growth, and enhances the quality of life for residents.

5.3.3. GINI CO-EFFICIENT



GRAPH 10: GINI CO-EFFICIENT

Source: IHS Markit, 2024

The above graph illustrates the changes in income inequality within the municipality from 2019 to 2023 in the Dr. Nkosazana Dlamini Zuma Local Municipality. In 2019, the Gini coefficient is at 0.61, indicating a moderate level of income inequality. This value increases slightly to 0.62 in 2020, suggesting a marginal rise in inequality. The trend continues in 2021, with the Gini coefficient reaching 0.63, where it remains steady through 2022. This period of stability indicates that income inequality did not significantly change during these two years. However, in 2023, the Gini coefficient rises to its highest value of 0.65, reflecting a notable increase in income inequality.

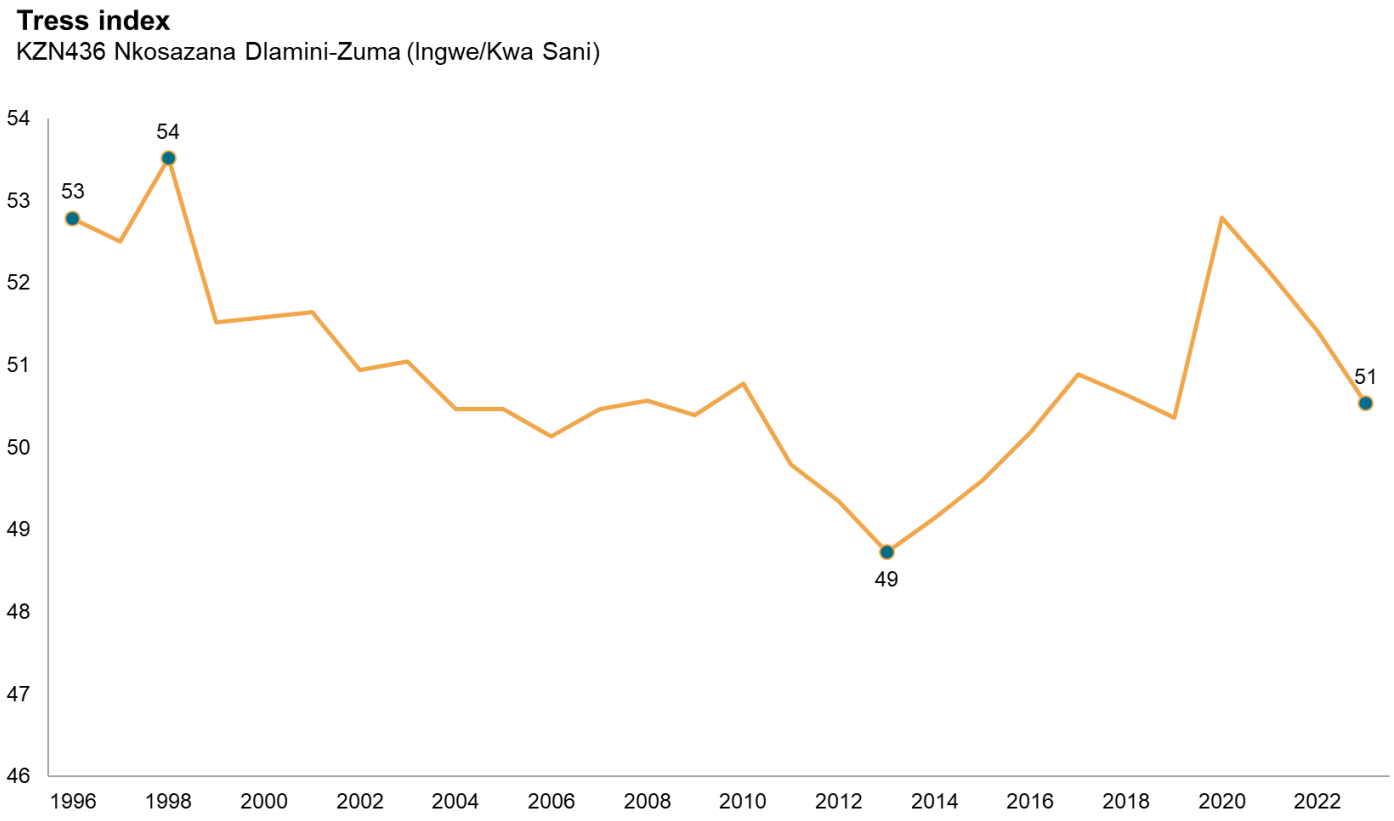
The overall trend depicted in the graph shows a gradual increase in income inequality over the five-year period. This rising Gini coefficient suggests that the gap between the wealthy and the less affluent within the municipality has widened. Such an increase in inequality can have several implications for the region. Higher income inequality may lead to social and economic challenges, including reduced social cohesion, increased poverty rates, and potential political instability. It can also impact economic growth, as unequal income distribution may limit access to education, healthcare, and other essential services for lower-income groups.

Addressing this rising inequality will require targeted policy interventions aimed at promoting inclusive economic growth, improving access to quality education and healthcare, and implementing social protection measures to support vulnerable populations. By focusing on reducing income disparities, the municipality can work towards achieving a more equitable and sustainable future for all its residents.

The rising Gini coefficient in the Dr. Nkosazana Dlamini Zuma Municipality, as depicted in the graph, indicates increasing income inequality, which has significant implications for spatial planning. Higher inequality can lead to spatial segregation, where affluent and impoverished areas become more distinct, exacerbating social and economic disparities. To address this, spatial planning must focus on creating inclusive and equitable urban environments.

The Spatial Development Framework (SDF) can play a crucial role in fostering economic development by promoting mixed-use developments that integrate residential, commercial, and recreational spaces, ensuring accessibility to essential services for all residents. Additionally, the SDF can prioritize investments in underdeveloped areas, improving infrastructure, and providing incentives for businesses to operate in these regions. By enhancing connectivity through efficient public transportation networks and supporting local economic activities, the SDF can help bridge the gap between different socio-economic groups, promoting balanced regional growth and reducing inequality.

5.3.4. TRESS INDEX



GRAPH 11: TRESS INDEX

The Tress Index is a measure used to assess the level of economic diversification or concentration within a region. It quantifies the extent to which an economy relies on a limited number of sectors. A Tress Index of zero indicates a completely diversified economy, where economic activities are evenly distributed across various sectors.

Conversely, a Tress Index of 100 signifies a highly concentrated economy, heavily dependent on a single or a few sectors. This index is calculated by ranking the economic sectors based on their contributions to Gross Value Added (GVA) or employment, summing these values cumulatively, and then indexing them.

The Tress Index is crucial for understanding economic resilience, as diversified economies are generally more robust and better able to withstand sector-specific shocks. Policymakers use the Tress Index to identify areas that may need strategic interventions to promote diversification and reduce vulnerability to economic downturns. By fostering a more balanced economic structure, regions can enhance their long-term stability and growth prospects.

The above graph illustrates the economic diversification of the region from 1996 to 2022. Over the years, the index fluctuates, reflecting changes in the region's economic structure. Notable peaks in the Tress index occur in 2000 and around 2020, both reaching a value of 54. These peaks suggest periods where the economy became more concentrated, possibly due to reliance on a few dominant sectors. Conversely, the lowest point on the graph is around 2014, with a Tress index value of 49, indicating a period of greater economic diversification. This dip suggests that the region's economy was more evenly distributed across various sectors, reducing its vulnerability to sector-specific shocks.

The most recent data point, around 2022, shows a Tress index value of approximately 51. This indicates a moderate level of economic concentration, suggesting that while there has been some diversification, there is still a reliance on certain key sectors. The overall trend of the graph highlights the dynamic nature of the region's economy, with periods of both increased concentration and diversification.

For spatial planning, these trends underscore the need for strategies that promote economic diversification. The SDF therefore needs to focus on creating a balanced mix of land uses that support various economic activities. This includes developing industrial zones, commercial areas, and agricultural lands to foster a diverse economic base. Additionally, investing in infrastructure that supports multiple sectors, such as transportation networks and utilities, can enhance connectivity and economic integration.

The Spatial Development Framework (SDF) should develop strategies to address these challenges by identifying and promoting growth in underrepresented sectors. This can be achieved through targeted incentives, infrastructure development, and policies that encourage investment in diverse industries. By fostering a more balanced economic structure, the SDF can help reduce the region's vulnerability to economic fluctuations and promote sustainable growth.

Moreover, spatial planning should prioritize the equitable distribution of resources and services to ensure that all areas benefit from economic development. This includes improving access to education, healthcare, and other essential services, particularly in underdeveloped regions. By addressing these spatial inequalities, the SDF can contribute to a more inclusive and resilient regional economy, ultimately enhancing the quality of life for all residents.

5.4. EMPLOYMENT

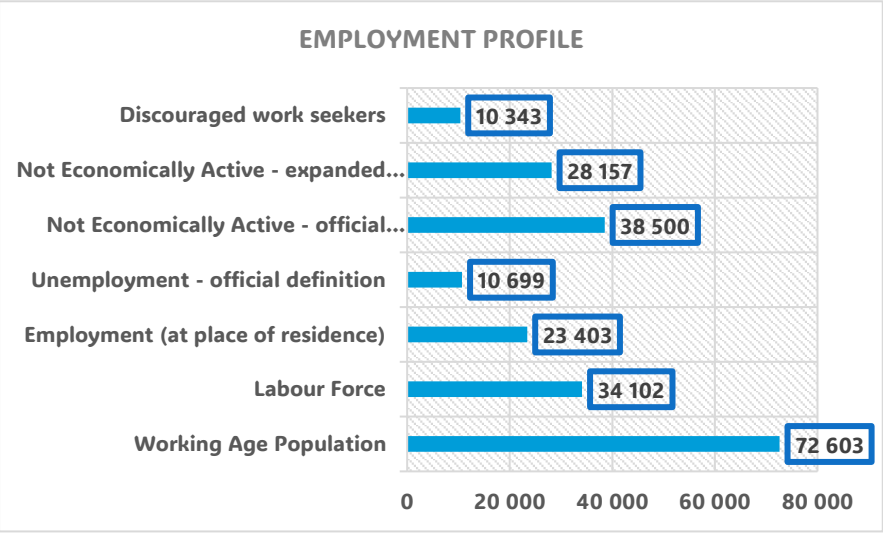
The employment landscape in the Dr. Nkosazana Dlamini Zuma Municipality is closely tied to the economic sectors identified in the region. The primary sectors contributing to employment include community services, agriculture, trade, transport, finance, and manufacturing. Community services, being the largest sector, likely employs a significant portion of the workforce in public administration, healthcare, and education. This sector's prominence underscores the municipality's focus on providing essential services to its residents.



Agriculture, another major sector, supports a substantial number of jobs, particularly in farming and related activities. This sector's importance highlights the need for policies that support sustainable agricultural practices and rural development. The trade and transport sectors also play crucial roles in employment, facilitating the movement of goods and services and supporting local businesses. These sectors are vital for economic connectivity and growth, providing numerous job opportunities in retail, logistics, and transportation.

The finance sector, while smaller in comparison, contributes to employment through banking, insurance, and other financial services. This sector's growth can enhance economic stability and provide high-skilled job opportunities. Manufacturing, with its robust industrial base, offers employment in various production and processing activities, supporting the region's economic diversification.

5.4.1. EMPLOYMENT PROFILE



GRAPH 12: EMPLOYMENT PROFILE

Source: IHS Markit, 2024

The above graph provides overview of various employment-related categories and their corresponding numerical values. The categories listed on the y-axis include Discouraged work seekers, Not Economically Active - expanded definition, Not Economically Active - official definition, Unemployment - official definition, Employment (at place of residence), Labour Force, and Working Age Population.

The numerical values for each category are as follows:

- Discouraged work seekers: 10,343
- Not Economically Active - expanded definition: 28,157
- Not Economically Active - official definition: 38,500
- Unemployment - official definition: 10,699
- Employment (at place of residence): 23,403
- Labour Force: 34,102
- Working Age Population: 72,603

This graph highlights several key aspects of the employment landscape. The Working Age Population, at 72,603, represents the total number of individuals within the age range considered capable of working. Within this group, the Labour Force, which includes both employed and unemployed individuals actively seeking work, stands at 34,102. This indicates that less than half of the working-age population is actively participating in the labour market.

The Employment category, with 23,403 individuals, shows the number of people employed at their place of residence. The Unemployment category, defined officially, includes 10,699 individuals who are actively seeking work but are currently unemployed. Additionally, the graph distinguishes between the Not Economically Active population under two definitions: the expanded definition (28,157) and the official definition (38,500). The expanded definition likely includes a broader range of individuals not participating in the labour market, such as students, homemakers, and retirees.

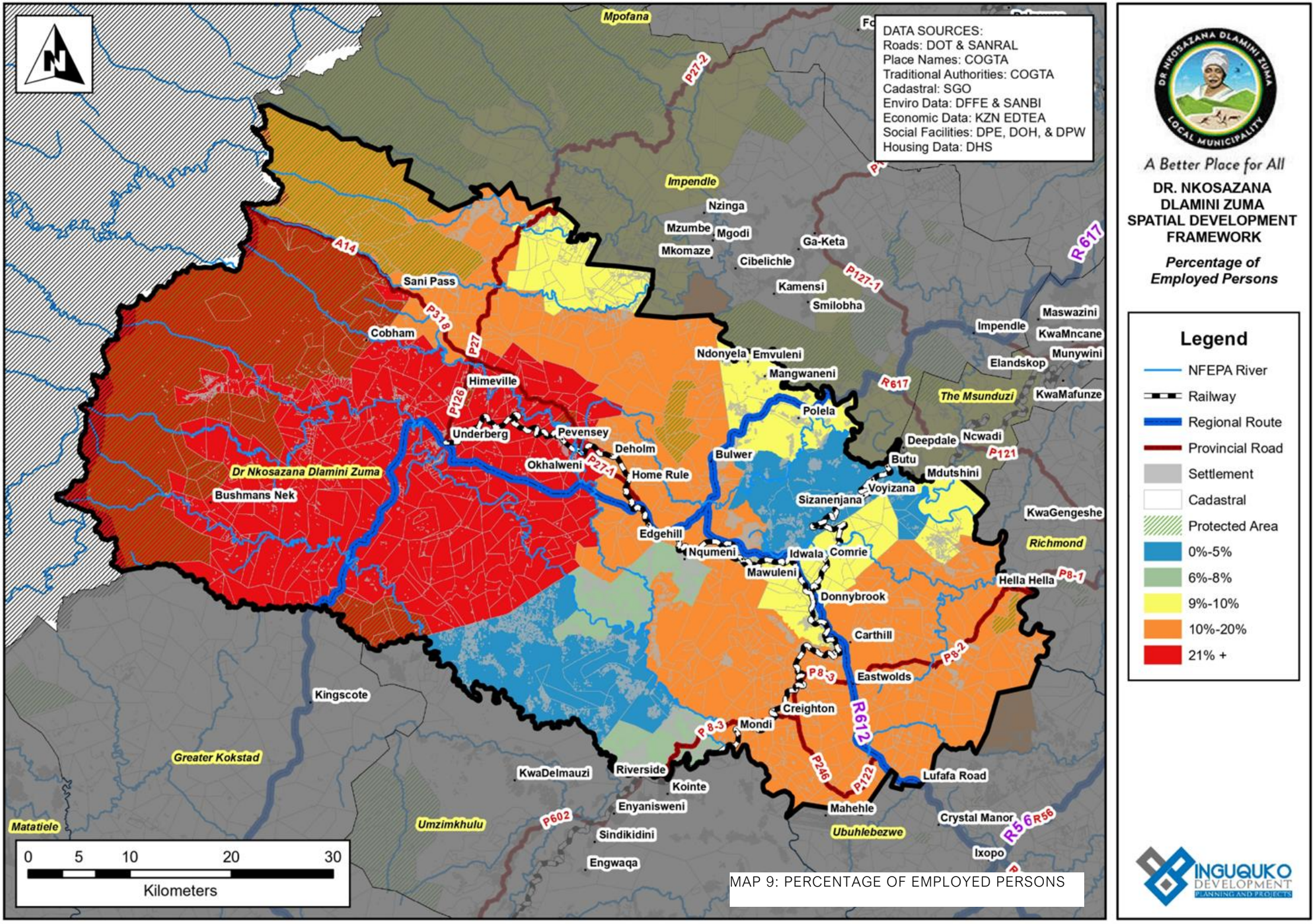
The category of Discouraged work seekers, with 10,343 individuals, represents those who have given up looking for work due to a lack of available jobs or other discouraging factors. This group is significant as it reflects underlying issues in the labour market, such as job scarcity or barriers to employment.

The implications of this employment profile for spatial planning are substantial. High numbers of discouraged work seekers and the not economically active population suggest a need for targeted interventions to stimulate job creation and economic activity. Urban and regional planners must consider strategies to attract businesses, support entrepreneurship, and provide training and education programs to enhance employability.

Moreover, the distribution of employment and unemployment highlights the importance of accessible transportation, affordable housing, and social services to support the labour force. Ensuring that employment opportunities are well-distributed and accessible can help reduce unemployment and encourage greater participation in the labour market.

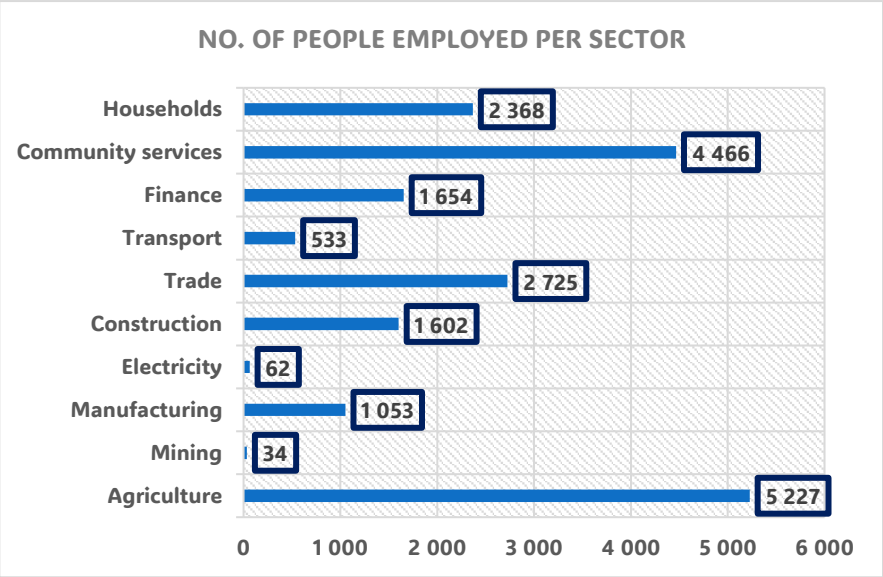






MAP 9: PERCENTAGE OF EMPLOYED PERSONS

5.4.2. EMPLOYMENT BY SECTOR



GRAPH 13: NO. OF PEOPLE EMPLOYED PER SECTOR

Source: IHS Markit, 2024

The horizontal bar chart titled "No. of People Employed per Sector" provides a clear depiction of employment distribution across various sectors. The data reveals that Agriculture employs the highest number of people, with 5,227 individuals, indicating its significant role in the local economy. Community services follow with 4,466 employees, reflecting the importance of public administration, education, and healthcare services. The Trade sector also shows substantial employment, with 2,725 people, highlighting its contribution to economic activity. Households employ 2,368 individuals, likely representing domestic workers. Other sectors such as Finance (1,654), Construction (1,602), and Manufacturing (1,053) show moderate employment levels.

Transport (533) and Electricity (62) sectors have relatively lower employment figures, while Mining employs the fewest people, with only 34 individuals. This distribution suggests a diverse economy with a strong emphasis on agriculture and community services, and it highlights areas where targeted interventions could enhance employment opportunities.

5.4.3. UNEMPLOYMENT PROFILE

TABLE 6: UNEMPLOYMENT PROFILE

PROFILE	PERCENTAGE
Unemployment Rate - expanded definition	47,3%
Labour absorption rate	32,2%
Labour force participation rate	47,0%

Source: IHS Markit, 2024

The table above provides key statistics related to the labour market, specifically focusing on unemployment and labour force metrics. It lists three different profiles along with their corresponding percentages. The "Unemployment Rate - expanded definition" is notably high at 47.3%, indicating a significant portion of the population is unemployed when considering a broader definition that may include discouraged workers and those not actively seeking employment.

The "Labour Absorption Rate" stands at 32.2%, reflecting the proportion of the working-age population that is actually employed. Lastly, the "Labour Force Participation Rate" is 47.0%, showing the percentage of the working-age population that is either employed or actively seeking work. These figures highlight critical challenges in the labour market, such as high unemployment and relatively low labour absorption, which have significant implications for economic policy and spatial planning. Addressing these issues may require targeted interventions to create jobs, enhance skills training, and improve labour market conditions to boost employment and economic participation.

Given the high unemployment rate of 47.3% (expanded definition) and the relatively low labour absorption rate of 32.2%, the SDF must prioritize initiatives that create a conducive environment for businesses to thrive and generate employment opportunities.

- Firstly, the SDF can identify and develop key economic zones within the municipality, focusing on sectors with high growth potential such as trade, agriculture, and community services. By providing the necessary infrastructure, such as transportation networks, utilities, and communication systems, these zones can attract investments and businesses, leading to job creation. For instance, enhancing logistics and storage facilities in agricultural areas can boost productivity and create jobs in farming, processing, and distribution.
- Secondly, the SDF can support the development of industrial parks and manufacturing hubs to stimulate the secondary sector. By offering incentives such as tax breaks, subsidies, and streamlined regulatory processes, the municipality can attract manufacturing firms that provide stable employment opportunities. Additionally, investing in skills development and vocational training programs tailored to the needs of these industries can ensure a skilled workforce, further enhancing labour absorption.
- Thirdly, the SDF should focus on urban regeneration projects that revitalize underutilized areas, creating vibrant commercial districts and mixed-use developments. These projects can attract retail, hospitality, and service-oriented businesses, generating employment in the tertiary sector. Ensuring that these developments are accessible via public transportation and provide affordable housing options can support a diverse and inclusive workforce.
- Moreover, the SDF can promote entrepreneurship and small business development by establishing business incubators and innovation hubs. These centres can provide aspiring entrepreneurs with access to resources, mentorship, and funding, fostering a culture of innovation and job creation. Supporting local enterprises can also stimulate economic activity and create employment opportunities within the community.
- Lastly, addressing the needs of discouraged work seekers and the not economically active population is crucial. The SDF can implement targeted programs that provide career counselling, job placement services, and retraining opportunities to help these individuals re-enter the labour market. Collaborating with educational institutions and private sector partners can ensure that training programs align with market demands, enhancing employability.

5.4.3.1. UNEMPLOYMENT INDEX

The unemployment index is a statistical measure used to gauge the level of unemployment within a specific population or economy. It typically represents the percentage of the labour force that is unemployed and actively seeking employment. The unemployment index is a crucial indicator of economic health, as it reflects the ability of an economy to generate jobs and provide employment opportunities for its workforce.



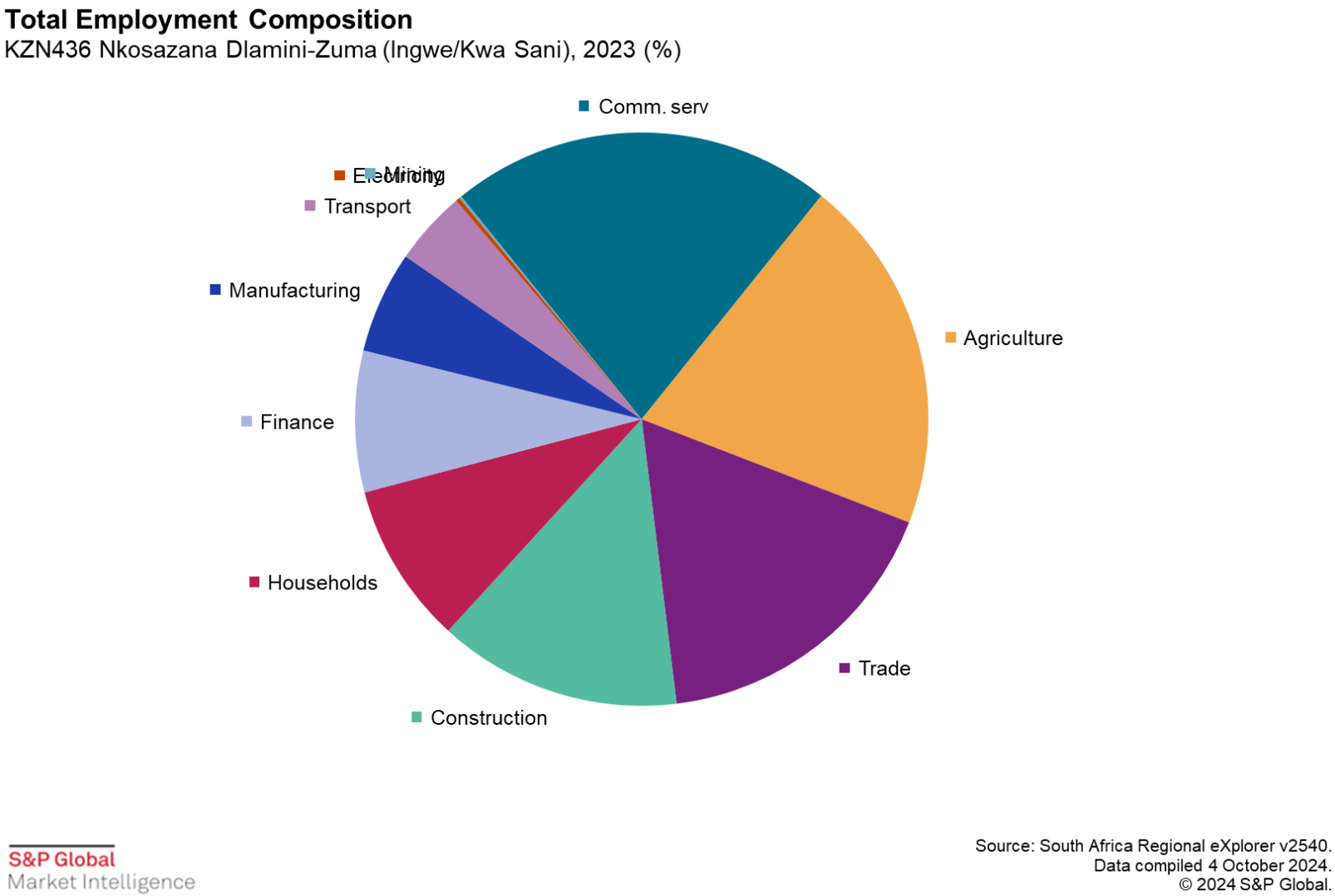
In economic analysis, the unemployment index can be broken down into various definitions and categories to provide a more nuanced understanding of labour market conditions. For instance, the "official definition" of unemployment includes individuals who are without work, available for work, and actively seeking employment. The "expanded definition" may include discouraged workers who have stopped looking for work due to a lack of available jobs, as well as those who are marginally attached to the labour force.

The unemployment index is closely monitored by policymakers, economists, and researchers because it has significant implications for economic policy and planning. High unemployment rates can indicate economic distress, leading to reduced consumer spending, lower tax revenues, and increased demand for social services. Conversely, low unemployment rates suggest a healthy economy with ample job opportunities, which can drive economic growth and stability.

Understanding the unemployment index helps in identifying trends and patterns in the labour market, enabling targeted interventions to address unemployment. For example, if the unemployment index reveals high rates of youth unemployment, policymakers might focus on education and training programs to enhance employability. Similarly, if certain regions exhibit higher unemployment rates, spatial planning efforts can be directed towards economic development initiatives in those areas to stimulate job creation.

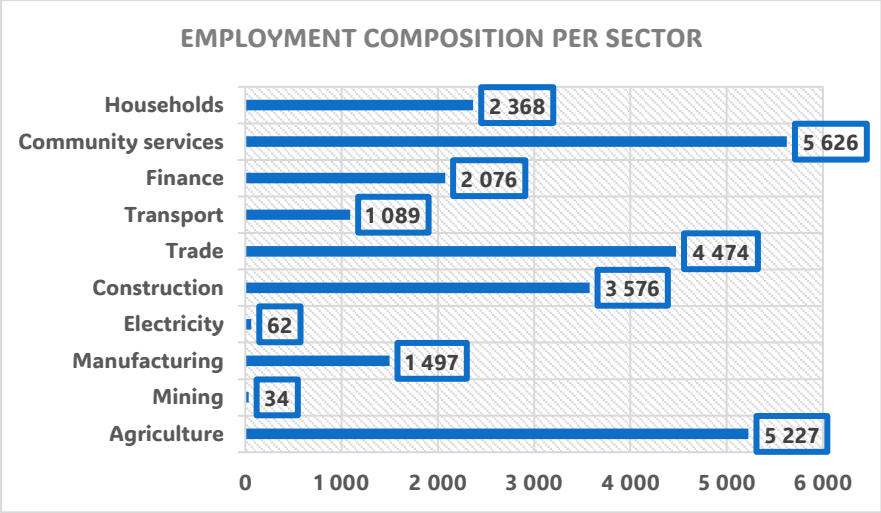


5.4.4. EMPLOYMENT COMPOSITION



GRAPH 14: EMPLOYMENT COMPOSITION

5.4.5. EMPLOYMENT COMPOSITION PER SECTOR



GRAPH 15: EMPLOYMENT COMPOSITION PER SECTOR

Source: IHS Markit, 2024

The above graph provides a detailed overview of the employment distribution across various sectors within the region. The sectors analysed include Households, Community Services, Finance, Transport, Trade, Construction, Electricity, Manufacturing, Mining, and Agriculture. The Community Services sector employs the highest number of individuals, with 5,626 employees, indicating a significant focus on public services and administration. Agriculture follows closely with 5,227 employees, highlighting its importance as a key economic driver in the region. The Trade sector also shows a substantial workforce, employing 4,474 individuals, which suggests a robust retail and commercial activity.

Construction, with 3,576 employees, indicates ongoing development and infrastructure projects, contributing to the region's growth. The Households sector, employing 2,368 individuals, reflects the demand for domestic services and personal care. The Finance sector, with 2,076 employees, points to a moderate presence of financial services and institutions. Manufacturing employs 1,497 individuals, suggesting a developing industrial base that could be further expanded. The Transport sector, with 1,089 employees, indicates a moderate level of logistics and transportation services, essential for supporting other economic activities. The Electricity sector, employing only 62 individuals, suggests limited local energy production or a highly automated sector. Mining, with just 34 employees, shows minimal activity, possibly due to the depletion of resources or a shift towards other industries. The employment composition data has significant implications for spatial planning within the region. The high concentration of employment in Community Services, Agriculture, and Trade sectors suggests that these areas should be prioritized for infrastructure development and resource allocation. For instance, enhancing public facilities, agricultural support services, and commercial hubs can further bolster these sectors. The substantial workforce in Construction indicates ongoing development projects, necessitating efficient urban planning to accommodate growth and ensure sustainable development. Conversely, the lower employment figures in sectors like Electricity and Mining highlight areas that may require strategic investment or innovation to boost their contributions to the local economy. Spatial planning should also consider the moderate presence of the Finance and Manufacturing sectors, which could benefit from targeted incentives and improved connectivity to stimulate growth. Additionally, the data suggests a need for balanced development to prevent over-reliance on a few sectors. Diversifying the economic base by supporting underrepresented sectors can enhance resilience against economic fluctuations. Effective spatial planning should integrate these insights to create a well-rounded, sustainable urban environment that supports diverse economic activities and improves the overall quality of life for residents.

5.4.6. LABOUR REMUNERATION



FIGURE 1: LABOUR REMUNERATION

Labour remuneration refers to the total compensation that employees receive for their work. This includes not only wages and salaries but also other forms of compensation such as bonuses, benefits, and any other financial rewards. The components of labour remuneration include the following:

- **Wages and Salaries**: The most direct form of labour remuneration, representing the regular payments employees receive for their work, typically on an hourly, daily, or monthly basis.
- **Bonuses and Incentives**: Additional payments made to employees based on performance, company profits, or other criteria.
- **Benefits**: Non-wage compensations such as health insurance, retirement plans, paid leave, and other perks.
- **Overtime Pay**: Extra compensation for hours worked beyond the standard workweek.
- **Stock Options and Profit Sharing**: Forms of remuneration that tie employee compensation to the company's performance.

5.4.6.1. PRIMARY SECTOR LABOR REMUNERATION

This graph shows an upward trend in labour remuneration within the primary sector from 2019 to 2023. In 2019, remuneration was approximately R350,000,000. By 2020, it increased slightly to around R400,000,000. In 2021 and 2022, there were further increases with remunerations reaching about R450,000,000 and R500,000,000 respectively.

The highest remuneration is observed in 2023 at approximately R550,000,000. This consistent growth indicates a robust primary sector, likely driven by agriculture, mining, and other natural resource-based industries. For spatial planning, this suggests a need for infrastructure development in rural and resource-rich areas to support the growing workforce and enhance productivity. Investments in transportation, housing, and community services in these regions will be crucial to accommodate the increasing labour force and ensure sustainable development.

5.4.6.2. SECONDARY SECTOR LABOR REMUNERATION

This graph shows an increasing trend in labour remuneration within the secondary sector over the same period. Starting at around R200,000,000 in 2019 and remaining constant through to 2021, a significant increase is seen from 2022 onwards with remunerations rising sharply to about R250,000,000 by 2023.

The secondary sector, which includes manufacturing and industrial activities, is experiencing growth, indicating a potential rise in industrial output and economic diversification. Spatial planning implications include the need for industrial zones, improved logistics, and transportation networks to support manufacturing activities. Additionally, urban areas may require expansion to accommodate the influx of workers, necessitating investments in housing, utilities, and social infrastructure.

5.4.6.3. TERTIARY SECTOR LABOR REMUNERATION

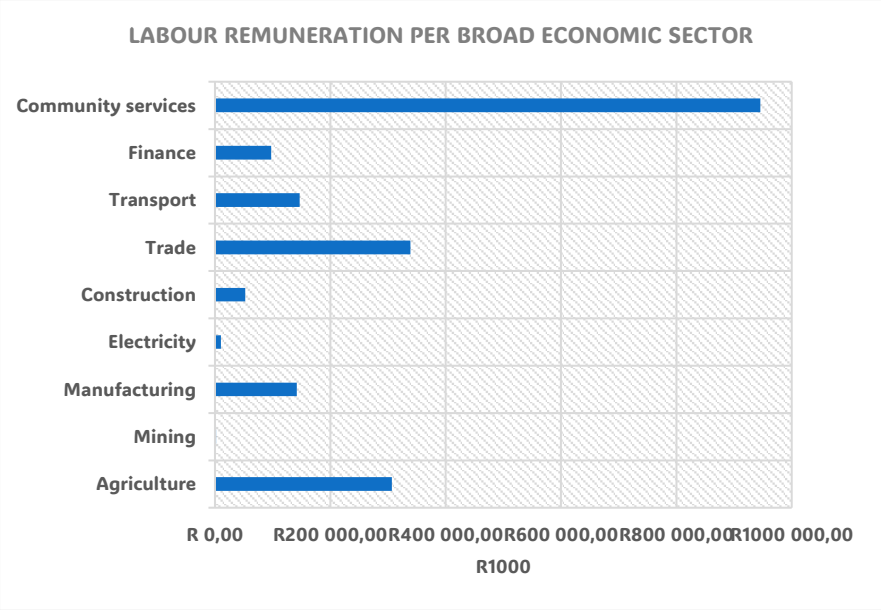
This graph shows higher values overall compared to the primary and secondary sectors. Starting at around R3,000,000,000 (R3 billion) in 2019 and remaining steady through 2021, there is a sharp rise towards the end of the period, reaching close to R3.5 billion by 2023. The tertiary sector, encompassing services such as retail, finance, education, and healthcare, is a major contributor to the economy.

The growth in this sector suggests increasing demand for services and a shift towards a more service-oriented economy. Spatial planning must focus on developing urban centres with adequate commercial spaces, office buildings, and service facilities. Enhancing public transportation, ensuring access to quality education and healthcare, and creating vibrant commercial districts will be essential to support the growing tertiary sector workforce.

5.4.6.4. TOTAL INDUSTRIES LABOR REMUNERATION

The final graph aggregates all sectors into one comprehensive overview, showing cumulative growth across the board. This reflects general economic trends impacting spatial planning decisions. The overall increase in labour remuneration across all sectors indicates a growing economy with rising incomes. Spatial planning must address the needs of a diverse and expanding population, ensuring balanced development across urban, suburban, and rural areas. Investments in infrastructure, housing, transportation, and public services must be strategically planned to support economic growth and improve the quality of life for all residents.

5.4.6.5. LABOUR REMUNERATION PER BROAD ECONOMIC SECTOR



GRAPH 16: LABOUR REMUNERATION PER BROAD ECONOMIC SECTOR

Source: IHS Markit, 2024

The above graph provides a detailed breakdown of remuneration across various economic sectors, measured in Rands (R). The sectors listed from top to bottom include Community services, Finance, Transport, Trade, Construction, Electricity, Manufacturing, Mining, and Agriculture. The remuneration values for each sector are as follows: Community services lead with R945,737.89, followed by Trade at R338,840,670, Agriculture at R306,574,750, Transport at R147,086,300, Manufacturing at R142,125,340, Finance at R97,428,550, Construction at R52,599,160, Electricity at R10,536,290, and Mining at R2,206,440.

This graph highlights significant disparities in labour remuneration across different sectors. Community services, which include public administration, education, and healthcare, have the highest remuneration, reflecting the critical role these services play in society and the substantial investment in public sector wages. The high remuneration in this sector suggests a stable and well-compensated workforce, which is essential for maintaining quality public services.

In contrast, the Mining sector shows the lowest remuneration, which may indicate challenges such as lower profitability, higher operational costs, or a smaller workforce. This disparity could have implications for attracting and retaining talent in the mining industry, potentially affecting productivity and growth.

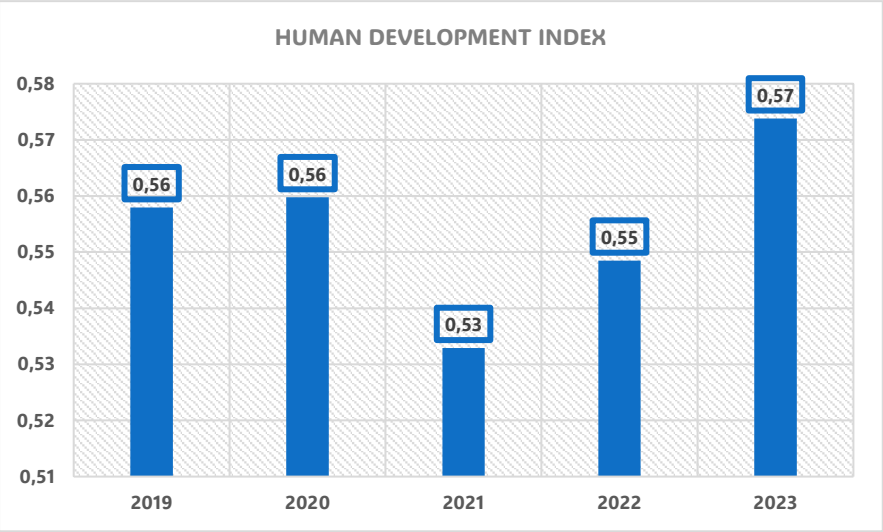
The substantial remuneration in the Trade and Agriculture sectors indicates their importance in the economy, likely driven by high demand for goods and agricultural products. These sectors' significant remuneration levels suggest robust economic activity and the need for continued investment in infrastructure and workforce development to sustain growth.

The relatively lower remuneration in sectors like Construction and Electricity highlights potential areas for improvement. Enhancing wages in these sectors

could attract more skilled labour, improve productivity, and support broader economic development.

For spatial planning, these remuneration trends suggest a need for targeted investments in infrastructure, housing, and services to support sectors with high remuneration and economic activity. Urban areas with significant community services and trade activities may require expanded public services, commercial spaces, and transportation networks. Rural areas with substantial agricultural activity may benefit from improved logistics, storage facilities, and access to markets.

5.5. HUMAN DEVELOPMENT INDEX



GRAPH 17: HUMAN DEVELOPMENT INDEX

Source: IHS Markit, 2024

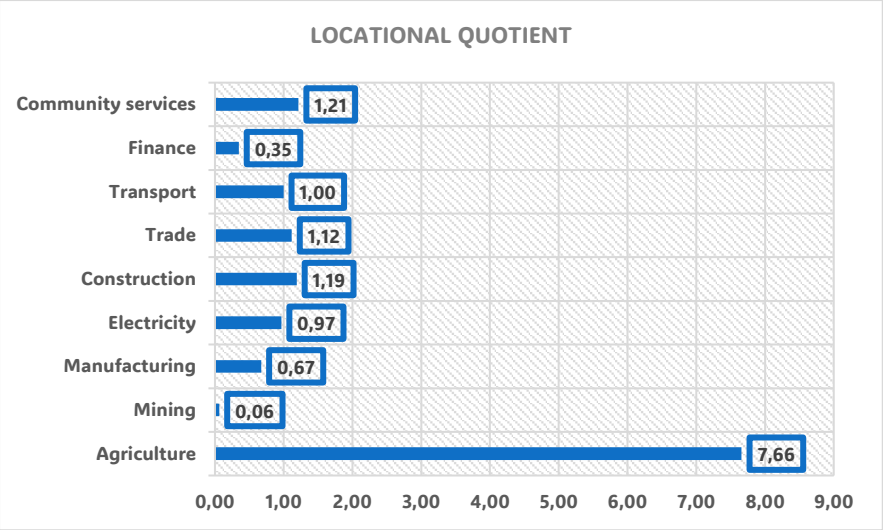
The graph above shows the HDI values from 2019 to 2023. The HDI remained stable at 0.56 in 2019 and 2020, dropped to 0.53 in 2021, then increased to 0.55 in 2022, and reached its highest value of 0.57 in 2023. This trend indicates a period of decline, likely due to external factors such as economic downturns or health crises, followed by a recovery phase.

In terms of spatial planning, these fluctuations suggest the need for targeted interventions in areas that experienced significant declines during the low HDI period. Prioritizing resource allocation and development efforts in these regions can help ensure sustainable growth and improve overall human development. Additionally, maintaining and further enhancing HDI values across all regions should be a key focus to achieve consistent and equitable development.

5.6. LOCATIONAL QUOTIENT

The location quotient (LQ) is a valuable analytical tool used in regional economics to assess the concentration of a particular industry, sector, or demographic group within a specific area compared to a broader reference area, such as a country or state. It is calculated by dividing the local share of a particular activity by the national share of that same activity.

An LQ greater than 1 indicates that the local area has a higher concentration of the activity than the national average, suggesting a specialization or competitive advantage in that area. Conversely, an LQ less than 1 implies a lower concentration, indicating potential opportunities for growth or the need for diversification. Understanding LQs helps policymakers, planners, and businesses make informed decisions about resource allocation, economic development strategies, and investment opportunities.



GRAPH 18: LOCATIONAL QUOTIENT

Source: IHS Markit, 2024

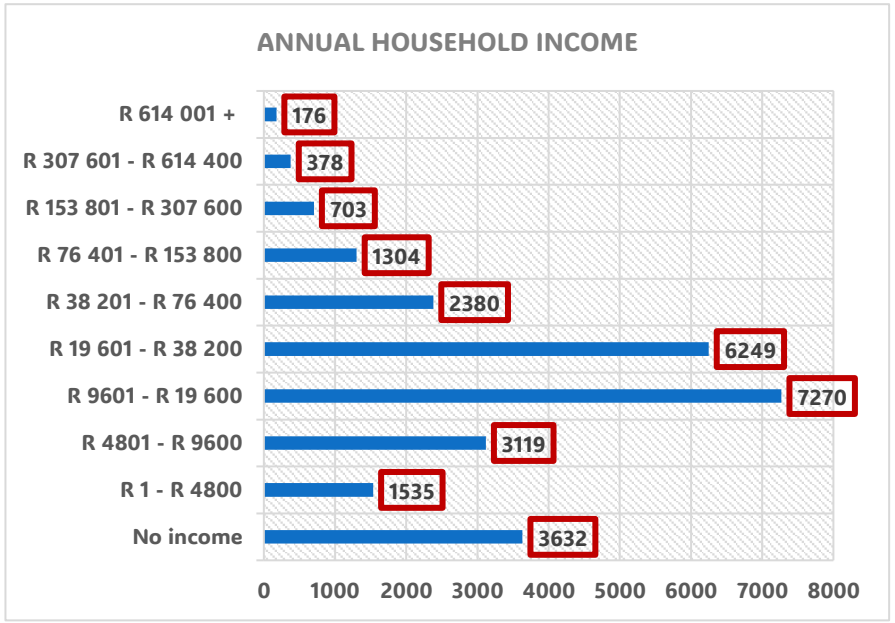
The graph above illustrates the concentration of various sectors within the municipality compared to a broader reference area. The sectors analysed include Community Services, Finance, Transport, Trade, Construction, Electricity, Manufacturing, Mining, and Agriculture. The locational quotient (LQ) values reveal significant insights into the economic landscape of the municipality. Agriculture stands out with an exceptionally high LQ of 7.66, indicating a strong specialization and competitive advantage in this sector.

Community Services (1.21), Trade (1.12), and Construction (1.19) also show higher concentrations than the national average, suggesting these sectors are well-developed locally. In contrast, sectors like Finance (0.35), Manufacturing (0.67), and Mining (0.06) have lower LQs, highlighting potential areas for growth and diversification. The Transport sector has an LQ of 1.00, indicating it is on par with the national average. Electricity, with an LQ of 0.97, is slightly below the national average but close to equilibrium.

These insights can guide policymakers and planners in prioritizing investments and development efforts, focusing on strengthening underrepresented sectors while leveraging the municipality's existing strengths in agriculture and community services.

5.7. HOUSEHOLD INCOME & POVERTY

5.7.1. HOUSEHOLD INCOME



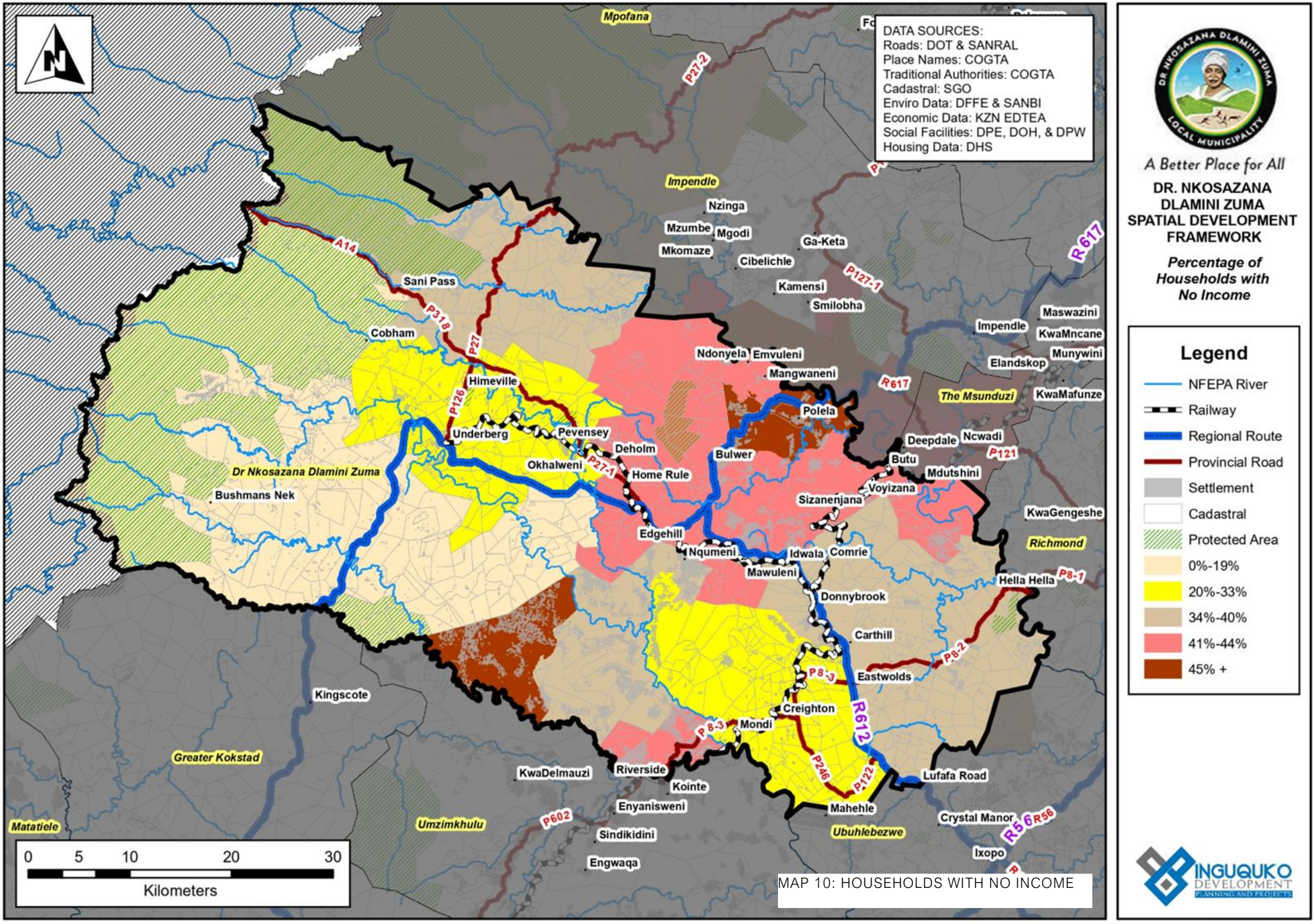
GRAPH 19: ANNUAL HOUSEHOLD INCOME

Source: Census, 2011

The above graph illustrates the distribution of households across various income brackets in the municipality. The data reveals that the largest number of households, 7,270, fall within the "R 9,601 - R 19,600" income bracket, followed by 6,249 households in the "R 19,601 - R 38,200" bracket. A significant number of households, 3,632, report "No income," and 3,119 households earn between "R 4,801 - R 9,600." The higher income brackets, such as "R 307,601 - R 614,000" and "R 614,001 +," have the fewest households, with 378 and 176 respectively.



This distribution indicates a high concentration of households in the lower to middle-income brackets, highlighting the need for affordable housing and social services to support these groups. For spatial planning, this data underscores the importance of developing inclusive housing policies and infrastructure that cater to the majority of the population's financial capabilities.



MAP 10: HOUSEHOLDS WITH NO INCOME

DR. NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Percentage of Households with No Income

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- 0%-19%
- 20%-33%
- 34%-40%
- 41%-44%
- 45% +

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

5.7.2. INFORMAL ECONOMY

The informal economy of the Dr Nkosazana Dlamini Zuma (NDZ) Local Municipality is a vital component of local livelihoods, providing income and survival strategies for a significant proportion of households across both rural settlements and the main towns of Underberg, Himeville, Creighton, Bulwer, and Donnybrook. While often overlooked in formal economic assessments, the informal sector is deeply embedded in the spatial and social fabric of the municipality. It includes a wide spectrum of activities, ranging from street trading, small-scale manufacturing, food preparation, transport services, and subsistence-based enterprises linked to agriculture, tourism, and forestry.

At the municipal-wide scale, the informal economy is shaped by high levels of poverty, low formal employment, and structural barriers to entry in the dominant commercial sectors (dairy, timber, and tourism). The contraction of formal agricultural employment over the past decade has forced many retrenched workers and youth into informal trading and survivalist enterprises. This has created both opportunities and challenges: while the informal sector absorbs labour, it also struggles with low productivity, lack of infrastructure, and exclusion from mainstream value chains.

At the settlement level, the informal economy plays different roles. In Underberg and Himeville, it is strongly linked to tourism and service industries, with informal traders, craft sellers, and hospitality-related micro-enterprises concentrated around transit nodes and seasonal tourist flows. In Creighton, as the administrative centre, informal activity clusters around the taxi rank and commercial core, serving local commuters and rural hinterlands. In Bulwer and Donnybrook, informal enterprises are more survivalist in nature, often tied to small-scale retail, food vending, and transport services that supplement meagre household incomes.

The challenges facing the informal sector include inadequate infrastructure (trading stalls, sanitation, electricity), weak regulatory frameworks that both marginalise traders and fail to integrate them into formal planning, limited access to finance and skills development, and conflicts over land use and trading spaces. Women and youth are particularly vulnerable, as they dominate survivalist activities but lack pathways to grow into sustainable enterprises.

Despite these challenges, strategic opportunities exist for leveraging the informal economy as a driver of inclusive growth. These include strengthening linkages between informal traders and tourism, supporting agro-processing micro-enterprises that use local timber and dairy value chains, creating structured trading facilities in growth nodes, and investing in capacity-building programmes that formalise and expand opportunities for SMMEs. Aligning informal economy development with nodal revitalisation strategies, corridor development, and settlement upgrading presents a major opportunity to embed economic inclusion within the SDF.

The implications for the SDF are significant. A proactive approach is required to spatially accommodate informal economic activities in nodal plans, recognise their contribution to livelihoods, and create enabling environments through infrastructure, land use zoning, and institutional support. By integrating the informal sector into formal economic development planning — while retaining its flexibility and resilience — the municipality can advance SPLUMA principles of spatial justice, efficiency, and sustainability.

5.7.2.1. OVERVIEW OF THE INFORMAL ECONOMY

5.7.2.1.1. MUNICIPAL-WIDE OVERVIEW

The informal economy in Dr Nkosazana Dlamini Zuma (NDZ) Local Municipality is an adaptive response to structural economic challenges. Agriculture, which historically dominated employment in the region, has experienced steep decline: between 2003 and 2013, the agricultural labour force dropped from 21,229 to 6,976 workers. This contraction displaced many rural households

and created reliance on informal trading, survivalist activities, and unregistered micro-enterprises.

Informal economic activity manifests in several ways across NDZ:

- Street trading and hawking: Sale of fruit, vegetables, clothing, and household goods, often clustered around taxi ranks, bus stops, and retail centres.
- Food preparation and vending: Informal eateries ("spaza shops," cooked food stalls, and tuckshops) serving both local communities and travellers.
- Transport services: Informal taxis and bakkie-based transport systems that connect dispersed rural settlements to nodal centres.
- Tourism-related informal trade: Craft sales, guiding, and ad hoc services in tourism nodes such as Underberg and Himeville.
- Agriculture-linked informal activities: Sale of firewood, timber offcuts, dairy by-products, and small-scale home gardens.

The sector plays a dual role in the NDZ economy:

- Livelihood safety net: Absorbing labour excluded from formal sectors and reducing extreme poverty.
- Complementary service provider: Offering affordable goods and services in areas where formal retail is thin or absent.

However, the informal economy remains largely unregulated and unsupported, with little access to formal infrastructure, credit, or skills development. Women and youth are disproportionately represented, often operating survivalist rather than growth-oriented enterprises.



5.7.2.1.2. SETTLEMENT-LEVEL PROFILES

UNDERBERG & HIMEVILLE As twin service nodes and gateways to the Drakensberg, Underberg and Himeville exhibit a tourism-linked informal economy. Informal traders operate near transit routes, festivals, and tourism accommodation hubs. Common activities include:

- Sale of crafts, curios, and traditional artefacts to tourists.
- Food vending at seasonal events (e.g., cycling races, hiking festivals).
- Informal guiding and transport services connecting visitors to nearby attractions such as Sani Pass.

Despite the vibrancy, challenges include competition with formal tourism operators, lack of designated trading spaces, and vulnerability to seasonal fluctuations. There is significant opportunity to link informal traders into tourism

value chains, particularly through designated market spaces, craft hubs, and festival-related micro-enterprise platforms.

CREIGHTON: Creighton, as the administrative centre, has the most concentrated informal trading hub. Activities are clustered around the taxi rank, municipal offices, and retail core. Dominant activities include:

- Clothing, cosmetics, and cellphone accessory trading.
- Spaza shops and small food outlets serving commuters and municipal workers.
- Informal services such as hair salons, repairs, and second-hand goods.

Creighton's informal sector reflects its role as a commuter and administrative node, serving both the town population and surrounding rural areas. However, inadequate trading infrastructure, sanitation, and storage facilities limit growth. The lack of spatial integration in the town layout has also led to ad hoc, congested trading areas.





BULWER: Bulwer has a mixed informal economy, reflecting its strategic location on the R617 provincial road linking NDZ to Richmond and Msunduzi. Informal activity includes:

- Roadside vending (fruits, vegetables, firewood).
- Small-scale manufacturing and craft production.
- Informal transport services linking rural hinterlands to Bulwer and beyond.

Bulwer's role as a corridor settlement amplifies informal roadside activity but also creates conflict with road safety and land use management. Opportunities exist to formalise roadside markets and integrate them into planned corridor development strategies within the SDF.



DONNYBROOK: Donnybrook's informal economy is largely survivalist in nature, with households relying on small-scale vending and subsistence agriculture to supplement incomes. Typical activities include:

- Firewood sales and informal timber offcuts linked to the forestry sector.
- Spaza shops, cooked food stalls, and household trading.
- Informal transport services connecting to Creighton and Bulwer.

Given Donnybrook's historic timber industry, there is potential to diversify into informal agro-processing and timber-based micro-enterprises, but these require skills development, infrastructure, and formal market linkages.

OTHER RURAL SETTLEMENTS: Across smaller settlements and traditional authority areas, informal economic activities are deeply embedded in subsistence agriculture, small livestock sales, home-based spaza shops, and informal construction services. These activities are crucial in areas with limited access to formal retail, but they remain fragmented and unsupported.

5.7.2.1.3. EMERGING PATTERNS

Across the municipality, several **common patterns** are evident:

- **Concentration at nodes**: Informal trade is densest around taxi ranks, transit nodes, and retail cores (Creighton, Underberg, Bulwer).
- **Corridor roadside activity**: Bulwer and Donnybrook show high levels of roadside vending linked to mobility corridors.
- **Tourism linkages**: Underberg and Himeville offer tourism-linked opportunities for informal crafts, guiding, and food services.
- **Survivalist bias**: In smaller settlements, informal activities are primarily subsistence-driven, lacking growth pathways.

TABLE 7: TYPOLOGY OF INFORMAL ECONOMIC ACTIVITIES IN NDZ BY SETTLEMENT

SETTLEMENT	DOMINANT INFORMAL ACTIVITIES	SPATIAL LOCATION	OPPORTUNITIES FOR SDF
Underberg & Himeville	Craft sales, food vending, informal guiding, taxi services	Tourist nodes, festivals, taxi ranks	Integrate with tourism corridors; establish craft hubs & market spaces
Creighton	Clothing & cosmetics trade, food vending, spaza shops, services (hair, repairs)	Taxi rank, municipal core, retail centre	Develop formal trading infrastructure; nodal regeneration
Bulwer	Roadside vending, small craft, informal transport	Along R617 corridor, local retail area	Formalised roadside markets; corridor-based development
Donnybrook	Firewood/timber sales, food vending, small spaza shops	Near forestry operations, local roads	Link to timber/agro-processing value chains; micro-enterprise hubs
Rural Settlements	Subsistence farming sales, spazas, informal construction	Dispersed rural villages, tribal areas	Support household enterprises; improve access to markets & credit

5.7.2.2. CHALLENGES & CONSTRAINTS

5.7.2.2.1. MUNICIPAL-WIDE CHALLENGES

The informal economy in NDZ Municipality operates within a context of structural exclusion, weak institutional support, and high levels of vulnerability. The following systemic challenges are evident across the municipality:

1. Infrastructure Deficiencies
    - Most trading areas lack basic facilities such as shelters, electricity, storage, and sanitation.
    - Taxi ranks and nodal centres (e.g., Creighton, Bulwer) are congested with informal traders operating in unsafe or ad hoc spaces.
    - Roadside vending along corridors (notably the R617) lacks designated stalls, creating safety risks and land use conflicts.
2. Regulatory and Institutional Gaps
    - Informal traders often operate without permits, resulting in periodic evictions or harassment.
    - There is limited municipal policy alignment on how informal trade should be integrated into nodal and corridor development.
    - Weak enforcement of trading bylaws undermines both informal traders and formal businesses.
3. Economic and Market Barriers
    - Informal enterprises struggle with access to markets, particularly outside their immediate settlements.
    - Lack of integration into mainstream value chains (timber, dairy, tourism) reduces growth potential.
    - Seasonal fluctuations (especially in Underberg/Himeville's tourism economy) undermine income stability.
4. Financial Exclusion
    - Access to credit is minimal, with traders relying on household savings or informal borrowing.
    - There are limited microfinance and cooperative schemes tailored to the needs of informal enterprises.
5. Skills and Capacity Constraints
    - Many operators lack business skills, bookkeeping capacity, or marketing knowledge.
    - Youth and women are active in survivalist trading but lack mentorship and training opportunities to scale into sustainable SMMEs.
6. Spatial and Land Use Challenges
    - Informal trade is spatially concentrated in congested areas without proper zoning.
    - In rural settlements, activities remain dispersed and invisible to formal planning processes.
    - Roadside and nodal conflicts highlight the absence of designated "informal trading zones" in the current spatial framework.
7. Social Vulnerability
    - Informal enterprises provide fragile livelihoods, with low resilience to economic shocks, climate change, or health crises (e.g., COVID-19).

- Women and youth remain disproportionately affected by income insecurity and lack of pathways to formalisation.

5.7.2.2.2. SETTLEMENT-LEVEL CONSTRAINTS

- **Underberg & Himeville**: High dependence on seasonal tourism; lack of structured market spaces; competition with formal operators.
- **Creighton**: Congested taxi rank area; absence of formalised trading infrastructure; weak integration with municipal economic planning.
- **Bulwer**: Roadside vending creates conflicts with traffic safety; lack of designated stalls; weak linkage to corridor development opportunities.
- **Donnybrook**: Timber-based informal activities face declining forestry jobs; survivalist bias with minimal skills development or capital access.
- **Rural Settlements**: Informal trade is dispersed and invisible; poor transport access limits reach to larger markets.

TABLE 8: KEY CHALLENGES OF THE INFORMAL ECONOMY

SCALE / SETTLEMENT	KEY CHALLENGES	IMPLICATIONS FOR SDF
Municipal-Wide	Lack of infrastructure, weak regulation, financial exclusion, low skills, poor integration with formal sectors	Need for nodal trading facilities, zoning for informal trade, integration into LED strategies
Underberg & Himeville	Seasonal tourism dependence; lack of market spaces	Develop tourism-linked informal markets and craft hubs
Creighton	Congested taxi rank; lack of stalls and sanitation	Introduce structured informal trading zone within nodal regeneration plans
Bulwer	Roadside vending conflicts with traffic safety; unregulated stalls	Designate safe roadside market sites along R617 corridor
Donnybrook	Survivalist bias; weak skills; reliance on timber offcuts	Support agro-forestry micro-enterprises; provide training hubs
Rural Settlements	Dispersed, invisible activities; weak access to markets	Establish localised micro-enterprise nodes; improve transport connectivity

5.7.2.3. STRATEGIC OPPORTUNITIES IN THE INFORMAL ECONOMY

5.7.2.3.1. MUNICIPAL-WIDE OPPORTUNITIES

Despite systemic challenges, the informal economy in NDZ Municipality presents clear opportunities for strategic intervention. If harnessed effectively, these can advance inclusive growth, diversify the economy, and strengthen local resilience.

1. Tourism Linkages
    - Underberg and Himeville already attract visitors to the Drakensberg and Sani Pass. Structured integration of informal traders into festivals, markets, and visitor hubs can boost local incomes.
    - Craft production, food vending, and informal guiding services can be formalised into tourism micro-enterprises with branding and market support.

2. Nodal Revitalisation and Market Infrastructure
    - Creighton, Bulwer, and Donnybrook can benefit from purpose-built informal trading facilities linked to taxi ranks, main streets, and service nodes.

- The SDF can explicitly designate “informal trading zones” in nodal plans, providing secure space, services, and visibility.

3. Corridor Development
    - Roadside vending along the R617 (Bulwer corridor) can be formalised into safe, serviced roadside markets.
    - Linking roadside enterprises to corridor development strategies can create synergies between informal traders, logistics, and formal retail.

4. Agro-Processing and Forestry Linkages
    - Informal enterprises can be supported to participate in timber offcut processing, furniture micro-manufacturing, and dairy by-product sales.
    - Cooperative-based agro-processing hubs can integrate small-scale producers into larger value chains.

5. Youth and Women Empowerment
    - Women and youth dominate survivalist trading; targeted skills development, mentorship, and microfinance access can shift them into growth-oriented SMMEs.
    - Introducing incubators for informal enterprises in Creighton and Bulwer can build capacity and innovation.

6. Financial and Institutional Support
    - Municipal support programmes, microfinance schemes, and cooperative banking models can provide access to capital.
    - Partnerships with NGOs and development agencies can expand training, certification, and branding opportunities.

7. Green and Circular Economy
    - Informal waste pickers and recyclers can be integrated into municipal waste management strategies.
    - Opportunities exist to promote eco-friendly micro-enterprises (recycling crafts, alternative energy solutions, organic produce) as part of the green economy agenda.

5.7.2.3.2. SETTLEMENT-LEVEL OPPORTUNITIES

- Underberg & Himeville: Establish craft and food hubs near tourist entry points; create seasonal market spaces linked to events.
- Creighton: Develop a formal trading precinct within nodal regeneration; integrate informal traders into municipal service centres.
- Bulwer: Create roadside markets along the R617; leverage corridor growth to expand agro-processing and transit-linked trade.
- Donnybrook: Support timber-linked micro-enterprises; introduce training hubs for carpentry, crafts, and small-scale food processing.
- Rural Settlements: Improve transport linkages to markets; establish localised village micro-enterprise clusters for spazas, food vending, and small-scale construction services.

TABLE 9: STRATEGIC OPPORTUNITIES FOR THE INFORMAL ECONOMY

SCALE / SETTLEMENT	STRATEGIC OPPORTUNITY	POTENTIAL SDF INTERVENTION
Municipal-Wide	Tourism linkages, nodal revitalisation, agro-processing, green economy	Designate informal trading zones; create market hubs; integrate informal sector into LED & spatial strategies
Underberg & Himeville	Craft sales, food vending, event-linked micro-enterprises	Establish tourist craft hubs; provide serviced market stalls
Creighton	Administrative/trading hub, taxi rank activity	Formalised trading precinct in nodal plan; integrate with municipal offices
Bulwer	Roadside vending along R617 corridor	Develop formal roadside markets; corridor-linked enterprise strategy
Donnybrook	Timber and agro-processing micro-enterprises	Skills training hubs; support forestry-linked cooperatives
Rural Settlements	Subsistence-linked micro-enterprises	Support village-level enterprise clusters; improve transport to markets

5.8. LOCAL ECONOMIC DEVELOPMENT: SPATIAL CHALLENGES AND OPPORTUNITIES

The Dr. Nkosazana Dlamini Zuma Municipality Local Economic Development (LED) Strategy highlights critical sectors—dairy, forestry, tourism, and commerce/informal trade—as the engines of economic growth and transformation. This section integrates the LED Strategy into the Spatial Challenges and Opportunities Report, providing a structured review of sectoral profiles, institutional capacity, challenges, opportunities, and project-level spatial interventions.

The aim is to ensure that LED priorities are aligned with the SDF's spatial framework, nodal hierarchy, and strategic intervention areas, thereby grounding economic development in a spatially responsive and implementable plan.

5.8.1. SECTOR ANALYSES

5.8.1.1. DAIRY SECTOR

- NDZ is a high-concentration dairy area, producing nearly half of Harry Gwala's 800,000 litres/day output.
- Medium-to-large commercial farms dominate; small-scale/emerging farmers are minimal.
- Processing is largely externalised (Creighton Dairies, Clover), limiting local value-addition.

Key Challenges:

- High barriers to entry for emerging farmers.
- Poor local market for fresh milk; dependence on external processors.
- Inadequate road and logistics infrastructure.
- Limited access to capital and technology.

Opportunities:

- Expansion of local processing facilities (milk/cheese factories).
- Heifer rearing schemes for emerging farmers.
- Skills training for modern dairy production.
- Potential to link dairy growth to primary and secondary nodes (Creighton, Bulwer).

Institutional Considerations:

- Strengthen municipal partnerships with Creighton Dairies, Clover, and LED forums.
- Build a farmer support and mentoring programme.

Spatial Interventions:

- Upgrade roads linking dairy clusters to Creighton processing hub.
- Develop Creighton as a dairy hub with training, accommodation, and logistics infrastructure.
- Support Donnybrook secondary node for smallholder entry into dairy value chains.

5.8.1.2. FORESTRY SECTOR

- Over 25,000 ha under plantations (pine, eucalyptus, wattle).
- Sector generates ~R318 million turnover annually.
- Dominated by national/multi-national corporations (Mondi, Sappi, PG Bison).
- Limited local beneficiation; raw timber largely processed outside NDZ.

Key Challenges:

- Land tenure and access to afforestation licences.
- Weak electricity and transport infrastructure.

- Lack of SMME participation in forestry value chain.
- Fire management and alien species concerns.

Opportunities:

- Establishment of Donnybrook Timber Processing Hub (sawmill, pole treatment, pellet plant).
- New afforestation opportunities in Kilmon and Sandanezwe.
- Biomass-to-energy and value-added wood processing.
- Forestry Forum for stakeholder coordination.

Institutional Considerations:

- LED forums and forestry associations critical for community involvement.
- Partnerships with IDC, DBSA, and DAFF to support emerging growers.

Spatial Interventions:

- Develop Donnybrook as a timber hub linked to secondary node growth.
- Align forestry expansion with SDF corridors and rural service centres.
- Support transport logistics (rail/road) to connect forestry outputs with provincial and national markets.

5.8.1.3. TOURISM SECTOR

- Anchored on comparative advantages: rail tourism, avi-tourism, and mission tourism.
- Home to Centocow Mission, Gerard Bhengu Gallery, and Harry Gwala Birding Route.
- Hosts annual Aloe Festival, Freedom Challenge, and other adventure tourism events.

Key Challenges:

- Infrastructure backlogs (roads, signage, facilities).
- Uncertain access to Transnet rail infrastructure.
- Decline in project management capacity for avi-tourism.
- Limited integration of local SMMEs into tourism value chains.

Opportunities:

- Rail tourism expansion in Underberg, Donnybrook, Creighton.
- Mission tourism circuits (Centocow, Reichenau).
- Avi-tourism upgrades at Gqumeni Forest and Donnybrook.
- Event-based tourism (rail bikes, birding, cultural festivals).

Institutional Considerations:

- Strengthen role of Southern Midlands Tourism Association and Harry Gwala LED Forum.
- Enhance partnerships with Birdlife SA, SAPPI WWF, and tourism investors.

Spatial Interventions:

- Upgrade Donnybrook and Underberg stations for rail tourism.
- Develop Donnybrook node as a tourism-forestry hybrid hub.
- Align Centocow mission development with social and cultural investment corridors.

5.8.1.4. COMMERCE AND INFORMAL TRADE

- Five main towns: Underberg, Himeville, Creighton, Bulwer, Donnybrook.
- Creighton: administrative hub and dairy centre.
- Donnybrook: strategic secondary node with timber hub potential.
- Bulwer: strong social service hub.
- Informal trade growing in response to shrinking formal employment.

Key Challenges:

- Limited commercial infrastructure in small towns.
- Informal sector lacks facilities, finance, and regulation.
- High poverty and unemployment, especially in Donnybrook.

Opportunities:

- Urban renewal and nodal upgrading in Creighton, Donnybrook, and Bulwer.
- Development of informal trade centres.
- Leveraging dairy and forestry clusters for town-based growth.
- Creation of town forums for joint project implementation.

Institutional Considerations:

- Municipal facilitation of town development forums.
- Partnerships with SMMEs and informal trader associations.

Spatial Interventions:

- **Creighton:** expand dairy training and processing hub.
- **Donnybrook:** redevelop rail land, expand timber hub, provide housing and social facilities.
- **Bulwer:** tertiary education, health, and housing investments.
- **Underberg/Himeville:** tourism gateway and adventure tourism node.

5.8.1.5. CROSS-CUTTING INSTITUTIONAL AND CAPACITY CONSIDERATIONS

- LED forums and sector-based partnerships (dairy, forestry, tourism) are essential for implementation.
- Capacity building in business management, marketing, and skills upgrading across sectors.
- Access to finance remains a critical constraint; partnerships with IDC, DBSA, and DTI are required.
- Stronger monitoring and evaluation systems must be embedded into LED project delivery.

TABLE 10: SDF AND LED ALIGNMENT MATRIX

LED SECTOR/PROJECT	SDF THEME	PRIORITY SPATIAL INTERVENTION
Dairy: milk processing plants, heifer rearing, farmer training	Economic / Institutional	Creighton dairy hub; road upgrades to dairy farms
Forestry: Donnybrook Timber Hub (sawmill, pellet plant, pole treatment)	Economic / Built Environment	Donnybrook secondary node as industrial hub
Forestry: new afforestation (Kilmon, Sandanezwe)	Environmental / Economic	Afforestation aligned to water catchments; community forestry projects
Tourism: rail tourism (Underberg, Donnybrook, Creighton)	Economic / Social / Built	Station upgrades; heritage and adventure tourism circuits
Tourism: avi-tourism (Gqumeni Forest)	Environmental / Economic	Donnybrook station refurb + avi-tourism infrastructure
Tourism: mission tourism (Centocow, Reichenau)	Social / Cultural	Cultural corridor and heritage tourism routes
Commerce: Donnybrook town redevelopment	Built / Social / Economic	Redevelop Transnet land; housing, informal trade centre, social amenities
Commerce: Bulwer town upgrading	Institutional / Social	Expansion of services, tertiary institution, housing

5.9. TOURISM ANALYSIS

The Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality occupies a strategically significant position within KwaZulu-Natal's tourism landscape. Nestled in the southern reaches of the majestic uKhahlamba-Drakensberg Mountain range and bordering the Kingdom of Lesotho, NDZ is uniquely positioned as one of the province's key tourism nodes. This geographic advantage, coupled with its rich cultural heritage, pristine natural landscapes, and proximity to World Heritage Sites, makes the municipality a vital contributor to regional tourism development.

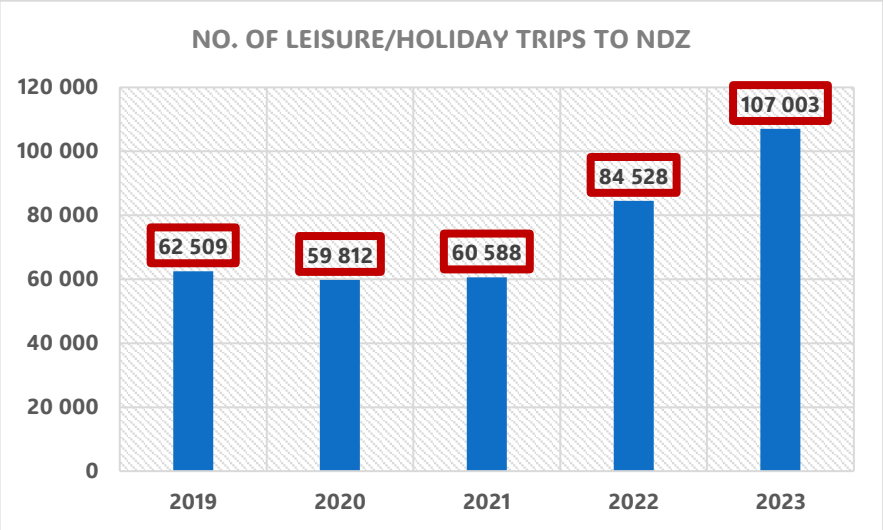
The area serves as a gateway to the southern Drakensberg, attracting both domestic and international tourists seeking adventure, eco-tourism, cultural experiences, and scenic beauty. Towns such as Underberg and Himeville are already well-established tourism hubs, offering access to iconic destinations like Sani Pass and the Maloti-Drakensberg Transfrontier Conservation Area.

Given this context, it is imperative to undertake a comprehensive assessment of the tourism sector within the NDZ Municipality. While the region boasts significant tourism assets, there remain critical challenges that hinder the full realization of its potential. These include infrastructure limitations, uneven tourism development across the municipality, limited marketing and branding, and the need for greater integration of local communities into the tourism value chain. At the same time, there are numerous opportunities to be harnessed—such as expanding adventure and eco-tourism offerings, promoting cultural and heritage tourism, and leveraging cross-border tourism with Lesotho.

This tourism analysis aims to provide a detailed understanding of the current state of the sector, identify spatial and economic patterns, and highlight areas for strategic intervention. It will explore the strengths, weaknesses, opportunities, and threats (SWOT) facing tourism in NDZ, and align these insights with broader provincial and national tourism strategies. By doing so, the SDF can support the development of a more inclusive, sustainable, and resilient tourism economy that contributes meaningfully to local livelihoods, spatial equity, and long-term economic growth. Ultimately, this analysis will inform spatial planning decisions that enhance the municipality's role as a premier tourism destination in KwaZulu-Natal and beyond.

5.9.1. NUMBER OF TRIPS BY PURPOSE

5.9.1.1. LEISURE/HOLIDAY TRIPS



GRAPH 20: NO. OF LEISURE/HOLIDAY TRIPS

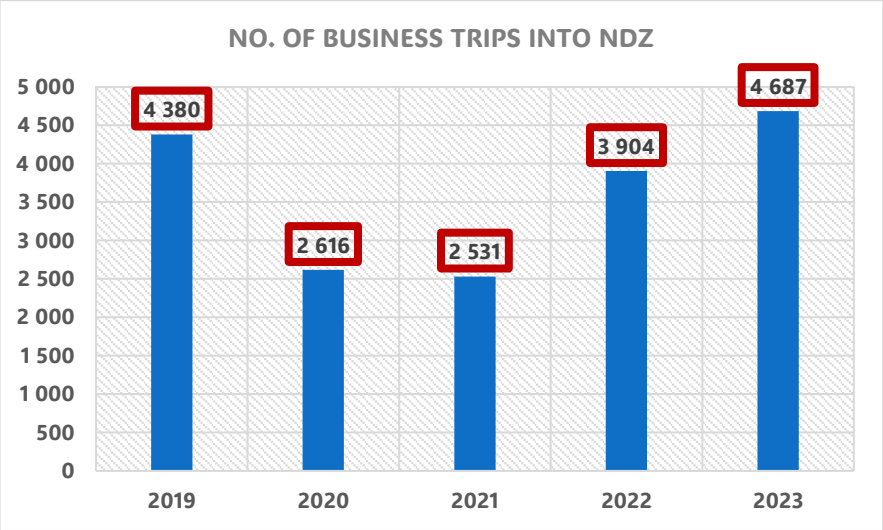
Source: IHS Markit, 2024

The above graph illustrates a clear upward trend in tourism activity within the Dr. Nkosazana Dlamini Zuma Local Municipality over the five-year period from 2019 to 2023. Starting at 62,509 trips in 2019, the number dipped slightly in 2020 to 59,812—likely reflecting the impact of COVID-19 travel restrictions. A modest recovery followed in 2021 with 60,588 trips. However, the most

notable growth occurred in 2022 and 2023, with trips surging to 84,528 and then to 107,003 respectively. This sharp increase—particularly the 26% growth between 2022 and 2023—signals a strong post-pandemic rebound and growing interest in NDZ as a leisure destination. This upward trajectory in tourism has several critical implications for spatial planning:

- **Infrastructure Expansion**: The rising number of visitors necessitates the expansion and upgrading of tourism infrastructure, including accommodation facilities, road networks, signage, and public amenities, especially in high-traffic nodes like Underberg, Himeville, and Sani Pass.
- **Zoning and Land Use Management**: The SDF needs to allocate land for tourism-related development while balancing conservation needs. This includes identifying suitable areas for eco-lodges, cultural villages, and adventure tourism hubs without encroaching on sensitive ecological zones.
- **Transport and Accessibility**: Improved connectivity—both within the municipality and to external markets—is essential. This includes upgrading rural access roads, enhancing public transport options, and ensuring safe, well-maintained routes to key attractions.
- **Environmental Sustainability**: With increased footfall comes the risk of environmental degradation. Spatial planning must integrate green infrastructure, enforce environmental regulations, and promote sustainable tourism practices to protect the Drakensberg and other natural assets.
- **Economic Development Zones**: The tourism boom presents an opportunity to establish tourism-focused economic development zones that support local enterprise development, job creation, and skills training, particularly in underdeveloped rural areas.
- **Public Services and Utilities**: Higher tourist volumes will place additional pressure on water, sanitation, waste management, and emergency services. Planning must anticipate these demands and ensure adequate service provision.

5.9.1.2. BUSINESS RELATED TRIPS



GRAPH 21: NO. OF BUSINESS TRIPS

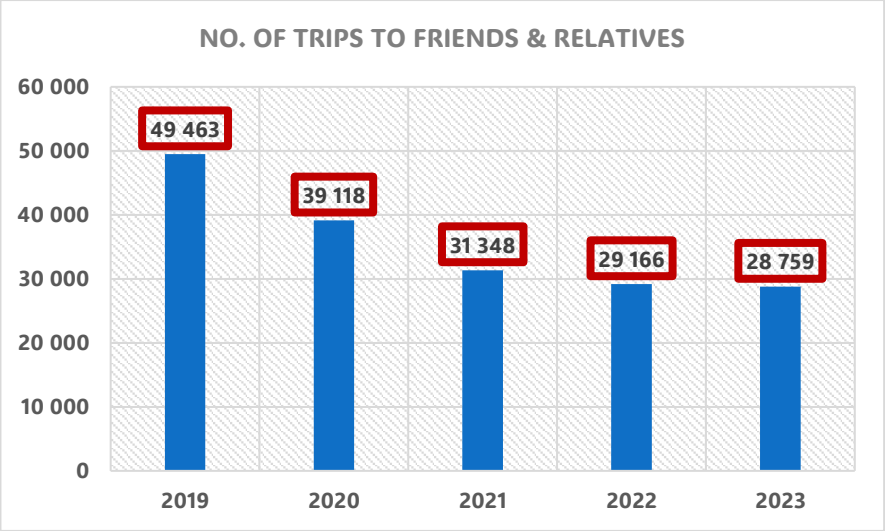
Source: IHS Markit, 2024

The above graph presents the annual number of business-related visits to the Dr. Nkosazana Dlamini Zuma Local Municipality from 2019 to 2023. In 2019, the municipality recorded 4,380 business trips. This figure dropped significantly in 2020 to 2,616, likely due to the COVID-19 pandemic and associated travel restrictions. The decline continued slightly into 2021 with 2,531 trips, marking the lowest point in the five-year period. However, a strong recovery began in 2022, with business trips rising to 3,904, and by 2023, the number had surpassed pre-pandemic levels, reaching 4,687. This represents a 19% increase from 2022 and a 7% increase over 2019 levels, indicating

renewed business confidence and growing economic activity in the region. The trends have several implications for spatial planning:

- **Commercial Infrastructure Development**: The upward trend in business travel suggests a growing need for commercial infrastructure such as conference venues, co-working spaces, and business-friendly accommodation, particularly in towns like Creighton, Underberg, and Bulwer.
- **Transport and Connectivity**: Improved road networks and digital infrastructure are essential to support business mobility and communication, especially for professionals traveling from urban centres or across the Lesotho border.
- **Mixed-Use Zoning**: Spatial planning should prioritize mixed-use developments that integrate office, retail, and hospitality functions to accommodate the needs of business travellers and stimulate local economic activity.
- **Investment Promotion Zones**: The increase in business trips may reflect rising investor interest. Designating and servicing investment zones with reliable utilities and streamlined regulatory processes can attract further economic development.
- **Support Services and Amenities**: The municipality should plan for support services such as banking, printing, logistics, and high-speed internet access to cater to business visitors and enhance the ease of doing business.
- **Sustainable Urban Growth**: As business activity grows, spatial planning must ensure that urban expansion is managed sustainably, with adequate provision for housing, transport, and public services to support both residents and visiting professionals.

5.9.1.3. VISITS TO FRIENDS AND RELATIVES



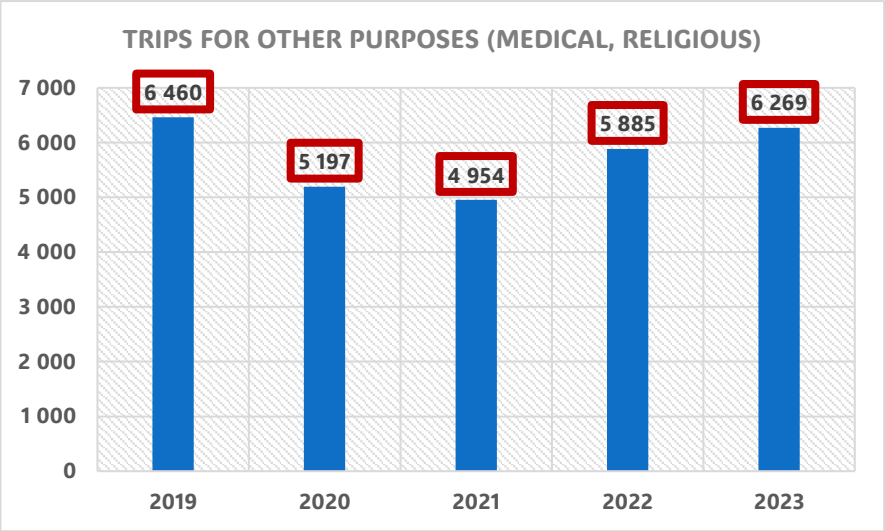
GRAPH 22: VISITS TO FRIENDS & RELATIVES

Source: IHS Markit, 2024

The bar chart titled "No. of Trips to Friends & Relatives" illustrates a consistent decline in this category of travel to the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality over the five-year period from 2019 to 2023. In 2019, the municipality recorded 49,463 such trips. This number dropped sharply to 39,118 in 2020, likely due to COVID-19 restrictions on social gatherings and travel. The downward trend continued in subsequent years, with 31,348 trips in 2021, 29,166 in 2022, and 28,759 in 2023. Overall, this represents a 42% decrease from 2019 to 2023, indicating a significant and sustained reduction in travel for the purpose of visiting friends and relatives (VFR). Implications for Spatial Planning in NDZ Municipality include:

- **Changing Travel Patterns**: The decline in VFR travel suggests a shift in the municipality's tourism profile, with leisure and business travel becoming more dominant. Spatial planning should reflect this by prioritizing infrastructure that supports these growing segments.
- **Underutilized Residential Areas**: Areas that traditionally hosted VFR travellers—such as rural homesteads and peri-urban settlements—may now experience reduced seasonal population inflows. This could impact local economies and service demand, requiring adaptive planning strategies.
- **Community Infrastructure Reassessment**: With fewer VFR visitors, there may be less strain on community-based infrastructure (e.g., local roads, clinics, and water systems) during peak periods. This opens opportunities to redirect resources toward tourism nodes with growing demand.
- **Potential for Repositioning**: Spatial planners could explore ways to reinvigorate VFR travel by integrating cultural and heritage tourism into these areas, encouraging longer stays and greater spending by visitors with familial ties to the region.
- **Social Cohesion Considerations**: The decline in VFR travel may have social implications, such as weakening family and community bonds. Planning should consider how to support community gathering spaces and events that foster social cohesion.

5.9.1.4. OTHER VISITS (MEDICAL, RELIGIOUS, ETC.)



GRAPH 23: OTHER VISITS (MEDICAL, RELIGOUS, ETC.)

Source: IHS Markit, 2024

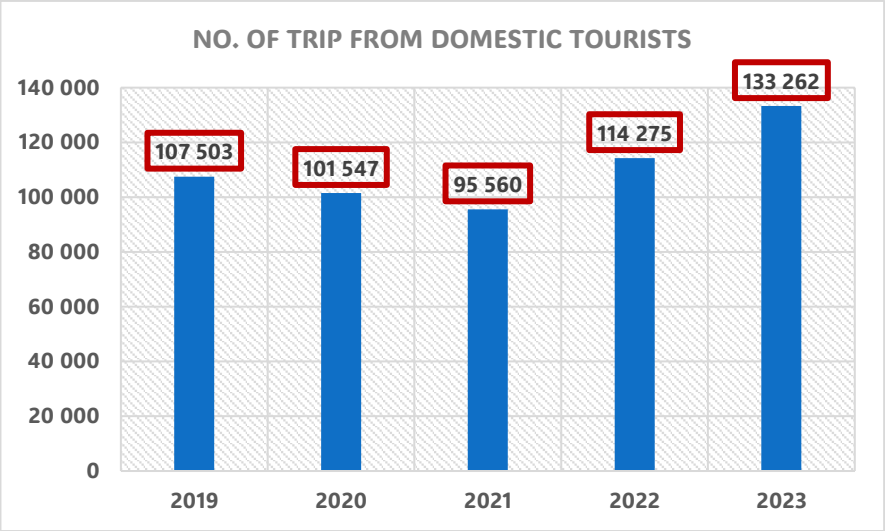
The above graph displays the number of non-leisure, non-business trips to the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality from 2019 to 2023. In 2019, there were 6,460 such trips. This number declined in 2020 to 5,197 and further to 4,954 in 2021, reflecting the impact of the COVID-19 pandemic on mobility for essential and communal purposes. However, the trend reversed in 2022 with a rise to 5,885 trips, and continued upward in 2023, reaching 6,269—just shy of pre-pandemic levels. This recovery suggests a return to normalcy in terms of access to health services and participation in religious or cultural gatherings.

Implications for Spatial Planning in NDZ Municipality include the following:

- **Health and Social Infrastructure**: The rebound in medical-related travel highlights the ongoing importance of accessible healthcare facilities. Spatial planning should prioritize the equitable distribution and upgrading of clinics and hospitals, especially in rural and underserved areas.
- **Religious and Cultural Facilities**: The resurgence in religious travel suggests a need to support and maintain places of worship and cultural gathering spaces. These sites often serve as community anchors and should be integrated into local development plans.
- **Transport Connectivity**: Reliable transport routes to medical and religious facilities are essential. Planning should ensure that these destinations are well-connected by road and public transport, particularly for vulnerable populations.
- **Event-Based Planning**: Peaks in religious travel may coincide with specific festivals or events. Spatial planning should accommodate temporary increases in population through flexible infrastructure, crowd management strategies, and emergency services.
- **Multi-Purpose Hubs**: To optimize land use, planners could consider developing multi-functional community hubs that combine health, social, and cultural services in central locations, reducing the need for long-distance travel.

5.9.2. NUMBER OF TRIPS BY ORIGIN OF TOURIST

5.9.2.1. DOMESTIC TOURISTS



GRAPH 24: NO. OF TRIP FROM DOMESTIC TOURISTS

Source: IHS Markit, 2024

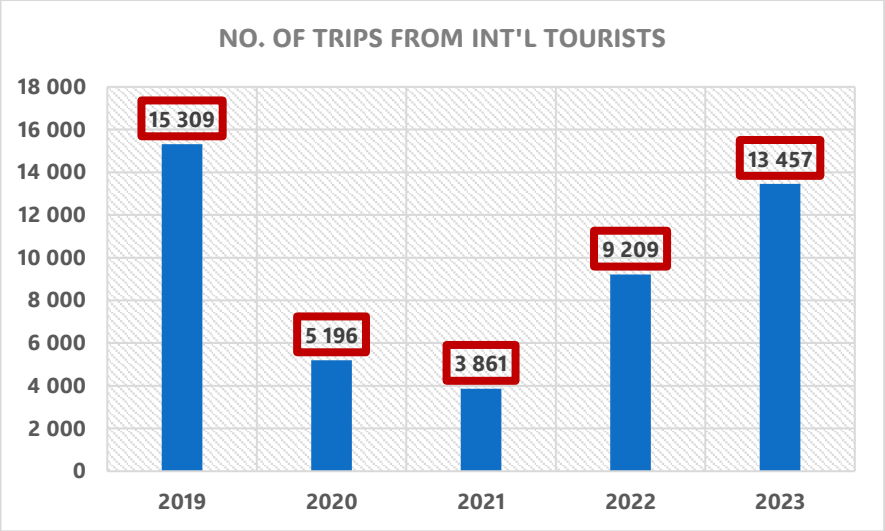
The above graph illustrates the volume of domestic tourism to the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality over a five-year period from 2019 to 2023. In 2019, the municipality received 107,503 trips from domestic tourists. This number declined in 2020 to 101,547 and further to 95,560 in 2021, reflecting the impact of the COVID-19 pandemic on domestic travel.

However, a strong recovery began in 2022 with 114,275 trips, and by 2023, the number had surged to 133,262—representing a 25% increase over 2021 and a 24% increase over pre-pandemic levels in 2019. This growth highlights a robust resurgence in domestic tourism and suggests increasing popularity of

NDZ as a local travel destination. Implications for Spatial Planning in NDZ Municipality include the following:

- **Tourism Infrastructure Scaling**: The sharp rise in domestic tourism necessitates the expansion of tourism infrastructure, including accommodation, dining, and recreational facilities, particularly in high-demand areas such as Underberg, Himeville, and Sani Pass.
- **Destination Management**: With growing visitor numbers, spatial planning must incorporate strategies for managing tourist flows to prevent overcrowding and degradation of natural and cultural assets.
- **Diversification of Attractions**: The municipality should invest in developing and promoting lesser-known attractions to distribute tourism benefits more evenly across the region and reduce pressure on established nodes.
- **Transport and Accessibility**: Improved road networks and signage are essential to support increased domestic travel, especially for self-drive tourists who make up a large portion of the domestic market.
- **Local Economic Development**: The growth in domestic tourism presents opportunities for local enterprise development, job creation, and community-based tourism initiatives. Spatial planning should support these through zoning, infrastructure provision, and access to markets.
- **Sustainability and Resilience**: As domestic tourism continues to grow, planning must ensure that development is environmentally sustainable and resilient to future shocks, such as pandemics or climate-related disruptions.

5.9.2.2. INTERNATIONAL TOURISTS



GRAPH 25: NO. OF TRIPS FROM INT'L TOURISTS

Source: IHS Markit, 2024

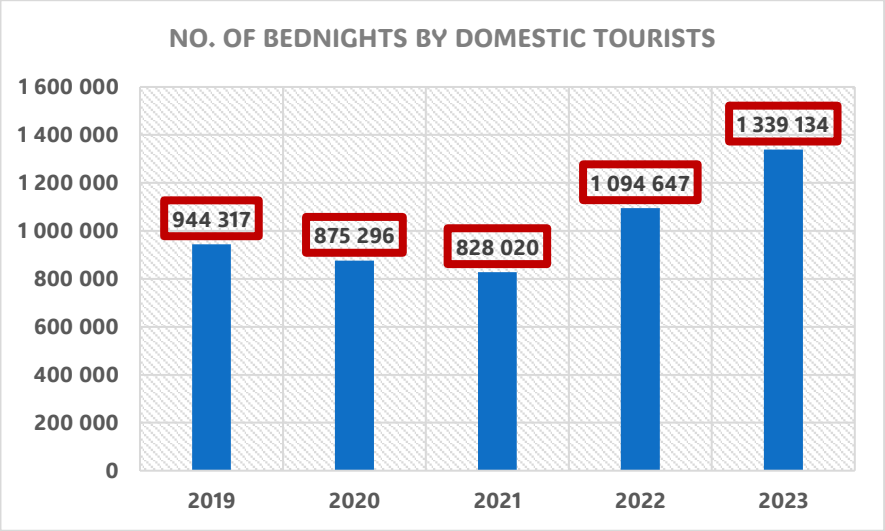
The above graph tracks the number of international visitors to the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality from 2019 to 2023. In 2019, the municipality welcomed 15,309 international tourists. This number dropped drastically in 2020 to 5,196 and further to 3,861 in 2021, reflecting the global impact of COVID-19 on international travel. A recovery began in 2022 with 9,209 trips, and by 2023, the figure had climbed to 13,457—an 89% increase from 2021 and nearing pre-pandemic levels. This rebound suggests a strong resurgence in international interest in NDZ as a travel destination, likely driven by its natural beauty, cultural heritage, and proximity to the Drakensberg and Lesotho. Implications for Spatial Planning in NDZ Municipality include the following:

- **International-Grade Facilities**: The resurgence in international tourism calls for investment in high-quality accommodation, hospitality services, and multilingual visitor information centres to meet global standards and expectations.
- **Gateway Infrastructure**: Given NDZ's proximity to Lesotho and the Sani Pass, spatial planning should prioritize border infrastructure, customs facilities, and tourism signage to facilitate cross-border travel and enhance the visitor experience.
- **Destination Branding and Marketing**: The municipality should strengthen its international marketing efforts and collaborate with provincial and national tourism bodies to position NDZ as a premier global destination.
- **Cultural and Natural Heritage Conservation**: International tourists are often drawn to authentic cultural experiences and pristine natural environments. Spatial planning must ensure the protection and sustainable use of these assets through zoning, environmental regulations, and heritage site management.
- **Transport and Mobility**: Improved access to NDZ from major airports and urban centres is essential. This includes road upgrades, shuttle services, and digital navigation tools to support international self-drive and guided tours.
- **Safety and Health Services**: International visitors expect reliable safety, emergency, and health services. Planning should ensure these are accessible and well-distributed across key tourism nodes.

5.9.3. NUMBER OF BEDNIGHTS

The number of bednights refers to the total number of nights that tourists spend in paid accommodation within a specific destination over a given period. It is calculated by multiplying the number of visitors by the number of nights each visitor stays. For example, if 100 tourists each stay for 3 nights, that results in 300 bednights. This metric is a key indicator of tourism demand and is often used to assess the performance of the accommodation sector, the economic impact of tourism, and the pressure on local infrastructure and services. Unlike simple visitor counts, bednights provide insight into the length of stay, which is crucial for understanding visitor behaviour and planning for sustainable tourism development. A higher number of bednights typically translates to greater economic benefits for the local economy through spending on lodging, food, transport, and other services.

5.9.3.1. BEDNIGHTS BY DOMESTIC TOURISTS



GRAPH 26: NO. OF BEDNIGHTS BY DOMESTIC TOURISTS

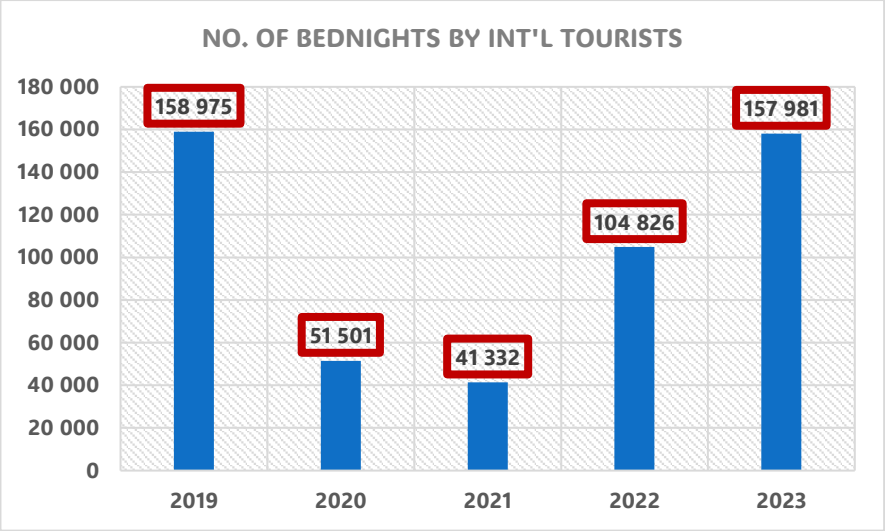
Source: IHS Markit, 2024

The above graph presents a five-year trend in overnight stays by domestic visitors to the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality. In 2019, the municipality recorded 944,317 bednights, which declined to 875,296 in 2020 and further to 828,020 in 2021—reflecting the impact of the COVID-19

pandemic on travel and accommodation usage. However, the trend reversed sharply in 2022 with a surge to 1,094,647 bednights, and continued upward in 2023, reaching a peak of 1,339,134 bednights. This represents a 62% increase from the 2021 low and a 42% increase over the pre-pandemic 2019 figure. The data indicates not only a strong recovery in domestic tourism but also a growing tendency for longer stays, which enhances the economic impact of tourism on the local economy. Implications for Spatial Planning in NDZ Municipality include the following:

- **Accommodation Expansion**: The rising number of bednights signals increased demand for lodging facilities. Spatial planning must support the development of new hotels, guesthouses, lodges, and homestays, especially in high-traffic tourism nodes.
- **Land Use Allocation**: The municipality, through its SDF, should designate and zone land for tourism accommodation development, ensuring it is well-integrated with surrounding land uses and does not compromise environmental or community assets.
- **Infrastructure and Utilities**: Longer stays place greater demand on water, sanitation, electricity, and waste management systems. Planning must ensure these services are scaled appropriately in tourism-heavy areas.
- **Transport and Accessibility**: With more tourists staying overnight, there is a need for improved access to accommodation sites, including road upgrades, signage, and public transport options.
- **Local Economic Development**: Longer stays increase tourist spending on food, entertainment, and services. Spatial planning should support the growth of complementary businesses such as restaurants, shops, and cultural attractions near accommodation hubs.
- **Sustainability Measures**: To manage the environmental footprint of increased overnight tourism, planners should promote eco-friendly building practices, green infrastructure, and responsible tourism policies.

5.9.3.2. BEDNIGHTS BY INTERNATIONAL TOURISTS



GRAPH 27: NO. OF BEDNIGHTS BY INT'L TOURISTS

Source: IHS Markit, 2024

The above graph illustrates the number of overnight stays by international visitors to the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality from 2019 to 2023. In 2019, international tourists accounted for 158,975 bednights. This figure dropped sharply in 2020 to 51,501 and further to 41,332 in 2021, reflecting the global impact of COVID-19 on international travel. A strong recovery began in 2022 with 104,826 bednights, and by 2023, the number had nearly returned to pre-pandemic levels at 157,981—just 0.6% below the 2019 peak. This rebound indicates renewed confidence in NDZ as an international destination and suggests that not only are more international tourists returning, but they are also staying for longer durations.

Implications for Spatial Planning in NDZ Municipality includes the following:

- **High-Quality Accommodation Demand**: The resurgence in international bednights highlights the need for premium accommodation options that meet global standards, including eco-lodges, boutique hotels, and serviced apartments.
- **Tourism Investment Zones**: Spatial planning should identify and support tourism investment zones near key attractions like Sani Pass, Ntsikeni Nature Reserve, and heritage sites, where international visitors are likely to stay longer.
- **Transport and Border Infrastructure**: Improved access to NDZ from international entry points—especially via the Sani Pass and nearby airports—is essential. This includes road upgrades, signage, and customs facilities.
- **Tourism Services and Experiences**: Longer stays create opportunities for curated experiences such as guided hikes, cultural tours, and wellness retreats. Planning should support the development of such services through zoning and infrastructure provision.
- **Environmental and Cultural Protection**: With more international tourists spending extended periods in the area, spatial planning must ensure that tourism growth does not compromise the integrity of natural and cultural assets.
- **Data-Driven Planning**: The return to pre-pandemic levels of international bednights underscores the importance of using tourism data to guide infrastructure investment, service delivery, and land use decisions.

5.9.4. TOURISM & THE LOCAL ECONOMY: UNLOCKING SPATIAL OPPORTUNITIES

Tourism plays a pivotal role in shaping the economic landscape of the Dr. Nkosazana Dlamini Zuma Local Municipality, serving as one of the most dynamic and high-potential sectors within the region. With its strategic location bordering Lesotho and nestled within the southern Drakensberg, NDZ is uniquely positioned to attract both domestic and international tourists seeking natural beauty, cultural richness, and adventure experiences. The steady growth in leisure, business, and international travel to the municipality—evidenced by rising visitor numbers, bednights, and tourism-related activities—has translated into increased demand for goods, services, and employment.

This growth has a multiplier effect on the local economy, stimulating sectors such as accommodation, food services, transport, retail, and cultural industries. Tourism also provides critical income-generating opportunities for rural communities, small businesses, and informal traders, thereby contributing to poverty alleviation and inclusive development.

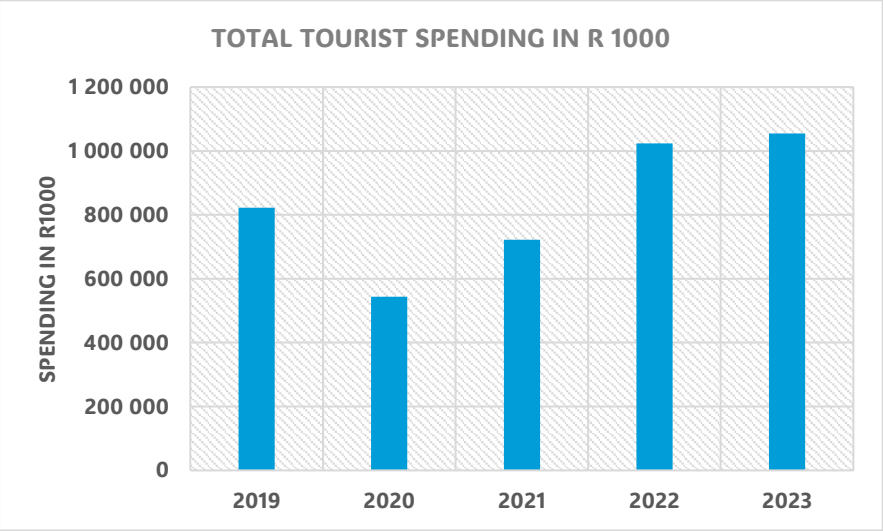
However, the full economic potential of tourism in NDZ remains underutilized due to spatial disparities, infrastructure limitations, and uneven investment across the municipality. The Spatial Development Framework (SDF) provides a strategic platform to address these challenges and unlock tourism-driven economic development. By aligning land use planning with tourism growth trends, the SDF can guide the development of well-located tourism nodes, support the expansion of accommodation and service infrastructure, and promote the integration of local communities into the tourism value chain.

Furthermore, the SDF can identify and protect key natural and cultural assets that underpin the tourism economy, ensuring that development is both sustainable and resilient. It can also facilitate the creation of tourism corridors and investment zones that link high-potential areas—such as Underberg, Himeville, Bulwer, and the Sani Pass—with emerging destinations and rural hinterlands.

In this context, the SDF must not only respond to current tourism patterns but also anticipate future growth and diversification. This includes planning for increased visitor volumes, longer stays, and evolving tourist preferences such as eco-tourism, cultural heritage tourism, and adventure travel.

By doing so, the municipality can position tourism as a cornerstone of its local economic development strategy, driving spatial transformation, job creation, and inclusive growth. This section of the SDF will therefore assess the economic impact of tourism in NDZ, identify spatial opportunities and constraints, and propose targeted interventions to harness tourism as a catalyst for sustainable development.

5.9.4.1. TOTAL TOURISTS SPENDING



GRAPH 28: TOTAL TOURIST SPENDING

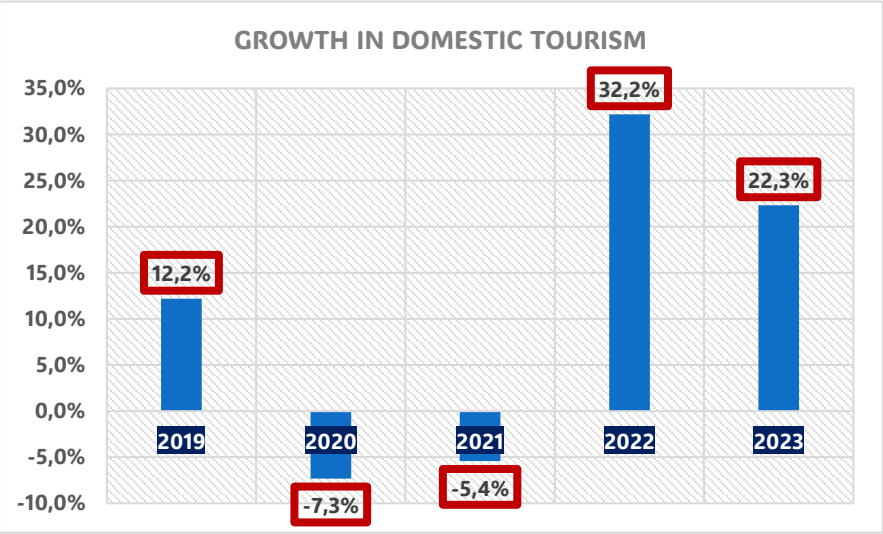
Source: IHS Markit, 2024

The above graph presents a five-year overview of tourism-related expenditure in the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality. In 2019, total tourist spending stood at R821.8 million. This figure dropped sharply in 2020 to R543.4 million, reflecting the severe impact of the COVID-19 pandemic on travel and tourism. A recovery began in 2021 with spending rising to R721.6 million, followed by a significant surge in 2022 to over R1.02 billion. By 2023, tourist spending reached R1.05 billion—an increase of nearly 28% over pre-pandemic levels. This upward trajectory not only confirms the resilience of the tourism sector but also highlights its growing contribution to the local economy. The consistent rise in spending from 2021 onwards suggests that tourists are not only returning in greater numbers but are also spending more per visit, likely due to longer stays, increased activity participation, and improved tourism offerings. Implications for spatial planning and the local economy include the following:

- **Infrastructure Investment**: The increase in tourist spending necessitates expanded and upgraded infrastructure, including roads, signage, public amenities, and digital connectivity, particularly in tourism hotspots.
- **Zoning for Tourism Development**: Spatial planners should identify and zone land for tourism-related uses such as accommodation, retail, and recreational facilities to support growing demand.
- **Balanced Growth**: To avoid over-concentration in a few areas, the SDF should promote the development of secondary tourism nodes and rural attractions, ensuring equitable spatial distribution of tourism benefits.
- **Sustainability Integration**: With higher tourist volumes and spending, there is a need to integrate environmental sustainability into spatial planning—protecting natural assets while accommodating growth.
- **Revenue Generation**: The tourism sector is becoming a major revenue stream for the municipality, supporting local businesses and increasing municipal income through rates and service charges.
- **Job Creation**: Growth in tourist spending translates into more employment opportunities in hospitality, transport, retail, and cultural sectors, especially for youth and women.

- **Enterprise Development**: Increased spending creates space for local entrepreneurs to offer goods and services, from craft markets to guided tours, enhancing inclusive economic participation.
- **Investment Attraction**: The upward trend in spending signals a healthy tourism economy, which can attract both public and private investment into tourism infrastructure and services.

5.9.4.2. GROWTH IN TOURISM DOMESTIC NDZ MUNICIPALITY



GRAPH 29: GROWTH IN DOMESTIC TOURISM

Source: IHS Markit, 2024

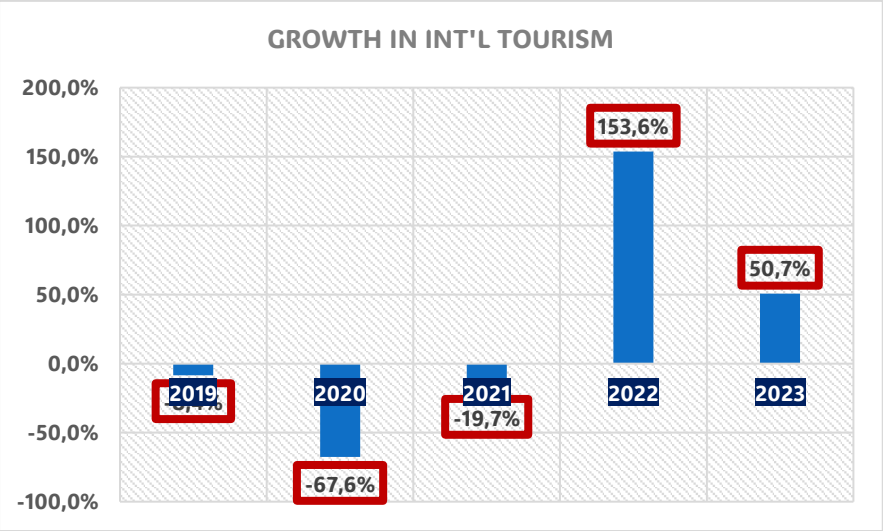
The above graph illustrates the annual percentage change in domestic tourism activity within the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality from 2019 to 2023. In 2019, domestic tourism grew by 12.2%, indicating a healthy upward trend prior to the COVID-19 pandemic. However, the sector experienced a sharp contraction in 2020 with a -7.3% decline, followed by a further -5.4% drop in 2021, reflecting the prolonged impact of lockdowns and travel restrictions. A strong recovery began in 2022, with domestic tourism surging by 32.2%—the highest growth rate in the five-year period. This momentum continued into 2023 with a 22.3% increase, signalling a robust and sustained rebound in domestic travel. The data highlights the resilience of the domestic tourism market and its growing importance as a driver of local economic recovery and development. Implications for spatial planning and the local economy include the following:

- **Tourism Infrastructure Scaling**: The rapid growth in domestic tourism necessitates the expansion of infrastructure such as roads, signage, rest stops, and accommodation facilities to accommodate increased visitor volumes.
- **Diversification of Tourism Nodes**: To manage growth sustainably, spatial planning should promote the development of new tourism nodes and diversify attractions across the municipality, reducing pressure on existing hotspots.
- **Land Use and Zoning Adjustments**: Planners should revise land use schemes to support tourism-related development, including mixed-use zones that integrate hospitality, retail, and cultural amenities.
- **Sustainable Development Practices**: With rapid growth comes the risk of overdevelopment. The SDF must incorporate environmental safeguards and promote eco-tourism models to preserve the municipality's natural and cultural assets.
- **Increased Local Spending**: The surge in domestic tourism translates into higher local spending on accommodation, food, transport, and entertainment, boosting municipal revenue and supporting small businesses.
- **Job Creation and Skills Development**: Growth in tourism drives demand for skilled labour in hospitality, guiding, transport, and event

management, creating employment opportunities and encouraging youth participation.

- **Support for Informal and Rural Economies**: Domestic tourists often engage with local markets and community-based tourism initiatives, providing income opportunities for rural households and informal traders.
- **Investment Attraction**: Sustained growth signals a stable and expanding market, making NDZ an attractive destination for private sector investment in tourism infrastructure and services.

5.9.4.3. GROWTH IN INTERNATIONAL TOURISM



GRAPH 30: GROWTH INTERNATIONAL TOURISM

Source: IHS Markit, 2024

The above graph illustrates the annual percentage change in international tourism to the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality from 2020 to 2023, with 2019 serving as the baseline year. In 2020, international tourism plummeted by 67.6%, reflecting the global shutdown of travel due to the COVID-19 pandemic.

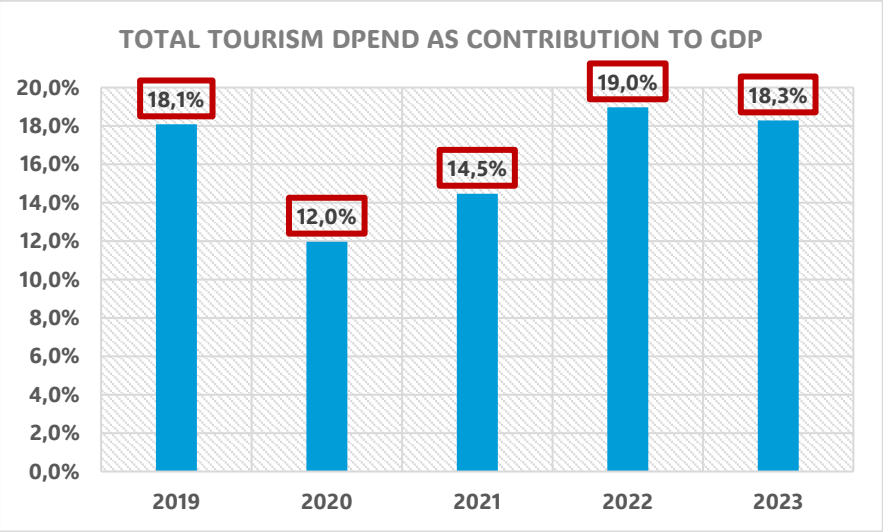
The decline continued in 2021, though at a slower rate, with a 19.7% drop. A dramatic rebound occurred in 2022, with international tourism surging by 153.6%—the highest growth rate in the period—followed by continued growth of 50.7% in 2023. This pattern reflects a strong recovery trajectory, with international tourism not only rebounding but expanding rapidly as global travel resumed and NDZ re-established itself as a desirable destination. Implications for spatial planning and the local economy include the following:

- **Tourism Infrastructure Readiness**: The rapid growth in international tourism necessitates urgent investment in infrastructure such as high-quality accommodation, transport links, and visitor amenities that meet international standards.
- **Border and Gateway Enhancements**: Given NDZ's proximity to Lesotho and the Sani Pass, spatial planning should prioritize improvements to cross-border infrastructure, customs facilities, and signage to support seamless international access.
- **Destination Management**: The municipality must plan for increased tourist flows by enhancing capacity at key attractions and ensuring that tourism growth does not compromise environmental or cultural integrity.
- **Strategic Zoning**: Land use planning should support the development of tourism precincts and mixed-use areas that integrate hospitality, retail, and cultural experiences tailored to international visitors.
- **Foreign Exchange Earnings**: The resurgence in international tourism brings valuable foreign currency into the local economy, supporting businesses and increasing municipal revenue.
- **Job Creation and Skills Development**: Growth in international tourism drives demand for skilled labour in areas such as hospitality, guiding,

language services, and transport, creating employment and training opportunities.

- **Market Diversification**: A strong international tourism sector reduces reliance on domestic markets and enhances economic resilience against local shocks.
- **Investment Attraction**: The sharp growth rates signal a thriving tourism sector, making NDZ an attractive destination for both domestic and foreign investment in tourism infrastructure and services.

5.9.4.4. TOTAL TOURISM SPEND AS % OF GDP



GRAPH 31: TOTAL TOURISM SPEND AS CONTRIBUTION TO GDP

Source: IHS Markit, 2024

The bar graph titled "Total Tourism Spend as Contribution to GDP" illustrates the percentage share of tourism expenditure in the overall Gross Domestic Product (GDP) of the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality from 2019 to 2023. In 2019, tourism contributed a substantial 18.1% to the local GDP. This figure dropped sharply to 12.0% in 2020 due to the COVID-19 pandemic, which severely disrupted travel and tourism activities.

A recovery began in 2021 with a rise to 14.5%, followed by a peak of 19.0% in 2022—surpassing pre-pandemic levels. In 2023, the contribution slightly declined to 18.3%, but remained significantly high, indicating that tourism continues to be a major economic driver in the municipality. These figures underscore the sector's resilience and its central role in local economic recovery and growth. Implications for spatial planning and the local economy include the following:

- **Strategic Prioritization of Tourism Nodes**: Given tourism's substantial contribution to GDP, spatial planning must prioritize the development and enhancement of key tourism areas through infrastructure upgrades, land use zoning, and investment incentives.
- **Integrated Development Planning**: Tourism should be integrated into broader spatial development strategies, including transport, housing, and environmental management, to ensure coordinated and sustainable growth.
- **Infrastructure Resilience**: The volatility seen in 2020 and 2021 highlights the need for resilient infrastructure that can adapt to shocks while supporting long-term tourism growth.
- **Balanced Development**: To avoid over-reliance on a few hotspots, planners should promote the development of emerging tourism areas and rural attractions to distribute economic benefits more evenly.
- **Economic Diversification**: Tourism's strong GDP contribution positions it as a key sector for diversifying the local economy, reducing dependence on agriculture or government services.
- **Revenue Generation and Fiscal Stability**: High tourism spend boosts municipal revenue through taxes, levies, and service charges, enabling reinvestment in public services and infrastructure.

- **Job Creation and Enterprise Growth**: A thriving tourism sector supports employment across multiple industries and encourages the growth of small and medium enterprises (SMEs), particularly in hospitality, transport, and retail.
- **Investment Attraction**: The consistent high contribution to GDP signals a stable and profitable sector, making NDZ attractive for both domestic and foreign tourism-related investments.

5.9.5. TOURISM SWOT ANALYSIS

STRENGTHS:

- **Strategic Location**: NDZ is situated near the southern Drakensberg and borders Lesotho, making it a natural gateway for cross-border and mountain tourism
- **Natural and Cultural Assets**: The region boasts scenic landscapes, biodiversity hotspots like Ntsikeni Nature Reserve, and rich cultural heritage, ideal for eco-tourism and cultural tourism
- **Established Tourism Nodes**: Towns such as Underberg and Himeville are already recognized tourism hubs, offering access to attractions like Sani Pass
- **Active Tourism Unit**: The municipality has a dedicated Tourism Unit focused on destination promotion, event-driven tourism, and support for local tourism enterprises

WEAKNESSES:

- **Infrastructure Gaps**: Limited road access, signage, and visitor facilities in rural areas hinder tourism growth
- **Uneven Development**: Tourism is concentrated in a few towns, with other areas lacking visibility and investment
- **Limited Marketing Reach**: The municipality's tourism offerings are not widely known outside the region, affecting visitor numbers

OPPORTUNITIES:

- **Adventure and Eco-Tourism Expansion**: Activities like birding, cycling, hiking, and rail tourism can be further developed, especially around Ntsikeni and the Umzimkhulu Gateway
- **Cross-Border Tourism**: Proximity to Lesotho presents opportunities for joint tourism packages and regional collaboration
- **Community-Based Tourism**: Empowering local communities through training and enterprise development can enhance inclusivity and sustainability

THREATS:

- **Environmental Degradation**: Unregulated tourism could threaten the ecological integrity of sensitive areas like the Drakensberg and Ntsikeni.
- **Economic Vulnerability**: Tourism in NDZ is still recovering from the impacts of COVID-19 and remains sensitive to economic shocks
- **Climate Change**: Changing weather patterns may affect outdoor tourism activities and biodiversity.

5.10. SOCIOECONOMIC & DEMOGRAPHIC SWOT ANALYSIS

TABLE 11: SOCIOECONOMIC & DEMOGRAPHIC SWOT ANALYSIS

STRENGTHS	WEAKNESSES
➢ **Demographic Growth**: Population increased from 103,318 (2011) to 128,565 (2022), indicating strong recovery and attractiveness. ➢ **Youthful Population**: Broad-based population pyramid with 20,842 children (0–14) and 41,281 working-age individuals (15–64). ➢ **Gender Balance**: 53% female, 47% male – supports inclusive, gender-responsive planning. ➢ **Improving Education**: Significant gains in matric and post-matric qualifications; decline in "no schooling" cases. ➢ **Economic Growth**: GDP-R per capita rose from R30.9M (2019) to R39.1M (2023), showing resilience and upward trajectory. ➢ **Sectoral Strengths**: Agriculture (LQ 7.66), community services (LQ 1.21), and trade (LQ 1.12) are well-developed and locally specialized. ➢ **Labour Remuneration Growth**: Tertiary sector remuneration reached R3.5B in 2023; primary and secondary sectors also show growth. ➢ **HDI Improvement**: Human Development Index rose from 0.53 (2021) to 0.57 (2023), indicating better living standards. ➢ **Employment Composition**: Agriculture (5,227), community services (5,626), and trade (4,474) are top employers.	➢ **High Unemployment**: Expanded unemployment rate is 47.3%, with 10,343 discouraged work seekers and only 32.2% labour absorption. ➢ **Low Higher Education Attainment**: Only 609 individuals have postgraduate degrees; 853 have bachelor's degrees. ➢ **Income Inequality**: Gini coefficient rose from 0.61 (2019) to 0.65 (2023), indicating widening disparities. ➢ **Underdeveloped Sectors**: Mining (LQ 0.06), manufacturing (LQ 0.67), and finance (LQ 0.35) are weak and underperforming. ➢ **Labour Market Gaps**: Labour force participation rate is only 47%, with over half of the working-age population inactive. ➢ **Poverty Concentration**: 3,632 households report no income; majority earn below R38,200 annually. ➢ **Spatial Inequality**: Uneven access to services, infrastructure, and employment across wards. ➢ **Limited Industrial Base**: Secondary sector still emerging; limited industrial zones and manufacturing hubs. ➢ **Electricity Sector Weakness**: Only 62 people employed in electricity; sector underdeveloped and possibly under-resourced.
OPPORTUNITIES	**THREATS**
➢ **Youth Investment**: Large youth cohort presents opportunity for skills development, education, and employment programs. ➢ **Agricultural Expansion**: High LQ and employment in agriculture suggest potential for agro-processing, logistics, and rural development. ➢ **Industrial Development**: Growth in secondary sector remuneration supports creation of industrial parks and manufacturing hubs. ➢ **Urban Regeneration**: Mixed-use developments and revitalization of underutilized areas can stimulate tertiary sector growth. ➢ **Entrepreneurship Support**: Business incubators and innovation hubs can foster local enterprise and job creation. ➢ **Inclusive Planning**: Gender-responsive infrastructure and services can improve equity and social cohesion.	➢ **Youth Unemployment**: Without intervention, high youth unemployment could lead to social instability and economic stagnation. ➢ **Economic Concentration**: Tress Index fluctuates between 49–54, indicating moderate concentration and vulnerability to sectoral shocks. ➢ **Climate Vulnerability**: Agricultural dependence and rural infrastructure may be at risk from climate change impacts. ➢ **Persistent Poverty**: High poverty index in several wards may persist without targeted interventions. ➢ **Service Delivery Gaps**: Disparities in access to education, healthcare, and employment opportunities across wards. ➢ **Migration Risks**: Economic stagnation or lack of opportunity may lead to out-migration, reversing population gains.

➢ **Education Infrastructure**: Expansion of vocational and tertiary institutions can close education gaps and improve employability. ➢ **Transport & Connectivity**: Improved logistics and transport networks can support trade, agriculture, and industrial sectors. ➢ **Green Economy**: Renewable energy and climate-resilient infrastructure can support sustainable development.	➢ **Underutilized Labour Force**: Over 38,000 people are not economically active (official definition), limiting productivity. ➢ **Low Remuneration in Key Sectors**: Construction, electricity, and mining offer low wages, limiting attractiveness and growth. ➢ **Inequitable Growth**: Rising GDP and HDI may mask deepening inequality if growth is not spatially and socially inclusive.

5.11. SUMMARY OF KEY SOCIOECONOMIC & DEMOGRAPHIC CHALLENGES AND OPPORTUNITIES

5.11.1. KEY CHALLENGES

- Persistent poverty and food insecurity; high dependency ratios; female-headed households prevalent.
- Youth bulge with skills mismatch; out-migration of working-age cohorts; thin formal job base outside agriculture/tourism/public sector.
- Spatial mismatch: dispersed rural settlements distant from jobs, schools, health facilities; high travel time and costs.
- Informal economy under-serviced (trading space, storage, ablutions, compliance support).

5.11.2. KEY OPPORTUNITIES

- Growing domestic tourism demand and nature-based experiences (hiking, cycling, heritage) that can absorb youth via SMMEs.
- Agricultural value chains (dairy, timber, small-stock, niche crops) for MSME supplier development and local processing.
- Community-based services (ECD, care economy, NPO ecosystems) with employment multipliers if coupled to facilities and transport.
- Digital inclusion (last-mile connectivity, community Wi-Fi) to reduce distance penalties for learning and micro-enterprise.

5.11.3. SHORT-TERM RECOMMENDATIONS (1–5 YRS)

- Informal trader support packages in each town: demarcated stalls, storage, lighting, water, ablutions, and simple permits plus business coaching.
- Short vocational bursts aligned to local demand (hospitality service, guides, trail maintenance, basic agro-processing, repair trades).
- Weekly/fortnightly farmers' and artisans' markets on main streets with small grants for gazebos, signage, POS devices.
- Data-lite public Wi-Fi hotspots at libraries/taxi ranks/community halls; device-charging benches; youth digital micro-courses.

5.11.4. MEDIUM/LONG-TERM RECOMMEDNATIONS (5–20 YRS)

- Place-based workforce development pathways: school-to-work pipelines linked to tourism, agro-processing, green jobs and public works.
- Settlement cluster service hubs: co-locate social services (clinic, social worker days, ECD support, adult education) with safe NMT access.
- SMME finance and incubation partnerships (SEFA, SEDA, EDTEA) anchored in municipal facilities; micro-industrial parks/light-industrial land release in priority towns.

6. BUILT ENVIRONMENT ANALYSIS

6.1. CROSS BORDER ANALYSIS

Cross-border analysis is a critical component of municipal spatial planning as it allows planners to understand the interdependencies between neighbouring municipalities and to identify opportunities for regional collaboration. The Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM) is strategically located within the southern part of uMgungundlovu District and shares borders with Impendle, Ubuhlebezwe, Msunduzi, Greater Kokstad, Richmond, and uMzimkhulu Local Municipalities. These municipalities influence NDZ through shared ecosystems, cross-border infrastructure networks, and service facilities accessed by residents across boundaries.

6.1.1. THE DISTRICT MUNICIPALITY

The Harry Gwala District SDF adopts a service center approach, which is a central-based theory identifying highly accessible areas with opportunities for economic development and service catchment. The key nodal points identified for Dr Nkosazana Dlamini Zuma include:

- Underberg/Himeville: These areas have high potential for economic development, growth, and expansion. They serve the sub-regional economy of the district and are prime locations for higher-order office and small retail development, offering a variety of goods, services, and specialty products. Higher density residential development should be integrated into the environment, with business development on the ground floor in business areas. Investment in the quality of the public environment and good urban management is crucial for retaining existing and attracting new high-order business activities. Land uses focus on local business development and the provision of community and social services. Detailed urban planning studies, such as Urban Regeneration Plans, have been conducted for these primary nodes, indicating the infrastructural and service requirements for growth and expansion.
- Donnybrook, Riverside, and Bulwer: These are identified as secondary nodes, providing key educational, economic, and community services to surrounding communities. A range of service and economic activities can be concentrated within these areas sustainably. They are usually located in accessible areas, sometimes within acceptable walking distances for particular communities. Precinct planning for these urban centers aims to formalize, organize, attract, and promote sustainable social and economic development.
- Creighton: Identified as a tertiary node, Creighton has lower potential economic activity and primarily provides services to the local economy. Proper formalization in terms of planning and development control is required to enhance its development potential.

Kilmon, Centacow, Polela, and Buckland Farm are designated as Rural Service Centres. These rural service nodes represent the lowest order of locality, where a range of service and economic activities can be sustainably concentrated. They are the most accessible locations within an acceptable distance for communities. Sani Pass, Drakensberg Garden, Maraqwa Forest, Hela Hela, and Bushman's Nek are identified as Tourism Nodes. These areas are attractive, offer good views, provide a sense of "being in the mountains," and have potential for resource-oriented activities. They have ready access to wilderness and natural areas through controlled points. All these nodes are on private land, adjacent to the UDP, and accessible to public entry points to the park.



MAP 11: HARRY GWALA DISTRICT SDF

6.1.2. IMPENDLE-NDZ BORDER ANALYSIS

The Impendle Local Municipality (ILM) lies directly north-west of the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM), forming part of the uMgungundlovu District, while NDZ is in the Harry Gwala District. The two municipalities share an extensive border defined by mountainous terrain, valleys, and dispersed rural settlements. On the NDZ side, settlements such as Bulwer, Kilmun, and Ncwadi lie closest to the boundary, while Impendle's Impendle Village, KwaNovuka, and Elandskop represent its main border settlements. The shared border is not merely administrative but represents a zone of interaction, where residents often cross into neighbouring municipalities for schooling, healthcare, markets, and social ties.

Both municipalities are predominantly rural, with scattered homestead settlement patterns under traditional authority areas, though NDZ is larger in population and land area. The border region thus serves as a transition zone between Impendle's smaller, isolated settlements and NDZ's larger nodal centres such as Bulwer and Underberg. This interface creates both opportunities for shared development and challenges of service duplication, uneven infrastructure provision, and environmental management.

6.1.2.1. ENVIRONMENTAL CROSS-BORDER CONDITIONS

BIODIVERSITY AND CONSERVATION: The Impendle–NDZ border traverses' areas of significant biodiversity value, including grassland ecosystems, wetlands, and forest patches. The Impendle Nature Reserve, located just north of the border, forms a key biodiversity asset linked to NDZ's Bulwer forests and Drakensberg catchment systems. These areas are part of larger ecological corridors stretching towards the uKhahlamba Drakensberg Park World Heritage Site, an internationally recognised conservation zone that influences tourism and environmental management priorities on both sides of the boundary.

The catchment areas along this border feed into rivers such as the uMngeni, uMkhomazi, and smaller tributaries, which supply downstream users in Pietermaritzburg and Durban. The ecological interdependence highlights that deforestation, overgrazing, and poor land management in Impendle directly affect NDZ's ecosystems and water availability, and vice versa.

ENVIRONMENTAL RISKS: Both municipalities face shared environmental risks:

- Soil erosion and land degradation are severe due to steep slopes, uncontrolled grazing, and woodlot harvesting.
- Deforestation and the spread of alien invasive plants reduce water yields in shared catchments.
- Climate change impacts, such as increased rainfall variability, droughts, and higher temperatures, threaten both agricultural productivity and settlement resilience.
- Fire risk is high in dry winter months, often spreading across boundaries, damaging grazing land and threatening homesteads.

OPPORTUNITIES FOR ENVIRONMENTAL COLLABORATION: The shared ecological context creates opportunities for joint interventions:

- Catchment rehabilitation projects (alien clearing, wetland protection) could be coordinated to maximise impact.
- Community-based natural resource management programmes, particularly those supported by provincial and national government (e.g., Working for Water, Working on Fire), could be rolled out jointly across the Impendle–Bulwer interface.
- Eco-tourism expansion linked to Impendle Nature Reserve and Bulwer–Drakensberg hiking trails could create new income streams while supporting conservation.

6.1.2.2. INFRASTRUCTURE CROSS-BORDER LINKAGES

ROAD NETWORKS: Transport connectivity between Impendle and NDZ is weak, though crucial. The primary link is a district road connecting Impendle Village to Bulwer, which continues southward towards Underberg. This road, while strategically important, is poorly maintained, mostly gravel, and prone to erosion and washouts in rainy seasons. Secondary gravel roads link smaller settlements (KwaNovuka, Elandskop, Kilmun), but these are often impassable in adverse weather.

The R617, the regional arterial running from Pietermaritzburg through Bulwer to Underberg, lies just east of the Impendle border and provides a critical link to markets and tourism destinations. However, Impendle residents often must travel long distances over poor gravel roads to access this tarred route via Bulwer.

PUBLIC TRANSPORT AND MOBILITY: Public transport in the border area is dominated by minibus taxis, with routes connecting Bulwer to Impendle Village and onward to Pietermaritzburg. However, services are irregular, costly for rural households, and constrained by poor road conditions. Freight movement (mainly agricultural produce and timber) is minimal compared to NDZ's corridors but still uses the Bulwer link as the primary outlet.

ENERGY, WATER, AND ICT INFRASTRUCTURE: Cross-border infrastructure networks for energy and water are limited. Electricity coverage exists in major settlements, but outages are frequent and rural coverage incomplete. Shared water infrastructure is absent, though both municipalities depend on the same catchments. ICT and mobile connectivity are patchy, particularly in mountainous zones, creating cross-border communication gaps.

INFRASTRUCTURE IMPLICATIONS

- Poor connectivity undermines regional integration between Impendle and NDZ.
- Weak road infrastructure isolates rural communities, limiting access to NDZ's stronger service nodes (Bulwer, Underberg).
- Lack of ICT and transport infrastructure hinders potential for joint tourism initiatives.

6.1.2.3. SOCIAL FACILITIES CROSS-BORDER DYNAMICS

SCHOOLS AND EDUCATION: Impendle's education infrastructure is limited, with few secondary schools and mostly small, under-resourced primary schools. NDZ residents in border settlements often share facilities with Impendle communities, and vice versa. Bulwer's secondary schools and boarding facilities are critical for learners from Impendle, as the nearest higher-order education facilities in Impendle Village are insufficient.

HEALTHCARE: Health facilities are sparse in Impendle, with only one community health centre and a handful of clinics. Residents frequently cross into NDZ, especially Bulwer, for healthcare. Higher-level services (district hospitals) are accessed in Pietermaritzburg or Ixopo, reinforcing regional dependencies.

POLICING AND SECURITY: Impendle police services are limited, while NDZ's Bulwer SAPS station provides broader coverage across the border. Stock theft, a major crime in the region, necessitates cross-border policing coordination, which is currently inconsistent.

RECREATION AND COMMUNITY FACILITIES: Community halls and recreational grounds are few in Impendle. Bulwer and Underberg serve as cultural and sporting hubs for border residents. This creates shared functional catchments, highlighting the uneven provision of social facilities across the two municipalities.

6.1.2.4. ECONOMIC AND SETTLEMENT LINKAGES

AGRICULTURE: Both Impendle and NDZ are heavily reliant on agriculture, though NDZ has more commercial farming. Impendle's economy is small-scale, focused on livestock, subsistence crops, and limited timber. NDZ's dairy and beef sectors dominate Bulwer and Underberg. The cross-border dynamic is one of economic asymmetry: NDZ's larger commercial base provides markets, while Impendle's farmers remain marginalised and dependent.

TOURISM: Impendle Nature Reserve and Bulwer's forests/Drakensberg foothills present a joint eco-tourism corridor opportunity. Hiking, birdwatching, and cultural tourism could be integrated into cross-municipal packages. Currently, tourism in Impendle is underdeveloped due to weak infrastructure and limited investment.

INFORMAL ECONOMY AND LABOUR MOBILITY: Labour mobility is significant. Many Impendle residents commute to NDZ towns (Bulwer, Underberg) for seasonal or domestic work. Informal trading occurs at cross-border taxi ranks and markets. These dynamics highlight NDZ's role as a regional service and economic hub for its smaller neighbour.

SETTLEMENT LINKAGES: Border settlements — Bulwer (NDZ), Impendle Village (ILM), KwaNovuka, Kilmun, Ncwadi, and Elandskop — form a settlement cluster with overlapping functional catchments. NDZ's nodal centres (Bulwer, Underberg) attract residents from Impendle for services, markets, and social amenities.

6.1.2.5. CHALLENGES OF SPATIAL INTEGRATION

- Infrastructure Deficits: Gravel roads and poor transport links isolate Impendle from NDZ's nodes, hindering economic integration.
- Service Gaps: Residents rely on cross-border facilities, but planning is uncoordinated, leading to uneven access.
- Economic Asymmetry: NDZ dominates as a service and commercial hub, while Impendle remains peripheral, exacerbating inequalities.
- Environmental Risks: Shared catchments face degradation due to weak land management on both sides.
- Institutional Weakness: Coordination between the two municipalities is minimal, despite functional linkages.

6.1.2.6. OPPORTUNITIES FOR COLLABORATION

- Joint Eco-Tourism Initiatives: Linking Impendle Nature Reserve with Bulwer–Underberg–Drakensberg attractions.
- Shared Catchment Management: Joint programmes for soil conservation, wetland rehabilitation, and fire management.
- Agricultural Support Partnerships: NDZ's commercial farmers could provide extension services, mentorship, and market linkages to Impendle's smallholders.
- Transport Upgrades: Investment in the Impendle–Bulwer road would unlock cross-border mobility.
- Shared Social Facilities: Coordinated provision of schools and clinics to serve cross-border catchments.

6.1.2.7. POLICY AND PLANNING ALIGNMENT

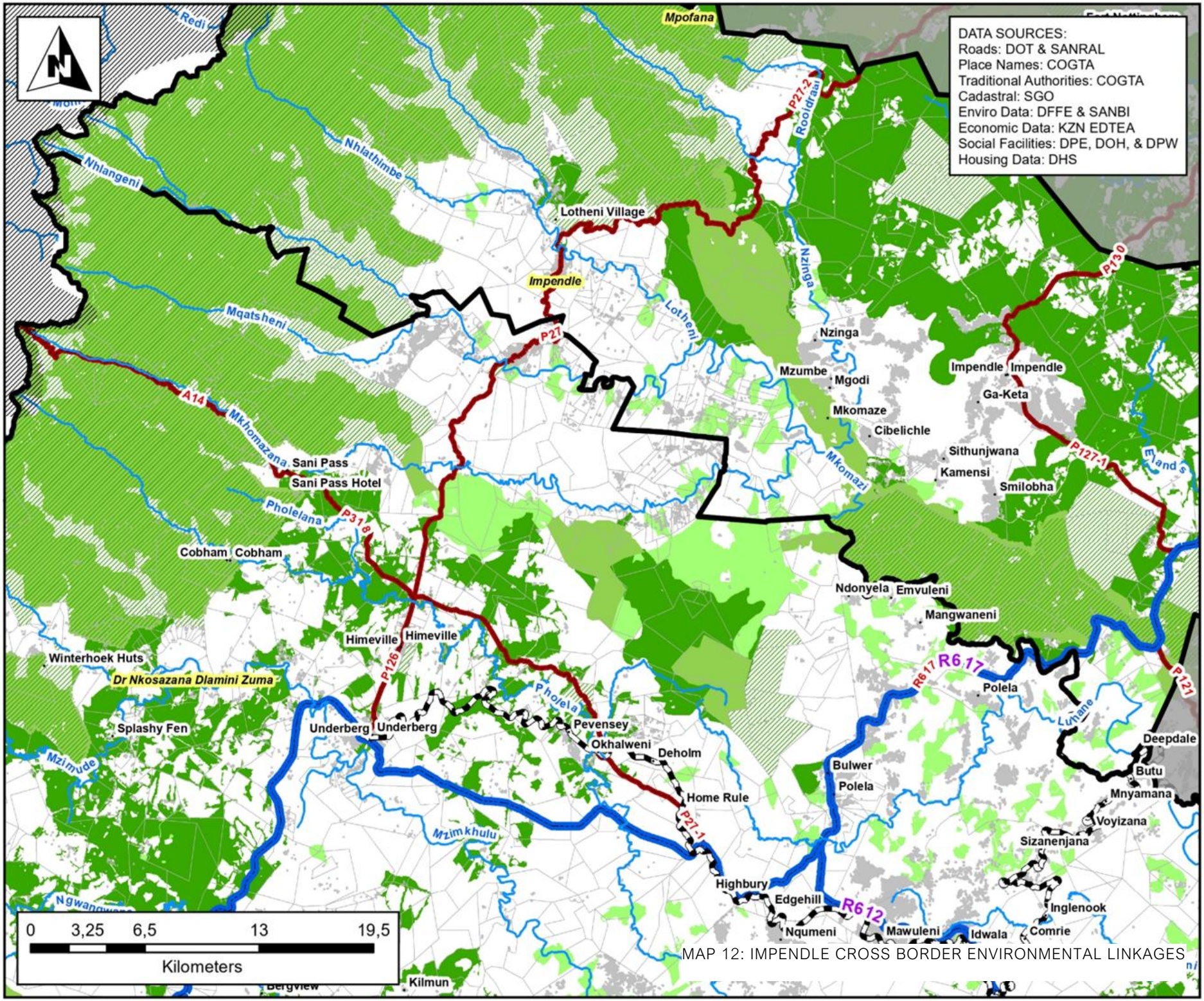
- SPLUMA (2013): Calls for spatial integration, equity, and sustainability — all directly relevant to cross-border coordination.
- KZN Provincial SDF (2021): Identifies NDZ–Impendle interface as a strategic agricultural and eco-tourism corridor.
- Impendle IDP (2022–2027): Prioritises improved road access, environmental conservation, and rural development.
- NDZ IDP (2022–2027): Emphasises nodal development (Bulwer, Underberg) and rural service access.

6.1.2.8. PLANNING IMPLICATIONS FOR NDZ'S SDF

- **Nodal Reinforcement**: NDZ's Bulwer and Underberg should be planned as service hubs not only for internal wards but also for Impendle's residents.
- **Corridor Development**: Upgrading the Impendle–Bulwer road must be prioritised as a regional connector.
- **Cross-Border Service Planning**: Health, education, and policing must be coordinated to reflect shared functional catchments.
- **Environmental Integration**: Joint planning for catchment protection and eco-tourism corridors must be embedded in both municipalities' SDFs.
- **Equity Measures**: NDZ should support regional strategies that reduce Impendle's marginalisation, promoting balanced development.







MAP 12: IMPENDLE CROSS BORDER ENVIRONMENTAL LINKAGES

A Better Place for All

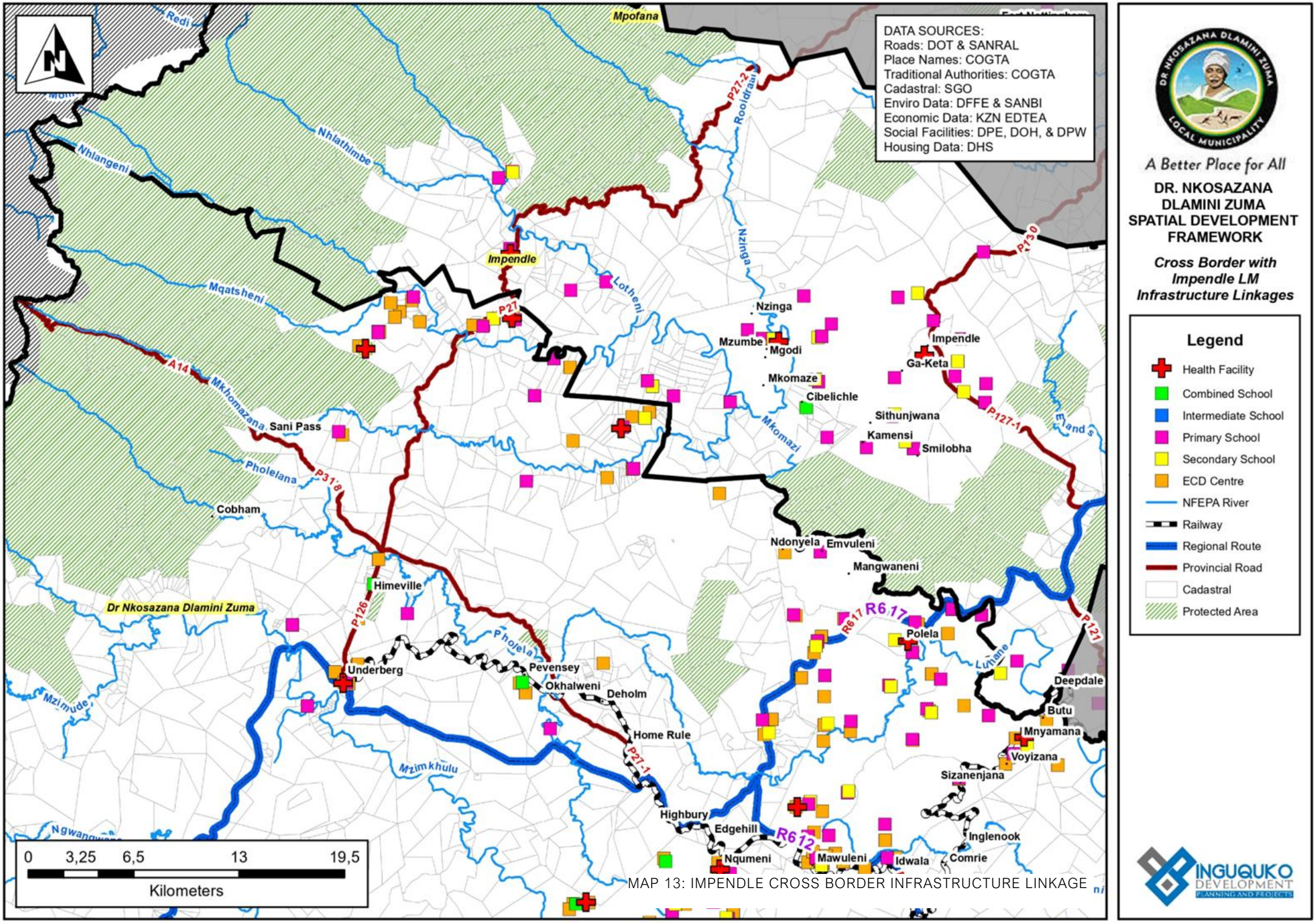
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Cross Border with Impendle LM Environmental Linkages

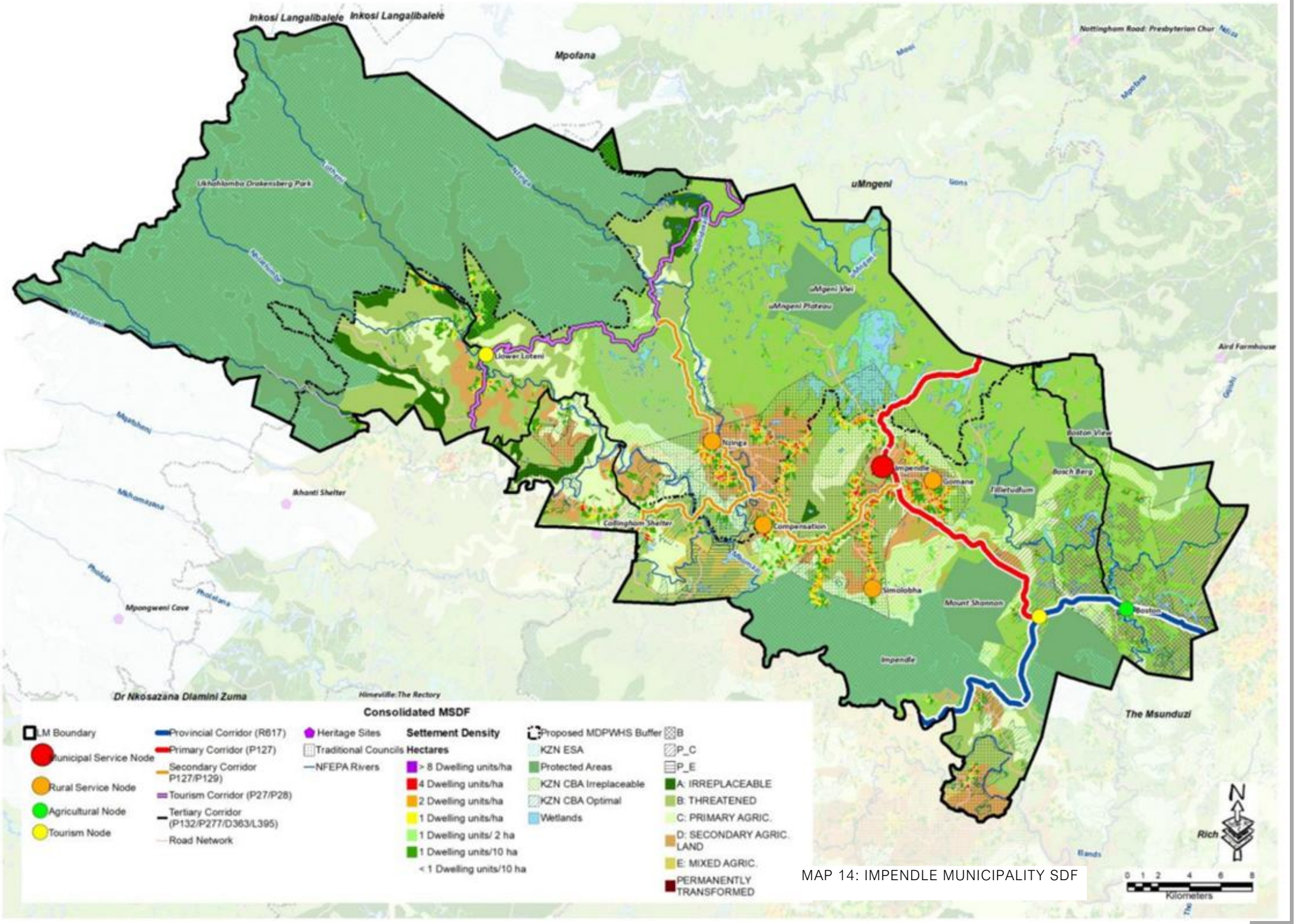
Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- CBA: Irreplaceable
- CBA:Optimal
- ESA

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MAP 13: IMPENDLE CROSS BORDER INFRASTRUCTURE LINKAGE



MAP 14: IMPENDLE MUNICIPALITY SDF

6.1.3. UBUHLEBEZWE-NDZ BORDER ANALYSIS

The Ubuhlebezwe Local Municipality (ULM) lies to the east of the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM) and forms part of the Harry Gwala District, as does NDZ. The shared border runs through rural landscapes, forestry plantations, and agricultural land, with settlements such as Donnybrook and Creighton (NDZ side) and Ixopo, Hlokozi, and Highflats (Ubuhlebezwe side) lying in proximity. Ixopo, the seat of Ubuhlebezwe, functions as a regional service hub and is an important urban centre for NDZ residents in the eastern wards.

The cross-border area is shaped by strong functional linkages: residents from NDZ depend on Ixopo for higher-order services such as hospitals, tertiary schools, and administrative functions, while Ubuhlebezwe benefits from agricultural flows and forestry production extending from NDZ. The interface is not only geographic but deeply functional, with daily movement across municipal lines for schooling, health care, shopping, and employment.

6.1.3.1. ENVIRONMENTAL CROSS-BORDER CONDITIONS

BIODIVERSITY AND CONSERVATION: The Ubuhlebezwe–NDZ border encompasses ecologically sensitive areas, including river valleys, wetlands, and forested zones. Key rivers include the uMzimkhulu and Ixopo Rivers, which traverse both municipalities, creating shared catchments. These rivers are critical for irrigation, livestock, and domestic use, and downstream flows impact water users in the Sisonke and eThekwini regions.

Forestry plantations dominate large tracts of land near Donnybrook, Creighton, and Ixopo, creating a shared forestry economy but also driving land use pressures, such as soil compaction, water consumption, and habitat loss. Patches of indigenous forest and wetland corridors along the border remain important for biodiversity, providing habitats for birds, small mammals, and medicinal plants used by rural communities.

Environmental Risks: Environmental risks are acute and cross-border in nature:

- Deforestation and alien invasive species threaten the catchment integrity of the uMzimkhulu system.
- Soil erosion and gully formation are widespread due to steep slopes, uncontrolled grazing, and poor agricultural practices.
- Climate change impacts, such as erratic rainfall, flooding, and droughts, affect both municipalities' agricultural sectors.
- Wetland degradation reduces water storage and filtration capacity, increasing vulnerability to floods downstream.

OPPORTUNITIES FOR COLLABORATION

- Catchment management initiatives along the uMzimkhulu and Ixopo Rivers could be jointly managed.
- Forestry stewardship programmes could be coordinated to balance economic value with ecological restoration.
- Eco-tourism opportunities exist in linking NDZ's Creighton steam train and rural landscapes with Ubuhlebezwe's cultural and natural attractions.

6.1.3.2. INFRASTRUCTURE CROSS-BORDER LINKAGES

ROAD NETWORKS: The primary infrastructure linkage is the R612, which runs from Donnybrook (NDZ) through Ixopo (Ubuhlebezwe) to Highflats and Umzinto on the coast. This road is vital for agricultural freight (dairy, timber, beef) and provides NDZ residents with direct access to Ixopo's services.

Another key route is the R56, connecting Ixopo to Kokstad and Pietermaritzburg, indirectly serving NDZ residents who use Ixopo as a transport hub. Secondary gravel roads connect rural settlements on both sides, but these are poorly maintained and impede integration.

PUBLIC TRANSPORT AND MOBILITY: Ixopo serves as a regional taxi hub, linking NDZ settlements (Creighton, Donnybrook) to Durban, Kokstad, and Pietermaritzburg. Taxi routes are critical for labour mobility, school attendance, and access to services. Bus services exist but are limited. Poor rural road quality inflates transport costs, disproportionately affecting low-income households.

UTILITIES AND ICT: Shared infrastructure for energy and water is limited, though both municipalities rely on the uMzimkhulu River catchment. Electricity coverage is high in urban centres but incomplete in dispersed rural settlements. Mobile and internet connectivity are stronger in Ixopo than in NDZ's eastern rural wards, creating digital disparities that affect education and business competitiveness.

INFRASTRUCTURE IMPLICATIONS

- The R612 represents a critical regional corridor, but its condition requires upgrading.
- Rural accessibility remains poor, hindering integration of peripheral settlements into regional economies.
- The reliance on Ixopo for regional connectivity highlights NDZ's dependence on Ubuhlebezwe's infrastructure.





6.1.3.3. SOCIAL FACILITIES CROSS-BORDER DYNAMICS

EDUCATION: Ixopo hosts secondary schools, technical high schools, and private schools, which attract learners from NDZ, particularly from Donnybrook, Creighton, and surrounding areas. NDZ's own secondary schools are fewer and less resourced, reinforcing dependence on Ixopo's higher-order facilities.

HEALTHCARE: The Ixopo Hospital and associated clinics are critical for NDZ residents. While NDZ has community health centres in Creighton and Bulwer, complex cases are referred to Ixopo. This creates a shared healthcare catchment but also places pressure on Ubuhlebezwe's health system.

POLICING AND SAFETY: The Ixopo SAPS station serves as a higher-order policing node, supplementing NDZ's smaller police stations. Cross-border crime, particularly stock theft and illicit timber harvesting, requires joint policing strategies.

RECREATION AND COMMUNITY FACILITIES: Ixopo has formal sporting facilities, a library, and cultural venues not available in NDZ's smaller nodes. NDZ residents cross into Ixopo for recreational and cultural events, highlighting unequal distribution of amenities across the border.

6.1.3.4. ECONOMIC AND SETTLEMENT LINKAGES

AGRICULTURE AND FORESTRY: The Ubuhlebezwe–NDZ border is an agricultural heartland, dominated by dairy, beef, and forestry. NDZ's Creighton–Donnybrook corridor is characterised by dairy farming and timber plantations, which link directly to Ubuhlebezwe's forestry mills and markets in Ixopo. This creates a shared value chain but also fosters competition for water, land, and markets.

TOURISM: Tourism opportunities exist but remain underdeveloped. NDZ's Creighton steam train is a flagship attraction that draws visitors into Ubuhlebezwe. Ixopo, with its cultural and heritage sites (including the Alan Paton Museum), complements NDZ's rural tourism potential. A joint tourism corridor could be developed, integrating cultural, agricultural, and eco-tourism.

INFORMAL ECONOMY AND LABOUR MOBILITY: Ixopo's taxi ranks and retail sector provide income opportunities for NDZ traders. Labour mobility is high, with many NDZ residents working in Ixopo's shops, schools, and government offices. Informal cross-border trade in food, timber, and household goods is common.

SETTLEMENT LINKAGES: Key settlements along the border include:

- Donnybrook (NDZ) – linked to Ixopo via the R612.
- Creighton (NDZ) – a secondary node with agricultural markets feeding into Ixopo.
- Ixopo (Ubuhlebezwe) – the main service hub.
- Hlokozi and Highflats (Ubuhlebezwe) – rural settlements with cross-border kinship and economic ties.

6.1.3.5. CHALLENGES OF SPATIAL INTEGRATION

- Service Dependency: NDZ residents rely heavily on Ixopo for services, undermining NDZ's internal nodal development.
- Infrastructure Gaps: Poor rural roads limit integration and raise transport costs.
- Environmental Stress: Shared catchments face degradation from forestry and agriculture.
- Economic Asymmetry: Ubuhlebezwe, through Ixopo, dominates higher-order functions, while NDZ remains peripheral.
- Institutional Fragmentation: Limited coordination between municipalities results in unaligned infrastructure and social facility planning.

6.1.3.6. OPPORTUNITIES FOR COLLABORATION

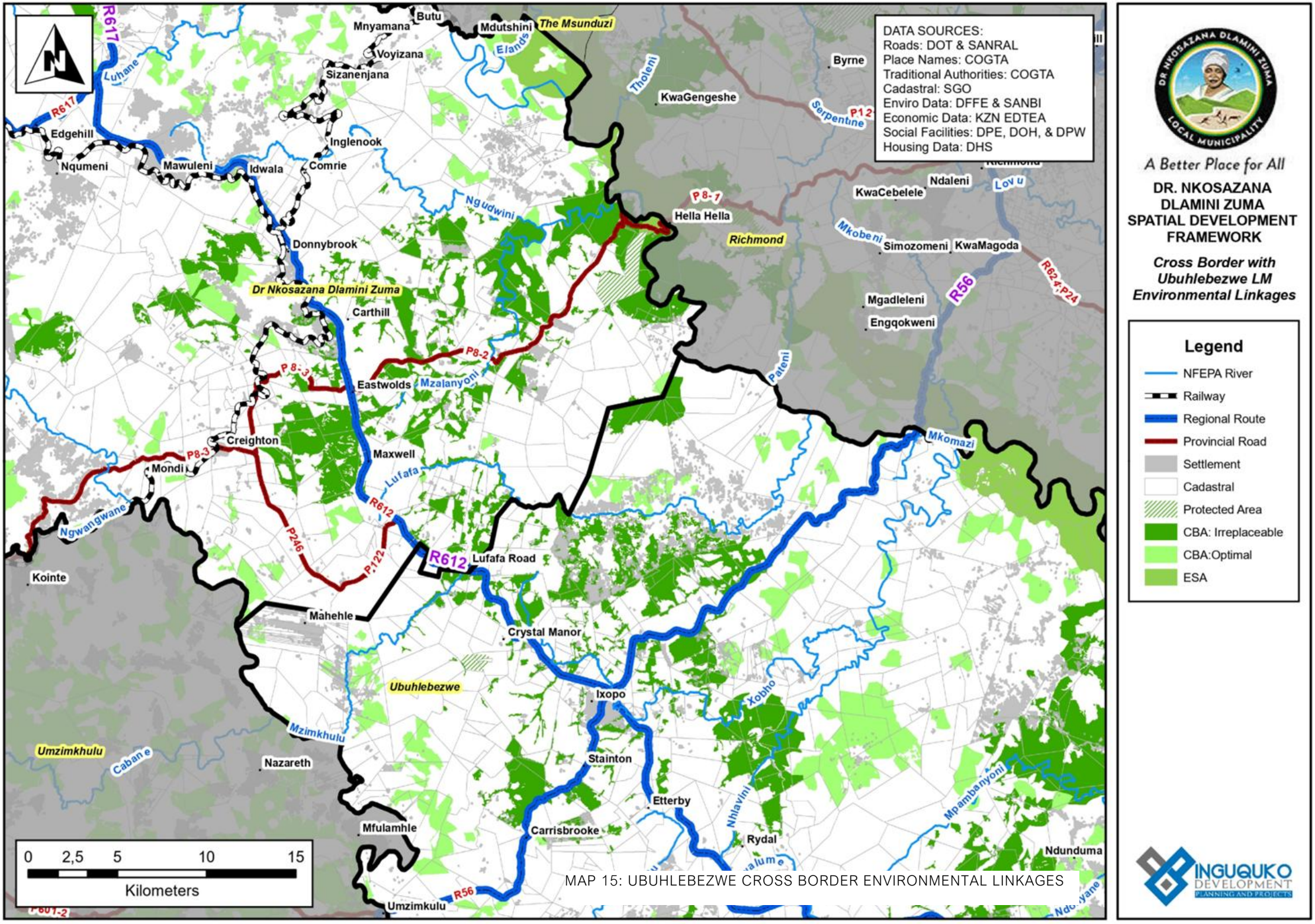
- **Regional Corridor Development**: Upgrading and maintaining the R612 could unlock agricultural, forestry, and tourism flows.
- **Joint Tourism Packages**: Integrating the Creighton steam train with Ixopo cultural sites to attract domestic and international tourists.
- **Shared Agricultural Value Chains**: Coordinating timber and dairy processing facilities to benefit both municipalities.
- **Cross-Border Social Facilities**: Formalising shared access to hospitals and schools through district-level planning.
- **Environmental Stewardship**: Coordinated catchment management for the uMzimkhulu and Ixopo Rivers.

6.1.3.7. POLICY AND PLANNING ALIGNMENT

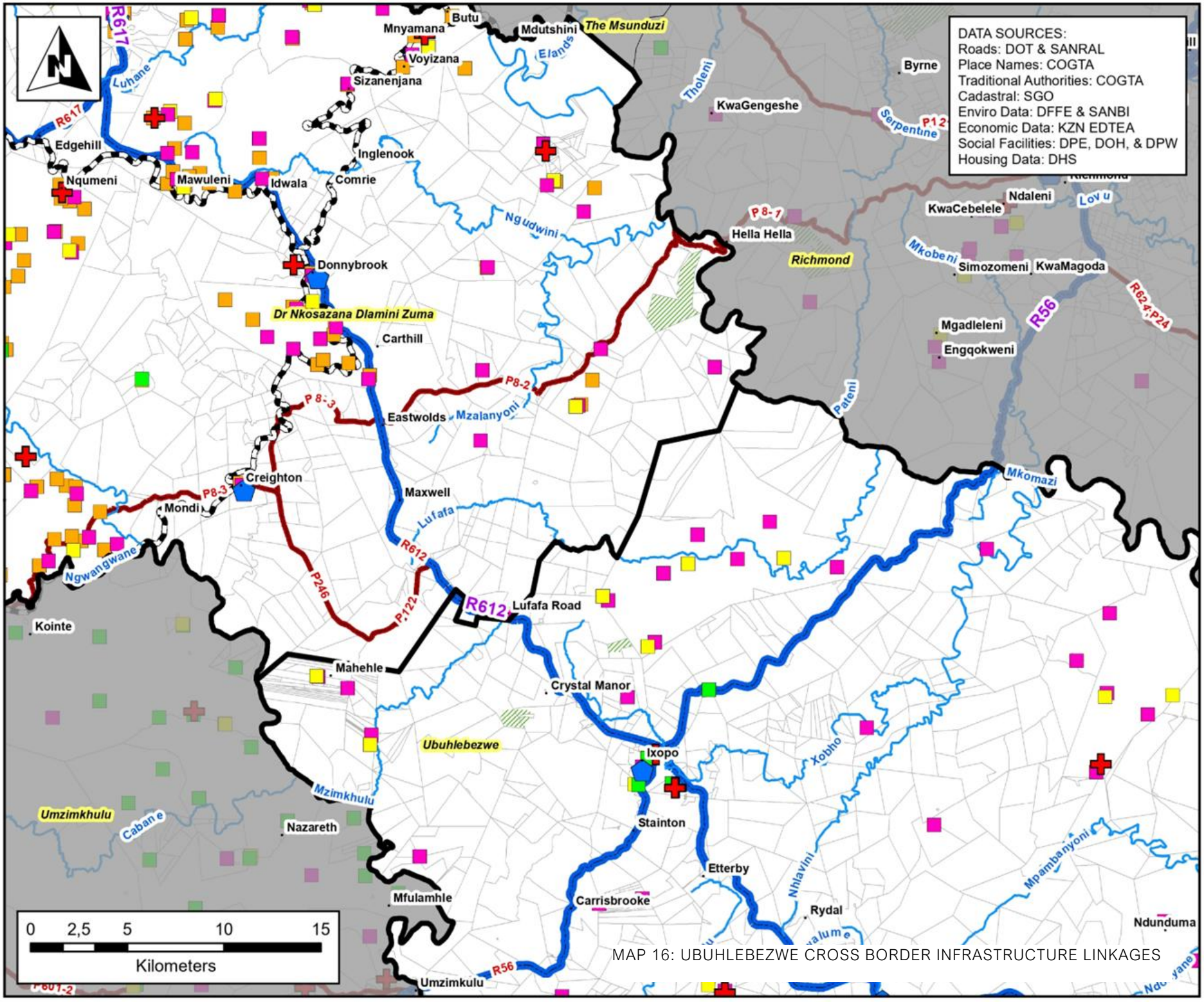
- **SPLUMA (2013)**: Supports spatial integration and equitable access to services across municipal boundaries.
- **KZN Provincial SDF (2021)**: Identifies Ixopo as a provincial rural service centre and the R612 corridor as strategic for agricultural and forestry value chains.
- **Ubuhlebezwe IDP (2022–2027)**: Prioritises infrastructure upgrades, social service delivery, and agro-processing development.
- **NDZ IDP (2022–2027)**: Highlights Donnybrook–Creighton as economic zones but acknowledges dependence on Ixopo.

6.1.3.8. PLANNING IMPLICATIONS FOR NDZ'S SDF

- **Strengthen Secondary Nodes**: NDZ's Creighton and Donnybrook must be developed to reduce over-dependence on Ixopo.
- **Leverage Ixopo as a Regional Hub**: Accept and plan for Ixopo's dominance by creating complementary, not competitive, roles for NDZ nodes.
- **Prioritise Corridor Development**: Invest in the R612 and supporting rural roads as lifelines for economic and social integration.
- **Joint Facility Planning**: Engage with Ubuhlebezwe to co-plan hospitals, schools, and recreational facilities serving cross-border communities.
- **Promote Balanced Growth**: Ensure that NDZ benefits from regional forestry and dairy value chains through targeted agro-processing investment.



MAP 15: UBUHLEBEZWE CROSS BORDER ENVIRONMENTAL LINKAGES



MAP 16: UBUHLEBEZWE CROSS BORDER INFRASTRUCTURE LINKAGES

A Better Place for All

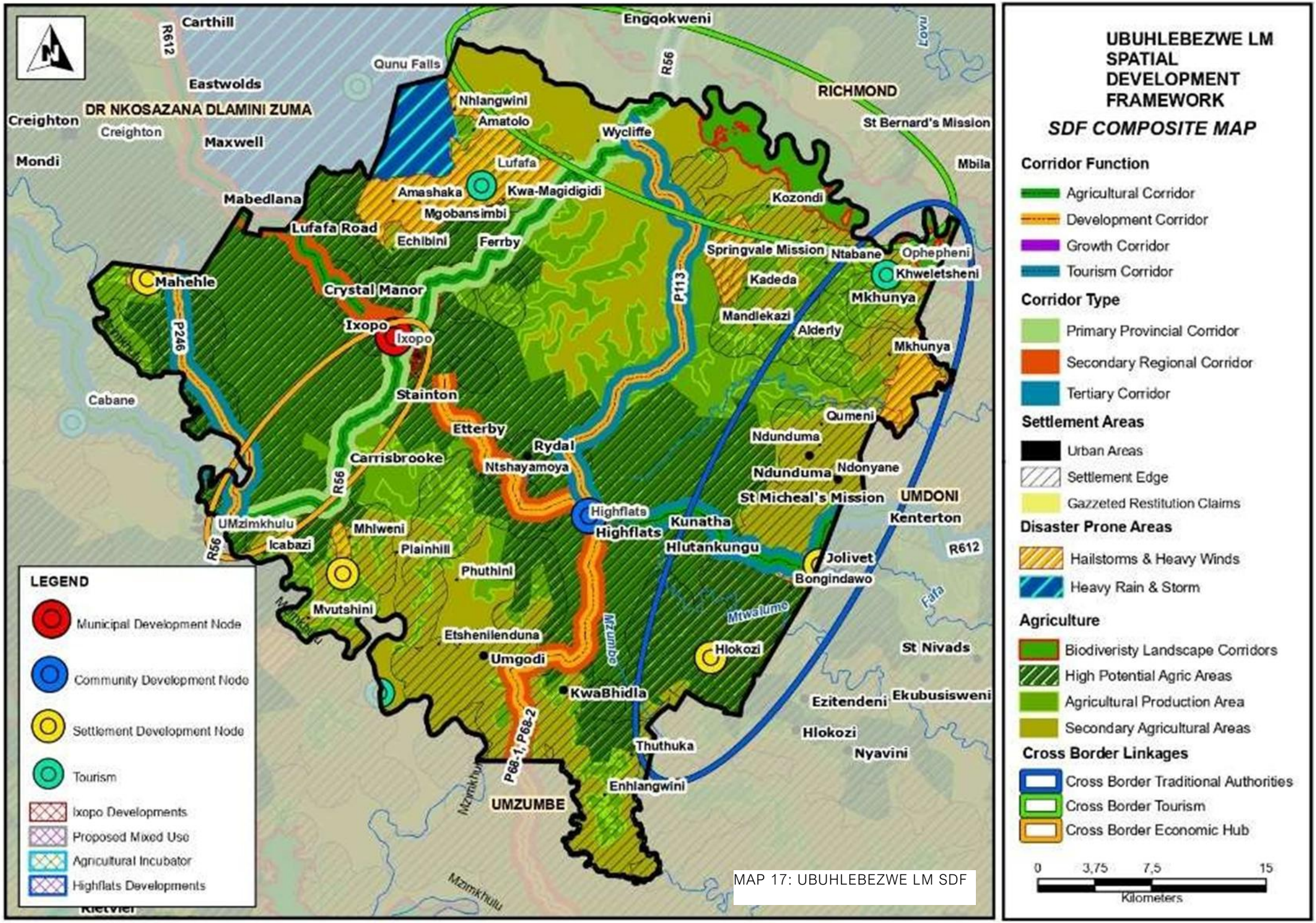
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Cross Border with Ubuhlebezwe LM Infrastructure Linkages

Legend

- Police Station
- Health Facility
- Combined School
- Intermediate School
- Primary School
- Secondary School
- ECD Centre
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Cadastral
- Protected Area

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MAP 17: UBUHLEBEZWE LM SDF

6.1.4. GREATER KOKSTAD-NDZ BORDER ANALYSIS

The Greater Kokstad Local Municipality (GKLM) lies south-east of the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM) within the Harry Gwala District. It is strategically located on the N2 and R56 national corridors, functioning as a gateway between KwaZulu-Natal and the Eastern Cape. Kokstad town itself has grown into a regional service hub with strong retail, logistics, and administrative functions, serving not only Harry Gwala District but also parts of Alfred Nzo District in the Eastern Cape.

For NDZ, the most significant interface is through the Creighton–Kokstad corridor, where residents depend on Kokstad for higher-order services, retail, and healthcare. While Underberg and Bulwer link NDZ northwards to Msunduzi and Impendle, Creighton looks south-eastward, with Kokstad acting as its primary service and economic anchor. This cross-border relationship is central to understanding NDZ's settlement hierarchy and regional integration.

6.1.4.1. ENVIRONMENTAL CROSS-BORDER CONDITIONS

BIODIVERSITY AND CONSERVATION: The NDZ–Kokstad interface is characterised by upland grasslands, forestry plantations, and river valleys. The Mzimkhulu River, which flows eastwards through Creighton towards Ixopo and beyond, forms an important ecological corridor connecting both municipalities. Wetlands and grassland systems in this area provide water regulation and grazing functions, while plantations dominate certain valleys. The uKhahlamba–Drakensberg Park World Heritage Site, located further west, indirectly supports eco-tourism flows into Kokstad, as many tourists combine visits to the Drakensberg with stopovers in Kokstad on their way to the Wild Coast.

ENVIRONMENTAL RISKS:

- Soil erosion and overgrazing in NDZ's Creighton wards have downstream impacts on Kokstad's rivers and agricultural land.
- Deforestation and alien invasive plants threaten biodiversity and reduce water yields across shared catchments.
- Climate variability (erratic rainfall, frost in uplands, drought cycles) affects both municipalities' farming systems, with cross-border implications for food security and rural livelihoods.
- Waste management challenges: informal disposal sites in NDZ spill into river systems that feed into Kokstad catchments.

OPPORTUNITIES FOR COLLABORATION

- Joint catchment rehabilitation programmes in the Mzimkhulu basin.
- Cross-border conservation corridors, linking NDZ's rural areas with Kokstad's surrounding protected areas.
- Development of eco-tourism packages connecting Creighton's rural landscapes with Kokstad's role as a tourism gateway to the Eastern Cape.

6.1.4.2. INFRASTRUCTURE CROSS-BORDER LINKAGES

ROAD NETWORKS: The R56 provides the strongest infrastructural connection, linking Creighton → Kokstad → Umzimkhulu and beyond. The R56 is a national secondary corridor that underpins economic and social integration.

The N2, which passes through Kokstad, enhances the town's regional role as a logistics and service hub. Although NDZ does not connect directly to the N2, Creighton residents use Kokstad's N2 node to access Durban, Port Shepstone, and Mthatha.

Secondary gravel roads from NDZ into Kokstad's periphery are poorly maintained, which limits rural–urban integration for smaller settlements along the border.

PUBLIC TRANSPORT AND MOBILITY: Public transport linkages between Creighton and Kokstad are dominated by minibus taxis, which provide daily commuter and shopping trips. Bus services are less reliable but exist on the R56. For NDZ residents, particularly those in rural wards, the taxi fare to Kokstad is significant but necessary for access to essential services.

UTILITIES AND ICT: Kokstad has seen significant infrastructure upgrades, including expanded electricity coverage, bulk water schemes, and 4G mobile network rollout. By contrast, NDZ's rural settlements lag in ICT and bulk service provision. The disparity reinforces dependence on Kokstad, but also opens opportunities for shared infrastructure planning, particularly bulk water and ICT corridors.

6.1.4.3. SOCIAL FACILITIES CROSS-BORDER DYNAMICS

EDUCATION: Kokstad hosts a range of secondary schools, FET colleges, and private institutions, attracting learners from NDZ, particularly from Creighton and surrounding wards. While NDZ has primary and secondary schools, access to tertiary-level training is limited. For many NDZ learners, Kokstad represents the nearest post-matric opportunity.

HEALTHCARE: The St. Patrick's Hospital in Kokstad is the major referral centre for NDZ residents in the southern wards. Local clinics in Creighton provide primary care, but for specialised treatment residents cross into Kokstad. Private doctors and pharmacies in Kokstad also serve NDZ residents.

POLICING AND SAFETY: Kokstad hosts regional policing headquarters, including specialised units for stock theft and organised crime. NDZ residents benefit indirectly from these facilities, as policing efforts extend into border areas. However, rural crime, including livestock theft, remains a persistent issue requiring stronger cross-border policing coordination.

RECREATION AND CULTURAL FACILITIES: Kokstad provides sports fields, libraries, civic centres, and retail-based recreation (cinemas, malls) not available in NDZ. Creighton residents often access these facilities, making Kokstad an important cultural and social hub.

6.1.4.4. ECONOMIC AND SETTLEMENT LINKAGES

AGRICULTURE: The Creighton–Kokstad area is one of KwaZulu-Natal's most important agricultural production zones, with dairy, beef, and timber dominating. NDZ's smallholder farmers sell produce into Kokstad's retail and logistics markets. Agro-processing facilities, such as dairy plants in and around Kokstad, rely on produce from both municipalities.

TOURISM: Tourism is less developed in Creighton compared to Underberg and Bulwer, but Kokstad serves as a transit and supply node for eco-tourists heading to the southern Drakensberg, Sani Pass, or Eastern Cape Wild Coast. Opportunities exist to create joint tourism routes (e.g., Creighton Steam Train Festival → Kokstad heritage and cultural sites → Wild Coast).

INFORMAL ECONOMY AND LABOUR MOBILITY: Many NDZ residents commute daily or weekly to Kokstad for domestic work, retail employment, and construction jobs. Informal traders from Creighton also operate in Kokstad's taxi ranks and markets, reinforcing Kokstad's role as a labour and retail magnet.

SETTLEMENT LINKAGES:

- Creighton (NDZ): the main southern node, highly dependent on Kokstad for higher-order functions.
- Kokstad town (GKLM): the dominant regional centre, attracting cross-border flows from NDZ, Umzimkhulu, and Eastern Cape.
- Smaller rural settlements (Hlutankungu, Jolivet, etc.) link indirectly to Kokstad through Creighton.

6.1.4.5. CHALLENGES OF SPATIAL INTEGRATION

- Over-dependence on Kokstad weakens Creighton's role as a service node.
- Poor secondary road conditions limit cross-border rural connectivity.
- Infrastructure and ICT disparities reinforce uneven development.
- Uncoordinated planning between districts hinders regional integration.
- Rural crime and livestock theft strain cross-border policing.

6.1.4.6. OPPORTUNITIES FOR COLLABORATION

- **Agro-processing corridors**: Strengthen value chains between Creighton farmers and Kokstad processing facilities.
- **Tourism development**: Create integrated packages linking Creighton and Kokstad to Drakensberg and Wild Coast routes.
- **Education and skills**: Expand vocational training in Kokstad to serve NDZ learners.
- **Shared policing units**: Enhance cross-border coordination for rural crime.
- **Bulk infrastructure planning**: Explore joint water, electricity, and ICT initiatives across the NDZ–GKLM border.

6.1.4.7. POLICY AND PLANNING ALIGNMENT

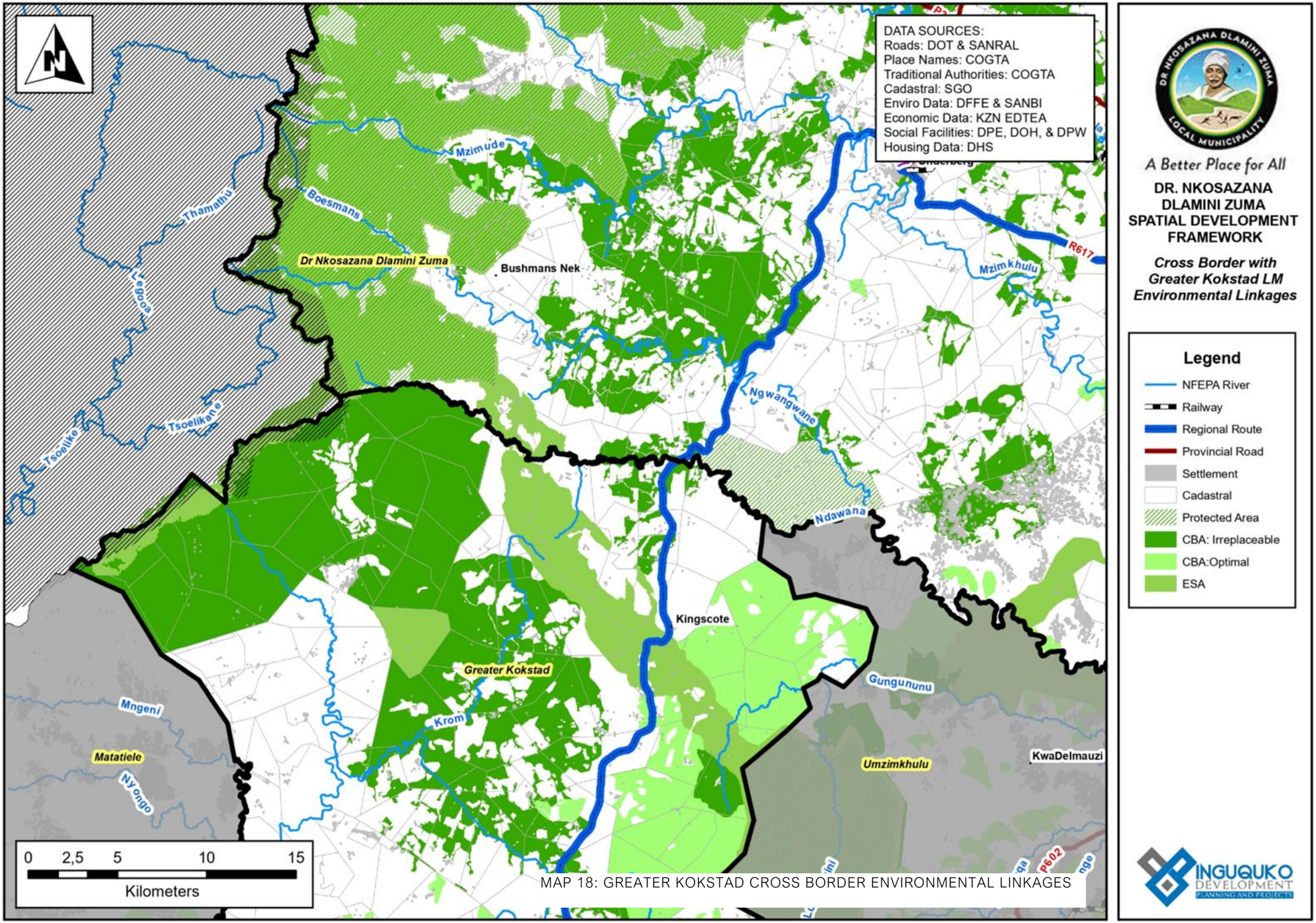
- **SPLUMA (2013)**: Calls for cross-boundary planning and integrated service delivery.
- **KZN Provincial SDF (2021)**: Identifies Kokstad as a secondary regional hub, with strong linkages to NDZ's Creighton node.
- **GKLM IDP (2022–2027)**: Prioritises logistics, agro-processing, and retail expansion.
- **NDZ IDP (2022–2027)**: Recognises Creighton's dependency on Kokstad and calls for strengthening local service nodes.

6.1.4.8. PLANNING IMPLICATIONS FOR NDZ'S SDF

- Acknowledge Kokstad's dominance for southern NDZ residents and integrate this reality into the settlement hierarchy.
- Strengthen Creighton as a complementary service node, with investment in local retail, agro-processing, and services to reduce over-dependence.
- Prioritise R56 corridor improvements, advocating for provincial investment in road upgrades.
- Leverage Kokstad's role as a skills hub by securing training partnerships for NDZ youth.
- Promote cross-border agro-processing and logistics integration to expand NDZ's agricultural economy.
- Integrate eco-tourism linkages into the SDF, positioning Creighton as part of a larger cross-border tourism circuit.

6.1.4.9. COMPARATIVE REFLECTION

Unlike the NDZ–Msunduzi interface, which is defined by metropolitan dominance and long-distance commuter flows, the NDZ–Kokstad relationship is more regionally balanced and grounded in daily functional linkages. Kokstad lacks Pietermaritzburg's scale but exerts greater immediate influence on NDZ's southern settlements. For the NDZ SDF, this means planning strategies must differentiate between metropolitan-oriented northern wards (Bulwer, Underberg → Pietermaritzburg) and regionally anchored southern wards (Creighton → Kokstad).



MAP 18: GREATER KOKSTAD CROSS BORDER ENVIRONMENTAL LINKAGES

A Better Place for All

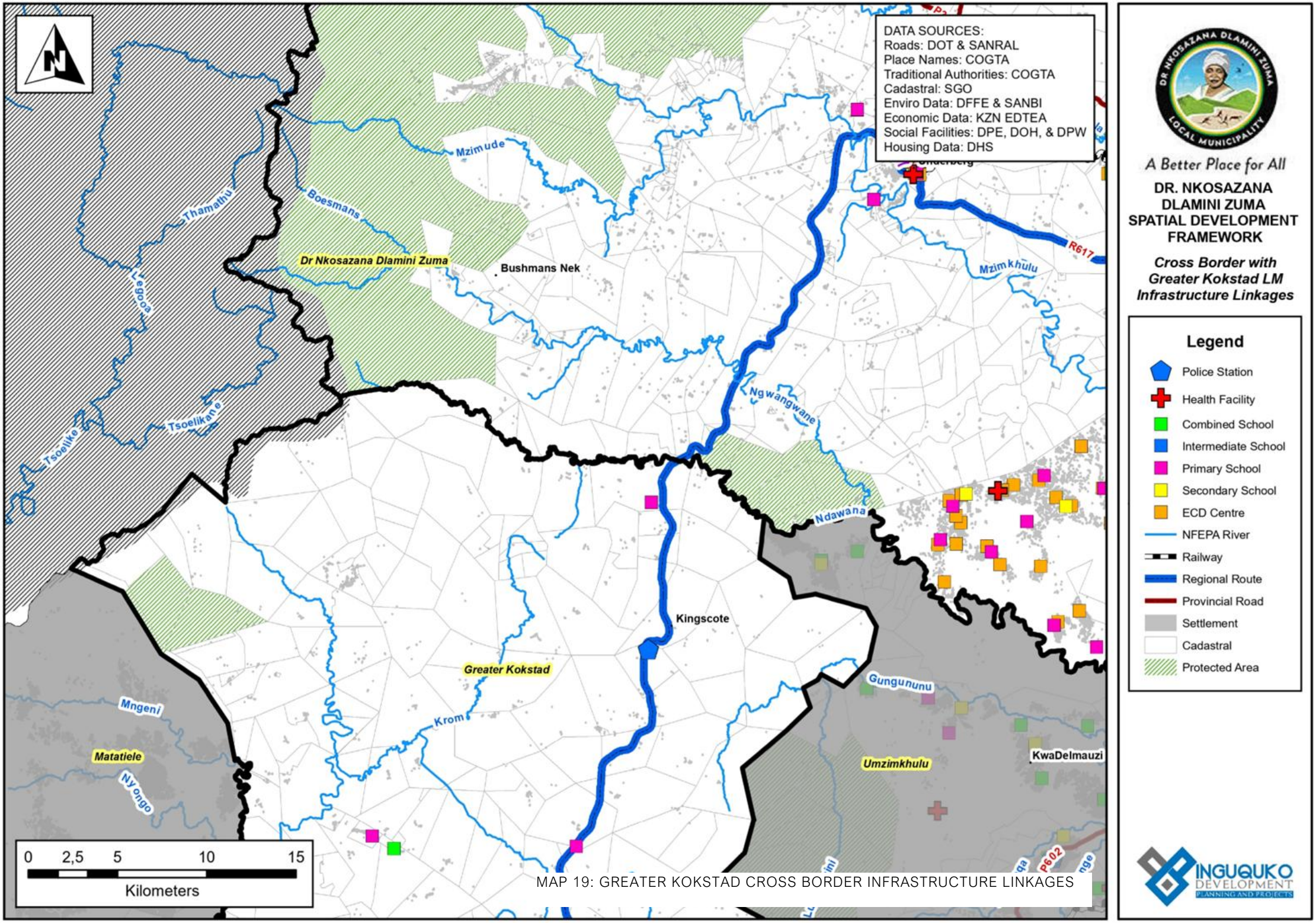
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Cross Border with Greater Kokstad LM Environmental Linkages

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- CBA: Irreplaceable
- CBA:Optimal
- ESA

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

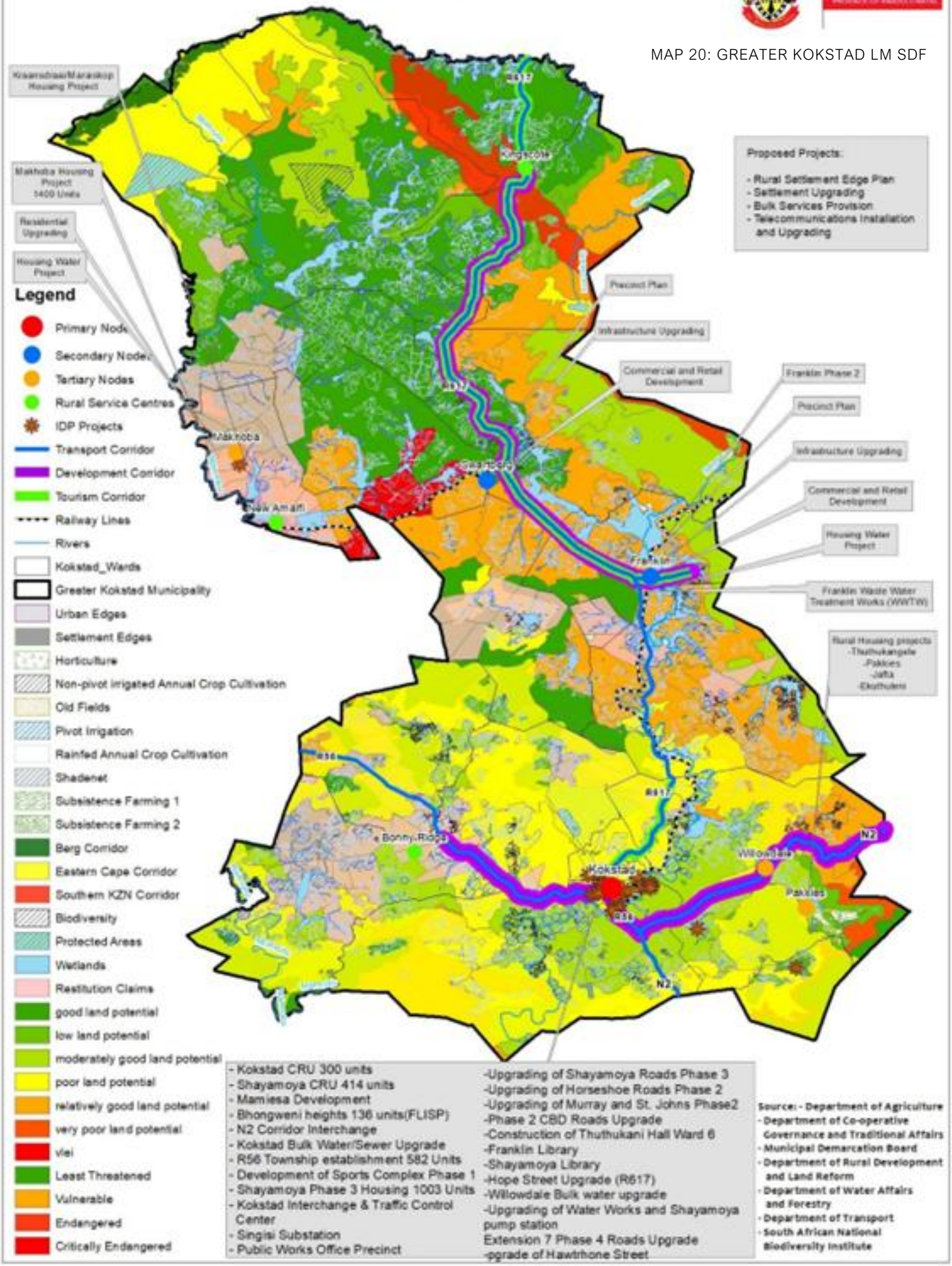


MAP 19: GREATER KOKSTAD CROSS BORDER INFRASTRUCTURE LINKAGES

SPATIAL DEVELOPMENT FRAMEWORK
2022 - 2027

GREATER KOKSTAD MUNICIPALITY

MAP 20: GREATER KOKSTAD LM SDF



6.1.5. MSUNDUZI-NDZ BORDER ANALYSIS

The Msunduzi Local Municipality (MLM), situated in the uMgungundlovu District, lies north-east of the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). Msunduzi is the administrative and economic heart of KwaZulu-Natal's interior, centred on Pietermaritzburg, which serves as the provincial capital, a major metropolitan-scale hub, and the second-largest urban economy in the province after Durban. While NDZ is rural and dispersed in settlement form, Msunduzi represents a dense urban core with metropolitan functions.

The two municipalities connect primarily through the R617 corridor, which links Pietermaritzburg → Merrivale (Howick) → Boston/Impendle → Bulwer → Underberg. The Bulwer node in NDZ is the closest service town to the Msunduzi border. Secondary interfaces occur through Elandskop and rural northern wards of Impendle, but Pietermaritzburg dominates cross-border flows.

This cross-border dynamic is defined by asymmetry: NDZ residents depend heavily on Pietermaritzburg for higher-order services, employment, and administrative functions, while Msunduzi benefits from labour inflows, agricultural produce, and tourism movements originating in NDZ.

6.1.5.1. ENVIRONMENTAL CROSS-BORDER CONDITIONS

BIODIVERSITY AND CONSERVATRION: The Msunduzi–NDZ border traverses escarpment landscapes and river catchments, including the uMngeni and uMsunduzi Rivers, which rise in upland zones near Impendle and Bulwer before flowing into Pietermaritzburg and onward to Inanda Dam in eThekwini. These rivers are lifelines for water supply to millions of downstream users, making cross-border catchment management essential.

Biodiversity features include montane grasslands, wetlands, and indigenous forest patches in the Boston–Bulwer area. These ecosystems provide critical habitats and ecosystem services such as carbon sequestration, grazing, and water purification. NDZ's southern Drakensberg catchments are ecologically connected to Msunduzi's headwaters, meaning environmental degradation in NDZ has direct impacts on Msunduzi's urban water security.

ENVIRONMENTAL RISK: Shared risks include:

- Catchment degradation from overgrazing, deforestation, and settlement sprawl.
- Alien invasive plants (wattle, gum) reducing water yields in shared rivers.
- Flooding risks in Pietermaritzburg exacerbated by upstream land-use practices in NDZ and Impendle.
- Climate change pressures, including erratic rainfall and extreme weather events.

OPPORTUNITIES AND COLLABORATION:

- Joint catchment rehabilitation programmes could be coordinated between Msunduzi and NDZ through uMgungundlovu and Harry Gwala Districts.
- Biodiversity corridors linking NDZ's Drakensberg foothills to Msunduzi's forests can support eco-tourism and conservation.
- Payment for ecosystem services schemes could see Msunduzi (and downstream metros) funding NDZ catchment protection to secure water supply.

6.1.5.2. INFRASTRUCTURE CROSS-BORDER LINKAGES

ROAD NETWORKS: The R617 corridor is the backbone of cross-border integration. It links Pietermaritzburg through Boston and Bulwer to Underberg, continuing south into the Drakensberg World Heritage Site. The road is heavily used for:

- Freight transport (timber, dairy, beef).
- Tourism flows (Pietermaritzburg–Underberg–Sani Pass).
- Daily commuter traffic from NDZ residents working in Pietermaritzburg.

While tarred, the R617 suffers from poor maintenance, potholes, and congestion around Pietermaritzburg. It is nonetheless a strategic provincial corridor linking NDZ to its metropolitan neighbour.

Secondary gravel roads connect Bulwer to Elandskop and Msunduzi's rural settlements, but these are in poor condition, limiting integration of peripheral rural households.

PUBLIC TRANSPORT AND MOBILITY: The R617 supports a robust taxi and bus network, with Pietermaritzburg's Longmarket and Rankin taxi ranks serving as hubs for NDZ commuters. Minibus taxis are the dominant mode, carrying residents from Bulwer, Underberg, and surrounding rural settlements. Buses supplement services but are irregular.

Transport costs are high relative to income levels, and poor road conditions exacerbate travel times. Yet, the corridor is indispensable for linking NDZ to provincial employment and markets.

UTILITIES AND ICT: Electricity supply is relatively secure in Msunduzi but less reliable in NDZ's rural wards. Shared water systems link the municipalities through the uMngeni catchment. ICT access is far superior in Pietermaritzburg, where 4G and fibre networks dominate, compared to NDZ's patchy mobile connectivity. This digital divide is a major barrier to NDZ's economic competitiveness.

INFRASTRUCTURE IMPLICATIONS:

- The R617 is a strategic growth corridor requiring provincial investment.
- ICT disparities limit NDZ's ability to benefit fully from Pietermaritzburg's knowledge economy.
- Infrastructure planning remains fragmented between districts, undermining coordinated development.

6.1.5.3. SOCIAL FACILITIES CROSS-BORDER DYNAMICS

EDUCATION: Pietermaritzburg hosts university campuses (UKZN, DUT), FET colleges, and top-performing secondary schools. NDZ residents depend heavily on these institutions for tertiary education, as NDZ has no local higher education facilities.

Cross-border dependency is high: NDZ's learners from Bulwer and Underberg attend boarding schools in Pietermaritzburg, while daily commuters rely on bus and taxi routes. This reinforces Pietermaritzburg's role as the educational anchor for NDZ and surrounding municipalities.

HEALTHCARE: Pietermaritzburg's Grey's Hospital, Edendale Hospital, and private medical centres are the regional health hubs. NDZ residents, especially for specialised care, are referred to these facilities. Local clinics and community health centres in NDZ provide primary care but are insufficient for complex needs.

POLICING AND SAFETY: Msunduzi hosts regional policing headquarters and specialised units. NDZ relies on Bulwer and Underberg police stations, but serious cases are escalated to Pietermaritzburg. Stock theft and rural crime are prevalent, requiring coordinated policing across municipalities.

RECREATIONAL AND CULTURAL FACILITIES: Pietermaritzburg's sports stadia, libraries, museums, and cultural centres provide higher-order facilities unavailable in NDZ. Residents travel across the border for cultural and sporting events, deepening social and functional integration.

6.1.5.4. ECONOMIC AND SETTLEMENT LINKAGES

AGRICULTURE: NDZ's dairy, beef, and forestry products flow into Pietermaritzburg's processing and retail markets. Msunduzi benefits from NDZ's agricultural outputs, while NDZ relies on Pietermaritzburg for logistics, wholesale, and retail functions.

TOURISM: The Pietermaritzburg–Underberg–Sani Pass tourism corridor is one of the most significant in KwaZulu-Natal. Visitors pass through Pietermaritzburg en route to the Drakensberg, stopping in Bulwer and Underberg. Joint tourism branding and corridor investment could boost both municipalities.

INFORMAL ECONOMY AND LABOUR MOBILITY: Labour mobility is significant, with thousands of NDZ residents commuting to Pietermaritzburg for domestic work, retail, construction, and government employment. Informal traders from NDZ operate in Pietermaritzburg taxi ranks and markets. This reinforces NDZ's role as a labour-sending municipality.

SETTLEMEMT LINKAGES:

- Bulwer (NDZ) is the closest NDZ town to Msunduzi, acting as a secondary service node for residents moving towards Pietermaritzburg.
- Boston (Msunduzi) is a rural settlement linking to Bulwer via the R617.
- Pietermaritzburg (Msunduzi) is the metropolitan anchor, attracting NDZ residents for services, jobs, and education.

CHALLENGES OF SPATIAL INTEGRATION

- Over-dependence on Pietermaritzburg undermines NDZ's nodal development.
- Weak infrastructure maintenance along the R617 reduces efficiency.
- Digital and service disparities widen inequalities between urban Msunduzi and rural NDZ.
- Environmental risks in NDZ's catchments directly impact Msunduzi's water security.
- Institutional silos prevent coordinated corridor development.

6.1.5.5. OPPORTUNITIES FOR COLLABORATION

- Corridor Investment: Joint planning for R617 upgrades could stimulate agriculture, tourism, and trade.
- Tourism Integration: Develop a Pietermaritzburg–Bulwer–Underberg–Sani Pass tourism corridor with joint branding and investment.
- Education and Skills: Expand access for NDZ learners to Msunduzi's tertiary institutions through scholarships and transport support.
- Catchment Management: Joint programmes for uMngeni/uMsunduzi catchments to secure water supply.
- ICT Expansion: Extend fibre and mobile connectivity along the R617 to reduce digital inequality.

6.1.5.6. POLICY AND PLANNING ALIGNMENT

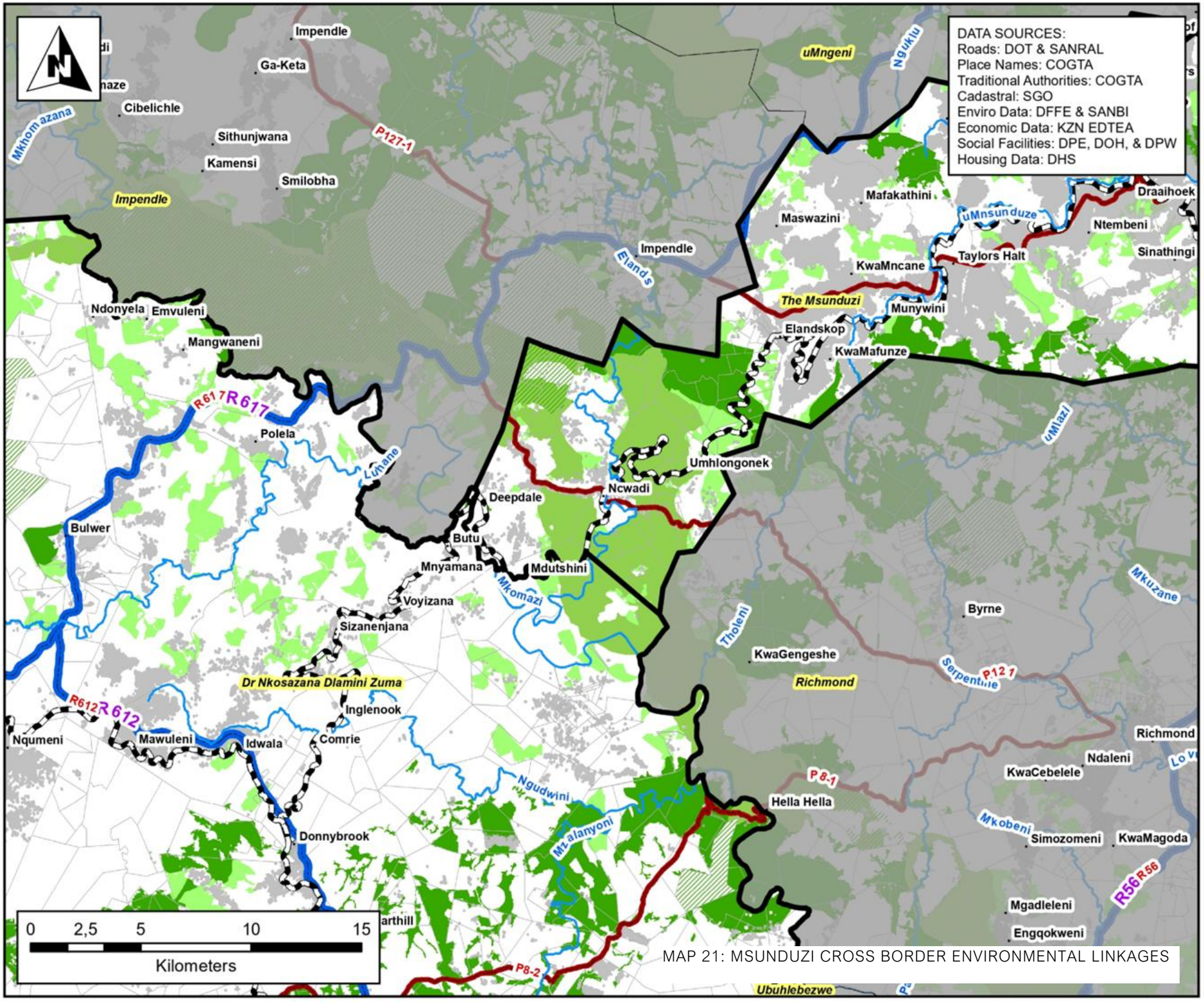
- SPLUMA (2013): Calls for spatial integration and efficient corridor development.
- KZN Provincial SDF (2021): Identifies Pietermaritzburg as a primary provincial urban hub and the R617 as a strategic corridor.
- Msunduzi IDP (2022–2027): Prioritises corridor development, infrastructure upgrades, and water catchment protection.
- NDZ IDP (2022–2027): Emphasises nodal development (Bulwer, Underberg) but recognises dependence on Pietermaritzburg.

6.1.5.7. PLANNING IMPLICATIONS FOR NDZ'S SDF

- Acknowledge Pietermaritzburg's dominance as the regional anchor and plan NDZ nodes as complementary rather than competitive.
- Prioritise R617 as a strategic corridor, advocating for provincial and district investment.
- Strengthen Bulwer as a cross-border node, linking NDZ to Msunduzi through infrastructure and service upgrades.
- Integrate catchment management into the SDF to protect shared water resources.
- Plan for balanced regional growth, ensuring NDZ benefits from Pietermaritzburg's economic dynamism while retaining its own rural development priorities.







MAP 21: MSUNDUZI CROSS BORDER ENVIRONMENTAL LINKAGES

A Better Place for All

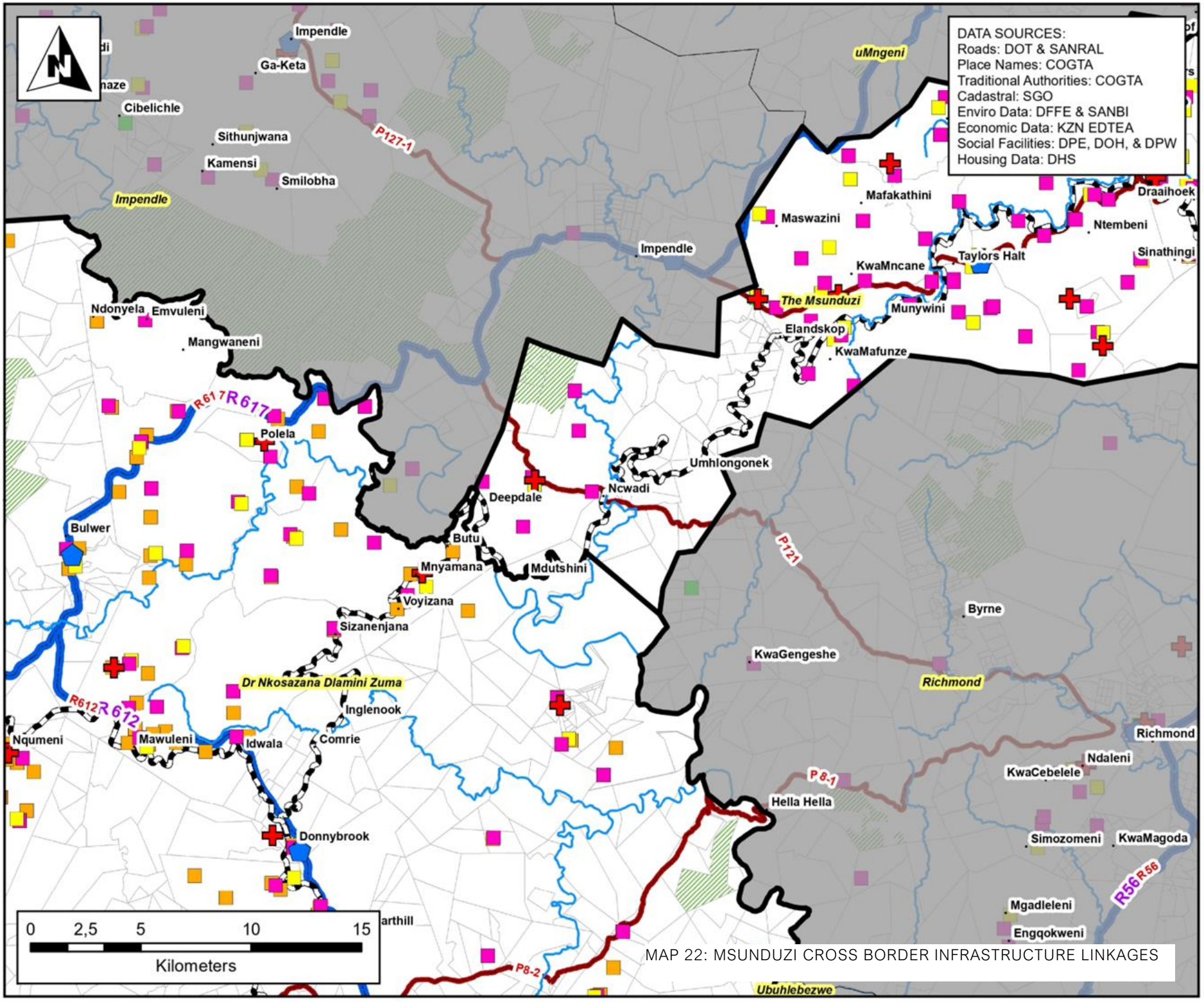
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Cross Border with Msunduzi Environmental Linkages

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- CBA: Irreplaceable
- CBA:Optimal
- ESA

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 22: MSUNDUZI CROSS BORDER INFRASTRUCTURE LINKAGES

A Better Place for All

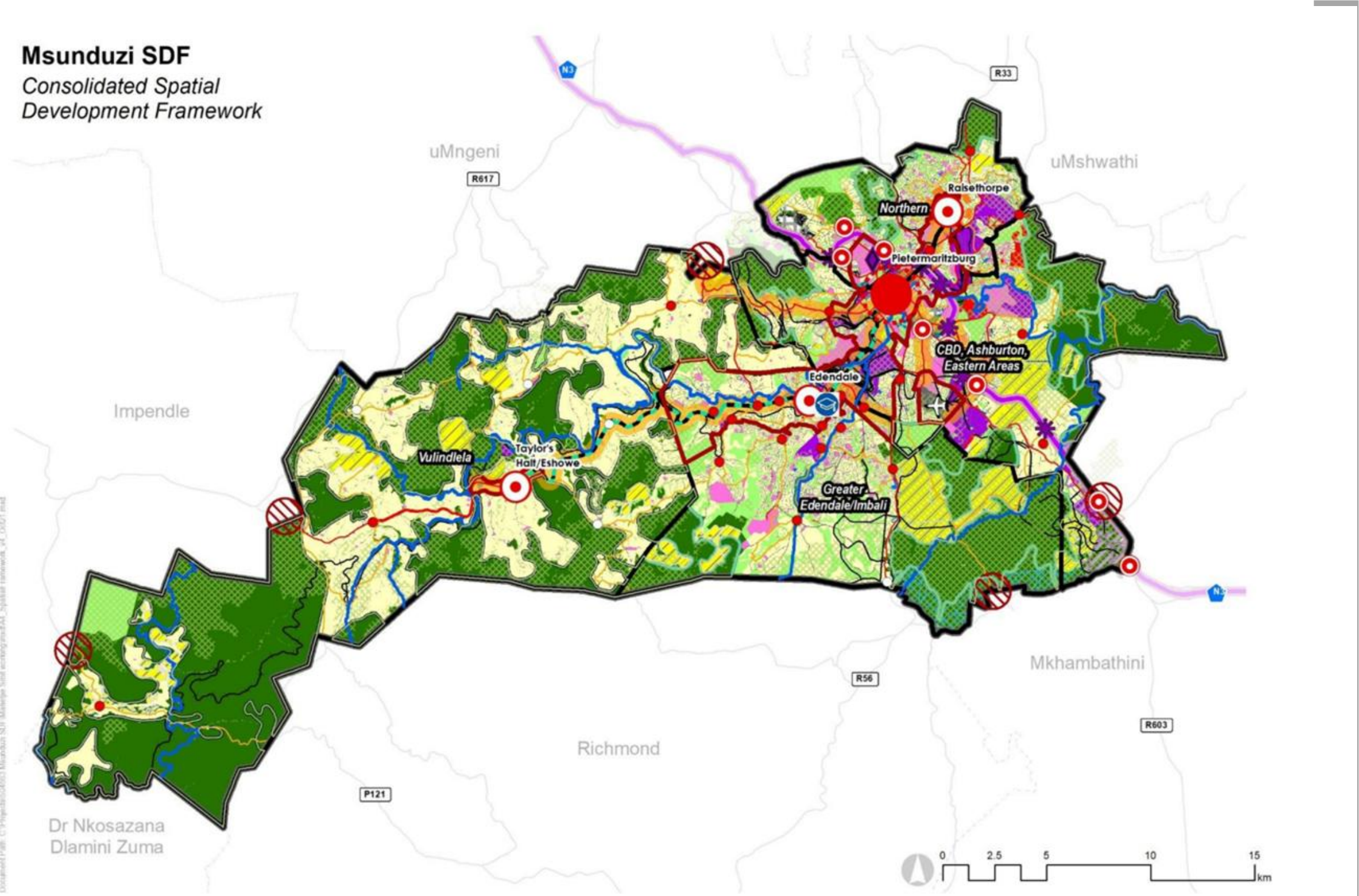
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Cross Border with Msunduzi Infrastructure Linkages

Legend

- Police Station
- Health Facility
- Combined School
- Intermediate School
- Primary School
- Secondary School
- ECD Centre
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 23: MSUNDUZI MUNICIPALITY SDF

LEGEND


The Msunduzi Municipality
Surrounding Municipal Boundaries
Rivers
Transportation
N3 Intersection Nodes
National Roads
SIP 2 Corridor
Transit Spine
Primary Network
Secondary Network
Regional and Network Linkages
Planned and Future Network
Railways
Nodes
CBD Node
Urban Hub
Key Urban Centres
Urban Centres
Emerging Centres
Specialised Precincts
Government Precinct
Airport Precinct
Educational Precinct
Tourism
Scenic Gateways
Heritage Zones
Environmental & Development Restrictions
No Developments
Strategic Development Areas
Logistics/Business
Commercial
Open Space
Residential
Transportation
Ecological Corridor
Agri Business/Commercial
Urban Regeneration
Mixed Use
Intensification Zone
Growth Management Zones
Urban Core Zone
Transform and Maintenance Areas
Incremental Growth
Natural Areas Zone
Existing Land Use
Agriculture
Commercial
Industrial
Utilities & Services
Environmental Services
Residential
Civic & Social
Transportation
Special Areas

6.1.6. RICHMOND-NDZ BORDER ANALYSIS

The Richmond Local Municipality (uMgungundlovu District) borders the north-eastern flank of the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). The main interface is along the R56 corridor, which historically connected Pietermaritzburg → Richmond → Ixopo → Creighton, serving as a critical regional transport and trade artery. While this corridor has since been overshadowed in parts by the N3 and R617 routes, it remains a vital secondary connector, underpinning flows of agricultural goods, forestry produce, labour, and services.

The Richmond–NDZ interface is less about urban dominance and more about rural production systems, with extensive forestry plantations, commercial agriculture, and smallholder farming stretching across both municipalities. Richmond itself functions as a secondary service town, with access to Pietermaritzburg anchoring its service role, while NDZ's Creighton and Bulwer nodes connect south-westward. This makes the Richmond–NDZ cross-border relationship strategically important for agriculture, forestry, environmental management, and settlement development along the R56 corridor.

6.1.6.1. ENVIRONMENTAL CROSS-BORDER CONDITIONS

BIODIVERSITY AND CONSERVATION: The Richmond–NDZ border lies within the uMkhomazi catchment, one of KwaZulu-Natal's most significant river systems. The upper catchments in NDZ feed into river systems flowing north-eastward into Richmond, supporting agriculture, forestry, and human settlements.

Biodiversity in this interface includes midland grasslands, wetlands, and riparian zones, many of which are under pressure from plantation forestry and small-scale agriculture. While Richmond has established conservation areas, much of the shared border remains ecologically fragmented, with patches of indigenous forest interspersed with commercial plantations.

ENVIRONMENTAL RISKS: Soil erosion: Steep terrain, overgrazing, and poor land management along the R56 corridor exacerbate soil loss, impacting shared agricultural land.

- Water resource pressures: Commercial forestry reduces streamflow, affecting water availability for settlements in both municipalities.
- Alien invasive species: Black wattle and lantana proliferate along riparian zones, limiting grazing and degrading biodiversity.
- Fire risk: Plantation forestry across both sides of the border creates shared vulnerabilities to wildfires.

OPPORTUNITIES FOR COLLABORATION:

- Joint catchment rehabilitation programmes under the uMkhomazi River system.
- Coordinated fire management strategies for forestry plantations.
- Cross-border land care and invasive alien plant removal programmes.
- Establishment of a green corridor linking Richmond's conservation efforts with NDZ's rural environmental assets.

6.1.6.2. INFRASTRUCTURE CROSS-BORDER LINKAGES

ROAD NETWORKS: The R56 is the spine of Richmond–NDZ interaction. Historically, this route linked Pietermaritzburg to southern KwaZulu-Natal and the Eastern Cape via Ixopo and Creighton. While the N3 and R617 corridors have diverted much of the through-traffic, the R56 remains critical for:

- Agricultural and forestry transport.
- Linking small settlements along the border (Byrne, Jolivet, Ixopo).
- Supporting rural mobility between Richmond and NDZ's eastern wards.

Secondary gravel roads provide east–west linkages between plantations and rural settlements, but these are often poorly maintained, undermining cross-border connectivity.

PUBLIC TRANSPORT AND MOBILITY: Mobility between Richmond and NDZ is supported by minibus taxis operating on the R56, linking Richmond, Ixopo, and Creighton. Daily commuter flows are smaller compared to the NDZ–Kokstad or NDZ–Msunduzi interfaces, but the route remains vital for workers in the forestry and agricultural sectors.

UTILITIES AND ICT: Richmond has higher levels of bulk service coverage (electricity, piped water, ICT) compared to NDZ's eastern wards. However, bulk water constraints affect both municipalities, especially in rural settlements not served by dams or regional pipelines. ICT coverage remains patchy, with mobile connectivity strong along the R56 but limited in remote settlements.

6.1.6.3. SOCIAL FACILITIES CROSS-BORDER DYNAMICS

EDUCATION: Richmond provides access to a limited range of secondary schools, while Pietermaritzburg functions as the higher-order educational hub. For NDZ residents in the eastern border areas, Richmond schools offer accessible alternatives, particularly for secondary education. However, many learners from NDZ still travel longer distances to Ixopo or Kokstad for higher-order schooling.

HEALTHCARE: Richmond's healthcare facilities are limited to clinics and a community health centre, with referrals directed to Pietermaritzburg hospitals. For NDZ residents, Richmond offers some relief for primary healthcare access, but the system is not robust enough to accommodate large inflows.

POLICING AND SAFETY: Stock theft, cross-border crime, and forestry-related theft are key issues in this area. Richmond's SAPS works in collaboration with neighbouring stations in NDZ, but coordination remains uneven. Rural policing forums could play a stronger cross-border role.

RECREATION AND CULTURAL FACILITIES: Recreational facilities in Richmond are limited. Residents in NDZ's eastern settlements occasionally access Richmond's community halls, sports fields, and small libraries, but for higher-order recreation, Pietermaritzburg remains the drawcard.

6.1.6.4. ECONOMIC AND SETTLEMENT LINKAGES

FORESTRY: The Richmond–NDZ interface is one of the forestry heartlands of KwaZulu-Natal. Richmond has extensive timber plantations and processing facilities, while NDZ contributes smaller plantations and raw timber. The R56 corridor supports the transport of logs and processed wood, with significant cross-border flows.

Forestry-related employment is shared across municipalities, with workers commuting between Richmond and NDZ. Smallholders in NDZ supply wattle and gum into Richmond-based markets, creating a critical value chain.

AGRICULTURE: Richmond supports commercial agriculture (dairy, beef, sugar cane in some lower areas), while NDZ contributes livestock and smallholder cropping. Cross-border agricultural linkages include:

- Shared grazing systems.
- Informal cattle sales and livestock markets.
- Transportation of produce along the R56 corridor.

TOURISM: Richmond is part of the Byrne Valley tourism area, which offers cultural and natural attractions. While less developed than the Drakensberg corridor, opportunities exist to link Richmond–NDZ cross-border tourism, especially around rural homestays, agricultural tourism, and cultural heritage sites.

SETTLEMENT LINKAGES: Key settlements along or near the border include:

- Byrne (Richmond): small village with forestry and agricultural ties.
- Jolivet (NDZ): small node connecting to Ixopo and Richmond.
- Ixopo (Ubuhlebezwe, but part of the wider corridor): acts as the regional node for both Richmond and NDZ flows.

These settlements demonstrate that the Richmond–NDZ interface is not purely bilateral but part of a multi-municipal corridor system stretching from Pietermaritzburg to Kokstad.

6.1.6.5. CHALLENGES OF SPATIAL INTEGRATION

- Decline of the R56 corridor as a national artery reduces investment priority.
- Limited higher-order services in Richmond, forcing NDZ residents to travel further to Pietermaritzburg.
- Forestry dominance creates environmental externalities (erosion, water depletion, alien species).
- Poor road maintenance constrains the agricultural and forestry value chain.
- Cross-border crime and livestock theft undermine rural livelihoods.
- Underutilised tourism potential, with little cross-municipal packaging.

6.1.6.6. OPPORTUNITIES FOR COLLABORATION

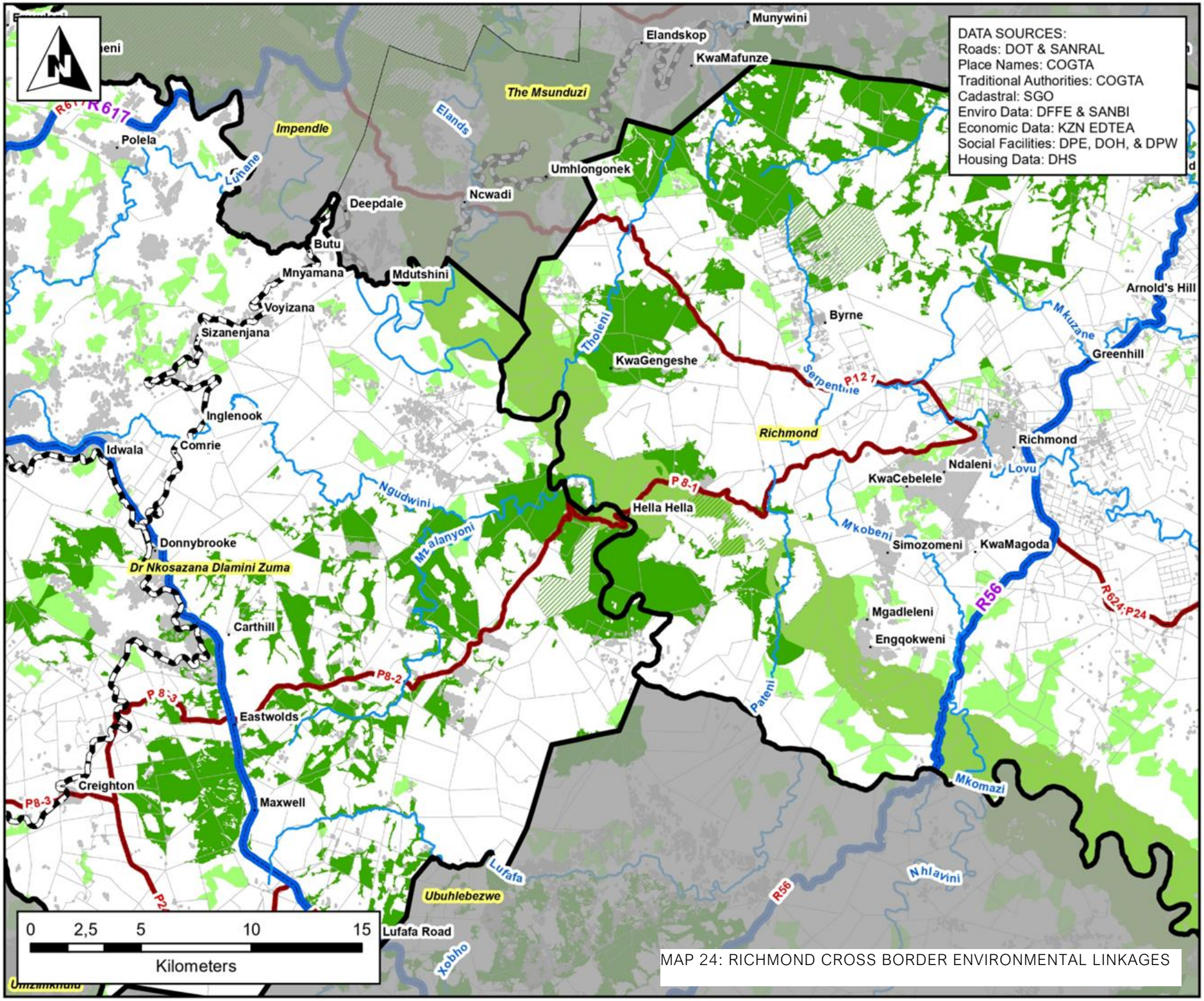
- Forestry value chain development: Joint investment in sawmilling, processing, and biomass energy.
- Agricultural markets: Establish cross-border livestock and fresh produce hubs along the R56.
- Tourism routes: Develop shared packages linking Richmond's Byrne Valley with NDZ's cultural landscapes and Ubuhlebezwe's Ixopo node.
- Transport upgrades: Advocate for provincial upgrading of the R56 to strengthen secondary corridor integration.
- Catchment management: Implement shared programmes under the uMkhomazi River system.

6.1.6.7. POLICY AND PLANNING ALIGNMENT

- SPLUMA (2013): Calls for corridor-based planning and cross-boundary coordination.
- KZN Provincial SDF (2021): Recognises the R56 as a secondary development corridor, requiring investment in agriculture and forestry linkages.
- Richmond IDP (2022–2027): Prioritises forestry, agriculture, and secondary economic diversification.
- NDZ IDP (2022–2027): Highlights reliance on the R56 corridor for agricultural mobility and rural service access.

6.1.6.8. PLANNING IMPLICATIONS FOR NDZ'S SDF

- Recognise the R56 corridor as a historic and ongoing strategic spine for NDZ's eastern settlements.
- Support cross-border forestry initiatives to unlock value-added processing and employment opportunities.
- Invest in secondary rural nodes (e.g., Jolivet) to strengthen cross-border service delivery.
- Collaborate with Richmond on corridor maintenance and agricultural market development.
- Integrate catchment management into SDF proposals to address erosion and water scarcity.
- Position Richmond as a complementary service town, while reinforcing Ixopo and Kokstad for higher-order needs.



MAP 24: RICHMOND CROSS BORDER ENVIRONMENTAL LINKAGES

A Better Place for All

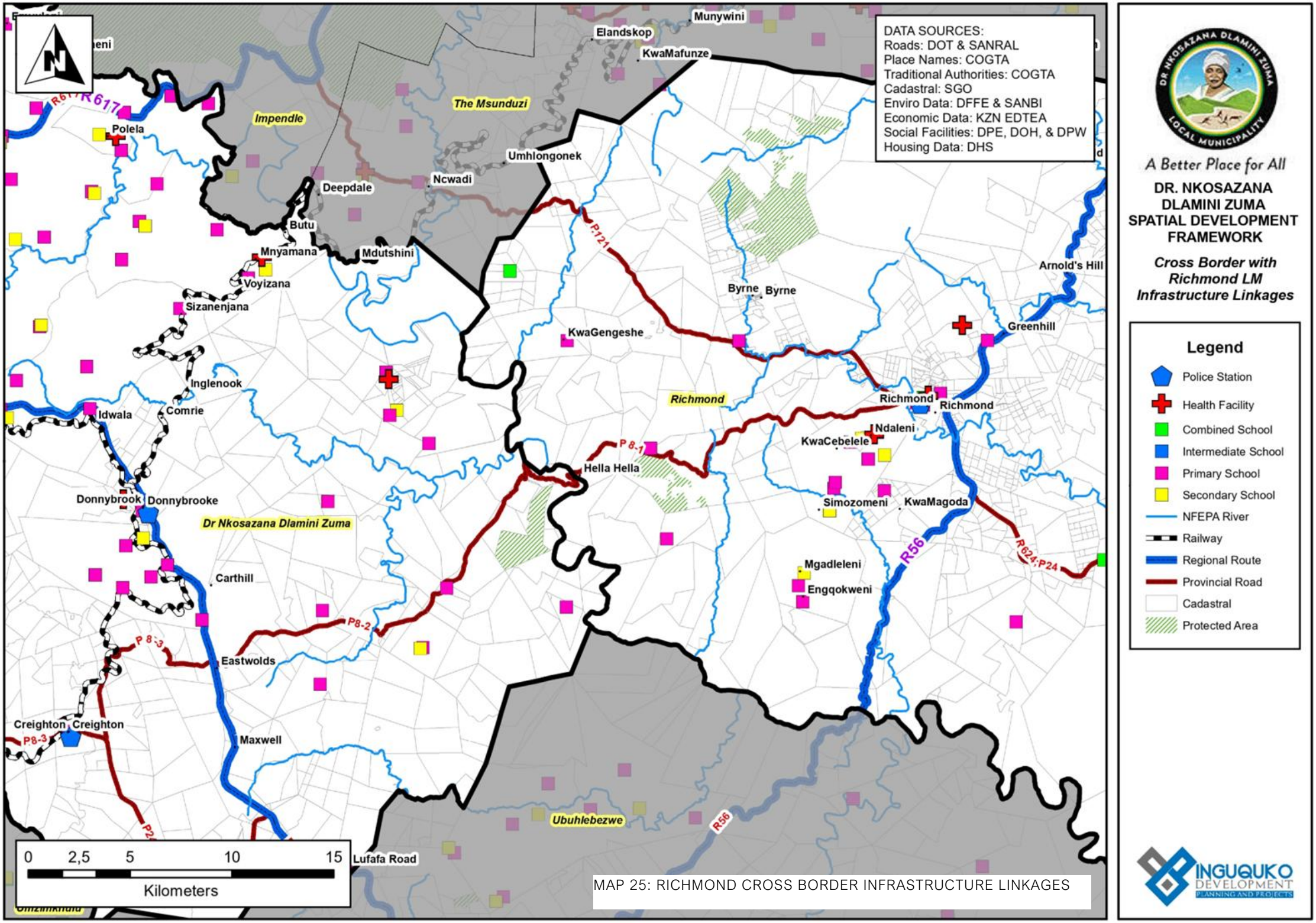
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Cross Border with Richmond LM Environmental Linkages

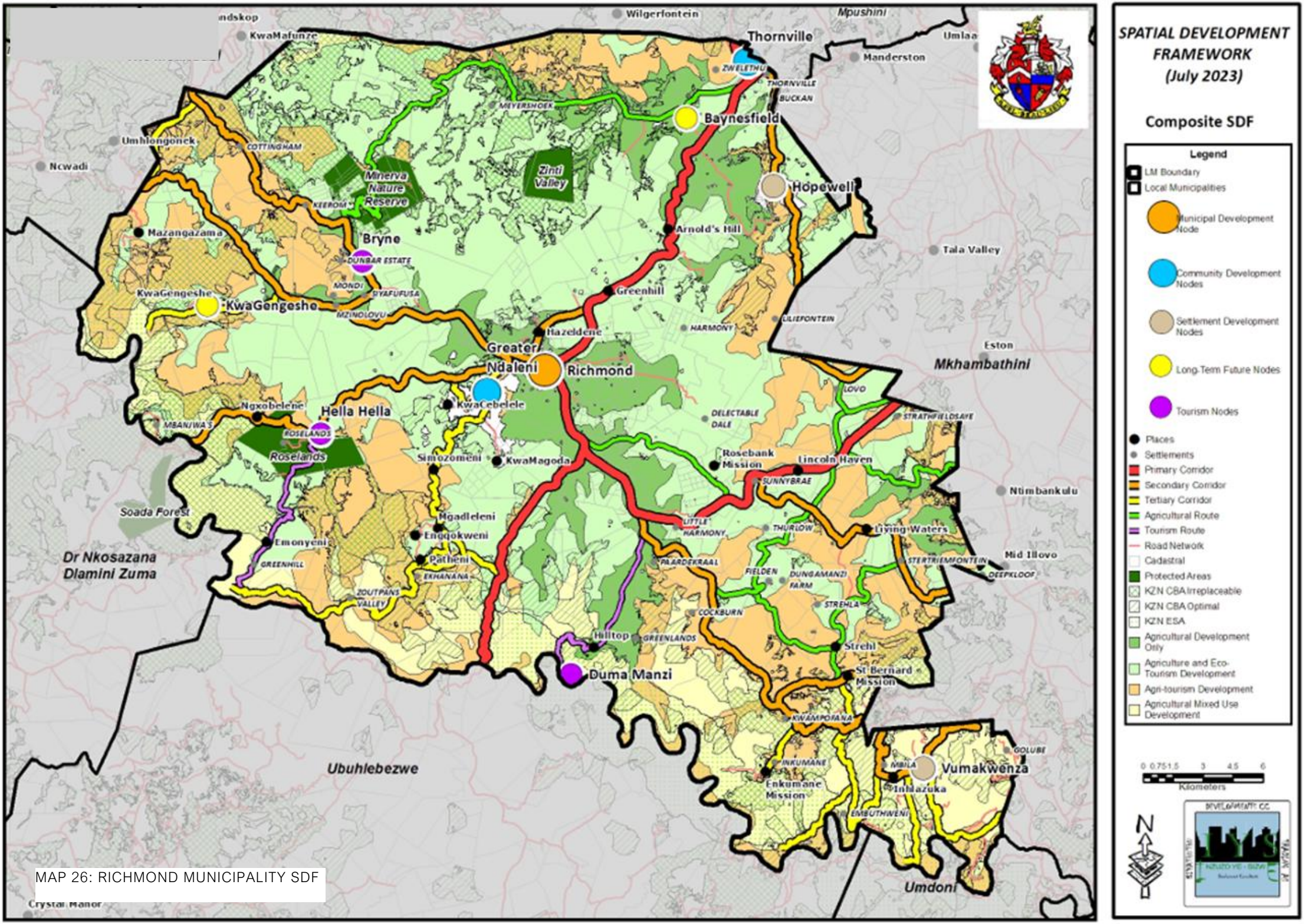
Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- CBA: Irreplaceable
- CBA:Optimal
- ESA

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 25: RICHMOND CROSS BORDER INFRASTRUCTURE LINKAGES



MAP 26: RICHMOND MUNICIPALITY SDF

6.1.7. UMZIMKHULU-NDZ BORDER ANALYSIS

The uMzimkhulu Local Municipality (LM) shares an extensive boundary with the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM), both located within the Harry Gwala District Municipality (HGDM). This shared district affiliation makes their cross-border relationship qualitatively different from NDZ's interfaces with municipalities such as Msunduzi, Kokstad, or Richmond. Here, the emphasis shifts from inter-municipal competition to intra-district collaboration and integration, as both municipalities contribute to and depend upon the same district-wide planning, service delivery, and development structures.

Geographically, the border is defined by a mixture of rural traditional settlements, agricultural landscapes, and shared environmental systems, particularly the uMzimkhulu River catchment. The Ixopo–uMzimkhulu–Creighton corridor forms the central organising spine of cross-border interactions, linking the district's major rural service centres. uMzimkhulu town, as a higher-order node, functions as a key service destination for NDZ residents, particularly those in Creighton and surrounding wards.

This interface is characterised by shared socio-economic vulnerabilities — high poverty, reliance on subsistence agriculture, limited formal employment — but also by significant opportunities for joint service provision, regional agricultural development, and environmental management under the umbrella of the district municipality.

6.1.7.1. ENVIRONMENTAL CROSS-BORDER CONDITIONS

SHARED ENVIRONMENTAL SYSTEMS: The NDZ–uMzimkhulu boundary lies across the uMzimkhulu River basin, a major ecological corridor in southern KwaZulu-Natal. Both municipalities rely heavily on this river and its tributaries for water supply, irrigation, and ecosystem services. The catchment is also critical for downstream users beyond the district, which positions both municipalities as custodians of a shared strategic water resource.

Indigenous grasslands, patches of mistbelt forest, and wetlands straddle the border. These ecosystems are highly sensitive to land use pressures from settlements, agriculture, and forestry, and their degradation has cross-border implications. Soil erosion, deforestation, and overgrazing upstream in NDZ directly affect water quality and flood risk downstream in uMzimkhulu.

ENVIRONMENTAL RISKS:

- Deforestation and fuelwood collection in rural settlements exacerbate land degradation.
- Alien invasive species, particularly black wattle, clog riverbanks across both municipalities.
- Unregulated sand mining in parts of the uMzimkhulu River poses risks to river stability.
- Climate change vulnerabilities (flooding, droughts, crop failures) affect both municipalities similarly, highlighting the need for joint resilience strategies.

COLLABORATION POTENTIAL: Given their location within the same district, NDZ and uMzimkhulu are well placed to pursue joint catchment management programmes, integrated land rehabilitation initiatives, and district-level climate resilience planning. Environmental management in this context is not only a local matter but a district mandate, reinforcing the need for alignment.

6.1.7.2. INFRASTRUCTURE CROSS-BORDER LINKAGES

ROAD NETWORKS: The R56 corridor is the primary connector between Ixopo, Creighton, and uMzimkhulu town. This axis underpins most economic and social flows, providing access to district facilities and linking onwards to Kokstad and Pietermaritzburg. Secondary gravel roads connect rural settlements across the NDZ–uMzimkhulu border, but their poor condition hampers mobility and integration.

The shared road system reflects both municipalities' dependence on the R56 as a strategic spine but also exposes vulnerabilities when the corridor is not adequately maintained. Upgrading and maintaining this route has district-wide implications, not just local significance.

PUBLIC TRANSPORT AND MOBILITY: Minibus taxis dominate cross-border mobility. Daily routes link Creighton and surrounding NDZ settlements with uMzimkhulu town, facilitating access to schools, clinics, and retail services. This underscores how NDZ residents' service dependency extends into uMzimkhulu, reinforcing the cross-border functional region.

BULK SERVICES AND UTILITIES: While service provision levels differ across the two municipalities, both face significant backlogs in water and sanitation, compounded by settlement dispersion and land tenure complexity. Shared bulk water systems could benefit communities along the border, particularly if integrated at district level. Similarly, cross-border electrification schemes could be more cost-effective if planned jointly rather than municipally in isolation.

6.1.7.3. SOCIAL FACILITIES CROSS-BORDER DYNAMICS

EDUCATION: uMzimkhulu town hosts several secondary schools and technical colleges, drawing learners from NDZ's eastern and southern wards. Conversely, NDZ's Ixopo-based facilities serve uMzimkhulu residents from nearby traditional areas. This demonstrates the interdependence of education services across the boundary.

HEALTHCARE: uMzimkhulu Hospital is a district-level facility that serves both NDZ and uMzimkhulu residents. For many NDZ communities, particularly in Creighton and Bulwer, this hospital is the most accessible higher-order health facility. Cross-border clinic use is common, reflecting both spatial proximity and district integration of health planning.

POLICING AND SAFETY: SAPS stations in uMzimkhulu and Creighton coordinate responses to rural crime, particularly stock theft. However, coordination challenges remain, as crime often occurs across traditional authority areas that do not align neatly with municipal boundaries. Strengthening cross-border rural safety forums could address this.

RECREATION AND CULTURAL FACILITIES: uMzimkhulu's community halls, sports grounds, and cultural centres attract NDZ residents for events and recreation. The cross-border use of facilities highlights opportunities for joint programming and investment in shared recreational spaces at district level.

6.1.7.4. ECONOMIC AND SETTLEMENT LINKAGES

AGRICULTURE: Both NDZ and uMzimkhulu share a reliance on subsistence and smallholder agriculture, supplemented by pockets of commercial farming. Livestock rearing, maize, and vegetable production dominate. Informal cross-border markets exist, with cattle, goats, and agricultural produce traded between rural communities.

FORESTRY: Small-scale forestry and wattle plantations are evident on both sides of the border. While not as dominant as in Richmond, forestry supports local incomes and provides material inputs for small industries. Opportunities exist for district-level aggregation and value chain development.

RETAIL AND SERVICES: uMzimkhulu town functions as a retail hub, drawing NDZ residents for shopping and services. Creighton plays a smaller service role, with many residents bypassing it for the broader offerings of uMzimkhulu town. This reinforces the settlement hierarchy where uMzimkhulu town is a district node while Creighton is a secondary rural service point.

SETTLEMENTS ALONG THE BORDER: Key settlements include:

- Creighton (NDZ): A rural service node with administrative functions.
- uMzimkhulu town: A higher-order service node with district-level functions.

- **Intermediate rural settlements**: Villages and traditional council areas straddling the border, reliant on services from both municipalities.

6.1.7.5. CHALLENGES OF SPATIAL INTEGRATION

- Settlement dispersion complicates cross-border service provision.
- Land tenure complexity across traditional council areas makes infrastructure rollout difficult.
- Infrastructure backlogs in both municipalities create competition rather than complementarity.
- Reliance on a single corridor (R56) concentrates vulnerability.
- Duplicated social facilities reduce efficiency (e.g., small clinics serving overlapping populations).
- Weak institutional integration within the district undermines opportunities for shared planning.

6.1.7.6. OPPORTUNITIES FOR COLLABORATION

- Joint agricultural markets and cooperatives, linking smallholder farmers across both municipalities.
- Shared bulk infrastructure investments, especially water, sanitation, and electricity, coordinated by Harry Gwala DM.
- District-level catchment management of the uMzimkhulu River.
- Integration of education and health services through district-wide planning frameworks.
- Tourism development along the uMzimkhulu River corridor, packaging cultural, historical, and natural assets from both municipalities.
- Coordinated safety initiatives (stock theft units, rural policing forums).

6.1.7.7. POLICY AND PLANNING ALIGNMENT

- **SPLUMA (2013)**: Calls for spatial integration and cross-boundary coordination, directly applicable in intra-district contexts.
- **KZN Provincial SDF (2021)**: Identifies the Ixopo–uMzimkhulu–Creighton axis as a **district development corridor** requiring consolidation.
- **Harry Gwala District SDF**: Positions uMzimkhulu town and Ixopo as **primary district nodes**, with Creighton as a secondary node.
- **NDZ & uMzimkhulu IDPs**: Both highlight service backlogs, rural poverty, and the need for improved cross-border coordination, though often without fully operationalising joint interventions.

6.1.7.8. PLANNING IMPLICATIONS FOR NDZ'S SDF

- Recognise uMzimkhulu town as a higher-order service hub for NDZ's southern settlements.
- Strengthen the Ixopo–uMzimkhulu–Creighton corridor as the backbone of intra-district integration.
- Prioritise joint bulk service planning under Harry Gwala DM, particularly water and sanitation.
- Coordinate social facility provision to avoid duplication and maximise efficiency.
- Leverage cross-border agricultural potential, focusing on markets, cooperatives, and value addition.
- Embed cross-border environmental management into NDZ's SDF, particularly catchment rehabilitation.
- Promote rural transport integration by upgrading secondary roads that connect dispersed settlements.

6.1.7.9. COMPARATIVE SYNTHESIS

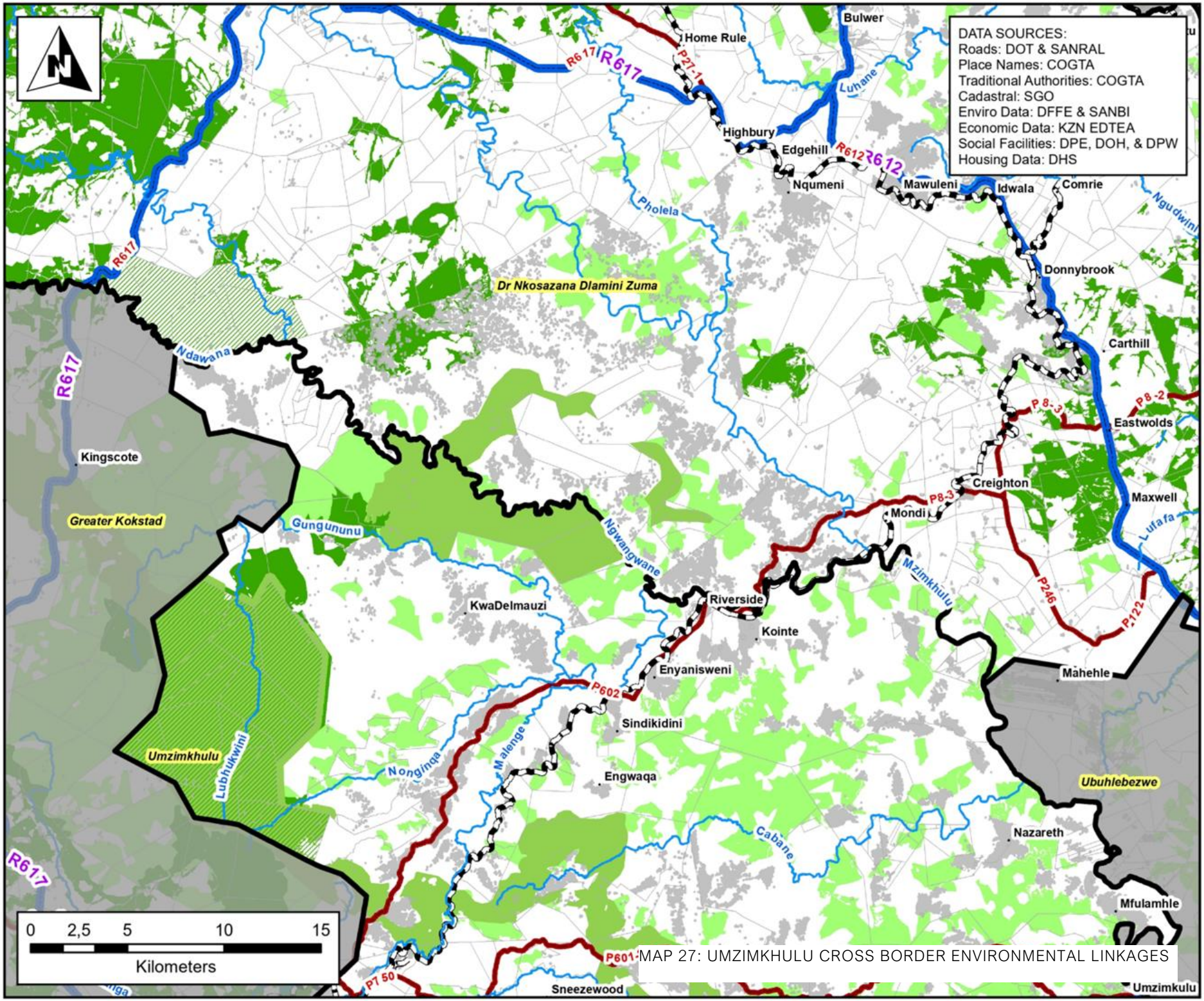
When compared to NDZ's other cross-border relationships:

- Msunduzi reflects metropolitan dominance and dependence on Pietermaritzburg.
- Kokstad represents a strong regional hub in the south.
- Richmond functions as a forestry–agricultural corridor partner.
- uMzimkhulu is different: it represents intra-district interdependence, where the goal is not competition but shared development within one governance framework.

This distinction makes the NDZ–uMzimkhulu relationship central to the Harry Gwala District's integration agenda. For NDZ's SDF, this means giving intra-district collaboration equal weight to external linkages, ensuring that local planning reflects the multi-scalar nature of cross-border integration.







MAP 27: UMZIMKHULU CROSS BORDER ENVIRONMENTAL LINKAGES

A Better Place for All

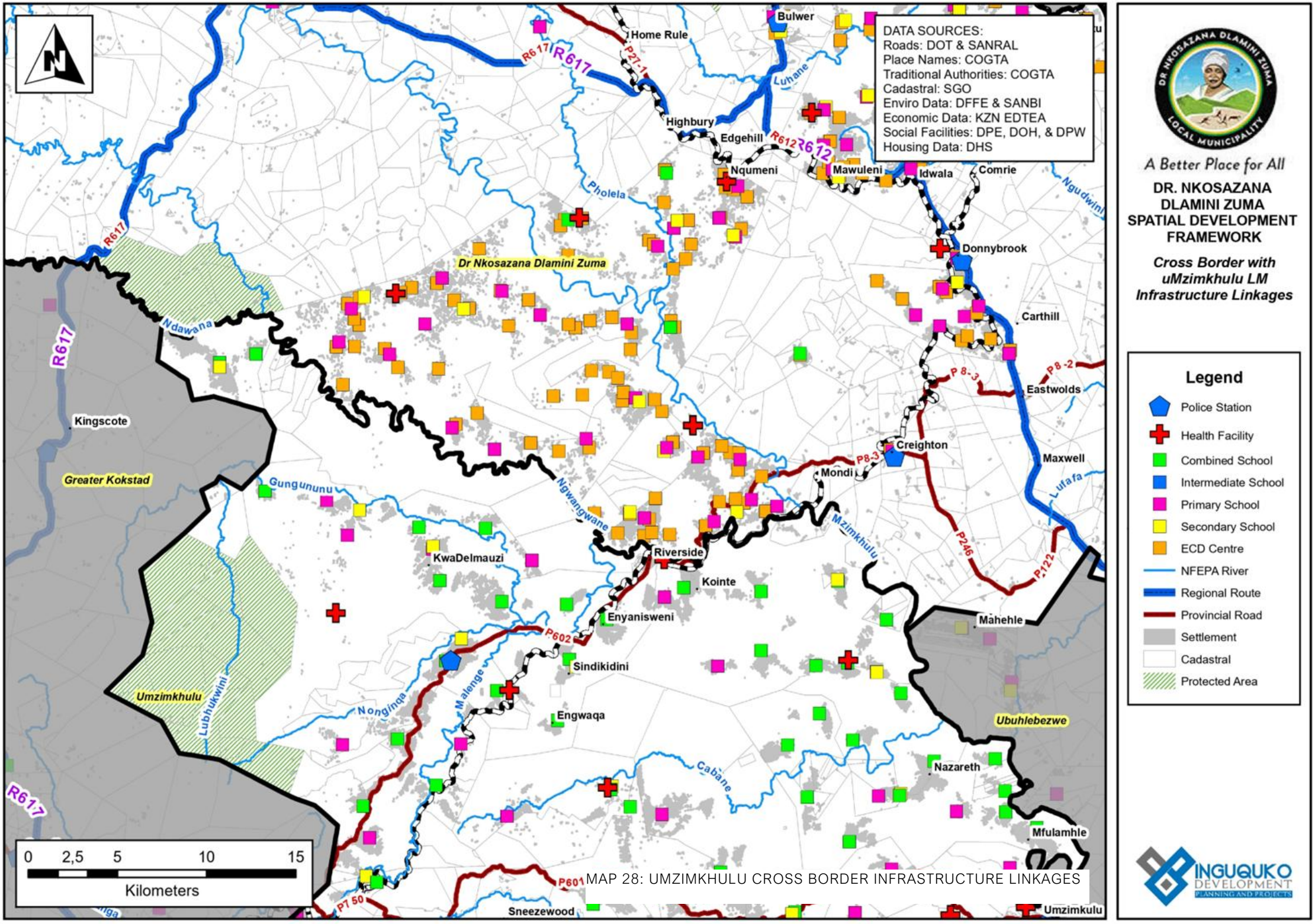
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Cross Border with uMzimkhulu LM Environmental Linkages

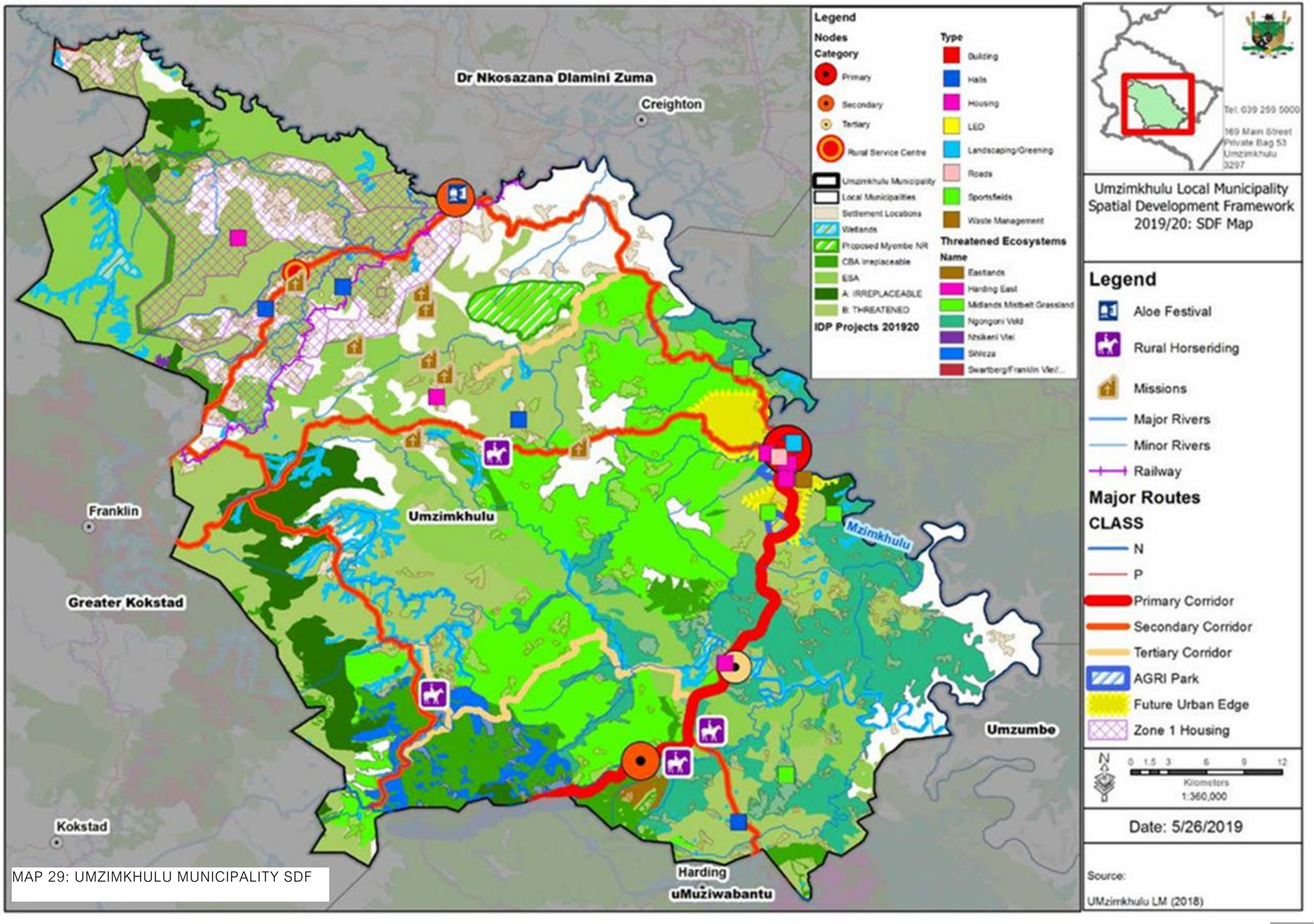
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- NFEPA River
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MAP 28: UMZIMKHULU CROSS BORDER INFRASTRUCTURE LINKAGES



MAP 29: UMZIMKHULU MUNICIPALITY SDF

TABLE 12: CROSS BORDER COMPARATIVE MATRIX

NEIGHBOURING MUNICIPALITY	KEY OPPORTUNITIES	KEY CHALLENGES	PLANNING IMPLICATIONS FOR NDZ SDF
Impendle (uMgungundlovu DM)	• Shared biodiversity and catchment management (uMkhomazi). • Eco-tourism linkages into Drakensberg. • Rural agricultural cooperation.	• Poor road connectivity and service overlaps. • High settlement dispersion. • Vulnerability to environmental degradation.	• Position NDZ's northern settlements as part of a regional conservation-tourism interface. • Strengthen rural road and facility planning to avoid duplication.
Ubuhlebezwe (Harry Gwala DM)	• Ixopo as a higher-order service hub. • Shared agricultural markets. • Cross-border schooling and clinic use.	• Dependence on Ixopo reduces NDZ's internal service role. • Limited higher-order facilities.	• Align NDZ's eastern settlements to Ixopo's role in the district hierarchy. • Consolidate nodes (Creighton, Bulwer) to reduce outflow.
Msunduzi (uMgungundlovu DM)	• Access to Pietermaritzburg's metropolitan services. • R617 and R56 corridors link rural NDZ to markets.	• Strong dependency drains NDZ's spending power. • Settlement sprawl along corridors.	• Recognise Pietermaritzburg as NDZ's metro anchor. • Strengthen secondary nodes to retain local economic activity.
Greater Kokstad (Harry Gwala DM)	• Kokstad as a regional growth hub. • N2 and R56 corridors enhance trade flows. • Shared health, education, and retail services.	• Creighton overshadowed by Kokstad. • Road reliance creates vulnerability.	• Support Creighton as a complementary service node. • Leverage cross-border agro-processing and logistics.
Richmond (uMgungundlovu DM)	• Shared forestry and agricultural corridor. • R56 as a strategic route. • Joint opportunities in timber and agri-value chains.	• Soil erosion and catchment degradation. • Limited-service nodes.	• Treat NDZ's north-east as part of a forestry–agriculture corridor. • Promote catchment rehabilitation with Richmond.
uMzimkhulu (Harry Gwala DM)	• Intra-district collaboration under HGDM. • uMzimkhulu town as higher-order hub. • Shared uMzimkhulu River catchment.	• Settlement dispersion across traditional areas. • Service duplication across the border.	• Consolidate Ixopo–uMzimkhulu–Creighton as the district's rural service spine. • Prioritise joint service and infrastructure delivery at district level.

6.1.8. IMPLICATIONS ON THE SPATIAL DEVELOPMENT FRAMEWORK

The cross-border analysis undertaken for the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ) reveals that the municipality is deeply embedded in a network of spatial, economic, and environmental relationships with its neighbouring municipalities—Impendle, Ubuhlebezwe, Msunduzi, Greater Kokstad, Richmond, and uMzimkhulu. Collectively, these interfaces underscore the fact that NDZ cannot be spatially or functionally planned in isolation; rather, its development trajectory is shaped by flows of people, goods, services, and ecological processes that transcend administrative boundaries.

The analysis highlights a differentiated geography of influence: Msunduzi anchors metropolitan linkages through Pietermaritzburg, Kokstad serves as a secondary regional hub, Richmond provides agricultural and forestry corridor synergies, Ubuhlebezwe and Impendle reflect rural interdependencies in service and environmental systems, while uMzimkhulu represents intra-district integration under Harry Gwala.

This mosaic of relationships demonstrates both vulnerabilities—such as settlement dispersion, duplication of facilities, environmental degradation, and dependence on external nodes—and opportunities, including shared bulk infrastructure, joint environmental management, cross-border agricultural value chains, and regional tourism development.

The policy implication is clear: NDZ's SDF must be outward-looking, aligning its spatial proposals with provincial corridors, district integration priorities, and regional service hierarchies. It should recognise where NDZ is a net receiver of services (e.g., Kokstad, uMzimkhulu, Pietermaritzburg) and where it can leverage its own assets (e.g., agriculture, eco-tourism, rural nodes) to contribute to broader regional development.

The strategic imperative is therefore to balance internal settlement restructuring with cross-border collaboration, ensuring that local interventions are positioned within a wider framework of spatial equity, nodal consolidation, and regional competitiveness. This approach will enable NDZ not only to address its own developmental backlogs but also to actively shape the functional region of which it is an integral part.

6.2. LANDSCAPE

Landscape character refers to the distinct, recognizable, and consistent pattern of elements within a landscape that differentiates one landscape from another, without implying any value judgment. This character is shaped by specific combinations of geology, landform, soils, vegetation, land use, field patterns, and human settlement. The significance of landscape character can be seen in various aspects:

- Psychological Importance – Orientation: A landscape with a distinct character provides reference points that help people orient themselves as they navigate through it.
- Psychological Importance – Sense of Belonging: Landscapes offer features that people can identify with, helping them make sense of their existence and fostering a sense of belonging.
- Cultural Importance: Over time, people's interactions with a place become embedded in culture, such as through language. Consequently, landscapes become expressions of history and culture.
- Ecological Importance: Understanding landscapes as interconnected habitats provides a foundation for developing strategies to enhance biodiversity.
- Economic Importance – Products of Place: Landscape character can support regional products by linking them to a place of unique character, such as regional foods or crafts.

- Economic Importance – Tourism: The character of a landscape underpins the image that rural tourism relies on.
- Aesthetic Importance: Landscapes are considered artistic and cultural assets, forming the foundation of any nation.





6.3. BUILT FORM

The built environment in the NDZ municipality is notable for its historical and heritage architecture, particularly evident in the churches within the missions such as Centocow Mission and Kevelaer Mission. These structures reflect the rich cultural and religious history of the area, serving as landmarks of architectural and historical significance.





In the Creighton area, the built form predominantly consists of single to double-story buildings. These structures generally lack a specific architectural style, with the exception of the municipal building, which stands out as a notable exception in terms of design and significance.





The Underberg Central Business District (CBD), on the other hand, showcases a variety of architectural styles. Many of these buildings are recognized for their historical and heritage value, contributing to the unique character and charm of the area. The diversity in architectural styles within the Underberg CBD highlights the area's historical development and cultural heritage, making it a significant part of the municipality's-built environment. The rest of the municipality is comprised of rural homesteads with no significant architectural styles.

6.4. MUNICIPAL SETTLEMENT ANALYSIS

This section provides an integrated analysis of the document and its relevance to the Dr Nkosazana Dlamini Zuma Local Municipality Spatial Development Framework (SDF). The purpose is to synthesise the document's findings, critically interpret its assumptions, and highlight implications for the Spatial Challenges and Opportunities Report.

The analysis begins with settlement growth and distribution patterns, identifying severe poverty hotspots such as Kilmon, Mqathsheni, and Bazini/Ndondela, alongside growth areas including Underberg, Qulashe, and Ndondeni. These patterns reveal stark disparities in service access, pointing to the need for both consolidation of accessible settlements and targeted support for isolated communities.

A typology of settlements is developed, distinguishing between those with good access, isolated areas, agriculturally strong but disconnected communities, and settlements with limited access. This hierarchy highlights the uneven distribution of opportunities, which in turn informs planning for service delivery, human settlements, and local economic development (LED).

Connectivity is explored through a route ranking methodology, which scores roads based on their ability to link key settlements. Underberg, Centocow, and Bulwer emerge as strategic nodes, with Centocow particularly critical due to its multiple linkages. This underscores the importance of targeted investment in road infrastructure to strengthen integration.

The report further contextualises settlement and route dynamics within the socio-economic profile of the municipality. High unemployment, low skills levels, and income inequality constrain development, yet opportunities exist in expanding tertiary services, agriculture, and manufacturing. Long-term projections to 2045 anticipate rising residential and social facility demands, requiring proactive planning for housing, services, and economic diversification.

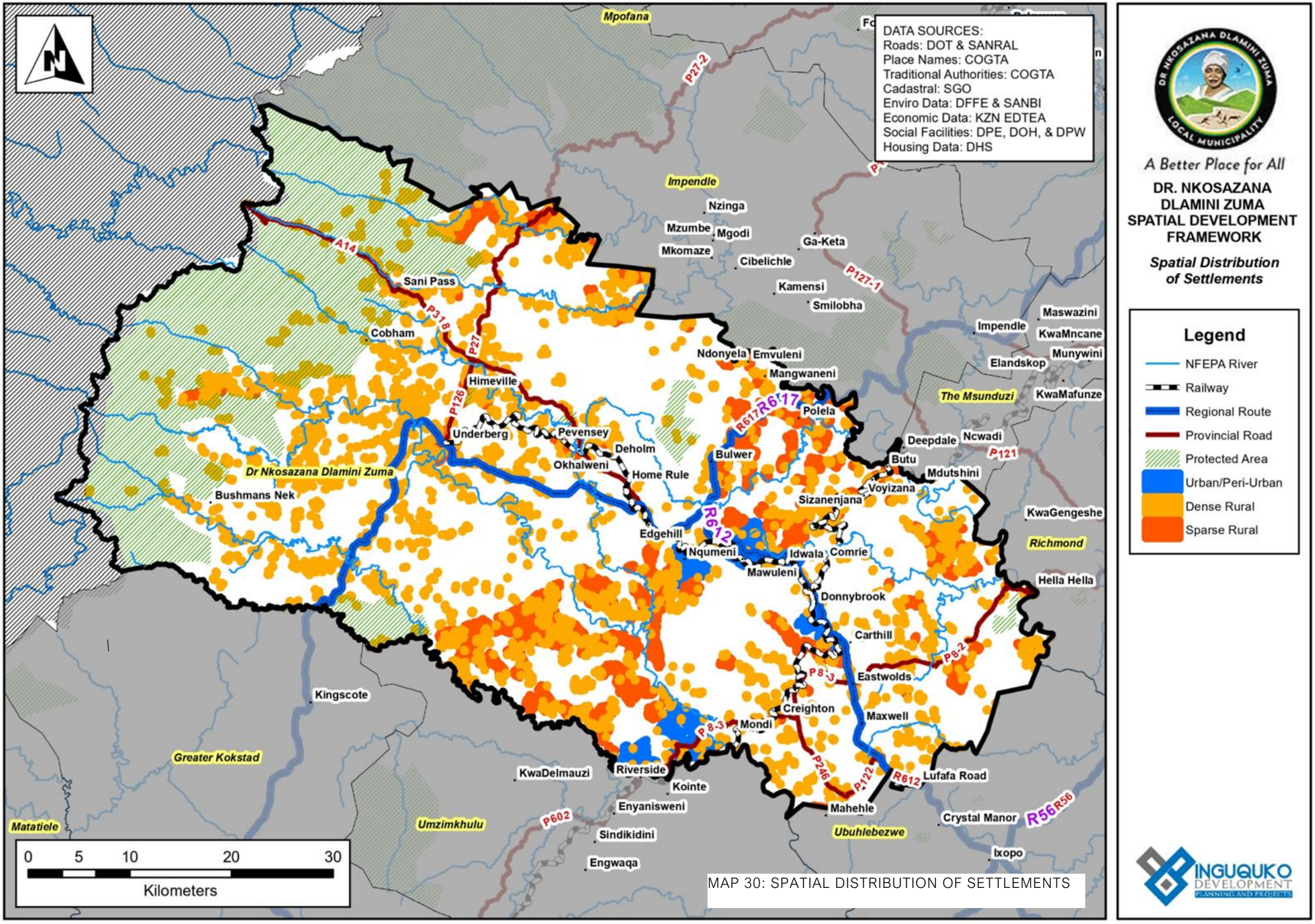
The critical interpretation section identifies strengths of the source document, such as its clarity on settlement hierarchies and poverty focus, while noting gaps in environmental sustainability, climate resilience, and informal economy integration. Without structured prioritisation, growth risks becoming fragmented and "chaotic." Tabulated below is a detailed analysis of household growth across settlement clusters in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) between 2009 and 2016. The household data illustrates the dynamics of rural and peri-urban settlements, highlighting areas of rapid expansion, moderate growth, and relative stability. These growth patterns serve as a critical input into the Spatial Development Framework (SDF), guiding decisions on settlement hierarchy, service delivery prioritisation, housing development, and infrastructure investment.

TABLE 13: SETTLEMENT QUANTIFICATION

REGION	SETTLEMENT NAMES	HOUSEHOLDS 2009	HOUSEHOLDS 2016	HH GROWTH 2009-2016
Amakhuze	eDazini	38	341	303
TOTAL		**38**	**341**	**303**
Bazini	uQaqani	10	133	123
	Nxola/Cabazini	55	283	228
	Ndodeni	17	247	230
	Esidangeni 02	51	69	18
TOTAL		**133**	**732**	**599**
Donnybrook	Mjila	171	236	65
	Nomandlovu	127	204	77
	Owambeni/KwaSokhela/Donnybrook	10	1356	1346
TOTAL		**308**	**1796**	**1488**
eSharp	Buckquoy/Kwelabantwana/eNkwelabantwana	12	742	730
	Mkobeni/Ngonyama	69	222	153
	Mhlathini/Hlafuna	16	208	192
	Xosheyakhe 02	26	230	204
TOTAL		**123**	**1402**	**1279**
Centocow	Makholweni/St Apollinaris/Centocow	202	304	102
	Ndodeni 06	52	664	612
	KwaShusha/Bhobhoyi/Newtonville	105	481	376
	KwaCwempe/KwaShusha/Esibombvini/Sibomvini/Ehlane	34	1008	974
TOTAL		**393**	**2457**	**2064**
eGqumeni/Gala	eGqumeni	666	821	155
	Epsom/Makhuzeni/Emaqoleni	39	297	258
	Jokweni	41	74	33
TOTAL		**746**	**1192**	**446**
Hlabeni-Mnqundekweni	Hlabeni	266	331	65
	Keteni	120	148	28

REGION	SETTLEMENT NAMES	HOUSEHOLDS 2009	HOUSEHOLDS 2016	HH GROWTH 2009-2016
	Mqundekweni	230	295	65
TOTAL		**616**	**774**	**158**
Kilmun	Emadwaleni	286	436	150
	Embantini	100	153	53
	Mashayilanga	525	1172	647
	Underberg NU 004	11	456	445
TOTAL		**922**	**2217**	**1295**
Stepmore/Mqatsheni	Mqatsheni/Ingqiya	76	486	410
	Stepmore 03	13	607	594
	Mhlangeni	7	55	48
TOTAL		**96**	**1148**	**1052**
Nkumba	Mkhohlwa 01	131	166	35
	Machabasini	52	141	89
	Bidla/Pholela/Hlanganani/Bheni	136	223	87
	Nkumba 01	185	282	97
	Phosane	129	211	82
	Bethlehem/Nonguqa	73	114	41
	Chibini/Esiqhingini/Mqulela	197	321	124
	Bethelehem	32	358	326
TOTAL		**935**	**1816**	**881**
Ngwagwana	Ingwagwana/Loretta	597	794	197
TOTAL		**597**	**794**	**197**
Nkwezela	Mbulelweni 01	115	166	51
	Ezitendeni	319	365	46
	Mawoleni/Nkwezela	1933	2167	234
TOTAL		**2367**	**2698**	**331**
Sandanezwe	KwaSandanezwe/Malahleni	29	825	796
TOTAL		**29**	**825**	**796**

REGION	SETTLEMENT NAMES	HOUSEHOLDS 2009	HOUSEHOLDS 2016	HH GROWTH 2009-2016
Qulashe	Qulashe 05	105	715	610
TOTAL		**105**	**715**	**610**



MAP 30: SPATIAL DISTRIBUTION OF SETTLEMENTS

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

6.4.1. SETTLEMENT OVERVIEW

Household growth data offers insight into both natural population increase and in-migration. The uneven distribution of growth across clusters points to shifting settlement attractiveness and underlines the importance of proactive spatial planning. Rapidly expanding settlements signal potential nodes of future growth but also expose vulnerabilities in infrastructure, social services, and environmental sustainability. By contrast, areas of modest or stable growth may present opportunities for consolidation and controlled densification.

Between 2009 and 2016, NDZ recorded significant household growth across most settlement clusters. The overall trend reflects rising demand for land, housing, and services, partly driven by natural demographic shifts and partly by migration into the municipality from surrounding regions.

Several settlements stand out as high-growth zones. These include Sandanezwe/Malahleni, which expanded by 796 households; Step More 03, which added 594 households; and Kilmun, which more than doubled from 922 to 2,217 households. Such rapid expansion positions these areas as emerging growth nodes, but also as pressure points where bulk service capacity is already under strain.

Moderate-growth settlements, such as Donnybrook (+65) and Centocow (+234), remain important service nodes despite recording slower expansion. Their role in providing administrative, social, and economic functions to surrounding rural areas ensures that they continue to play a central role in the settlement hierarchy.

Low-growth areas, such as Hlabeni-Mnqundekweni (+158) and Nomandlovu (+65), may reflect saturation of available land, weaker service delivery appeal, or limited economic opportunities. These areas are not immediate pressure points but should be supported through livelihood and service programmes to avoid long-term decline.

6.4.2. DETAILED CLUSTER ANALYSIS

6.4.2.1. AMAKUZE CLUSTER

The Amakuze settlements demonstrated moderate growth, with Esidangeni 02 increasing from 51 to 69 households. Although not dramatic, this trend reflects steady rural growth that will require incremental expansion of basic services such as water supply, electricity, and access roads.

6.4.2.2. DONNYBROOK CLUSTER

Donnybrook grew from 1,291 to 1,356 households, an increase of 65. The growth rate is relatively modest, but the town's significance as a regional service hub remains unchanged. Planning efforts in Donnybrook should emphasise service consolidation, strengthening of public facilities, and small-scale densification within existing serviced areas.

6.4.2.3. ESHARP CLUSTER

eSharp experienced strong growth, with households increasing from 1,490 to 2,220, a net change of 730. This pattern suggests growing attractiveness and available land. However, it also indicates the need for urgent infrastructure expansion, especially water, sanitation, and electricity, to match the pace of settlement growth.

6.4.2.4. CENTOCOW CLUSTER

Centocow households rose from 1,168 to 1,402, a total increase of 234. This moderate rate of growth points to gradual but steady demand for services such as schools and clinics. Planning responses should focus on ensuring incremental service provision, particularly around access roads and local facilities.

6.4.2.5. EGQUMENI/GALA CLUSTER

This cluster grew from 666 to 999 households, reflecting an increase of 333. Growth reflects densification within rural landscapes, emphasising the need to balance settlement expansion with agricultural land preservation and rural livelihood support.

6.4.2.6. HLABEN-MNQUNDEKWENI CLUSTER

Households in Hlaben-Mnqundekweni grew from 764 to 922, an increase of 158. This slower rate of growth suggests land constraints or limited access to services. The area may not be a priority for large-scale expansion but should be targeted with programmes that support rural livelihoods and service resilience.

6.4.2.7. KILMUN CLUSTER

Kilmun displayed one of the highest growth rates, with households increasing from 922 to 2,217 (+1,295). This explosive growth highlights Kilmun as a key pressure point and a potential priority node. Planning responses must include integrated housing development, improved transport links, and bulk infrastructure investment.

6.4.2.8. STEP MORE/MQATSHENI CLUSTER

Step More grew from 96 to 1,148 households (+1,052). This extraordinary expansion calls for immediate interventions to address backlogs in housing, sanitation, and road infrastructure. Step More requires structured nodal development planning to prevent uncoordinated sprawl.

6.4.2.9. NKUMBA CLUSTER

Nkumba households grew from 935 to 1,816, an increase of 881. This strong growth trend demonstrates the need for proactive spatial planning to manage settlement sprawl, encourage densification, and integrate social facilities.

6.4.2.10. NQWAGWANA CLUSTER

Nqwagwana experienced more moderate growth, with households increasing from 597 to 794 (+197). This rate of expansion suggests steady consolidation, requiring gradual scaling of infrastructure without creating unsustainable demand.

6.4.2.11. NKWEZELA CLUSTER

Nkwezela grew from 1,933 to 2,167 households (+234). This stable growth is manageable and supports Nkwezela's role as a consolidation node where services can be incrementally strengthened rather than rapidly expanded.

6.4.2.12. SANDANEZWE CLUSTER

Sandanezwe experienced dramatic growth, rising from 29 to 825 households (+796). This exceptional growth, albeit from a small base, highlights strong pull factors such as in-migration or land availability. Proactive planning and infrastructure support will be critical to ensure orderly development.

6.4.2.13. QULASE CLUSTER

Qulase grew from 105 to 715 households (+610). The scale of growth suggests that the settlement is becoming increasingly attractive and must be integrated into transport, service delivery, and local economic planning frameworks.

6.4.3. GROWTH HOTSPOTS/PRESSURE POINTS

The growth hotspots of the municipality include the following settlements:

- Kilmun Cluster
- Stepmore/Mqatsheni Cluster
- Nkumba Cluster
- Sandanezwe Cluster

- eSharp Cluster

These settlements have all recorded household growth well above municipal averages, signalling their role as future pressure points and emerging nodes within the local settlement system. Their primary needs revolve around the provision of bulk infrastructure, particularly water, sanitation, electricity and road access, as existing networks were not designed to absorb such rapid increases in households.

Settlement expansion in these areas has already outpaced the capacity of existing service delivery systems, creating risks of water shortages, sanitation backlogs, unsafe informal connections to electricity, and inadequate all-weather road access that hinders mobility and economic activity. Social infrastructure is also under severe pressure. Schools, clinics, community halls and recreational facilities have not kept pace with the demographic expansion, leading to overcrowding, poor access to health and education, and weakened community cohesion.

Housing demand has surged, with formal housing supply lagging, creating conditions where informal settlement patterns are likely to intensify. Without spatial guidance, these patterns risk entrenching sprawl, scattered rural densification, and the occupation of environmentally sensitive areas such as wetlands, steep slopes and high-potential agricultural land. From a spatial planning perspective, these hotspots require a strategic and integrated response to ensure growth is managed sustainably.

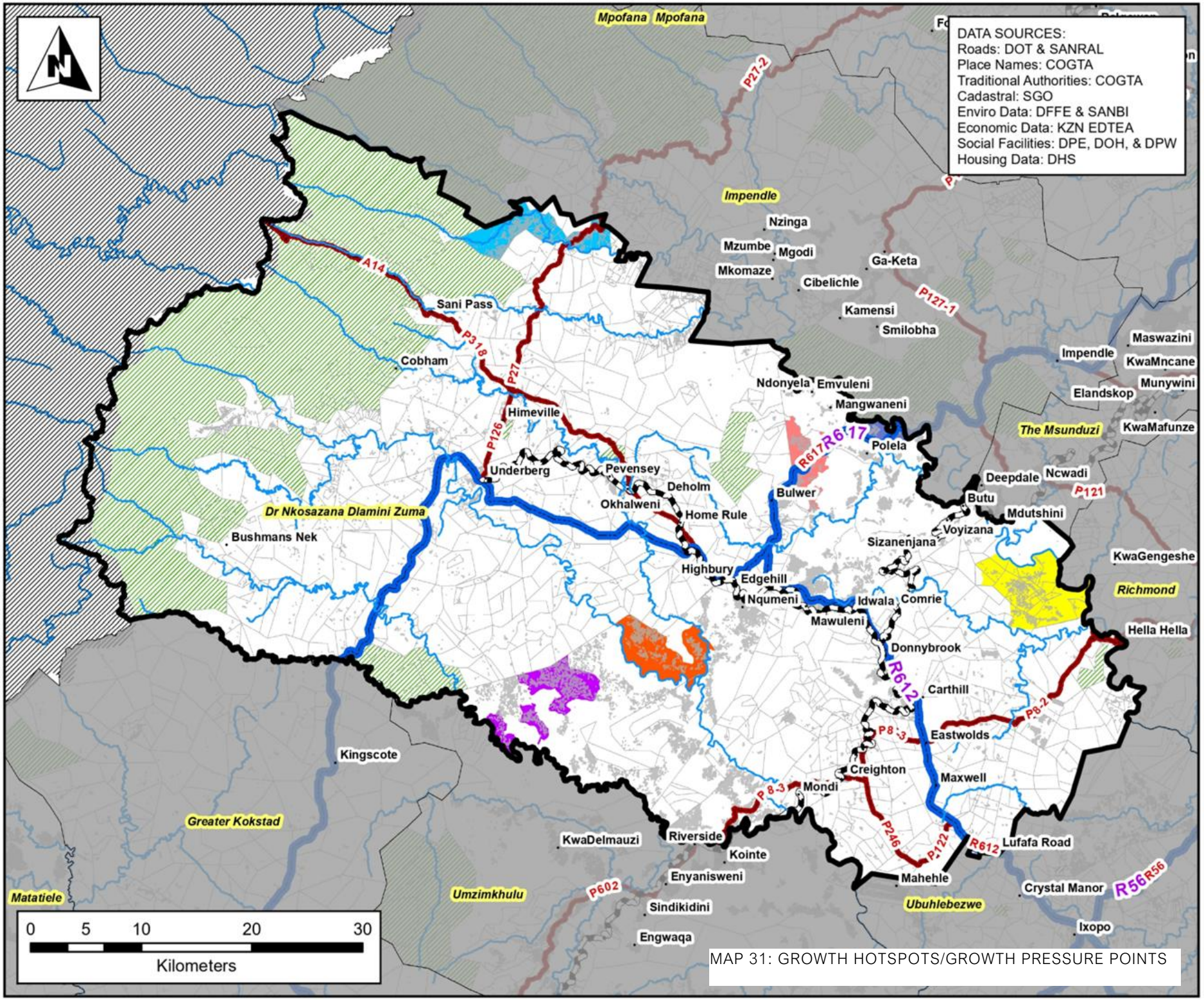
Firstly, the municipality should prioritise Kilmun and Step More as secondary nodes in the settlement hierarchy, aligning housing delivery programmes with planned bulk infrastructure upgrades, and encouraging compact, mixed-use development to prevent unstructured sprawl. Nkumba and eSharp, given their strong growth and relative accessibility, should be positioned as service hubs for surrounding rural settlements, with investments targeted at transport interchanges, taxi ranks, and small business precincts to leverage local economic opportunities.

Sandanezwe and Qulase, although smaller in size, demonstrate extraordinary relative growth and should be guided through precinct planning processes that balance housing provision, service access and environmental safeguards, ensuring that their expansion consolidates around existing transport corridors rather than spreading diffusely across the landscape.

6.4.3.1. RECOMMENDATIONS

Recommendations also include strengthening connectivity between these hotspots and higher-order centres such as Creighton, Underberg and Donnybrook, to ensure that residents can access district-level services and markets. Planning should integrate local economic development by supporting agro-processing, small-scale retail, and tourism initiatives, thereby ensuring that growth nodes also become centres of livelihood generation rather than mere dormitory settlements. Spatially, the adoption of clear urban edges and nodal boundaries is critical, supported by land use management systems that regulate where housing, commercial, and social facilities should be located.

Environmental management must be mainstreamed into development planning, with sensitive ecological zones mapped and protected while directing growth to less vulnerable land parcels. Finally, institutional coordination is essential: the municipality must link human settlements planning, infrastructure master planning, and local economic development strategies to ensure that these growth hotspots evolve into sustainable, serviceable, and resilient nodes within the municipal spatial framework.



MAP 31: GROWTH HOTSPOTS/GROWTH PRESSURE POINTS

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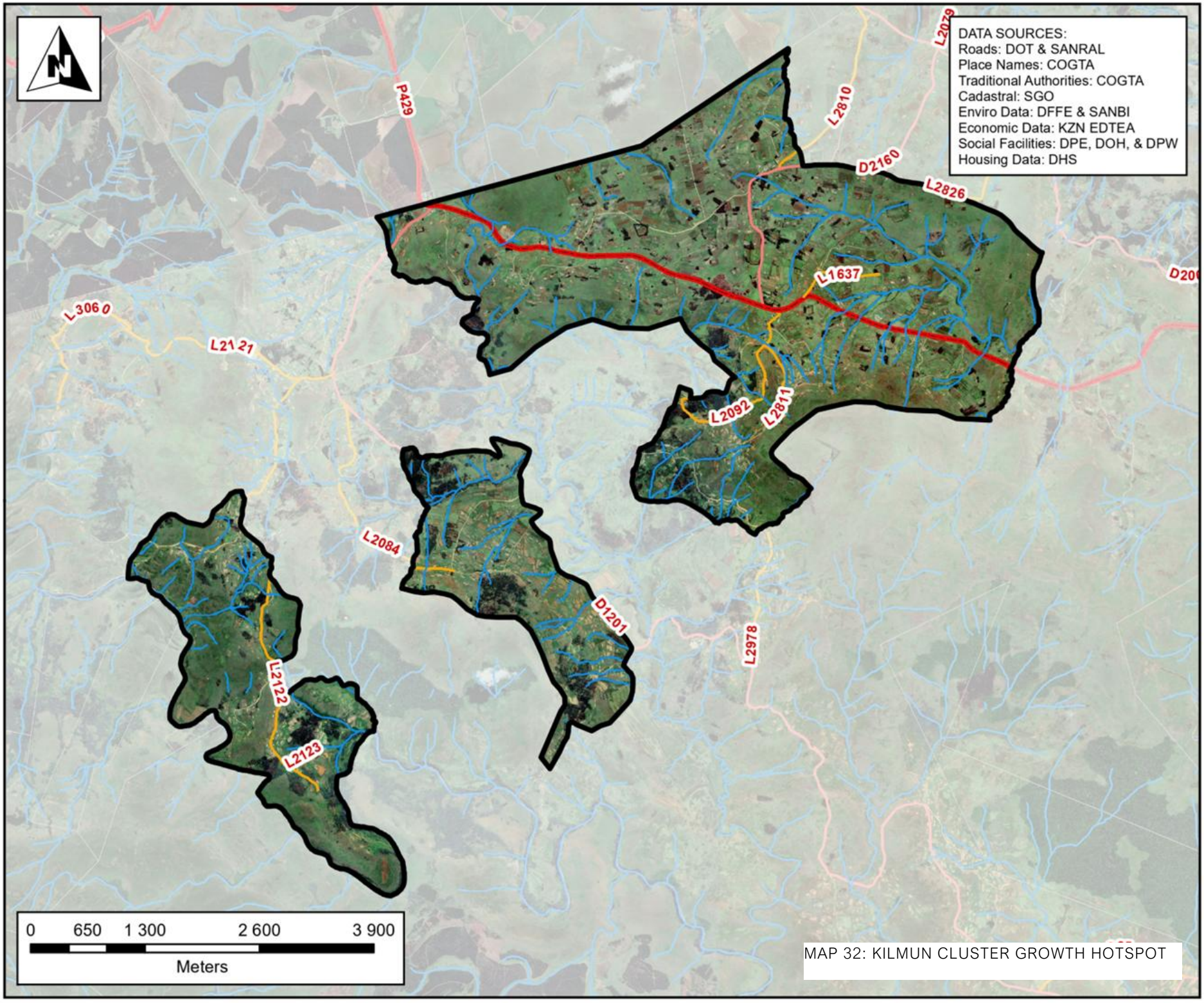
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Growth Hotspots/ Growth Pressure Points

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Qulase Cluster
- Stepmore Cluster
- Kilmun Cluster
- eSharp Cluster
- Sandanezwe Cluster
- Nkumba Cluster
- Protected Area

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MAP 32: KILMUN CLUSTER GROWTH HOTSPOT

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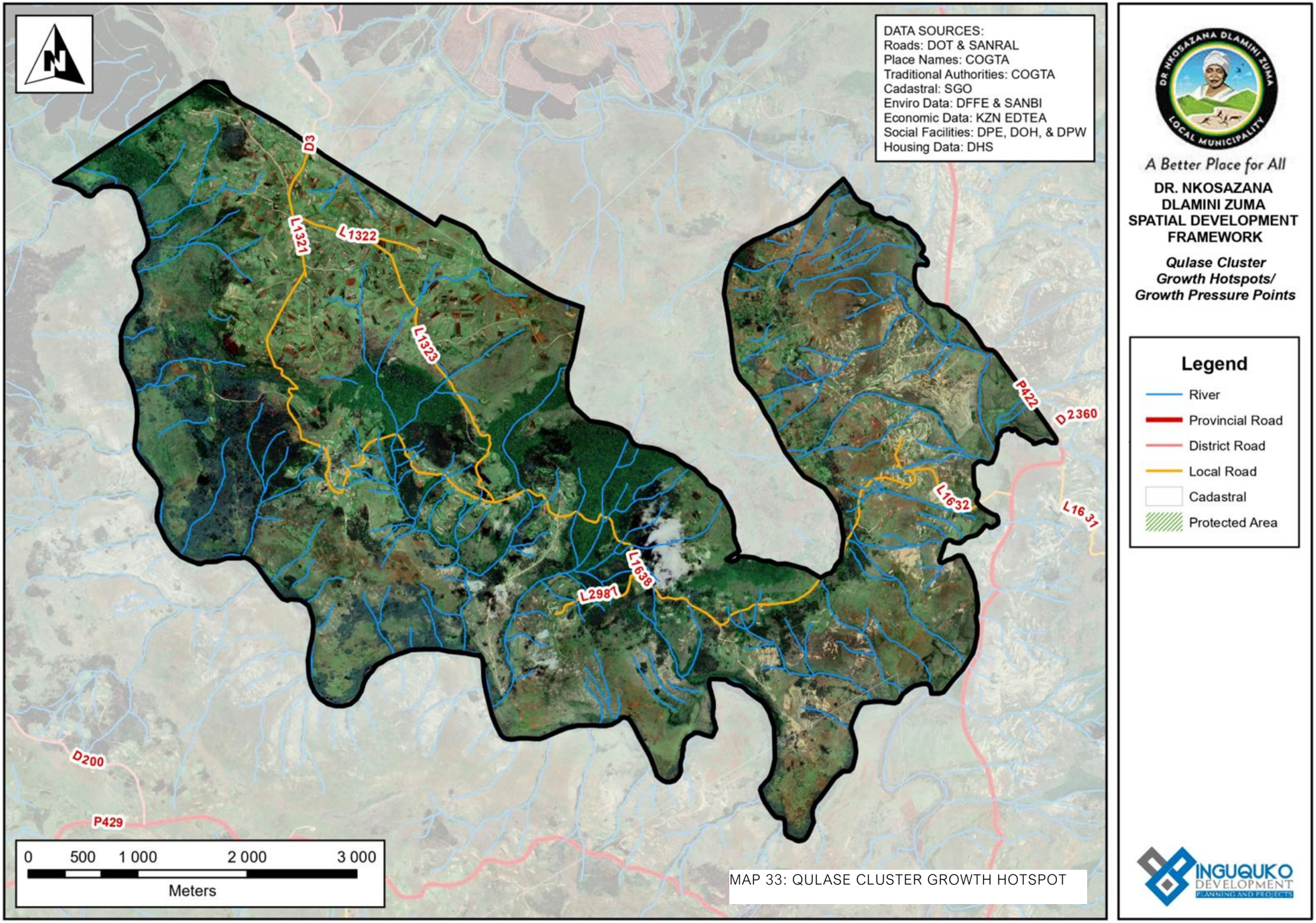
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Kilmun Cluster Growth Hotspots/ Growth Pressure Points

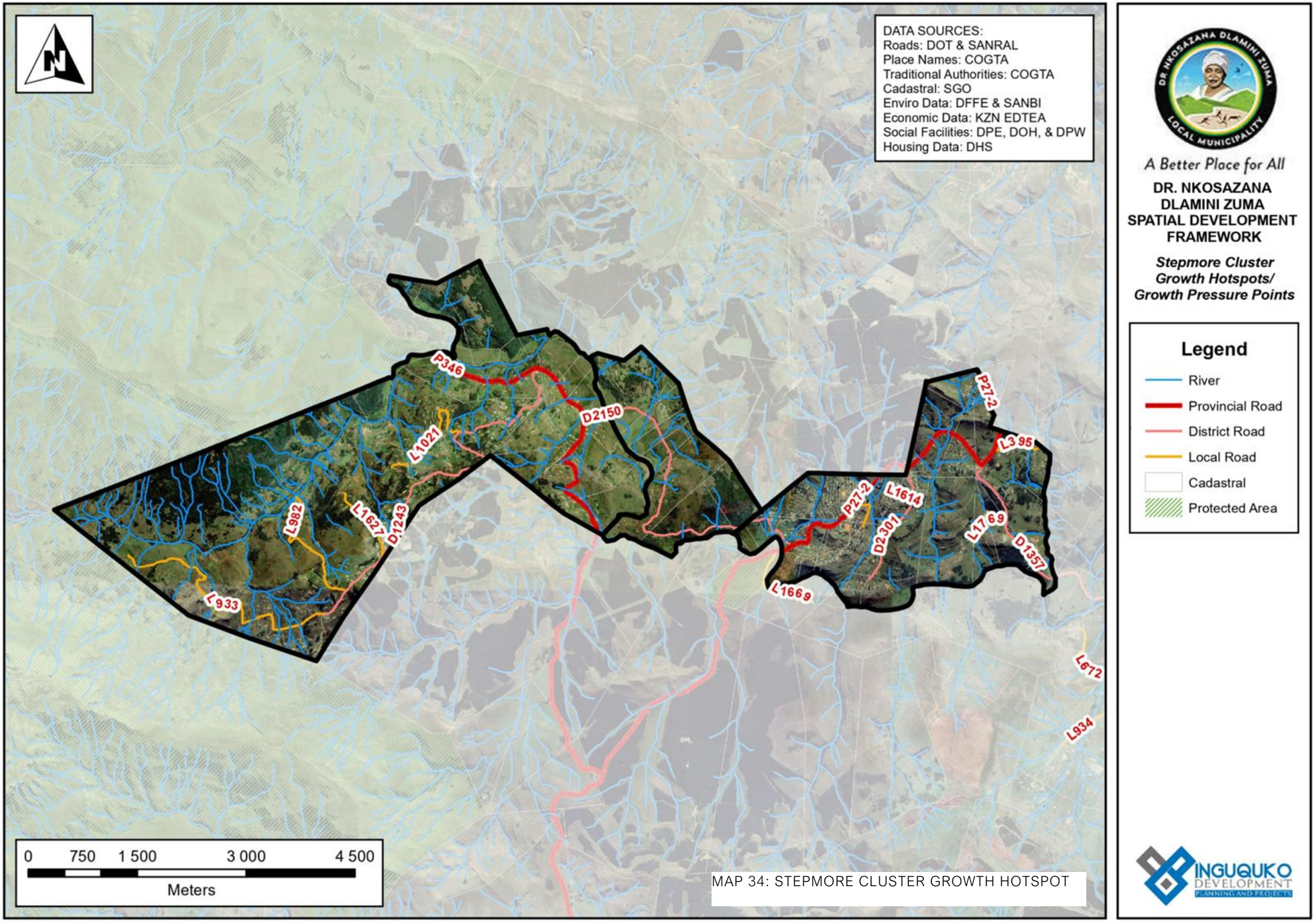
Legend

- River
- Provincial Road
- District Road
- Local Road
- Cadastral
- Protected Area

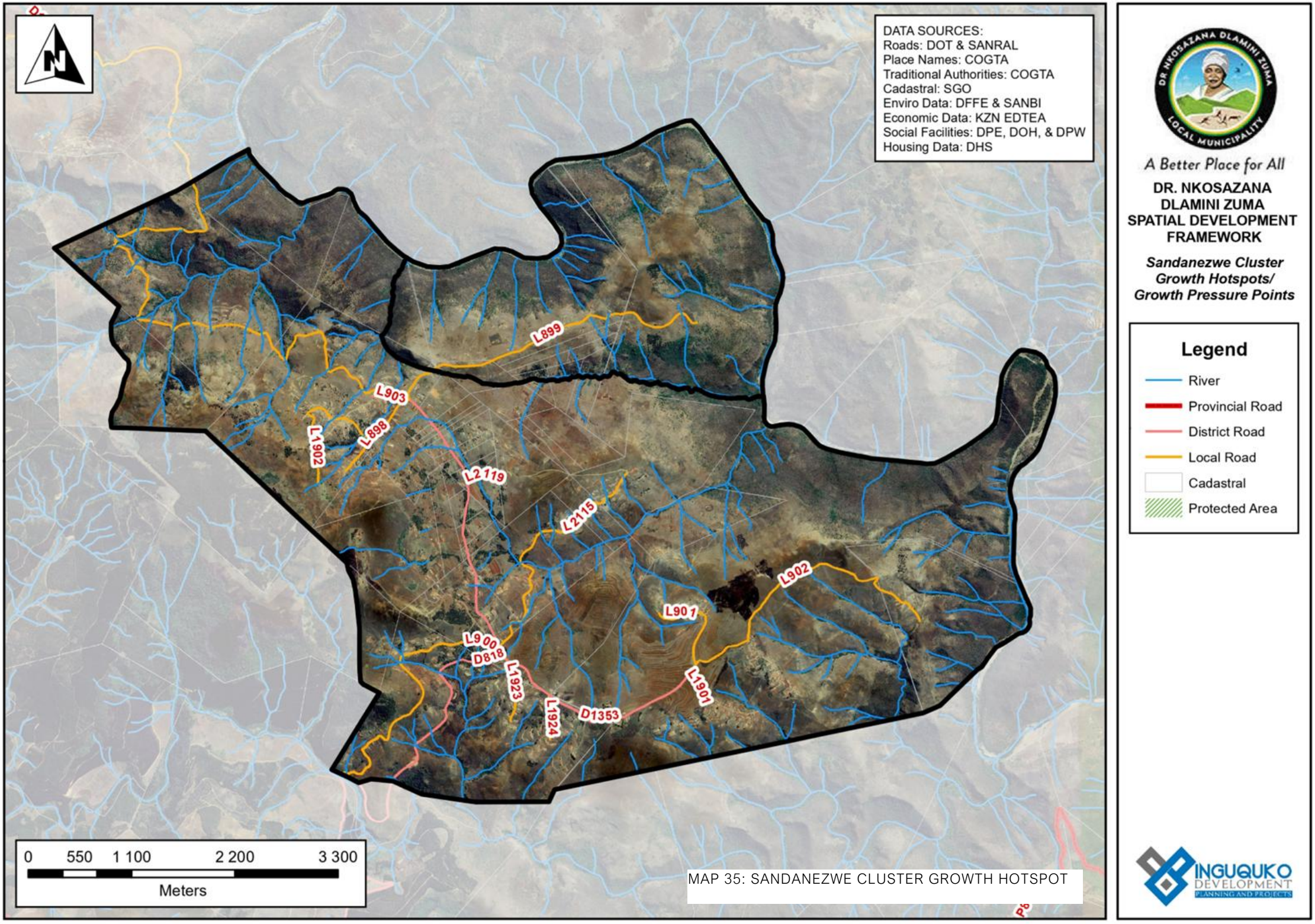
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MAP 33: QULASE CLUSTER GROWTH HOTSPOT



MAP 34: STEPMORE CLUSTER GROWTH HOTSPOT



MAP 35: SANDANEZWE CLUSTER GROWTH HOTSPOT

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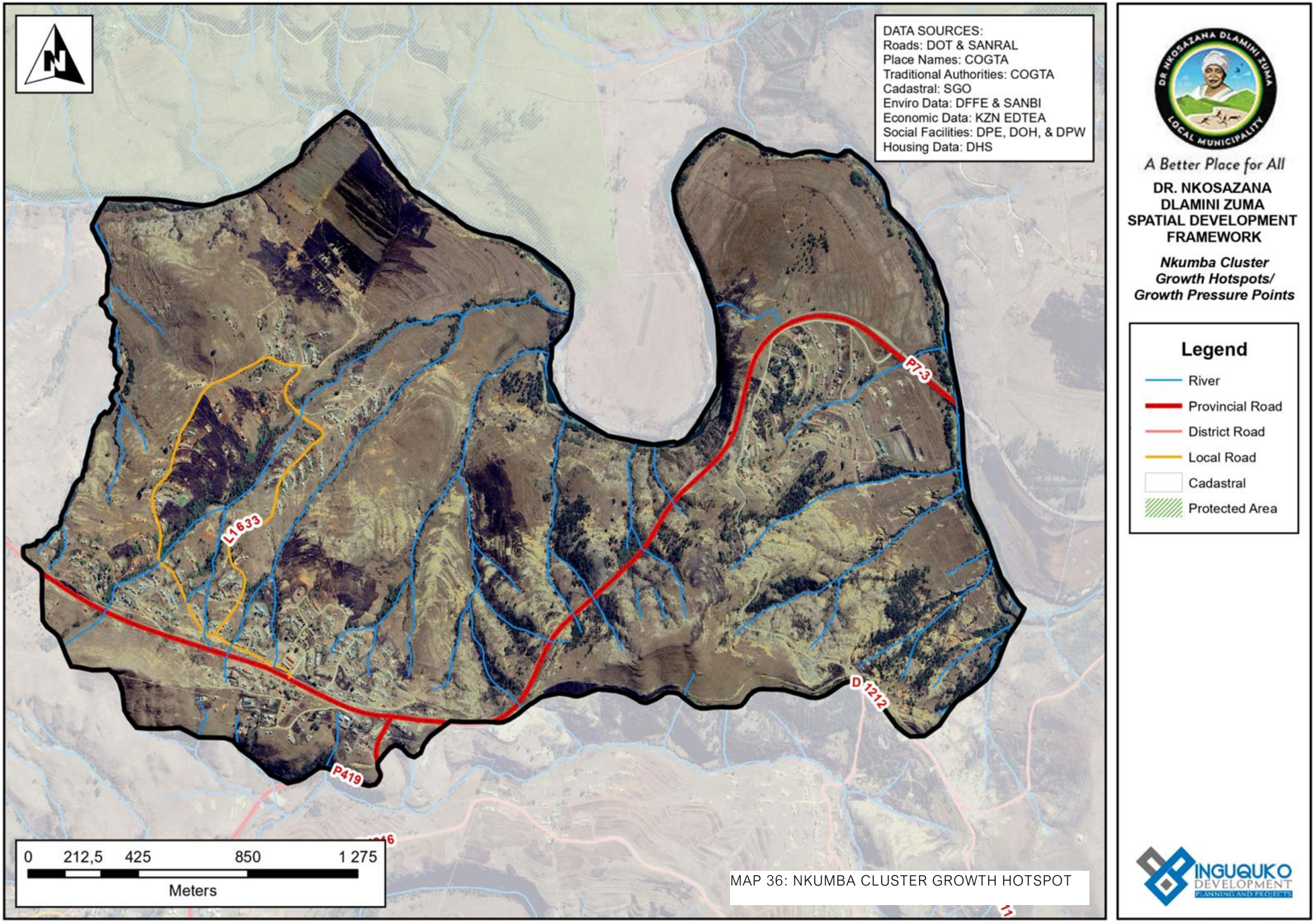
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Sandanezwe Cluster Growth Hotspots/ Growth Pressure Points

Legend

- River
- Provincial Road
- District Road
- Local Road
- Cadastral
- Protected Area

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MAP 36: NKUMBA CLUSTER GROWTH HOTSPOT

6.4.4. OPPORTUNITIES AND CHALLENGES

The household growth data highlights both opportunities and challenges for NDZ. High-growth settlements such as Kilmun, Step More, Nkumba, Sandanezwe, and Qulase present opportunities to designate priority development nodes for targeted infrastructure and economic investment. Service hubs such as Donnybrook and Centocow can be consolidated and strengthened to balance growth and support surrounding settlements. There are also opportunities to leverage household growth for agrarian reform, rural enterprise support, and small-scale business promotion.

However, rapid growth brings challenges. High-growth settlements face immediate pressure on bulk infrastructure and social services, including water, sanitation, electricity, and housing. Uncontrolled sprawl is a risk in peripheral settlements, increasing service delivery costs and undermining spatial efficiency. The uneven distribution of growth places strain on municipal institutional capacity and financial resources, while expansion into environmentally sensitive areas increases risks of erosion, habitat loss, and reduced ecosystem services.

6.4.5. STRATEGIC RECOMMENDATIONS

The following strategic recommendations are proposed to guide municipal interventions:

- **Prioritisation of High-Growth Nodes:** Kilmun, Step More, Nkumba, Sandanezwe, and Qulase should be designated as priority nodes in the SDF, with integrated housing, infrastructure, and economic development planning.
- **Consolidation of Service Hubs:** Donnybrook and Centocow should be reinforced as secondary nodes, focusing on incremental service strengthening, consolidation, and managed densification.
- **Infrastructure Investment:** Priority investment should be directed to bulk water, sanitation, electricity, and access roads in high-growth areas.
- **Integrated Human Settlements Planning:** Growth management strategies must promote densification, mixed-use development, and compact settlements to limit uncontrolled sprawl.
- **Environmental Safeguards:** Expansion into environmentally sensitive zones must be guided by proactive environmental management, land use controls, and rehabilitation measures.

TABLE 14: GROWTH HOTSPOTS – NEEDS AND RECOMMENDATIONS

SETTLEMENT / CLUSTER	HOUSEHOLDS 2009	HOUSEHOLDS 2016	NET CHANGE	% GROWTH	KEY NEEDS	SPATIAL RISKS	RECOMMENDATIONS
Kilmun	922	2,217	+1,295	+140%	Bulk water, sanitation, housing, roads	Service overload, sprawl, environmental encroachment	Designate as secondary node, compact mixed-use development, infrastructure upgrades
Step More/Mqatsheni	96	1,148	+1,052	+1,096%	Housing delivery, education, clinics, roads	Informal settlement risk, scattered growth	Prioritise as growth node, implement precinct plan, strengthen service networks
Nkumba	935	1,816	+881	+94%	Electricity, roads, small business support	Urban sprawl, weak economic base	Develop as service hub, support agro-processing and SMMEs
Sandnezwe	29	825	+796	+2,745%	Water, sanitation, housing, schools	Rapid densification on fragile land	Precinct planning, establish clear urban edge, link to transport corridor
Qualasle	105	715	+610	+581%	Social services, housing, roads	Encroachment on agricultural land	Manage as small growth node, align with transport and service delivery plans
eSharp	1,490	2,220	+730	+49%	Bulk services, public transport, housing	Pressure on transport routes, lack of planning controls	Strengthen as regional service hub, invest in taxi ranks and business precincts

6.4.6. SETTLEMENT GROWTH & DISTRIBUTION

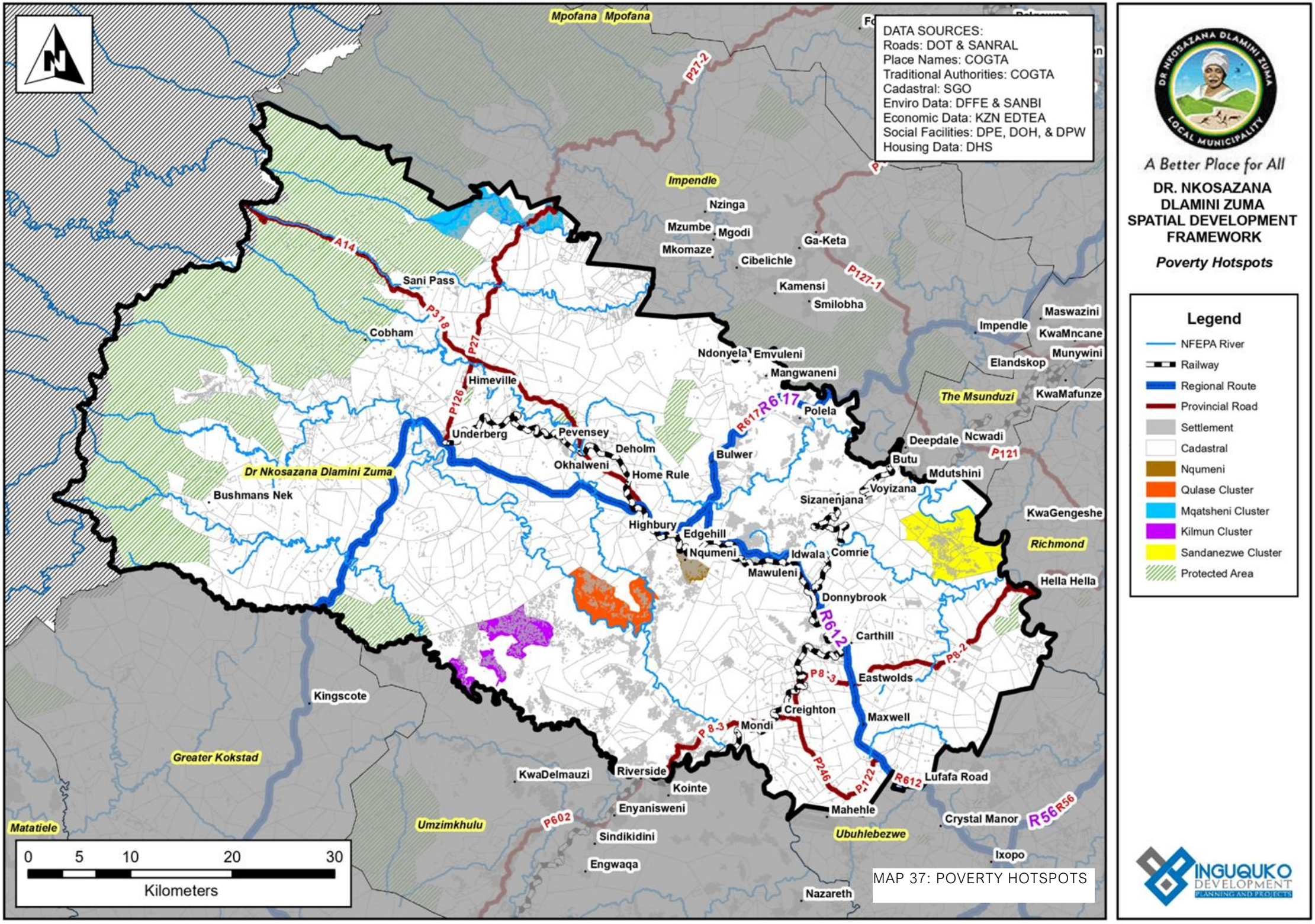
Settlement growth and distribution in Dr Nkosazana Dlamini Zuma (NDZ) Municipality reveal stark spatial inequalities. The analysis, as per the Provincial Poverty Master Plan, highlights the uneven geography of poverty, with certain wards experiencing disproportionately high deprivation. These patterns influence not only where people live, but also how they access opportunities, services, and infrastructure. For the SDF, understanding these dynamics is fundamental to identifying priority areas for intervention.

6.4.6.1. POVERTY HOTSPOTS

Below are the settlements which have been identified as poverty hotspots. These are settlements characterised by severe poverty, ranked provincially according to their level of deprivation:

- Kilmon – ranked 23rd, the most deprived in NDZ.
- Mqatsheni – ranked 51st.
- Bazini/Ndondela – ranked 106th.
- Sandenezwe/Ndonyela – ranked 143rd.
- Qulashe/Nqumeni – ranked 152nd.

These settlements represent both areas of greatest vulnerability and areas where targeted interventions are likely to have the most transformative effect. The persistence of poverty here reflects long-standing structural inequalities, limited access to services, and weak integration with economic nodes.



MAP 37: POVERTY HOTSPOTS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Poverty Hotspots

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Nqumeni
- Qulase Cluster
- Mqatsheni Cluster
- Kilmun Cluster
- Sandanezwe Cluster
- Protected Area

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6.4.6.2. IDENTIFIED GROWTH AREAS

In contrast to the poverty hotspots, several settlements are recognised as growing areas with potential for further development. These include:

- **Underberg** – a key service and tourism hub.
- **Maoleni–Chalis–Seaforth cluster** – a growth node with emerging residential expansion.
- **Qulashe** – an area of potential consolidation despite poverty challenges.
- **Mquasheni** – strategically located with agricultural opportunities.
- **Shabhu** – emerging settlement requiring improved access.
- **Ndondeni** – expanding settlement with potential for agricultural and residential development.

The identification of growth areas alongside poverty hotspots illustrates the dual challenge for NDZ: balancing investment in areas of economic promise while ensuring vulnerable settlements are not left behind.

6.4.6.3. SPATIAL DISPARITIES

The juxtaposition of poverty hotspots and growth areas underscores NDZ's fragmented spatial landscape. Settlements with strong access to services and roads (e.g., Underberg) attract investment and opportunities, while remote and isolated areas remain structurally disadvantaged. This spatial inequality manifests in:

- Uneven access to education, healthcare, and municipal services.
- Limited employment opportunities in isolated wards.
- Poor connectivity between high-potential and high-need settlements.

6.4.6.4. IMPLICATIONS FOR THE SDF

From a planning perspective, settlement distribution highlights several critical considerations:

- **Balanced Development** – While Underberg and similar hubs should continue to serve as growth anchors, the municipality must also invest in isolated communities to prevent widening inequality.
- **Service Consolidation** – Smaller, marginal settlements may require clustering around stronger service nodes to ensure cost-effective delivery.
- **Targeted Interventions in Poverty Wards** – Kilmon, Mqathsheni, and Bazini/Ndondela warrant urgent programmes in employment, infrastructure, and social services.
- **Growth Area Management** – Expansion in areas like Ndondeni and Qulashe must be carefully managed to align with environmental sustainability and infrastructure capacity.

6.4.7. SETTLEMENT TYPOLOGIES & HIERARCHIES

Settlements in the municipality are characterised by the following identifiers:

6.4.7.1. SETTLEMENTS WITH GOOD ACCESS

- Located along main routes and closer to service centres.
- Offer opportunities for economic initiatives and LED interventions.
- Examples: Underberg and certain peri-urban clusters.
- Implication: These areas should be leveraged as growth anchors and service nodes.

6.4.7.2. ISOLATED COMMUNITIES

- Located in remote areas with poor physical access.
- Characterised by high levels of deprivation and weak connectivity.

- Require urgent interventions in basic human rights, services, and accessibility.
- Implication: Priority for infrastructure provision (roads, water, energy).

6.4.7.3. ISOLATED COMMUNITIES WITH AGRICULTURAL BASE

- Remote but with strong potential for subsistence and small-scale agriculture.
- Constraints include lack of market access, limited extension services, and weak road networks.
- Implication: Opportunities exist for agricultural support programmes (cooperatives, market linkages).

6.4.7.4. LIMITED ACCESS COMMUNITIES

- Settlements with constrained mobility and limited connectivity to markets.
- Suffer from low education levels and limited skills development.
- Implication: Require investment in education, skilling, and market integration to unlock potential.

6.4.8. SETTLEMENT HIERARCHY BASED ON HOUSEHOLD NUMBERS

Settlement size, measured by household numbers, is used to create a hierarchy of importance. Larger settlements represent stronger nodes for service delivery and economic activity, while smaller settlements remain vulnerable to marginalisation. This hierarchy aligns with planning best practices, which emphasise the role of primary, secondary, and tertiary nodes in structuring settlement systems.

6.4.8.1. IMPLICATIONS FOR PLANNING

The settlement typologies and hierarchy present several strategic insights for the SDF:

- **Multi-Nodal Development** – Planning must reinforce primary nodes (e.g., Underberg) while strengthening secondary and tertiary settlements to reduce service disparities.
- **Targeted Service Delivery** – Typologies allow for differentiated planning, ensuring resources are matched to settlement needs.
- **Reducing Spatial Inequality** – Isolated and limited-access settlements require proactive interventions to break cycles of poverty.
- **Agricultural Integration** – Rural settlements with strong agricultural bases should be supported through input provision, market access, and skills training.
- **Cost Efficiency** – Recognising settlement hierarchy prevents overextension of resources into unsustainable or scattered settlements.

6.4.8.2. LINK TO SDF SPATIAL CHALLENGES & OPPORTUNITIES

- **Challenges**: Persistent marginalisation of isolated settlements, uneven service delivery, weak economic integration.
- **Opportunities**: Use of settlement hierarchy as a planning tool to prioritise development interventions, reinforce growth areas, and strategically manage rural settlements.

6.4.9. BULWER

Bulwer functions as a primary service node historically identified within the Ingwe/NDZ system, with evidence of growth in Ward 9 between 2001 and 2011. The town exhibits a strongly linear settlement structure organised along the R617, with businesses opening directly to the highway and adjacent public streets (supporting natural surveillance). Residential structure comprises three typologies: established single-residential areas west of the R617, newer subsidised units to the east, and scattered/dilapidated units around the CBD; higher-density rental stock is notably lacking.

6.4.9.1. INFRASTRUCTURE AND SERVICE CHALLENGES

- **Stormwater & flood risk.** The town's position at the foot of a hill and convergence of runoff paths makes it flood-prone, requiring improved stormwater control to reduce vulnerability.
- **Roads & sidewalks.** The URP identifies resurfacing and provision of sidewalks along the R617 and internal distribution roads as priority interventions.
- **Street lighting & safety.** Several areas are poorly illuminated at night; some streetlights exist but were observed as not functioning, increasing safety risk.
- **Sanitation & public ablutions.** Provision of public ablution facilities is a designated project—indicating existing shortfalls for traders/visitors in the CBD environment.
- **Refuse & urban management.** The action list includes a Waste Management Strategy and an Urban Infrastructure Maintenance Programme, signalling the need for systematic operations and maintenance across public realm assets.
- **Electricity.** Lighting upgrades form part of the public-realm package (improved street lighting along side streets).

6.4.9.2. SOCIO-ECONOMIC DYNAMICS

Investment has been limited and sporadic, with some decline in formal businesses and a sense of economic stagnation in parts of the CBD. The informal economy is small (three trading clusters), and trading conditions vary from good lock-ups to poor/harsh facilities without storage, indicating marginal conditions for micro-enterprises.

6.4.9.3. LAND-USE AND SPATIAL DEVELOPMENT ISSUES

The URP calls for spatial-planning policy alignment (scheme formulation), terrain modelling, and rezoning/release of public land to support a more functional urban structure and signal investment readiness. The spatial logic includes a commercial/retail ring-route, pedestrian/vehicular separation and crossings on the R617, and a clearer access hierarchy to integrate social and business precincts.

6.4.9.4. STRATEGIC OPPORTUNITIES

- **Public-realm and mobility:** R617 upgrade (stormwater/surface/sidewalks), internal road upgrades, lighting and pedestrian crossings to enhance safety, access and legibility.
- **Economic enablement:** Trader facilities with storage and a fresh-produce/periodic market; SMME incubation and investment promotion to diversify economy and formalise micro-enterprise.
- **Land mobilisation:** Public land release and targeted facilitation of privately owned vacant land to crowd-in investment.
- **Housing & compact form:** Higher-density public housing near the core to extend activity hours and surveillance, subject to capacity and flood-risk management.
- **Green systems & tourism:** Passive/active open spaces along the R617, nature walk/trail, and cross-boundary tourism packaging (e.g., Amahaqwa Mountain, Marutswa Forest) to leverage the area's natural assets.

6.4.9.5. IMPLICATIONS FOR THE SDF (ALIGNED TO SPLUMA PRINCIPLES & NDZ IDP/SDF POLICY THEMES)

- **Spatial Justice.** Formalise and upgrade trading infrastructure (lockups, storage, ablutions) and pedestrian facilities to improve equitable access to economic opportunity and dignified services in the CBD.
- **Spatial Sustainability & Resilience.** Prioritise stormwater and flood-risk mitigation and protect/activate open-space buffers along the R617 to reduce hazard exposure while creating quality public environments.
- **Spatial Efficiency.** Implement the ring-route and NMT crossings to restructure access, consolidate activity in walkable distances, and support inward/upward growth where services are or will be available (pair higher-density housing with capacity upgrades).
- **Spatial Quality (Liveability).** Deliver coordinated public-realm upgrades—surface, sidewalks, lighting, greening, street furniture—to create safe, legible streets and squares supporting day- and night-time activity.
- **Good Administration.** Adopt enabling instruments—scheme formulation, public land release, advertising control, waste management strategy, and O&M programming—to fast-track responsible development and maintain assets.
- **Alignment with NDZ transformation agenda.** The Underberg-Himeville precinct framework (as a recent NDZ planning reference) emphasises precinct-level spatial transformation and SDF-led consolidation of nodes; Bulwer's URP programme (public realm + spatial + economic + institutional) fits this municipality-wide orientation to compact, serviced nodes.

6.4.10. DONNYBROOK

Donnybrook is one of the five NDZ towns alongside Underberg, Himeville, Creighton and Bulwer within a predominantly rural municipality. The Donnybrook Precinct Plan positions the town as a small service node with a dual CBD (formal and informal) that emerged from segregated development patterns. The plan's core spatial task is to re-stitch the town across the rail line and structurally integrate the retail core, potential industrial/light industrial areas, and government/social functions.

Strategically, Donnybrook's R612 approach functions as the regional gateway into the CBD, while D731 is envisaged as the major activity street with an inner circular route forming the local movement core—an access and legibility framework consistent with nodal strengthening in SDF practice.

6.4.10.1. INFRASTRUCTURE AND SERVICE CHALLENGES

- **Access & Road Safety.** The D731 currently functions as both a mobility and an activity street, creating significant pedestrian–vehicle conflict. The plan calls for rebalancing the street with sidewalks, urban greening, lighting and security—particularly along main pedestrian desire lines that connect the Taxi Rank, Police Station and retail core.
- **Public Transport & Trading.** The existing Taxi Rank requires upgrading and the proposed Public Transport Hub should integrate trading activities to support the informal economy and natural trip interchanges.
- **Water & Sanitation.** The status-quo assessment highlights the provision of water and sanitation as a priority need for Donnybrook, reinforcing the requirement to sequence basic services with public-realm upgrades.
- **Urban Integration across Rail.** A physical crossing over the rail line is required to knit the retail core to potential industrial land and reduce economic fragmentation.

- **Institutional/Management Gaps.** Implementation levers stress public infrastructure coordination, regulatory mechanisms (e.g., Land Use Management Scheme), partnerships and incentives, alongside a concrete implementation action plan (forum, BID, development agency, project champions).

6.4.10.2. SOCIO-ECONOMIC DYNAMICS

The precinct plan explicitly recognises a dual economy, with a dual CBD structure and the need to promote graduation from informal to formal enterprise. Socio-economic objectives include skills development, business retention/attraction, and a localised agrarian transformation that pivots Donnybrook toward more commercial-based productivity—an explicit LED framing for a rural service node.

6.4.10.3. LAND USE AND SPATIAL DEVELOPMENT ISSUES

The spatial framework identifies district functioning for retail/commercial, industrial, light industrial, government/social, higher-density residential, single residential and recreational districts, each with tailored access, public transport interfaces, land-use control, and urban space responses. Integration measures include gateway treatments on R612, an inner circulation loop, and D731 as an activity street—paired with pedestrianisation and NMT safety.

Land and governance tools are central: the plan proposes formalising an integrated LUMS, resolving land legal matters, and coordinated public investment to catalyse private response—consistent with SPLUMA's governance imperatives.

6.4.10.4. STRATEGIC OPPORTUNITIES

- **Access & Public Realm Upgrades.** Gateway improvements on R612, a circulation core, and pedestrian priority measures will raise legibility and safety while unlocking frontage value for mixed-use reinvestment.
- **Public Transport & Markets.** Upgrading the Taxi Rank and establishing a Public Transport Hub that accommodates trading can stabilise the informal economy and create an organised marketplace.
- **Land & Land-Use Enablement.** The plan notes large tracts of land with redevelopment potential; priorities include agricultural processing, tourism development, and higher-density residential near the core—supported by a precinct forum, BID, and development agency to coordinate delivery.
- **Rural Economy & Agrarian Transformation.** Objectives emphasise support to farms, local food gardens, and a shift to commercial productivity—a complementary base for agro-processing in town.

6.4.10.5. IMPLICATIONS FOR THE SDF — ALIGNED TO SPLUMA & NDZ IDP/SDF THEMES

Spatial Justice.

- Formalise trading (market/lock-ups, ablutions) and upgrade the Taxi Rank/PT Hub, improving dignified access to economic opportunity for lower-income users.
- Promote graduation from informal to formal through managed market space and enterprise support.

Spatial Sustainability & Resilience.

- Sequence water & sanitation upgrades with precinct investment to ensure long-term viability of densification and mixed-use.
- Treat infrastructure capacity & maintenance as foundational to growth and investment confidence.

Spatial Efficiency.

- Implement the R612 gateways, D731 activity street and inner circulation loop to consolidate activity within walkable catchments and reduce per-capita service costs.
- Enable higher-density residential in the core to support thresholds for public transport and retail.

Good Administration (Governance).

- Adopt/strengthen the LUMS, resolve land legal matters, and coordinate capital through a precinct forum/BID/development agency—core implementation levers reflected in the precinct plan and consistent with the municipal approach to precinct planning as the next level of planning below the SDF.
- Draw on small-town revitalisation guidance: scheme administration support and skills development to address unemployment and improve plan implementability.

6.4.10.6. NDZ IDP/SDF POLICY ALIGNMENT.

- **Service delivery priorities:** water/sanitation and street-lighting/sidewalks sequenced with public-realm upgrades.
- Resilience planning: infrastructure capacity and O&M as a growth precondition, per precinct guidance.
- **Investment prioritisation:** focus capital on nodal access, PT hub, and mixed-use core to crowd-in private investment.
- **Spatial transformation:** integrate the dual CBD and bridge the rail divide; promote compact, mixed-use growth.

6.4.11. UNDERBERG

Underberg is one of NDZ's primary nodes, identified in the municipal SDF as a central development town with regional service functions. It acts as a tourism hub for the southern Drakensberg and the Sani Pass, serving as a gateway to Lesotho. The town accommodates commercial, administrative, and service functions for its surrounding rural settlements and has a relatively stable property market linked to tourism.



6.4.11.1. INFRASTRUCTURE AND SERVICE CHALLENGES

- **Roads & Traffic.** Underberg experiences traffic congestion due to its position on the P126 Sani Pass Road. The precinct plan proposes a bypass and truck stop to divert heavy vehicles and relieve the CBD.
- **Stormwater.** Growth along the town's linear routes has created vulnerabilities in stormwater management, requiring infrastructure upgrades to protect both businesses and residences.
- **Housing.** A major pressure is housing demand, with proposals for middle-income and low-income housing projects.

- **Social & Recreational Facilities.** The plan identifies the need for a multipurpose/sports centre and upgrades to public spaces, including market stalls and farmer's markets, to strengthen the town's social infrastructure.
- **Public Transport.** The need for enhanced public transport facilities, bus/taxi ranks, and pedestrian linkages has been highlighted.

6.4.11.2. SOCIO-ECONOMIC DYNAMICS

Underberg's economy is tourism-driven, attracting visitors to its natural environment and to Lesotho. The presence of guesthouses, lodges, and related retail has stabilised local incomes and created employment. Agro processing also plays a role, supported by surrounding commercial farming. Despite this, unemployment remains high in adjacent rural settlements, creating pressure on the town as a service node.

The farmers' market and proposed agro-processing site highlight opportunities for small-scale producers and local value chains.

6.4.11.3. LAND USE AND SPATIAL DEVELOPMENT ISSUES

The land-use framework identifies opportunities for:

- Mixed-use development to strengthen the CBD.
- Industrial and agro-processing activities on identified sites.
- Residential densification, guided by a densification framework.
- Civic and social facilities, including a proposed high school and multipurpose centre.
- Tourism-related activities, including upgrading the Underberg Railway tourism node.

The plan emphasises integrating land-use with infrastructure feasibility, sequencing housing projects with bulk services, and aligning expansion with the NDZ SDF's spatial transformation agenda.

6.4.11.4. STRATEGIC OPPORTUNITIES

- **Tourism & Cross-Border Linkages.** Capitalise on Underberg's position as the gateway to Lesotho, promoting eco-tourism, cultural tourism, and cross-border trade.
- **Agro-Processing & Local Economy.** Establish a formal agro-processing cluster and strengthen local farmers' markets.
- **Housing & Densification.** Develop middle-income housing projects and explore managed densification in proximity to services.
- **Transport & Mobility.** Implement the proposed bypass and truck stop, enhance public transport facilities, and improve pedestrian linkages.
- **Social & Recreational Facilities.** Deliver a multipurpose sports centre and upgraded public spaces to support a vibrant local economy and community well-being.

6.4.11.5. IMPLICATIONS FOR THE SDF

Spatial Justice.

- Ensure equitable access to housing by prioritising low- and middle-income housing projects within serviced areas.
- Provide inclusive facilities (sports, markets, transport hubs) that serve both residents and rural visitors.

Spatial Sustainability & Resilience.

- Direct growth into compact, mixed-use areas to minimise infrastructure costs.
- Address stormwater and transport pressures to build resilience against climate and economic shocks.

Spatial Efficiency.

- Prioritise bypass, truck stop, and public transport upgrades to reduce congestion and improve regional connectivity.

- Support densification to ensure efficient use of land and services.

Good Administration.

- Align precinct proposals (housing, agro-processing, bypass) with the NDZ SDF's capital investment framework.
- Sequence projects with infrastructure feasibility assessments, as emphasised in the 2025 plan.

6.4.11.6. NDZ IDP/SDF POLICY ALIGNMENT.

- **Service Delivery Priorities:** Housing and bulk services.
- **Resilience Planning:** Address stormwater, traffic congestion, and economic vulnerability through integrated infrastructure.
- **Investment Prioritisation:** Position Underberg as a primary tourism and agro-processing node, concentrating capital for maximum impact.
- **Spatial Transformation:** Leverage tourism and housing demand to restructure land-use, expand mixed-use areas, and consolidate the nodal hierarchy.

6.4.12. HIMEVILLE

Himeville sits ~7 km from Underberg within NDZ LM, operating as an important gateway to Lesotho via P126 (Sani Pass) while serving the local Himeville township with amenities. The P126 is explicitly identified as an activity spine in Himeville. Functionally, Himeville complements Underberg's primary role, anchoring community-level services and visitor movement to and from Lesotho.

6.4.12.1. INFRASTRUCTURE AND SERVICE CHALLENGES

- **Roads & Access.** The precinct plan notes very few internal access and district roads are surfaced; priorities include surfacing D7, D438, D8, D259 on approach, upgrading main collectors, and roundabout improvements at the R617/P126 intersection.
- **Stormwater.** It calls for proper stormwater management alongside road upgrades—critical for protecting the urban edge and built assets.
- **Public Transport.** There is no formal PT rank in Himeville; however, PT stops should be provided/formalised along key desire lines.
- **Bulk Services (Water/Sewer).** Municipal key projects include Underberg–Himeville Water Supply Scheme Upgrade and Underberg–Himeville Sewer—underscoring bulk capacity constraints that must be sequenced with growth.
- **Public Realm/Identity.** A gateway/entrance feature for Himeville on P126 (from the north) is proposed to strengthen place identity and tourism legibility.

6.4.12.2. SOCIO-ECONOMIC DYNAMICS

Himeville's economy is tourism-adjacent (Sani Pass/Lesotho) and embedded in a surrounding agricultural hinterland. The plan highlights a tertiary education gap—no nearby tertiary facilities—and proposes a Himeville Agricultural College to build local skills and align with agricultural value chains.

The Himeville Housing Project (IDP) signals demand for additional housing, including a defined middle-income market (R15 000–R45 000/month) that falls outside subsidy bands—an equity and affordability issue needing market-driven solutions.

6.4.12.3. LAND USE AND SPATIAL DEVELOPMENT ISSUES

The Himeville spatial focus is to consolidate growth along P126, enhance NMT connectivity (R617/P126 corridors), and formalise PT stops to reduce conflict and improve access.

Key Himeville-specific project areas include:

- **Middle-Income Housing** (re-layout of Erf 207 & erven 239–265): ~96–154 sites feasible at 500–800 m²; addresses the non-subsidised affordability gap.
- **Sports Field Upgrade** (Portion 7 of Farm 9208 along P126): rehabilitation to meet community recreation needs.
- **Airport Upgrade**: feasibility to expand the Himeville airfield for tourism access (IDP/SDF project).
- **Agricultural College**: investigate feasibility and siting to support skills development and agri-economy.

6.4.12.4. STRATEGIC OPPORTUNITIES

- **Tourism Logistics & Place-making**: Gateway feature on P126 plus airport upgrade to improve visitor access and town legibility.
- **Housing Diversification**: Deliver middle-income stock through the identified re-layout—bridges the subsidy gap and anchors compact growth.
- **Agri-Skills & Value Chains**: Agricultural College as a local skills pipeline aligned to the district's agricultural economy.
- **Public Realm & Sports**: Upgrade sports field to enhance social infrastructure and activate the P126 edge.
- **Mobility & NMT**: Formalise PT stops, surface priority links, and deliver NMT walkways along R617/P126.





6.4.12.5. IMPLICATIONS FOR THE SDF — ALIGNMENT TO SPLUMA PRINCIPLES & NDZ IDP/SDF POLICY THEMES

Spatial Justice

- Provide affordable, well-located middle-income housing (Erf 207 & erven 239–265) within serviced areas to broaden access beyond subsidy bands.
- Formalise PT stops and enhance NMT to improve equitable access to jobs/services along P126.

Spatial Sustainability & Resilience

- Sequence bulk upgrades (water/sewer) with housing and public-realm projects; integrate stormwater with road surfacing.
- Apply precinct-wide environmental goals (wetland/open-space linkages, greening) to Himeville edges and corridors.

Spatial Efficiency

- Consolidate growth along the P126 activity spine; promote compact, mixed-use and NMT-oriented development to lower per-capita service costs.
- Prioritise surfacing of main collectors and key district approaches (D7/D438/D8/D259).

Good Administration (SPLUMA Governance)

- Tie projects to an implementation framework: capital sequencing, by-law enforcement, maintenance, safety, and public-realm standards in the CBD/axial spine.
- Use SDF to mandate project feasibility (e.g., airport) and establish monitoring & evaluation.

6.4.12.6. NDZ IDP/SDF POLICY THEMES

- **Service-delivery priorities**: Underberg–Himeville Water and Sewer upgrades as prerequisites for housing and tourism growth.
- **Resilience**: embed stormwater and road surfacing into the first phase of interventions.
- **Economic development**: leverage gateway identity, airport upgrade, and agri-skills to support tourism and agriculture clusters.
- **Spatial transformation**: focus infill/compaction and land release along the P126 spine; align with precinct-wide integration objectives.

6.4.13. DISPERSED SETTLEMENTS

NDZ is predominantly rural with 15 wards and 13 traditional councils: five towns (Underberg, Himeville, Creighton, Bulwer, Donnybrook) anchor services for an extensive rural hinterland. Traditional villages under customary tenure dominate outside town footprints, complemented by farm settlements/worker hamlets on freehold land.

Within the Creighton catchment (±25 km), Wards 5–8, 14 & 15 accommodate ~39.8% of municipal population with a pronounced youthful structure. These wards contain the Centocow and Ingwangwane/Loretta clusters and villages such as Hlabeni, Qulashe, Esibomvini, Emasamei, Bazini, which are functionally dependent on Creighton for higher-order goods and services.

On the eastern side, Underberg (primary node) and Himeville (secondary node) serve nearby rural clusters such as Marhwaqa and Nhlanhleni, with the Underberg–Pevensey rail corridor and R617/P126 road system structuring access to town.

6.4.13.1. INFRASTRUCTURE/SERVICE CHALLENGES

Water & sanitation. IDP projects under HGDM include Underberg–Himeville sewer (design stage) and the Water Supply Scheme Upgrade covering

Underberg, Himeville, Marhwaqa and Nhlanhleni (Wards 2–3) — evidence of capacity/backlog pressures in peri-urban and adjacent rural clusters.

Roads & stormwater. Recurrent issues include the need to surface district roads providing access into town and regularly maintain unsurfaced roads. Within Underberg–Himeville, the access and movement framework prioritises upgrades on the R617/P126 corridor, improved intersection management, and safer pedestrian walkways. These needs are representative of rural-to-town access constraints across the municipality.

Electricity, refuse, roles & responsibilities. The Bulwer URP (drawing on the then Ingwe LM IDP) clarifies functional assignments: HGDM (formerly Sisonke) for water/sanitation, local municipality/TBD for roads & stormwater, and Eskom for bulk electricity—important for setting accountability in rural service delivery programmes.

Informal economy trading environment. In Underberg, informal traders currently spill onto sidewalks, indicating both demand and inadequate infrastructure; relocation or provision of appropriate facilities at the taxi rank and compliance with bylaws are recommended—lessons directly applicable to rural sub-nodes and market points.

Stormwater & environmental risk. Rural settlements often occupy river valleys and low-lying areas; planning guidance emphasises buffers to floodplains, quality infrastructure, and drainage maintenance to reduce disaster risk.

6.4.13.2. SOCIO-ECONOMIC DYNAMICS

Creighton's rural catchment shows high shares of not-economically-active residents and youthful age structures (≤18 years ≈46.8%), with employment predominantly tied to agriculture and services. Poverty hotspots include Bazini, Qulashe, Ingwangwane, pointing to entrenched vulnerability.

Across the former Ingwe area, the economy is heavily reliant on agriculture and forestry, with tourism identified for growth; mechanisation has reduced agricultural jobs, increasing reliance on welfare and informal trade—conditions mirrored in many rural clusters.

6.4.13.3. LAND USE AND SPATIAL DEVELOPMENT ISSUES

Outside the towns, the area is predominantly tribal land, where traditional tenure shapes settlement form and service delivery. The Underberg–Himeville planning framework calls for infill first, strategic land identification, higher net densities in strategic areas, and equitable access to facilities—principles relevant to structuring rural sub-nodes and preventing sprawl along district roads.

Environmental assets—wetlands, flood lines, steep slopes, high-biodiversity areas—require avoidance and buffers in rural layouts; passive open spaces (e.g., riparian corridors) should be maintained free of encroachment.

6.4.13.4. STRATEGIC OPPORTUNITIES (RURAL–URBAN LINKAGES)

- **Agri-value chains & agro-processing:** The Underberg plan identifies a proposed agro-processing site and light industrial expansion, which, coupled with farm production, can create local markets and jobs for surrounding rural clusters.
- **Tourism & rail heritage:** Underberg–Pevensey railway tourism and related node upgrades offer demand for crafts, food markets, and rural stays in adjacent villages.
- **Informal economy support:** Provide formalised trader spaces at rural taxi ranks/sub-nodes with ablutions and shade to relieve pressure on town sidewalks and improve livelihoods.
- **Skills & institutions:** Proposals include agricultural skills development and green energy initiatives; a climate change management plan for the precinct/municipality will improve rural infrastructure resilience.

- **Health access:** Facility assessment indicates no public clinic in Creighton town; mobile clinic provision is recommended to reach outlying villages—reinforcing rural service platforms.

6.4.13.5. IMPLICATIONS FOR THE SDF (EXPLICITLY ALIGNED WITH SPLUMA & NDZ IDP/SDF POLICY THEMES)

Spatial Justice.

- Target sub-nodes at Centocow and Ingwangwane clusters and similarly sized village groups to reduce travel distances to essential services (clinics, government service points, markets). Use CSIR thresholds from Creighton assessment as a benchmark for equitable provision; consider mobile clinic deployment in the interim.
- Formalise trader facilities at rural taxi ranks and enforce bylaws to improve safety and dignity for traders and pedestrians.

Spatial Sustainability & Resilience.

- Incorporate floodplain buffers, wetland protection, and drainage maintenance in rural layout guidelines; invest in resilient basic infrastructure per precinct risk guidance.
- Prepare and mainstream the Climate Change Management Plan into rural infrastructure programmes (water, roads, stormwater).

Spatial Efficiency.

- Apply a "compact first / infill before outward expansion" rule at rural sub-nodes and peri-urban edges; concentrate investment along the R617/P126 spine and district access roads to lower service costs per household.
- Surface key district feeders that connect clusters to their towns; prioritise all-weather access to enable service delivery and market participation.

Spatial Quality.

- Introduce placemaking at rural sub-nodes (shelters, lighting, ablutions, signage), and NMT walkways in village centres and to schools/clinics, replicating the Underberg–Himeville access framework principles.

Good Administration & Service Delivery Priorities.

- Clarify inter-sphere roles (HGDM for water/sanitation, LM for local roads/stormwater, Eskom for bulk electricity) and build project pipelines with clear M&E as per the KZN Small Town Revitalisation Strategy.
- Align SDF prioritisation with IDP key projects (Underberg–Himeville water & sewer; Himeville airstrip; railway revitalisation) and extend benefits to adjacent rural clusters (Marhwaqa, Nhlanhleni, farm settlements).

Economic Transformation & Inclusion.

- Advance agri-processing, tourism, and SMME support at rural-urban interfaces; use place-based approaches consistent with the STRS (no one-size-fits-all).

TABLE 15: DISPERSED RURAL SETTLEMENTS & CLUSTERS

SETTLEMENT NAME (CLUSTER)	SETTLEMENT PATTERN & DENSITY	GROWTH STATUS	SOCIO-ECONOMIC CONDITIONS	SERVICES & FACILITIES	CHALLENGES	STRATEGIC OPPORTUNITIES	IMPLICATIONS FOR SDF
Centocow cluster (Makholweni/St Apollinari/Centocow; Ndodeni06; Kwashusha/Bhobhoyi/Newtonville; Kwacwempe/Kwashusha/Esibomvwini/Sibonvini/Ehlane)	Traditional rural villages under traditional councils; dispersed homesteads with low–moderate densities.	Largely youthful population; natural increase but net out-migration to larger centres likely (regional trend).	High dependency; many not economically active; agriculture dominant employer across catchment.	Clinics within 10–25 km of Creighton (incl. Centocow Clinic).	Long travel to higher-order facilities; gravel access roads; water and sanitation backlogs typical of dispersed settlements.	Local markets; agro-processing off farm base; linkages to Creighton node.	Prioritise service nodes & multi-village facilities; improve district road surfacing to node; structure growth around accessible spines (spatial justice/efficiency).
Ingwangwane/Loretta cluster	Traditional rural villages; linear settlement along local roads and river valleys.	Similar to other catchment wards: youthful with high not-economically-active share.	Predominance of subsistence/seasonal farm work and informal activity.	Served by regional clinic network; absence of nearby public clinic in Creighton suggests mobile clinic coverage need.	Poor NMT facilities; flood-prone low-lying areas; scattered settlement raises unit costs of reticulation.	Eco-/agri-tourism routes and community markets tied to Creighton.	Focus investments at local service points; protect floodplains; plan all-weather access (resilience).
Hlabeni (rural villages)	Dispersed rural homesteads; traditional tenure.	Stable to slowly growing (youthful structure) with out-migration pressures.	Low formal employment; reliance on agriculture and transfers.	Regional clinics within threshold distances; limited town-based services.	Roads maintenance; limited refuse services; stormwater	Smallholder upgrading; skills and market access via Creighton.	Align with compact rural service points; incremental upgrading.

SETTLEMENT NAME (CLUSTER)	SETTLEMENT PATTERN & DENSITY	GROWTH STATUS	SOCIO-ECONOMIC CONDITIONS	SERVICES & FACILITIES	CHALLENGES	STRATEGIC OPPORTUNITIES	IMPLICATIONS FOR SDF
					in settlements unformalised.		
Qulashe (rural village)	Traditional rural village; clustered around local roads.	Youthful; high unemployment in catchment wards.	Qulashe Clinic ±21 km from Creighton; indicates nodal reliance.	Access distance to higher-order services; gravel access roads.	Strengthen clinic-market pairing; feeder road surfacing.	Prioritise equitable service access (SPLUMA spatial justice) via sub-nodes.	
Esibomvini (rural village)	Traditional village; dispersed lots.	As per catchment profile.	Dependent on regional facilities; low incomes common.	Distance to services; poor stormwater handling.	Support local markets; household food production linkages.	Consolidate growth at accessible points; invest in basic services first.	
Emasamei (rural village)	Traditional village; dispersed	Youthful; under-employment.	Clinic network in vicinity; long trips for admin services.	Roads & stormwater; refuse collection gaps.	Smallholder support and agro-processing.	Rural service nodes and safe access corridors.	
Bazini (rural village)	Traditional village	Similar to catchment; identified among poverty-stricken areas.	Regional facilities reliance	Access & affordability constraints	Poverty-alleviation through inclusive programmes; road	Spatial targeting to redress inequities (justice) and improve	

SETTLEMENT NAME (CLUSTER)	SETTLEMENT PATTERN & DENSITY	GROWTH STATUS	SOCIO-ECONOMIC CONDITIONS	SERVICES & FACILITIES	CHALLENGES	STRATEGIC OPPORTUNITIES	IMPLICATIONS FOR SDF
					surfacing priority.	access (efficiency).	
Marhwaqa (Underberg rural cluster)	Rural settlements near the Underberg–Himeville system	Growth influenced by proximity to primary/secondary nodes.	Linked to tourism/agri labour markets of Underberg–Himeville.	Included in water supply scheme upgrade; sewer project at design stage.	NMT safety; unsurfaced road maintenance; informal trading conditions.	Leverage rail-tourism, agro-processing, skills programmes.	Direct infill/compaction towards nodes; integrate social facility access (SPLUMA integration/quality).
Nhlanhleni (Underberg rural cluster)	Rural settlements	As above	As above	Covered by water scheme upgrade plan.	Road surfacing & safe crossings on R617/P126 corridors.	Tourism spill-overs; local enterprise support.	Strengthen equitable access and resilient infrastructure.
Pevensey/Scotston farm settlements	Farm worker hamlets & low-density farmsteads along D-roads	Stable; linked to farm employment cycles	Private-sector services limited; reliance on Underberg for most services	Rail tourism and logistics heritage; proposed sports & light industrial areas nearby (Scotston Rd; Lot 8997).	Isolated access; limited refuse and stormwater management	Rail-tourism route (Underberg–Pevensey); agro-processing zone; local job creation.	Safeguard environmental assets; manage buffers to wetlands and flood lines.

6.4.14. SMALLHOLDINGS

A smallholding is defined as a parcel of land utilised for agricultural purposes that is significantly smaller in size than a conventional commercial farm. Within NDZ, several larger farms have undergone subdivision into smaller plots, resulting in the emergence of multiple smallholdings. These subdivisions often occur in response to changing land ownership patterns, shifting agricultural economics, and the demand for more manageable and affordable parcels of agricultural land.

Smallholdings typically support a variety of land uses, ranging from subsistence and semi-commercial crop cultivation to small-scale livestock rearing. In some cases, they are also used for non-agricultural purposes, such as rural residential development, tourism-related enterprises, or small-scale agro-processing. While smallholdings can contribute to local food security, economic diversification, and rural livelihoods, they also present distinct planning and service delivery considerations.

The transformation from large-scale farms to smallholdings can alter settlement patterns, increase the demand for infrastructure such as roads, electricity, and water supply, and create a more fragmented land use structure. This fragmentation may reduce the viability of large-scale commercial farming in certain areas, but it can also open opportunities for more intensive, niche, or diversified agricultural production. From a spatial planning perspective, careful management is required to ensure that the proliferation of smallholdings aligns with land capability, environmental sustainability, and the municipality's long-term development objectives.



6.4.15. AGRICULTURE AND FARMLANDS

A significant portion of NDZ's land area is occupied by privately owned commercial farms. These farms form an essential component of the local and regional economy, serving primarily as centres for large-scale food production and livestock breeding. Agricultural activities range from crop cultivation—such as maize, vegetables, and pastures—to the rearing of cattle, sheep, and other livestock for both domestic consumption and commercial markets.

In addition to their primary production functions, many of these farms contain settlement areas for the farming community. These include the main farmer's homestead, often centrally located on the property, as well as smaller homesteads or worker compounds designated for farm labourers and their

families. The layout and infrastructure of these settlements are typically shaped by the operational requirements of the farm, with housing clustered near work areas, storage facilities, or grazing lands.

Some commercial farms also incorporate rural settlements within their boundaries, a phenomenon discussed in the preceding sub-section. These settlements may have historical origins linked to farm labour tenancy or family occupation of the land over multiple generations. While they provide essential accommodation and proximity to employment, they may also face challenges such as limited access to basic services, inadequate infrastructure, and insecure tenure.

From a spatial planning and development perspective, the prevalence of commercial farms underscores the municipality's strong agricultural base, but it also highlights the need for integrated rural development strategies. These strategies should balance the economic importance of large-scale commercial farming with the provision of adequate living conditions, social services, and tenure security for farm-based communities. Furthermore, infrastructure investment—particularly in access roads, electrification, and water supply—can support both agricultural productivity and improved quality of life for those residing within these farming areas.

6.4.16. INFORMAL SETTLEMENTS

Within the jurisdiction of the municipality, there are an estimated 65 informal dwelling units, the majority of which are concentrated in proximity to the main urban centres. Informal dwellings, in this context, refer to housing structures erected without formal planning approval, often constructed from temporary or non-durable materials, and typically lacking secure tenure, formal services, and compliance with building regulations. Their location near urban nodes reflects both the attraction of residents to economic opportunities and services, as well as the ongoing challenges of affordable housing supply within formal urban areas.

The upgrading of these dwellings represents a critical service delivery and human settlement priority. This process would require consideration of available housing subsidy instruments administered by the Department of Human Settlements, including programmes such as the Upgrading of Informal Settlements Programme (UISP) and other relevant financial support mechanisms. Such interventions should be guided by integrated planning approaches that address not only the physical improvement of housing units but also the provision of essential bulk and internal infrastructure, including water supply, sanitation, electricity, and road access.

However, the limited number of informal units should not detract from the urgency of intervention, as even small clusters can present public health, safety, and social cohesion challenges if left unaddressed. Furthermore, without strategic upgrading, there is a risk of further informal expansion, especially in areas experiencing in-migration or economic activity growth. The municipality therefore needs to balance immediate remedial measures with longer-term housing delivery strategies to ensure that urban growth occurs in an orderly, serviced, and sustainable manner.

6.5. SETTLEMENT HIERARCHY

The Council for Scientific and Industrial Research (CSIR) in South Africa has developed a comprehensive settlement hierarchy to better understand and manage the spatial distribution and functional relationships of settlements across the country. This hierarchy categorizes settlements based on their size, function, and role within the broader regional and national context. It includes a range of settlement types, from metropolitan areas and large cities to small towns and high-density rural settlements. The hierarchy helps in identifying the unique characteristics and needs of each settlement type, facilitating targeted planning and resource allocation.

6.5.1. LOCAL OR NICHE TOWN

Underberg, Bulwer, Himeville, Creighton, and Donnybrook are identified as local or niche towns. A "local or niche town," as refers to a small urban settlement that serves a specific, often specialized, function within its region. These towns typically cater to the needs of their immediate communities and surrounding rural areas, providing essential services and amenities. They may be known for particular industries, cultural heritage, or unique local products that distinguish them from other towns. The economic activities in local or niche towns are often closely tied to the natural resources or cultural assets of the area, such as agriculture, tourism, or artisanal crafts. These towns play a crucial role in the regional economy by supporting local employment and fostering a sense of community identity and cohesion.

6.5.2. HIGH DENSITY RURAL SETTLEMENTS

A "High-Density Rural Settlements" refer to rural settlements characterized by a high population density relative to other rural areas. These settlements often exhibit a mix of traditional and modern housing structures and are typically found in regions with significant historical and cultural importance. HD Rural areas are usually well-connected to nearby urban centres, facilitating access to essential services and economic opportunities. The high population density in these areas can lead to unique challenges, such as pressure on local resources and infrastructure, but also presents opportunities for community-driven development and enhanced social cohesion. Dense rural settlements

Polela, Nkwazela and Makhuzeni are examples of settlements identified as Dense Rural. A "Dense Rural" area, as defined by the Council for Scientific and Industrial Research (CSIR), refers to rural settlements with a relatively high population density compared to other rural areas. These areas often feature a mix of traditional and modern housing and are typically located in regions with significant historical and cultural importance. Dense Rural areas are usually well-connected to nearby urban centres, which facilitates access to essential services and economic opportunities. The high population density in these areas can lead to unique challenges, such as increased pressure on local resources and infrastructure. However, it also presents opportunities for community-driven development and enhanced social cohesion.

6.5.3. SPARSE RURAL SETTLEMENTS

The rest of the settlements in the municipality is identified as Sparse Rural Settlements. A "Sparse Rural Settlements" refer to rural settlements characterized by low population density and dispersed housing. These areas typically have limited infrastructure and services due to the scattered nature of the population. Sparse Rural areas often rely heavily on agriculture and natural resource-based activities for their livelihoods. The low density and dispersed settlement pattern can pose challenges for service delivery, economic development, and infrastructure provision. However, these areas also offer opportunities for preserving natural landscapes and traditional ways of life.



6.6. SETTLEMENT TYPOLOGIES

6.6.1. FORMAL SETTLEMENTS

Underberg, Bulwer, Creighton, Donnybrooks, and Himeville are urban settlements that function as small towns. These towns provide services not only to their own residents but also to the surrounding rural areas (Cater, 1990). There is a noticeable lack of new residential housing options, such as cluster housing, within these towns. The services and activities available in these areas do not involve the production or modification of goods; instead, they include education, welfare, legal and administrative functions, and employment (Nagle, 2000).

It is possible to analyze whether each settlement operates as a single community or as a collection of several settlements by examining the social forces that influence the spatial relationships between different residential units (Tringham, 1972). These settlements form a network of interconnected places that are crucial to the economic, social, and political organization of regions and nations (Pacione, 2005).

6.6.2. INFORMAL SETTLEMENTS

There are 65 informal dwelling units within the Dr. Nkosazana Dlamini Zuma Municipality, with the majority located around the urban centres. To upgrade these units, it would be necessary to consider utilizing housing subsidy instruments provided by the Department of Human Settlements.

6.6.3. PER-URBAN SETTLEMENTS

The most notable peri-urban settlements in the area are Ncwadi, Polela, Centacow, and Richenau. Ncwadi, accessible via district and local access routes, has significant potential to become a thriving rural service center for the surrounding community. Much of the land around Ncwadi is currently under land restitution and claims. Polela also serves as a secondary node within the local municipality. Ncwadi offers various services and facilities, including a clinic, community hall, sports facility, shops, crèches, pension pay points, and primary and secondary schools.

Centacow and Richenau, originally Catholic mission outstations, are located in a rural part of the municipality and are accessible through district roads. These settlements feature self-contained amenities, including an informal taxi rank, informal stalls/tuck shops, and primary and secondary schools.

6.6.4. RURAL SETTLEMENTS

The majority of traditional settlements within Ingonyama Trust land are nucleated and densely populated. These settlements include:

- Amakuze TA
- Isibonele Esihle TA
- Madzikane Bhaca TA
- Sizanani TA
- Zashuke TA
- Bhidla TA
- Amagwane TA
- Qadi TA
- Veza Kuhle TA

Despite their dense population, many of these settlements retain rural characteristics. Each homestead typically has multiple dwellings, a cattle kraal or chicken coop, home burial sites, and on-site disposal pits. These practices have long been part of the rural environment but are prohibited in urban areas.

6.6.5. INFORMAL SETTLEMENTS

Informal settlements are diverse, but a common factor in their formation is that they provide initial access to the urban environment for incoming migrants or those relocating from other areas. Notable informal settlements in Underberg and Bulwer include Masukwana and Khenani. Masukwana is characterized by temporary structures made from materials like mud, timber, and corrugated iron, while Khenani consists of more formal structures with larger yards. To manage these and future informal settlements, the NDZ LM must conduct a rapid assessment and grading based on desktop information. Settlements are categorized as follows:

- Category A for those suitable for conventional upgrades or relocations in the short term;
- Category B for those without immediate housing solutions but not facing immediate threats, suitable for interim relief or incremental upgrades; and
- Category C for those at significant risk requiring immediate relocation.

The Upgrading of Informal Settlement Program (UISP) supports the eradication of these settlements through a phased in-situ upgrading approach. Limiting future informal settlement growth involves identifying, acquiring, planning, and servicing strategically located land for low-income settlements to anticipate future growth nodes and employment opportunities. Key responses include identifying and quantifying housing needs, mapping and assessing informal settlements for potential upgrades or relocations and developing a land invasion policy to prevent new and expanded informal settlements.

6.6.6. SMALLHOLDINGS AND FARMLANDS

A small holding refers to a plot of land used for farming that is significantly smaller than a typical farm. Several larger farms have been subdivided into these smaller plots, transforming them into small holdings. The majority of the municipal area is occupied by privately owned commercial farms, which are mainly used for food production and livestock breeding. These farms also include settlement areas for the farming community, featuring a farmer's homestead and smaller homes for farm labourers. Additionally, some of these farms contain rural settlements, as discussed in the previous subsection.





6.7. SETTLEMENT PATTERNS

Settlement patterns in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZLM) are characterized by ribbon development. This type of development involves clusters of buildings and homes that are situated along provincial, district, and local roads. The primary advantage of ribbon development is the ease of access it provides to households, as homes are located close to major transportation routes. This pattern allows residents to conveniently reach essential services, amenities, and employment opportunities. Additionally, ribbon development can help in reducing the costs associated with extending infrastructure such as roads, water, and electricity to more dispersed settlements. However, it can also lead to challenges such as increased traffic congestion and potential strain on local resources and services.

6.8. BROAD LAND USE PATTERNS

6.8.1. TOWN AND SURROUNDING PERI-URBAN SETTLEMENTS

The municipality is characterised by five rural towns within its area. These towns are encircled by densely populated rural settlements that have developed around them over the years.

6.8.2. RURAL VILLAGES AND SETTLEMENTS

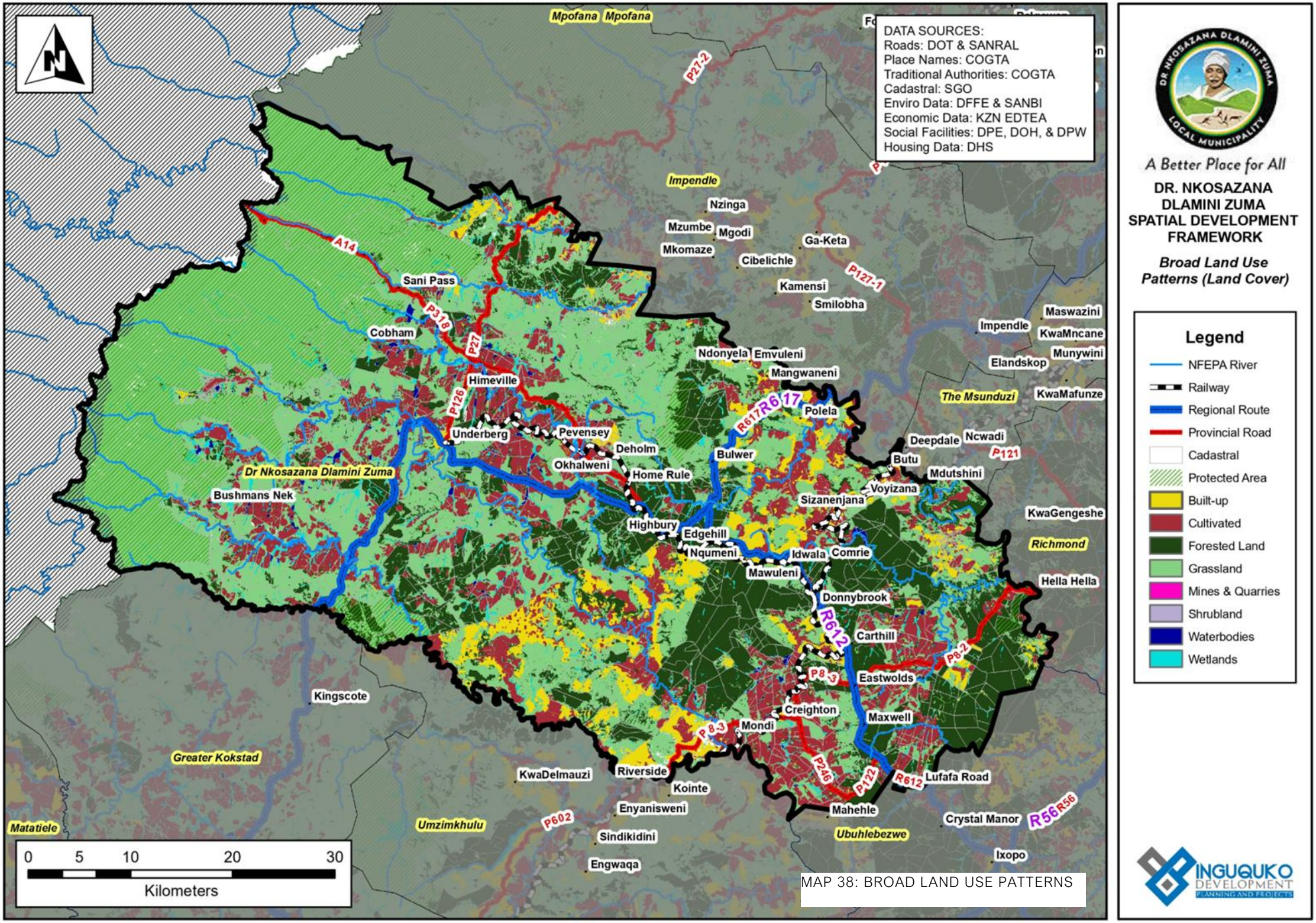
The rural villages and settlements are situated in the southeastern part of the municipal area. These settlements are dispersed irregularly within the administrative boundaries of traditional authorities. They host a variety of commercial and social activities, including small local convenience shops, taverns, small-scale manufacturing activities like block making, personal services such as salons, and small-scale agricultural activities like ploughing fields and food gardens.

6.8.3. AGRICULTURE

The municipality boasts a substantial amount of agricultural land, predominantly situated in the northwestern regions in the form of commercial farms. The agricultural layout in this area is largely influenced by the undulating topography, which dictates the available land parcels outside the valley lines and along other major structuring elements. The agricultural industry is a significant feature in the KwaZulu-Natal southern Drakensberg, driven by the region's rich natural resources and favourable climatic conditions.

6.8.4. ENVIRONMENTAL AREAS

Ezemvelo KZN Wildlife has identified nineteen (19) Sites of Conservation Significance. Additionally, there are several environmentally sensitive features that remain unprotected, including wetlands, mist belt grasslands endemic to KwaZulu-Natal, and diverse vegetation types categorized into seven bio-resource groups. The municipality is also rich in natural water resources.



MAP 38: BROAD LAND USE PATTERNS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Broad Land Use Patterns (Land Cover)

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Cadastral
- Protected Area
- Built-up
- Cultivated
- Forested Land
- Grassland
- Mines & Quarries
- Shrubland
- Waterbodies
- Wetlands

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

6.9. LAND LEGAL ANALYSIS

6.9.1. LAND USE MANAGEMENT

The Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013), commonly known as SPLUMA, mandates that all municipalities across the country develop and adopt "Wall-to-Wall Schemes" within their jurisdictions. This must be completed within five years from the Act's commencement. Additionally, SPLUMA requires that these schemes be reviewed every five years to ensure consistency within the Municipal Spatial Development Framework.

Dr. Nkosazana Dlamini Zuma Municipality has initiated the process of developing a wall-to-wall land use management scheme for its jurisdiction. This scheme aims to promote sustainable development and enhance governance related to land use management within the municipality. It is essential to maintain alignment and integration with other tools, such as land audits and valuation rolls.

The introduction of the scheme in rural areas should:

- Ensure the participation of municipal officials in all land allocation processes conducted by traditional councils.
- Involve local communities, particularly traditional councils and other structures responsible for spatial planning and land allocation.
- Include the development of maps, systems, and procedures to guide traditional councils in effective decision-making for land allocation.

6.9.2. LANDOWNERSHIP

Land ownership within Dr. Nkosazana Dlamini Zuma Municipality is varied, with the majority being privately owned (47%). This is followed by KZN Wildlife (22%), Ingonyama Trust (17%), the Government (8%), and the Mondi and Sappi forestry companies (7%).

6.9.3. LAND REFORM

Land claims and land redistribution are highly contested issues within the Dr. Nkosazana Dlamini Zuma Local Municipality (LM), primarily due to disputes over land allocation and ownership patterns. These debates have made land redistribution a priority for the local municipality. Currently, there are three land claim projects being processed in the municipality:

- **Mnywaneni Project**: This project involves two portions of property lot 55, Sunrise, covering 298.86 hectares, with approximately 90 beneficiaries. Evaluations have been completed, and the Department is now in price negotiations.
- **Ingudwini Forest Project**: Residents of Ingudwini Forest no. 15327 requested the Department of Land Affairs to purchase the land for redistribution or possibly as an ESTA project. These families have lived on the land for many years, using it for grazing. The property owners are willing to sell.
- **Impendle State Land**: This land offers opportunities for both redistribution and small-scale farmer settlement under the LRAD programme.

Additionally, there are three land reform projects within the municipality: Sunrise Forest, Ingudwini Forests, and a large block of state land north of the Umkhomazi River. This land is being allocated to identified beneficiaries. The new Land Redistribution for Agricultural Development (LRAD) programme, recently implemented, will take time to impact the local economy. It relies on

individuals applying for financial assistance to acquire land for agricultural purposes. Support for emerging agriculture is currently low, limiting the development potential in traditional areas.

Other gazetted land claims include:

- The farm Sunrise No. 5567
- The farm Reichnau A No. 5796
- Remainder of the farm Reichenau B No. 5797
- Portion 1 of the farm Reichenau B No. 5797
- Portion 2 of the farm Reichenau B No. 5797
- Remainder of the farm Reichenau No. 5798
- Portion 2 of the farm Reichenau No. 5798
- Remainder of the farm Reichenau C No. 5799



6.9.3.1. CHALLENGES WITH LAND REFORM IN THE MUNICIPALITY

The land reform programme in South Africa includes land redistribution, which aims to transfer land to historically disadvantaged individuals. In Dr Nkosazana Dlamini Zuma Local Municipality, several farms were transferred under this programme. These include livestock farms, crop production units, and mixed-use agricultural land. The intention was to support rural livelihoods, reduce poverty, and stimulate local economies. Many of these farms are now non-functional.

Transferred Redistribution Projects under the Land Reform programme in Dr. Nkosazana Dlamini Zuma Local Municipality face distinct challenges. Each project has its own purpose, but most struggle with similar issues: poor infrastructure, weak market access, limited technical support, and governance gaps.

Reichenau focuses on food safety nets and settlement. The project suffers from poor road access, unreliable water supply, and limited agricultural extension services. Beneficiaries lack training in sustainable farming methods. Seaforth also targets food safety and settlement. It faces similar infrastructure problems. Soil erosion and lack of fencing reduce productivity. Ukhahlamba supports livestock and crop production. The terrain is steep and rocky. This limits grazing and mechanized farming. Veld management is poor. Disease control for livestock is weak.

Glen Maize aims to develop forestry and dairy. The dairy component struggles with cold chain logistics. Milk spoilage is common. Forestry operations lack equipment and trained personnel. Clifton supports commercial farming. The land is fertile, but irrigation systems are outdated. Farmers lack access to credit. Mjila also focuses on commercial farming. The project is underutilized. Beneficiaries lack business skills. There is no cooperative structure to support marketing.

Pierremont is another commercial farming site. It faces land disputes and unclear title deeds. This discourages investment. Ingudwini forest supports livestock and crop farming. The forest encroaches on grazing land. Crop yields are low due to poor soil preparation. Urhana Farm combines commercial agriculture and settlement. The settlement component lacks basic services. Agricultural production is hampered by theft and vandalism.

West Isely produces potatoes and dairy. The dairy side lacks veterinary support. Potatoes are affected by poor pest control. Wavuthwa Mbokodo focuses on poultry. Disease outbreaks are frequent. Feed costs are high. There is no abattoir nearby. Nyala Valley is a game project. It struggles with poaching and weak tourism infrastructure. Lillydale supports timber, cropping, and livestock. Timber harvesting is inefficient. Cropping is seasonal and lacks irrigation. Livestock management is poor.

Clifton No. 15148 is a timber project. It lacks access roads for transporting logs. Firebreaks are not maintained. There is no replanting strategy.

Across all projects, common problems include:

- Poor infrastructure: roads, water, electricity.
- Weak institutional support: extension services, training.
- Limited market access: no aggregation points, poor logistics.
- Governance issues: unclear land rights, weak coordination.
- Financial constraints: no access to credit or insurance.
- Environmental degradation: soil erosion, deforestation.
- Social challenges: lack of youth involvement, gender inequality.

These challenges reduce productivity and sustainability. Addressing them requires coordinated planning, investment in infrastructure, and strong local governance. Some of the cases of farm non-functionality include the following:

- **Lack of Post-Transfer Support:** Beneficiaries received land but not the tools, inputs, or training to operate it. Most farms lack tractors, irrigation systems, fencing, and storage facilities. Without these, production stalls.
- **Poor Infrastructure:** Roads to farms are often gravel or eroded. This limits access to markets. Electricity is unreliable or absent. Water infrastructure is broken or non-existent. These conditions make farming unviable.
- **Weak Institutional Coordination:** There is poor alignment between national, provincial, and municipal departments. Agricultural support services are fragmented. Extension officers are few and often unavailable. Beneficiaries do not know where to get help.
- **Unclear Ownership and Governance:** Many farms are owned by groups or trusts. These groups often lack constitutions, leadership structures, or conflict resolution mechanisms. Disputes over land use and income sharing are common. This leads to paralysis.
- **Limited Skills and Experience:** Most beneficiaries have no formal training in agriculture. They lack knowledge of soil management, pest control, budgeting, and marketing. Without mentorship or incubation, they cannot run farms sustainably.
- **No Access to Finance:** Banks view these farms as high-risk. Beneficiaries have no collateral. Government grants are slow or misaligned with seasonal needs. This blocks investment in inputs and equipment.

The above challenge impacted the beneficiary communities in the following manner:

- **Loss of Income Opportunities:** Non-functional farms do not generate income. Beneficiaries remain unemployed. Many return to social grants. This undermines the goal of economic empowerment.
- **Food Insecurity:** Local food production is low. Households rely on expensive food from towns. This increases vulnerability, especially during price shocks or disasters.

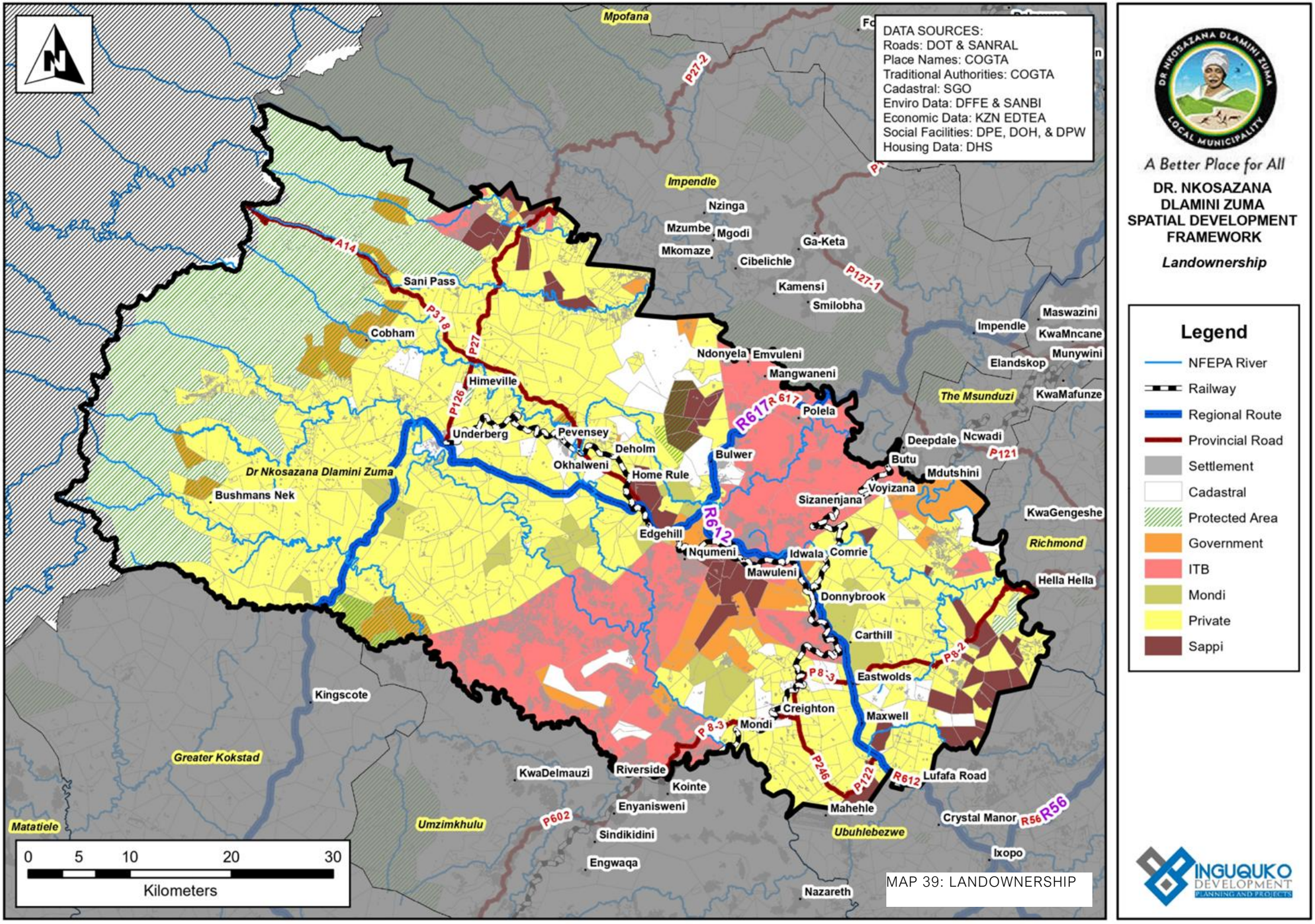
- **Social Conflict:** Disputes over land use, leadership, and benefits create tension. Some groups split. Others abandon the land. This weakens community cohesion.
- **Outmigration:** Young people leave rural areas in search of work. This drains skills and energy from the community. Farms are left idle or underused.
- **Wasted Public Investment:** Government spent millions acquiring and transferring land. When farms fail, this investment yields no return. It also erodes public trust in land reform.
- **Environmental Degradation:** Idle land becomes overgrown or eroded. Invasive species spread. Fencing collapses. Livestock stray. This damages the landscape and reduces future productivity.

The following are implications for spatial planning in the municipality:

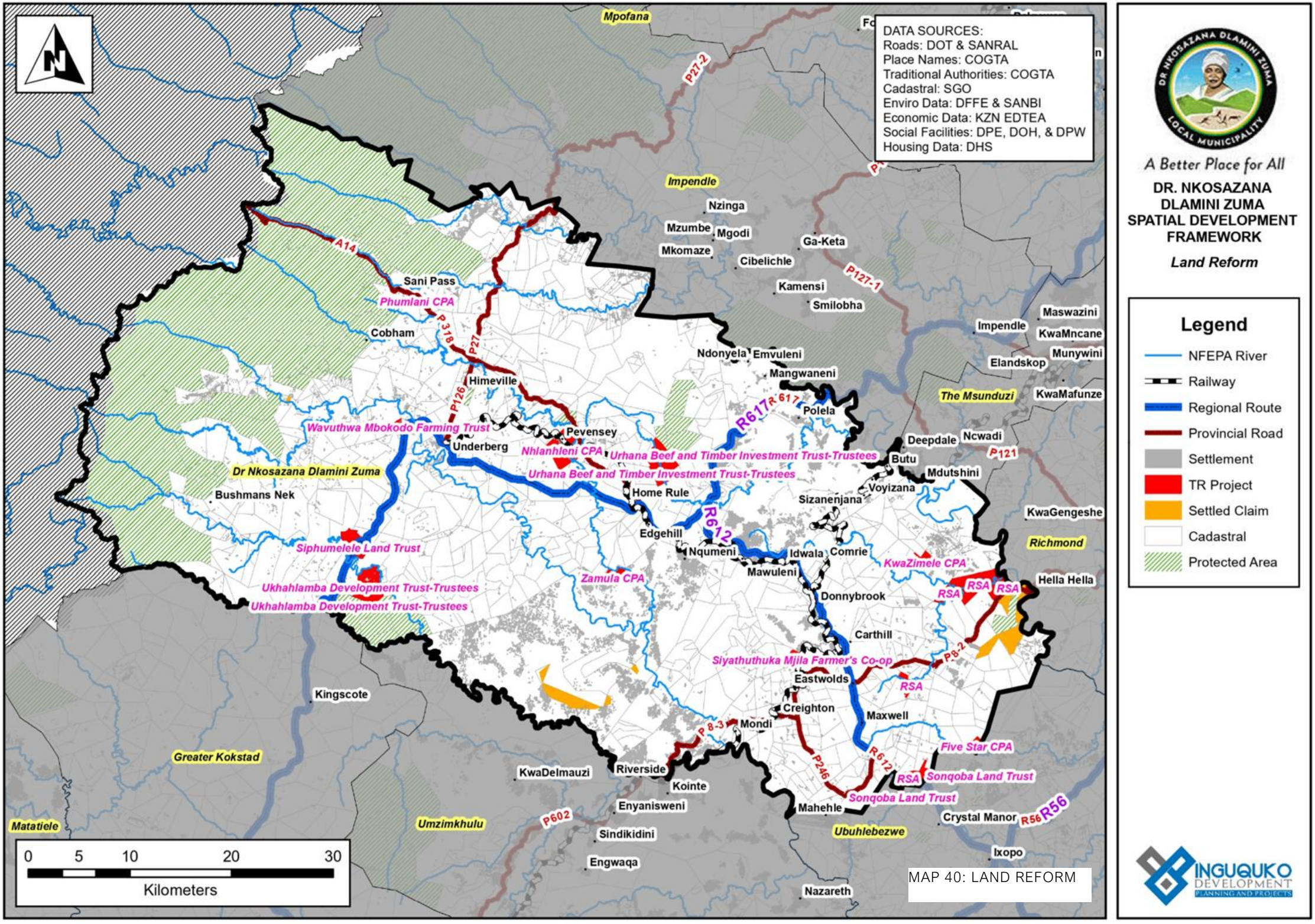
- **Mismatch Between Land Use and Capability:** Farms are zoned for agriculture but are not productive. This distorts spatial development goals. It also affects land use planning and investment decisions.
- **Pressure on Municipal Services:** As farms fail, people move to towns. This increases demand for housing, water, and jobs. Municipal budgets are already stretched. Informal settlements grow.
- **Need for Integrated Planning:** Land reform must align with spatial development frameworks. Planners must map non-functional farms, assess their potential, and propose interventions. This includes infrastructure upgrades, training hubs, and support centres.
- **Risk to Rural Development Goals:** Non-functional farms undermine rural development. They reduce the municipality's ability to meet targets in the Integrated Development Plan (IDP). They also weaken the case for future investment.

The following strategies and opportunities existing as interventions to the above challenges:

- **Audit All Transferred Farms:** Identify which farms are functional, which are idle, and why. Use this data to inform planning and support.
- **Establish Support Hubs:** Create local centres for training, mentorship, and input supply. Link these to extension services and agri-parks.
- **Strengthen Governance Structures:** Help beneficiary groups formalise their structures. Provide templates for constitutions. Offer mediation services.
- **Improve Infrastructure:** Prioritise roads, water, and electricity to strategic farms. Use municipal infrastructure grants where possible.
- **Align Funding with Seasonal Needs:** Ensure grants and loans are disbursed in time for planting or livestock cycles. Simplify application processes.
- **Promote Land Use Diversification:** Where farming is not viable, explore other uses. These include agro-tourism, conservation, or renewable energy.



MAP 39: LANDOWNERSHIP



MAP 40: LAND REFORM

6.10. SUMMARY OF KEY BUILT ENVIRONMENT CHALLENGES AND OPPORTUNITIES

6.10.1. KEY CHALLENGES

- Ageing small-town cores with maintenance deficits (stormwater, sidewalks, lighting, signage), deteriorating public realm and safety perceptions.
- Weak urban design structure: limited pedestrian priority, poor wayfinding, fragmented land use, underutilised public spaces.
- Housing pressure near jobs (Underberg-Himeville) vs scattered low-intensity peripheral growth that raises infrastructure unit costs.
- Gaps in land assembly, tenure clarity and development readiness (survey, services, roads) slow private investment.

6.10.2. KEY OPPORTUNITIES

- Compact, walkable mixed-use intensification around town centres to reduce service costs and stimulate ground-floor commerce.
- Main-street revitalisation and station/market precincts as catalysts (trader facilities, taxi rank upgrades, façade improvements).
- Brownfield infill and public land optimisation (excess road reserves, municipal plots) for affordable rental and gap housing.
- NMT networks and "green streets" that double as stormwater BMPs (bioswales, trees) and placemaking devices.

6.10.3. SHORT-TERM RECOMMENDATIONS (1–5 YRS)

- Tactical urbanism: paint-and-planter kerb extensions, zebra crossings, street furniture, LED lighting around schools and retail strips.
- Quick stormwater fixes at recurrent ponding points; culvert cleaning program; standardised drop inlets at trouble spots.
- Town entry upgrades and wayfinding packs; façade-improvement micro-grants with design guidelines.
- One-stop "development facilitation desk" with pre-approved typologies (shop-house, backyard rental, cottage industry) to cut red tape.

6.10.4. MEDIUM/LONG-TERM RECOMMENDATIONS (5–20 YRS)

- Precinct-level urban design frameworks per town (land use, densification, NMT, parking, public space hierarchy) embedded in the LUMS.
- Serviced-land pipeline: bulk checks, internal streets, and utility sleeves to release mixed-use and light-industrial plots.
- Social housing/gap-housing partnerships (SHRA, NHFC) in Underberg-Himeville and Bulwer; inclusionary housing policy for larger developments.
- Smart maintenance regimes (asset registers, pavement management, energy-efficient public lighting, O&M budgets ring-fenced).

7. INFRASTRUCTURE ANALYSIS

7.1. DEMOGRAPHICS AND SETTLEMENT PATTERNS

Understanding the demographic and settlement profile of the Dr. Nkosazana Dlamini Zuma (NDZ) Municipality is fundamental to spatial planning. Settlement patterns directly shape the cost, feasibility, and prioritisation of water and sanitation service delivery. The 2024/25 Harry Gwala WSDP shows that the district remains predominantly rural (over 80% of households), with significant service delivery implications. NDZ mirrors this rural bias, with scattered settlements across mountainous terrain, creating logistical and cost barriers for infrastructure rollout.

7.1.1. POPULATION AND HOUSEHOLDS

According to the WSDP, NDZ accommodates approximately 123,348 people across 29,350 households, representing around 23% of the Harry Gwala District total.

- Population distribution: NDZ has the second-largest population in the district after uMzimkhulu (205,600), showing its significant weight in district-level planning.
- Household distribution: NDZ contributes about a quarter of all households in the district.
- Settlement character: Settlements range from small rural villages to more established service towns (Underberg, Bulwer, Donnybrook, Creighton).

TABLE 16: NDZ POPULATION AND HOUSEHOLDS IN DISTRICT CONTEXT

LOCAL MUNICIPALITY	HOUSEHOLDS	POPULATION	% OF DISTRICT HOUSEHOLDS	% OF DISTRICT POPULATION
Greater Kokstad	16,394	80,277	13%	15%
Ubuhlebezwe	27,856	123,187	23%	23%
NDZ	**29,350**	**123,348**	**24%**	**23%**
uMzimkhulu	49,705	205,600	40%	39%
Total (HGDM)	**123,305**	**532,412**	**100%**	**100%**

Source: HGDM WSDP 2024/25

7.1.2. RURAL VS. URBAN SETTLEMENT SPLIT

The WSDP data reveals that 81% of households in the district are rural, and NDZ follows this same pattern.

- Rural villages (≤5,000 people) dominate NDZ, often lacking bulk water connections and relying on communal stands or boreholes.
- Scattered rural settlements are particularly difficult to service, requiring costly new schemes or extensions.
- Urban/formal towns (Underberg, Creighton, Bulwer) have relatively better access to water and sanitation services, but ageing infrastructure creates vulnerability.

TABLE 17: SETTLEMENT TYPOLOGIES IN HGDM (WITH NDZ TRENDS)

SETTLEMENT TYPE	DISTRICT TOTAL SETTLEMENTS	KEY NDZ CHARACTERISTICS	SERVICE DELIVERY IMPLICATIONS
Rural Small Villages (≤5k)	484	Majority of NDZ settlements	High service backlogs, low economies of scale
Rural Dense Villages (>5k)	2	Few examples in NDZ	Potential for clustered infrastructure
Rural Scattered	159	Common in NDZ	High per-household servicing costs
Urban Formal Towns	148	Underberg, Bulwer, Creighton, Donnybrook	Existing bulk networks but ageing assets
Urban Former Townships	4	Limited presence	Higher densities allow efficient infill servicing

Adapted from HGDM WSDP 2024/25

7.1.3. PUBLIC AMENITIES AND INSTITUTIONAL FACILITIES

The district has 568 public amenities (501 schools and 67 health facilities), many of which are inadequately serviced. Within NDZ, schools and clinics in rural wards face severe water and sanitation deficiencies.

- Only 41% of primary schools have adequate water supply, while 66% lack adequate sanitation.
- Clinics and health centres in NDZ towns generally have better provision, but rural facilities remain highly vulnerable.

This reinforces the strategic importance of prioritising bulk water schemes and sanitation upgrades in NDZ to support not only households but also critical social infrastructure.

7.1.4. IMPLICATIONS FOR SPATIAL PLANNING

The demographic and settlement trends of NDZ have clear implications for the Spatial Development Framework:

- **Settlement Growth Constraints**: Rural backlogs hinder the ability to support expansion housing projects in outlying villages. Growth will be concentrated in towns with better service infrastructure (Underberg, Bulwer).
- **Infill vs. Expansion**: Infill development in serviced nodes is more cost-effective, while expansion into unserviced rural settlements exacerbates backlogs.
- **Service Corridors**: Settlement clusters along road corridors (e.g., R617 through Bulwer–Underberg) represent opportunities for targeted bulk service corridors.
- **Institutional Anchors**: Schools and clinics require prioritised service upgrades as part of a spatially just development strategy.
- **Provincial/National Alignment**: The NDZ settlement hierarchy must align with the KZN Provincial SDF, which emphasises rural service nodes and town consolidation.

7.2. WATER INFRASTRUCTURE IN NDZ

7.2.1. OVERVIEW OF WATER SUPPLY IN HARRY GWALA DISTRICT

The Harry Gwala District Municipality (HGDM) relies primarily on surface water sources such as rivers and dams, with the Umzimkhulu River serving as a key supply system for parts of the district. Despite relatively abundant raw water resources, the WSDP highlights serious challenges in water service reliability due to:

- Ageing bulk infrastructure (pipelines, reservoirs, treatment works).
- Inadequate maintenance and refurbishment.

- Limited investment in new schemes to match population growth.
- High levels of non-revenue water (NRW) and system losses.

For NDZ specifically, these challenges are magnified by its mountainous terrain and dispersed rural settlements, which significantly raise the cost per household for extending services.

7.2.2. CURRENT WATER SOURCES AND BULK SCHEMES IN NDZ

NDZ draws its supply from multiple small schemes, springs, and boreholes, as well as regional surface water. However, the WSDP notes:

- Many rural settlements remain dependent on boreholes or spring water, often unreliable in dry periods.
- Small-scale schemes lack resilience, leading to intermittent tanker supply.
- Urban nodes (Underberg, Bulwer, Donnybrook, Creighton) are serviced by more established bulk schemes, but these systems are over-capacitated and require upgrading.

This duality — small rural schemes vs. stressed urban systems — creates a spatial divide in service delivery that directly impacts settlement development potential.

7.2.3. SERVICE LEVELS IN NDZ

The WSDP presents a district-wide analysis of water service levels. While urban households in NDZ towns generally achieve RDP or above-RDP service levels (yard or in-dwelling taps), most rural households fall below standard.

TABLE 18: WATER SERVICE LEVELS (DISTRICT VS. NDZ PATTERNS)

Service Level Category	Typical NDZ Context	Service Standard	Implications
Above RDP (tap in dwelling/yard)	Concentrated in Underberg, Bulwer, Creighton	15–90+ litres pp/day within dwelling or yard	Supports densification and infill growth
RDP Minimum (communal stand <200m)	Some clustered villages	25 litres pp/day within 200m	Marginally supports settlement expansion
Below RDP (communal stand 200m–1km, tanker, none)	Majority of rural villages	Below 25 litres pp/day, poor reliability	Constrains rural housing projects, encourages migration to nodes

Adapted from HGDM WSDP 2024/25

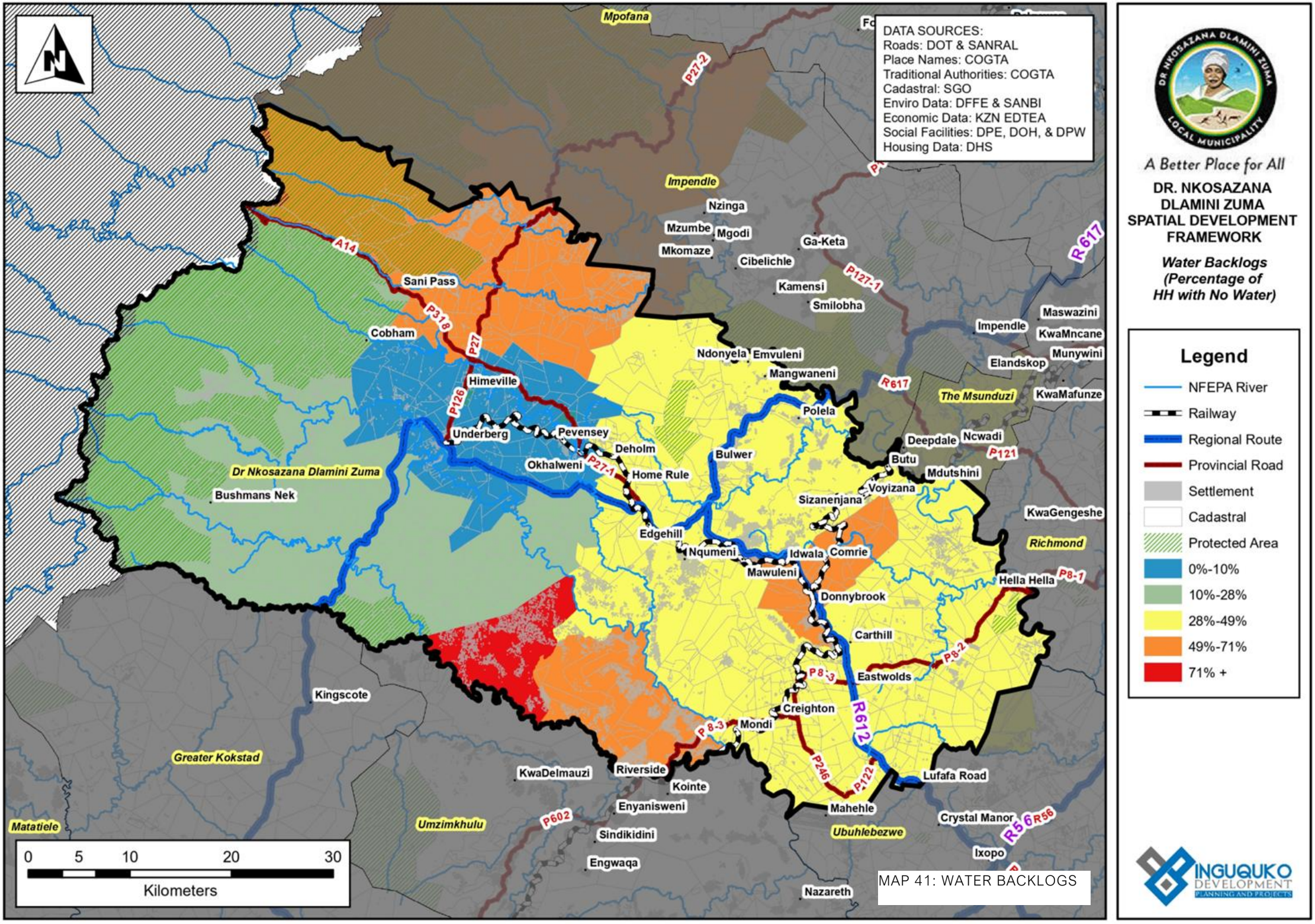
The WSDP notes that 51% of households district-wide remain below RDP water standards. For NDZ, this translates to roughly 14,125 households (≈48%) below RDP level.

7.2.4. BACKLOGS IN NDZ

NDZ faces a water backlog of approximately 15,097 households (50%), representing one of the largest proportional service gaps in the district.

TABLE 19: HOUSEHOLD WATER BACKLOGS BY MUNICIPALITY

LOCAL MUNICIPALITY	TOTAL HOUSEHOLDS	BACKLOG HOUSEHOLDS	% BACKLOG
Greater Kokstad	16,394	1,402	9%
Ubuhlebezwe	27,856	16,451	59%
uMzimkhulu	49,705	31,023	62%
NDZ	**29,350**	**14,125**	**48%**
Total HGDM	**123,305**	**63,000**	**51%**



MAP 41: WATER BACKLOGS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Water Backlogs (Percentage of HH with No Water)

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- 0%-10%
- 10%-28%
- 28%-49%
- 49%-71%
- 71% +

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

7.2.5. INFRASTRUCTURE CONDITION AND ASSET MANAGEMENT

The WSDP highlights poor asset management practices in HGDM, with NDZ particularly affected by:

- Aging treatment works requiring refurbishment.
- High system losses due to leaks and unmetered connections.
- Low-cost recovery and poor billing systems, limiting reinvestment in infrastructure.

Without sustained investment in refurbishment and operation, NDZ risks further service collapse in its urban centres and worsening rural inequality.

7.2.6. PUBLIC FACILITIES AND WATER PROVISION

Schools and clinics in NDZ reflect the broader district pattern of inadequate service:

- Only 41% of schools have adequate water provision.
- Health centres: 42% lack adequate water services.
- Clinics: while some are serviced, 28 out of 35 district clinics report inadequate water.

This means institutional nodes — which should act as anchors for settlement growth — are themselves under-serviced, limiting their role in supporting new residential development.

7.2.7. IMPLICATIONS FOR SPATIAL PLANNING IN NDZ

The water infrastructure realities in NDZ directly impact the Spatial Development Framework in several ways:

- Constraints on Settlement Growth
    - Backlogs prevent large-scale housing projects in rural wards.
    - Expansion beyond existing bulk systems would deepen infrastructure deficits.
- Infill vs. Expansion
    - Infill around Underberg, Bulwer, Donnybrook, and Creighton is feasible, as these nodes have partial bulk systems (though upgrades are needed).
    - Expansion into scattered villages without water supply is fiscally unsustainable.
- Bulk Service Corridors
    - There is an opportunity to align bulk infrastructure investment along the R617 corridor (Bulwer–Underberg) to leverage existing service footprints.
- Provincial and National Alignment
    - The National Water and Sanitation Master Plan (2019) emphasises backlog eradication and NRW reduction as first priorities. NDZ's SDF must explicitly align with these priorities.
    - The KZN Provincial SDF (2021) highlights service node consolidation rather than dispersed expansion — consistent with NDZ's infrastructure realities.

7.3. SANITATION INFRASTRUCTURE IN NDZ

7.3.1. OVERVIEW OF SANITATION SERVICES IN THE DISTRICT

Sanitation infrastructure in the municipality is comprised of sceptic tanks in the towns and urban areas, and pit latrines in the rural areas. This has adverse effects for investor attraction in the municipality as infrastructure forms a fundamental pre-condition for investor attraction. Sanitation remains a critical service backlog across Harry Gwala District, with the WSDP reporting that 55% of households are below RDP sanitation standards. For NDZ, the sanitation situation mirrors the district average, with around 50% of households (≈14,741) lacking adequate sanitation.

The lack of proper sanitation in rural areas poses significant public health risks, including the spread of waterborne diseases, environmental contamination, and reduced quality of life.

7.3.2. SANITATION SERVICE LEVELS IN NDZ

The WSDP categorises sanitation according to the type of facility, with flush toilets (sewer/septic) and VIP latrines considered at or above RDP standards. Facilities such as unventilated pit latrines, bucket toilets, or no sanitation are considered below RDP.

TABLE 20: DISTRICT-WIDE SANITATION SERVICE LEVELS (WITH NDZ IMPLICATIONS)

SANITATION TYPE	DISTRICT HOUSEHOLDS	NDZ IMPLICATIONS	SERVICE STANDARD
Flush toilet (connected to sewer)	15,705	Limited to NDZ's formal towns (Underberg, Bulwer)	Above RDP
Flush toilet (septic tank)	4,442	Used in peri-urban NDZ settlements	Above RDP
VIP Latrine	29,558	Most common improved facility in rural NDZ	RDP Level
Pit latrine (unventilated)	53,955	Widely used in rural wards of NDZ	Below RDP
Bucket toilet	1,132	Present in scattered settlements	Below RDP
Chemical toilet	6,177	Limited institutional or temporary use	Below RDP
No sanitation	4,358	Significant in NDZ's poorest wards	Below RDP

Adapted from HGDM WSDP 2024/25

7.3.3. SANITATION BACKLOGS IN NDZ

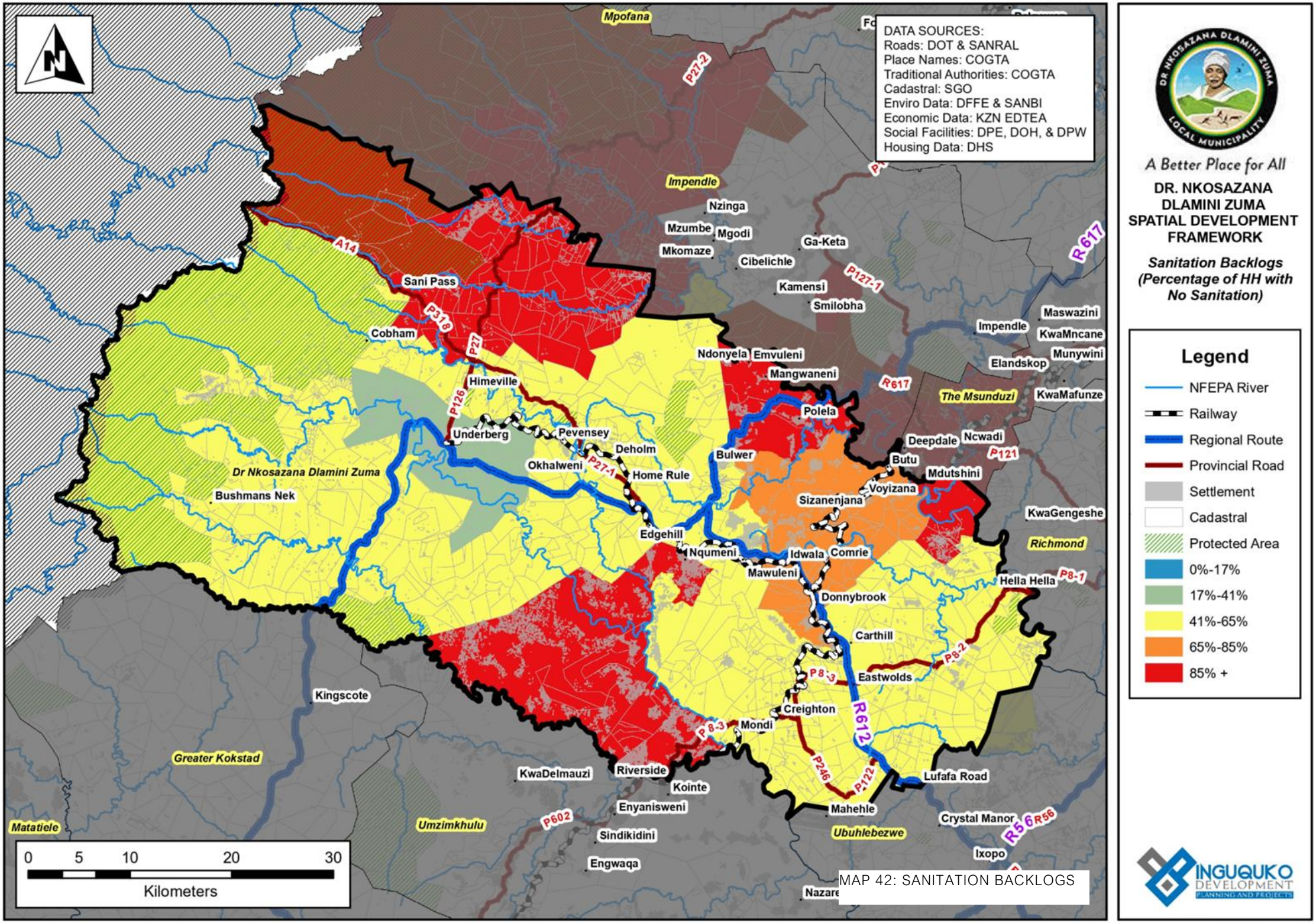
Backlog eradication remains a pressing challenge. NDZ reports 14,741 households (50%) below RDP sanitation levels.

TABLE 21: SANITATION BACKLOGS BY MUNICIPALITY

LOCAL MUNICIPALITY	TOTAL HOUSEHOLDS	SANITATION BACKLOG HOUSEHOLDS	% BACKLOG
Greater Kokstad	16,394	3,823	23%
Ubuhlebezwe	27,856	13,312	48%
uMzimkhulu	49,705	35,547	72%
NDZ	**29,350**	**14,741**	**50%**
Total HGDM	**123,305**	**73,600**	**60%**

Source: HGDM WSDP 2024/25

This places NDZ's sanitation backlog on par with the district average but still representing nearly one in two households without safe sanitation.



MAP 42: SANITATION BACKLOGS

7.3.4. SANITATION IN PUBLIC FACILITIES

The WSDP highlights widespread deficiencies in sanitation services at schools and health facilities across the district.

- Education facilities:
  - Only 34% of schools have adequate sanitation.
  - In NDZ, many rural schools still rely on pit latrines without ventilation, creating severe health and safety risks for learners.

- Health facilities:
  - While hospitals generally have adequate sanitation, clinics and health centres in NDZ show gaps.
  - 10 out of 24 health centres (42%) and 28 out of 35 clinics (80%) reported inadequate sanitation services at district scale.

This undermines NDZ's social infrastructure role, as poorly serviced schools and clinics are less able to function as service anchors for settlement growth.

7.3.5. INSTITUTIONAL AND FINANCIAL CHALLENGES

NDZ faces significant constraints in addressing sanitation backlogs:

- Lack of a sanitation master plan: Unlike water, the WSDP notes no coherent long-term sanitation strategy exists.
- Funding constraints: MIG and DWS allocations have been insufficient to meet backlog eradication targets.
- Asset management gaps: Poor maintenance results in rapid deterioration of newly built facilities.
- Community acceptance: Resistance to VIP latrines in some communities (seen as inferior to flush systems) complicates rollout.

7.3.6. IMPLICATIONS FOR SPATIAL PLANNING IN NDZ

Sanitation infrastructure deficits have direct consequences for NDZ's SDF:

- Public Health & Settlement Viability
  - Settlements without adequate sanitation cannot sustainably accommodate expansion housing projects.
  - High risk of waterborne disease outbreaks in dense rural villages reduces settlement resilience.
- Infill vs. Expansion
  - Infill within serviced nodes (e.g., Underberg, Creighton) is preferable, as sanitation systems are in place (albeit ageing).
  - Expansion into unserviced areas requires major upfront investment, often beyond municipal means.
- Service Corridors and Nodes
  - Spatial planning should prioritise service nodes with partial sanitation infrastructure as growth points. Outlying rural wards require incremental service improvements but should not be designated as high-growth nodes.
- Alignment with Higher-Level Plans
  - The National Sanitation Policy (2016) and KZN Provincial SDF (2021) both emphasise universal access to basic sanitation.
  - NDZ's SDF must demonstrate progressive realisation of this right, particularly for vulnerable rural populations.

7.4. STORMWATER AND ENVIRONMENTAL MANAGEMENT IN NDZ

7.4.1. OVERVIEW

Unlike water supply and sanitation, stormwater management is not consistently planned for in many rural municipalities, yet it is increasingly critical in the context of climate change, intensifying rainfall events, and settlement expansion. The Harry Gwala WSDP notes stormwater infrastructure deficiencies across the district, particularly in towns such as Underberg, Bulwer, Creighton, and Donnybrook, which fall under NDZ.

Poor stormwater management contributes to:

- Flooding of roads, settlements, and social facilities.
- Damage to bulk water and sanitation networks, undermining service reliability.
- Erosion, siltation, and environmental degradation of rivers and wetlands.
- Health risks, as stagnant stormwater mixes with untreated wastewater in informal areas.

7.4.2. EXISTING STORMWATER SYSTEMS IN NDZ

NDZ's towns have partial formal stormwater systems, largely concentrated in older urban cores. However:

- Underberg and Bulwer: The road-based drainage channels are insufficient to manage heavy rainfall, resulting in frequent flooding.
- Creighton and Donnybrook: Many streets lack formal stormwater drains, with runoff flowing directly into river systems.
- Rural villages: Have no formal stormwater infrastructure; reliance is on natural drainage paths, which often lead to erosion and property damage.
- This fragmented coverage means NDZ's settlements are highly vulnerable to climate-related shocks.

7.4.3. ENVIRONMENTAL CONTEXT

The NDZ Municipality sits within a sensitive mountain ecosystem, including the Drakensberg foothills and numerous river catchments. Poor stormwater management therefore has district-wide and even provincial implications:

- Increased siltation of dams and rivers reduces the storage capacity of regional water supply schemes.
- Uncontrolled runoff threatens wetlands and biodiversity hotspots, undermining tourism potential and environmental resilience.
- Informal stormwater channels contribute to land degradation and soil erosion, particularly in steep-slope settlements.

7.4.4. KEY CHALLENGES IDENTIFIED

The WSDP and IDP evidence indicates that NDZ's stormwater management faces several structural challenges:

- Inadequate Design Capacity
    - Existing systems in urban centres are not designed for extreme storm events, which are becoming more frequent due to climate change.
- Aging or Absent Infrastructure
    - In small towns, systems have deteriorated or never existed, resulting in uncontrolled surface runoff.
- Rural Settlement Dispersal:

- The scattered pattern of rural villages makes formal stormwater infrastructure impractical, requiring alternative approaches such as nature-based solutions.

- Financial Constraints:
  - Stormwater infrastructure is often deprioritised compared to water supply and sanitation, receiving limited funding through MIG and other grants.

7.4.5. IMPLICATIONS FOR NDZ SPATIAL DEVELOPMENT FRAMEWORK

Stormwater management directly affects settlement planning and infrastructure resilience:

- Constraints on Urban Growth
  - Towns such as Underberg and Bulwer cannot sustainably densify without stormwater upgrades, as flooding already affects housing and businesses.
- Infill vs. Expansion
  - Infill development in serviced nodes must integrate stormwater upgrades to prevent increased flood risk.
  - Expansion into steep-slope areas should be restricted to minimise erosion and infrastructure damage.
- Bulk Infrastructure Protection
  - Stormwater planning is essential to protect bulk water and sanitation investments, especially pipelines, reservoirs, and treatment works vulnerable to erosion and flooding.
- Climate Resilience
  - NDZ must adopt a climate-sensitive spatial planning approach, integrating stormwater into settlement planning.
  - This aligns with the National Climate Change Adaptation Strategy (2020), which emphasises resilient infrastructure in vulnerable municipalities.
- Environmental Protection
  - The SDF should explicitly designate ecological buffer zones (wetlands, river corridors) where development is restricted, both to preserve ecosystems and to allow natural stormwater retention.

7.4.6. STRATEGIC OPPORTUNITIES

While stormwater management is often framed as a constraint, NDZ can leverage it as an opportunity for sustainable development:

- Green Infrastructure Solutions: Constructed wetlands, vegetated swales, and infiltration trenches can provide cost-effective alternatives in rural areas.
- Integrated Catchment Management: Protecting upstream areas (e.g., Drakensberg foothills) safeguards downstream settlements and water supply infrastructure.
- Tourism and Environmental Services: Maintaining clean rivers and healthy wetlands supports eco-tourism and agriculture, two critical economic sectors in NDZ.

7.4.7. ALIGNMENT WITH PROVINCIAL AND NATIONAL POLICY

- KwaZulu-Natal Provincial SDF (2021): Calls for stronger environmental protection and climate adaptation measures in highland municipalities such as NDZ.
- National Water and Sanitation Master Plan (2019): Recognises stormwater as a critical factor in protecting water supply quality.
- National Climate Change Adaptation Strategy (2020): Stresses integration of stormwater into planning frameworks for municipalities at high risk of flooding.

7.4.8. SYNTHESIS

Stormwater management in NDZ is an often overlooked but critical determinant of spatial development. Without significant investment in urban stormwater systems and adoption of green infrastructure in rural areas, NDZ will face:

- Increased settlement vulnerability to floods and erosion.
- Higher infrastructure maintenance costs.
- Reduced capacity to accommodate new housing or economic development.

Therefore, the NDZ SDF must treat stormwater as a central infrastructure priority, embedded in land use management, housing allocation, and environmental planning.

7.5. CURRENT & PROJECTED INFRASTRUCTURE DEMANDS (NDZ FOCUS)

7.5.1. PURPOSE, METHOD AND BASELINE

This section quantifies (i) what it takes to eradicate current backlogs in NDZ and (ii) what additional demand emerges to 2030 and 2035 under reasonable growth scenarios. It uses the HGDM WSDP/IDP Water Sector Input Report (FY 2024/25) as baseline for households, population, service levels and backlogs, and applies DWS RDP service norms to translate households into daily water demand. Where the WSDP provides more than one backlog figure (direct vs. updated), both are shown and the updated series is adopted for forward planning. Assumptions are stated explicitly and should be refreshed when Census 2022 EA-level data are released (WSDP notes this upcoming alignment).

Baseline (NDZ, DWS 2022): Households 29,350; Population 123,348 → implied average household size ≈4.20 persons/HH (123,348 ÷ 29,350). District context tables in the WSDP report NDZ at ~23% of HGDM population/households.

Normative anchors used (from WSDP text and DWS norms cited therein):

- RDP water: ≥25 l/person/day or 6,000 l/HH/month (≈200 l/HH/day) within 200 m; reliability thresholds as per Gazette 41100 (8 Sept 2017).
- RDP sanitation: at least VIP (adequate, safe, ventilated); flush sewer/septic = above RDP; pit (unventilated), bucket, chemical (temporary), or none = below RDP.

7.5.2. CURRENT BACKLOGS: RECONCILING FIGURES

The WSDP presents two views of backlogs:

- Direct (district-rollup from Census 2011 + Dot Count 2021) NDZ water backlog: 14,125 HH (48%); NDZ sanitation backlog: 14,741 HH (50%).
- Updated (accounting for completed projects post–Dot Count) NDZ water backlog: 15,097 HH (50%); NDZ sanitation backlog: 6,183 HH (21%) (district totals: 45,751 water; 29,250 sanitation).

Planning choice for this report: Use the updated series (Table A12) for forward demand modelling, while noting the variance with the “direct” rollup. This standardises the remainder of the analysis to the WSDP’s most recent backlog statement and avoids double-counting projects already delivered (although the WSDP also notes that detailed project lists underpinning the update were not included).

TABLE 22: NDZ BACKLOGS (DIRECT VS. UPDATED)

MEASURE	WATER BACKLOG (HH)	SANITATION BACKLOG (HH)
Direct backlog (A11)	14,125 (48%)	14,741 (50%)
Updated backlog (A12)	**15,097 (50%)**	**6,183 (21%)**

Source: HGDM WSDP 2024/25.

7.5.3. WATER: DEMAND TO ERADICATE THE CURRENT BACKLOG (NDZ)

Translating households to daily potable water requires a design service level assumption:

- RDP minimum (communal <200 m): ≈200 l/HH/day (the 6,000 l/HH/month floor).
- Basic yard (typical low-pressure): ≈350 l/HH/day (planning value; depends on pressure, lot size, climate).
- Full level (in-dwelling / high pressure): ≈500 l/HH/day (planning value).

These per-household design ranges are planning proxies; actual consumption will vary. The RDP floor (200 l/HH/d) is specified in the WSDP's normative discussion; higher tiers are design assumptions to test sensitivity (and should be confirmed in scheme-level feasibility).

TABLE 23: NDZ WATER: ML/DAY TO CLEAR THE UPDATED BACKLOG (15,097 HH)

Service Level Assumption	l/HH/day	ML/day required
RDP minimum	200	3.02
Basic yard	350	5.28
Full level	500	7.55

Calculation from WSDP backlog households; norms per WSDP narrative (RDP) and planning ranges (yard/full).

IMPLICATION: Even at the RDP floor, NDZ needs ~3.0 ML/d of new, reliable production + conveyance + storage capacity (or equivalent demand-side recovery) just to eliminate the present water backlog. Upgrading to yard/full-service increases this to ~5.3–7.6 ML/d.

7.5.4. GROWTH TO 2030 AND 2035: ADDITIONAL WATER DEMAND (BEYOND BACKLOG)

The WSDP notes Census 2022 data are not yet at EA-level for full reconciliation; we therefore model three growth scenarios on the NDZ baseline (2025→2030 = 5 years; 2025→2035 = 10 years):

- Low: 0.5% p.a. population growth
- Medium: 1.0% p.a.
- High: 1.5% p.a.

Assume average HH size ≈4.20 persons/HH remains constant (consistent with the NDZ ratio derived from WSDP baseline). *(Results rounded)*

TABLE 24: NDZ: ADDITIONAL HOUSEHOLDS VS. ADDITIONAL DAILY WATER (BEYOND BASELINE, EXCLUDING BACKLOGS)

SCENARIO	HORIZON	Δ HOUSEHOLDS	Δ ML/DAY @ 200 L/HH/D	Δ ML/DAY @ 350	Δ ML/DAY @ 500
Low (0.5% p.a.)	2030	+741	0.15	0.26	0.37
	2035	+1,501	0.30	0.53	0.75
Medium (1.0% p.a.)	2030	+1,497	0.30	0.52	0.75

SCENARIO	HORIZON	Δ HOUSEHOLDS	Δ ML/DAY @ 200 L/HH/D	Δ ML/DAY @ 350	Δ ML/DAY @ 500
	2035	+3,071	0.61	1.08	1.54
High (1.5% p.a.)	2030	+2,268	0.45	0.79	1.13
	2035	+4,712	0.94	1.65	2.36

Method: apply growth to NDZ population (WSDP baseline), convert to households using NDZ baseline HH size, then to water using design ranges.

PLANNING TAKEAWAY: If NDZ targets yard/full service for most new households, additional production of ~0.5–1.7 ML/d is required by 2035 (scenario-dependent), on top of the ~3.0–7.6 ML/d needed to clear the existing backlog.

7.5.5. SANITATION: UNITS/CONNECTIONS TO ERADICATE CURRENT BACKLOG (NDZ)

Updated sanitation backlog = 6,183 HH (21%). The WSDP treats VIP as RDP, with flush sewer/septic above RDP.

TABLE 25: NDZ SANITATION BACKLOG: OPTIONS (NUMBER OF UNITS/CONNECTIONS)

ROLLOUT OPTION	VIP UNITS	FLUSH/SEPTIC CONNECTIONS	NOTES
Basic compliance	6,183	0	Meets RDP; lowest capex; lowest O&M complexity.
Mixed (60/40)	3,710	2,473	Targets higher levels in denser nodes; VIP in dispersed villages.
Full waterborne	0	6,183	Suitable only in serviced towns/priority nodes; high capex/O&M.

Source: WSDP backlog; service definitions per WSDP norms narrative.

Growth overlay: Apply the same additional household counts in Table 6.3 to size the 2030/2035 sanitation programme (1 toilet/connection per new HH, with a chosen target mix).

7.5.6. NON-REVENUE WATER (NRW) AND DEMAND-SIDE RECOVERY

The WSDP highlights high NRW across HGDM (leakage, metering/billing gaps). While NDZ production baselines are not provided, a useful planning identity is:

- Effective supply gain (ML/d) ≈ System Production (ML/d) × NRW drop (percentage points).
- Example: a 10-point NRW reduction on a 10 ML/d system yields ~1 ML/d of effective supply — one-third of NDZ's backlog RDP need illustrated in Table 13. Prioritising pressure management, active leakage control, and metering is thus often the cheapest "new source."

7.5.7. PROGRAMME TYPOLOGIES NEEDED (LINK TO WSDP TABLE A13)

The WSDP lists district-level eradication types and households by type (new source, refurbishment, extension, new scheme). Sums exceed backlog (categories not mutually exclusive at scheme level), but they indicate the mix of interventions required. If NDZ's share of updated water backlog (~33% of district total) is applied proportionally to the WSDP's district programme, an indicative NDZ split is:

TABLE 26: NDZ INDICATIVE ALLOCATION OF ERADICATION TYPES (PROPORTIONAL TO BACKLOG SHARE)

ERADICATION TYPE (WSDP TABLE A13)	DISTRICT HH (WSDP)	NDZ SHARE (~33%)	COMMENT
New Source	23,075	~7,600	Springs/boreholes exhausted; surface source development likely in NDZ.
Refurbishment	6,551	~2,200	Ageing WTW/reticulation in towns; reduces NRW, improves reliability.
Extensions	959	~320	Connect outlying clusters to existing schemes where feasible.
New Scheme	31,183	~10,300	Required for dispersed villages where extension is impractical.

Source: WSDP Table A13; NDZ share derived from updated backlog ratio (15,097/45,751). Note: District categories exceed backlog because some projects upgrade existing consumers and de-duplicate at detailed design; the table is indicative only and requires scheme-level reconciliation.

7.5.8. PUBLIC FACILITIES: WATER & SANITATION UPGRADE DEMAND (DIRECTIONAL)

District-wide, schools and clinics are materially under-served; patterns are reflected in NDZ's rural wards. The WSDP samples show only ~41% of primary schools with adequate water and 66% with inadequate sanitation; clinics and health centres show substantial deficits. For NDZ's SDF, prioritise facility-anchored upgrades in service nodes to unlock social value and support settlement consolidation. (Exact NDZ facility counts should be extracted from the WSDP-linked spreadsheets noted in the report for EA-level rollup.)

7.5.9. SYNTHESIS: WHAT MUST BE BUILT BY WHEN (NDZ)

Putting the pieces together:

- Backlog (water): ~3.0 ML/d (RDP) to ~7.6 ML/d (yard/full) of new reliable capacity + reticulation to eliminate current deficits.
- Growth (water): +0.3–0.9 ML/d (RDP) or +0.5–2.4 ML/d (yard/full) by 2035, depending on growth scenario.
- Sanitation: 6,183 HH to RDP (VIP) or mixed/above-RDP options per Table 6.4; plus 2030/35 additional HH.
- Project mix: Expect new schemes and new sources to dominate in NDZ's dispersed rural areas; refurbishment and extensions in towns/clustered villages; NRW reduction as a cross-cutting "virtual source."

7.5.10. IMPLICATIONS FOR SPATIAL PLANNING (PREVIEW OF SECTION 7)

- Settlement growth is gated by staged bulk upgrades: allocate infill priority to Underberg–Bulwer–Creighton–Donnybrook, where refurbishment + extensions + NRW can release capacity quickly. Expansion into scattered villages requires new schemes and should be sequenced against realistic capex envelopes.
- Service corridors: Structure growth along R617 and other strategic corridors where bulk can be rationalised, not frayed.
- Institutional anchors: Upgrade schools/clinics as first-order projects in priority nodes; this also strengthens the case for settlement consolidation.
- Alignment: The programme conforms to DWS norms, and the Provincial SDF's emphasis on node consolidation; Section 7 will translate these quantitative demands into spatial directives, prioritisation, and sequencing for the NDZ SDF.

7.6. IMPLICATIONS FOR SPATIAL PLANNING

7.6.1. PURPOSE AND PLANNING LOGIC

This section translates the water and sanitation evidence into spatial directives for the Dr. Nkosazana Dlamini Zuma (NDZ) SDF. It sets: (i) a settlement hierarchy that reflects infrastructure realities; (ii) growth management rules (infill before expansion); (iii) bulk service corridor and nodal priorities; and (iv) an investment prioritisation framework consistent with national/provincial norms and the WSDP. Quantitative anchors and definitions (RDP service levels; backlog magnitudes; rural–urban split; institutional facility deficits) are drawn from the HGDM WSDP/IDP Water Sector Input Report (FY 2024/25).

7.6.2. EVIDENCE TO SPATIAL SIGNALS (WHAT THE DATA IMPLIES)

- Rural majority; dispersed settlement: ~81% of households and ~82% of the population are in rural areas district-wide, a pattern that NDZ mirrors; dispersed settlements raise per-household costs and complicate bulk reticulation.
- Backlogs at scale: NDZ's updated water backlog ≈ 15,097 HH (≈50%); updated sanitation backlog ≈ 6,183 HH (≈21%). Direct backlog estimates (pre-update) were ~48% (water) and ~50% (sanitation), underscoring the need to plan with stageable, multi-year programmes.
- Service levels: Only ~28% of district households are above RDP water levels; ~21% are exactly at RDP; the balance (~51%) remain below. Sanitation is similar or worse at district scale; NDZ's profile is close to these proportions (updated sanitation backlog lower, per Table A12).
- Institutional deficits: A large share of schools and clinics lack adequate water and/or sanitation (e.g., only ~41% of primary schools have adequate water; clinics/health centres show substantial gaps), weakening institutional nodes as anchors for growth.
- Programme mix required: Eradication needs span new sources, new schemes, refurbishment and extensions; district tables indicate many NDZ rural areas will require entirely new schemes, while towns need refurbishment + extensions (and NRW reduction).
- Norms that bind spatial choices: RDP water minimum (≥25 l/person/day or 6,000 l/HH/month; ≤200 m from dwelling; reliability thresholds; SANS 241 compliance) and basic sanitation definition (VIP at minimum; flush/septic = above RDP) set legal/technical thresholds for supporting new development.

Spatial signal: Growth must be consolidated into nodes where bulk can be made reliable and efficient; expansion into scattered rural settlements should be sequenced behind backlog eradication and realistic life-cycle funding.

7.6.3. SETTLEMENT HIERARCHY (INFRASTRUCTURE-LED)

- Tier 1: Primary Service Nodes (Urban Towns) — Underberg, Bulwer, Creighton, Donnybrook.
- Role: District-relevant service centres with partial bulk systems; priority for refurbishment, NRW reduction, and capacity upgrades to unlock infill and brownfield redevelopment first, then carefully staged edge expansion.
- Tier 2: Secondary/Cluster Nodes (Rural clusters) — Densest rural villages (≤5,000 pop) where communal/yard level services can be made reliable with scheme extensions or clustered new schemes.
- Role: Stabilise service levels (RDP→yard), prioritise schools/clinics to raise node viability.
- Tier 3: Dispersed Rural Settlements (Scattered) — Low-density, scattered homesteads.

Role: Incremental service improvements (new sources; standpipes <200 m; protected springs); no large-scale housing expansion until a viable scheme exists and O&M is assured.

Basis: NDZ towns listed in WSDP as main centres; rural typologies and their counts/household shares are detailed in the WSDP settlement typology tables.

7.6.4. GROWTH MANAGEMENT RULES (INFILL BEFORE EXPANSION)

GM-1 Concurrency Principle: Do not approve rezoning/subdivision for expansion housing where water/sanitation capacity is below RDP or cannot be made compliant within the project horizon (bulk + reticulation + O&M). Use conditions of approval tying rights to confirmed bulk upgrades (designs, budget, timeline). *Anchor: WSDP RDP service definitions & reliability criteria*.

GM-2 Infill Priority in Tier-1 Nodes:

- Phase 1: Refurbish WTW/reticulation, implement NRW reduction, and add storage to meet RDP + yard reliability; release infill/brownfield rights.
- Phase 2: With measured headroom, permit compact edge expansion contiguous to infrastructure. *(Rationale: WSDP highlights aging assets, high losses, and the need for refurbishment/new sources; towns are the only places where efficiencies can be realised quickly.)*

GM-3 Rural Expansion Gate: Expansion in Tier-2/3 areas requires a funded, lifecycle-viable scheme (capex and O&M). Where only communal supply is feasible, limit approvals to low-intensity/low-water-demand uses until upgrade commitments exist.

GM-4 Institutional First: In each priority node, upgrade schools and clinics to adequate water/sanitation before or concurrent with settlement growth; institutional adequacy is a pre-condition for node designation.

GM-5 Stormwater/Resilience: Couple any densification with stormwater upgrades/green infrastructure, to protect new and existing bulk systems (protect water quality; avoid erosion of reticulation corridors). *(Normative alignment with resilience; WSDP frames service reliability and environmental standards.)*.

7.6.5. BULK SERVICE CORRIDORS AND NODAL PRIORITIES

Corridor logic: Prioritise corridors that link Tier-1 towns to proximate rural clusters, maximising use of existing plants and reservoirs and reducing unit costs of new conveyance. (Exact routing is to be confirmed at feasibility stage.)

Priority package A — Urban consolidation (Tier-1 nodes):

- Actions: WTW refurbishment; reservoir/storage additions; DMA metering + pressure management; critical pipe replacements; targeted extensions to formal areas adjacent to mains.
- Spatial output: Infill/brownfield capacity; controlled, contiguous edge growth.
- Why first: Highest beneficiary count per ML/d; protects existing economic and social functions.

Priority package B — Clustered rural schemes (Tier-2 nodes):

- Actions: New sources and new schemes where extensions are uneconomic; protected standpipes within ≤200 m; step-up to yard where feasible; institutional connections first.
- Spatial output: Secure service nodes; reduced pressure on dispersed areas; safer school/clinic environments.
- Why now: WSDP shows many rural households below RDP; institutional deficits are material.

Priority package C — Dispersed rural service access (Tier-3):

- Actions: Source development (boreholes/springs), communal points, maintenance capacity, water quality compliance (SANS 241), tanker use only as temporary bridging.

- Spatial output: Basic rights secured without triggering unsustainable expansion.
- Why staged: Highest unit cost; O&M risks; aligns with constitutional minimums and affordability.

7.6.6. INVESTMENT PRIORITISATION & SEQUENCING (LINK TO WSDP PROGRAMMES)

The WSDP distinguishes MTEF projects (approved funding) from WSDP pipeline projects and classifies eradication by new source, refurbishment, extension, new scheme. NDZ should align its SDF implementation section with this typology and budget realities:

Short term (Years 1–3)

1. Tier-1 towns: Refurbishment + NRW programme; storage security; targeted extensions.
2. Institutional adequacy: Connect/upgrade schools/clinics in Tier-1 and select Tier-2 nodes first.
3. Design & EIA for new schemes in Tier-2 clusters (package deals).

Medium term (Years 4–7)

1. Commission new schemes/new sources for Tier-2 clusters; step-ups from communal to yard.
2. Controlled edge expansion in Tier-1 based on verified headroom.
3. Long term (Years 8–10+)
4. Incremental expansion to additional clusters; selective rural intensification where lifecycle funding is assured; continue NRW to sustain gains.

This order captures the WSDP's emphasis on: (i) refurbishment and reliability in existing systems; (ii) institutional nodes for social value; (iii) new schemes where extensions are uneconomic; and (iv) demand-side recovery through NRW reduction.

7.6.7. DEVELOPMENT CONTROL INSTRUMENTS (SDF → SCHEME → DC CONDITIONS)

- Water/Sanitation Capacity Certificates: Mandatory for all major applications; cite available ML/d (post-NRW) and storage hours.
- Phased Rights: Tie activation of rights to milestones (reservoir commissioned; DMA losses < X%; WTW upgrade certified).
- Level-of-Service (LOS) Triggers:
    - No expansion where RDP not met;
    - Infill allowed once RDP + reliability thresholds per Gazette 41100 are certified;
    - Edge expansion only when yard/full service headroom is proven.
- Institutional Adequacy Test: No designation of a new node without adequate school/clinic services (water + sanitation) committed in the same MTEF window.
- Stormwater Readiness: Densification approvals require on-site attenuation and public network upgrades sized to new imperviousness.

7.6.8. SPATIAL POLICY BOXES (FOR THE SDF CHAPTER)

Policy Box 1 — Urban Consolidation First

NDZ will prioritise infill and brownfield redevelopment in Underberg, Bulwer, Creighton, Donnybrook, enabled by refurbishment, NRW reduction, and storage capacity increases. Expansion rights follow verified capacity headroom.

Policy Box 2 — Node-Led Rural Upgrading

NDZ will channel rural investments to cluster nodes (Tier-2) where new schemes or extensions can credibly achieve RDP water ≤200 m and VIP/flush sanitation, with schools/clinics as first beneficiaries.

Policy Box 3 — Disciplined Expansion

No rezoning/subdivision for residential expansion in dispersed settlements (Tier-3) without a funded, lifecycle-viable scheme covering production, conveyance, storage, reticulation, and O&M to at least RDP level; tanker supply is not a basis for permanent approvals.

Policy Box 4 — Compliance with Norms

All approvals will reference WSDP-embedded RDP definitions (volume, distance, reliability, SANS 241) and sanitation adequacy (VIP minimum; flush/septic above RDP) as non-negotiable thresholds.

7.6.9. WHAT THIS MEANS FOR THE SPATIAL VISION

- The shape of growth is determined by the sequence of bulk reliability: refurbish and recover losses in Tier-1 towns → unlock infill → stage edge growth; in rural NDZ, cluster investment to raise nodes before pursuing dispersed expansion.
- The equity lens is operationalised by institution-first upgrades and basic service guarantees in vulnerable settlements.
- The efficiency lens is delivered by NRW as a first source, targeted extensions, and directing new schemes where unit costs are defendable.
- The resilience lens is embedded by coupling densification with stormwater/green infrastructure and protecting ecological buffers that sustain water quality (as required by reliability and quality standards referenced in the WSDP).

7.7. ELECTRICITY INFRASTRUCTURE

Electricity supply is a critical enabler of socio-economic development and spatial transformation within the Dr Nkosazana Dlamini Zuma (NDZ) Local Municipality. Reliable, affordable, and sustainable electricity access underpins service delivery, household well-being, agricultural productivity, industrial growth, and investment attraction. Within the context of the NDZ Spatial Development Framework (SDF), the state of electricity infrastructure has a direct bearing on settlement hierarchy, urbanisation patterns, and the municipality's ability to accommodate future growth in both urban and rural areas.

The policy environment is shaped by a combination of national, provincial, district, and municipal frameworks. At the national level, the Integrated Resource Plan (IRP, 2019) sets out the future energy mix and targets for renewable integration. The National Development Plan (NDP, 2030) calls for universal energy access, improved reliability, and decarbonisation. At the provincial level, the KwaZulu-Natal Provincial Spatial Development Framework (PSDF, 2020) prioritises infrastructure development, while the KZN SDF (2021) highlights the need to extend electricity networks into under-serviced rural areas. At district level, the Harry Gwala District Municipality IDP (2023/24) and Water & Sanitation/Infrastructure sector plans outline electrification priorities across all local municipalities, including NDZ.

Within this policy context, NDZ Municipality carries partial responsibility for electricity service delivery under Schedule 5B of the Constitution, which allows local municipalities to undertake electricity reticulation functions where capacity exists. However, Eskom remains the dominant implementing agent, particularly in rural and dispersed settlement areas. This dual responsibility requires careful coordination, with Eskom undertaking bulk infrastructure and NDZ focusing on smaller infill projects aligned with settlement densification strategies.

(Source: NDZ IDP 2023/24, p.44; KZN Provincial SDF, 2021, p.112; Eskom IRP, 2019)

7.7.1. CURRENT ELECTRICITY INFRASTRUCTURE IN NDZ

7.7.1.1. DISTRIBUTION NETWORKS

Eskom is the primary distributor in NDZ, supplying the majority of rural wards through medium-voltage networks and step-down substations. The municipality itself manages limited reticulation networks in certain towns such as Creighton and Bulwer, where historical municipal supply agreements were retained. Infrastructure is characterised by:

- Ageing distribution networks in rural areas, with wooden poles and lines vulnerable to weather damage.
- Limited substation capacity, particularly in the Bulwer and Donnybrook areas, constraining expansion.
- Low levels of redundancy, making many settlements prone to extended outages.

7.7.1.2. ACCESS LEVELS

According to Census 2022, household electricity access in NDZ stands at approximately 85%, below the provincial average of 92%. Remaining households without access rely on paraffin, candles, and wood. Electrification backlogs are highest in dispersed rural wards such as Wards 4, 8, 9, and 11, where settlement patterns make grid extension costly.

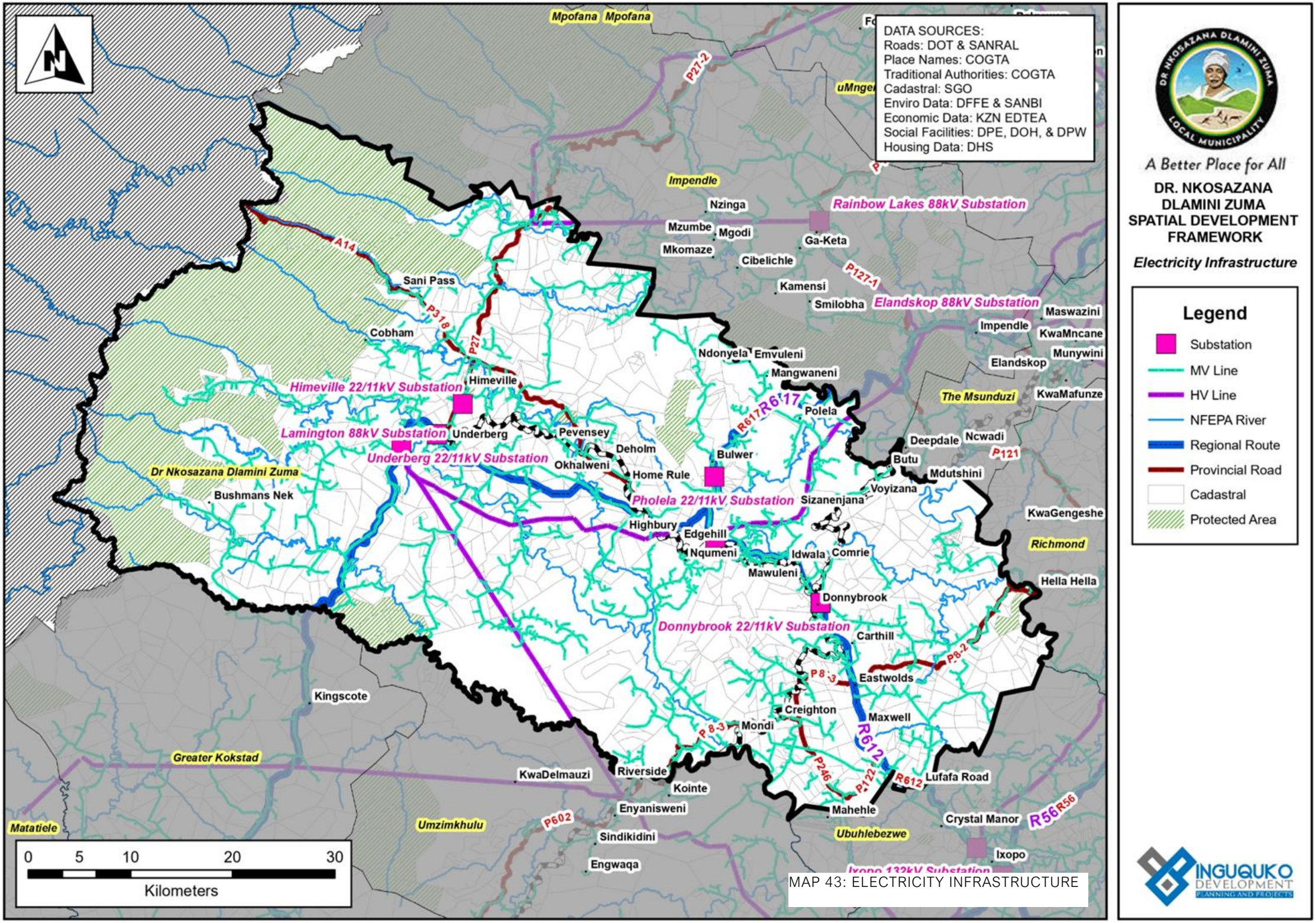
7.7.1.3. RECENT ESKOM PROJECTS

The District IDP notes that Eskom has completed two electricity infrastructure projects within NDZ over the past two years. These projects focused primarily on network strengthening and infill electrification, rather than new bulk infrastructure. In addition, Eskom has upgraded selected distribution lines to improve reliability in high-load settlements such as Underberg.

7.7.1.4. MUNICIPAL PROJECTS UNDER SCHEDULE 5B

NDZ Municipality has implemented a small number of infill electrification projects under Schedule 5B powers. These projects targeted unserved households within existing settlements, aligning with densification and upgrading priorities rather than new greenfield townships. Examples include extensions in Creighton town and settlement clusters in Wards 6 and 13.

(Source: Harry Gwala District IDP 2023/24, p.121-124; NDZ IDP 2023/24, p.45



MAP 43: ELECTRICITY INFRASTRUCTURE

7.7.2. ACCESS BACKLOGS AND DEMAND

Despite progress, NDZ still faces significant electrification backlogs:

TABLE 27: ELECTRICIFATION BACKLOGS

WARD	% HOUSEHOLDS ELECTRIFIED	BACKLOG ESTIMATE	NOTES
Ward 4	72%	~800 households	Rural & scattered settlements
Ward 8	68%	~1,000 households	High terrain challenges
Ward 9	70%	~950 households	Poor grid access
Ward 11	65%	~1,200 households	Dispersed rural settlements
Urban centres (Bulwer, Underberg)	95%+	Minimal backlog	Existing municipal supply

(Source: Stats SA Census 2022; NDZ IDP 2023/24, p.46)





At current rollout rates, complete universal access will require 5–7 years, depending on funding flows from the Integrated National Electrification Programme (INEP) and Eskom's capacity. Future demand is projected to increase due to:

- Population growth (NDZ's population grew by 0.6% annually between 2011–2022).
- Expansion of commercial agriculture (requiring irrigation pumping, refrigeration, and processing power).
- Tourism sector development in Underberg and Drakensberg foothills, placing pressure on local networks.
- Electrification of schools, clinics, and service points as part of universal service delivery.

7.7.3. RENEWABLE ENERGY OPPORTUNITIES IN NDZ

7.7.3.1. POLICY DRIVERS FOR RENEWABLE ENERGY

South Africa's Integrated Resource Plan (IRP, 2019) targets a progressive shift towards renewable energy sources, reducing reliance on coal and diversifying the national grid. For municipalities like NDZ, renewable energy is not only a contribution to decarbonisation but also a practical response to electrification backlogs in dispersed rural settlements. The Just Energy Transition (JET) Framework further encourages local municipalities to harness renewable resources for both off-grid and grid-tied applications.

(Source: DMRE IRP 2019; Presidential Climate Commission JET Framework, 2022)

7.7.3.2. SOLAR ENERGY POTENTIAL

NDZ has high solar irradiation levels, averaging 4.5–5.5 kWh/m²/day, consistent with other areas of KwaZulu-Natal's interior. This makes it suitable for:

- Household solar PV systems, particularly in rural settlements beyond the reach of the Eskom grid.
- Community-scale mini-grids in remote wards (e.g., Ward 11, Ward 8), using hybrid solar-diesel or solar-battery systems.
- Public facility electrification, where solar systems can power schools, clinics, and water pumping stations.

Barriers include high upfront capital costs and limited technical capacity for system maintenance at the local level. However, partnerships with IPPs (Independent Power Producers) and provincial programmes can address these gaps.

7.7.3.3. WIND ENERGY POTENTIAL

Wind potential in NDZ is modest, with stronger wind resources concentrated along the Drakensberg escarpment. While utility-scale wind farms are unlikely to be competitive here, small-scale wind turbines can complement solar systems for hybrid rural electrification, particularly in high-altitude villages.

7.7.3.4. HYDROPOWER OPPORTUNITIES

NDZ's rivers (Umkomaas, Umzimkulu, and their tributaries) offer micro-hydro potential. Small-scale run-of-river schemes could support off-grid electrification in rural valleys, especially in Wards 2 and 4 where settlements are clustered along rivers. Feasibility studies would be required to assess environmental impacts and water availability across seasons.

7.7.3.5. BIOMASS AND WASTE-TO-ENERGY

The municipality's agricultural base generates significant organic waste streams (maize residues, timber off-cuts, livestock waste). There is potential for:

- Biogas digesters for farms and agri-processing facilities.
- Community-scale digesters linked to livestock projects, producing both electricity and cooking gas.
- Small-scale cogeneration in forestry-related industries.

7.7.3.6. STRATEGIC RENEWABLE ENERGY INTERVENTIONS

To capitalise on renewable opportunities, NDZ can pursue:

- Household solar subsidy programmes targeting electrification backlogs.
- Pilot community mini grids in remote wards (Ward 8, Ward 11).
- Renewable energy for municipal facilities, reducing operating costs and improving resilience.

- Partnerships with IPPs, aligning with provincial procurement frameworks.
- Inclusion of renewable energy corridors in the NDZ SDF, particularly around Underberg and the Drakensberg, to attract investment.

(Source: CSIR Energy Atlas, 2021; KZN SDF 2021, p.130; NDZ IDP 2023/24)

7.7.4. KEY CHALLENGES AND RISKS

7.7.4.1. INFRASTRUCTURE CONSTRAINTS

- **Ageing Eskom infrastructure**: Distribution networks remain vulnerable to weather and load-related failures.
- **Capacity limits**: Substations in Bulwer and Donnybrook have limited spare capacity, constraining development.
- **Funding limitations**: National electrification funding (INEP) is inadequate to cover all backlogs at current rollout rates.

7.7.4.2. SETTLEMENT PATTERNS

The dispersed, low-density settlement form of NDZ significantly raises the unit cost of grid electrification. Many households are located far from existing networks, leading to high per-connection costs.

7.7.4.3. ENERGY POVERTY

Despite electrification gains, many households remain energy poor—connected but unable to afford adequate electricity. This results in continued reliance on wood and paraffin, undermining health and environmental goals.

7.7.4.4. INSTITUTIONAL CHALLENGES

- **Dual responsibilities**: Eskom and NDZ both operate in the municipality, often resulting in coordination issues.
- **Limited municipal capacity**: NDZ has few in-house engineers, limiting its ability to plan and manage infrastructure projects.

7.7.4.5. CLIMATE AND ENVIRONMENTAL RISKS

- **Storm damage**: Increased frequency of extreme weather threatens overhead lines.
- **Water availability**: Hydropower potential may be undermined by drought cycles.

(Source: NDZ IDP 2023/24, p. 46–48; Eskom Annual Report 2023)

7.7.5. DEMAND PROJECTIONS BASED ON POPULATION GROWTH

7.7.5.1. POPULATION PROJECTIONS

The population of NDZ Municipality is expected to grow steadily over the next two decades, from 128,565 in 2022 to 155,556 in 2044. This represents a net increase of nearly 27,000 people (+21%), or an average annual growth rate of around 0.9%.

TABLE 28: PROJECTED POPULATION

YEAR	PROJECTED POPULATION	GROWTH SINCE 2022
2022	128,565	–
2027	134,256	+5,691
2032	140,198	+11,633
2037	146,404	+17,839
2042	152,884	+24,319
2044	155,556	+26,991

7.7.5.2. HOUSEHOLD GROWTH AND ELECTRIFICATION NEEDS

Assuming an average household size of 3.9 persons (Stats SA, Census 2022), population growth translates into an additional 6,900 households by 2044. Each of these households will require electricity connections, either through grid or renewable off-grid systems.

- 2022 baseline: ~33,000 households
- 2044 projection: ~39,900 households
- Additional households requiring electricity: ~6,900

7.7.5.3. PROJECTED ELECTRICITY DEMAND

Electricity demand growth is driven not only by household numbers but also by increasing per-household consumption due to lifestyle changes, appliance penetration, and electrification of economic activity.

Using the Department of Mineral Resources and Energy (DMRE) per-household norm of 4.5 kWh/day for low-income households (approx. 1,640 kWh/year per household), projected household demand is:

TABLE 29: PROJECTED HOUSEHOLD DEMAND

YEAR	HOUSEHOLDS (EST.)	ANNUAL DEMAND (MWH)
2022	33,000	54,120
2027	34,500	56,580
2032	36,000	59,040
2037	37,500	61,500
2042	39,200	64,208
2044	39,900	65,436

This indicates that household electricity demand in NDZ will increase by approximately 11,000 MWh/year between 2022 and 2044, representing a 20% rise in baseline consumption.

7.7.5.4. DEMAND FROM PRODUCTIVE SECTORS

In addition to residential growth, demand will expand in productive sectors:

- **Agriculture:** Expanding irrigation schemes and cold-chain logistics are likely to add ~15% to current agricultural energy loads by 2044.
- **Tourism:** Growth in eco-lodges, hospitality, and related services in Underberg and Bulwer will increase commercial consumption.
- **Public services:** Universal electrification of clinics, schools, and service centres will further increase demand.

7.7.5.5. IMPLICATIONS

- **Need for bulk upgrades:** Substations in Bulwer and Creighton will require capacity enhancements by 2035.
- **Infill focus:** Electrification backlogs must be addressed early (2024–2032) to ensure that growth does not outpace infrastructure rollout.
- **Renewable energy integration:** Given slow grid expansion in rural areas, off-grid solar and hybrid systems will be critical for meeting household and community-level demand.

(Sources: Stats SA Census 2022; DMRE Norms, 2019; NDZ Population Projections 2024)

7.7.6. STRATEGIC OPPORTUNITIES AND INTERVENTIONS

7.7.6.1. STRENGTHENING BULK INFRASTRUCTURE

The long-term sustainability of NDZ's electricity infrastructure requires upgrading and expansion of bulk supply capacity:

- **Bulwer Substation Upgrade:** Currently operating near maximum capacity, requiring reinforcement to accommodate projected growth by 2035.
- **Donnybrook Distribution Node:** Identified as a priority for expansion to serve growing rural demand and agricultural loads.
- **Underberg Tourism Corridor:** A strategic investment zone where reliable power supply is essential to sustain tourism enterprises and lodges.

(Source: Harry Gwala DM IDP 2023/24, p. 121–124)

7.7.6.2. TARGETED INFILL ELECTRIFICATION

Given NDZ's dispersed settlement form, infill projects remain the most cost-effective short- to medium-term strategy. Rather than opening new greenfield supply areas, NDZ and Eskom should continue to focus on filling gaps in existing settlements, particularly in:

- Creighton and Donnybrook peri-urban zones, where settlement densification is occurring.
- Ward 6 and Ward 13 clusters, where backlogs remain despite existing networks nearby.

This approach aligns with SDF settlement consolidation strategies, limiting sprawl and reducing infrastructure costs.

7.7.6.3. RENEWABLE ENERGY INTEGRATION

Strategic interventions to diversify the energy mix include:

- Community solar mini-grids in Wards 8 and 11.
- Solar PV retrofits for municipal buildings and clinics to reduce operational costs.
- Biogas digesters for agri-processing facilities (e.g., dairy farms, timber mills).
- Micro-hydro pilots along tributaries of the Umzimkulu River.

These initiatives can be supported through public-private partnerships (PPPs) and IPP procurement frameworks at district and provincial level.

7.7.6.4. DEMAND-SIDE MANAGEMENT AND EFFICIENCY

Energy efficiency can significantly reduce demand pressure:

- Promotion of efficient lighting and appliances in municipal housing projects.
- Solar water heaters for public housing schemes, reducing peak evening demand.
- Awareness campaigns in partnership with Eskom to promote household energy savings.

7.7.6.5. INSTITUTIONAL COORDINATION

To address overlapping responsibilities between Eskom and NDZ, a formal coordination framework should be established:

- Joint Electrification Task Team, meeting quarterly to align project lists and budgets.
- Integrated project pipeline, embedded in the NDZ SDF and IDP.
- Capacity building for municipal staff in electricity planning and renewable energy feasibility.

7.7.7. 8. SPATIAL PLANNING IMPLICATIONS

7.7.7.1. ELECTRICITY AS A DRIVER OF SETTLEMENT GROWTH

Electricity access is a determinant of settlement viability in NDZ. Settlements without reliable supply struggle to retain households, attract investment, or support service facilities. Conversely, electrification catalyses growth in rural nodes.

7.7.7.2. INFILL VS GREENFIELD DEVELOPMENT

The municipality's electrification focus has been on infill projects—extending networks within existing settlements—rather than opening new greenfield areas. This strategy is aligned with:

- SDF settlement hierarchy, which prioritises consolidation over expansion.
- Cost efficiency, as infill electrification reduces per-connection costs.
- Sustainability, as it prevents sprawl into environmentally sensitive areas (e.g., Drakensberg foothills).

7.7.7.3. CONSTRAINTS ON SPATIAL DEVELOPMENT

Electricity backlogs and infrastructure capacity limitations directly constrain NDZ's ability to expand housing, industrial, and tourism developments. Key implications include:

- Housing projects delayed due to lack of bulk electricity connections (notably in Donnybrook and Creighton).
- Tourism lodges in Underberg facing reliability challenges, deterring investment.
- Small enterprises unable to scale due to unreliable electricity supply.

7.7.7.4. ALIGNMENT WITH PROVINCIAL AND NATIONAL PRIORITIES

- The National Electrification Programme (INEP) provides conditional grants for backlog eradication.
- The KZN Provincial SDF (2021) identifies NDZ as part of a rural service delivery corridor, emphasising the importance of extending infrastructure into under-serviced areas.
- The Just Energy Transition provides opportunities for NDZ to position itself as a site for community renewables pilots, particularly in remote wards.

7.7.7.5. PLANNING RECOMMENDATIONS FOR THE SDF

- Incorporate electricity infrastructure corridors into the spatial proposals.
- Prioritise service nodes (Creighton, Bulwer, Underberg, Donnybrook) for bulk upgrades.
- Embed renewable energy precincts in the SDF as spatial investment zones.
- Ensure that housing development pipelines are aligned with electricity rollout schedules.

7.7.8. STRATEGIC RECOMMENDATIONS

Electricity infrastructure in NDZ is at a critical juncture. While access has improved, significant backlogs persist in rural wards, and bulk supply constraints threaten future growth. Population projections indicate that demand will rise by 20% between 2022 and 2044, requiring both grid reinforcement and diversification through renewable energy.

7.7.8.1. KEY RECOMMENDATIONS

- Prioritise infill electrification to achieve universal household access within 7 years.
- Upgrade bulk infrastructure at Bulwer and Donnybrook substations to support housing and agricultural expansion.
- Integrate renewable energy solutions, particularly solar mini-grids, biogas, and micro-hydro, into rural electrification strategies.
- Establish formal coordination mechanisms between Eskom and NDZ Municipality for joint planning and implementation.
- Embed electricity planning into spatial strategies, aligning service provision with settlement consolidation, tourism development, and agricultural growth.

By adopting these interventions, NDZ can ensure that electricity infrastructure becomes a catalyst for spatial transformation, supporting inclusive growth, rural development, and resilience in line with provincial and national objectives.

(Sources: NDZ IDP 2023/24; Harry Gwala District IDP 2023/24; KZN SDF 2021; Eskom Annual Reports 2022–2023; Stats SA Census 2022; NDZ Population Projections 2024)

7.8. WASTE MANAGEMENT SERVICES & INFRASTRUCTURE

The management of waste is not only a service delivery obligation but also a critical determinant of spatial development outcomes in Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality. This report synthesises the findings of the Integrated Waste Management Plan (IWMP) and reinterprets them within the framework of the Spatial Development Framework (SDF). Its purpose is to provide a technically grounded, spatially oriented perspective on the challenges, opportunities, and strategic interventions necessary to align waste management with the municipality's long-term development vision.

The situation analysis indicates that NDZ faces severe disparities in waste service provision, with only 4,456 of the municipality's 29,619 households formally serviced. This service gap has significant implications for settlement expansion, as unserviced areas tend to experience higher rates of illegal dumping, environmental degradation, and public health risks. These issues directly constrain the ability to promote sustainable and resilient human settlements as envisioned in the SDF.

The status of landfill sites is also a critical concern. While the Bulwer landfill site is operational and licensed, it fails to meet national standards and faces capacity limitations. The Creighton landfill site is earmarked for conversion into a transfer station, but until this occurs, its lack of compliance represents both an environmental risk and a spatial planning challenge. Himeville Transfer Station, which handles significant waste volumes, lacks key infrastructure such as weighbridges and chipping machines, reducing the municipality's ability to quantify, manage, and divert waste streams effectively. These deficiencies create long-term risks for settlement growth and regional development nodes.

From a spatial planning perspective, the absence of well-located, compliant waste facilities undermines the municipality's ability to direct growth into planned urban nodes and to manage the environmental pressures of rural settlements. Poor waste infrastructure in peri-urban and rural areas not only exacerbates backlogs but also weakens the attractiveness of towns such as Underberg, Bulwer, Donnybrook, Creighton, and Himeville as growth centres. Conversely, strategic investments in waste facilities can reinforce these nodes, support sustainable land use, and align with regional strategies under Harry Gwala District Municipality.

The IWMP also highlights opportunities that align with the SDF's green economy and sustainability objectives. Waste recycling and recovery initiatives, particularly those involving SMMEs and cooperatives, present an opportunity to embed circular economy practices into local spatial strategies. The establishment of buy-back centres, source separation programmes, and

small-scale composting or biogas projects can generate employment, reduce pressure on landfill sites, and provide a framework for integrating waste infrastructure into settlement planning. These initiatives directly support provincial and national policy directives for sustainable resource management, while advancing NDZ's developmental vision. Key strategic opportunities identified include:

- Allocating and securing land for future transfer stations, buy-back centres, and recycling hubs in alignment with nodal development strategies.
- Using waste infrastructure as a catalyst for reinforcing settlement hierarchies and ensuring equitable service delivery.
- Integrating environmental management into spatial planning by protecting wetlands, biodiversity areas, and tourism assets from waste-related pressures.
- Leveraging partnerships with industry (e.g., PETCO, Mondi, SAPPI) and provincial entities to scale up recycling and recovery initiatives.
- Embedding community-based recycling and green economy projects into rural service nodes, thereby linking waste management with local economic development.

TABLE 30: SPATIAL PLANNING IMPLICATIONS & STRATEGIC OPPORTUNITIES

CHALLENGE	SPATIAL PLANNING IMPLICATIONS	STRATEGIC OPPORTUNITIES
Only 15% of households serviced (4,456 of 29,619)	Limits sustainable settlement expansion; risk of informal dumping in rural/peri-urban areas	Prioritise nodal roll-out of waste collection; integrate service delivery with settlement hierarchy
Bulwer landfill licensed but non-compliant; Creighton earmarked for closure/transfer station	Lack of compliant disposal facilities constrains spatial growth of nearby towns	Allocate land for new/expanded waste facilities within growth nodes
Himeville Transfer Station lacks weighbridges/chipping capacity	Weak monitoring undermines planning for waste infrastructure	Invest in modern equipment; integrate transfer stations into urban nodes
Recycling capacity limited; glass/cans stockpiled	Inefficient land use and wasted economic potential	Develop recycling hubs/buy-back centres; promote SMMEs in waste economy
Illegal dumping and poor rural coverage	Environmental degradation around settlements, wetlands, and tourism landscapes	Enforce by-laws, create designated rural disposal points, integrate with environmental protection zones

7.8.1. BACKGROUND AND CONTEXT

Waste management is a critical service function within local government and directly influences settlement patterns, land use, and environmental sustainability. In Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality, the Integrated Waste Management Plan (IWMP) provides a comprehensive baseline of the municipality's waste streams, disposal facilities, and service delivery capacity. However, in order for this information to meaningfully guide long-term growth and development, it must be reinterpreted through the lens of the Spatial Development Framework (SDF).

The NDZ Municipality is predominantly rural, with dispersed settlements and small service towns such as Underberg, Bulwer, Donnybrook, Creighton, and Himeville functioning as local service centres. The municipality faces severe

backlogs in waste collection, with only 15% of households serviced, alongside non-compliant landfill facilities and limited recycling capacity. These deficiencies are not simply technical service issues: they directly constrain spatial planning objectives such as compact settlement growth, sustainable land use management, and environmental protection.

The SDF provides a platform for integrating waste management into spatial planning by identifying where infrastructure should be located, how it should be aligned with settlement hierarchies, and how environmental risks should be managed. By positioning waste management as a structuring element in land use planning, the municipality can ensure that service delivery deficits do not undermine development, while also leveraging strategic opportunities in the green economy.

7.8.2. LEGISLATIVE AND POLICY ALIGNMENT

The integration of waste management into spatial planning must be framed within South Africa's legislative and policy environment. Key instruments include:

- Spatial Planning and Land Use Management Act (SPLUMA), 2013: Requires municipalities to integrate infrastructure planning with land use management and to promote sustainable, resilient, and inclusive settlements. Waste management is a core service that must be factored into municipal spatial strategies.
- National Environmental Management: Waste Act (NEM:WA), 2008: Provides the legal framework for waste minimisation, recycling, safe disposal, and compliance. The Act requires municipalities to develop and implement Integrated Waste Management Plans, which must inform broader spatial planning frameworks.
- Municipal Systems Act (MSA), 2000: Positions waste management as a basic municipal function that must be included in Integrated Development Plans (IDPs) and aligned with the SDF.
- National Waste Management Strategy (NWMS), 2020: Promotes the waste hierarchy (reduce, reuse, recycle, recover, dispose) and encourages municipalities to embed circular economy principles.
- KwaZulu-Natal Provincial Spatial Development Framework (PSDF) and Harry Gwala District SDF: Provide regional guidance on settlement hierarchy, environmental management, and infrastructure investment, all of which have direct linkages to waste management.

These legislative and policy frameworks collectively emphasise that waste management is not peripheral but central to sustainable development. NDZ's SDF must therefore treat waste facilities, service coverage, and recycling opportunities as structuring elements in spatial development, alongside water, sanitation, and energy infrastructure.

7.8.3. HOUSEHOLD SERVICE COVERAGE

The IWMP indicates a total of 29,619 households, of which only 4,456 are formally serviced with regular waste collection. This equates to just 15% coverage, leaving approximately 25,163 households unserviced.

Unserviced households are primarily located in rural and peri-urban areas, particularly in settlements outside the five main towns. The absence of waste services in these areas contributes to widespread illegal dumping, on-site burning of waste, and disposal in informal sites. This not only creates public health hazards but also undermines spatial planning objectives of creating sustainable and liveable settlements.

Spatial Planning Implication: The severe gap in waste collection coverage means that settlement expansion into unserviced areas cannot be sustained without parallel waste infrastructure investments. Moreover, compact settlement promotion under the SDF must prioritise nodes where waste services can be delivered cost-effectively.

7.8.4. WASTE GENERATION AND PROJECTIONS

The IWMP estimated current domestic waste generation at 434.68 tons per annum, with projections suggesting a tenfold increase to 4,346.8 tons per annum over the next 10 years. These figures highlight both the underestimation of current waste (due to lack of weighbridges and reliable data) and the inevitability of increased waste pressure as populations grow, and consumption patterns change.

Spatial Planning Implication: Without robust facilities, NDZ's small towns will face mounting waste loads, overwhelming already constrained landfills and transfer stations. This underscores the need to identify and secure strategically located sites for future waste infrastructure within growth nodes.

7.8.5. LANDFILL SITES AND TRANSFER STATIONS

7.8.5.1. BULWER LANDFILL SITE

- Licensed and operational, but non-compliant with minimum standards under the National Environmental Management: Waste Act (NEM:WA).
- Existing airspace available: 6,131 m³.
- Risks: Environmental contamination, regulatory non-compliance, and constraints on further development in Bulwer.

7.8.5.2. CREIGHTON LANDFILL SITE

- Scheduled for closure and conversion into a transfer station.
- Current status: limited compliance and capacity issues.
- Risks: If closure and conversion are delayed, illegal dumping and overcapacity will intensify.

7.8.5.3. HIMEVILLE TRANSFER STATION

- Receives large volumes of waste but lacks a weighbridge and chipping machines, making waste categorisation and diversion inefficient.
- Recycling is outsourced to local SMMEs, but significant stockpiles of glass and cans remain unsold due to limited markets.

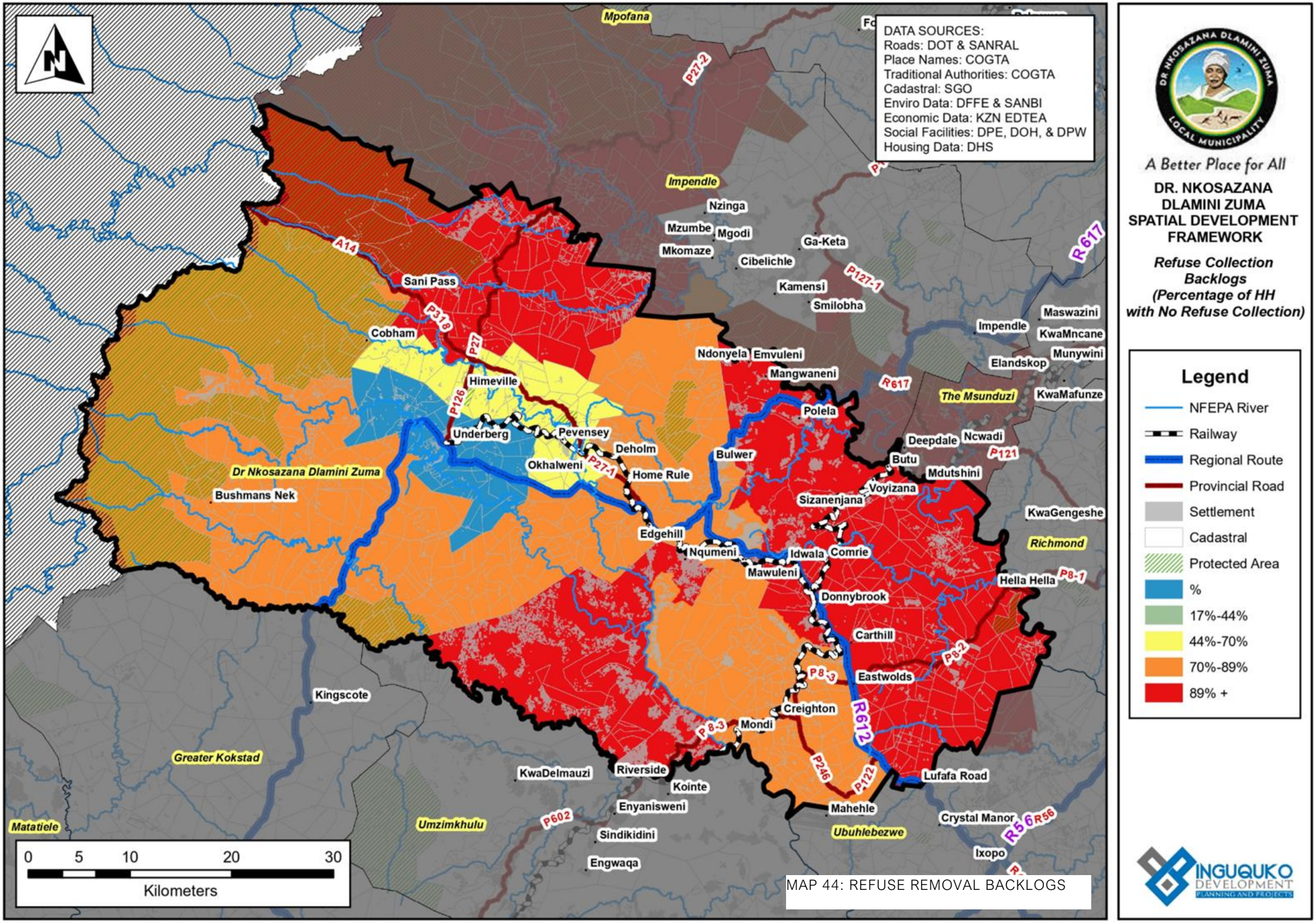
7.8.5.4. SPATIAL PLANNING IMPLICATION:

- Landfill and transfer stations are poorly distributed, with most facilities concentrated around Bulwer, Creighton, and Himeville. This leaves towns like Donnybrook under-serviced.
- Non-compliant facilities reduce the municipality's ability to support urban growth in surrounding towns.
- Conversion of Creighton into a transfer station presents an opportunity to reconfigure waste logistics within the settlement hierarchy.

7.8.6. RECYCLING AND INFORMAL WASTE ECONOMY

Recycling activities are limited. At present, Himeville Transfer Station hosts some recycling initiatives through SMMEs, but volumes are low, and economic viability is constrained by poor access to markets.

- Major recyclable waste streams: plastic (33.9%), glass (25.8%), cans (12.9%), paper (9.7%).
- Significant stockpiles indicate weak value-chain integration.
- There is no formal buy-back centre or regional recycling hub.



MAP 44: REFUSE REMOVAL BACKLOGS

TABLE 31: SUMMARY OF KEY FINDINGS

INDICATOR	FINDINGS (IWMP)	SPATIAL PLANNING IMPLICATIONS
Household coverage	15% serviced (4,456 households)	Settlement growth must be aligned with service roll-out; rural areas face sustainability risks
Waste generation	434.68 tons/year → 4,346.8 tons/year in 10 years	Urgent need for future waste facility land allocation in growth nodes
Landfills	Bulwer licensed but non-compliant; Creighton to be closed; Donnybrook unserved	Facility location limits sustainable growth of secondary towns
Transfer stations	Himeville active but under-equipped	Modernisation required; spatial integration into town growth nodes
Recycling	Limited, with stockpiles of glass/cans; no buy-back centre	Allocate land for recycling hubs; integrate SMMEs into urban economy
Institutional capacity	Severely underfunded; poor tariff recovery	SDF should encourage PPPs and provincial/district collaboration

7.8.7. CURRENT WASTE INFRASTRUCTURE AND SERVICE DELIVERY

TABLE 32: WASTE INFRASTRUCTURE STATUS AND SPATIAL IMPLICATIONS

FACILITY	STATUS	COMPLIANCE	SPATIAL IMPLICATION
Bulwer Landfill	Licensed, 6,131 m³ capacity	Non-compliant with NEM:WA	Limits Bulwer's role as a growth node; undermines environmental sustainability
Creighton Landfill	Scheduled for closure; conversion to transfer station	Non-compliant	Opportunity to reposition Creighton as a logistics hub; closure must avoid rural dumping
Himeville Transfer Station	Active but under-equipped; limited recycling	No weighbridge; weak processing capacity	Weakens Himeville's role as a tourism gateway; upgrading could reinforce its nodal role
Regional Disposal (New England)	Contracted external landfill	Compliant	Indicates NDZ's lack of self-sufficiency; costly and unsustainable
Recycling activities	Limited, ad hoc, stockpiles present	No formal buy-back centres	Missed opportunities for circular economy; requires land allocation in town nodes

7.8.8. SPATIAL PLANNING IMPLICATIONS

7.8.8.1. SETTLEMENT GROWTH AND SERVICE EQUITY

NDZ's collection coverage is limited to 4,456 of 29,619 households (≈15%), leaving 25,163 households unserviced. The spatial reality is that services concentrate in the five towns (Underberg, Bulwer, Donnybrook, Creighton, Himeville) while rural/peri-urban settlements remain largely uncovered.

SDF implication:

- Growth management: Greenfield or edge expansion into unserviced areas will compound illegal dumping and environmental health risks; prioritise infill and densification within nodes where phased collection can be sustained.
- Equity: Align household service roll-out with the settlement hierarchy; sequence new housing approvals with confirmed waste collection capacity in the servicing plan.

7.8.8.2. LAND ALLOCATION FOR WASTE INFRASTRUCTURE (NODAL INTEGRATION)

Bulwer landfill is licensed but does not meet minimum standards; available airspace is recorded as 6,131 m³. Creighton is earmarked for closure and conversion to a transfer station. Himeville Transfer Station receives significant volumes but has no weighbridge and lacks basic processing (e.g., chipping), limiting diversion and data accuracy. Residual waste is exported under contract to New England Landfill (Pietermaritzburg), evidencing local capacity shortfalls.

SDF implication:

- Zoning & servitudes: Reserve and secure land parcels for (a) a modernised Bulwer facility, (b) the Creighton transfer station conversion, and (c) upgraded Himeville transfer station—all embedded within or adjacent to urban nodes to reduce haulage costs and support compact growth.
- Town-by-town roles:
    - Bulwer – maintain/upgrade as a disposal node to sustain its secondary-node role.
    - Creighton – logistics node (transfer station) to reconfigure rural collection into regional haul.
    - Himeville/Underberg – tourism gateway; upgrade the transfer station to protect town liveability and destination appeal.
- Development control: Condition major township or settlement extensions on available disposal/transfer capacity and an operational plan that meets NEM:WA standards.

7.8.8.3. RECYCLING ECONOMY: SPATIAL ANCHORS AND MARKET LINKAGES

The 2019 waste stream characterisation at Himeville shows high recyclable fractions: plastic ≈33.9%, glass ≈25.8%, cans ≈12.9%, paper ≈9.7%—yet recyclables are stockpiled due to weak market access and limited infrastructure (no buy-back centre).

SDF implication:

- Designate sites for buy-back centres and recycling hubs in at least three towns (e.g., Underberg/Himeville, Bulwer, Creighton), integrated with light-industrial or logistics precincts.
- Enable SMME platforms via permitted land uses (e.g., "materials recovery facility", "recycling depot") and urban design provisions (screening, access control, nuisance buffers).

- Use nodal clustering (transfer + MRF + buy-back) to create circular-economy precincts and reduce landfill pressure.

7.8.8.4. ENVIRONMENTAL MANAGEMENT: BIODIVERSITY, WATER SYSTEMS, AND HERITAGE LANDSCAPES

The IWMP records high biodiversity value, including Critical Biodiversity Areas (CBAs) identified in the Harry Gwala District Biodiversity Sector Plan, with Red Data species (Blue Swallow, Cape Parrot, cranes, Cape Vulture, Oribi) signalling sensitive landscapes requiring protection. The municipality also contains mistbelt grasslands and forests, pervasive wetlands and rivers, and forms part of Drakensberg tourism landscapes and a heritage site buffer zone.

SDF implication:

- No-go / constrained zones: Avoid siting landfills, transfer stations, or informal disposal points in CBAs, wetlands, and riparian buffers; route collection networks to protect water resources and ecological corridors.
- Tourism landscapes: Reinforce Himeville/Underberg as clean, high-amenity nodes; waste facilities must be screened, compliant, and set back to protect the scenic economy.
- Land and soils: The area's highly erodible soils (mudstones, shales) elevate risk from poorly managed sites; require erosion control measures and engineered drainage in facility design.

7.8.8.5. RURAL SERVICE MODEL AND ON-SITE SOLUTIONS

While the NDZ baseline shows 0% recorded service under the National Domestic Waste Collection Standards, the IWMP's implementation framework envisages "supervised on-site disposal" for rural and farm areas and two-bag separation in targeted settlements—recognising logistical barriers in dispersed settlement patterns.

SDF implication:

- Rural nodes: Designate mini-drop-offs/community skips in rural service nodes, with scheduled haulage to transfer stations.
- On-site provisions: Where appropriate, provide controlled on-site solutions (cleared, fenced, supervised points) as an interim measure, tied to public education and by-law enforcement.

7.8.8.6. TRANSPORT AND REGIONALISATION

Exporting residual waste to New England Landfill confirms a regional dependency that inflates costs and carbon emissions and constrains local economic multipliers.

SDF implication:

- Logistics planning: Consolidate transfer functions at Creighton and Himeville and evaluate Bulwer upgrade to reduce haul distances; align with district-level routing to improve fleet efficiency.
- Regional coordination: Embed NDZ's facility investments in Harry Gwala District strategies to leverage economies of scale (e.g., shared markets for recyclate, regional buy-back agreements).

7.8.8.7. CLIMATE RISK AND RESILIENCE

The IWMP notes extreme weather events (damage to households, health risks, biodiversity impacts) and a climate gradient (cooler, wetter west; warmer, drier east; 700–1,200 mm rainfall) that influences facility design and siting. Flooding and slope instability risks intersect with wetlands and river systems.

SDF implication:

- Resilient siting: Avoid flood-prone and erosion-susceptible land for waste facilities; integrate stormwater attenuation, lining, and leachate control.

- Continuity of service: Identify contingency sites/routes to maintain collection during extreme events; codify in the SDF's risk overlays and disaster management linkages.

7.8.8.8. COMPLIANCE, BY-LAWS, AND LAND-USE MANAGEMENT

The IWMP flags non-compliance at Bulwer and the need for landfill/transfer operational plans, weighbridges, and by-law enforcement. Education and awareness campaigns are planned but need spatially targeted roll-outs (monthly clean-ups, stakeholder partnerships).

SDF implication:

- Scheme alignment: Add/clarify land-use definitions (e.g., "waste transfer station", "materials recovery facility", "buy-back centre") and include performance-based conditions (screening, hours, traffic, nuisance).
- Enforcement overlays: Map illegal dumping hotspots and apply enforcement focus zones with design responses (lighting, surveillance, signage) and serviced alternatives (drop-offs).

7.8.8.9. SOCIO-ECONOMIC DEVELOPMENT AND THE GREEN ECONOMY

The IWMP's strategic goals prioritise recycling and recovery, separation at source, SMME/co-op participation, and education/awareness. Partnerships with PETCO, Mondi, SAPPI, hotels and commercial businesses are envisaged.

SDF implication:

- LED leverage: Zone recycling clusters in each main town to incubate SMMEs; provide serviced sites, basic utilities, and tenure certainty to unlock investment.
- Institutional partnerships: Reflect in the SDF an enabling framework for industry-municipality agreements (e.g., PET/glass buy-back), including land commitments and logistic interfaces.

7.8.8.10. DATA, MONITORING, AND DESIGN STANDARDS

Absence of weighbridges and under-equipped facilities impedes accurate planning. The IWMP proposes weighbridges/weighpads, operational plans, and facility upgrades (e.g., chipping).

SDF implication:

- Spatial evidence base: Require GIS-based waste monitoring (facility catchments, tonnages, service coverage) as a condition for approving major land development.
- Design parameters (planning guidance):
    - Reserve adequate plots within/near nodes for transfer and MRF functions with safe access and screening.
    - Apply buffering and interface design proportionate to facility scale and local context (final dimensions confirmed through NEM:WA licensing/EIA).
    - Provide queueing space for vehicles on-site to prevent spill-back into town streets.

TABLE 33: SDF SPATIAL POLICY RESPONSE

IWMP EVIDENCE	SPATIAL RISK/CONSTRAINT	SDF POLICY LEVER (WHAT TO DO, WHERE)
15% household coverage; 25k+ unserviced	Unviable expansion; illegal dumping risk	Prioritise infill/densification in nodes with phased collection; sequence housing approvals with service capacity
Bulwer non-compliance; Creighton closure → transfer; Himeville under-equipped	Growth in affected towns constrained; weak logistics	Reserve/upgrade sites: Bulwer (disposal), Creighton (transfer), Himeville (transfer + MRF); integrate with light-industrial precincts
High recyclable fractions; stockpiles (glass, cans)	Land inefficiency; lost LED benefits	Zone buy-back/MRF hubs in Underberg/Himeville, Bulwer, Creighton; support SMMEs via serviced land and scheme provisions
Sensitive ecosystems (CBAs, wetlands), tourism landscapes	Environmental harm; reputational risk	Avoidance overlays; screened, compliant facilities outside sensitive areas; protect Drakensberg tourism landscapes
Extreme weather; erodible soils	Flood/leachate/erosion risks	Resilient siting/design (stormwater, lining, erosion control); identify contingency routes/sites
No weighbridges; weak monitoring	Poor forecasts; misallocated land	Mandate weighbridge installation and GIS monitoring; tie major approvals to verified capacity data

7.8.8.11. PRIORITY SPATIAL DIRECTIVES

- Nodal Waste Precincts: Establish integrated waste precincts (transfer + MRF + buy-back) within/adjacent to Bulwer, Creighton, and Himeville/Underberg to anchor circular-economy activity and support compact town growth.
- Service-Linked Growth: Condition major settlement expansion on demonstrated collection capacity and compliant disposal/transfer availability, phased in the servicing plan.
- Sensitive Area Exclusions: Prohibit siting of new waste facilities within CBAs, wetlands, riparian buffers, and scenic/heritage view corridors; apply interface controls and screening along tourism routes.
- Rural Access Points: Designate rural drop-offs/mini-transfer points at service nodes with schedule-based haulage to town transfer stations; enable supervised on-site options where appropriate as interim measures.
- Data-Led Approvals: Require weighbridge data and audited tonnages to inform land allocation and facility sizing; embed monitoring obligations in development conditions.
- Partnerships & LED: Reserve land for SMME recyclers and conclude partnership MOUs with industry (e.g., PETCO/Mondi/SAPPI) for market access, supported by scheme-enabled uses and predictable tenure.

7.8.9. STRATEGIC OPPORTUNITIES FOR FUTURE PLANNING

7.8.9.1. EMBEDDING THE CIRCULAR ECONOMY IN SETTLEMENT NODES

NDZ's waste stream analysis highlights significant recyclable fractions — plastics (33.9%), glass (25.8%), cans (12.9%), and paper (9.7%). Yet without structured facilities or market access, recyclables are stockpiled at Himeville. This signals a structural inefficiency but also an opportunity to transform the municipality's small towns into circular economy precincts.

Strategic Opportunities:

- Nodal recycling hubs: Allocate land within Underberg/Himeville, Bulwer, and Creighton for buy-back centres, material recovery facilities (MRFs), and SMME recycler clusters. These hubs can operate as circular economy anchors within the settlement hierarchy.
- Spatial clustering: Co-locate recycling hubs with light industrial zones, transfer stations, and logistics depots to reduce land-use conflicts and leverage synergies.
- Local market integration: Use zoning and economic development strategies to attract private sector partners (e.g., PETCO, Mondi, SAPPI), linking recyclers to formal value chains.
- Community integration: Empower cooperatives and local entrepreneurs with serviced sites, utilities, and secure tenure, embedding waste recovery as part of nodal LED strategies.

SDF Framing: Recycling hubs should be mapped as economic support infrastructure within nodal development frameworks, reinforcing compact settlement growth and diversifying local economies.

7.8.9.2. LEVERAGING WASTE INFRASTRUCTURE AS CATALYSTS FOR NODAL GROWTH

The planned conversion of Creighton landfill into a transfer station and the need to upgrade Bulwer and Himeville facilities offer an opportunity to strategically reposition these towns in the settlement hierarchy.

Strategic Opportunities:

- Creighton: Establish as a logistics and consolidation hub for rural waste streams, with spin-off benefits for local jobs (sorting, loading, recycling).
- Bulwer: Upgrade landfill to compliant standards and integrate with recycling facilities, reinforcing its secondary-node role and sustaining growth potential.
- Himeville/Underberg: Position as a tourism gateway by upgrading transfer facilities, improving environmental quality, and showcasing green economy infrastructure.

SDF Framing: Waste infrastructure should be treated not as back-office utilities but as strategic anchors that reinforce the functional roles of nodes in the settlement hierarchy.

7.8.9.3. RURAL SERVICE SOLUTIONS AND COMMUNITY ACCESS

The dispersed settlement pattern in NDZ means universal kerbside collection is not viable. However, the IWMP's concept of supervised on-site disposal and mini-drop-off points provides an entry point for rural service solutions.

Strategic Opportunities:

- Establish community collection points in rural service nodes, integrated into multipurpose community facilities (schools, clinics, local markets).
- Use a two-tier model: (i) rural skips/mini-transfer points → (ii) haulage to town-based transfer stations.
- Pair with awareness and enforcement campaigns to discourage illegal dumping.

SDF Framing: Rural drop-off points should be designated in the SDF as basic service infrastructure, linked to rural service centres in the nodal hierarchy.

7.8.9.4. GREEN ECONOMY AND RENEWABLE ENERGY INTEGRATION

Waste infrastructure can be repositioned as part of NDZ's green economy transition. Composting, biogas, and small-scale waste-to-energy facilities are viable in the medium term, particularly given the high organic fraction in hotel, agricultural, and household waste streams.

Strategic Opportunities:

- Pilot community-scale composting at Himeville/Underberg to support agriculture and landscaping.
- Explore biogas generation linked to soldier camps, hotels, and institutional facilities with concentrated organic waste.
- Investigate waste-to-energy feasibility (e.g., RDF – refuse-derived fuel) for district-level integration, aligned with Harry Gwala District planning.

SDF Framing: Green economy projects should be identified as strategic infrastructure investments in the SDF, linked to LED and climate resilience strategies.

7.8.9.5. CLIMATE RESILIENCE AND DISASTER RISK REDUCTION

Extreme weather events in NDZ (flooding, slope failure, erosion) compound risks from poorly sited or non-compliant facilities. Integrating resilience into waste infrastructure planning offers a proactive strategy for sustainable settlement growth.

Strategic Opportunities:

- Locate future waste facilities outside floodplains, wetlands, and erodible slopes, codified as exclusion zones in the SDF.
- Upgrade Bulwer and Himeville facilities with stormwater attenuation, lining, leachate control, and erosion protection measures.
- Incorporate emergency access routes and contingency sites into waste facility planning to ensure continuity during climate events.

SDF Framing: Waste infrastructure resilience measures should be embedded into the risk and disaster management overlays of the SDF.

7.8.9.6. REGIONAL INTEGRATION AND PARTNERSHIPS

NDZ currently depends on the New England Landfill in Pietermaritzburg, highlighting its lack of self-sufficiency. However, regional coordination with Harry Gwala District Municipality and private partners can unlock efficiencies.

Strategic Opportunities:

- Develop regional waste logistics corridors consolidating collection from NDZ's rural settlements to district-level facilities.
- Forge district-industry partnerships for recyclables (e.g., glass, PET) to ensure economies of scale and market viability.
- Coordinate with provincial climate and green economy programmes for funding and technical support.

SDF Framing: NDZ's waste infrastructure should be explicitly positioned within a regional services network, with cross-boundary flows mapped in the SDF.

TABLE 34: STRATEGIC OPPORTUNITIES AND SDF LINKAGES

OPPORTUNITY	SDF POLICY LINKAGE	SPATIAL EXPRESSION
Nodal recycling hubs (Underberg/Himeville, Bulwer, Creighton)	Green economy & LED	Map recycling hubs as economic support infrastructure in town nodes
Conversion of Creighton to transfer station	Infrastructure-led growth	Position Creighton as logistics hub in nodal hierarchy
Rural drop-off/mini-transfer points	Equitable service delivery	Designate rural service centres as basic waste nodes
Composting, biogas, waste-to-energy	Sustainability & climate resilience	Zone land for green economy projects near towns and institutions
Resilient facility design (stormwater, lining, buffers)	Disaster risk reduction	Integrate design standards and overlays into SDF
Regional partnerships (HGDM, industry)	Strategic alignment & investment prioritisation	Show waste flows and regional infrastructure in SDF maps

7.8.10. RECOMMENDATIONS

1. Regional Waste Management Approach
    - Collaborate with Harry Gwala District Municipality (HGDM) to establish regional landfill facilities to serve multiple settlements.
2. Waste Diversion and Recycling

- Develop material recovery facilities (MRFs) at town nodes (Creighton, Underberg, Bulwer, Donnybrook) to reduce landfill dependency.
- Introduce community recycling cooperatives with training and EPWP support.

3. Closure and Rehabilitation
   - Progressive closure of illegal dump sites, rehabilitation with vegetation, and monitoring of leachate risks.
4. Integrated Waste Collection
   - Strengthen door-to-door collection in peri-urban areas and expand community waste drop-off points for rural households.

7.9. ROAD AND TRANSPORTATION NETWORK

Road infrastructure forms the backbone of socio-economic development within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM). Located in the Harry Gwala District of KwaZulu-Natal, the municipality comprises a mix of small rural towns, dispersed settlements, and agricultural hinterlands. Accessibility between settlements and external linkages to major provincial and national corridors is essential for economic activity, social integration, and service delivery. In spatial planning terms, road infrastructure is not only a mode of transportation but also a structuring element that influences land use, settlement growth patterns, and the location of investment. Within the NDZ municipal area, the condition, distribution, and quality of the road network plays a pivotal role in shaping opportunities for agricultural development, tourism in the southern Drakensberg, and access to health, education, and administrative services. Given the municipality's largely rural character and dispersed settlement patterns, road connectivity remains a determining factor for both livelihoods and economic productivity. The following analysis reviews the current state of road infrastructure within the municipality, classifies the network, evaluates accessibility and challenges, and identifies opportunities for strategic interventions that align with the objectives of the Spatial Development Framework.

7.9.1. POLICY AND STRATEGIC FRAMEWORK

The policy and strategic framework guiding road infrastructure development in NDZ LM is multi-layered, spanning national, provincial, district, and local levels. At the national level, the National Transport Master Plan (NATMAP 2050) identifies long-term priorities for mobility and accessibility, emphasizing economic corridors, freight routes, and the integration of rural communities into regional economies. NATMAP highlights the importance of the N3 corridor, which traverses KwaZulu-Natal and links Durban to Gauteng, as a critical strategic axis. Although NDZ LM does not directly lie on the N3, its proximity means that its regional roads serve as feeders and support links, enabling agricultural products and tourism flows to reach national markets.

At the provincial level, the KwaZulu-Natal Provincial Spatial Development Framework (PSDF) and its associated Provincial Spatial Development Framework underscore transport and logistics as enablers of inclusive growth. The PSDF identifies the southern Drakensberg as a priority tourism area and emphasizes the upgrading of provincial roads to enhance connectivity. Within this framework, NDZ LM is seen as both a gateway to the uKhahlamba-Drakensberg World Heritage Site and a link to rural agricultural hinterlands. Road investment within NDZ LM therefore aligns with broader provincial objectives of tourism development, agricultural market access, and rural service delivery.

At the district level, the Harry Gwala District Municipality has prepared an Integrated Transport Plan (ITP) that frames mobility issues for its four local

municipalities, including NDZ. The ITP identifies the poor condition of district and local roads as a significant constraint on development. It prioritises the upgrading of gravel access roads, the rehabilitation of surfaced district roads, and the construction of stormwater systems to enhance resilience. The District's planning documents note that poor road conditions limit access to clinics, schools, and administrative centres, while also raising the cost of agricultural logistics.

At the local level, the NDZ LM Integrated Development Plan (IDP) sets out road infrastructure priorities within the municipal budget framework. Recent IDPs highlight a range of capital projects, including the surfacing of internal roads in Bulwer and Creighton, renewal of gravel roads in rural wards, and the construction of stormwater headwalls and culverts. The IDP acknowledges road infrastructure as a major determinant of spatial equity, with poorly connected wards experiencing slower development, weaker service delivery, and reduced access to opportunities. Collectively, this policy context positions road infrastructure as both a catalyst and enabler of local development, requiring targeted investment to support SDF objectives.

7.9.2. CLASSIFICATION OF ROAD NETWORK

The road network within NDZ LM can be classified into four broad categories: national roads, provincial roads (R routes), district and municipal roads, and rural access roads. Each plays a distinct role in structuring connectivity and accessibility.

National roads are represented by feeder links to the N3 and N2 corridors. While NDZ LM itself does not have a national highway directly traversing it, access to the N3 via Richmond and Pietermaritzburg is essential for the municipality's agricultural producers, while the N2 near Ixopo provides regional connectivity towards the south coast and Eastern Cape. Provincial roads, designated as R routes, form the primary arterial network within NDZ LM. Examples include the R617, which runs through Bulwer towards Underberg and provides access to the Drakensberg tourism belt, and the R612 linking Ixopo to Highflats and Creighton. These provincial routes are critical for tourism flows and agricultural logistics, serving as the spine of the local economy.

District and municipal roads form the secondary and tertiary network, providing inter-ward connectivity and linking smaller settlements to the main towns. These roads often include tarred surfaces in towns such as Creighton, Bulwer, Himeville, and Underberg, but rapidly deteriorate into gravel in surrounding rural areas. Finally, rural access roads, many of which are unsurfaced gravel or earth tracks, connect dispersed rural settlements to the secondary and provincial network. These roads are vital for daily mobility, school access, clinic visits, and the transport of agricultural produce, yet they are most vulnerable to poor maintenance, erosion, and seasonal flooding. Together, this classification underscores the spatial inequality inherent in road infrastructure within NDZ LM, with provincial routes in relatively better condition while local and rural access roads remain underserved.

7.9.3. CURRENT STATE OF ROAD INFRASTRUCTURE

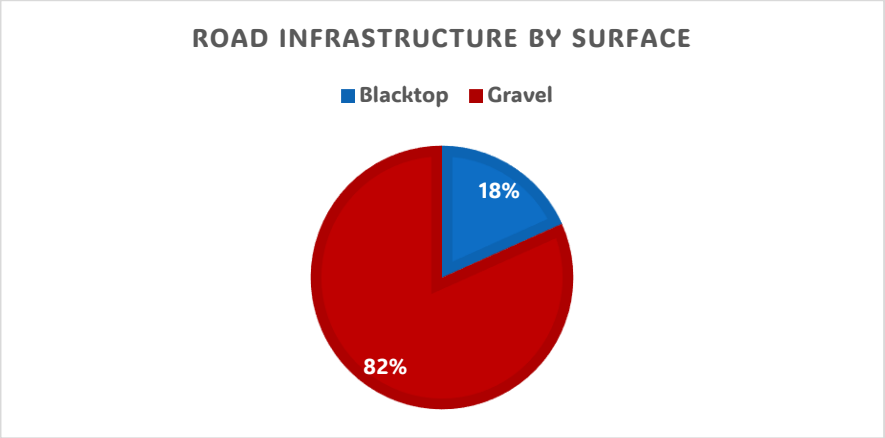
The condition of road infrastructure within NDZ LM reflects both progress and persistent challenges. On the positive side, the municipality has initiated targeted capital projects aimed at upgrading critical link roads. Notably, the construction of the Bulwer Asphalt Surfacing Roads – Phase 8, including the surfacing of Ntokozweni Road, indicates a concerted effort to improve urban road conditions in Bulwer. Similarly, contracts have been awarded for the renewal of gravel access roads in Wards 5, 8, and 14, demonstrating a recognition of the importance of rural accessibility. The construction of stormwater headwalls further reflects an awareness of the vulnerability of road infrastructure to climatic factors such as heavy rainfall and flooding.

Despite these interventions, the overall state of the municipal road network remains a concern. Large portions of the district and municipal road network are gravel, with limited surfacing and high levels of deterioration due to poor

maintenance. Potholes, erosion, and wash-aways are common, especially in rural areas where maintenance budgets are limited. Seasonal rainfall further exacerbates the situation, rendering some roads impassable during wet months. In terms of quantitative measures, publicly available data on total kilometres of surfaced versus unsurfaced roads in NDZ LM is limited. However, the South African Road Federation and district transport plans suggest that surfaced roads constitute less than 30% of the network, with the remainder being gravel or earth. This imbalance contributes to high vehicle operating costs, delays in service delivery, and reduced economic competitiveness.

Budgetary constraints remain a central challenge. While the Municipal Infrastructure Grant (MIG) and provincial allocations provide some support for road upgrades, the scale of need far exceeds available funding. This is reflected in persistent maintenance backlogs, where road rehabilitation is often deferred due to cost. The lack of a fully developed Road Asset Management System (RAMS) within NDZ LM further limits the ability to prioritise interventions based on systematic condition assessments. Instead, projects are often reactive, responding to community complaints or immediate service disruptions. Collectively, the current state of road infrastructure highlights both incremental progress through capital projects and systemic challenges related to funding, maintenance, and resilience.

Road infrastructure in the municipality is uneven and fragmented. The network includes blacktop roads, concrete roads, and gravel roads. Blacktop roads are limited to national and provincial routes. These include sections of the R617 and R56, which connect towns like Underberg, Creighton, and Donnybrook. These roads are in fair condition but suffer from potholes, poor stormwater drainage, and lack of regular maintenance. Concrete roads are rare and mostly found in small urban centres or industrial zones. Their durability is high, but they are expensive to maintain and expand. The municipality has approximately 1390,65km of road, the majority of which is gravel. The graph below shows the percentage of gravel to blacktop roads in the municipality.



GRAPH 32: ROAD INFRASTRUCTURE BY SURFACE

GRAVEL ROADS IN RURAL LANDSCAPE: These roads link villages, farms, and community facilities. Most are in poor condition. They become impassable during heavy rains. Erosion, lack of grading, and absence of stormwater controls make them unreliable. This affects access to clinics, schools, and markets. It also isolates communities during emergencies. The poor state of gravel roads discourages investment in agriculture and tourism. Transport costs rise.

IMPACT ON DELIVERY OF GOODS AND SERVICES: Delivery of goods and services slows. This limits economic growth. Spatial planning is directly affected. Settlements are disconnected. Movement between nodes is slow and costly. This weakens the municipality's ability to implement corridor development and nodal integration. Future spatial development depends on reliable mobility. Without it, plans for agri-hubs, eco-tourism routes, and rural service centres will fail. The Integrated Development Plan identifies transport infrastructure as a priority, but budget constraints and poor coordination delay progress.

UNPLANNED & REACTIVE MAINTENANCE: There is no clear asset management system for roads. This leads to duplication, waste, and neglect. The lack of reliable roads also affects land use decisions. Investors avoid areas with poor access. Public transport is limited. Informal transport dominates, but it is unsafe and unregulated. School transport is unreliable. Emergency services are delayed. This reduces the quality of life and increases vulnerability. Spatial inequality deepens. Well-connected areas grow.

STAGNATION OF REMOTE AREAS: The municipality must prioritise road upgrades in strategic zones. These include areas with high agricultural potential, tourism assets, and dense settlements. Gravel roads should be upgraded to all-weather surfaces. Stormwater systems must be installed. Routine maintenance schedules must be enforced. Coordination between municipal, district, and provincial departments is essential. Funding must be aligned with spatial priorities. Roads must support planned growth, not react to it. Technical capacity must be improved.

7.9.4. CONNECTIVITY AND ACCESSIBILITY ANALYSIS

Connectivity and accessibility remain central to the spatial dynamics of NDZ LM. The municipality's settlement pattern is characterised by dispersed rural homesteads interspersed with small towns and service centres such as Bulwer, Creighton, Himeville, and Underberg. These towns act as nodes for service delivery, commerce, and administration. Road infrastructure is therefore the critical link that enables rural communities to access schools, clinics, municipal offices, and markets. Without adequate roads, spatial inequality is reinforced, as remote settlements remain disconnected from essential services.

The R617 and R612 are particularly important for economic connectivity. The R617 provides access to the Drakensberg tourism belt, making it a lifeline for guesthouses, lodges, and related service industries. Similarly, the R612 serves agricultural areas and connects Creighton to Ixopo, facilitating the movement of timber, dairy, and crop products to regional markets. Within towns, internal road upgrades such as those in Bulwer enhance mobility for residents and visitors, while also improving the aesthetic and functional quality of urban environments.

Public transport integration is heavily reliant on road infrastructure. Minibus taxis serve as the primary mode of transport for many residents, operating along both provincial and municipal roads. Poor road conditions directly affect taxi operations, leading to increased fares, reduced frequency, and higher maintenance costs. Bus services, while less prevalent, also rely on stable road networks. Connectivity analysis further indicates that poor rural roads disproportionately affect vulnerable groups, including school children and patients requiring access to clinics. For example, washed-out gravel roads can delay access to emergency healthcare, compounding social vulnerability. In tourism terms, poor road conditions discourage visitors from accessing rural attractions, limiting the potential of cultural and eco-tourism initiatives. Thus, road connectivity in NDZ LM has implications not only for mobility but also for economic competitiveness, social equity, and tourism development.

7.9.5. ROUTE RANKING & CONNECTIVITY

Connectivity is a critical determinant of settlement growth and integration within Dr Nkosazana Dlamini Zuma Municipality. By prioritising routes, the municipality can identify which corridors require urgent investment to support balanced development.

7.9.5.1. METHODOLOGY OF RANKING

Routes were ranked using a scoring system that considered:

- Settlement linkages – the number and importance of settlements connected.

- **Economic integration** – the ability of the route to connect economic nodes and growth areas.
- **Accessibility** – quality of access to services, facilities, and markets.
- **Strategic importance** – alignment with broader provincial or regional transport networks.

The outcome is a hierarchy of routes, with higher scores denoting greater strategic importance for municipal development.

7.9.5.2. ROUTE RANKING RESULTS

The scoring exercise produced the following hierarchy:

TABLE 35: ROUTE RANKING SCORES

ROUTE / NODE	SCORE	RELATIVE IMPORTANCE
Underberg	5	High – Growth hub and service centre
Centocow	5	High – Strategic connector, multiple linkages
Bulwer	4	Moderate–High – Key node with economic linkages
Creighton	2	Moderate – Secondary linkage
Kilmon	2	Moderate – Poverty hotspot with limited access
Makuzeni	2	Moderate – Weak connectivity
Donnybrook	2	Moderate – Secondary role
Stepmore	1	Low – Isolated and peripheral
Himeville	1	Low – Limited integration

7.9.5.3. STRATEGIC NODES

- **Underberg**: Reinforced as a high-priority growth hub, serving as both a service centre and tourism anchor.
- **Centocow**: Emerges as a critical connector with multiple routes converging, making it essential for integrating remote communities.
- **Bulwer**: Holds moderate–high importance as a link between service centres and smaller settlements.

7.9.5.4. IMPLICATIONS FOR CONNECTIVITY

- **Investment Priorities** – High-scoring routes (Underberg, Centocow, Bulwer) should be prioritised for upgrading and maintenance to unlock development potential.
- **Integrating Isolated Settlements** – Routes linking Kilmon, Donnybrook, and Stepmore require targeted improvements to reduce marginalisation.
- **Service Access** – Strengthening connectivity to education, health, and administrative facilities should be central to road investment.
- **Economic Opportunities** – Road upgrades should align with LED initiatives, including agriculture and tourism value chains.

7.9.5.5. RISKS OF WEAK CONNECTIVITY

It is important to note that without a clear prioritisation of routes, development risks becoming fragmented and "chaotic." Weak connectivity can exacerbate existing inequalities, leaving poverty wards isolated while reinforcing growth only in already advantaged areas.

7.9.6. KEY CHALLENGES

The road infrastructure of NDZ LM faces multiple interrelated challenges:

- First and foremost is the issue of limited budgets and financial resources. The municipality's revenue base is small, with high levels of indigence and limited own-revenue capacity. This results in heavy dependence on conditional grants such as the MIG, which are insufficient to cover the full scale of road rehabilitation needs. Budget shortfalls lead to deferred maintenance, which in turn increases long-term rehabilitation costs.

- A second challenge is the predominance of gravel and earth roads, particularly in rural areas. These roads deteriorate rapidly due to erosion, lack of drainage, and heavy rainfall. Without adequate grading and regravelling, such roads become impassable, disrupting mobility and service delivery. Gravel roads also have higher maintenance requirements, which are not adequately met within current budgetary allocations.
- Third, the municipality struggles with the absence of comprehensive road condition data. While specific projects are identified through IDPs and community engagement processes, there is no systematic asset management database to guide prioritisation. This results in reactive rather than strategic interventions. Fourth, climate change and stormwater management represent growing risks. Heavy rainfall events often damage rural roads, wash away culverts, and create potholes in surfaced roads. While some projects, such as the construction of stormwater headwalls, address these risks, a broader resilience strategy is required.
- Finally, institutional capacity and coordination remain challenges. Road infrastructure falls under overlapping mandates of national, provincial, district, and local authorities. Coordination gaps sometimes lead to duplication, underfunding, or fragmented project implementation. Collectively, these challenges undermine the ability of NDZ LM to provide a reliable and equitable road network.

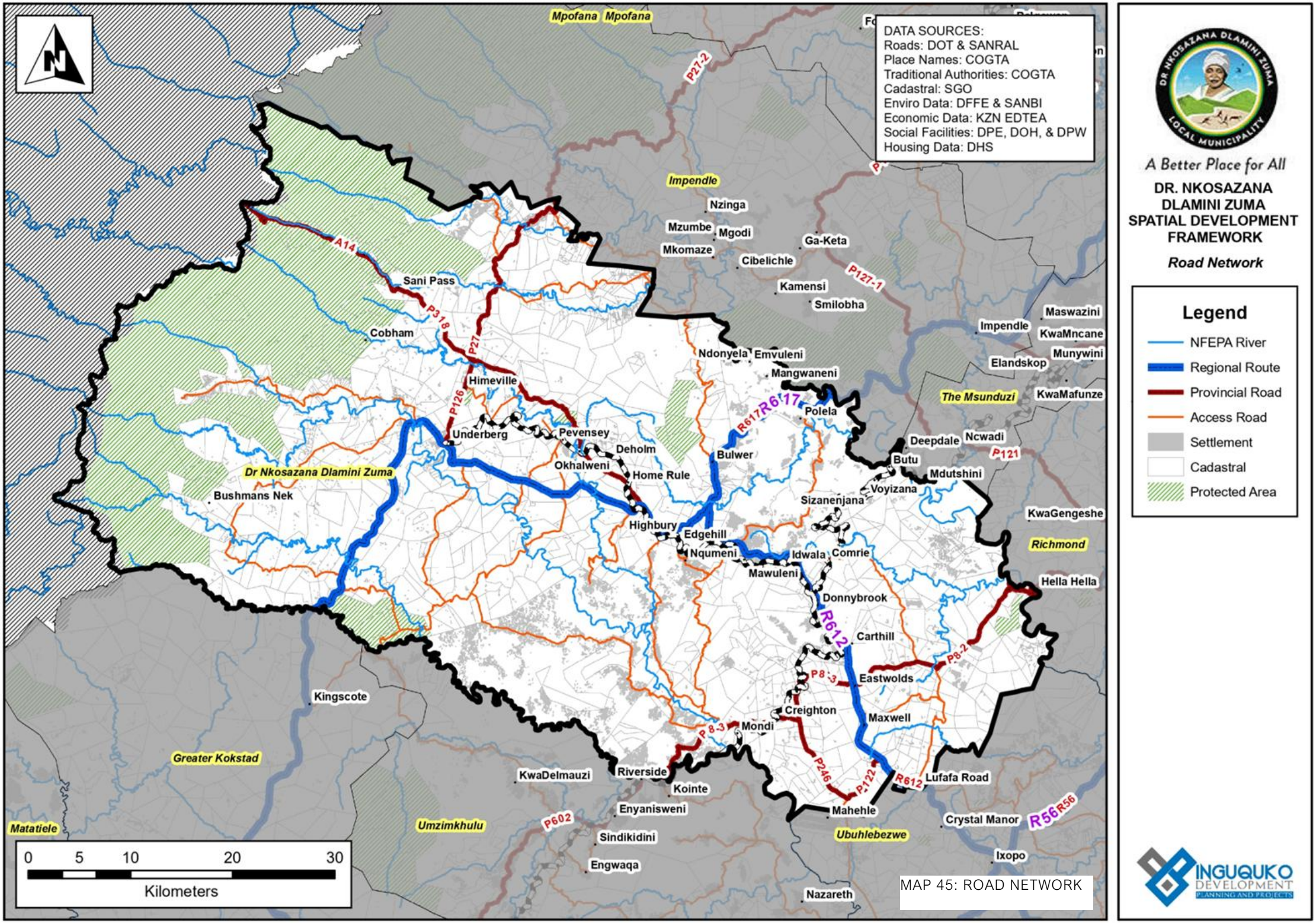
7.9.7. OPPORTUNITIES AND STRATEGIC INTERVENTIONS

Despite these challenges, NDZ LM has significant opportunities to leverage road infrastructure as a catalyst for development. A key opportunity lies in prioritised upgrading of strategic corridors. Upgrading provincial routes such as the R617 and R612 can yield high returns by supporting tourism, agriculture, and regional integration. Similarly, targeting gravel-to-surfaced upgrades on high-traffic rural roads can significantly improve accessibility.

Another opportunity is the integration of stormwater management with road planning. By incorporating climate resilience into road design, the municipality can reduce long-term maintenance costs and enhance reliability. Projects such as headwalls, culverts, and proper drainage should be standardised across all new road investments. Additionally, the establishment of a Road Asset Management System (RAMS) would provide systematic data on road conditions, enabling evidence-based prioritisation of interventions. This would also strengthen the municipality's case for additional funding from provincial and national sources. Funding diversification is another strategic intervention. Beyond MIG allocations, NDZ LM can explore partnerships with SANRAL for feeder routes, with the provincial Department of Transport for provincial roads, and with the private sector for agricultural and forestry-related infrastructure. Innovative models such as community-based road maintenance programmes could also be piloted to address minor repairs while creating employment. Finally, road infrastructure can be integrated with broader spatial development strategies, such as tourism route development, agricultural processing hubs, and settlement upgrading. By aligning road investment with catalytic projects, the municipality can maximise socio-economic benefits.

7.9.8. SPATIAL IMPLICATIONS FOR THE SDF

Road infrastructure has direct spatial implications for the NDZ SDF. Improved roads shape settlement patterns by influencing where people live, work, and invest. Upgrading strategic routes such as the Bulwer–Creighton corridor reinforces these towns as service and economic nodes. Similarly, improving rural access roads reduces isolation of peripheral settlements, supporting spatial equity. Enhanced road connectivity can also catalyse agricultural development by linking small-scale farmers to processing hubs and markets. In tourism, improved road access to the southern Drakensberg enhances the municipality's role as a gateway to a World Heritage Site, stimulating investment in accommodation, guiding services, and cultural tourism.



MAP 45: ROAD NETWORK

A Better Place for All

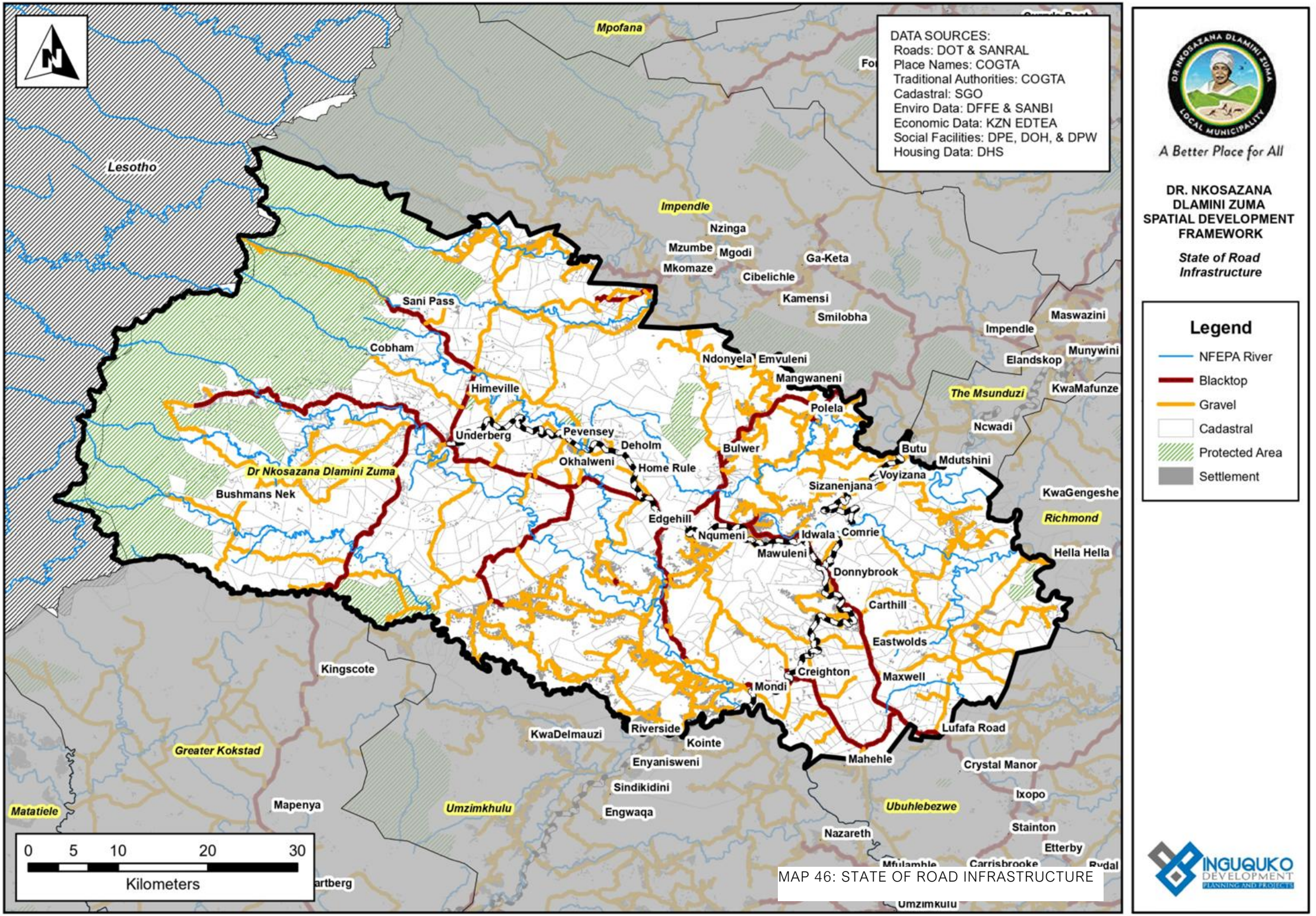
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Road Network

Legend

- NFEPA River
- Regional Route
- Provincial Road
- Access Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS



MAP 46: STATE OF ROAD INFRASTRUCTURE

7.10. PUBLIC INFRASTRUCTURE ANALYSIS (FACILITIES)

7.10.1. HEALTH FACILITIES

7.10.1.1. HOSPITALS

St Apollinaris Hospital is a primary health facility in the municipality, staffed with four permanent medical officers, six community service medical officers, and equipped with 146 beds. The hospital serves many areas beyond the Dr Nkosazana Dlamini Zuma LM municipal boundaries, highlighting a regional shortage of health services.

The NDZ municipality is also served by other hospitals located outside of the municipal boundary. Christ the King Hospital (in Ixopo, technically outside NDZ but serving the eastern part of the municipality) provides higher-level services. This hospital is generally functional but overstretched, with high patient loads relative to staff availability. Patients from rural wards such as Maqatsheni or Stepmore travel long distances to access hospital care, often relying on poorly maintained rural roads and expensive public transport. Emergency services are particularly constrained, with limited ambulances covering large areas.



7.10.1.2. CLINICS

Fixed clinics form the backbone of primary healthcare in NDZ LM. Facilities exist in Bulwer, Creighton, Underberg, Himeville, and other smaller settlements. The condition of these clinics varies: urban-based clinics (Bulwer, Creighton) are generally in fair condition, offering daily outpatient services, maternal health, HIV/AIDS treatment, and immunisation programmes. However, infrastructure is often dated, with overcrowded waiting areas and limited consulting rooms. Rural clinics, such as those serving Ward 2 (Centocow) and Ward 14 (Maqatsheni), struggle with inadequate staff complements and shortages of essential medicines. Many clinics are not open 24 hours, requiring patients to seek after-hours care in distant hospitals.

7.10.1.3. COMMUNITY HEALTH CENTRES (CHCS)

The Pholela Community Health Centre operates as a major clinic, providing 24-hour service. It was previously reported that the center would receive full-time doctors, a dentist, and other services. Within the municipal area, there are nine clinics located in Kilmon, Qulashe, Mnyamana, Ncwadi, Gwala, Gqumeni, Sandanezwe, Donnybrook, and Centocow PHC (at the hospital). Both Pholela CHC and Centocow PHC operate mobile clinics. The Centocow mobile clinic, managed from the hospital, currently serves Ngwagwane and has been requested to start mobile points at Gxalingenwa, Tarr's Valley, Makhongwane, and Newtonville.

The dispersed settlement pattern and predominantly rural population of the municipality makes access to healthcare services a critical development challenge. The health service network includes a small number of hospitals, several fixed clinics, community health centres (CHCs), and mobile clinics that extend services to scattered settlements. The overall picture reflects a duality: formal health facilities exist in the main service nodes, but rural areas remain underserved due to distance, capacity constraints, and limited resources.

The municipality has access to a few CHCs that are designed to provide extended services beyond basic clinics. Facilities in Underberg and Bulwer serve as sub-district centres, with marginally better capacity for diagnostic services and minor emergencies. However, these CHCs still face constraints in staffing (particularly doctors and specialists) and equipment. They provide a vital intermediate tier of care, but their catchment areas are large, and they are unable to meet demand fully, especially during seasonal peaks when tourism increases the population in Underberg–Himeville.

7.10.1.4. MOBILE CLINICS

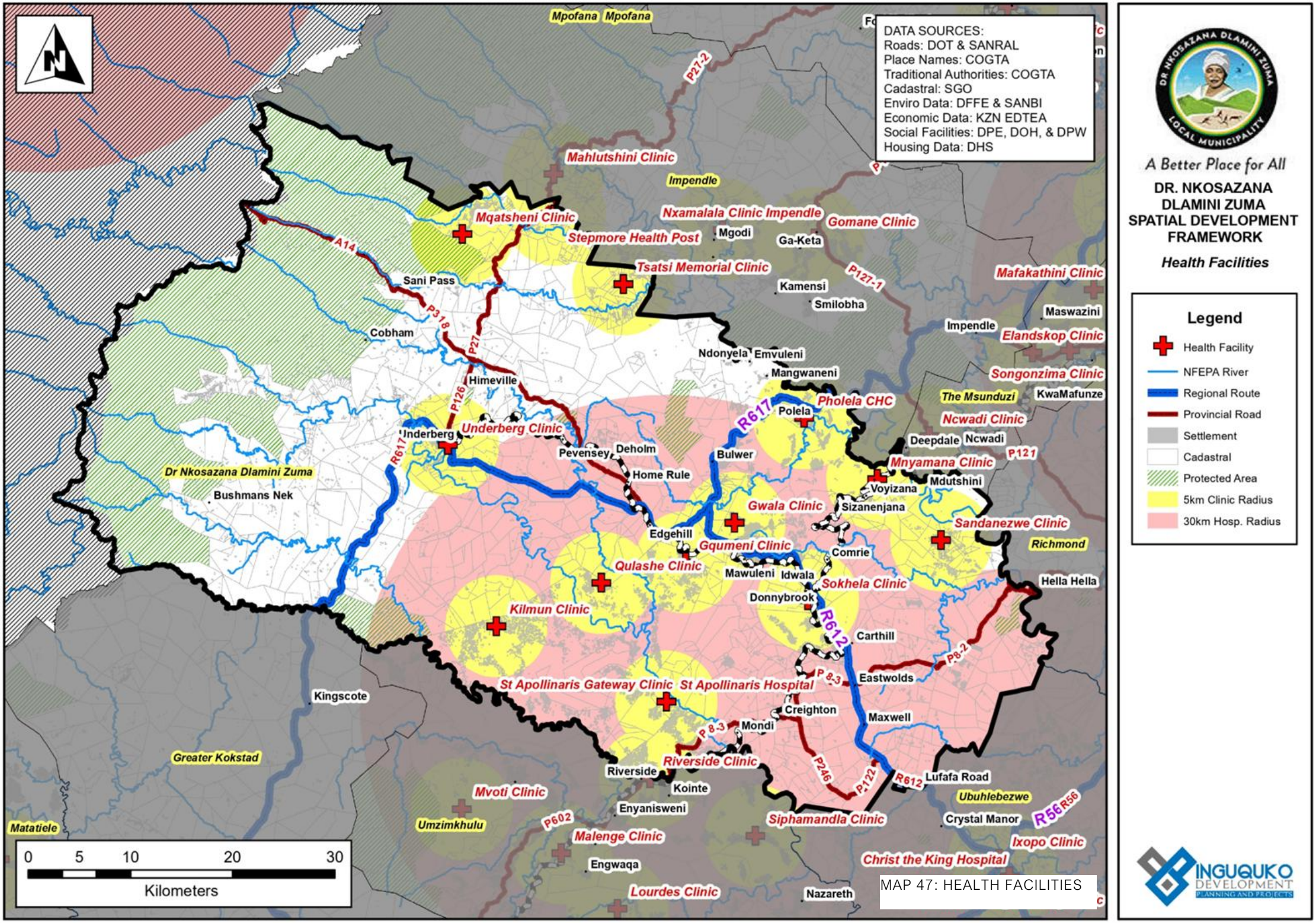
Given the rural and scattered nature of NDZ settlements, mobile clinics are critical. They visit villages such as Stepmore, KwaSani rural areas, and parts of Wards 6 and 14, where fixed facilities are too distant. Mobile clinics provide immunisations, basic consultations, chronic medication refills, and antenatal care. While indispensable, they face logistical challenges: limited vehicles, poor road conditions that delay services, and inconsistent scheduling due to fuel and staffing shortages. As a result, some households report waiting weeks for the next mobile visit.

7.10.1.5. ASSESSMENT OF CAPACITY

Overall, the NDZ LM health system is under-capacitated relative to population needs. Hospitals are few and distant, clinics are unevenly distributed, CHCs have limited reach, and mobile services are stretched thin. This results in long travel times, overcrowding in facilities, and service interruptions. The condition of infrastructure ranges from fair in urban nodes to poor in rural areas. Equipment shortages, high staff turnover, and constrained budgets further weaken the system.

TABLE 36: HEALTH FACILITIES IN THE MUNICIPALITY

FACILITY NAME	TYPE	LOCATION / WARD	CONDITION	CAPACITY STATUS	CATCHMENT SETTLEMENTS / NOTES
Underberg Clinic	Fixed Clinic	Underberg (Ward 3)	Fair; functional but crowded during peak tourist season	Moderate; provides primary care, maternal and child health, chronic medication	Serves Underberg town, peri-urban areas, and rural KwaSani communities; linked to Pholela CHC
Maqatsheni Clinic	Fixed Clinic	Maqatsheni (Ward 14)	Poor; aging infrastructure, medicine stock-outs reported	Low; under-staffed, high demand exceeds capacity	Serves Ward 14 villages and dispersed rural settlements
Tsatsi Memorial Clinic	Fixed Clinic	Creighton area	Fair; functional but with limited consulting space	Moderate; provides outpatient services, some maternal health	Serves Creighton peri-urban and surrounding villages
Pholela Community Health Centre (CHC)	CHC	Bulwer (Ward 8)	Fair to good; larger facility with extended services	Higher than clinics, but constrained by staff shortages	Serves Bulwer, nearby wards, and acts as referral for smaller clinics
Mnyamana Clinic	Fixed Clinic	Rural NDZ (Ward 5/6 area)	Poor to fair; limited infrastructure	Low; high demand, staff shortages, irregular medicine supply	Serves dispersed rural households; highly dependent on mobile backup
Sandanezwe Clinic	Fixed Clinic	Rural settlement cluster (Ward 6/7 area)	Poor; building and equipment outdated	Low; serves only basic needs	Serves scattered households with high levels of poverty and limited access
Sokhela Clinic	Fixed Clinic	Sokhela area (Ward 2)	Fair; functional, mission-linked history	Moderate; provides outpatient services, immunisations, antenatal	Serves Ward 2 settlements and surrounding rural areas
St. Apollinaris Hospital & Gateway Clinic	District Hospital + Gateway Clinic	Creighton	Fair; large facility but overstretched, infrastructure aged	High-level referral services but overburdened	Gateway Clinic offers outpatient and triage; serves Creighton, Bulwer, Maqatsheni, Stepmore, and wider NDZ
Gwala Clinic	Fixed Clinic	Rural NDZ (Ward 9/10 cluster)	Poor; small facility, limited space	Low; unable to serve entire catchment adequately	Serves dispersed settlements; residents often referred to Pholela CHC
Gqumeni Clinic	Fixed Clinic	Rural NDZ (Ward 12/13)	Poor; very limited resources	Low; provides only basic outpatient care	Serves scattered households, difficult to reach by road
Qualshe Clinic	Fixed Clinic	Qualshe area (Ward 11)	Fair; functional but small	Moderate; limited staff, medicines often in short supply	Serves Ward 11 settlements and nearby villages
Kilmun Clinic	Fixed Clinic	Kilmun rural area (Ward 4/5)	Poor; aging building, inadequate facilities	Low; capacity far below demand	Serves dispersed settlements; many referrals to Underberg Clinic or Pholela CHC



MAP 47: HEALTH FACILITIES

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Health Facilities

Legend

- Health Facility
- NFEPA River
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- 5km Clinic Radius
- 30km Hosp. Radius

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

7.10.2. EDUCATION FACILITIES

NDZ's schooling network is anchored in the four main nodes (Underberg–Himeville, Creighton, Bulwer, Donnybrook), with dispersed rural settlements driving long travel distances and variable facility quality. Recent local plans already flag education as a catalytic lever for inclusive growth, including a proposed Agricultural College in Himeville and a new high school in Underberg—strong signals of unmet local post-school demand and sector-aligned skills gaps.

Given NDZ's economy (agriculture/agriprocessing, tourism, light manufacturing), plus sizable adult cohorts with low absorption in formal work, expanding TVET access for ages 25–60 is both economically and spatially justified. A pragmatic pathway is a hub-and-satellite TVET model: a flagship campus in the municipal growth node, satellites in Creighton, Bulwer and Donnybrook, and mobile delivery into rural wards—integrated with existing civic precincts and transport. Standards for facility planning (as used in municipal sector plans) and clustering of social facilities should guide placement and sizing.

7.10.2.1. CURRENT FACILITIES (PUBLIC & PRIVATE): STOCK, CONDITION, ACCESS

- **SCHOOLING PRESENCE AND CLUSTERING.** Education facilities are concentrated in the four service towns/precincts that structure access and movement. The Underberg–Himeville Precinct Plan shows a consolidated civic/social land-use framework intended to cluster schools with other public functions, transport and safe pedestrian links—an approach that should be replicated across nodes.
- **FACILITY STANDARDS AND COMPLIANCE.** Municipal sector planning documents reference norms/standards tables for social facilities (incl. education) to guide adequacy and spacing; these should be the benchmark for auditing classroom capacity, WASH, electricity and ICT readiness.
- **SPATIAL ACCESS ISSUES.** Rural settlement dispersal produces long learner trips and uneven quality. Precinct and regeneration plans emphasise walkable access, public transport interchanges, lighting and safe routes—critical where schools double as evening adult-learning spaces.
- **PRIVATE PROVISION.** Private/independent providers are limited and mainly urban-node based; any growth should be steered to nodes where utilities and oversight exist (land-use frameworks in the precinct plans already earmark civic/social precincts).

Evidence hooks and data gaps: a facility-by-facility register (public and private) with enrolments, teacher-learner ratios, condition audits and geocodes is required to quantify backlogs. The HSSP and IDP provide the standards tables and the demographic frames to anchor that audit.

TABLE 37: EDUCATIONAL FACILITIES

FACILITIY	NO.
Combined Schools	6
Primary Schools	83
Secondary Schools	24
ECD Centres	170
Total	**283**

Source: KZN DoE: Masterlist 2025

7.10.2.1.1. GAPS AND NEEDS

- **UNDERSERVED RURAL WARDS.** Travel-time frictions from scattered homesteads to town-based schools persist; precinct proposals focus on safer NMT links and clustering to reduce effective access costs.

- **CAPACITY AND QUALITY CONSTRAINTS.** The municipality's sector plans call for bringing facilities to standard (WASH, power, labs/workshops, ICT) and using multi-purpose civic precincts for education plus skills training.
- **TRANSITION TO POST-SCHOOL PATHWAYS.** Local planning identifies no in-town tertiary presence in the Underberg–Himeville area and directly proposes an Agricultural College (Himeville) and a new high school (Underberg), signalling existing pipeline bottlenecks at post-school level.

7.10.2.1.2. TVET DEMAND FOR AGES 25–60

- **LATENT ADULT-LEARNING DEMAND.** The IDP shows a large working-age population with low formal employment absorption—prime candidates for upskilling and reskilling via modular, short-cycle TVET.
- **PROXIMITY BURDENS.** The need to site tertiary/skills provision within the municipal node is explicit in the precinct pipeline (Agricultural College, Skills Centre), reflecting high travel/time costs to distant institutions and the importance of aligning supply to local sectors.

7.10.2.2. ECONOMIC ALIGNMENT: PRIORITY SKILLS

NDZ's space-economy and precinct pipeline highlight concrete sector opportunities that directly map to TVET programmes:

- Agriculture & agro-processing: mechanisation, irrigation, animal health, dairy operations, abattoir/QC; supported by a proposed Underberg agro-processing site and farmers' market, giving work-integrated learning venues.
- Tourism & hospitality: accommodation operations, culinary arts, adventure guiding—leveraging Underberg–Himeville's role as a tourism gateway. (Land-use and movement frameworks prioritise visitor-facing precinct upgrades.)
- Light industry & repairs: proposed light-industrial/commercial development areas near Underberg create demand for electrical, welding, small-engine and automotive skills.
- Public/social services & ICT: civic precinct consolidation requires facilities management, early-childhood development, basic ICT support—amenable to modular TVET.

7.10.2.3. OPPORTUNITIES & RECOMMENDATIONS

7.10.2.3.1. INFRASTRUCTURE & SPATIAL MODEL

- Flagship TVET campus (Underberg–Himeville): Develop the Himeville Agricultural College concept into a multi-programme campus (agri-tech plus cross-cutting trades), embedded in the civic/social land-use framework for access and safety.
- Satellite Skills Hubs (Creighton, Bulwer, Donnybrook): Retrofit existing civic/education parcels into evening skills centres; co-locate with transport stops and markets to increase uptake. (Use precinct/urban regeneration frameworks already identifying public-realm and movement upgrades.)
- Mobile training for rural wards: Deploy short-course trailers/labs (ICT, basic trades, agronomy) on scheduled circuits to settlements furthest from nodes.

7.10.2.3.2. PROGRAMMES ALIGNED TO NDZ SECTORS

- Agri-processing pipeline: Operator skills for dairy/meat/pack-house; HACCP; cold-chain logistics—linked to the agro-processing site and farmers' market pipeline for WIL.

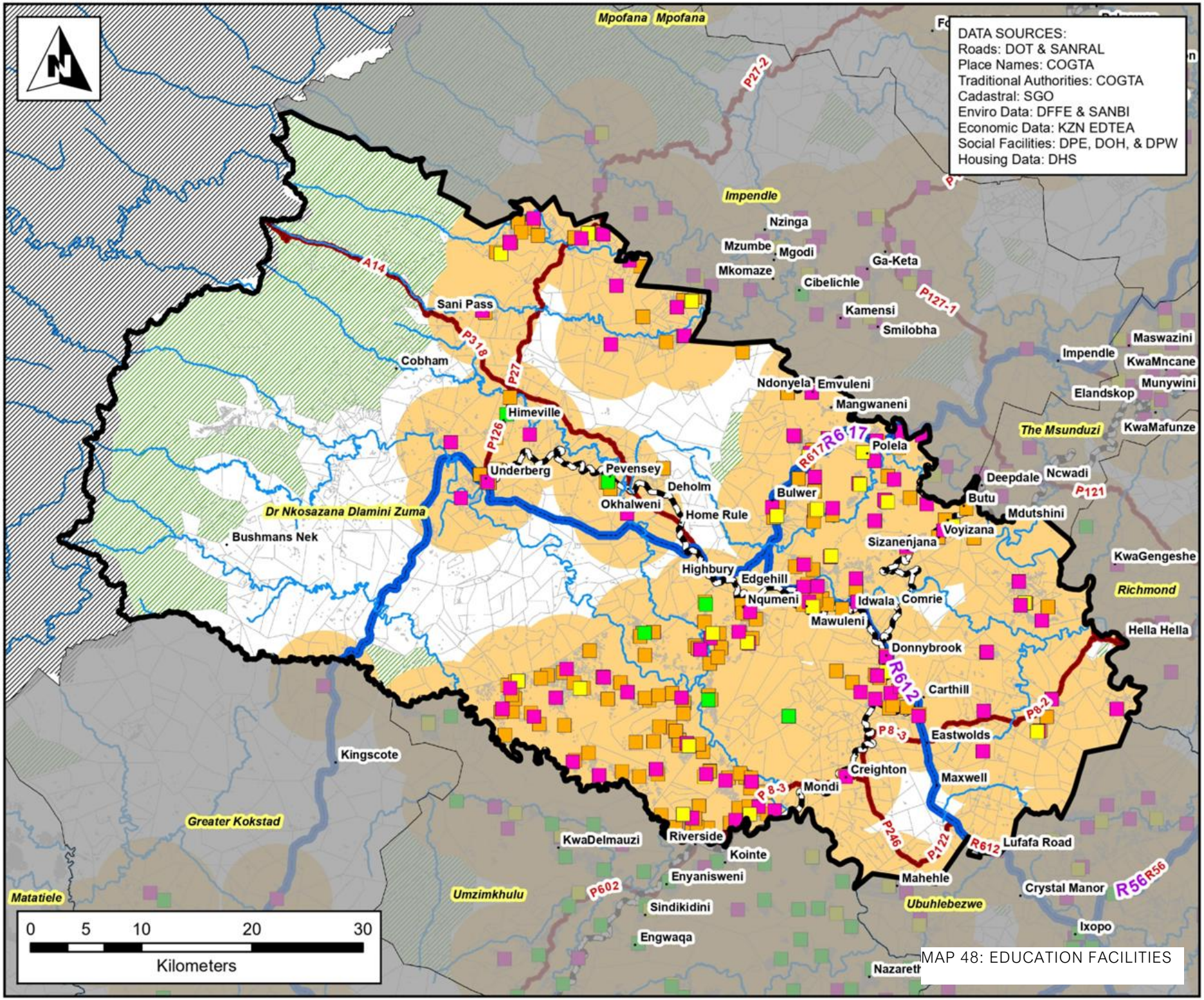
- **Tourism & guiding:** Hospitality operations, events, guiding, trail building/maintenance to strengthen the tourism offer anchored in Underberg–Himeville.
- **Light-industry artisanry:** Electrical, plumbing, welding, fabrication, small-engine repair geared to the proposed light-industrial area.
- **Digital & administrative skills:** Basic ICT support, bookkeeping, customer service—stackable certificates to serve MSMEs and municipal services.

7.10.2.3.3. GOVERNANCE & PARTNERSHIPS

- **DHET/TVET–SETAs compacts:** Co-design curricula and fund equipment; prioritise occupational certificates with high placement rates.
- **Work-integrated learning (WIL):** Formal MoUs with local farmers, processors, hospitality operators and municipal depots.
- **Standards-led planning:** Use the education facility standards tables in the HSSP/sector plan to size classrooms/workshops and to plan 18-hour usage (daytime schooling, evening adult learning).

7.10.2.3.4. INDICATIVE PROJECT PIPELINE (3–5 YEARS)

PROJECT	SCOPE	LOCATION	LEAD & PARTNERS	RATIONALE/ANCHOR
Himeville Agricultural College (Phase 1)	4–6 programmes (crop & animal production, mechanisation, food safety, hospitality service modules) + workshops	Himeville civic/social precinct	NDZ + DHET/TVET + SETAs + private agri	Existing local plan proposal; central node access.
Satellite Skills Hubs	Evening skills labs in repurposed school blocks/community halls (ICT, trades, entrepreneurship)	Creighton, Bulwer, Donnybrook	NDZ + DoE + TVET + SETAs	Node-based clustering and safer access.
Mobile TVET	2 mobile units for rural wards (ICT, small-engine repair, agronomy)	Rotating wards	NDZ + TVET + SETAs	Extends reach into dispersed settlements.
Agro-processing WIL platform	On-site training bays at Underberg agro-processing site and farmers' market	Underberg	NDZ + private processors	Direct sector alignment and job pathways.
New Underberg High School (with technical streams)	General + technical subjects; workshops	Underberg	DoE + NDZ	Pipeline to TVET; already listed in plan.



A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Education Facilities

Legend

- Combined School
- Intermediate School
- Primary School
- Secondary School
- ECD Centre
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- 5km Radius
- Protected Area

MAP 48: EDUCATION FACILITIES

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

7.10.3. POLICE STATIONS

7.10.3.1. INFRASTRUCTURE AND CAPACITY OF POLICE SERVICES

FIXED STATIONS AND SPATIAL COVERAGE: NDZ's current fixed SAPS presence is recorded at Creighton, Bulwer, and Donnybrook. The SDF notes these stations are "relatively far from various rural settlements," creating long travel distances and service strain for outlying communities. A new Kilmon (Ezidweni Village, Ward 1) police station has been identified to extend coverage to Wards 1–3 and 11 and increase policing capacity.

PROXIMITY TO SETTLEMENTS: The municipal "Plan of Nodes" corroborates settlement-station linkages frequently listing Bulwer, Creighton or Donnybrook as the nearest SAPS for rural clusters such as Hlabeni–Mnqundekweni and Qulashe, again illustrating broad catchments and rural access frictions.

MOBILE/SATELLITE POLICING: While the reviewed municipal documents identify fixed stations and a planned new station, they do not explicitly catalogue mobile police stations. Given the spatial gaps and travel times cited above, temporary/mobile or satellite deployments are a logical instrument to plug service gaps pending the commissioning of the Kilmon station; these are therefore advanced below as proposals (Section 4).

INSTITUTIONAL SAFETY INSTRUMENTS: The Disaster Management Sector Plan includes a Municipal Safety Plan, provisions for crime prevention and combat, multi-stakeholder roadblocks, and an animal pound, indicating a municipal platform into which SAPS operations interface.

7.10.3.2. CRIME STATISTICS AND TRENDS

DISTRICT TRENDLINE. Long-run crime indices at the district scale (2008/09–2018/19) show overall and violent crime declining, with property crime remaining a major concern.

STOCK THEFT HOTSPOTS AND CROSS-BORDER DYNAMICS. The IDP explicitly flags stock theft as prevalent in NDZ and uMzimkhulu, particularly along the Drakensberg/Lesotho border, with a coordinated response envisaged between SAPS, SANDF and communities.

LOCAL PERCEPTION DATA. Community surveys captured in the "Final Plan of Nodes" identify livestock theft repeatedly among the most common local crimes (with robbery and assault). This pattern is reported for cluster areas such as Hlabeni–Mnqundekweni and Qulashe, confirming dispersed rural exposure.

AGRARIAN CONTEXT. NDZ's IDP emphasises the strategic role of cattle and sheep farming in the local economy and household livelihoods—hence the high socio-economic sensitivity to stock theft shocks.

7.10.3.3. COMMUNITY SAFETY AND POLICING CHALLENGES

- Distance and access: Large rural catchments, topographic barriers, and gravel access roads extend response times from Creighton/Bulwer/Donnybrook to outlying settlements; unmet need motivated the Kilmon station proposal.
- Cross-border risk: Open rangelands and porous boundaries with Lesotho raise risks of transboundary stock theft and stock movement concealment, demanding interagency and interjurisdictional coordination.
- Institutional coordination: While the municipal Safety Plan, roadblocks, and animal pound exist at framework level, consistent joint operations, data-sharing, and community partnership mechanisms require strengthening to convert frameworks into routine operations.
- Community confidence & reporting: Survey evidence shows communities perceive livestock theft as common; distance and

slow response can suppress reporting and enable repeat victimization.

7.10.3.4. OPPORTUNITIES AND RECOMMENDATIONS (SPATIAL + PROGRAMMATIC)

7.10.3.4.1. INFRASTRUCTURE AND DEPLOYMENT

1. Commission the Kilmon (Ezidweni) Police Station as a priority to close the Ward 1–3–11 gap, paired with access upgrades on feeder roads for SAPS mobility.

2. Mobile/Satellite Policing Programme (SAPS):

    - Deploy mobile units on a scheduled circuit (market days, pension pay points, dip tanks, auction yards) to high-incidence rural clusters (e.g., Hlabeni–Mnqundekweni, Qulashe).
    - Co-locate with Thusong/community halls and taxi ranks to maximize visibility and complaint-taking. (Spatial anchors evidenced across nodes documents.)

3. **Borderline Patrol & Road-block Strategy (SAPS–SANDF–DOT–Municipality):** Institutionalize seasonal and event-triggered multi-stakeholder roadblocks along egress routes from grazing commons and border corridors, building on the municipal Safety Plan provisions.

7.10.3.4.2. INTELLIGENCE, DATA, AND COMMUNITY SYSTEMS

1. Livestock Theft Intelligence Cell (LTIC): A joint SAPS–Municipality–Traditional Councils unit to:
    - Map incidents, routes, and brands;
    - Maintain a livestock owner registry with branding numbers and geo-referenced kraals;
    - Produce quarterly hotspot maps for deployments (align with IDP/SDF GIS). (Framework alignment: Safety Plan; IDP emphasis on cross-sector coordination.)
2. **Digital Reporting & Early Warning:** Establish ward-based WhatsApp hotlines managed by the LTIC; integrate with Operation Sukuma Sakhe war rooms for escalation and feedback loops.

7.10.3.4.3. PHYSICAL AND MANAGERIAL MEASURES IN THE RURAL COMMONS

- **Secure Kraal & Night-Pound Programme:** Support fenced, lit communal kraals near village cores and along main access routes; pair with the municipal **animal pound** for recovered stock processing, identification, and return.
- **Market Chain Controls:** Introduce auction-day **brand verification booths** (SAPS + Dept. Agriculture) and vendor registers; link to randomised road-block checks post-auction. (Builds on IDP agriculture emphasis and stock theft prevalence.)
- **Grazing & Herding Safety Protocols:** Seasonal herding schedules, buddy-systems for drovers, and community patrols endorsed by Traditional Councils; align with Disaster/Safety awareness campaigns already recognized in municipal plans.

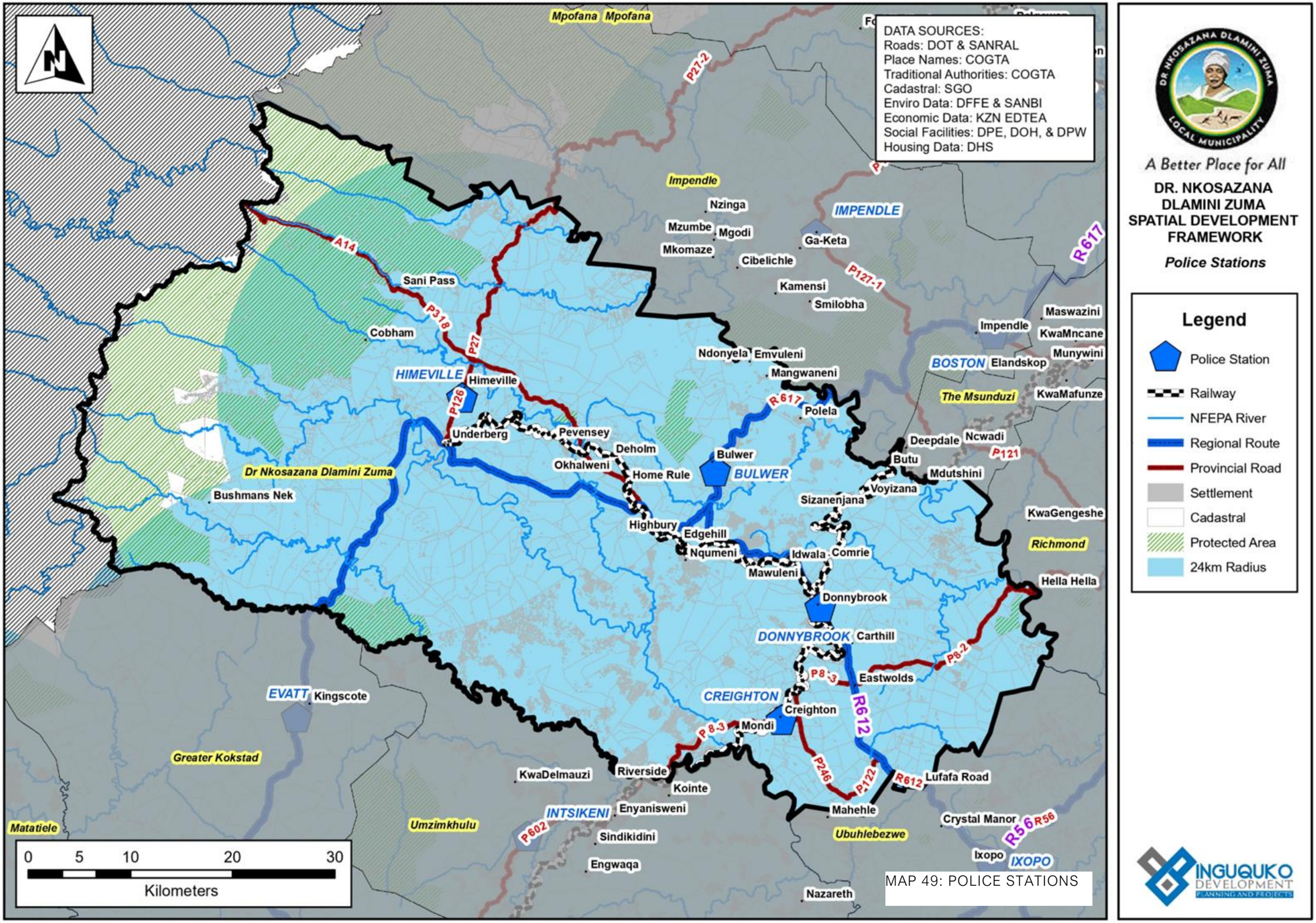
7.10.3.4.4. CAPACITY BUILDING AND PARTNERSHIPS

- Community Policing Forums (CPFs) Strengthening: Train CPF members on evidence handling, incident logging, and brand identification; integrate with Operation Sukuma Sakhe LTTs and ward war rooms for regular case tracking.
- Cross-Border MOUs: Facilitate SAPS–Lesotho Mounted Police Service liaison for information exchange on brands and suspects; schedule joint patrols during peak transhumance periods (inferred from IDP cross-border risk statement).

7.10.3.4.5. INDICATIVE PROJECTS AND PROGRAMMES

TABLE 38: INDICATIVE PROJECTS AND PROGRAMMES

PROJECT/PROGRAMME	DESCRIPTION	LEAD / PARTNERS	TIMEFRAME
Kilmon SAPS Station Delivery	Acquire land, design, fund, construct and commission; include staff housing and vehicle bays	SAPS, DPWI, NDZ LM	1–3 yrs
Mobile SAPS Circuit	Two patrol vans fitted as mobile desks on a fixed ward-based schedule (market/clinic/pay-point days)	SAPS, NDZ LM	0–1 yr (pilot), then ongoing
Livestock Theft Intelligence Cell	Centralised registry, GIS hotspot maps, brand database; quarterly briefs to CPFs/war rooms	SAPS, NDZ LM, Dept. Agriculture, Traditional Councils	0–1 yr setup; quarterly outputs
Border Road-Block Calendar	Quarterly multi-agency operations on identified routes; after auction days and seasonal peaks	SAPS, SANDF, DOT, NDZ LM	Quarterly, ongoing
Secure Communal Kraals & Lighting	10 priority sites near high-risk clusters; solar lighting and fencing	NDZ LM (Infrastructure), SAPS advisory	1–2 yrs
Animal Pound Modernisation	Upgrade intake, identification, and restitution processes; chain-of-custody protocols	NDZ LM Community Services, SAPS	0–1 yr



MAP 49: POLICE STATIONS

7.10.4. CEMETERIES

Cemeteries and burial grounds are an essential element of social infrastructure, shaping both settlement patterns and cultural landscapes in Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). Beyond their functional role, cemeteries are deeply connected to community identity, cultural heritage, and spiritual practices. In predominantly rural municipalities such as NDZ LM, burial practices reflect both formal, municipal cemetery provision and traditional patterns of interment on family land. This report provides an overview of existing cemetery provision, accessibility, condition, and cultural context, with reference to municipal planning priorities.

7.10.4.1. CEMETERY PROFILE AND DISTRIBUTION

The municipality maintains a number of formal cemeteries, primarily located within nodal settlements such as Underberg, Himeville, Bulwer, and Creighton. These cemeteries serve urban and peri-urban communities, as well as some surrounding rural wards. However, the number of municipal cemeteries is limited relative to the geographic size of the municipality and the dispersed nature of its settlements. Smaller, ward-level cemeteries exist in certain traditional authority areas, though their status often falls outside formal municipal management frameworks.

In rural and traditional areas, burial most commonly occurs on family homesteads or within clan-designated graveyards. This practice reduces pressure on formal cemeteries but complicates long-term land use planning, particularly where graves are located within arable fields or settlement expansion areas. The duality of formal and traditional burial systems defines the spatial character of cemetery provision in NDZ LM.

7.10.4.2. SPATIAL ACCESSIBILITY

Accessibility to municipal cemeteries is uneven. Residents of town nodes generally have access to formal cemeteries within close proximity, with average travel distances of 1–5 km. Conversely, rural residents are often required to travel long distances, sometimes more than 15 km, to reach the nearest managed cemetery. Given poor road conditions and limited public transport, access to formal cemeteries is difficult for rural households, especially during funeral processions that require vehicle access.

This accessibility gap explains the persistence of homestead burials, which remain a preferred practice in rural wards. While culturally significant, such practices pose challenges for environmental management, as graves may be located near watercourses or on steep slopes, raising long-term concerns of soil stability and contamination.

7.10.4.3. INFRASTRUCTURE AND FACILITY CONDITIONS

The condition of municipal cemeteries is mixed. Larger town cemeteries, such as those in Underberg and Himeville, are generally fenced and have some form of layout, though many are reaching or have already reached capacity constraints. Inadequate maintenance, vandalism, and encroachment are recurring challenges. Rural cemeteries and ward-based facilities are often unfenced, lack access roads, and are vulnerable to livestock intrusion.

Basic amenities such as water points, ablution facilities, and parking are seldom available, limiting the dignity and functionality of funerals. Grave digging capacity is often provided informally, with few municipalities having mechanised equipment in place. This places pressure on families, particularly in winter months when soils harden.

7.10.4.4. EQUITY, DISPARITIES, AND CULTURAL PRACTICES

Cemetery provision reveals clear disparities between urban and rural areas. Town-based cemeteries are more structured and managed, while rural wards rely heavily on traditional burial on homesteads. This disparity reflects broader service inequities in the municipality and complicates planning efforts.

In rural and traditional areas of NDZ LM, burial on family land is a culturally significant practice, deeply rooted in Zulu traditions. Families generally bury deceased members within the homestead boundary, often near cattle kraals or ancestral sites, ensuring spiritual continuity and connection with the land. Rituals such as "ukubuyisa" (bringing home the spirit) reinforce the permanence of ancestral ties to the land. While this practice sustains cultural identity, it creates challenges for land use management: graves located on agricultural plots constrain land consolidation, infrastructure projects, and future resettlement.

Another cultural dimension is the preference for burial over cremation, with cremation seldom practised in the municipality. This heightens long-term land demand for cemeteries, particularly in nodal settlements where urbanisation is accelerating.

7.10.4.5. ALIGNMENT WITH SDF PRIORITIES

The municipality's SDF identifies cemeteries as part of essential social infrastructure, to be aligned with nodal development and equitable rural service provision. Current patterns, however, reveal partial misalignment. The concentration of formal cemeteries in nodal towns supports the principle of nodal consolidation but leaves rural households underserved. The reliance on homestead burials, while culturally aligned, conflicts with spatial efficiency, environmental sustainability, and future land release for development.

There is a need for integrated planning that respects traditional burial practices while introducing ward-based managed cemeteries to balance cultural imperatives with municipal planning obligations. Opportunities exist to designate land for community cemeteries in partnership with traditional councils, ensuring both cultural legitimacy and municipal oversight.

7.10.4.6. SYNTHESIS AND PLANNING IMPLICATIONS

Cemetery provision in NDZ LM illustrates the intersection of cultural practice and municipal planning. Formal cemeteries in towns provide structured services but are constrained by capacity and maintenance backlogs. Rural wards remain dependent on homestead burials, reinforcing cultural traditions but creating long-term planning challenges.

From a planning perspective, the municipality faces three primary imperatives:

- **Capacity Expansion:** Existing town cemeteries require urgent extensions or new land acquisition to address looming shortages.
- **Rural Service Equity:** Ward-based cemeteries should be introduced in partnership with traditional councils to provide alternatives to homestead burials and ensure environmental safeguards.
- **Cultural Sensitivity:** Planning frameworks must recognise the significance of traditional burial practices, incorporating cultural protocols into land use management while promoting sustainable land allocation.

7.10.4.7. RECOMMENDATIONS FOR CEMETERIES

1. **Spatial Planning for New Cemeteries**
    - Identify and secure suitable new cemetery sites through the SDF, ensuring they avoid wetlands, floodplains, and agricultural high-potential soils.
2. **Cemetery Management Framework**
    - Standardize fencing, ablution, and access infrastructure.
    - Introduce a digital cemetery management system for record keeping.

3. Green Cemetery Initiatives

    - Promote eco-friendly burial alternatives, including tree planting memorials and low-impact designs.

4. Shared Facilities

    - Consider cluster cemeteries serving several rural wards, managed jointly with Traditional Councils.

7.10.4.8. RECOMMENDATIONS FOR TRADITIONAL BURIAL SITES

1. Guidelines for Traditional Burials

    - Develop municipal guidelines, in consultation with Traditional Leaders, to regulate burial location (e.g., minimum distances from rivers, boreholes, and settlements).

2. Awareness and Capacity Building

    - Conduct community education campaigns with Traditional Councils on safe burial practices.

3. Policy Harmonisation

    - Incorporate traditional burials into the municipal Land Use Scheme, ensuring cultural rights are respected while managing environmental risks.

4. Monitoring System

    - Engage ward-based structures and izinduna to maintain informal registers of traditional burial sites to support planning and heritage protection.

7.10.5. COMMUNIY HALLS

According to the IDP of 2025/26 FY, the municipality has 66 community halls. Dr. NDZ Municipality has successfully cleared its backlog in the development of community halls, with each ward now having more than one community hall. The Municipality also ensures that a budget is allocated each financial year for the maintenance of existing structures. The Municipal Infrastructure Grant (MIG) is used to fund these projects. Additionally, these community halls are utilized as voting stations during elections.

7.10.6. SPORTS AND RECREATION FACILITIES

Sports and recreation facilities are a vital part of social infrastructure, contributing to community cohesion, youth development, and healthy lifestyles. In rural municipalities such as Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM), they also serve as multi-functional community spaces where social gatherings, cultural activities, and sporting events converge. This report provides an overview of the current distribution, condition, and accessibility of sports and recreation facilities in NDZ LM, while assessing alignment with spatial planning priorities.

7.10.6.1. FACILITY PROFILE AND DISTRIBUTION

Formal sports and recreation facilities in NDZ LM are concentrated in the four main nodal towns of Underberg, Himeville, Creighton, and Bulwer. These facilities typically include municipal sports grounds, soccer fields, netball courts, and basic community halls that double as recreational venues. Schools also provide secondary access to playing fields, though these are not always available for community use outside school hours.

In rural wards, formal recreational facilities are scarce. Most villages lack structured sports grounds, relying instead on informal open spaces or cleared fields that are used for soccer, athletics, and traditional games. Traditional

council areas often support recreational activities linked to cultural practices, but without permanent facilities. This uneven distribution underscores the divide between nodal settlements and dispersed rural communities.

According to the IDP of 2025/26 FY, the municipality has 28 sportsfield. Dr. NDZ Municipality has successfully addressed its backlog in the development of sports fields, with each ward now having more than one sports field. The Municipality ensures that a budget is allocated each financial year for the maintenance of existing structures. The Municipal Infrastructure Grant (MIG) is used to fund these projects. The Department of Sport and Recreation plays a crucial role in the development of sports fields within NDZ LM. All business plans related to sports development are endorsed by the Department of Sport and Recreation before being submitted to COGTA for approval.

7.10.6.2. SPATIAL ACCESSIBILITY

Accessibility to sports facilities follows the same nodal pattern as other social infrastructure. Households in towns have walking access to managed sports fields and halls, while rural youth often travel long distances, sometimes over 10 km, to reach the nearest structured facility. Poor road conditions and lack of public transport make such travel difficult, limiting participation in organised sport.

This accessibility gap has two implications: first, rural youth are largely excluded from structured competitive sport; second, informal recreational activities occur in unregulated and often unsafe environments, such as roadside clearings or degraded open land.

7.10.6.3. INFRASTRUCTURE AND FACILITY CONDITIONS

The condition of formal sports and recreation facilities is mixed. Town-based sports fields, such as those in Underberg and Creighton, are generally fenced and usable, but maintenance is inconsistent. Grass cutting, drainage, and repair of goalposts or courts are often neglected due to budget constraints. Ablution blocks and changing rooms are frequently vandalised or in disrepair, limiting their functionality for formal tournaments.

Community halls, which act as multi-purpose recreational venues, are widely used but face challenges of overcrowding, poor maintenance, and unreliable electricity supply. Rural wards generally lack formal infrastructure, with makeshift grounds providing only basic functionality. These disparities reduce opportunities for talent development and weaken social cohesion.

7.10.6.4. EQUITY, DISPARITIES, AND CULTURAL PRACTICES

Sports provision reflects broader equity gaps in NDZ LM. Urban and peri-urban youth benefit from proximity to facilities and organised leagues, while rural youth remain underserved. Gender disparities are also evident: while soccer dominates rural recreational life, facilities for netball, volleyball, and athletics — traditionally attracting female participation — are far less accessible in rural wards.

Cultural dimensions are important in NDZ LM, where traditional games, dance, and music remain integral to community life. Recreational gatherings often combine sport with cultural expression, particularly during heritage events and community celebrations. However, the absence of structured spaces for such activities diminishes their visibility and undermines youth participation.

7.10.6.5. ALIGNMENT WITH SDF PRIORITIES

Sports and recreation facilities are directly aligned with the SDF's objectives of youth development, nodal strengthening, and equitable rural service provision. Current patterns demonstrate partial alignment: the concentration of facilities in towns supports nodal development but leaves rural wards marginalised. The lack of structured recreational space in rural areas also undermines broader development objectives, such as crime prevention, skills development, and social cohesion.

Tourism development in the Drakensberg foothills further underscores the importance of recreational facilities. Upgraded sports fields and community halls could serve both local and visitor needs, creating spaces for tournaments, festivals, and cultural tourism. Without investment, however, the municipality risks reinforcing spatial inequities.

7.10.6.6. SYNTHESIS AND PLANNING IMPLICATIONS

The analysis of sports and recreation facilities in NDZ LM reveals a dual pattern of provision: structured, but under-maintained facilities in nodal towns, and minimal or informal facilities in rural wards. This imbalance mirrors broader service disparities and places rural youth at a disadvantage in terms of access, participation, and development opportunities.

From a spatial planning perspective, three key priorities emerge:

- Maintenance and Upgrading: Existing town facilities require consistent maintenance, fencing, drainage, and restoration of ablution facilities to ensure safety and usability.
- Rural Equity: Ward-level recreational grounds and multi-purpose halls should be introduced in partnership with traditional councils to ensure equitable access for rural youth.
- Cultural Integration: Facilities should be designed as multi-functional spaces accommodating sport, cultural events, and community gatherings, reinforcing their role as social anchors in dispersed settlements.

7.10.7. SOCIAL INFRASTRUCTURE NEEDS ASSESSMENT

The CSIR Guidelines for the Provision of Social Facilities in South African Settlements (2015) serve as a critical spatial planning tool, providing technical standards for the equitable distribution of key social facilities such as schools, clinics, cemeteries, and recreation spaces. The guidelines establish population thresholds, catchment radii, and accessibility standards that enable municipalities to align facility provision with settlement hierarchies and service delivery norms. Within a Spatial Development Framework, the guidelines support evidence-based planning by identifying gaps, rationalising investment priorities, and promoting spatial equity in rural and urban contexts (CSIR, 2015). This assessment is based on the number of households currently extant in the municipality according to Census 2022 of 25 525.

FACILITY	CURRENT	ASSESSMENT		
		REQUIRED	BACKLOG	SURPLUS
Primary School	83	4	0	79
Secondary School	24	2	0	22
Combined School	6	CSIR Guidelines do not specify the thresholds for combined schools		
ECD Centre	170	9	0	161
Police Stations	4	1	0	3
Clinic	9	1	0	8
Community Health Centres	1	1	0	0
Hospital	1	1	0	0
Community Hall	66	1	0	65

NB: *It should be acknowledged that the foregoing assessment is based on a purely quantitative, scientific analysis and does not incorporate dimensions of accessibility at the level of individuals or households. Furthermore, it does not account for contextual factors that may constrain access, including road infrastructure conditions, topographical barriers, and related locational challenges.*

7.11. FARM DWELLERS AND BASIC SERVICES

Farm dwellers represent a significant yet historically marginalised settlement category within the Dr. Nkosazana Dlamini Zuma Local Municipality. While the municipality's settlement hierarchy largely recognises urban centres, service nodes, rural villages, and dispersed traditional settlements, farm dweller communities remain spatially invisible and under-serviced. This invisibility perpetuates inequality, exclusion, and poverty across large parts of the municipal area.

The Guidelines for the Provision of Basic Services to Farm Dwellers in KwaZulu-Natal (2025) provide a provincial framework to address this systemic challenge. They affirm the constitutional obligation of municipalities to provide services to all residents, regardless of tenure arrangements or the fact that they live on privately-owned farms. Court judgments, including the *Mshengu v Msunduzi* ruling, reinforce that local government cannot withhold basic services from farm dwellers on the grounds of property ownership disputes.

7.11.1. KEY CHARACTERISTICS IN NDZ MUNICIPALITY

- **Dispersed settlement patterns**: Farm dwellers typically reside in small clusters or as isolated households across the municipality's extensive agricultural hinterlands.
- **Service exclusion**: Many of these communities lack reliable access to water, sanitation, refuse removal, electricity, and safe roads. This exclusion is exacerbated by the perception that service delivery obligations do not extend onto privately owned land.
- **Economic vulnerability**: Farm dwellers are often reliant on insecure agricultural employment and informal livelihoods. Their marginalisation reinforces broader cycles of poverty identified in NDZ's socio-economic profile.

7.11.2. MINIMUM SERVICE STANDARDS

The Guidelines specify minimum levels of service provision that must be extended to farm dwellers:

- **Water**: At least 25 litres per person per day, within 200 metres of each dwelling, with a maximum of seven days supply interruption per year.
- **Sanitation**: Access to safe, dignified, and hygienic ablution facilities.
- **Electricity**: Provision through Eskom connections or off-grid alternatives, with farm owners bearing responsibility for employees under occupational health obligations.
- **Refuse Removal**: Provision of regular collection services, adapted to dispersed rural conditions.
- **Housing**: Inclusion of farm dweller needs in municipal human settlements strategies.

7.11.3. IMPLICATIONS FOR NDZ SETTLEMENT PLANNING

Incorporating the Guidelines into the settlement framework of NDZ requires recognising farm dwellers as a distinct settlement typology. This has the following implications:

- **Integration into the settlement hierarchy**: Farm dweller clusters should be mapped and formally recognised alongside villages, nodes, and rural settlements.
- **Targeted service models**: Due to their dispersed nature, service solutions must be innovative – e.g., communal boreholes, off-grid solar systems, mobile refuse collection, and clustered sanitation facilities.
- **Institutional alignment**: NDZ must work closely with the Harry Gwala District Municipality (as Water Services Authority), Eskom,

DALRRD, Human Settlements, and farm owners to ensure coordinated delivery.

- **Spatial justice**: Recognising and servicing farm dwellers advances the constitutional principle of equitable access to services, while aligning with provincial directives for inclusive rural development.

7.11.4. OPPORTUNITIES

- **Service clustering**: NDZ can pilot clustered service delivery points for farm dwellers in high-density agricultural belts, reducing the per capita cost of provision.
- **Land reform integration**: Farm dweller services can be linked to ongoing land reform and redistribution programmes to stabilise settlements and improve tenure security.
- **Local economic development**: Improved access to basic services can unlock farm dwellers' participation in small-scale agro-processing, tourism, and other rural economy initiatives identified as growth areas in the municipality.

7.12. HOUSING AND HUMAN SETTLEMENTS

This section provides an analysis of the issues and opportunities arising from the reviewed document, with a specific focus on their implications for the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) and its Spatial Development Framework (SDF). The objective is to distil complex sectoral findings into an evidence-based narrative that supports strategic spatial planning, infrastructure prioritisation, and development management at the local level.

The Municipality is characterised by a predominantly rural settlement pattern, dispersed villages, and a reliance on natural resource–based livelihoods. These conditions present both challenges in the delivery of infrastructure and services, and opportunities in terms of leveraging local assets such as agriculture, tourism, and environmental resources. The reviewed document highlights a number of sectoral concerns, including infrastructure backlogs, settlement growth pressures, environmental vulnerabilities, and limited economic diversification. These are all directly relevant to the SDF as they shape where, how, and at what scale future development can be directed.

From a spatial planning perspective, three overarching themes emerge:

- **Service Delivery Constraints** – Infrastructure deficits (particularly in water, sanitation, and electricity) and long travel distances to urban centres limit settlement growth and economic opportunity.
- **Settlement Dynamics** – The persistence of informal and scattered settlements raises challenges for sustainable land use management and efficient service provision.
- **Strategic Development Potential** – Agricultural production, eco-tourism, and small-town renewal represent localised opportunities to drive inclusive growth if supported by appropriate spatial interventions.

The implications for the SDF are significant. Service delivery backlogs necessitate a more targeted settlement hierarchy, focusing investment in strategic nodes while managing dispersed growth pressures. Infrastructure planning must be integrated with land use management, ensuring that development is channelled into areas where bulk services are feasible and environmentally sustainable. In parallel, the SDF must articulate strategies for economic diversification—particularly in agriculture and tourism—while also addressing spatial justice by reducing inequality in access to services, land, and opportunities.

Despite the challenges, there are meaningful strategic opportunities for NDZ:

- Strengthening service nodes (e.g., Underberg and Creighton) to anchor regional growth.

- Consolidating and upgrading existing rural settlements rather than allowing uncontrolled expansion.
- Supporting small-scale and commercial agriculture through improved infrastructure and land-use policies.
- Promoting eco-tourism and heritage assets as complementary development anchors.
- Leveraging renewable energy and green infrastructure as part of a climate-resilient spatial strategy.

The findings underscore the importance of aligning NDZ's SDF with realistic implementation pathways, taking into account both fiscal constraints and the need for intergovernmental collaboration with the District and Province. By doing so, the Municipality can transform its current challenges into a coherent spatial development strategy that supports inclusive, resilient, and sustainable growth.

TABLE 39: KEY ISSUES, IMPLICATIONS, AND OPPORTUNITIES

KEY ISSUE	IMPLICATIONS FOR SDF	STRATEGIC OPPORTUNITIES
Infrastructure backlogs (water, sanitation, electricity)	Limits settlement growth and economic activity; increases inequality	Prioritise bulk services in nodes; align infrastructure with land use
Dispersed and informal settlement growth	Inefficient service delivery and land management challenges	Settlement consolidation; nodal development strategy
Environmental vulnerabilities (flooding, soil erosion, climate risks)	Constrains land availability for expansion	Promote climate-resilient land use and conservation zoning
Limited economic diversification	Reliance on primary sectors; weak job creation	Support agro-processing, eco-tourism, and local enterprise hubs
Poor accessibility and connectivity	High transport costs; isolation of rural settlements	Invest in transport corridors; integrate mobility into spatial planning

The preparation of the Spatial Development Framework (SDF) for the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) requires a thorough understanding of the municipality's development context, institutional priorities, and sectoral challenges. The reviewed document provides valuable insights into the current state of infrastructure, service delivery, settlement patterns, and socio-economic dynamics. This report distils these insights into a narrative form, explicitly drawing out their implications for spatial planning and identifying strategic opportunities that can strengthen the effectiveness of the SDF.

NDZ Municipality is situated within the Harry Gwala District in KwaZulu-Natal, covering an extensive rural landscape characterised by dispersed villages, agricultural land, and environmentally sensitive areas. Its settlement pattern reflects both historical legacies of underdevelopment and ongoing socio-economic transitions. Rural settlements remain dominant, with limited urbanisation occurring in small service towns such as Underberg, Bulwer, Creighton, and Donnybrook. This dispersed settlement form has placed significant strain on the municipality's ability to deliver services efficiently and sustainably, particularly in respect of water, sanitation, electricity, and road infrastructure.

The context of NDZ is shaped by a number of critical dynamics:

- Service Delivery Backlogs: Large portions of the population remain without access to reliable water supply, adequate sanitation, or formal electricity connections. This has spatial implications, as unserviced settlements often grow in an uncoordinated manner, compounding planning and service delivery challenges.
- Infrastructure and Maintenance Gaps: Much of the existing infrastructure requires upgrading and ongoing maintenance, limiting the municipality's ability to expand services to new development areas.
- Environmental Sensitivity: The municipality contains valuable ecological resources, including mountain catchments and rivers that supply water to the broader region. These areas require protection through careful land use management, balancing development with conservation imperatives.
- Economic Dependence on Primary Activities: The local economy relies heavily on agriculture and tourism. Both sectors are spatially bound, with agriculture depending on productive land and tourism linked to the natural environment. This presents an opportunity to build on existing comparative advantages but also highlights the risks of overdependence.

The reviewed document situates NDZ within a broader planning framework that includes alignment with the Integrated Development Plan (IDP), the Harry Gwala District Development Framework, and provincial strategies such as the KwaZulu-Natal Provincial Spatial Development Framework (PSDF). However, the emphasis in this report remains on local priorities and the ways in which the SDF can translate higher-level policy objectives into spatially targeted interventions.

Importantly, this section is written for municipal officials and councillors and adopts a formal municipal style. It is not simply a restatement of the source material but rather an interpretive analysis that highlights the spatial consequences of identified issues and frames them in relation to the statutory requirements of the SDF under the Spatial Planning and Land Use Management Act (SPLUMA).

The context outlined above sets the stage for a deeper examination of the policy alignment, key issues, and their implications for spatial development. It provides the lens through which the remainder of the report interprets the reviewed document and distils its significance for NDZ Municipality's planning agenda.

7.12.1. POLICY & PLANNING ALIGNMENT

Spatial planning in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) is guided not only by local development priorities but also by the broader frameworks established at district, provincial, and national levels. Ensuring policy alignment is a statutory requirement under the Spatial Planning and Land Use Management Act (SPLUMA, 2013), which mandates that municipal SDFs must be consistent with higher-order frameworks while remaining responsive to local needs. The reviewed document reinforces the necessity of such alignment, particularly given NDZ's rural development character, infrastructure constraints, and dependence on natural resources.

7.12.1.1. NATIONAL POLICY ALIGNMENT

At the national level, the National Development Plan (NDP 2030) provides the overarching vision of reducing poverty and inequality through inclusive, sustainable development. Its relevance to NDZ lies in its emphasis on:

- **Spatial Transformation:** Overcoming the legacy of fragmented settlement patterns and uneven service delivery.
- **Infrastructure-led Development:** Using investment in water, energy, and transport infrastructure to unlock local economies.
- **Rural Development:** Supporting agricultural production, land reform, and rural service centres.

These principles are directly applicable to NDZ, where settlement dispersal and service backlogs are central planning challenges.

7.12.1.2. PROVINCIAL POLICY ALIGNMENT

The KwaZulu-Natal Provincial Spatial Development Framework (PSDF) and the Provincial Spatial Development Framework (PSDF) prioritise spatial equity, sustainable livelihoods, and nodal development. NDZ aligns with these by:

- Supporting a settlement hierarchy anchored by Underberg, Bulwer, Creighton, and Donnybrook as local service centres.
- Identifying priority intervention areas (PIAs) where targeted investment can catalyse development.
- Protecting environmental assets such as mountain ranges and river catchments.

The PSDF further highlights the importance of agriculture and tourism as economic drivers in rural municipalities—both of which are central to NDZ's comparative advantage.

7.12.1.3. DISTRICT POLICY ALIGNMENT

As part of the Harry Gwala District Municipality (HGDM), NDZ is embedded in a district-wide framework that promotes regional integration of infrastructure, water resource management, and economic development. Key aspects include:

- Coordinated bulk water and sanitation schemes, particularly where settlements straddle municipal boundaries.
- District-led transport corridors connecting NDZ to Ixopo, Kokstad, and Pietermaritzburg.
- Shared strategies for climate resilience and disaster risk reduction, which are critical given NDZ's environmental sensitivity.

Alignment with district strategies ensures that NDZ benefits from economies of scale while tailoring interventions to local conditions.

7.12.1.4. LOCAL POLICY ALIGNMENT

The NDZ Integrated Development Plan (IDP) identifies service delivery, infrastructure investment, and local economic development as immediate priorities. The reviewed document confirms the persistence of backlogs and

the need for an integrated approach to land use and service delivery planning. For the SDF, this translates into:

- Establishing a clear settlement hierarchy to prioritise investment.
- Coordinating land use management with infrastructure provision.
- Supporting local economic initiatives in agriculture, tourism, and small enterprise hubs.

7.12.1.5. IMPLICATIONS FOR NDZ SDF

Policy alignment ensures that the NDZ SDF:

- Anchors local development within national and provincial transformation goals.
- Secures district-level integration of bulk services and transport networks.
- Provides a locally responsive framework that prioritises nodes, manages scattered settlements, and leverages environmental and economic assets.

7.12.2. KEY ISSUES IDENTIFIED

The Municipal Housing Sector Plan highlights a range of developmental, infrastructural, and environmental challenges that directly shape the spatial development trajectory of the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ). These issues are complex and interrelated: settlement dispersal exacerbates service delivery challenges, infrastructure backlogs constrain economic growth, and environmental vulnerabilities reduce the availability of land for expansion. This section provides a structured discussion of the key issues, grouping them into thematic areas relevant for spatial planning.

7.12.2.1. INFRASTRUCTURE AND SERVICE DELIVERY BACKLOGS

The most pressing challenge facing NDZ is the scale and persistence of service delivery backlogs, which affect water supply, sanitation, electricity, and solid waste management. These deficits undermine spatial equity and restrict opportunities for settlement growth and economic activity.

- **Water Supply:** Access to reliable potable water remains uneven. Many rural settlements rely on communal standpipes, boreholes, or natural springs. Bulk schemes are limited, and ageing infrastructure results in frequent breakdowns. This situation constrains the municipality's ability to direct growth into areas not serviced by bulk supply networks.
- **Sanitation:** Large numbers of households depend on pit latrines, some of which are unventilated and unsafe. The absence of adequate sanitation services contributes to environmental degradation and public health risks, particularly in densely settled rural villages.
- **Electricity:** While Eskom has extended grid access to many areas, infill electrification projects remain incomplete. Some settlements are partially serviced, while others continue to rely on alternative energy sources, limiting their ability to participate in the mainstream economy.
- **Solid Waste:** Refuse collection is concentrated in larger towns, leaving many rural areas without formal waste disposal systems. Informal dumping is common, with associated environmental hazards.

7.12.2.2. SETTLEMENT GROWTH AND INFORMALITY

Settlement growth in NDZ is characterised by scattered rural expansion, often occurring informally and without adequate planning controls. This pattern results in inefficient land use and difficulties in extending services.

- **Scattered Settlements:** Small clusters of homesteads dominate the landscape, leading to a highly fragmented spatial form. This increases the cost per household for service provision.

- **Informal Settlements:** While less pronounced than in urban municipalities, informal housing persists around small towns and service nodes, reflecting rural-to-rural migration and population pressures.
- **Lack of Clear Hierarchy:** The absence of a strongly defined settlement hierarchy has diluted investment impacts, as resources are spread thinly across dispersed areas instead of being concentrated in key nodes.

7.12.2.3. ECONOMIC STRUCTURE AND LIVELIHOODS

The NDZ economy is narrowly based, with agriculture and tourism providing the backbone of employment and income. However, economic diversification is limited, and large portions of the population remain dependent on subsistence activities or social grants.

- **Agriculture:** Both commercial and small-scale farming exist, but many smallholder farmers face challenges in accessing markets, infrastructure, and support services.
- **Tourism:** The municipality's natural assets — mountains, rivers, and cultural heritage — provide tourism potential, yet infrastructure and marketing constraints limit growth.
- **Employment:** High unemployment rates persist, particularly among youth and women. Many households rely on remittances or government transfers, reflecting limited local job creation.

These economic realities reinforce the need for the SDF to link land use management with strategies for economic diversification and resilience.

7.12.2.4. ENVIRONMENTAL VULNERABILITIES

NDZ is rich in environmental resources but also highly vulnerable to degradation and climate-related risks. Land use practices and settlement expansion often occur in environmentally sensitive areas, placing long-term sustainability at risk.

- **Soil Erosion and Land Degradation:** Poor farming methods and overgrazing contribute to erosion, undermining agricultural potential.
- **Water Resources:** Key river catchments are under pressure, with pollution from settlements and agriculture affecting downstream users.
- **Climate Risks:** Increased flooding, droughts, and temperature variability threaten both livelihoods and infrastructure.
- **Biodiversity Loss:** Encroachment into sensitive habitats reduces ecological integrity and undermines tourism potential.

For the SDF, these vulnerabilities necessitate strong environmental management measures, such as zoning, buffers, and conservation corridors.

7.12.2.5. INSTITUTIONAL AND GOVERNANCE CHALLENGES

Beyond physical infrastructure and resources, NDZ faces institutional constraints that hinder effective spatial planning.

- **Limited Technical Capacity:** The municipality has a small planning and engineering staff, limiting the speed and depth of interventions.
- **Budget Constraints:** Fiscal resources are stretched, forcing difficult trade-offs between upgrading existing infrastructure and extending services to unserviced areas.
- **Coordination Gaps:** Weak alignment between municipal projects, district bulk services, and provincial initiatives creates inefficiencies.

Institutional strengthening and intergovernmental collaboration are therefore critical preconditions for the successful implementation of the SDF.

7.12.2.6. SYNTHESIS OF KEY ISSUES

The issues above converge around a central theme: the spatial inefficiency of NDZ's settlement pattern combined with deep service delivery backlogs. Infrastructure deficits, economic dependence on primary sectors, and environmental vulnerabilities are interwoven, creating a cycle of underdevelopment. Breaking this cycle requires spatial targeting, institutional coordination, and the leveraging of NDZ's unique local asset

7.12.3. IMPLICATIONS FOR THE SPATIAL DEVELOPMENT FRAMEWORK

The Spatial Development Framework (SDF) is the principal tool for guiding and coordinating land use, settlement growth, and infrastructure investment within the municipality. The issues identified in the previous section have far-reaching implications for how the municipality plans, manages, and invests in its territory. This section outlines the main implications for the SDF under five thematic areas: settlement structure, infrastructure provision, land use management, environmental sustainability, and spatial equity.

7.12.3.1. SETTLEMENT STRUCTURE AND HIERARCHY

The scattered and fragmented nature of settlements in NDZ has resulted in high per capita service delivery costs and inefficient land use. For the SDF, this necessitates:

- **Establishing a Clear Settlement Hierarchy:** The SDF should prioritise development and investment in strategic nodes such as Underberg, Bulwer, Creighton, and Donnybrook, while recognising the role of secondary service villages.
- **Consolidation of Rural Settlements:** Instead of supporting unlimited expansion of dispersed rural homesteads, the SDF should guide growth into consolidated clusters where service provision is more cost-effective.
- **Strengthening Service Nodes:** Towns and larger villages must be reinforced as multi-sectoral service hubs, concentrating economic, social, and infrastructure functions to reduce pressure on scattered settlements.
- **Managing Informality:** Clear land use management and upgrading strategies are required to integrate informal settlements into the formal spatial fabric without compromising service delivery.

7.12.3.2. INFRASTRUCTURE PROVISION AND SERVICE DELIVERY

Service delivery backlogs are a defining challenge. Their spatial implications are twofold: they limit the areas where new development can be supported and constrain economic diversification. For the SDF, this requires:

- **Integrating Land Use and Infrastructure Planning:** The SDF must ensure that settlement growth occurs only in areas with feasible infrastructure investment.
- **Bulk Infrastructure Corridors:** Identify and protect corridors for bulk water, electricity, and transport infrastructure, ensuring alignment with the Harry Gwala District bulk schemes.
- **Phased Service Delivery Strategy:** The SDF should support a phased rollout of services, starting with upgrading existing nodes before extending infrastructure to new settlements.
- **Alternative and Renewable Energy:** Given Eskom's limitations, the SDF should encourage localised renewable energy solutions, particularly solar and mini-grids, in off-grid rural settlements.

7.12.3.3. LAND USE MANAGEMENT AND DEVELOPMENT CONTROL

Settlement growth and land allocation in NDZ often occur outside formal planning mechanisms, creating inefficiencies and environmental risks. The SDF must provide:

- **Spatially Targeted Land Use Zones:** Designating land for housing, agriculture, tourism, conservation, and mixed-use development to prevent uncontrolled sprawl.
- **Strengthening Land Use Management Systems:** Building municipal capacity to enforce zoning regulations and align land allocation with infrastructure plans.
- **Agricultural Land Protection:** Safeguarding high-potential agricultural land from inappropriate development, ensuring food security and livelihood support.
- **Integrated Human Settlements:** Promoting mixed-use, integrated settlement planning rather than fragmented, single-function housing developments.

7.12.3.4. ENVIRONMENTAL SUSTAINABILITY AND CLIMATE RESILIENCE

The reviewed document highlights NDZ's vulnerability to environmental degradation and climate risks. For the SDF, this has critical implications:

- **Climate-Resilient Planning:** Incorporating flood risk zones, drought-prone areas, and soil erosion hotspots into land use plans.
- **Ecological Corridors and Buffers:** Protecting river systems, wetlands, and biodiversity hotspots through designated ecological buffers.
- **Sustainable Resource Use:** Embedding guidelines for sustainable water use, waste management, and energy efficiency within the SDF.
- **Disaster Risk Reduction:** Aligning the SDF with the municipality's Disaster Management Framework to reduce exposure to climate hazards.

7.12.3.5. SPATIAL EQUITY AND SOCIAL INCLUSION

NDZ's spatial development patterns reflect historical inequalities, with rural households in peripheral areas facing **poor access to services, economic opportunities, and social infrastructure**. The SDF has a key role in redressing these imbalances by:

- **Promoting Spatial Justice:** Prioritising investments in marginalised settlements that have historically been underserved.
- **Reducing Travel Distances:** Locating services, schools, clinics, and economic opportunities closer to rural communities.
- **Inclusive Economic Planning:** Ensuring that women, youth, and small-scale farmers benefit from spatially targeted economic interventions.
- **Housing and Tenure Security:** Supporting formalisation, upgrading, and provision of secure tenure for households in informal and traditional settlements.

7.12.3.6. CROSS-CUTTING IMPLICATIONS

The above themes point to three cross-cutting implications for NDZ's SDF:

- **Integration:** Settlement growth, land use, and infrastructure must be planned together rather than in silos.
- **Prioritisation:** Limited resources require hard choices; the SDF must guide investment to where it will have the greatest spatial and socio-economic impact.
- **Resilience:** Climate change, fiscal constraints, and population pressures mean the SDF must prioritise sustainability, adaptability, and risk management.

7.12.4. STRATEGIC OPPORTUNITIES FOR NDZ

Despite the significant service delivery and infrastructure challenges identified, the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) holds a number of strategic opportunities that, if effectively harnessed, can unlock inclusive development and strengthen spatial resilience. The SDF is the platform through which these opportunities can be formalised, prioritised, and spatially directed.

7.12.4.1. STRENGTHENING AND CONSOLIDATING SERVICE NODES

The most immediate opportunity for NDZ lies in reinforcing the settlement hierarchy by strengthening strategic nodes.

- **Primary Nodes:** Towns such as Underberg, Bulwer, Creighton, and Donnybrook should be developed as multi-sectoral hubs with improved bulk services, housing, healthcare, and education facilities.
- **Secondary Nodes:** Key villages should be supported with targeted investments to serve as service anchors for surrounding rural settlements.
- **Nodal Consolidation:** Rather than extending services across dispersed homesteads, consolidating settlements into these nodes will enhance efficiency and sustainability.

7.12.4.2. LOCALISED ECONOMIC DEVELOPMENT

NDZ's economy is dominated by agriculture and tourism. Both present opportunities for spatially targeted economic diversification and local enterprise support.

- **Agriculture and Agro-Processing:** Protecting high-potential agricultural land, improving irrigation, and supporting agro-processing hubs (e.g., dairy, vegetables, timber) can create local jobs and value chains.
- **Tourism and Eco-Cultural Assets:** The natural beauty of the southern Drakensberg, heritage sites, and cultural landscapes present opportunities for expanding eco-tourism, linked to nodal development and improved accessibility.
- **Small Enterprise Development:** Encouraging small businesses and informal traders within service nodes can stimulate local economies while reducing dependence on distant centres.

7.12.4.3. INFRASTRUCTURE INVESTMENT AND INNOVATION

Infrastructure is both a challenge and an opportunity. If investments are strategically prioritised, they can have a transformative spatial impact.

- **Water and Sanitation Upgrades:** Prioritising bulk water schemes and improved sanitation systems in primary and secondary nodes.
- **Renewable Energy Solutions:** Promoting decentralised solar, wind, and biomass projects to supplement Eskom supply, especially in off-grid rural areas.
- **Transport Corridors:** Strengthening district-level road networks to improve access between NDZ nodes and regional markets (Ixopo, Kokstad, Pietermaritzburg).
- **ICT and Digital Access:** Expanding digital infrastructure, particularly in nodes, can reduce isolation and enable education and business opportunities.

7.12.4.4. ENVIRONMENTAL SUSTAINABILITY AND CLIMATE RESILIENCE

NDZ's environmental endowment can be transformed into an opportunity if managed sustainably.

- **Catchment Management:** Protecting and rehabilitating river catchments to secure water supply for both NDZ and downstream users.

- **Eco-Reserves and Conservation Corridors:** Expanding conservation areas while promoting eco-tourism opportunities around them.
- **Climate-Smart Agriculture:** Encouraging farming methods that reduce erosion, improve soil health, and adapt to climate variability.
- **Green Infrastructure:** Integrating wetlands, stormwater systems, and ecological buffers into settlement planning.

7.12.4.5. ADVANCING SPATIAL JUSTICE AND INCLUSION

The opportunity exists for the SDF to reframe development patterns to be more equitable and inclusive.

- **Targeting Underserved Settlements:** Directing investments in housing, clinics, and schools to historically marginalised areas.
- **Integrated Human Settlements:** Promoting mixed-income, mixed-use development within nodes to break down spatial segregation.
- **Youth and Women Empowerment:** Locating skills centres, agricultural support schemes, and enterprise hubs in accessible areas to promote inclusion.

This approach ensures that the SDF is not only a spatial plan but also a vehicle for social transformation.

7.12.4.6. SYNTHESIS OF STRATEGIC OPPORTUNITIES

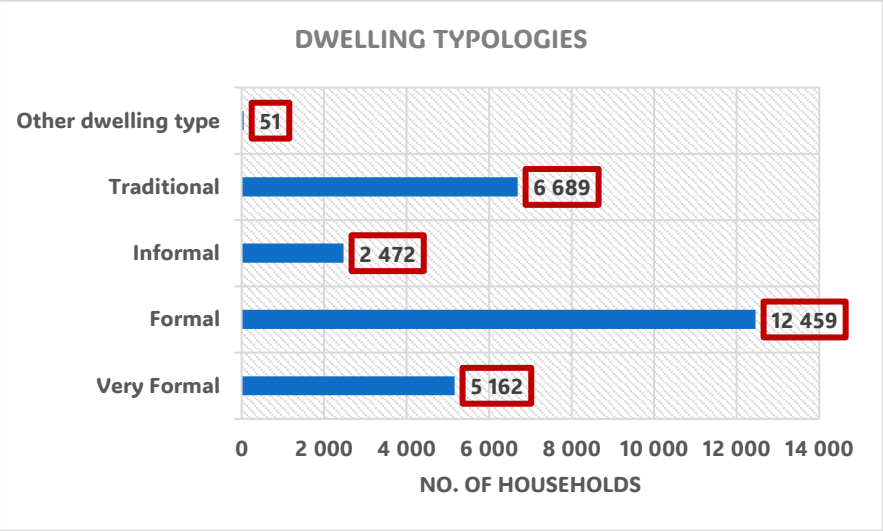
When synthesised, these opportunities create a coherent development pathway:

- Concentrating settlement growth in nodes.
- Leveraging agriculture and tourism as spatially anchored economic drivers.
- Using infrastructure investment as a catalyst for consolidation.
- Protecting the environment as a foundation for resilience and sustainable livelihoods.
- Embedding equity and inclusion into spatial targeting.

TABLE 40: : HOUSING PROJECTS IN THE MUNICIPALITY

PROJECT NAME	WARD	NUMBER OF UNITS	HOUSING PROGRAMME	STATUS
Creighton Housing Project	Ward 5	500	RDP / BNG	Planning Stage
Donnybrook Housing Project	Ward 7	400	RDP / BNG	Implementation Ongoing
Bulwer Housing Project	Ward 10	700	RDP / BNG	Planning Stage
Underberg Housing Project	Ward 2	600	RDP / BNG	Implementation Ongoing
Nokweja Rural Housing Project	Ward 8	300	Rural Housing	Planning Stage
Ntwasahlobo Housing Project	Ward 9	450	RDP / BNG	Planning Stage
Nhlazuka Rural Housing Project	Ward 6	350	Rural Housing	Planning Stage

7.12.5. DWELLING TYPOLOGIES



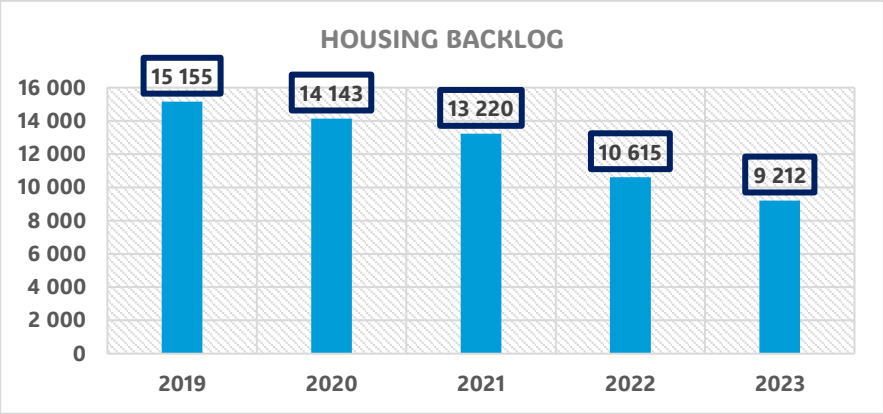
GRAPH 33: DWELLING TYPOLOGIES

Source: IHS Markit, 2024

The above graph illustrates the distribution of households across various dwelling types. The data shows that "Formal" dwellings have the highest number of households at 12,459, followed by "Traditional" dwellings with 6,689 households. "Very Formal" dwellings account for 5,162 households, while "Informal" dwellings have 2,472 households. The category "Other dwelling type" has the fewest households, totalling 51. This distribution highlights a significant preference for formal housing, with traditional and very formal types also being prominent, while informal and other types are less common.

7.12.6. HOUSING BACKLOG

Identifying the housing backlog is crucial when developing a Spatial Development Framework because it provides a clear understanding of the current housing deficit and future needs. This analysis helps municipalities prioritize and allocate resources effectively to address the shortfall, ensuring that housing developments are planned to meet the demand across different socioeconomic categories. The housing backlog includes all households that do not occupy formal dwellings.



GRAPH 34: HOUSING BACKLOG

Source: IHS Markit, 2024

The above graph illustrates the number of households experiencing a housing shortage from 2019 to 2023. The data shows a consistent decrease in the housing backlog over these years, with the backlog reducing from 15,155 in 2019 to 9,212 in 2023. This downward trend indicates the municipality's efforts to address housing shortages have been progressively successful. For spatial planning, this trend suggests a reduced immediate pressure to develop new housing units at an accelerated pace compared to previous years.

However, it remains crucial to continue monitoring housing needs and strategically planning to sustain this positive trend and prevent significant backlogs from re-emerging. This involves ensuring that future housing developments are well-integrated, sustainable, and capable of meeting the evolving demands of the population.

7.12.7. CURRENT AND FUTURE DEMAND FOR HOUSING SUBSIDIES

In South Africa, housing subsidies are designed to assist low-income families in securing affordable housing. The primary subsidy program is the Reconstruction and Development Programme (RDP), which provides financial support to eligible individuals to help cover housing expenses. To qualify for a housing subsidy, applicants must be South African citizens or permanent residents, be at least 18 years old, earn less than R3,500 per month, and have never owned a house or received a housing subsidy before.

The Housing Subsidy System (HSS) is a centralized platform that streamlines the application and management of housing subsidies. Applicants can register online, submit necessary documents, and track their application status through the HSS portal. Additionally, there are specific subsidies like the R2,000 monthly housing relief for first-time homebuyers earning below R22,000 per month, which helps reduce bond repayments or cover essential housing-related costs.

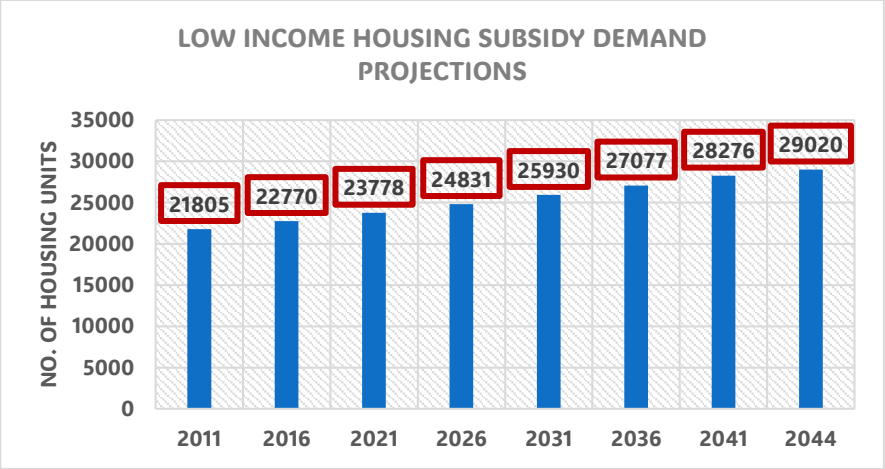
These subsidies play a crucial role in addressing the housing backlog and ensuring that low-income families have access to safe and affordable housing, thereby supporting the broader goals of spatial planning and social equity in South Africa.

TABLE 41: HOUSING MARKET ANALYSIS

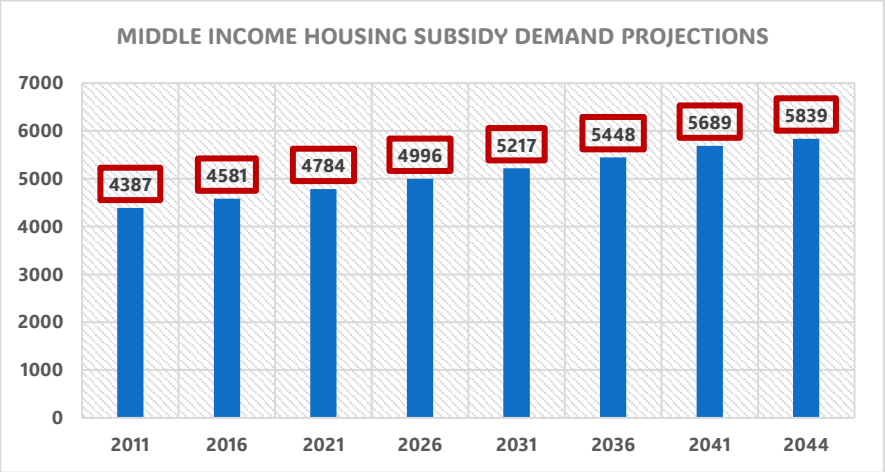
HOUSING MARKET	NO. OF HOUSEHOLDS
Low Income Housing Market	21805
Middle Income, Social Housing, FLISP Housing	4387

Source, Census 2011

The current market analysis shows that the majority of households in the municipality are identified as low income housing. There is however, a cohort of households that qualify for middle income housing. This is in the form of FLISP and social housing. Below is an illustration of the project demand for housing in the municipality, and the implications on land allocation for the purpose of housing.



GRAPH 35: LOW INCOME HOUSING SUBSIDY DEMAND PROJECTIONS



GRAPH 36: MIDDLE INCOME HOUSING SUBSIDY DEMAND PROJECTIONS

The data reveals a steady increase in the demand for low-income housing subsidies over the years. Starting at 21,805 units in 2011, the demand rises to 22,770 units in 2016, 23,778 units in 2021, and continues to grow, reaching 29,020 units by 2044.

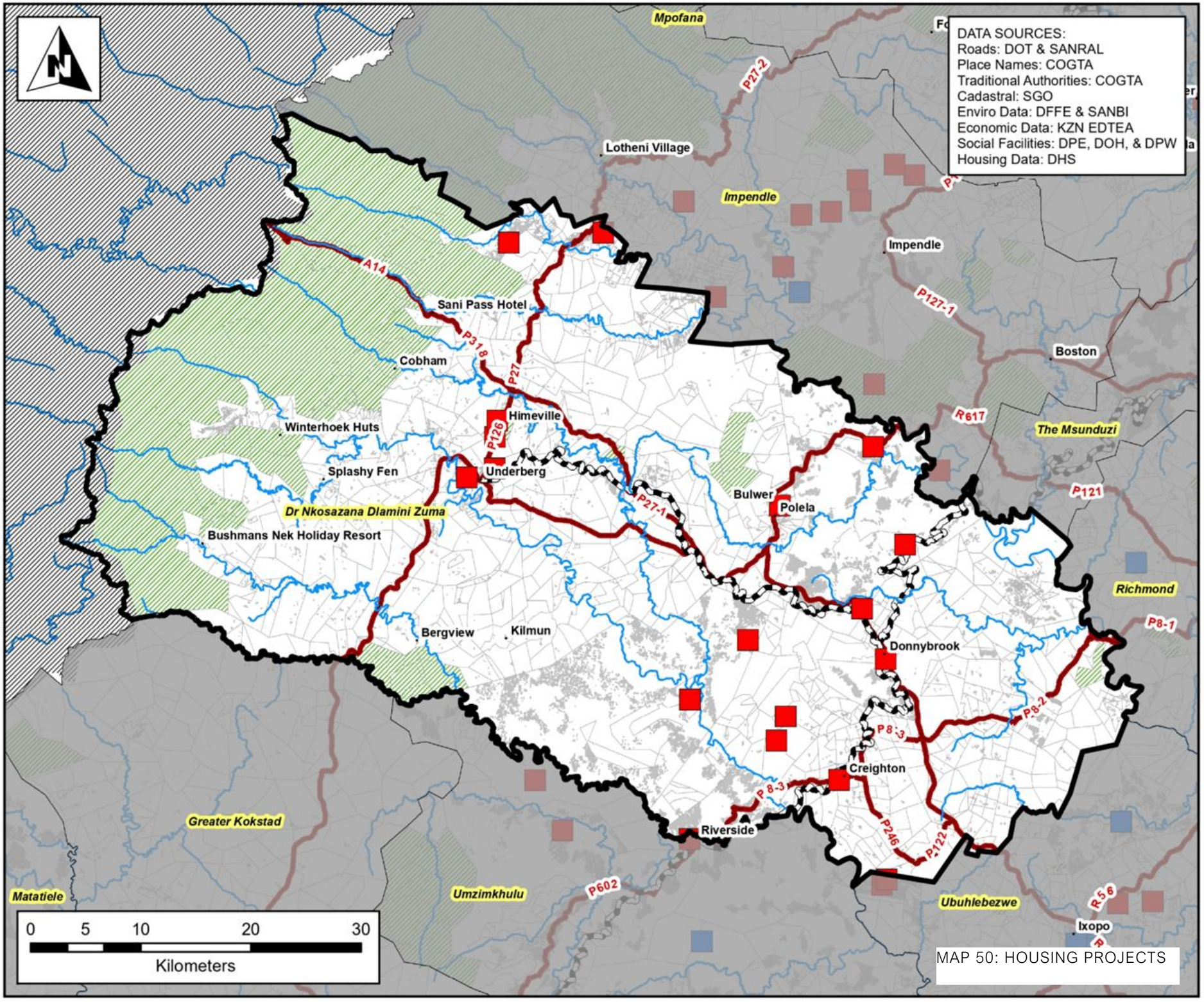
This upward trend indicates a persistent and increasing need for low-income housing support, highlighting the importance of long-term planning and resource allocation in spatial planning to address the growing demand. Ensuring adequate provision for low-income housing subsidies will be crucial for promoting social equity and accommodating the housing needs of vulnerable populations in the future.

Furthermore, the data reveals a consistent increase in demand over the years for middle income housing. Starting at 4,387 subsidies in 2011, the demand rises to 4,581 in 2014, 4,784 in 2017, and continues to grow, reaching approximately 5,996 in 2020, 5,217 in 2023, 5,448 in 2036, 5,689 in 2041, and 5,839 in 2044.

This upward trend indicates a growing need for housing support among middle-income households, highlighting the importance of planning and allocating resources to meet this increasing demand. For spatial planning, this data underscores the necessity of developing strategies to accommodate the rising demand for middle-income housing subsidies, ensuring that adequate and affordable housing options are available for this segment of the population.

TABLE 42: LAND REQUIREMENTS TO MEET FUTURE SUBSIDISED HOUSING DEMAND

HOUSING MARKET	NO. OF UNITS	LAND REQUIREMENTS	ASSUMPTIONS
Low Income Subsidies	29020	726ha	250m² erf size
Middle Income Subsidies	5839	350ha	600m² erf size



MAP 50: HOUSING PROJECTS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Housing Projects

Legend

- Construction
- Feasibility
- Planning
- NFEPA River
- Railway
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

7.13. BUILT ENVIRONMENT SWOT ANALYSIS

TABLE 43: BUILT ENVIRONMENT SWOT ANALYSIS

STRENGTHS	WEAKNESSES
➢ Strategic Location and Connectivity • Proximity to the Ukhahlamba Drakensberg World Heritage Site enhances tourism potential. • Well-connected via major provincial roads (R617, R612), linking to Pietermaritzburg, Durban, and Eastern Cape. ➢ Diverse Settlement Hierarchy • Presence of niche towns (Underberg, Bulwer, Himeville, Creighton, Donnybrook) and high-density rural settlements supports localized service delivery and economic activity. ➢ Natural and Agricultural Resources • Rich agricultural land in the northwestern region supports commercial farming. • Multiple conservation sites and biodiversity corridors offer ecological and tourism value. ➢ Improving Infrastructure • Steady increase in access to piped water (from 49.2% in 2019 to 66.6% in 2023). • Sanitation access improved to 84% by 2023. • Electricity connections reached 96.9% in 2023. ➢ Public Facilities Expansion • 66 community halls and 28 sports fields developed across all wards. • 283 educational facilities, including 170 ECD centres. • Waste management services expanded to 36.7% of households. ➢ Housing Delivery Progress • Housing backlog reduced from 15,155 in 2019 to 9,212 in 2023. • Active housing projects planned across short, medium, and long terms.	➢ Infrastructure Gaps in Rural Areas • Poor condition of district and local gravel roads, especially during rainy seasons. • Limited access to formal refuse removal and sanitation in rural settlements. • Telecommunications infrastructure is fragmented and poorly coordinated. ➢ Land Ownership Complexity • 47% privately owned land, with significant portions under Ingonyama Trust and forestry companies, complicating land reform and development. • Land reform projects are slow-moving and contested. ➢ Limited Urban Densification • Lack of cluster housing and modern residential options in urban centres. • Ribbon development patterns may strain infrastructure and increase congestion. ➢ Service Delivery Challenges • Cross-border service delivery issues with neighbouring municipalities (Impendle, Ubuhlebezwe, Msunduzi, Greater Kokstad, Richmond, UMzimkhulu). • Some settlements lack access to schools and police services within recommended distances.
OPPORTUNITIES	**THREATS**
➢ Tourism Development • Leverage scenic landscapes and heritage sites (e.g., Centocow Mission, Bushman's Nek) for eco-tourism and cultural tourism.	➢ Environmental Degradation • Unprotected wetlands, mist belt grasslands, and biodiversity hotspots are vulnerable to development pressures. • Climate change impacts on water resources and agriculture. ➢ Urban-Rural Inequality

• Strengthen tourism corridors along the Mkomazi River and Drakensberg foothills. ➢ Agricultural Expansion and Reform • Utilize land reform programs (LRAD, ESTA) to support emerging farmers. • Promote agri-tourism and mixed-use agricultural development. ➢ Sustainable Infrastructure Investment • Upgrade aging water and sanitation infrastructure. • Expand solar-based non-grid electrification in remote areas. • Improve waste management systems and recycling initiatives. ➢ Integrated Spatial Planning • Harmonize environmental corridors with neighbouring municipalities. • Develop formal cemetery plans and integrate peri-urban nodes into service delivery networks. ➢ Digital Inclusion • Expand broadband access beyond government institutions to support education, business, and e-governance.	• Persistent disparities in service access between urban centres and rural settlements. • Risk of informal settlement growth due to inadequate housing provision. ➢ Land Reform Disputes • Delays and conflicts in land claims may hinder development and investment. • Limited support for emerging agriculture in traditional areas. ➢ Infrastructure Overload • Waste disposal sites reaching capacity (e.g., Bulwer dump site). • Aging infrastructure (some water systems over 30 years old) may fail without urgent investment. ➢ Population Growth Pressure • Rising demand for low- and middle-income housing (projected 29,020 and 5,839 units respectively by 2044) requires significant land and resources.

7.14. SUMMARY OF KEY INFRASTRUCTURE CHALLENGES AND OPPORTUNITIES

7.14.1. CHALLENGES

- Water supply intermittency and non-revenue water; rural standpipe reliance; ageing small-town WTW/WTW units.
- Sanitation backlogs in dispersed settlements; limited wastewater treatment capacity in growth nodes.
- Roads: gravel/rural access degradation, storm damage vulnerability, unsafe interfaces in town centres.
- Waste: gaps in separation at source, weak recycling ecosystems; illegal dumping hotspots.
- Patchy last-mile digital connectivity in rural clusters.

7.14.2. OPPORTUNITIES

- District water services role (HGDM) for coordinated bulk upgrades, pressure management, and NRW reduction.
- Climate finance for water loss control, leak detection, ecological infrastructure for water security.
- Solar LED streetlighting, rooftop PV on municipal buildings, and energy-efficient public facilities to cut OPEX.
- Community-scale materials recovery and recycling (co-ops), with IWMP-aligned by-law enforcement and education.
- Fibre spines along provincial corridors with community Wi-Fi off-takes at nodes.

7.14.3. LOW-HANGING FRUIT (1–5 YRS)

- Top-20 water loss zones: pressure management valves, active leak repairs, meter audits, and visible repairs dashboard.
- Rural access “last kilometre” program: blading, drainage clearing, culvert protection before rainy season; school/clinic access first.
- Illegal dumping response kits: fenced mini-dropsites, routine clear-ups, hotspot cameras, and ward-based awareness days.
- Solar/LED retrofits in libraries, halls, depots; basic rooftop PV pilots on municipal roofs (administration, workshops).
- Public Wi-Fi nodes at taxi ranks and libraries; permitting wayleaves to ISPs with standard servitude templates.

7.14.4. MEDIUM/LONG-TERM (5–20 YRS)

- Bulk water and sanitation capacity expansions in growth nodes (Underberg-Himeville first), with ring-fenced O&M and asset care.
- Town wastewater upgrades with modular package plants and sludge handling; on-site sanitation improvement program (VIP upgrades).
- Paved “complete streets” in town cores (NMT, traffic calming, stormwater BMPs); context-appropriate rural road surfacing pilots (OTB/low-volume seals).
- Regional MRF and transfer station network with buy-back centres; municipal-producer partnerships for packaging take-back.
- Open-access fibre along corridors; municipal ducting policy for new roads.

8. BIOPHYSICAL ANALYSIS

The environment forms the foundation upon which human settlement, infrastructure, and economic activities within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) are established. An understanding of the municipality's environmental assets and constraints is therefore essential for developing a Spatial Development Framework (SDF) that is both sustainable and responsive to local realities. The environmental section of the SDF is not a stand-alone component, but rather a cross-cutting driver that influences settlement location, land use allocation, agricultural productivity, tourism opportunities, and resilience to climate-related risks.

This section sets out an environmental analysis of NDZ Municipality at a municipal-wide scale, providing a systematic overview of the natural systems that underpin spatial development. The analysis draws on key sources such as the NDZ Integrated Development Plan (IDP), the Harry Gwala District Municipality Integrated Development Plan and SDF, the KwaZulu-Natal Biodiversity Sector Plan (Ezemvelo KZN Wildlife), and policy guidance from the Department of Economic Development, Tourism and Environmental Affairs (EDTEA). National legislation and frameworks, including the Spatial Planning and Land Use Management Act (SPLUMA, Act 16 of 2013), the National Environmental Management Act (NEMA, Act 107 of 1998), and the National Environmental Management: Protected Areas Act (NEM:PA, Act 57 of 2003), provide the overarching legislative framework within which this environmental assessment is undertaken. The purpose of this environmental section is threefold:

1. To provide an evidence-based overview of the municipality's critical biodiversity assets, protected areas, hydrological systems, geological features, vegetation biomes, and conservation status of vegetation types.
2. To identify the key challenges facing the municipality in managing and protecting these environmental resources.
3. To highlight the spatial implications and strategic opportunities that must inform land use management, settlement growth, and long-term municipal development planning.

The municipality is characterised by diverse topography, ranging from mountainous terrain to rolling grasslands and river valleys, resulting in high levels of biodiversity and varied land capability. However, this environmental richness is under increasing pressure from human activity, including settlement expansion, agricultural practices, deforestation, and climate variability. These pressures have direct implications for spatial planning: where and how settlements expand, how infrastructure is routed, and how agricultural land is managed. For example, settlements encroaching into wetlands and floodplains not only threaten ecological systems but also increase vulnerability to flooding, creating costly long-term risks for both communities and the municipality.

At the same time, the municipality's environmental assets present significant strategic opportunities. Protected areas and biodiversity corridors can serve as the backbone of eco-tourism and conservation-linked livelihoods. Rivers and wetlands provide the basis for sustainable agriculture and water security, while intact natural systems enhance resilience to climate shocks. The SDF must therefore strike a careful balance between conservation and development, ensuring that environmental sustainability underpins the spatial growth path of NDZ.

The following sections are structured thematically around the municipality's key environmental components: Critical Biodiversity Areas, Protected Areas, Hydrological Characteristics, Geological Features, Vegetation Biomes, and Vegetation Conservation Status. For each theme, a narrative overview is

provided, supported by embedded tables outlining land use management guidelines, challenges, spatial implications, and strategic opportunities. These are followed by policy directions that translate environmental evidence into spatial planning guidance.

By integrating environmental evidence into the SDF, the municipality can make informed decisions on land allocation, infrastructure investment, and settlement management. This will ensure that growth occurs in a manner that is both socially inclusive and environmentally sustainable, while also aligning with provincial and national development frameworks.



8.1. CRITICAL BIODIVERSITY AREAS (CBAS)

Critical Biodiversity Areas (CBAs) are designated zones identified through systematic biodiversity planning as essential for conserving ecosystems, habitats, and ecological processes. Within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ), CBAs represent a significant portion of the land surface, reflecting the municipality's high biodiversity value within the KwaZulu-Natal Province. According to the KwaZulu-Natal Biodiversity Sector Plan (Ezemvelo KZN Wildlife, 2016), CBAs include both irreplaceable areas (where no alternative sites exist for meeting conservation targets) and optimal areas (where conservation objectives can be achieved in multiple locations).

In NDZ, CBAs are largely associated with the municipality's mountain ranges, riparian corridors, grassland ecosystems, and wetland complexes. These areas provide critical ecosystem services such as water filtration, carbon storage, soil protection, and biodiversity habitats. They also serve as important buffers that maintain ecological connectivity between larger protected areas.

8.1.1. PLANNING AND POLICY CONTEXT

National and provincial policy frameworks mandate the protection and proper management of CBAs. The National Environmental Management Act (NEMA) requires that land use planning avoid degradation of sensitive ecosystems, while the National Biodiversity Strategy and Action Plan (NBSAP) emphasises the need to secure ecological networks at local government scale. In KwaZulu-Natal, the Biodiversity Sector Plan (BSP) provides explicit land use management guidelines for CBAs, which municipalities must integrate into their SDFs and Land Use Schemes.

For NDZ, the recognition of CBAs within the SDF is critical in ensuring that land use decisions support long-term environmental sustainability. The Harry Gwala District SDF further highlights that unmanaged settlement growth into CBAs threatens both ecosystem integrity and municipal service delivery efficiency.

8.1.2. CHALLENGES AND PRESSURES

Despite their ecological significance, CBAs within NDZ face increasing pressure from multiple fronts:

- Settlement expansion and informal housing, often occurring without environmental authorisation, leading to habitat loss.
- Agricultural encroachment, particularly subsistence farming and overgrazing, which degrades grasslands and wetlands.
- Illegal resource extraction, including fuelwood collection and poaching, undermining ecological integrity.
- Inadequate municipal capacity to enforce environmental regulations and manage biodiversity-sensitive areas.

These pressures not only erode biodiversity but also undermine the long-term resilience of the municipality's economy and communities.



8.1.3. SPATIAL PLANNING IMPLICATIONS & LAND USE POLICY DIRECTIONS

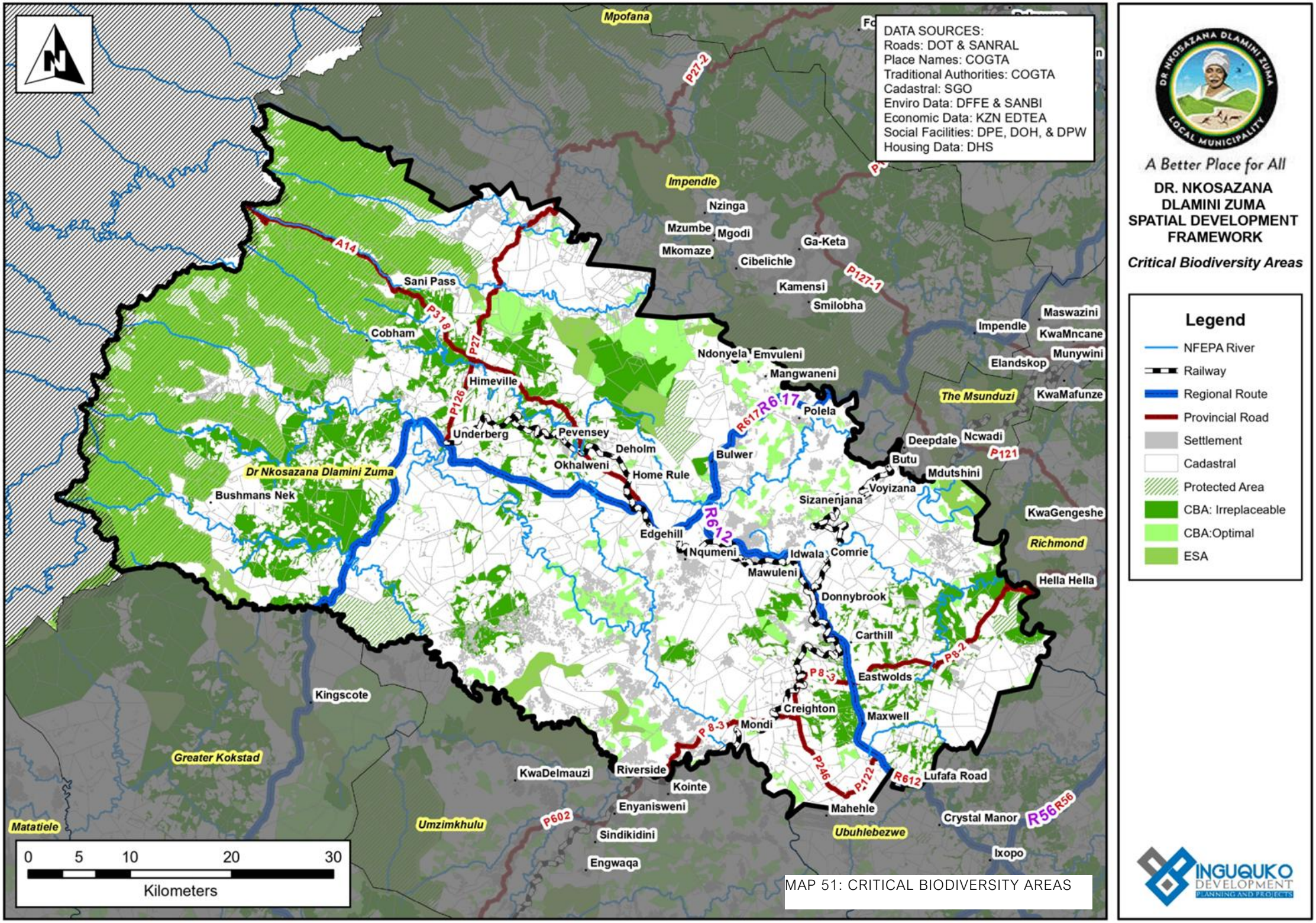
The integration of CBAs into the SDF carries several spatial implications. Settlement expansion must be strategically guided away from CBAs to prevent ecosystem degradation and disaster risks (e.g., flooding, erosion). Land use schemes must recognise CBAs as areas where development is either prohibited or subject to stringent environmental controls. Furthermore, opportunities exist to leverage CBAs for eco-tourism, environmental education, and green infrastructure solutions.

Policy directions should include:

- Establishing no-go development zones in irreplaceable CBAs.
- Applying buffer zones around CBAs to limit incompatible land uses.
- Promoting conservation-compatible economic activities, such as eco-tourism, small-scale game farming, and sustainable harvesting.
- Embedding CBAs within municipal climate change adaptation strategies to reduce vulnerability to environmental shocks.

TABLE 44: CRITICAL BIODIVERSITY AREAS – LAND USE MANAGEMENT GUIDELINES, CHALLENGES, IMPLICATIONS, AND OPPORTUNITIES

LAND USE MANAGEMENT GUIDELINES	CHALLENGES	IMPLICATIONS FOR SPATIAL PLANNING	STRATEGIC OPPORTUNITIES	RELEVANT NEMA EIA LISTING NOTICES
Enforce no-development policy in irreplaceable CBAs.	Informal settlement growth into sensitive areas.	Strengthen alignment between land use scheme and biodiversity maps.	Formal recognition of CBAs in zoning scheme.	**Listing Notice 3 (GN R.985):** Any development in CBAs or ESA (Activity 12, 18) requires Basic Assessment.
Apply 30–50m buffer zones along CBAs and watercourses.	Subsistence agriculture, wetland degradation.	Agriculture excluded from CBAs and buffers.	Conservation agriculture, sustainable grazing.	**Listing Notice 1 (GN R.983):** Clearance of >1 ha indigenous vegetation (Activity 27).
Require EIAs for development near CBAs.	Weak enforcement capacity.	Collaboration between NDZ, EDTEA, Ezemvelo.	Partnerships with NGOs, co-management.	**Listing Notice 3:** CBAs trigger EA even for small-scale activities (Activity 12).
Promote eco-tourism and sustainable harvesting.	Illegal logging, fuelwood collection.	Additional enforcement burden.	Eco-tourism as alternative livelihoods.	**Listing Notice 2 (GN R.984):** Large-scale tourism infrastructure requires full Scoping & EIA.
Integrate CBAs into disaster risk planning.	Encroachment increases flood/erosion risk.	Long-term service delivery costs.	Ecosystem-based adaptation (wetland restoration).	**Listing Notice 3:** Activities in wetlands/floodplains (Activity 14).



MAP 51: CRITICAL BIODIVERSITY AREAS

8.2. PROTECTED AREAS

Protected Areas are formally declared land parcels that are legally safeguarded under the National Environmental Management: Protected Areas Act (NEM:PA, Act 57 of 2003). Their purpose is to conserve biodiversity, safeguard ecosystem services, and support cultural and heritage values. In the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ), protected areas form an important part of the municipal environmental asset base and contribute significantly to conservation, eco-tourism, and climate resilience.

Key protected areas within and adjacent to NDZ include:

- Maloti-Drakensberg Park World Heritage Site, a UNESCO site recognised for its outstanding universal value in biodiversity and cultural heritage.
- Provincial nature reserves, managed primarily by Ezemvelo KZN Wildlife, which preserve key grassland and montane ecosystems.
- Community and privately managed conservation areas, which, while smaller in scale, play a vital role in ecological connectivity.

Collectively, these areas protect critical ecosystems, water catchments, and landscapes of exceptional scenic value, while also providing livelihood opportunities through eco-tourism and nature-based enterprises.

8.2.1. POLICY AND PLANNING CONTEXT

The management of Protected Areas is mandated by NEM:PA and supported by provincial strategies such as the KwaZulu-Natal Protected Area Expansion Strategy. Municipalities are required to incorporate these areas into their SDFs, recognising them as non-negotiable conservation zones.

The Harry Gwala District SDF emphasises the importance of integrating Protected Areas into regional tourism and biodiversity corridors, while the KZN Biodiversity Sector Plan provides guidelines for land use management in and around these areas. At the municipal level, acknowledging Protected Areas ensures that land allocation avoids incompatible development and that opportunities for eco-tourism are maximised.

8.2.2. CHALLENGES FACING PROTECTED AREAS

Despite their legal status, Protected Areas in NDZ face ongoing challenges that undermine their conservation and development potential:

- **Resource constraints**: Limited budgets and staff shortages in Ezemvelo KZN Wildlife hinder effective management.
- **Illegal resource use**: Poaching, firewood harvesting, and grazing within reserve boundaries degrade ecosystems.
- **Settlement pressures**: Adjacent communities often face limited livelihood options, resulting in human-wildlife conflict and encroachment.
- **Climate change**: Increasing temperatures, altered rainfall patterns, and invasive alien plants threaten ecosystem resilience.
- **Tourism underdevelopment**: Despite strong natural assets, tourism infrastructure and marketing remain underutilised.

8.2.3. SPATIAL PLANNING IMPLICATIONS & LAND USE POLICY DIRECTIONS

Protected Areas have direct implications for spatial planning in NDZ. They function as absolute constraints to settlement expansion and require strict recognition within the municipal Land Use Scheme. They also offer opportunities for regional tourism development, cultural preservation, and green economy diversification.

Policy directions should include:

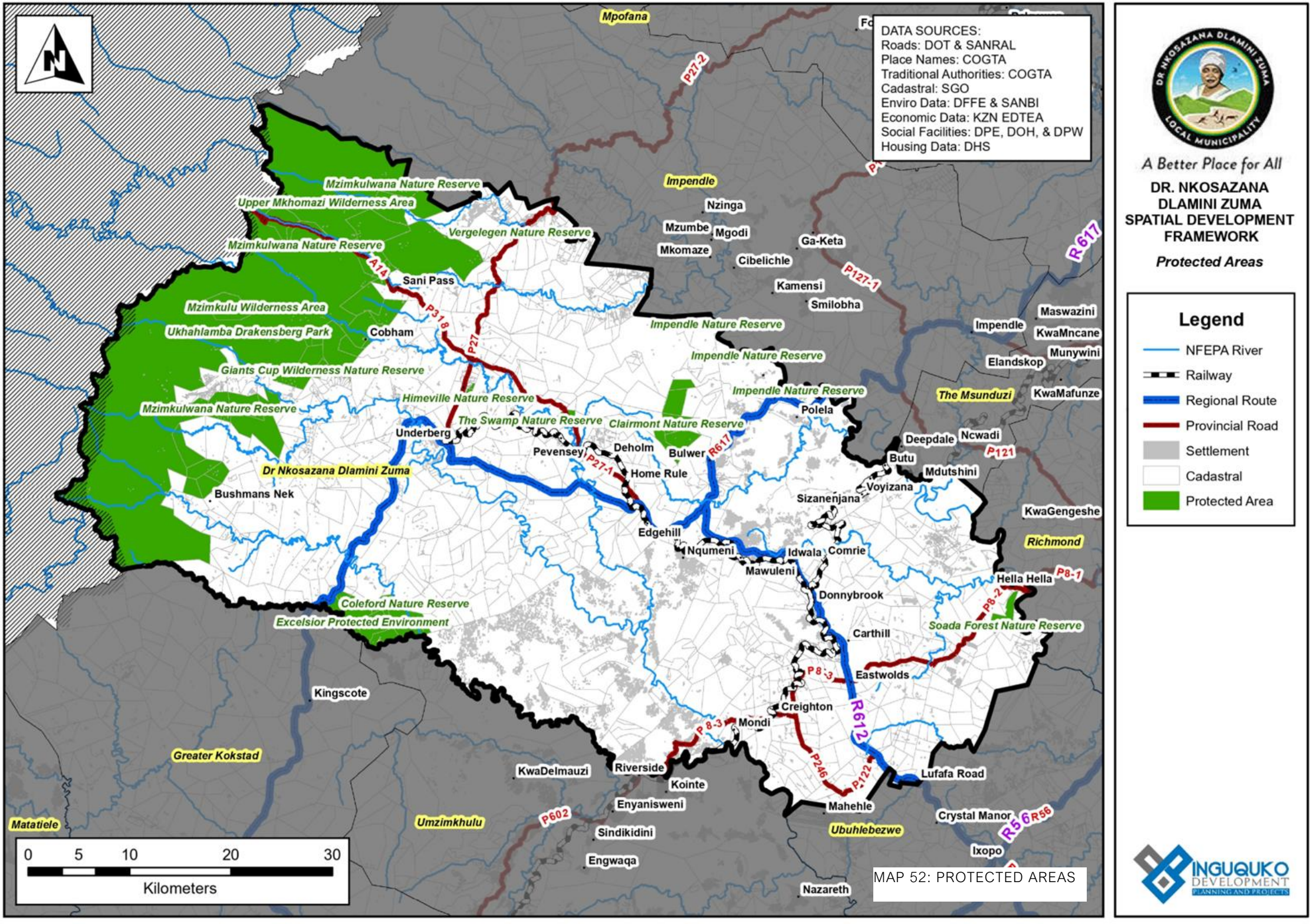
- Explicitly designating Protected Areas as conservation zones in the SDF and land use scheme.
- Creating buffer zones around reserves to limit incompatible activities such as settlements, mining, or intensive agriculture.
- Supporting community-based natural resource management programmes to reduce human-wildlife conflict.
- Developing eco-tourism nodes linked to Protected Areas, integrating them into the municipality's Local Economic Development (LED) strategy.
- Partnering with EDTEA, Ezemvelo, and private operators to strengthen conservation funding and tourism investment.





TABLE 45: PROTECTED AREAS – LAND USE MANAGEMENT GUIDELINES, CHALLENGES, IMPLICATIONS, AND OPPORTUNITIES

LAND USE MANAGEMENT GUIDELINES	CHALLENGES	IMPLICATIONS FOR SPATIAL PLANNING	STRATEGIC OPPORTUNITIES	RELEVANT NEMA EIA LISTING NOTICES
Designate all Protected Areas as no-development zones.	Settlement encroachment, resource extraction.	Strong enforcement of zoning scheme.	Reinforce conservation zones.	**Listing Notice 2 (GN R.984):** Development in protected areas requires full Scoping & EIA (Activity 15).
Establish 1–2 km buffer zones around reserves.	Incompatible land uses along boundaries.	Buffer must be embedded in approvals.	Conservation agriculture in buffers.	**Listing Notice 3 (GN R.985):** Development within 10 km of protected areas triggers EA (Activity 12).
Strengthen co-management with communities.	Human-wildlife conflict, poverty-driven illegal use.	Integrate livelihoods into spatial planning.	Community-based tourism, crafts.	**Listing Notice 3:** Low-impact infrastructure in/near protected areas requires EA.
Integrate reserves into LED/tourism plans.	Underdeveloped tourism.	Align tourism corridors with conservation.	Eco-tourism routes and heritage trails.	**Listing Notice 1:** Tourism facility development >20 ha requires Basic Assessment.
Partner with provincial/private actors.	Municipal resource constraints.	Dependence on partnerships.	Unlock donor/private investment.	**Listing Notice 2:** Large-scale public-private conservation projects may trigger Scoping & EIA.



MAP 52: PROTECTED AREAS

DR. NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

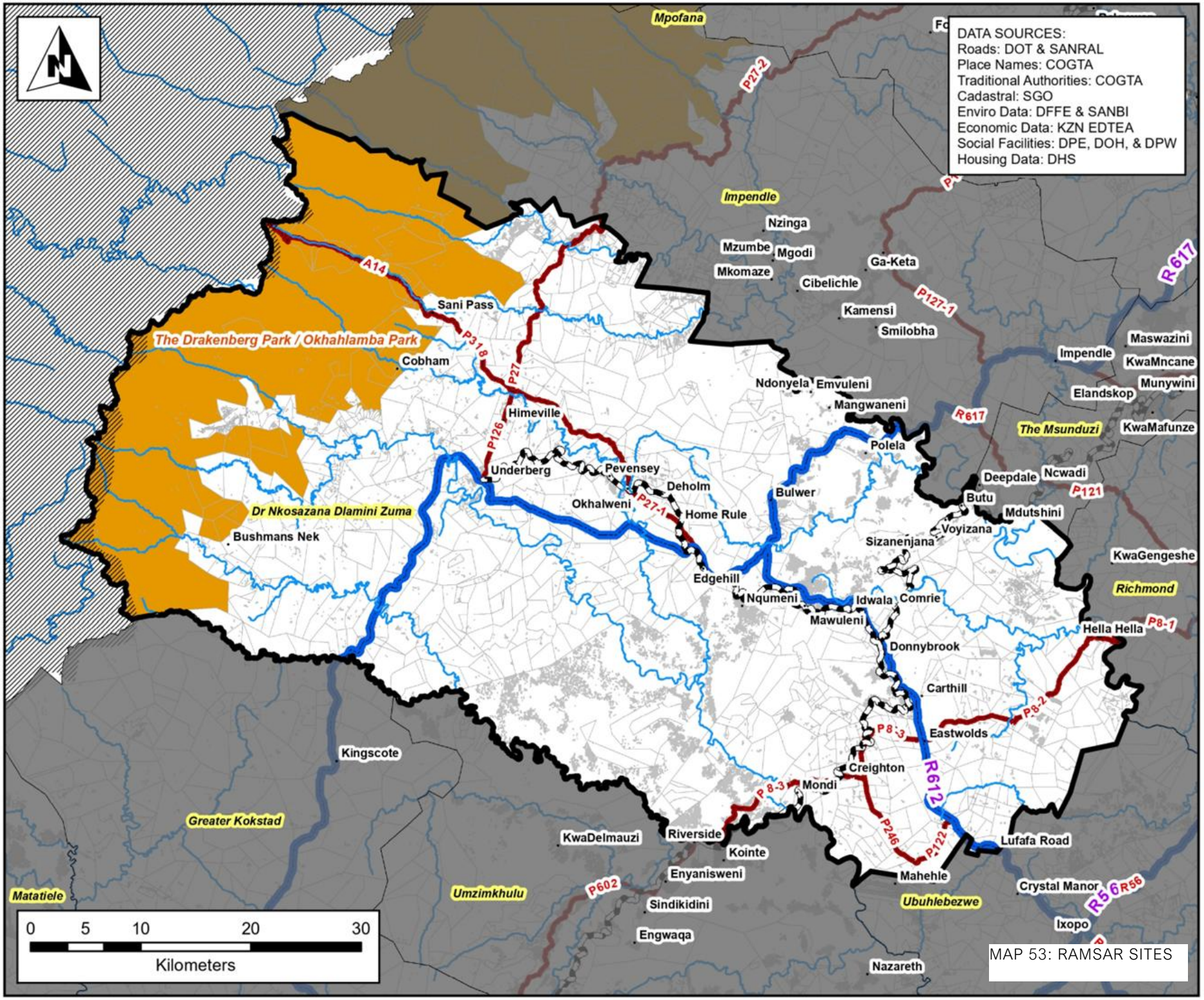
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Protected Areas

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Ramsar Sites

MAP 53: RAMSAR SITES

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

8.3. HYDROLOGICAL ASSETS

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) is strategically located within the uMngeni and uMzimkhulu Water Management Areas (WMAs), which form part of South Africa's national water resource planning framework under the National Water Act (Act 36 of 1998). These WMAs are of critical importance for both local water security and downstream users in KwaZulu-Natal, including major urban and agricultural zones.

The municipality is traversed by several significant rivers, notably the uMzimkhulu River, Loteni River, Polela River, and Umkhomazi tributaries, which serve as vital freshwater ecosystems and water supply sources. Many of these rivers are designated as National Freshwater Ecosystem Priority Areas (NFEPA), reflecting their high ecological importance at a national scale. NFEPA rivers are essential for maintaining ecological integrity, supporting freshwater biodiversity, and ensuring water security for both present and future generations.

In addition to rivers, NDZ contains extensive wetland systems, ranging from high-altitude bogs to floodplain wetlands, which play a pivotal role in flood regulation, groundwater recharge, and water purification. Several dams and farm reservoirs augment water supply for domestic consumption and agricultural irrigation, though their ecological footprint requires careful management.

Flood-prone areas, particularly those within the 1:100-year floodlines, present high disaster risk if inappropriately developed. Given the municipality's steep terrain and intense summer rainfall, floodline management is a critical spatial planning consideration.

8.3.1. PLANNING AND POLICY CONTEXT

Hydrological resources are governed by a combination of national, provincial, and municipal instruments:

- National Water Act (Act 36 of 1998) – provides for sustainable water use, protection of aquatic ecosystems, and integrated water resource management.
- National Water Resource Strategy (NWRS II) – identifies the need for water security, protection of ecological reserves, and improved governance of WMAs.
- NFEPA Guidelines (2011) – mandate that NFEPA rivers and wetlands be managed as no-go areas for development and require municipalities to reflect these areas in their SDFs and land use schemes.
- KwaZulu-Natal Biodiversity Sector Plan (2016) – identifies freshwater priority areas and provides land use guidance for wetlands and riparian zones.
- Harry Gwala District SDF – highlights the importance of protecting floodplains and wetlands to reduce disaster risk and maintain downstream water supply.

For NDZ, the explicit recognition of NFEPA rivers, WMAs, and 100-year floodlines within the SDF is essential for ensuring that settlement growth and infrastructure investments do not undermine long-term water security and ecological resilience.

8.3.2. NFEPA RIVERS

The National Freshwater Ecosystem Priority Areas (NFEPA) programme identifies rivers of high ecological importance at a national scale. Within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ), several rivers have been prioritised as NFEPA rivers due to their role in maintaining freshwater biodiversity, ecological connectivity, and water security for downstream users. These rivers are considered irreplaceable ecological infrastructure and must be managed as non-negotiable assets within the municipal SDF. Key NFEPA rivers in NDZ include:

1. uMzimkhulu River
    - **Ecological significance:** One of KwaZulu-Natal's largest rivers, the uMzimkhulu is a strategic water source that flows eastwards across the municipality into the Indian Ocean. It supports freshwater biodiversity, riparian wetlands, and critical fish species.
    - **Planning relevance:** The river traverses several rural settlements, where encroachment into riparian zones and subsistence agriculture create pressure points. It is also a key source of water for downstream users in the Harry Gwala District.
2. Loteni River
    - **Ecological significance:** Originating in the Drakensberg highlands, this river is an important tributary of the uMngeni catchment. It maintains high water quality due to its pristine upper catchment and supports montane wetlands and grassland habitats.
    - **Planning relevance:** The Loteni catchment provides water to settlements and agricultural users in NDZ and contributes to regional water supply into the uMngeni WMA, which feeds Durban and Pietermaritzburg.
3. Polela River
    - **Ecological significance:** A major tributary of the uMzimkhulu River, the Polela supports extensive wetland complexes and fertile alluvial soils. It is important for smallholder irrigation and livestock farming in NDZ.
    - **Planning relevance:** Agricultural encroachment and erosion along the Polela's banks are significant threats. Spatial planning must safeguard its riparian buffers to sustain agricultural productivity and water quality.
4. Umkhomazi Tributaries (including Loteni and Ndawana streams)
    - **Ecological significance:** These tributaries form part of the Umkhomazi catchment, one of the most important river systems in KwaZulu-Natal, earmarked for water supply schemes such as the **Umkhomazi Water Project**. They support rare high-altitude wetlands and grassland biodiversity.
    - **Planning relevance:** Given their strategic role in provincial water supply, any land use in these sub-catchments must prioritise water resource protection and alien invasive control.
5. Smaller Priority Streams (e.g., Pholela, Nhlathikhulu, and Mpumlwane rivers)
    - **Ecological significance:** While smaller, these rivers and streams provide ecological connectivity between wetlands, dams, and major rivers. They are essential for maintaining catchment health and biodiversity corridors.

- **Planning relevance:** These rivers often intersect with rural settlements and agricultural zones, where poor land management results in siltation and degradation. Local-scale planning must incorporate riparian buffers and community-led river rehabilitation.

8.3.2.1. ECOLOGICAL AND SPATIAL IMPLICATIONS OF NFEPA RIVERS IN NDZ

- **Ecological role:** The NFEPA rivers of NDZ maintain water quality, support endemic species, recharge aquifers, and regulate floods.
- **Spatial planning constraints:** Settlements located within 100-year floodlines of these rivers are at high disaster risk and require proactive resettlement or protective measures.
- **Opportunities:** These rivers provide a natural backbone for eco-tourism corridors, green jobs through alien plant clearing and rehabilitation, and water-sensitive agricultural practices that can sustain livelihoods.

8.3.3. CHALLENGES AND PRESSURES

Hydrological resources in NDZ face multiple, interlinked pressures:

- Settlement encroachment into wetlands, riparian buffers, and floodplains, often by informal housing.
- Degradation of NFEPA rivers, due to overgrazing, soil erosion, and wastewater discharges.
- Invasive alien vegetation (notably wattle, pine, and gum), which reduces streamflow and undermines the ecological functioning of rivers.
- Water pollution, including nutrient loading from agriculture and untreated household wastewater.
- Over-abstraction of water resources for irrigation, threatening ecological flow requirements in NFEPA rivers.
- Climate variability and change, leading to more frequent flood events and prolonged dry spells.

8.3.4. SPATIAL PLANNING IMPLICATIONS & LAND USE POLICY DIRECTIONS

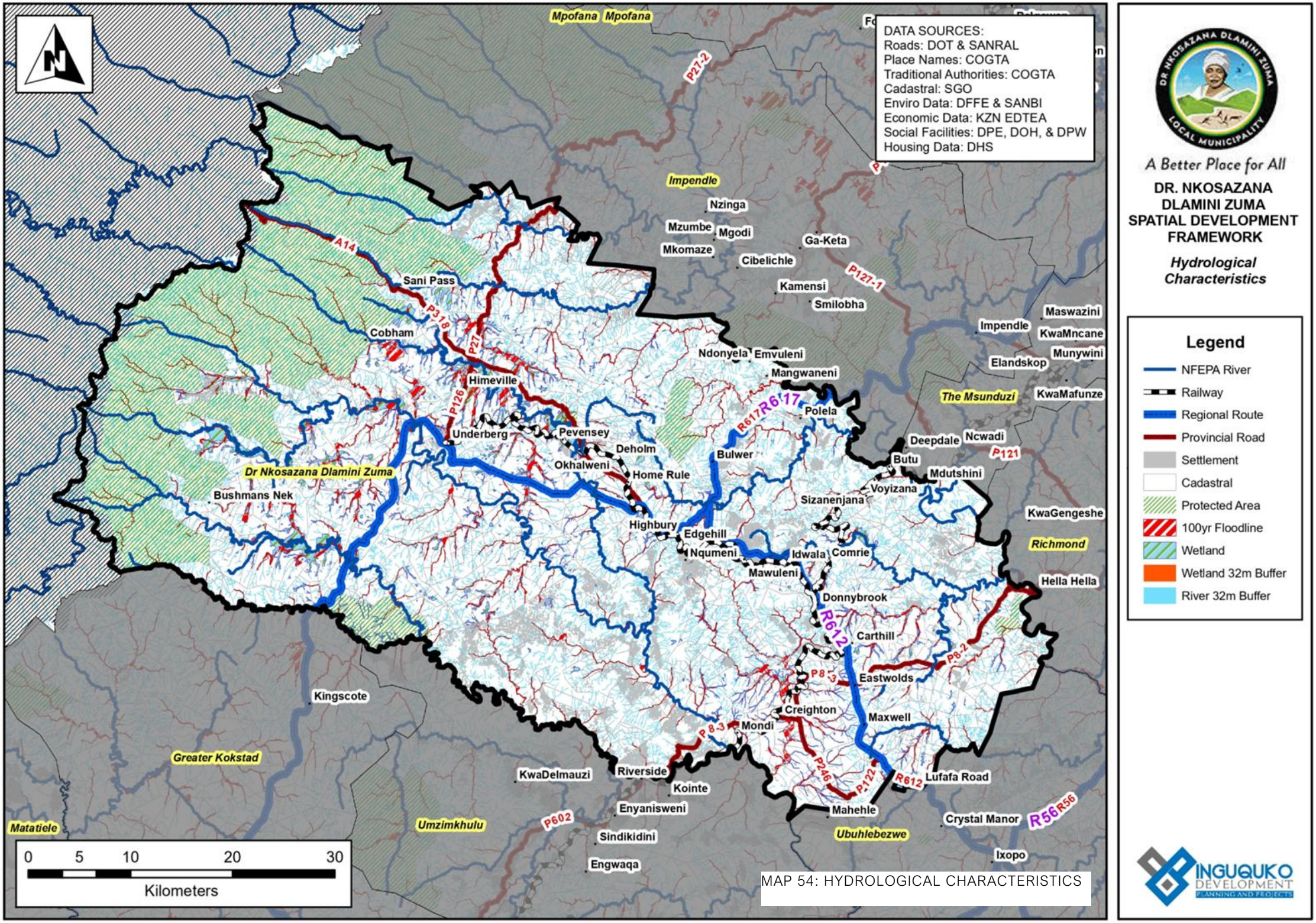
Hydrological systems impose significant constraints and opportunities for spatial development in NDZ. Settlements located within flood-prone zones are exposed to high disaster risk, while degradation of NFEPA rivers undermines both local livelihoods and regional water security. Conversely, intact rivers, wetlands, and dams can form the foundation for eco-tourism, conservation-based employment, and water-sensitive urban design.

Policy directions include:

- No development in NFEPA rivers, wetlands, and 100-year floodlines, supported by enforcement in land use approvals.
- Establishment of mandatory riparian buffer zones (30–50m minimum) along rivers and wetlands.
- Integration of WMAs into municipal water and spatial planning, ensuring that NDZ contributes to catchment-level water security objectives.
- Wetland and river rehabilitation projects as part of ecosystem-based adaptation.
- Prioritisation of alien invasive clearing in upper catchments to restore ecological flow and water yield.
- Development of eco-tourism initiatives linked to rivers and dams, aligned with water protection measures.

TABLE 46: HYDROLOGICAL CHARACTERISTICS – LAND USE MANAGEMENT GUIDELINES, CHALLENGES, IMPLICATIONS, AND OPPORTUNITIES

LAND USE MANAGEMENT GUIDELINES	CHALLENGES	IMPLICATIONS FOR SPATIAL PLANNING	STRATEGIC OPPORTUNITIES	RELEVANT NEMA EIA LISTING NOTICES
Prohibit development in 100-year floodlines, wetlands, and NFEPA rivers.	Informal settlements in floodplains.	Land allocation must exclude high-risk zones.	Disaster risk reduction, water security.	**Listing Notice 3 (GN R.985):** Development in wetlands/riparian zones requires EA (Activity 12, 14, 18).
Maintain 30–50m riparian buffers.	Encroachment, cultivation, overgrazing.	Enforce exclusion in approvals.	Wetland restoration, sustainable farming.	**Listing Notice 1 (GN R.983):** Clearance of >1 ha of riparian vegetation (Activity 27).
Integrate NDZ into WMA catchment planning.	Weak local capacity.	SDF alignment with NWRS & WMAs.	Collaborative water governance.	**Listing Notice 2 (GN R.984):** Large-scale water projects (Activity 16).
Prioritise alien plant clearing.	Streamflow reduction by invasives.	Embed catchment management.	EPWP green jobs.	**Listing Notice 3:** Rehabilitation in wetlands/riverbanks requires EA (Activity 12).
Strengthen water quality monitoring.	Wastewater, agricultural runoff.	Settlement planning must address sanitation.	Constructed wetlands, green infra.	**Listing Notice 1:** Infrastructure for effluent discharge requires EA.



MAP 54: HYDROLOGICAL CHARACTERISTICS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Hydrological Characteristics

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- 100yr Floodline
- Wetland
- Wetland 32m Buffer
- River 32m Buffer

INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS

8.4. GEOLOGICAL CHARACTERISTICS

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) is situated in a geologically diverse area of KwaZulu-Natal, shaped largely by the Drakensberg Mountain system to the west and the gently undulating interior plateau towards the east. The geology of the municipality is dominated by formations of the Karoo Supergroup (notably the Beaufort and Stormberg Groups) overlain in places by extensive Drakensberg basalt flows. This geology gives rise to a range of soil types and land capability classes, which directly influence settlement patterns, agriculture, and infrastructure development.

Key geological and soil characteristics include:

1. Drakensberg Basalt (Stormberg Group – Lesotho Formation)
    - Hard, dark volcanic rock forming the upper slopes and escarpments of the uKhahlamba Drakensberg.
    - Soils derived: shallow lithosols and dystrophic clays, generally poor for cultivation but important for high-altitude grasslands and grazing.
    - Planning implication: steep slopes are unsuitable for settlements or intensive agriculture but highly valuable for conservation and tourism.
2. Clarens Sandstone (Stormberg Group)
    - Cream-coloured sandstones underlying parts of the basalt in the western portions of NDZ.
    - Soils derived: sandy, leached soils with low fertility, prone to erosion.
    - Planning implication: unsuitable for intensive agriculture but forms dramatic cliffs and scenic landscapes of eco-tourism value.
3. Molteno Sandstone (Karoo Supergroup – Stormberg Group)
    - Coarse-grained sandstones with occasional shale layers, occurring in pockets.
    - Soils derived: coarse sandy soils, moderately deep, with limited agricultural potential.
    - Planning implication: fragile soils prone to erosion; careful land management required.
4. Beaufort Group (Karoo Supergroup – Adelaide and Tarkastad Subgroups)
    - Soft shales, mudstones, and fine sandstones widespread across the NDZ interior.
    - Soils derived: clayey soils, often duplex (clay subsoils beneath sandy topsoils).
    - Planning implication: moderate to good agricultural potential in flatter areas; high erodibility on slopes.
5. Ecca Group (part of Karoo Supergroup)
    - Dark grey shales, siltstones, and coal seams in deeper geological layers.
    - Soils derived: structured clays and loams, locally fertile but with shrink-swell properties.
    - Planning implication: soils can be agriculturally productive but pose foundation challenges for buildings (movement due to swelling clays).
6. Alluvial Deposits (Recent Quaternary deposits along river valleys)
    - Sands, silts, and gravels along rivers such as the uMzimkhulu, Polela, and Loteni.

- Soils derived: deep alluvial soils with high fertility and good moisture retention.
- Planning implication: highly suitable for cultivation (irrigated agriculture), but flood risk is high; unsuitable for dense settlement expansion.

7. Dolersitic Intrusions (Karoo Dolerite dykes and sills)

- Dolerite occurs as igneous intrusions throughout NDZ, often forming ridges and rocky outcrops.
- Soils derived: red, well-drained clays of moderate to high fertility.
- Planning implication: dolerite-derived soils are valuable for both agriculture and settlement, but erosion can be severe if overgrazed.

8.4.1. LAND CAPABILITY AND SOILS

The combination of these geological formations creates a mosaic of soils:

- **High-altitude shallow lithosols** on basalt and sandstone: low cultivation potential, suitable mainly for grazing and conservation.
- **Duplex soils on Beaufort shales**: moderate fertility but highly erodible, requiring careful management.
- **Alluvial soils along valleys**: highly fertile, supporting irrigation agriculture, but prone to flooding.
- **Red doleritic clays**: among the best agricultural soils in NDZ, supporting both commercial and subsistence farming.

These variations in soils and geology explain the uneven distribution of agricultural land, settlement suitability, and environmental sensitivity across the municipality.

8.4.2. CHALLENGES

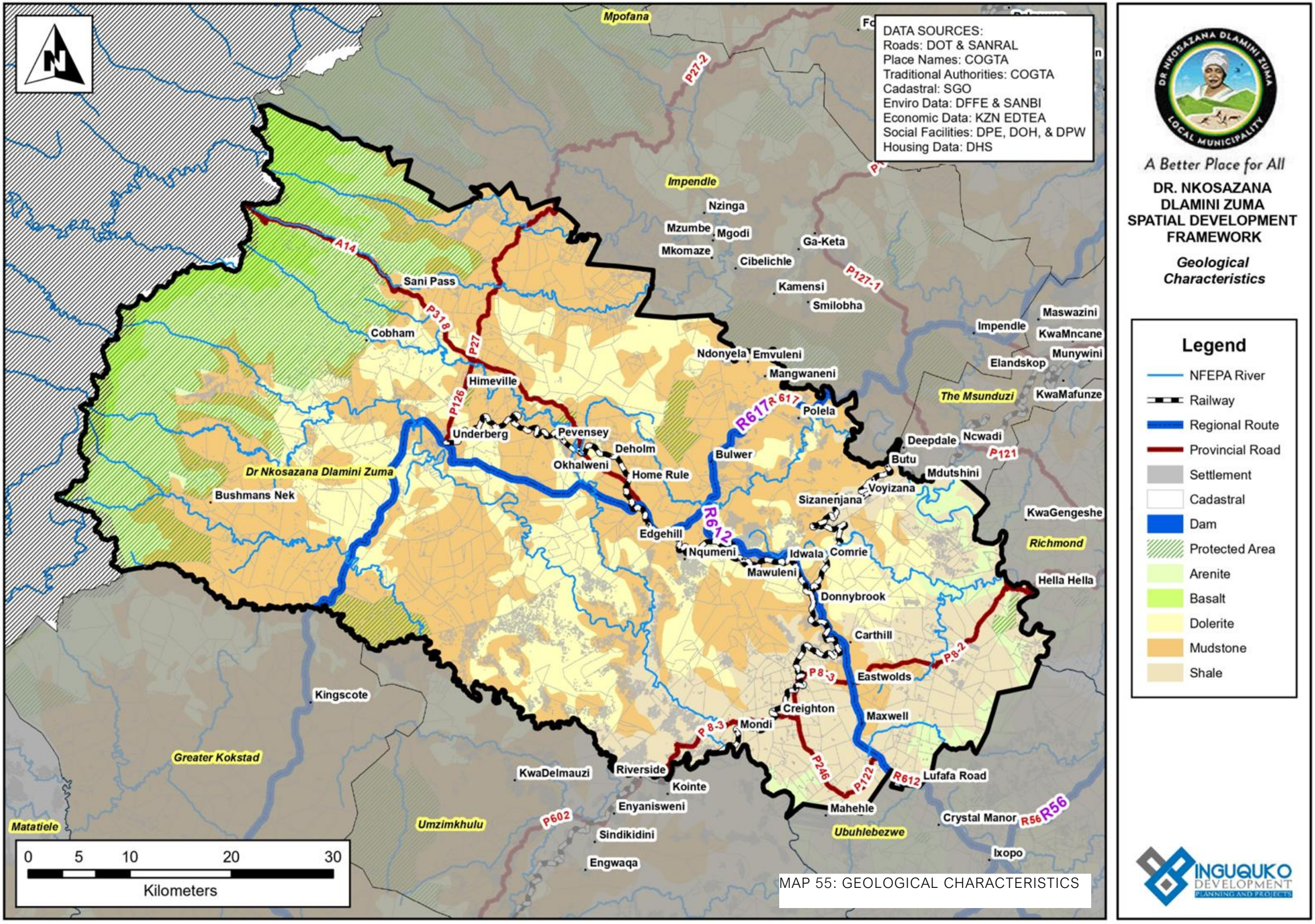
- Soil erosion, especially on steep basalt and sandstone slopes subjected to overgrazing.
- Foundation instability on expansive clay soils derived from shales and mudstones.
- Flood risk in alluvial zones along major rivers.
- Unsustainable cultivation of marginal soils, leading to land degradation.
- Sand mining and resource extraction, often unregulated in river valleys, degrading ecosystems.

8.4.3. SPATIAL PLANNING IMPLICATIONS & LAND USE POLICY DIRECTIONS

- Steep basaltic and sandstone slopes should be zoned for conservation and eco-tourism, not settlement or agriculture.
- Alluvial soils should be prioritised for sustainable irrigation agriculture but excluded from settlement growth due to flood risk.
- Doleritic clay soils should be recognised as high-potential agricultural land, safeguarded against conversion to non-agricultural uses.
- Settlement expansion should avoid geotechnically unstable clay soils unless appropriate foundation engineering is applied.
- Erosion-prone areas require soil conservation measures and vegetation buffers.

TABLE 47: GEOLOGICAL CHARACTERISTICS – LAND USE GUIDELINES, CHALLENGES, IMPLICATIONS, AND OPPORTUNITIES

SOIL/ROCK TYPE	CHARACTERISTICS	CHALLENGES	IMPLICATIONS FOR SPATIAL PLANNING	STRATEGIC OPPORTUNITIES	RELEVANT NEMA EIA LISTING NOTICES
Drakensberg Basalt	Hard rock, shallow soils	Erosion, steep slopes	Unsuitable for settlements/agriculture	Tourism, grazing	**Listing Notice 3 (GN R.985):** Development on mountain slopes >5° gradient requires EA (Activity 4, 12).
Clarens Sandstone	Sandy soils, low fertility	Highly erodible	Avoid cultivation/settlement	Scenic eco-tourism	**Listing Notice 1 (GN R.983):** Clearance of >1 ha indigenous vegetation (Activity 27).
Molteno Sandstone	Coarse sandy soils	Low fertility	Limited land use potential	Controlled grazing	**Listing Notice 3:** Activities in erosion-prone areas trigger EA.
Beaufort Shales	Clayey duplex soils	Shrink-swell, erodibility	Settlement risks	Moderate agriculture	**Listing Notice 3:** Development in sensitive soil/erosion areas triggers EA.
Ecca Shales	Dark shales, coal seams	Instability	Settlement risk	Careful farming, small-scale mining	**Listing Notice 2 (GN R.984):** Mining/extraction requires Scoping & EIA.
Alluvial Soils	Fertile, deep soils	Flood risk	No settlement	Irrigated agriculture	**Listing Notice 3:** Activities in 100-year floodlines (Activity 14).
Dolerite	Fertile red clays	Severe erosion	High-value agriculture	Commercial farming	**Listing Notice 1:** Vegetation clearance >1 ha for agriculture requires EA.



MAP 55: GEOLOGICAL CHARACTERISTICS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Geological Characteristics

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

8.5. VEGETATION BIOMES

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ) falls within the Grassland Biome and the Savanna Biome, with limited patches of Forest Biome along sheltered valleys. These biomes are part of South Africa's nine national biomes and are recognised for their biodiversity value, ecological services, and agricultural importance.

Within these broad biomes, the municipality is further characterised by specific vegetation types as identified by the National Vegetation Map of South Africa (SANBI, 2018) and the KwaZulu-Natal Biodiversity Sector Plan.

The main vegetation types in NDZ include:

1. Drakensberg Grassland (High-altitude Grasslands)

- Occurs along the western escarpment areas of the uKhahlamba Drakensberg foothills.
- Dominated by perennial grasses (Themeda triandra, Festuca costata) with scattered herbs and geophytes.
- Ecological role: Provides high-quality grazing, critical water catchments, and habitats for endemic species.
- Spatial implications: Unsuitable for cultivation; best managed for conservation, grazing, and eco-tourism.

2. Southern Mistbelt Grassland

- Found on the moist mid-altitude slopes of the municipality.
- Vegetation: Tall sour grasses (Hyparrhenia hirta, Themeda triandra) interspersed with forbs and scattered shrubs.
- Ecological role: Highly biodiverse grassland supporting wetlands and freshwater systems.
- Conservation status: Largely transformed by agriculture and settlements; many patches are critically endangered.
- Spatial implications: Land use should avoid further conversion; rehabilitation and controlled grazing are priorities.

3. Midlands Mistbelt Grassland

- Occurs in the eastern interior zones of NDZ, characterised by rolling hills and mist-belt conditions.
- Vegetation: Dense sour grasses and scattered woody species.
- Conservation status: Classified as endangered due to widespread transformation by agriculture and plantations.
- Spatial implications: Land must be zoned carefully to protect remaining patches, with strict controls on further land conversion.

4. Drakensberg Foothill Moist Grassland

- Found in valleys and lower slopes adjacent to the Drakensberg range.
- Vegetation: Moist, tall grasslands with scattered bush clumps.
- Conservation status: Vulnerable due to pressures from grazing, cultivation, and settlement expansion.
- Spatial implications: Compatible with controlled livestock grazing and eco-tourism; unsuitable for large-scale cultivation.

5. Savanna Patches (Ngongoni Veld and Valley Bushveld)

- Small patches occur in the northern and north-eastern parts of NDZ, often in warmer valleys.
- Vegetation: Scattered Acacia species, bushveld shrubs, and drought-tolerant grasses.
- Ecological role: Supports mixed livestock grazing, small-scale agriculture, and biodiversity corridors.
- Spatial implications: Best suited for extensive grazing, agroforestry, and controlled smallholder farming.

6. Southern Mistbelt Forest (Scarp and Valley Forest Patches)

- Found in deep, moist valleys and along rivers in sheltered sites.
- Vegetation: Evergreen broadleaf forest species such as Podocarpus latifolius (Yellowwood), Celtis africana (White stinkwood), and Cussonia spicata (Cabbage tree).
- Ecological role: Biodiversity hotspots providing habitat for birdlife and medicinal plants.
- Conservation status: Highly fragmented and under pressure from fuelwood harvesting.
- Spatial implications: Forest patches should be designated as no-go areas for development, protected for conservation and eco-tourism.

8.5.1. BIOME DISTRIBUTION SUMMARY

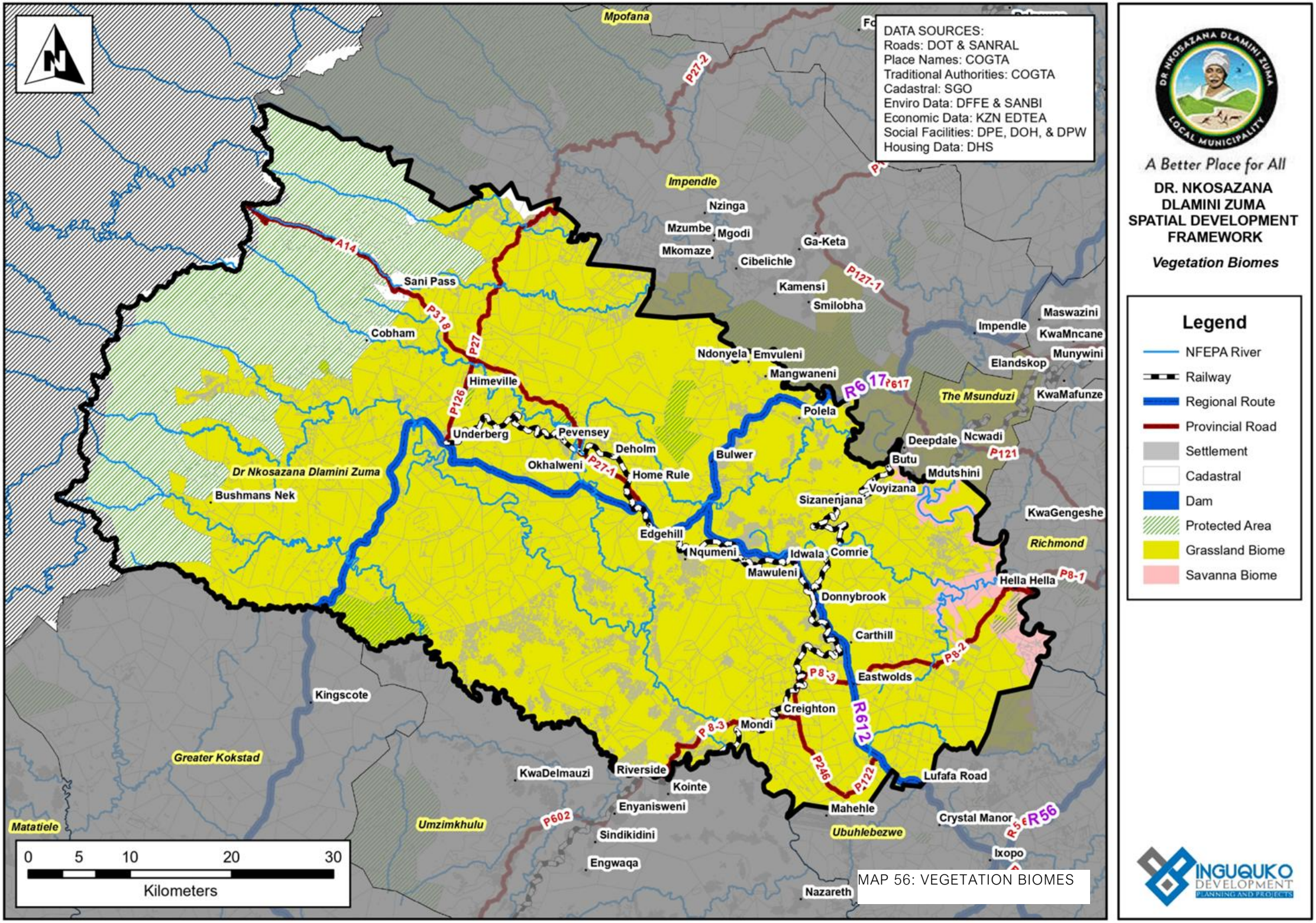
- Grassland Biome – Dominant, covering the high-altitude Drakensberg and interior mistbelt regions. Provides grazing, water catchment, and biodiversity.
- Savanna Biome – Occurs in smaller patches, primarily in lower-lying valleys. Provides grazing and supports mixed land uses.
- Forest Biome – Very limited, occurring only in sheltered valleys and gorges. Biodiversity hotspots with high conservation value.

8.5.2. CHALLENGES

- Conversion of grasslands to agriculture, plantations, and settlements, leading to habitat loss.
- Overgrazing in communal areas, resulting in soil erosion and biodiversity decline.
- Deforestation of forest patches for fuelwood and agriculture.
- Invasive alien plants (e.g., wattle, gum, lantana) degrading grasslands and wetlands.
- Climate change, altering rainfall and fire regimes, impacting grassland ecology.

8.5.3. SPATIAL PLANNING IMPLICATIONS & LAND USE POLICY DIRECTIONS

- Grasslands must be treated as strategic ecological infrastructure, safeguarded for grazing, catchment management, and conservation.
- Remaining endangered and critically endangered grassland types (e.g., Southern Mistbelt Grassland) should be prioritised for protection and rehabilitation.
- Forest patches must be zoned as conservation areas, with strict limits on harvesting.
- Savanna patches offer opportunities for sustainable grazing and agroforestry, provided biodiversity corridors are maintained.
- Municipal Land Use Schemes should integrate vegetation type maps to guide approvals and prevent further loss of endangered ecosystems.



MAP 56: VEGETATION BIOMES

TABLE 48: VEGETATION BIOMES AND TYPES – LAND USE GUIDELINES, CHALLENGES, IMPLICATIONS, AND OPPORTUNITIES

VEGETATION TYPE	BIOME	CONSERVATION STATUS	CHALLENGES	IMPLICATIONS FOR SPATIAL PLANNING	OPPORTUNITIES	RELEVANT NEMA EIA LISTING NOTICES
Drakensberg Grassland	Grassland	Least Threatened	Overgrazing, erosion	Avoid cultivation	Eco-tourism, grazing	Listing Notice 3 (GN R.985): Development in mountain catchments triggers EA.
Southern Mistbelt Grassland	Grassland	Critically Endangered	Agriculture, alien plants	Strict protection	Rehabilitation, corridors	Listing Notice 3: Development in Critically Endangered ecosystems requires EA (Activity 12, 14, 18).
Midlands Mistbelt Grassland	Grassland	Endangered	Agriculture, plantations	Protect remnant patches	Conservation-compatible grazing	Listing Notice 3: Development >20 ha in Endangered ecosystems triggers EA.
Drakensberg Foothill Moist Grassland	Grassland	Vulnerable	Grazing, alien invasives	Controlled grazing	Eco-tourism	Listing Notice 3: Land use change in natural grasslands requires EA.
Ngongoni Veld / Valley Bushveld	Savanna	Least Threatened	Bush encroachment	Extensive grazing	Agroforestry, farming	Listing Notice 3: Subdivision/clearing >20 ha in savanna triggers EA.
Southern Mistbelt Forest	Forest	Endangered	Fuelwood, fragmentation	No-go development zones	Eco-tourism, cultural heritage	Listing Notice 1 (GN R.983): Clearing >1 ha indigenous forest requires Basic Assessment (Activity 27).

8.6. VEGETATION CONSERVATION STATUS

The conservation status of vegetation types in South Africa is determined through the National Biodiversity Assessment (NBA, SANBI 2018), which evaluates ecosystem extent, protection levels, and threat status. Vegetation conservation status is a critical planning consideration, as it highlights which ecosystems are under the greatest threat from land transformation and therefore require strict protection.

Within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ), vegetation types fall into four main categories: Critically Endangered, Endangered, Vulnerable, and Least Threatened. The presence of critically endangered and endangered ecosystems within the municipality creates legal and policy obligations for the municipality to safeguard these areas through the SDF and Land Use Scheme.

TABLE 49: CONSERVATION CATEGORIES AND GUIDELINES

CONSERVATION CATEGORY	CATEGORY DETERMINANT	IMPLICATIONS
Critically Endangered (CR)	Point beyond which many species may be lost	Any further loss will result in the conservation target not being met & the persistence of vegetation type uncertain
Endangered: High (EN)	A higher degree of ecosystem functioning lost - nearing CR status	A further loss will result in the category being upgraded to CR and may result in the conservation target not being met & persistence of vegetation type uncertain.
Endangered: Low (EN)	The threshold for conserving ecosystem functioning	
Vulnerable (VU)	If habitat loss continues, ecosystem functioning will be compromised.	Caution required
Least Threatened (LT)	100% of the ecosystem intact	The sustainable development approach to be in place

8.6.1. CRITICALLY ENDANGERED VEGETATION TYPES IN NDZ

- Southern Mistbelt Grassland
    - Extensively transformed by commercial forestry, agriculture, and settlement expansion.
    - Less than 25% of the original extent remains intact.
    - Planning implications: No further conversion should be permitted; remaining patches must be incorporated into conservation networks.

8.6.2. ENDANGERED VEGETATION TYPES IN NDZ

- Midlands Mistbelt Grassland
    - Severely fragmented due to cultivation and plantation forestry.
    - Current protection levels are below national conservation targets.
    - Planning implications: Remaining grassland patches must be prioritised for protection; zoning should restrict expansion of incompatible land uses.
- Southern Mistbelt Forest (Valley and Scarp Forests)
    - Naturally restricted distribution, now under pressure from fuelwood collection, clearing for agriculture, and fragmentation.

- **Planning implications:** Forests should be designated as conservation areas and managed as no-go zones for development.

8.6.3. VULNERABLE VEGETATION TYPES IN NDZ

- Drakensberg Foothill Moist Grassland
    - Moderately transformed but still retains ecological connectivity in many areas.
    - Vulnerable to overgrazing, soil erosion, and alien plant invasions.
    - **Planning implications:** Can accommodate controlled land uses (grazing, eco-tourism) but requires strict land management measures.

8.6.4. LEAST THREATENED VEGETATION TYPES IN NDZ

- Drakensberg Grassland (High-altitude Grassland)
    - Largely intact due to its occurrence in rugged, less accessible areas.
    - Provides critical ecosystem services, especially water catchment.
    - **Planning implications:** While not threatened, continued conservation is vital; compatible uses include grazing and tourism.
- Ngongoni Veld and Valley Bushveld (Savanna patches)
    - Still widespread regionally, with relatively lower transformation pressure in NDZ.
    - **Planning implications:** Suitable for extensive grazing and agroforestry but requires careful management to avoid bush encroachment.

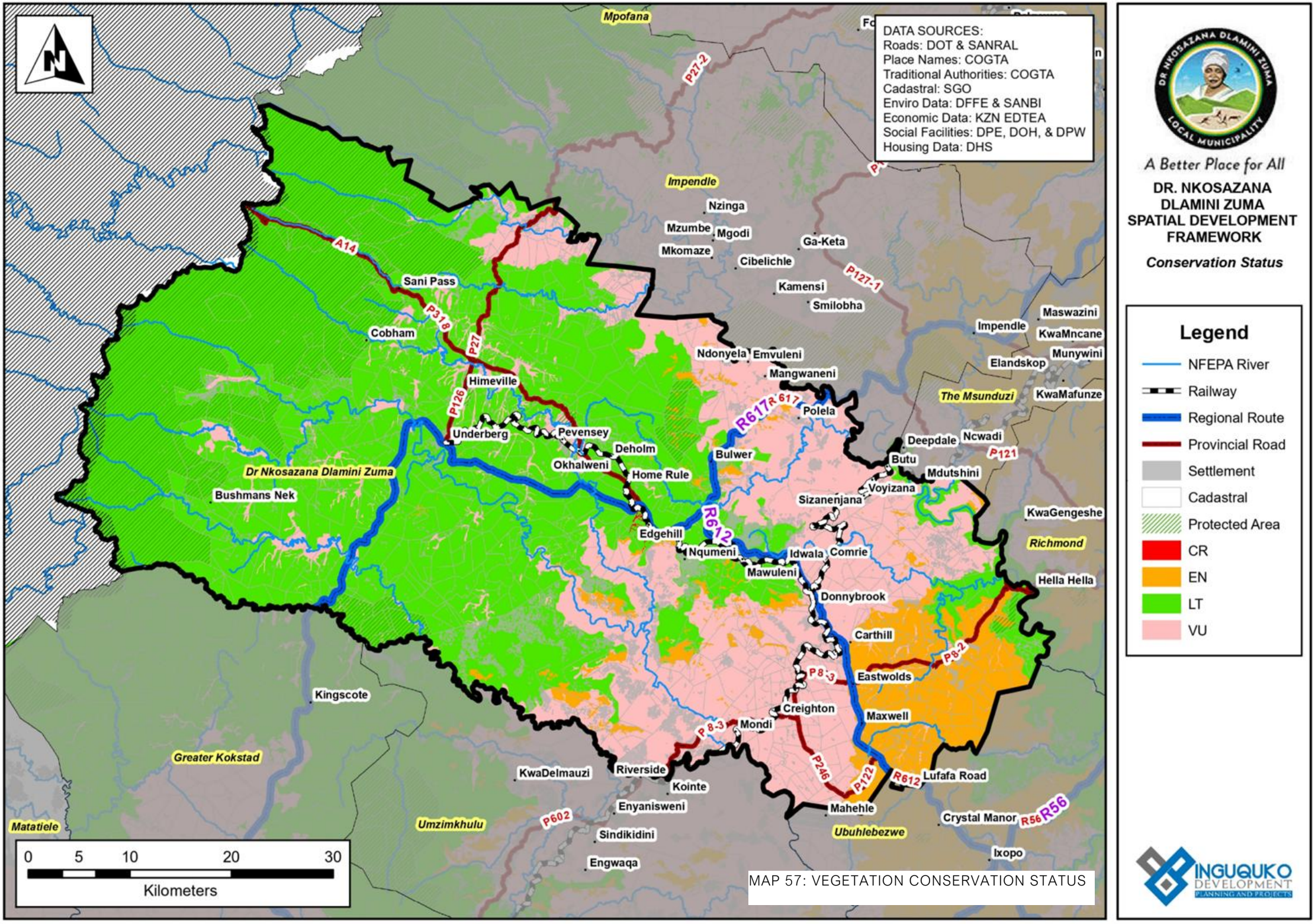
8.6.5. SPATIAL PLANNING IMPLICATIONS

- Critically Endangered ecosystems (e.g., Southern Mistbelt Grassland) must be treated as absolute constraints in spatial planning. No development or further land conversion should be permitted.
- Endangered ecosystems require prioritisation in the municipal SDF, with zoning that ensures ecological corridors and prohibits incompatible land uses.
- Vulnerable ecosystems can accommodate some development, but only under strict land use controls and ecological management.
- Least threatened ecosystems should be managed to prevent future degradation, recognising their role in grazing and ecosystem services.



TABLE 50: VEGETATION CONSERVATION STATUS (WITH NEMA EIA REGULATORY CONTEXT)

VEGETATION TYPE	BIOME	CONSERVATION STATUS	KEY THREATS	PLANNING IMPLICATIONS	RELEVANT NEMA EIA LISTING NOTICES
Southern Mistbelt Grassland	Grassland	Critically Endangered	Agriculture, plantations, settlements	Strict no-go zones; rehabilitation priorities	Listing Notice 3 (GN R.985): Any development within a Critically Endangered or Endangered ecosystem requires an EIA (Activity 12, 14, 18).
Midlands Mistbelt Grassland	Grassland	Endangered	Agriculture, forestry, alien plants	Restrict further conversion; protect ecological corridors	Listing Notice 3: Residential/ agricultural expansion in Endangered ecosystems triggers Basic Assessment (Activity 12).
Southern Mistbelt Forest	Forest	Endangered	Deforestation, fuelwood collection, fragmentation	Absolute conservation zones; eco-tourism and heritage use only	Listing Notice 1 (GN R.983): Clearing of indigenous forest vegetation >1 ha requires Basic Assessment (Activity 27). Listing Notice 3: Any development in natural forest areas requires EA (Activity 12).
Drakensberg Foothill Moist Grassland	Grassland	Vulnerable	Overgrazing, erosion, alien invasives	Controlled grazing, eco-tourism; avoid large-scale cultivation	Listing Notice 3: Subdivision, residential expansion, or infrastructure in natural grasslands over 20 ha triggers EA (Activity 12 & 14).
Drakensberg Grassland (High-altitude)	Grassland	Least Threatened	Overgrazing, climate change	Maintain as conservation/grazing land	Listing Notice 3: Although least threatened, activities in sensitive mountain catchments still require EA (Activity 4, 12, 14).
Ngongoni Veld / Valley Bushveld	Savanna	Least Threatened	Bush encroachment, grazing pressure	Extensive grazing and agroforestry; manage encroachment	Listing Notice 3: Clearance of >20 ha or development in natural savanna triggers EA (Activity 12, 14).


DATA SOURCES:
Roads: DOT & SANRAL
Place Names: COGTA
Traditional Authorities: COGTA
Cadastral: SGO
Enviro Data: DFFE & SANBI
Economic Data: KZN EDTEA
Social Facilities: DPE, DOH, & DPW
Housing Data: DHS
Mpofana
Impendle
Nzinga
Mzumbe
Mgodi
Mkomaze
Ga-Keta
Cibelichle
Kamensi
Smilobha
Sani Pass
Cobham
Himeville
Underberg
Pevensey
Deholm
Okhalweni
Home Rule
Bushmans Nek
Dr Nkosazana Dlamini Zuma
Ndonyela
Emvuleni
Mangwaneni
Polela
Bulwer
Edgehill
Nqumeni
Idwala
Comrie
Mawuleni
Donnybrook
Carthill
Eastwolds
Creighton
Maxwell
Mondi
Riverside
Kointe
Enyanisweni
Sindikidini
Engwaqa
Mahehle
Lufafa Road
Crystal Manor
Ixopo
Ubuhlebezwe
Umzimkhulu
KwaDelmauzi
Greater Kokstad
Matatiele
Kingscote
Impendle
Maswazini
KwaMncane
Munywini
Elandskop
The Msunduzi
KwaMafunze
Deepdale
Ncwadi
Butu
Mdutshini
Voyizana
Sizanenjana
KwaGengeshe
Richmond
Hella Hella
A14
P318
P27
P126
R617
R612
P27-2
P127-1
P121
P8-2
P8-3
P246
P122
R56
P602
0 5 10 20 30
Kilometers
MAP 57: VEGETATION CONSERVATION STATUS
A Better Place for All
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK
Conservation Status
Legend
NFEPA River
Railway
Regional Route
Provincial Road
Settlement
Cadastral
Protected Area
CR
EN
LT
VU
INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

8.7. CROSS-CUTTING STRATEGIC OPPORTUNITIES

The preceding sections of this environmental analysis demonstrate that the Dr. Nkosazana Dlamini Zuma Municipality (NDZ) is endowed with rich natural assets — including biodiversity hotspots, protected areas, freshwater ecosystems, fertile soils, and unique vegetation types. At the same time, these systems face significant pressures from settlement expansion, agricultural transformation, and climate variability.

Spatial planning must therefore adopt a strategic, cross-cutting approach that transforms environmental assets into opportunities for sustainable development, while safeguarding ecosystems that are essential for water security, disaster risk reduction, and biodiversity conservation. This section identifies strategic opportunities that cut across all environmental themes, with direct implications for the SDF.

8.7.1. ECO-TOURISM AND GREEN ECONOMY DEVELOPMENT

- **Eco-Tourism Nodes:** Protected areas such as the Maloti-Drakensberg Park and surrounding CBAs provide a foundation for developing eco-tourism routes, hiking trails, birding circuits, and cultural heritage tourism.
- **Community-Based Tourism:** Partnerships with traditional authorities and local communities can integrate cultural tourism, medicinal plant knowledge, and homestays into eco-tourism packages.
- **Green Jobs:** Expanded Public Works Programme (EPWP) initiatives such as alien invasive plant clearing, wetland rehabilitation, and biodiversity corridor restoration can create jobs while improving ecosystem services.
- **Policy alignment:** Supports SPLUMA Principle 2(d): Spatial sustainability, by ensuring development promotes economic growth without degrading natural assets.

8.7.2. BIODIVERSITY CORRIDORS AND CONSERVATION NETWORKS

- **Connectivity:** Link Critical Biodiversity Areas (CBAs), NFEPA rivers, and Protected Areas into integrated ecological corridors to prevent ecosystem fragmentation.
- **Zoning Mechanisms:** Use the Land Use Scheme to designate conservation zones, riparian buffers, and biodiversity corridors as non-negotiable planning layers.
- **Climate Adaptation:** Corridors allow species migration under climate change and protect water catchments, aligning with long-term resilience strategies.
- **Policy alignment:** Meets SPLUMA Principle 2(e): Spatial resilience, by safeguarding ecosystems against climate shocks.

8.7.3. WATER SECURITY AND HYDROLOGICAL PROTECTION

- **Catchment Management:** Protect and rehabilitate NFEPA rivers, wetlands, and upper catchments to maintain ecological flow requirements and downstream water quality.
- **Disaster Risk Reduction:** Enforce no-go development zones within 100-year floodlines to reduce settlement vulnerability and municipal service costs.
- **Water-Efficient Agriculture:** Promote conservation agriculture and water-smart irrigation practices in alluvial and doleritic soils.
- **Policy alignment:** Supports SPLUMA Principle 2(b): Spatial justice, ensuring that vulnerable communities are not exposed to water insecurity or flood hazards.

8.7.4. AGRICULTURAL LAND PROTECTION AND RURAL LIVELIHOODS

- **Safeguarding High-Potential Soils:** Doleritic clays and alluvial soils should be designated as strategic agricultural resources, excluded from non-agricultural conversion.
- **Sustainable Grazing Systems:** Introduce land management plans to prevent overgrazing in communal areas and erosion on steep basalt slopes.
- **Agro-ecology and Agroforestry:** Integrate savanna patches into sustainable smallholder farming systems, blending food security with biodiversity conservation.
- **Policy alignment:** Meets SPLUMA Principle 2(a): Spatial equity, by supporting rural livelihoods and food security through land protection.

8.7.5. CLIMATE CHANGE ADAPTATION AND ECOSYSTEM-BASED APPROACHES

- **Ecosystem-Based Adaptation (EbA):** Wetland and grassland restoration can reduce flood risks, improve water quality, and strengthen resilience against droughts.
- **Renewable Energy Potential:** NDZ's landscapes offer opportunities for small-scale renewable energy (wind, solar, and mini-hydro), particularly in rural service nodes.
- **Fire Management Plans:** Implement integrated fire management in grassland biomes to balance ecological processes with safety concerns.
- **Policy alignment:** Supports SPLUMA Principle 2(f): Efficiency, by integrating environmental protection with cost-effective climate resilience.

8.7.6. 8.7 GOVERNANCE, PARTNERSHIPS, AND CAPACITY BUILDING

- **Intergovernmental Alignment:** Strengthen cooperation between NDZ, Harry Gwala District, EDTEA, Ezemvelo KZN Wildlife, and DWS to harmonise biodiversity, water, and land use planning.
- **Community Stewardship:** Empower traditional authorities and local communities through stewardship programmes that reward conservation-compatible land use.
- **Capacity Building:** Invest in municipal planning staff training on EIA regulations, biodiversity planning, and environmental monitoring.
- **Policy alignment:** Advances SPLUMA Principle 2(c): Efficiency of governance, ensuring integration between land use planning and environmental management.

8.7.7. SUMMARY OF STRATEGIC OPPORTUNITIES

- **Eco-Tourism Development:** Leverage protected areas, CBAs, and scenic landscapes for local economic growth.
- **Green Economy Jobs:** Invest in alien clearing, restoration, and conservation-linked employment.
- **Conservation Corridors:** Integrate CBAs, rivers, and forests into ecological networks.
- **Water Security:** Protect NFEPA rivers and wetlands to sustain municipal and downstream water needs.
- **Agricultural Land Protection:** Safeguard high-potential soils and promote agro-ecological farming.
- **Climate Resilience:** Embed ecosystem-based adaptation into spatial planning.
- **Governance Partnerships:** Strengthen municipal–provincial–community collaboration in conservation and land use management.

8.8. CLIMATE CHANGE

Climate change has emerged as one of the most significant spatial development challenges in South Africa, particularly in rural municipalities such as Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality. Situated within the Harry Gwala District in southern KwaZulu-Natal, NDZ is characterised by vast rural areas, a dependence on traditional agriculture, and scattered settlements under communal tenure. This spatial and socio-economic context heightens the municipality's exposure to climate-related risks including flooding, drought, biodiversity loss, and food insecurity.

The Harry Gwala District Climate Risk and Vulnerability Assessment and Climate Change Response Strategy (2023/2024) provides a critical evidence base for understanding NDZ's position within the broader district climate landscape. The municipality emerges as highly vulnerable, with particularly severe environmental vulnerabilities, limited adaptive capacity, and a socio-economic profile that exacerbates climate exposure. This situational analysis distils the district findings and situates them within NDZ's Spatial Development Framework (SDF), identifying key challenges, issues, and opportunities and advancing planning-oriented project-level recommendations.

8.8.1. SOCIO-ECONOMIC VULNERABILITY

NDZ is ranked 27th out of 44 municipalities in KwaZulu-Natal for socio-economic vulnerability, reflecting high levels of poverty, inequality, and unemployment. According to the 2022 Stats SA Community Survey, nearly 65% of households rely on social grants, while remittances from urban migrants provide another critical income stream. This structural reliance makes households highly sensitive to economic and climatic shocks.

The municipality's youth population is large, with high NEET (Not in Employment, Education or Training) rates. Climate change will exacerbate this demographic challenge by disrupting agriculture, reducing employment opportunities, and deepening social exclusion. Gender dynamics also intensify vulnerability, as women disproportionately shoulder responsibilities for water collection, household food security, and informal caregiving, all of which are climate-sensitive roles.

From a planning perspective, socio-economic vulnerability translates into settlement vulnerability: households unable to adapt or relocate tend to settle in risk-prone locations such as floodplains, steep slopes, and marginal agricultural lands. This reinforces the need for risk-sensitive land use planning.

8.8.2. ECONOMIC VULNERABILITY AND OPPORTUNITIES

While NDZ's economic vulnerability is relatively lower (ranked 3rd in KZN), this reflects the municipality's small, concentrated economic base rather than genuine resilience. Agriculture (both subsistence and commercial), tourism, and remittances form the backbone of the economy. The lack of economic diversity leaves the municipality highly exposed to climate shocks. For example:

- Crop farming and livestock are vulnerable to droughts, pests, and soil degradation.
- Tourism nodes (Underberg and Himeville) face risks from extreme weather events, infrastructure damage, and biodiversity loss.
- Forestry and plantation areas face increasing fire risks linked to heatwaves and land degradation.

Yet these sectors also present opportunities. Climate-smart agriculture, eco-tourism, renewable energy, and agro-processing can position NDZ as a green economy hub, aligning with the KZN Provincial SDF's strategic thrust of building a resilient rural economy.

8.8.3. PHYSICAL AND INFRASTRUCTURE VULNERABILITY

NDZ is ranked 30th in KZN for physical vulnerability. Several interlinked factors contribute:

1. Dispersed settlement patterns across traditional areas, which undermine economies of scale in service delivery.
2. Weak connectivity to regional and national corridors, particularly from rural wards to the R617 and N3 corridors.
3. Infrastructure backlogs in water, sanitation, stormwater, and roads, which increase exposure to climate events.
4. Limited energy resilience, with frequent load-shedding and minimal local renewable alternatives.

For the SDF, this points to the need for strategic settlement restructuring: concentrating investment in identified service nodes (Underberg, Himeville, Creighton, Donnybrook), strengthening transport linkages, and protecting infrastructure from climate hazards.

8.8.4. ENVIRONMENTAL VULNERABILITY

Perhaps the most pressing concern for NDZ is environmental vulnerability, where the municipality ranks 43rd out of 44 in KZN. This extremely poor ranking reflects the fragile ecological balance of the Drakensberg foothills and the lack of effective land management systems.

Key drivers of vulnerability include:

- Biodiversity loss from land clearing, grazing pressure, and human settlement encroachment.
- Wetland and catchment degradation, undermining water security for both NDZ and downstream users.
- Soil erosion and land degradation linked to poor farming practices and deforestation.
- Inadequate governance in environmental management, particularly in communal tenure areas.

Given that ecological infrastructure (wetlands, grasslands, river systems) underpins NDZ's agricultural and tourism economy, environmental rehabilitation must become a central pillar of the SDF.

8.8.5. SETTLEMENT VULNERABILITY AND GROWTH PRESSURES

The climate report highlights specific nodes and settlement dynamics:

- **Underberg**: Identified as a growth node, experiencing development pressure from tourism, agriculture, and in-migration. Unregulated expansion risks environmental degradation and flood exposure.
- **Himeville**: Secondary tourism node, facing infrastructure strain and pressure on ecological assets.
- **Creighton and Donnybrook**: Smaller service towns with poor infrastructure and high vulnerability to flooding.
- **Traditional rural areas**: Marked by poor service provision, weak economic opportunities, and high settlement vulnerability scores.

This settlement pattern exacerbates spatial inequality and undermines resilience. The SDF must delineate urban edges, floodlines, and service hierarchies to manage growth sustainably.

8.8.6. FLOOD HAZARDS AND DISASTER RISK

Catchments around Creighton register high flood hazard indices, while other parts of NDZ face moderate flood risks. Climate change is expected to increase the frequency and intensity of flash floods, putting settlements, agriculture, and infrastructure at risk.

At present, flood risk mapping is not integrated into the municipal LUMS (Land Use Management Scheme). The SDF provides the opportunity to embed disaster risk layers into spatial planning, ensuring development avoidance in high-risk zones and promoting resilient design.

8.8.7. POLICY ALIGNMENT: SPLUMA, PROVINCIAL SDF, CLIMATE POLICY

The findings align with national and provincial policy imperatives:

- SPLUMA (2013) emphasises spatial justice, resilience, sustainability, and good governance. Climate-responsive planning in NDZ directly advances these principles.
- The KZN Provincial SDF (2021) identifies climate adaptation, rural economy diversification, and ecological protection as cross-cutting priorities.
- The National Climate Change Act (2024) requires municipalities to integrate climate risk assessments into planning instruments.

NDZ's SDF must therefore explicitly demonstrate how spatial proposals respond to climate vulnerabilities, thereby ensuring policy compliance and access to potential climate funding.

8.8.8. STRATEGIC OPPORTUNITIES

Despite the vulnerabilities, NDZ has several opportunities:

- Eco-tourism linked to the Drakensberg World Heritage Site and local biodiversity.
- Climate-smart agriculture and agro-processing for both food security and job creation.
- Renewable energy projects (solar, biogas, mini-hydro) to enhance energy resilience.
- Catchment restoration projects as nature-based solutions.
- Spatial restructuring to direct growth into compact, serviced, resilient nodes.

These opportunities, if strategically planned, can catalyse sustainable development.

8.8.9. DATA GAPS AND LIMITATIONS

- Flood hazard mapping at ward/settlement scale is lacking.
- Limited disaggregated socio-economic data beyond municipal averages.
- Absence of a comprehensive ecosystem services valuation for NDZ.
- Gaps in monitoring systems for climate impacts at local scale.

TABLE 51: NDZ CLIMATE CHANGE CHALLENGES, ISSUES AND OPPORTUNITIES

CATEGORY	THEMATIC AREA	EVIDENCE FROM REPORT	IMPLICATION FOR NDZ SDF
Challenge	Socio-economic vulnerability	NDZ ranked 27/44 in KZN; high poverty, inequality, grant dependence (p.29)	SDF must incorporate targeted poverty alleviation, support for local livelihoods, and integrate climate adaptation into social development programmes.
Challenge	Economic structure	Lack of economic diversity; dependence on agriculture and remittances (p.29)	Diversify economy through climate-smart agriculture, SMME support, green economy sectors, and eco-tourism.
Challenge	Physical vulnerability	NDZ ranked 30/44; weak spatial planning, sprawling settlements, limited connectivity (p.30)	Strengthen spatial justice and efficiency; direct growth to nodes (Underberg, Himeville, Creighton); improve connectivity to district and provincial corridors.
Challenge	Environmental vulnerability	NDZ ranked 43/44 in KZN; high conflict between development and environmental preservation (p.31)	Prioritise ecological infrastructure protection, biodiversity conservation, and rehabilitation of degraded areas; integrate environmental overlays into SDF.
Issue	Settlement vulnerability	Underberg facing growth pressure; Himeville, Creighton, Donnybrook show poor services and high exposure to hazards (p.31–32)	Apply SPLUMA principles: define urban edges, enforce land use management schemes, manage growth to avoid unregulated expansion.
Issue	Flood hazard	Catchments near Creighton show high flood hazard index (p.32)	Map and enforce floodlines in SDF; restrict development in high-risk areas.
Issue	Traditional areas	Settlement vulnerability scores high; poor access to services and economic opportunities (p.32)	Strengthen rural service delivery, localised economic development, and integrate traditional authorities in spatial planning.
Opportunity	Growth pressure in Underberg	Identified as key economic node with tourism and agricultural base (p.31)	Promote compact, resilient node development; leverage eco-tourism and service-based economy; integrate with regional economic corridors.
Opportunity	Eco-tourism and agriculture	Natural landscapes, traditional areas, and biodiversity assets (p.29–32)	Position NDZ as a green economy hub: promote agro-processing, eco-tourism, conservation-linked livelihoods.
Opportunity	Policy alignment	National Climate Change Act (2024) & Provincial SDF call for climate adaptation and environmental sustainability (p.7, p.29)	Ensure SDF integrates climate resilience objectives across spatial proposals, infrastructure planning, and economic development strategies.

8.9. CLIMATE CHANGE RESPONSE: SPATIAL CHALLENGES AND OPPORTUNITIES FOR DR. NKOSAZANA DLAMINI ZUMA MUNICIPALITY

The Harry Gwala District Climate Change Response Strategy (2025) identifies climate-related risks and opportunities at the district and local level. For Dr. Nkosazana Dlamini Zuma (NDZ) Municipality, climate change intersects critically with water security, agriculture, biodiversity, infrastructure, and community resilience. Integrating this into the SDF ensures that spatial planning explicitly responds to climate risks while identifying opportunities for adaptation and mitigation.

8.9.1. KEY CLIMATE CHANGE CHALLENGES FOR NDZ MUNICIPALITY

8.9.1.1. WATER RESOURCES

- Declining water quality and availability due to prolonged droughts and variable rainfall.
- Increased stress on rivers and wetlands in the Drakensberg and uMzimkhulu catchments.
- Informal settlements and rural villages lack resilient water supply systems.

8.9.1.2. AGRICULTURE AND FOOD SECURITY

- Vulnerability of dairy and crop farming to extreme heat, drought, and flooding.
- Small-scale farmers have limited adaptive capacity (finance, skills, infrastructure).
- Land degradation and soil erosion threaten food production.

8.9.1.3. BIODIVERSITY AND ECOSYSTEMS

- Sensitive mountain ecosystems (uKhahlamba-Drakensberg Park, wetlands) at risk from invasive alien plants and changing rainfall patterns.
- High-altitude grasslands are under pressure from settlement expansion and agriculture.

8.9.1.4. HUMAN SETTLEMENTS AND INFRASTRUCTURE

- Rural settlements in steep terrain prone to flooding, landslides, and road washaways.
- Ageing road, water, and sanitation infrastructure not climate resilient.
- Inadequate housing design for extreme weather.

8.9.1.5. SOCIO-ECONOMIC VULNERABILITY

- High levels of poverty and unemployment limit households' ability to adapt.
- Health impacts of climate change (vector-borne diseases, heat stress) are increasing.
- Gendered impacts: women and children disproportionately affected by water scarcity and food insecurity.

8.9.2. OPPORTUNITIES FOR CLIMATE-RESILIENT DEVELOPMENT

8.9.2.1. WATER AND ECOSYSTEM SERVICES

- Expand ecosystem-based adaptation: wetland rehabilitation, alien invasive removal, riparian buffer protection.
- Implement rainwater harvesting and household-level water storage schemes.
- Align bulk water supply upgrades with climate projections (Creighton, Bulwer nodes).

8.9.2.2. AGRICULTURE AND FOOD SYSTEMS

- Promote climate-smart agriculture: drought-resistant crops, rotational grazing, organic soil management.
- Support smallholder farmers through climate finance and training programmes.
- Develop early warning systems for floods/droughts.

8.9.2.3. RENEWABLE ENERGY AND GREEN ECONOMY

- Leverage forestry waste for biomass-to-energy projects in Donnybrook.
- Promote solar energy installations for rural households and public facilities.
- Expand energy-efficient infrastructure in Creighton and Bulwer nodes.

8.9.2.4. RESILIENT HUMAN SETTLEMENTS

- Strengthen settlement planning to avoid flood-prone areas.
- Climate-proof rural housing using local materials and sustainable design.
- Upgrade road and bridge infrastructure to withstand extreme rainfall.

8.9.2.5. INSTITUTIONAL AND COMMUNITY RESILIENCE

- Establish a Municipal Climate Change Forum linked to the District structure.
- Build capacity in monitoring, reporting, and verification (MRV) of climate projects.
- Integrate climate change indicators into IDP and SDF monitoring frameworks.

8.9.2.6. CROSS-CUTTING INSTITUTIONAL CONSIDERATIONS

- NDZ needs stronger alignment with the District Climate Change Response Strategy and provincial PSDF priorities.
- Partnerships with NGOs, research institutions (UKZN, SANBI), and donor-funded programmes are essential.
- Skills development in climate risk assessment, project implementation, and community facilitation.
- Climate finance mechanisms (Green Fund, DBSA, IDC) must be leveraged for project roll-out.

8.9.3. CLIMATE CHANGE–SDF ALIGNMENT MATRIX

TABLE 52:: CLIMATE CHANGE - SDF ALIGNMENT MATRIX

CLIMATE CHALLENGE/PROJECT	SDF THEME	PRIORITY SPATIAL INTERVENTION FOR NDZ
Water scarcity and wetland degradation	Environmental / Social	Wetland rehabilitation in uMzimkhulu catchment; rainwater harvesting in Creighton and Bulwer
Climate-vulnerable dairy sector	Economic / Environmental	Climate-smart dairy farming (Creighton hub) with drought-resistant fodder crops
Soil erosion & degraded farmland	Economic / Environmental	Conservation agriculture in Kilmon, Centocow, and Sandanezwe
Invasive alien plant encroachment	Environmental / Built	Expanded Working for Water programmes in Donnybrook, Bulwer
Flooding and road washaways	Built Environment	Upgrade rural road networks (Donnybrook–Creighton–Underberg corridor) with resilient designs
Informal settlement vulnerability	Social / Built	Avoid settlement expansion in floodplains; upgrade rural housing with climate-proofing
Forestry waste management	Economic / Green Economy	Biomass-to-energy project in Donnybrook Timber Hub
Limited institutional capacity	Institutional	Establish NDZ Climate Change Forum aligned with District framework

8.9.4. RECOMMENDATIONS FOR SPATIAL PROPOSALS IN THE NDZ SDF

The following recommendations are applicable for the findings and should find expression in the SDF:

8.9.4.1. SETTLEMENT RESTRUCTURING AND RISK MANAGEMENT

- **Project 1:** Delineate urban edges for Underberg, Himeville, Creighton, and Donnybrook to manage unregulated expansion and protect sensitive areas.
- **Project 2:** Develop floodline mapping and zoning overlays for NDZ's rivers and catchments; prohibit development in high-risk zones.
- **Project 3:** Establish a Resilient Settlement Upgrading Programme for rural traditional areas, incorporating flood-proof sanitation, stormwater channels, and climate-resilient housing designs.

8.9.4.2. INFRASTRUCTURE RESILIENCE

- **Project 4:** Implement a Green Infrastructure Retrofit Programme in towns, including permeable paving, stormwater harvesting, and green corridors.
- **Project 5:** Prioritise upgrading district roads that link rural wards to the R617 and N3 corridors, integrating climate-resilient design standards.
- **Project 6:** Expand renewable energy micro-grids (solar, biogas) in off-grid settlements to reduce load-shedding vulnerabilities.

8.9.4.3. ENVIRONMENTAL PROTECTION AND REHABILITATION

- **Project 7:** Launch a Catchment Restoration Programme in the Umzimkhulu and Mkomazi rivers, focusing on wetland rehabilitation, invasive alien clearing, and soil erosion control.
- **Project 8:** Establish a Biodiversity Stewardship Programme with traditional authorities to protect grasslands and biodiversity hotspots through communal land-use agreements.
- **Project 9:** Introduce an Eco-Infrastructure Investment Fund, leveraging provincial and donor funding for ecological restoration projects.

8.9.4.4. ECONOMIC DIVERSIFICATION

- **Project 10:** Develop an Agro-Processing Hub in Underberg to support climate-smart agriculture and smallholder farmers.
- **Project 11:** Establish a Green Economy Incubator in Himeville to support SMMEs in renewable energy, recycling, and eco-tourism.
- **Project 12:** Formalise and upgrade informal trading markets in Creighton and Donnybrook, integrating shelter, water, and sanitation facilities.

8.9.4.5. TOURISM DEVELOPMENT

- **Project 13:** Develop an Eco-Tourism Circuit linking Underberg, Himeville, and Drakensberg trails, with climate-resilient infrastructure (boardwalks, eco-lodges).
- **Project 14:** Invest in a Climate-Smart Visitor Centre in Underberg promoting environmental education and local crafts.

8.9.4.6. GOVERNANCE AND PLANNING INSTRUMENTS

- **Project 15:** Embed Climate Risk Overlays into the NDZ Land Use Management Scheme.

- **Project 16:** Establish a Municipal Climate Change Forum with traditional leaders, civil society, and private sector to guide implementation.
- **Project 17:** Develop a Municipal Climate Monitoring Dashboard tracking rainfall, flood events, and adaptation project outcomes.

8.10. SLOPE AND TOPOGRAPHY

The topography of the Dr. Nkosazana Dlamini Zuma (NDZ) Local Municipality, located within the Harry Gwala District of KwaZulu-Natal, is a defining feature that shapes settlement patterns, economic activity, environmental systems, and spatial planning imperatives. The municipality encompasses a diverse landscape ranging from the southern Drakensberg Mountain range in the west to rolling hills, river valleys, and undulating plains in the east. This varied terrain influences both development opportunities and constraints and requires that spatial planning strategies integrate topographic realities with socio-economic objectives, in alignment with the KwaZulu-Natal Provincial Spatial Development Framework (2021) and SPLUMA principles.

8.10.1. KEY TOPOGRAPHIC CHARACTERISTICS

NDZ's western boundary lies within the uKhahlamba-Drakensberg foothills, characterised by high-altitude mountain ranges exceeding 3,000 metres above sea level. This area includes significant catchments feeding the uMzimkhulu and Mkomazi rivers, both of which are critical for regional water supply. The central portion of the municipality is dominated by rolling hills and steep slopes, interspersed with valleys that host settlements and agricultural activity. In contrast, the eastern sections of the municipality present more moderate elevation gradients, which are more suitable for larger settlement concentrations and road linkages.

Overall, the terrain is defined by steep gradients, fragile soils, and a mosaic of grasslands, wetlands, and riparian systems, which are environmentally sensitive and vital for ecological services.

8.10.2. CHALLENGES POSED BY TOPOGRAPHY

8.10.2.1. HUMAN SETTLEMENTS

Steep slopes and valley systems constrain the expansion of settlements, particularly in traditional rural areas. Informal and dispersed settlements are often established on marginal or hazard-prone land, exposing communities to flooding, erosion, and limited access to basic services.

8.10.2.2. INFRASTRUCTURE AND SERVICE DELIVERY

Topographic variation raises the cost of road construction and maintenance, with many rural settlements poorly connected to district corridors. Steep gradients increase the difficulty of installing bulk services such as water pipelines, sanitation networks, and electricity distribution lines, resulting in infrastructure backlogs.

8.10.2.3. AGRICULTURE

While agriculture is a key economic sector, steep slopes are prone to soil erosion when overgrazed or cultivated without conservation measures. The limited extent of arable flat land restricts mechanised farming and intensifies reliance on subsistence agriculture.

8.10.3. OPPORTUNITIES CREATED BY TOPOGRAPHY

8.10.3.1. TOURISM AND RECREATION

The Drakensberg mountains and associated valleys provide unique opportunities for eco-tourism, adventure tourism, and cultural tourism, particularly around Underberg and Himeville. These landscapes form part of

the uKhahlamba-Drakensberg World Heritage Site buffer zone, a key driver of regional economic activity.

8.10.3.2. CONSERVATION AND BIODIVERSITY

The mountainous terrain supports high biodiversity and sensitive ecosystems. Topography creates natural buffers that, if protected, can enhance climate resilience by stabilising soils, regulating hydrological systems, and sequestering carbon.

8.10.3.3. WATER RESOURCE PROTECTION

As a strategic water source area, NDZ's topography provides a natural foundation for catchment management initiatives, creating opportunities for investment in nature-based solutions such as wetland restoration and alien vegetation clearing.

8.10.4. IMPLICATIONS FOR SPATIAL PLANNING

8.10.4.1. SETTLEMENT LOCATION AND HIERARCHY

Spatial planning must discourage settlement expansion into steep slopes, riparian zones, and high-risk floodplains. Instead, growth should be channelled towards existing nodes such as Underberg, Himeville, Creighton, and Donnybrook, where topography is more conducive to compact, serviceable urban form.

8.10.4.2. LAND USE MANAGEMENT

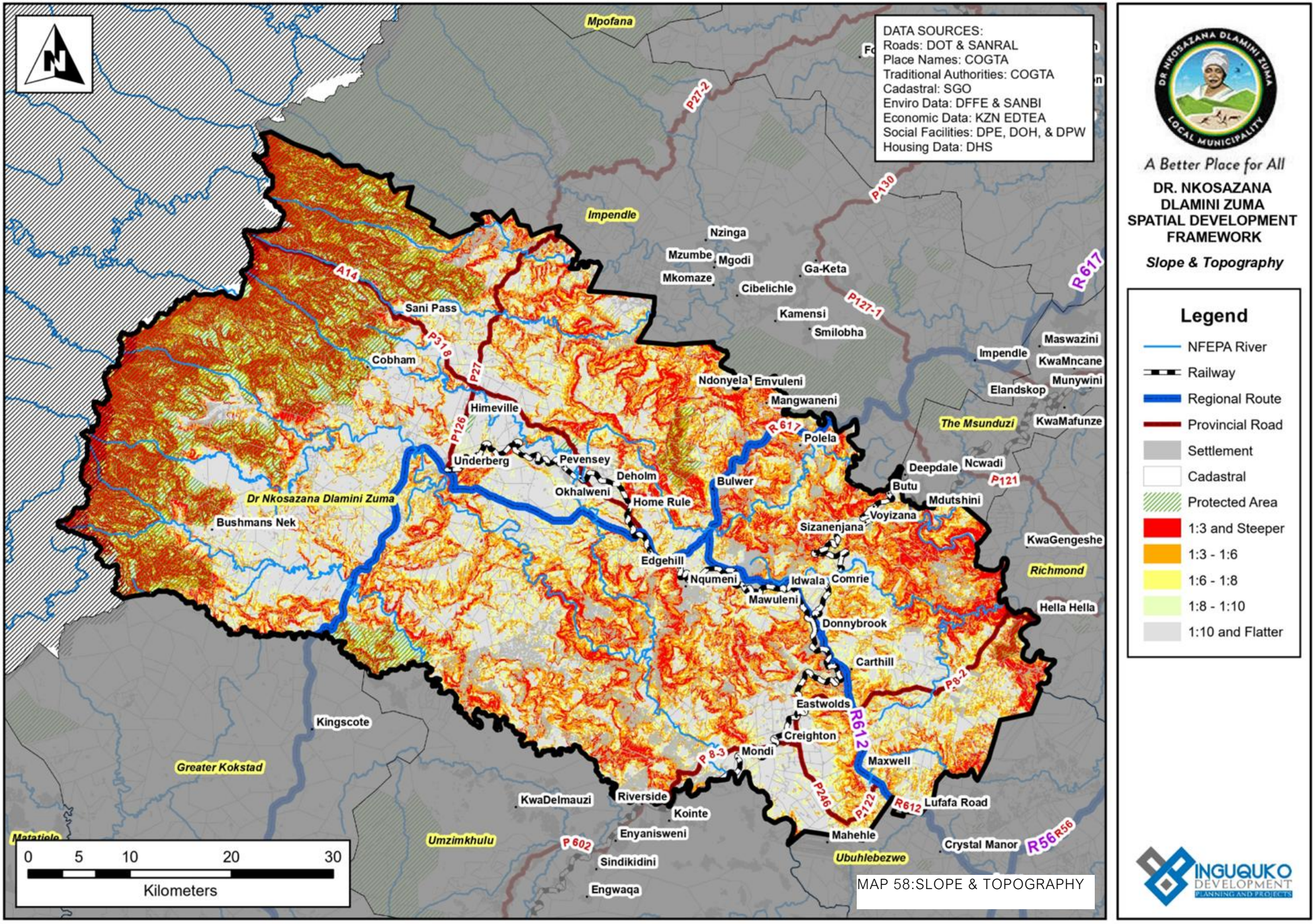
Land Use Schemes must integrate slope constraints and floodline delineations into zoning categories. This will protect environmentally sensitive areas and ensure that land development decisions are consistent with SPLUMA's principles of sustainability and resilience.

8.10.4.3. ENVIRONMENTAL PROTECTION

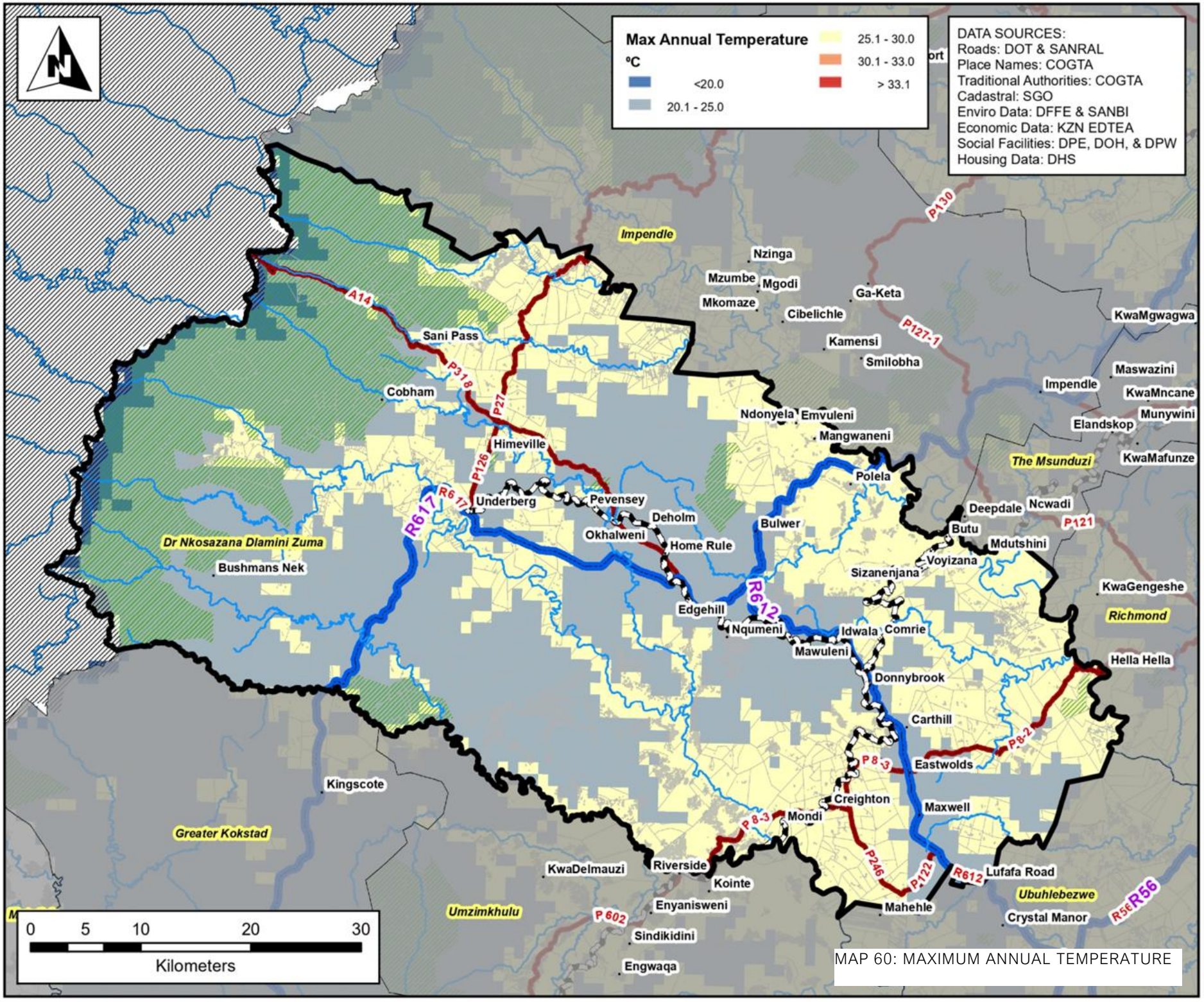
Topographic features necessitate the identification of ecological corridors and biodiversity stewardship areas, aligned with the Provincial SDF's priority environmental management zones. Protecting these landscapes will safeguard ecosystem services while supporting tourism and agriculture.

8.10.4.4. DEVELOPMENT CONSTRAINTS AND OPPORTUNITIES

While steep terrain imposes constraints on agriculture and settlement expansion, it simultaneously creates opportunities for eco-tourism and conservation-based economies. Spatial planning must therefore balance protective land use controls with targeted investment in nodes where terrain supports sustainable development.



MAP 58:SLOPE & TOPOGRAPHY



MAP 60: MAXIMUM ANNUAL TEMPERATURE

A Better Place for All

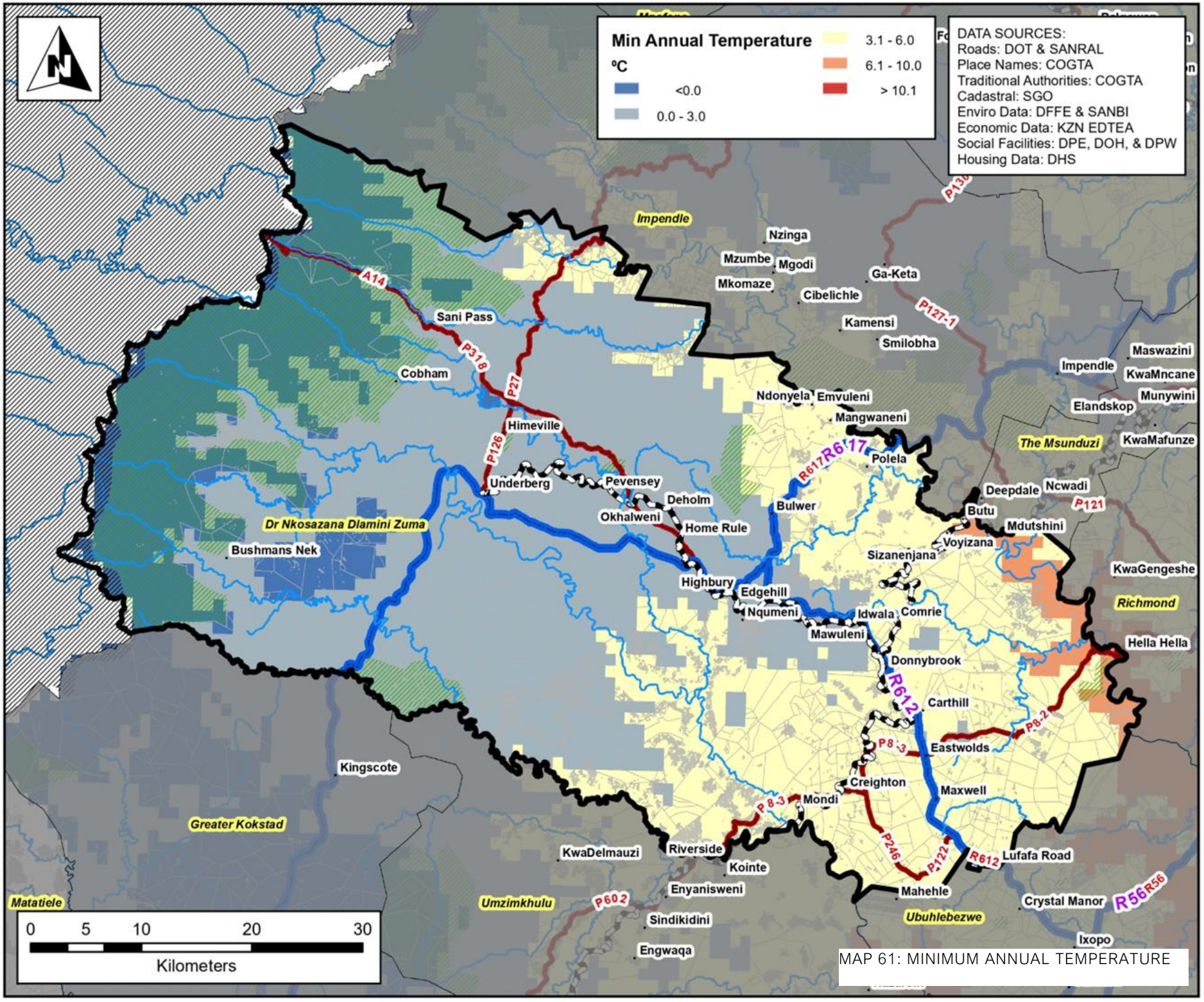
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Maximum Annual Temperature (Degrees Ceclius)

Legend

- NFEPA River
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 61: MINIMUM ANNUAL TEMPERATURE

A Better Place for All

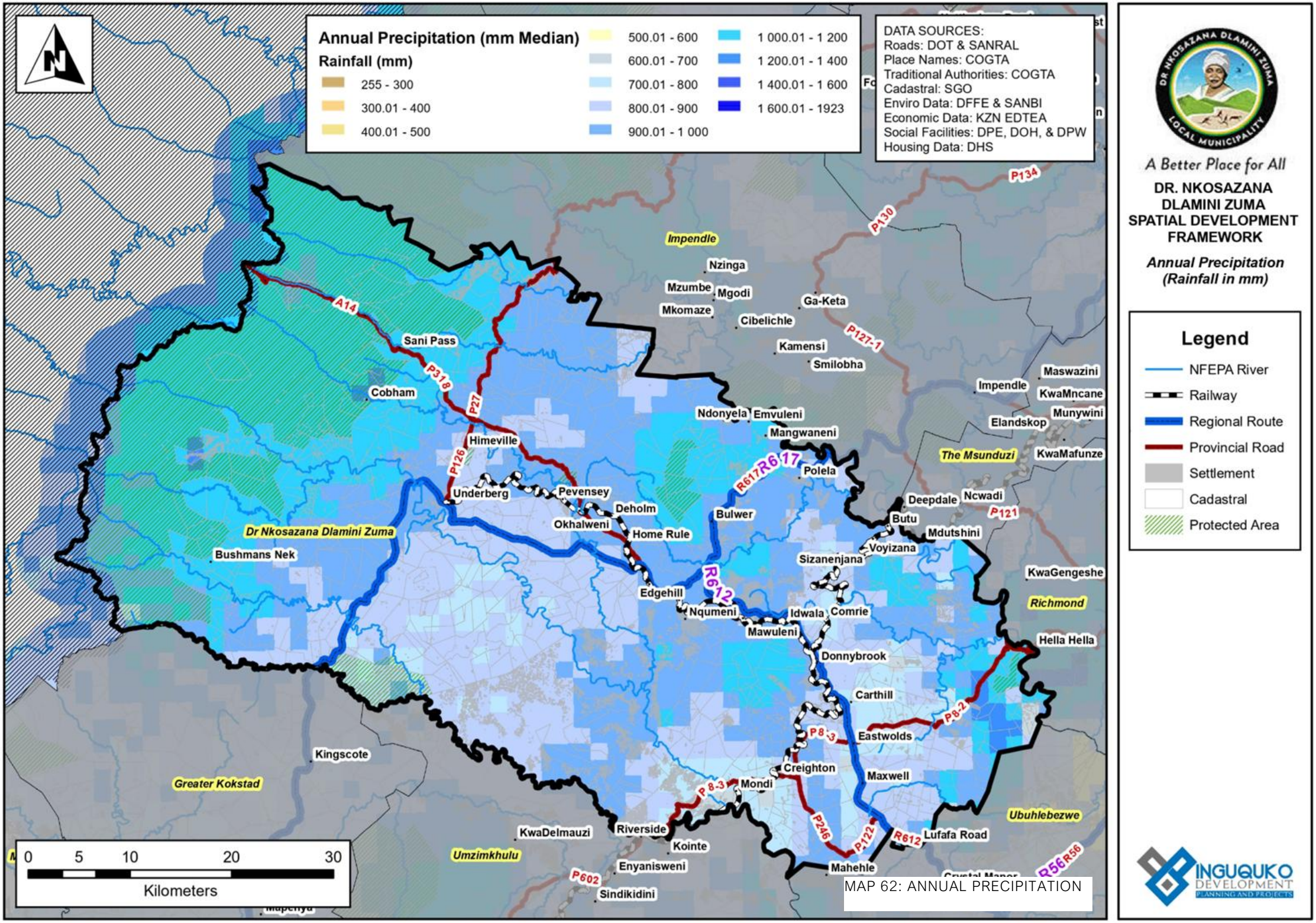
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Minimum Annual Temperature (Degrees Ceclius)

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Annual Precipitation (Rainfall in mm)

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

MAP 62: ANNUAL PRECIPITATION

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

8.11. DISASTER RISK MANAGEMENT

Incorporating disaster risk management (DRM) into the development of a Spatial Development Framework is essential for building resilient and sustainable communities. Analysing disaster risks—such as floods, earthquakes, and wildfires—ensures that spatial planning decisions account for potential hazards, reducing vulnerability and safeguarding lives, infrastructure, and economic assets. By integrating DRM, planners can identify high-risk zones, guide development away from danger-prone areas, and prioritize investments in risk mitigation and emergency preparedness. This proactive approach not only enhances public safety but also supports long-term development goals by minimizing future recovery costs and disruptions.



The CSIR Green Book is a comprehensive online tool developed by the Council for Scientific and Industrial Research (CSIR) to support climate-resilient planning in South African municipalities. It provides detailed, downscaled data and risk profiles for each municipality, highlighting vulnerabilities to climate-related hazards such as floods, droughts, wildfires, and coastal storms. The Green Book integrates scientific evidence with practical planning tools, enabling local governments to assess current and future climate risks and to implement targeted adaptation strategies. It includes interactive tools like the *Municipal Risk Profile Tool* and the *Adaptation Actions Tool*, which guide planners in identifying high-risk areas and selecting appropriate interventions to reduce exposure and build resilience.

By embedding disaster risk management into spatial planning, the Green Book plays a crucial role in shaping sustainable, adaptive settlements across South Africa.

8.11.1. FLOOD HAZARD INDEX

The Flood Hazard Index in the CSIR Green Book is a spatially explicit measure designed to assess the potential risk of flooding across South African municipalities. It combines various datasets and indicators—such as rainfall intensity, topography, land cover, and drainage infrastructure—to estimate the likelihood and severity of flood events under both current and future climate scenarios. The index is part of the Green Book's broader climate risk profiling tools and is used to identify areas that are most vulnerable to flooding. This information helps planners and decision-makers prioritize adaptation actions, such as improving stormwater systems, restricting development in flood-prone zones, and enhancing early warning systems. By integrating the Flood Hazard Index into spatial planning, municipalities can proactively reduce exposure and build resilience to climate-induced flood risks. In the CSIR Green Book, the Flood Hazard Index is categorized into levels such as "Very Low," "Medium," and "Very High" to help planners and decision-makers understand and visualize the relative flood risk across different areas. These categories are derived from a combination of factors including rainfall intensity, topography, land cover, and hydrological data.

- Very Low: Areas in this category have minimal exposure to flood hazards. These regions typically have favourable topography, effective drainage, and low rainfall intensity, making them relatively safe for development.
- Medium: These areas face a moderate risk of flooding. While not the most vulnerable, they may still experience occasional flood events, especially under extreme weather conditions or due to inadequate infrastructure.

- Very High: This level indicates a significant flood risk. Such areas are often located in floodplains, low-lying zones, or regions with poor drainage and high rainfall. Development in these zones requires careful planning, mitigation measures, or even avoidance.

8.11.2. ADVERSELY LOCATED HOUSEHOLDS

Analysing households adversely located within hydrological buffers is a critical component of climate-resilient spatial planning and disaster risk management. Hydrological buffers—such as floodplains, riverbanks, wetlands, and stormwater catchment areas—are naturally dynamic zones that play a vital role in managing water flow, reducing flood peaks, and maintaining ecological balance. However, when human settlements encroach upon these areas, the risk of flooding, water contamination, infrastructure damage, and even loss of life increases significantly. By identifying and mapping households within these sensitive zones, planners and decision-makers can assess the degree of exposure and vulnerability of communities to hydrological hazards. This analysis enables the development of targeted interventions such as relocation strategies, flood-proofing infrastructure, enforcing zoning regulations, and enhancing early warning systems. It also supports the protection and restoration of natural buffers, which serve as cost-effective, nature-based solutions to mitigate flood risks. Tabulated below are the number households located in hydrological areas.

TABLE 53: ADVERSELY LOCATED HOUSEHOLDS

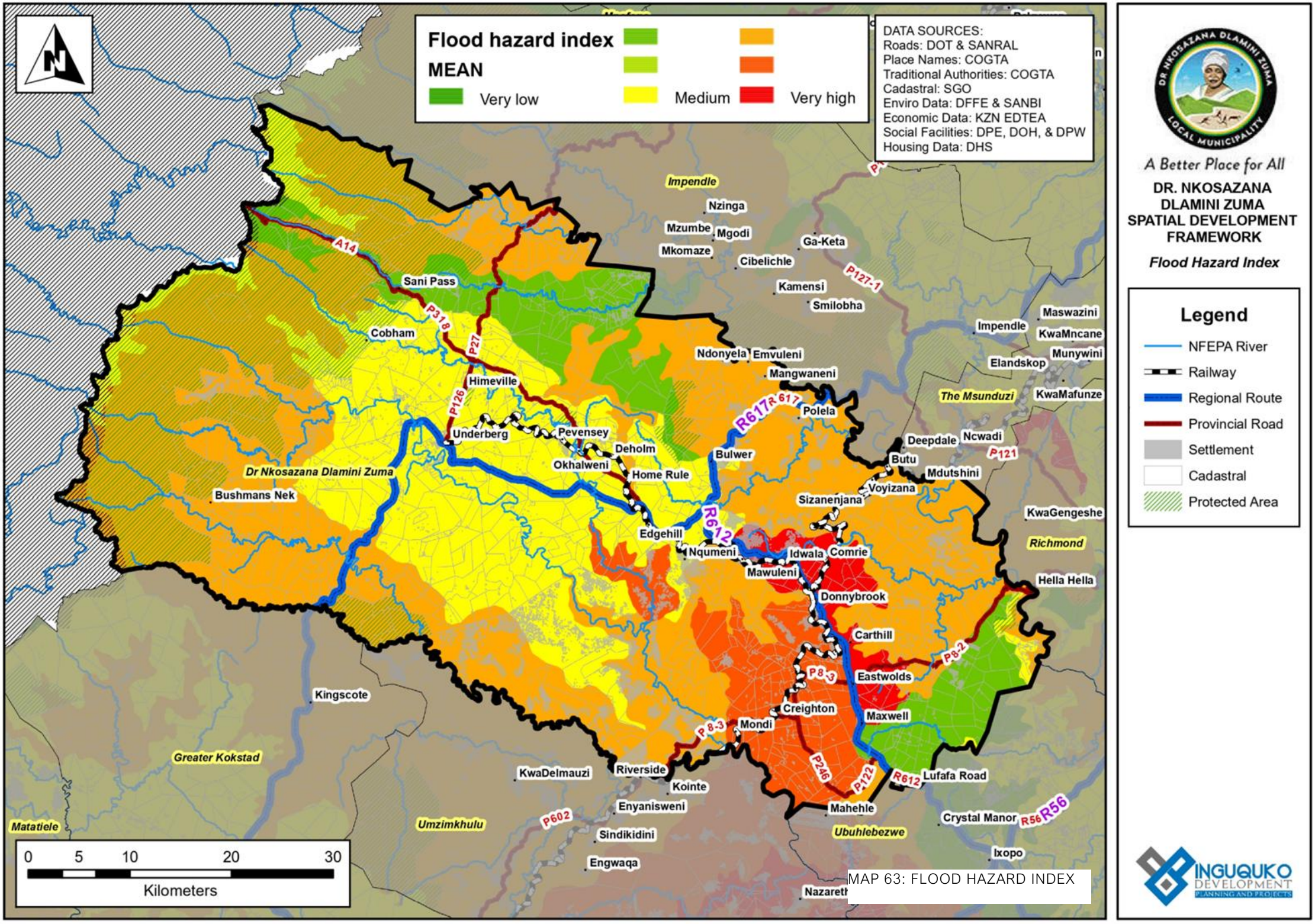
HYDROLOGY	NO. OF HH
River 32m Buffer	2085
Wetland 32m Buffer	474
100yr Floodline	262
TOTAL	**2821**

8.11.3. FIRE LIKELIHOOD

Fire likelihood refers to the probability of wildfire occurrences in specific areas, particularly under changing climate conditions. This index is based on a combination of environmental factors such as vegetation type, historical fire data, topography, and projected climate variables like temperature and wind patterns.

The Green Book identifies areas at risk—especially those within the wildland-urban interface, where natural vegetation meets human settlements—and categorizes them into different risk levels. These insights help municipalities understand where wildfires are most likely to occur and how severe their impacts could be. By mapping fire likelihood, the Green Book supports proactive planning, such as the creation of buffer zones, improved land-use management, and targeted fire prevention strategies, ultimately aiming to protect lives, infrastructure, and biodiversity in a warming climate. The fire likelihood index categorizes areas based on the statistical probability of wildfire occurrence, helping municipalities assess and manage fire risk more effectively. The categories are defined as follows:

- Likely: Fires are expected approximately once every 5 years. These areas have environmental conditions—such as vegetation type and climate—that support relatively frequent fire activity.
- Possible: Fires may occur about once every 10 years. These regions have moderate fire risk, often influenced by seasonal weather patterns and land use.
- Unlikely: Fires are expected roughly once every 20 years. These areas have lower fire risk due to less flammable vegetation, cooler or wetter climates, or effective fire management practices.
- Rare: Fires occur approximately once every 100 years. These zones are typically very low-risk, either due to natural conditions or minimal fuel availability for fires.



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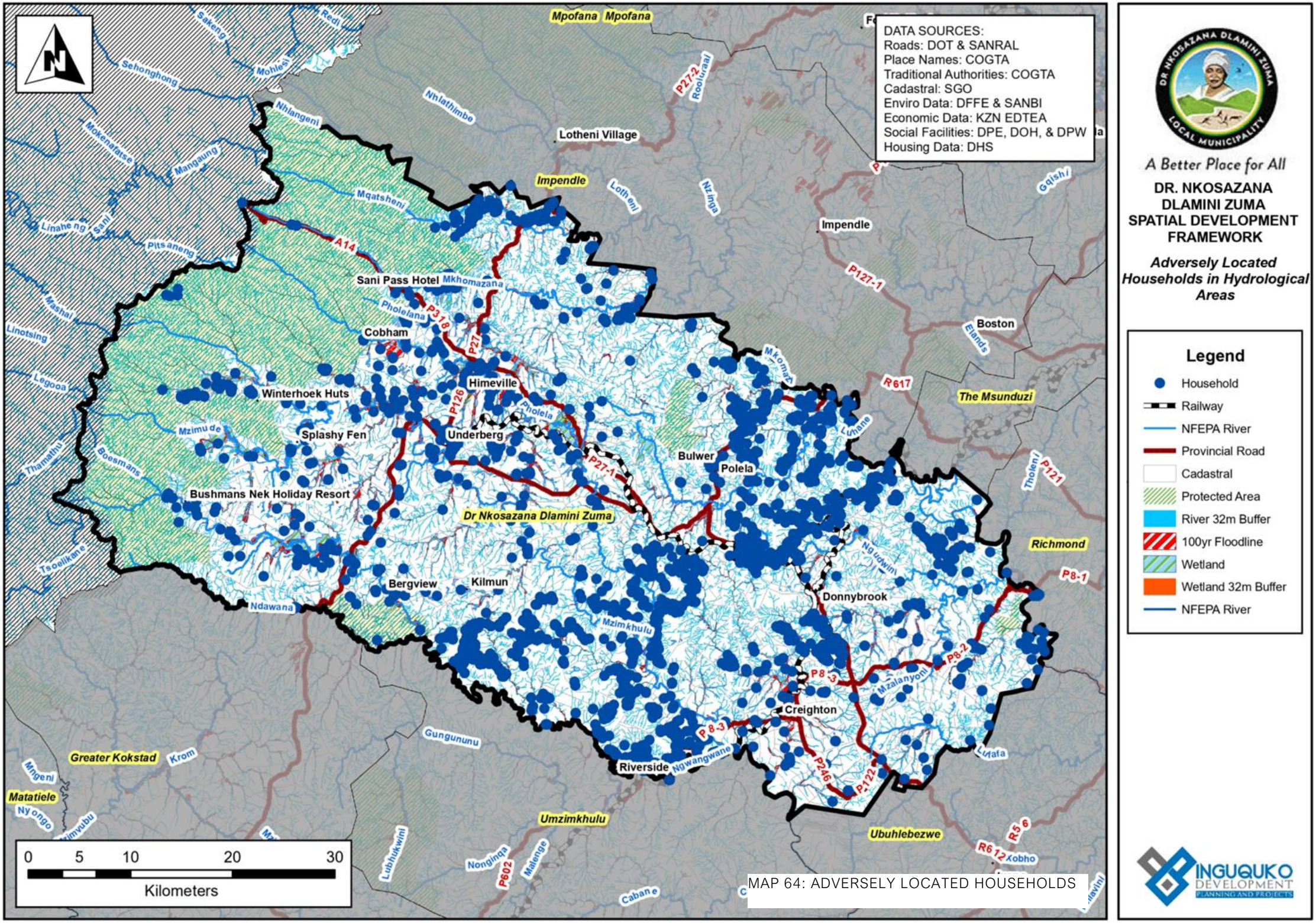
Flood Hazard Index

Legend

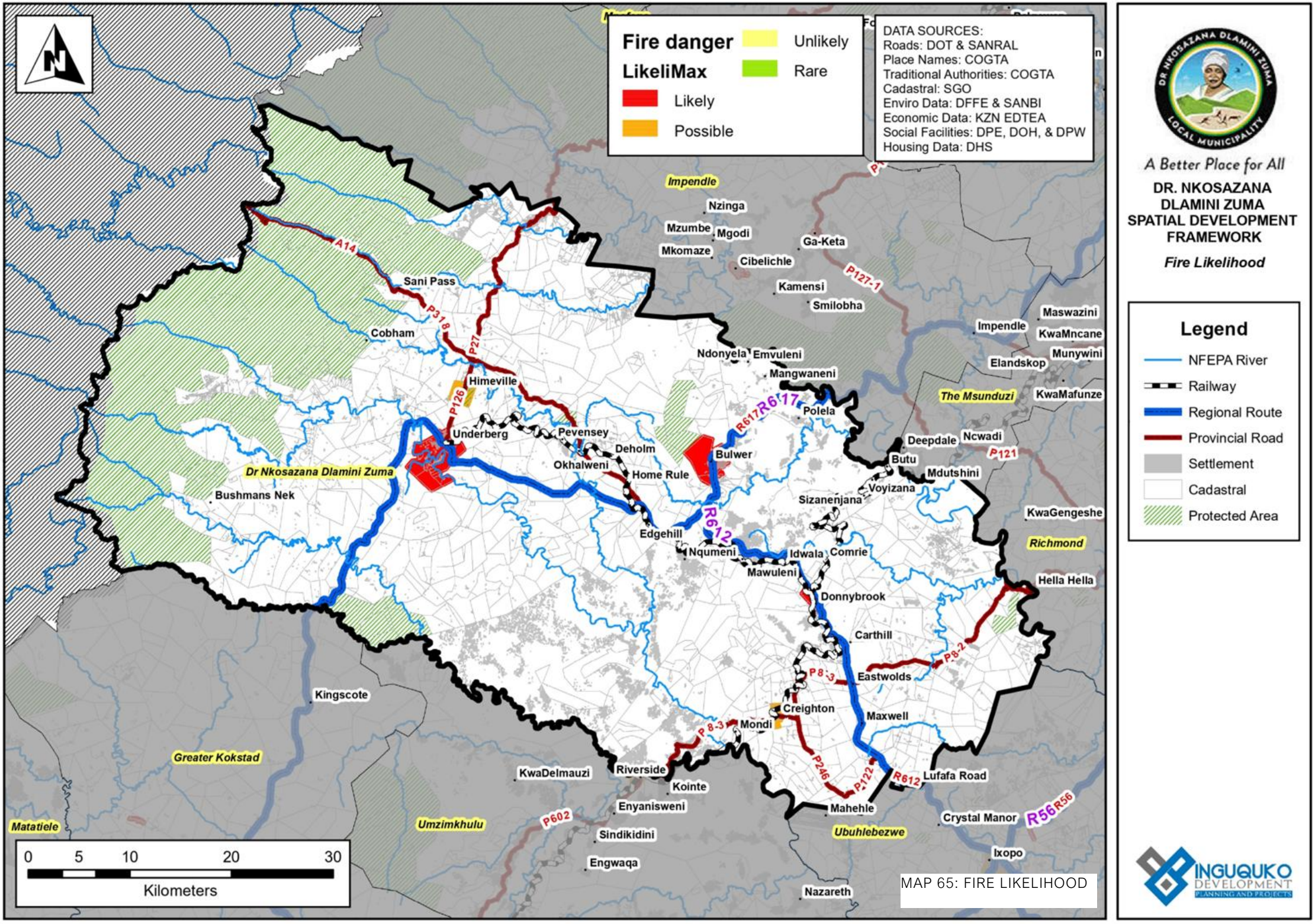
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

MAP 63: FLOOD HAZARD INDEX

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MAP 64: ADVERSELY LOCATED HOUSEHOLDS



MAP 65: FIRE LIKELIHOOD

8.11.4. VELD FIRE RISK



According to the Let's Respond Toolkit, veld fires are a significant environmental and disaster risk in South Africa, particularly in areas with dry climates and dense vegetation. The toolkit provides a Veldfire Risk Map that categorizes regions into extreme, high, medium, and low risk levels, offering a national framework aligned with the National Veld and Forest Fire Act. This classification helps municipalities identify priority areas for fire management interventions and integrate veldfire risk into their broader climate change response and spatial planning strategies. The toolkit emphasizes the importance of proactive planning, such as maintaining firebreaks, managing fuel loads, and raising community awareness, to reduce the likelihood and impact of veld fires.

The veld fire risk classifications in the *Let's Respond Toolkit*—Low, Medium, High, and Extreme—are used to indicate the potential severity and frequency of veld fires in different regions.

- Low risk areas are those where veld fires are unlikely to occur due to limited vegetation, cooler temperatures, or effective land management practices.
- Medium risk zones may experience occasional fires, often influenced by seasonal changes or moderate fuel loads.
- High risk areas are more prone to frequent and intense veld fires, typically due to dense vegetation, dry conditions, and wind exposure.
- Extreme risk zones face the greatest threat, where fires are not only likely but can spread rapidly and cause severe damage to ecosystems, infrastructure, and communities.

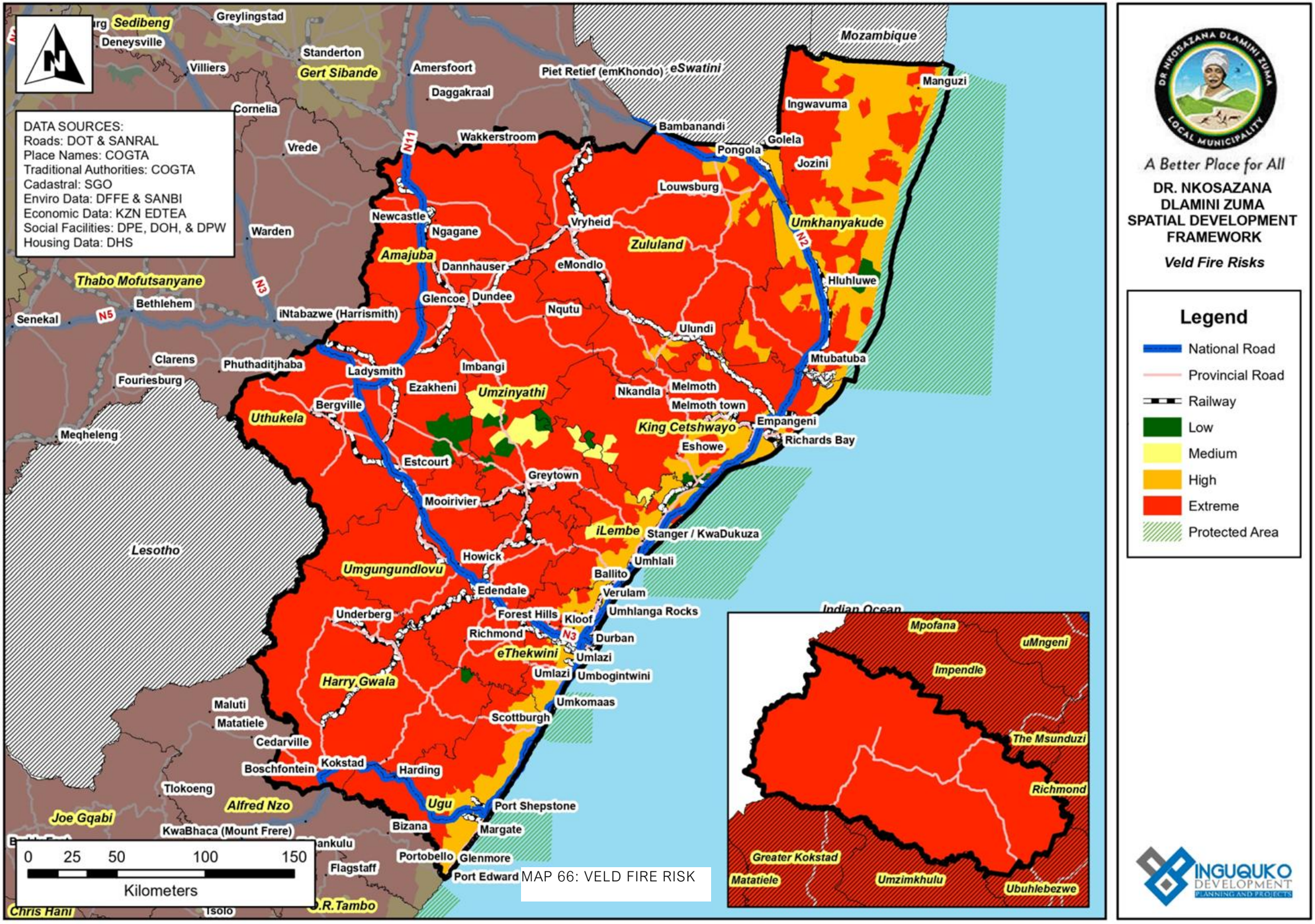
8.11.5. LIGHTNING STORM RISK

According to the Let's Respond Toolkit, lightning storm risk in South Africa is assessed using a metric called ground-flash density, which measures the number of lightning flashes per square kilometre per year. This classification helps identify areas most at risk of lightning-related hazards, which is particularly important given South Africa's high incidence of lightning-related fatalities. The classifications are as follows:

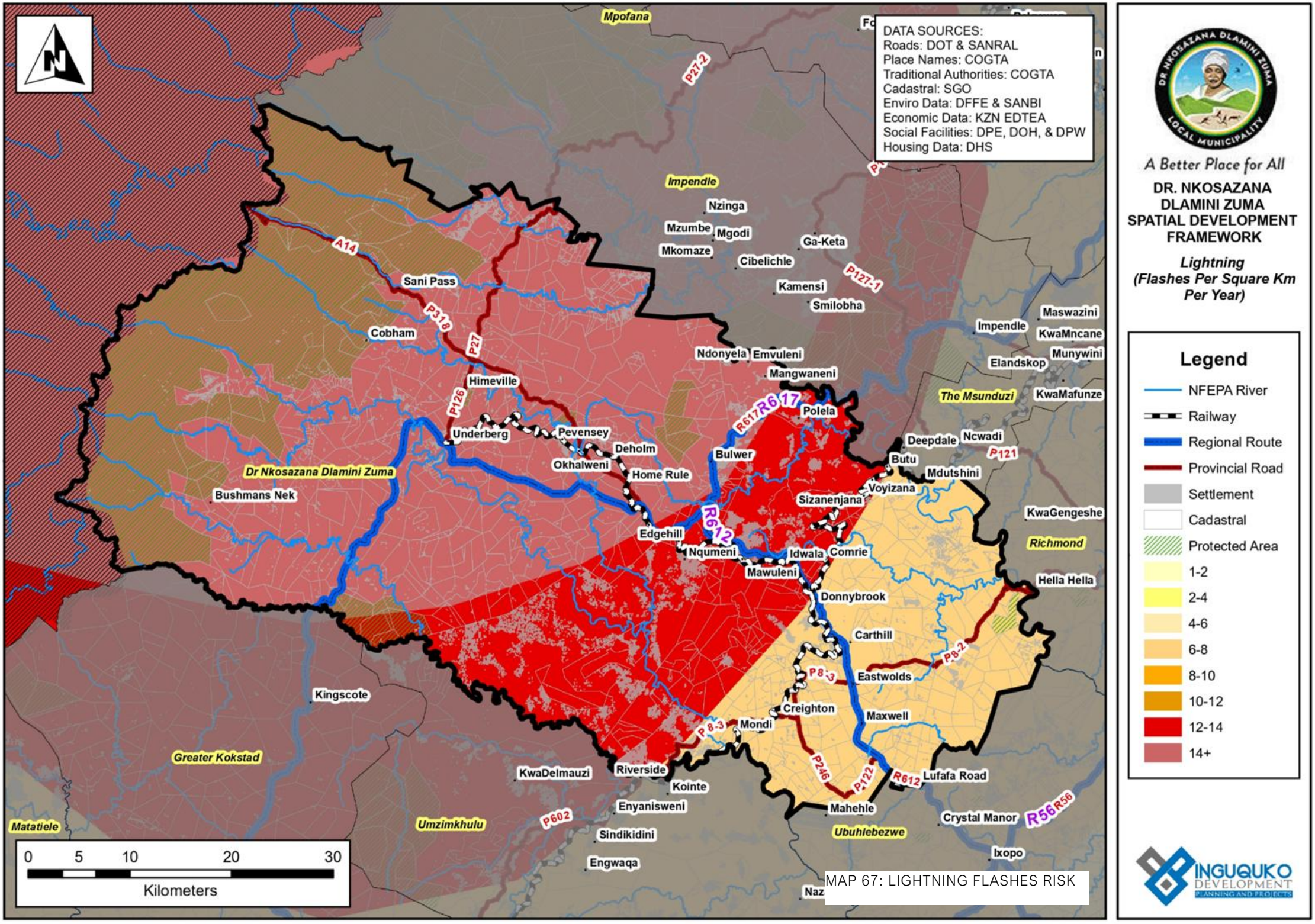
- 1–2 flashes/km²/year: Low lightning activity, indicating minimal risk.
- 2–4 flashes/km²/year: Slightly elevated risk, but still relatively low.
- 4–6 flashes/km²/year: Moderate lightning activity, requiring some preparedness.
- 6–8 flashes/km²/year: High risk, with frequent lightning events.
- 8–10 flashes/km²/year and above: Very high to extreme risk, where lightning is a common and serious hazard.

Some areas, including the NDZ LM, even exceed 14 flashes/km²/year, highlighting the need for targeted lightning protection measures, especially in vulnerable rural and peri-urban communities





MAP 66: VELD FIRE RISK



MAP 67: LIGHTNING FLASHES RISK

8.12. AGRICULTURAL ANALYSIS

8.12.1. LAND CATEGORIES

8.12.1.1. CATEGORY A – IRREPLACEABLE

Category A - Irreplaceable land is essential for agricultural production because of its unique characteristics and high productivity. This land typically has the best combination of physical and chemical properties, such as fertile soil, favourable climate, and reliable water supply, which are necessary for producing high crop yields consistently.

The preservation of this land is crucial for ensuring national food security, as it supports intensive farming practices with minimal intervention. Due to its limited availability, especially in regions like KwaZulu-Natal, it is vital to protect Category A land from non-agricultural development and degradation.

Maintaining this land for agricultural use helps sustain the agricultural economy, supports rural livelihoods, and contributes to the overall stability of food systems. Efforts to conserve Category A land include implementing sustainable farming practices, preventing soil erosion, and managing water resources effectively to maintain its productivity and ecological health.

8.12.1.2. CATEGORY B – THREATENED

Category B - Threatened land is at significant risk of degradation due to various factors such as soil erosion, overgrazing, deforestation, and unsustainable agricultural practices. This land is crucial for agricultural production, but its viability is compromised by these threats.

To maintain its agricultural potential, it is essential to implement protective measures. These measures include soil conservation techniques, such as contour ploughing and terracing, to prevent erosion; sustainable grazing practices to avoid overgrazing; reforestation and afforestation to restore vegetation cover; and the adoption of sustainable farming practices that enhance soil health and productivity. Additionally, monitoring and managing water resources effectively can help mitigate the impacts of drought and flooding, which further threaten the land's productivity. By prioritizing these protective measures, we can ensure that Category B land remains viable for agricultural use, supporting food security and the livelihoods of local communities.

8.12.1.3. CATEGORY C – THREATENED

Category C - Primary Agricultural Land is exceptionally well-suited for intensive farming due to its favourable physical and chemical properties. This land typically features fertile soils, adequate water supply, and a suitable climate, making it ideal for producing high crop yields consistently. The soil quality in these areas supports a wide range of crops, allowing for diverse agricultural practices. Additionally, the land's topography is often conducive to mechanized farming, which enhances productivity and efficiency.

Prioritizing Category C land for agricultural use is crucial for ensuring food security and supporting the agricultural economy. By focusing on intensive farming in these areas, farmers can maximize output while minimizing the need for extensive land conversion. This approach helps preserve other land types for conservation and alternative uses, maintaining ecological balance.

To maintain the productivity of Category C land, it is essential to implement sustainable farming practices. These practices include crop rotation, soil conservation techniques, and efficient water management. By doing so, farmers can prevent soil degradation, enhance soil fertility, and ensure the long-term viability of these prime agricultural areas. Protecting and prioritizing Category C land for agriculture not only supports local and national food production but also contributes to the overall sustainability of the agricultural sector.

8.12.1.4. CATEGORY D – SECONDARY AGRICULTURAL LAND

Category D - Secondary Agricultural Land is characterized by its moderate suitability for agricultural activities. While it may not possess the optimal conditions for intensive farming, such as the highest soil fertility or ideal topography, it remains valuable for various agricultural uses. This land can support a range of activities, including grazing, mixed farming, and certain types of crop production that do not require the most fertile soils or the most favourable growing conditions.

Secondary Agricultural Land often requires more management and input to maintain productivity compared to primary agricultural land. This might include soil amendments, erosion control measures, and efficient water management practices. Despite these challenges, Category D land plays a crucial role in the agricultural landscape by providing additional space for farming activities, thereby helping to meet food production needs and supporting rural economies.

Moreover, this land can serve as a buffer zone, protecting more sensitive or high-value agricultural areas from encroachment and degradation. By utilizing Category D land effectively, farmers can diversify their operations and reduce pressure on prime agricultural lands, contributing to overall agricultural sustainability and resilience. Therefore, while it may not be the first choice for intensive farming, Category D - Secondary Agricultural Land remains an important asset for the agricultural sector.

8.12.1.5. CATEGORY E- MIXED AGRICULTURAL LAND

Category E - Mixed Agricultural Land is versatile and can support a combination of agricultural and other land uses. This category includes areas that are suitable for both farming and non-agricultural activities, such as residential development, recreational spaces, and commercial enterprises. The flexibility of mixed agricultural land allows for a balanced approach to land use planning, where agricultural productivity can coexist with other forms of development.

In regions like KwaZulu-Natal, where land resources are often limited, Category E land plays a crucial role in accommodating the diverse needs of growing communities. By integrating agricultural activities with other land uses, this category helps optimize land utilization, ensuring that essential agricultural functions are maintained while also providing space for necessary infrastructure and services.

Effective management of mixed agricultural land involves careful planning to prevent conflicts between different land uses and to ensure that agricultural activities are not compromised. This can include zoning regulations, sustainable farming practices, and community engagement to balance the interests of all stakeholders. By leveraging the multifunctional potential of Category E land, municipalities can promote sustainable development, enhance food security, and support economic growth while preserving the ecological integrity of the landscape.

8.12.1.6. PERMANENTLY TRANSFORMED

Permanently Transformed areas refer to lands that have been significantly altered for non-agricultural purposes, rendering them unsuitable for farming. These transformations typically involve urbanization, industrial development, infrastructure projects, and other forms of land use that permanently change the land's natural state. Examples include the construction of buildings, roads, and other impervious surfaces like concrete and asphalt, which seal the soil and prevent it from supporting plant growth and water infiltration.

The conversion of agricultural land to urban or industrial uses often leads to the loss of essential soil functions, such as nutrient cycling, carbon storage, and habitat provision for biodiversity. This not only reduces the land's agricultural productivity but also impacts the broader ecosystem services that healthy soils provide. The rapid pace of urbanization and land transformation,

driven by population growth and economic development, exacerbates these issues, making it increasingly challenging to balance land use for development and agriculture.

Efforts to mitigate the impacts of land transformation include implementing sustainable urban planning practices, promoting green infrastructure, and preserving remaining agricultural lands through zoning regulations and conservation easements. By carefully managing land use changes, it is possible to minimize the negative effects on agricultural productivity and maintain the ecological integrity of the landscape.

8.12.1.7. WATERBODIES

Waterbodies, such as rivers, lakes, and dams, play a crucial role in both agricultural and ecological systems. These water sources are essential for irrigation, providing the necessary water supply to sustain crop growth and ensure food production. In regions where rainfall is insufficient or irregular, irrigation from these waterbodies becomes vital for maintaining agricultural productivity and supporting the livelihoods of farmers.

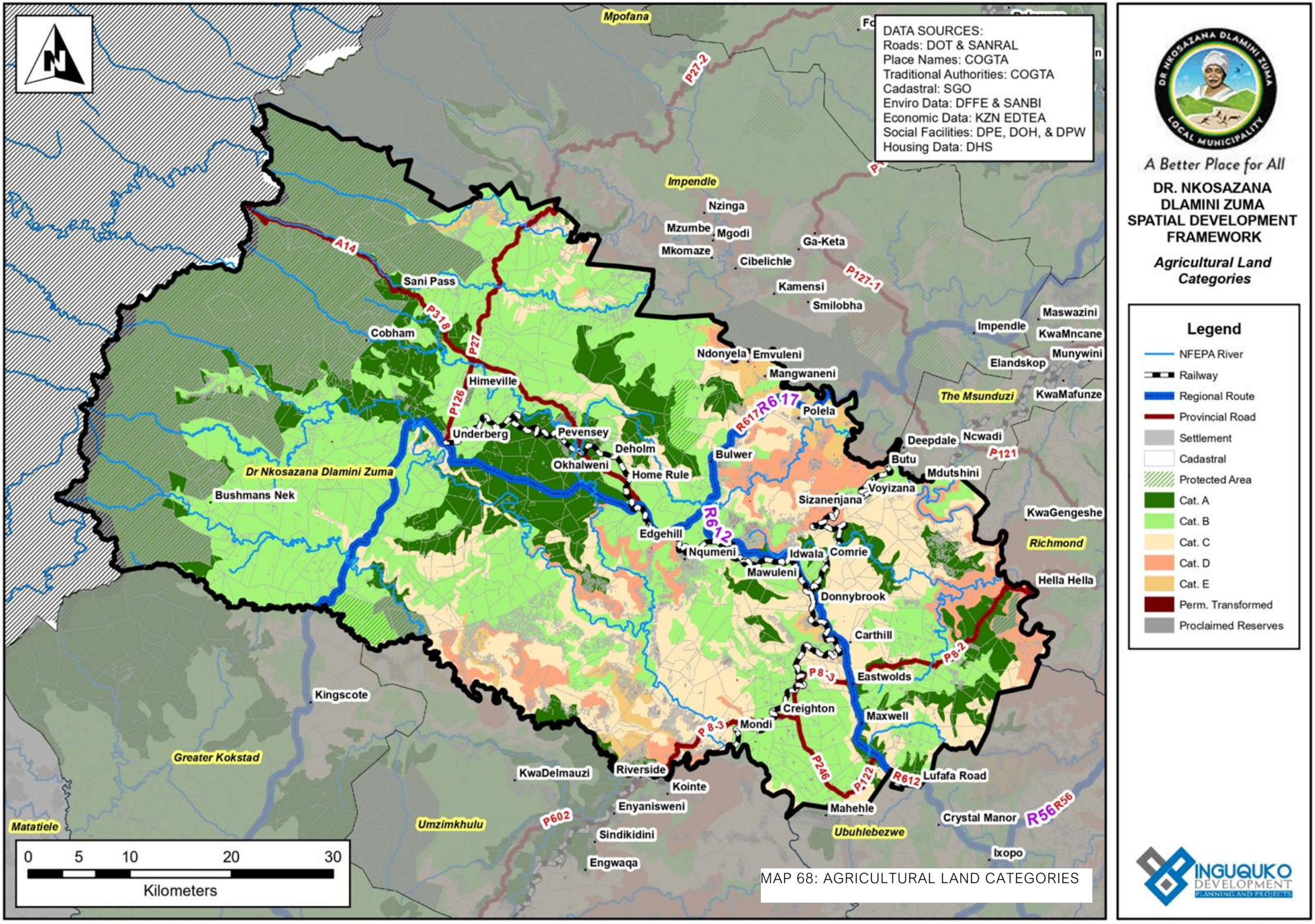
Beyond their agricultural importance, waterbodies are integral to maintaining ecological balance. Rivers and lakes support diverse aquatic ecosystems, providing habitats for a wide range of plant and animal species. They also contribute to the overall health of the environment by facilitating nutrient cycling, sediment transport, and water purification processes. Dams, while primarily constructed for water storage and flood control, can also create new habitats and recreational opportunities.

Moreover, waterbodies help regulate the local climate by influencing temperature and humidity levels. They act as natural buffers against extreme weather events, such as floods and droughts, thereby protecting both human communities and natural ecosystems. The presence of healthy waterbodies is also crucial for groundwater recharge, ensuring a sustainable supply of water for various uses.

Effective management and conservation of these waterbodies are essential to prevent pollution, over-extraction, and habitat destruction. Implementing sustainable water management practices, protecting riparian zones, and promoting community engagement in conservation efforts can help preserve the vital functions of rivers, lakes, and dams, ensuring they continue to support both agricultural needs and ecological health.







MAP 68: AGRICULTURAL LAND CATEGORIES

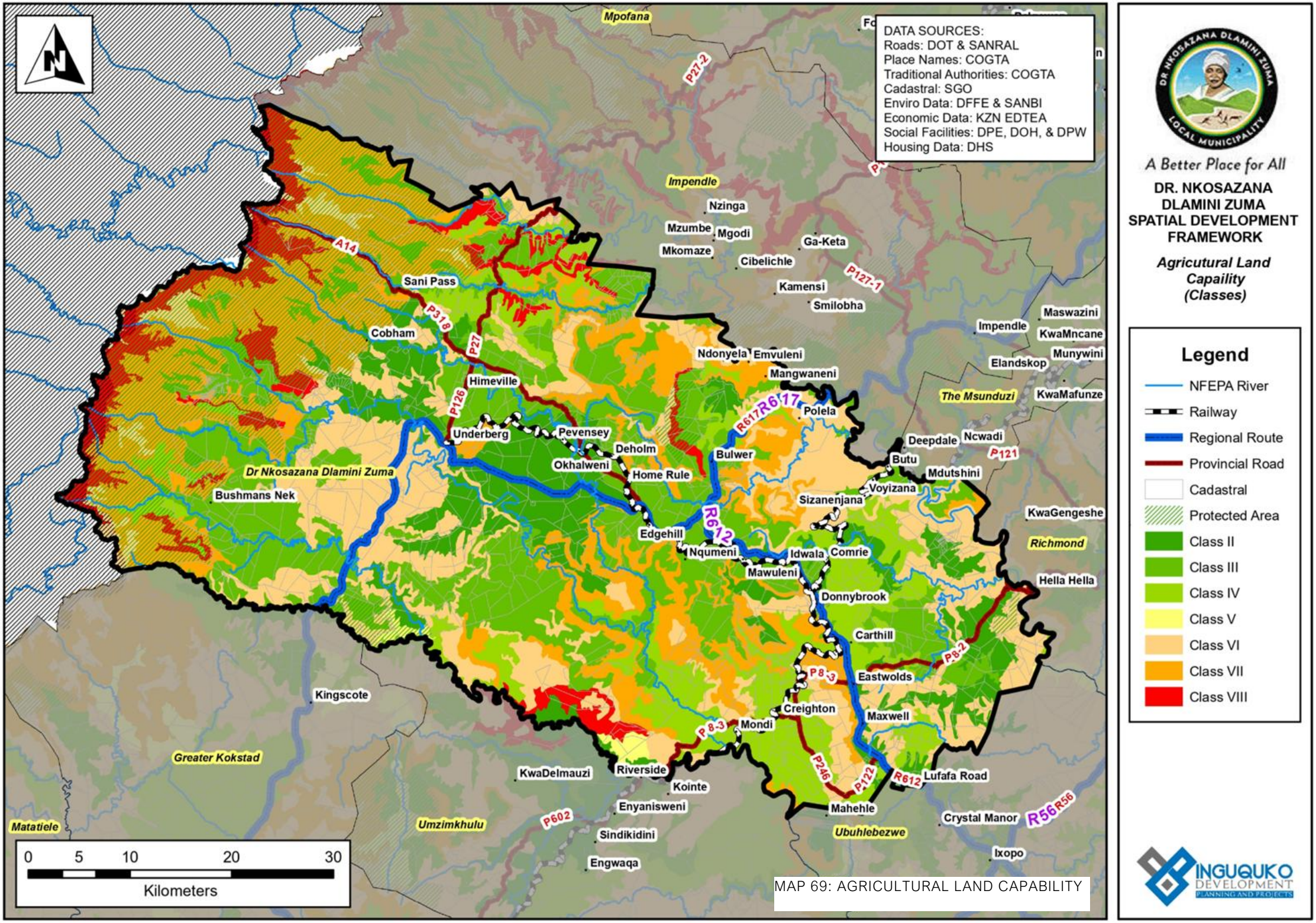
8.12.2. LAND CAPABILITY AND POTENTIAL

The Department of Agriculture, Land Reform and Rural Development has developed an agricultural land capability classification system to evaluate and categorize land based on its suitability for various agricultural activities. This system aids in identifying the most appropriate land uses and management practices for sustainable agricultural production. It typically considers factors such as soil type, topography, climate, and water availability to assess the land's potential productivity and limitations. The classification is divided into different classes, which range from highly suitable to less suitable for agricultural purposes.

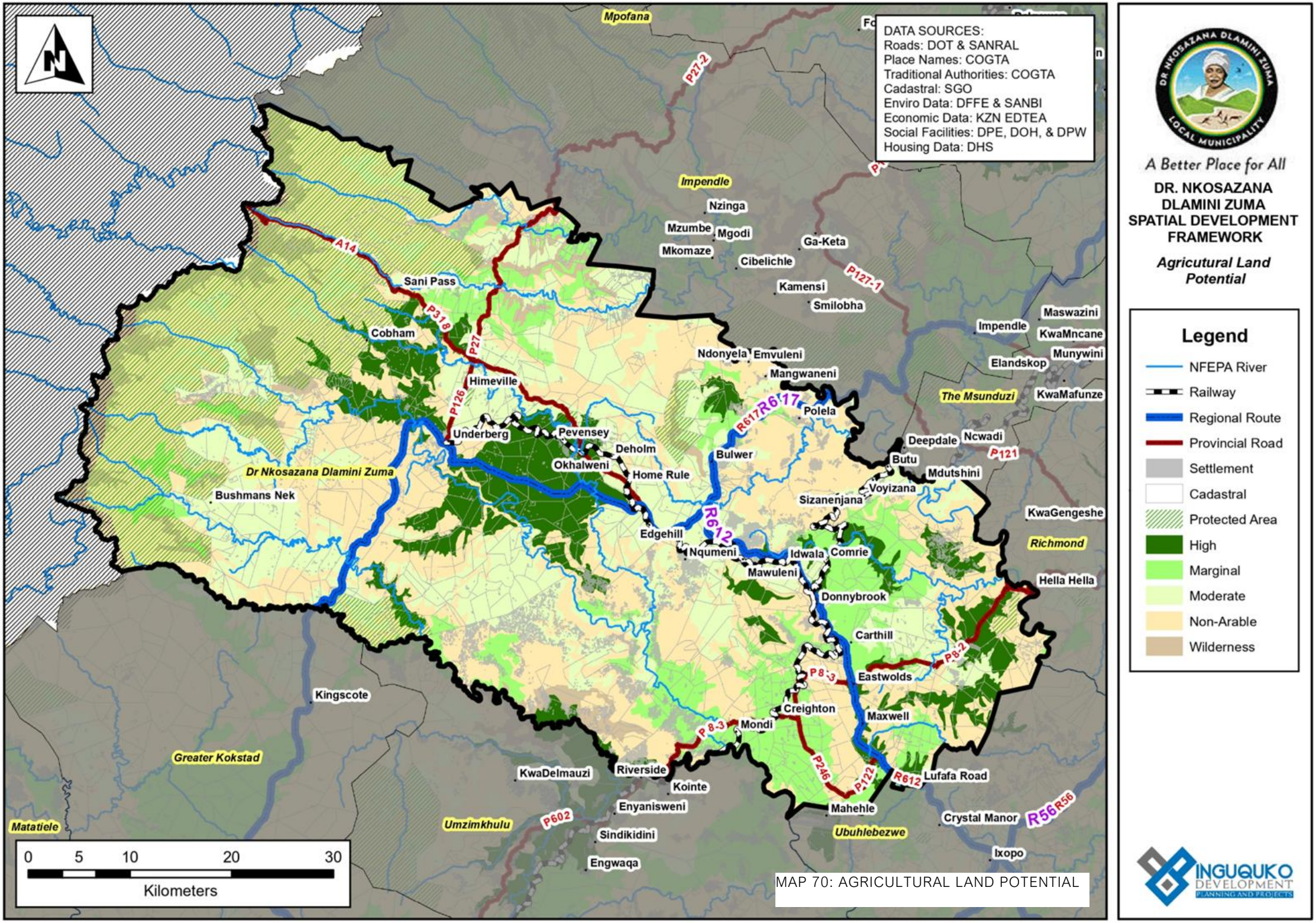
TABLE 54: AGRICULTURAL LAND CATEGORY CLASSES

CLASSIFICATION	DESCRIPTION
Class I – Very High Potential	Class I classification represents the highest potential for agricultural productivity. This class includes land with deep, well-drained soils that are fertile and free from limitations such as steep slopes, erosion risks, or adverse climatic conditions. Class I soils are typically found in flat or gently rolling landscapes, making them ideal for a wide range of crops and intensive farming practices. The characteristics of Class I land make it highly suitable for growing high-value crops, such as vegetables, fruits, and grains, which require optimal growing conditions to thrive. Additionally, this class of land is often used for pasture and livestock farming due to its excellent forage quality and capacity to support healthy grazing systems. In essence, Class I land is the most versatile and productive agricultural land, offering the best conditions for sustainable and profitable farming operations. Its prime location and soil quality make it a valuable asset for farmers and a key resource for food production in South Africa.
Class II – High Potential	Class II agricultural land capability classification is highly productive, though it has minor limitations compared to Class I land. These limitations may include slightly steeper slopes, moderate erosion risks, or minor drainage issues. However, Class II soils are still very fertile and well-suited for a wide range of agricultural activities, including the cultivation of row crops, vegetables, and fruits. They may also support pasture and livestock farming, offering good forage quality. Class II land requires careful management to address its limitations and prevent any potential degradation. Practices such as contour ploughing, crop rotation, and the use of cover crops can help maintain soil health and productivity. Overall, Class II land remains a valuable resource for sustainable agricultural production, providing favourable conditions for high yields and supporting the agricultural sector's growth and stability.
Class III – Moderate Potential	Class III agricultural land capability classification is moderately productive, with more significant limitations than Class I and II lands. These limitations can include steeper slopes, higher erosion risks, drainage issues, and less fertile soils. Despite these challenges, Class III land remains suitable for a wide range of agricultural activities, albeit with more intensive management practices to maintain productivity and prevent degradation. Common uses of Class III land include the cultivation of less demanding crops, such as grains and certain vegetables, as well as pasture and livestock farming. Effective management strategies, such as terracing, contour ploughing, and soil conservation techniques, are essential to optimize the agricultural potential of Class III land. While not as versatile as Class I and II lands, Class III land still contributes significantly to agricultural production and can support sustainable farming practices with proper management.
Class IV – Marginal	Class IV agricultural land capability classification presents more significant limitations compared to Classes I, II, and III. These limitations can include steeper slopes, higher erosion risks, poorer soil fertility, and drainage issues. As a result, Class IV land is less versatile for agricultural purposes and requires more intensive management practices to maintain productivity. This land is generally suitable for less demanding crops, such as certain types of grains and forage crops, and may also be used for pasture and livestock farming. Effective management strategies for Class IV land include erosion control measures, such as

CLASSIFICATION	DESCRIPTION
Potential Arable Land	terracing and contour ploughing, as well as soil conservation techniques to enhance soil fertility and prevent degradation. While Class IV land is not as productive as higher classes, it still holds potential for sustainable agricultural use with careful planning and management.
Class V – Non-Arable; Grazing, Woodland or Wildlife	Class V agricultural land capability classification is characterized by significant limitations that restrict its use for crop production. These limitations may include steep slopes, severe erosion risks, shallow soil depths, poor drainage, and low fertility. Consequently, Class V land is generally unsuitable for regular cultivation of crops. However, it can still be utilized for other agricultural purposes, such as grazing and pasture for livestock. To ensure sustainable use, Class V land requires careful management practices, such as implementing erosion control measures, maintaining vegetation cover, and managing grazing intensity to prevent further degradation. While not ideal for intensive agricultural activities, Class V land still holds value for supporting certain types of extensive agricultural practices and can contribute to the overall agricultural productivity of a region when managed properly.
Class VI – Non-Arable; Grazing, Woodland or Wildlife	Class VI agricultural land capability classification is marked by more severe limitations that make it unsuitable for most types of agricultural activities. These limitations can include extremely steep slopes, severe erosion risks, shallow or rocky soils, poor drainage, and low fertility. As a result, Class VI land is generally not suitable for cultivation and is best used for grazing, forestry, or wildlife habitat. Effective management practices are essential for preventing further land degradation and maintaining the land's ecological balance. This may involve implementing erosion control measures, maintaining vegetation cover to protect the soil, and managing grazing intensity to ensure sustainable use. While Class VI land has limited agricultural potential, it plays an important role in supporting biodiversity and providing ecosystem services, such as soil stabilization and water regulation. Proper management of Class VI land can help maintain its ecological value and contribute to the overall sustainability of the landscape.
Class VII - Non-Arable; Grazing, Woodland or Wildlife	Class VII agricultural land capability classification is characterized by very severe limitations that make it unsuitable for most agricultural activities. These limitations may include extremely steep slopes, severe erosion risks, shallow and rocky soils, poor drainage, and low fertility. Consequently, Class VII land is generally unfit for cultivation or intensive farming. Instead, it is best suited for non-agricultural uses such as forestry, wildlife habitat, and conservation areas. The primary focus for managing Class VII land is to prevent further land degradation and to maintain its ecological balance. This can be achieved through erosion control measures, maintaining natural vegetation cover, and restricting activities that could exacerbate land degradation. Although Class VII land has limited agricultural potential, it is valuable for supporting biodiversity, providing ecosystem services such as soil stabilization and water regulation, and offering recreational and conservation opportunities. Proper management of Class VII land can help preserve its ecological value and contribute to the overall sustainability of the landscape.
Class VIII - Wilderness	Class VIII agricultural land capability classification is identified by its extreme limitations, rendering it unsuitable for most agricultural activities. These limitations can include exceptionally steep slopes, severe erosion risks, shallow and rocky soils, poor drainage, and very low fertility. As a result, Class VIII land is generally not fit for cultivation, grazing, or forestry. Instead, it is best designated for non-agricultural uses such as wildlife habitat, recreation, and conservation areas. The primary focus for managing Class VIII land is to prevent further land degradation and to protect its ecological and environmental value. This involves implementing strict conservation measures, maintaining natural vegetation cover, and restricting activities that could cause additional damage. Although Class VIII land has very limited agricultural potential, it plays a critical role in supporting biodiversity, providing ecosystem services like soil stabilization and water regulation, and offering recreational and conservation opportunities. Proper management of Class VIII land helps to preserve its environmental value and contributes to the overall sustainability and health of the landscape.



MAP 69: AGRICULTURAL LAND CAPABILITY



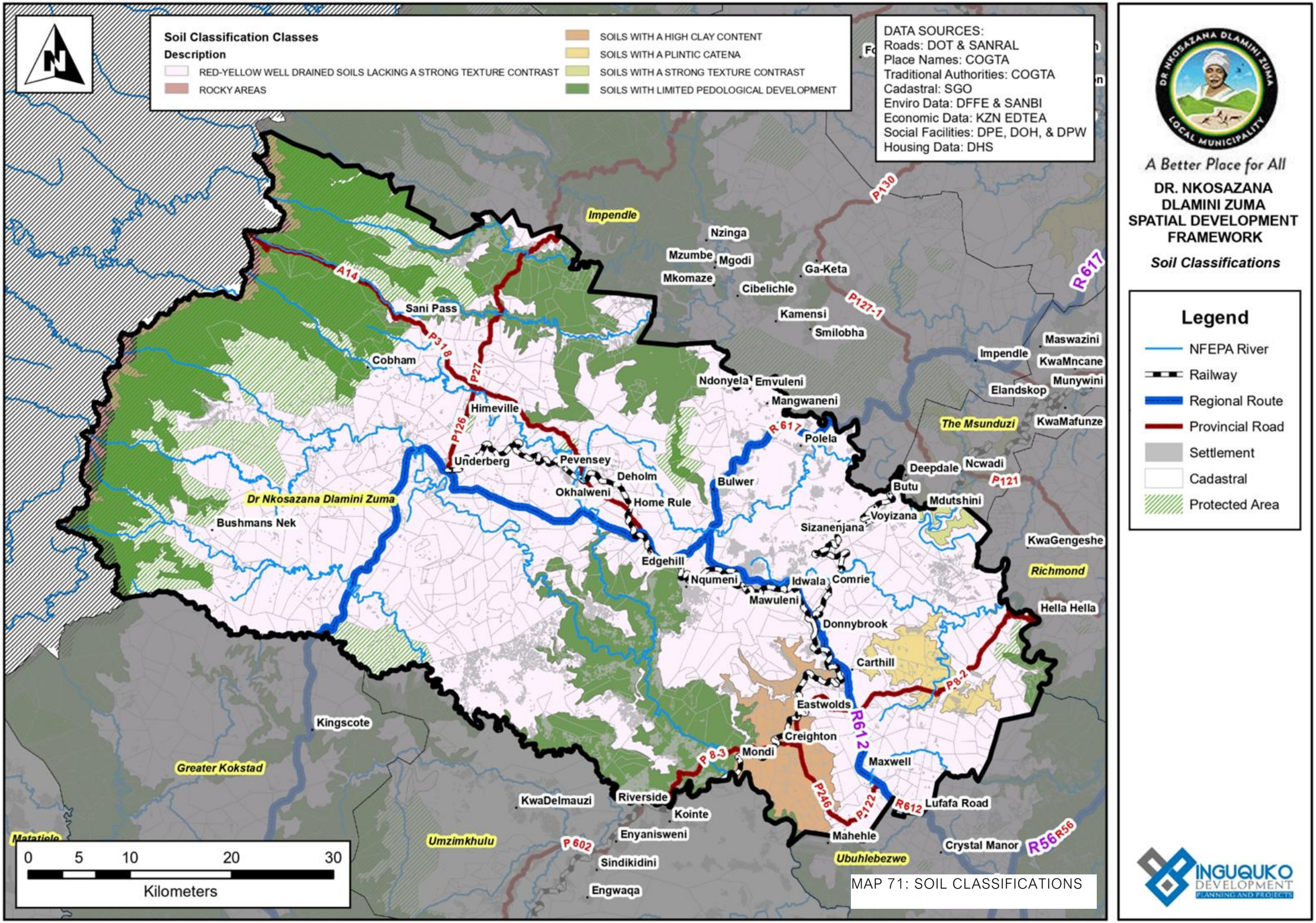
MAP 70: AGRICULTURAL LAND POTENTIAL

8.12.3. SOIL CLASSIFICATIONS

TABLE 55: SOILS CLASSIFICATIONS

SOIL CLASSIFICATION	DESCRIPTION	AGRICULTURAL SIGNIFICANCE AND POTENTIAL
Red-yellow well-drained, massive or weakly structured soils	Soils that are well-drained with red or yellow coloration, often lacking strong structure.	These soils are generally fertile and suitable for a variety of crops. Their good drainage makes them ideal for crops that do not tolerate waterlogging. However, they may require regular fertilization to maintain nutrient levels.
Rocky areas	Areas dominated by exposed rock, such as mountain peaks and rocky outcrops.	Rocky areas are typically unsuitable for conventional agriculture due to poor soil depth and fertility. They may support limited grazing or specialized crops that can grow in shallow soils. Conservation and erosion control are important in these areas.
Sandy soils with little or no profile development	Soils with a high sand content and minimal horizon development.	Sandy soils have excellent drainage but low nutrient and water retention. They are suitable for crops that tolerate dry conditions and require well-drained soils, such as root vegetables. Soil amendments and irrigation are often necessary to improve productivity.
Soils with plinthic horizon	Soils containing a plinthic horizon, characterized by iron and manganese concretions.	These soils can be challenging for agriculture due to their hard, impermeable layers that restrict root growth and water movement. They are often used for grazing or low-intensity cropping. Proper management can mitigate some limitations.
Soils with a strong texture contrast	Soils with a marked difference in texture between horizons, such as sandy topsoil over clay subsoil.	These soils can pose challenges for root penetration and water movement. They require careful management to prevent waterlogging and ensure adequate drainage. Suitable for crops that can tolerate variable soil conditions.
Soils with limited pedological development	Soils that are shallow and lack well-defined horizons.	These soils are often less fertile and have limited water-holding capacity. They are suitable for grazing or low-intensity cropping. Soil conservation practices are essential to prevent erosion and degradation.
Well-structured soils generally with high clay content	Soils with a high clay content and good structure, often retaining water and nutrients well.	These soils are highly fertile and suitable for a wide range of crops. Their high nutrient and water retention make them ideal for intensive agriculture. However, they can be prone to waterlogging and compaction, requiring careful management.

SOIL CLASSIFICATION	DESCRIPTION	AGRICULTURAL SIGNIFICANCE AND POTENTIAL
Large waterbodies	Includes rivers, lakes, and dams.	Waterbodies are crucial for irrigation, supporting agricultural activities by providing a reliable water source. They also help maintain ecological balance and support aquaculture. Proper management is essential to prevent pollution and ensure sustainable use.



MAP 71: SOIL CLASSIFICATIONS

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Soil Classifications

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS

8.12.4. PROTECTION OF AGRICULTURAL LAND

8.12.4.1. SUBDIVISION OF AGRICULTURAL LAND ACT

The Subdivision of Agricultural Land Act 70 of 1970 (SALA) was enacted to protect the integrity and economic viability of agricultural land by prohibiting the subdivision of farmland into uneconomic units without the consent of the Minister of Agriculture. Its principal objective is to prevent land fragmentation that undermines commercial viability, secure food production, and maintain agricultural productivity. The Act empowers national government to restrict subdivision, sale, or lease of portions of agricultural land, with exemptions granted only under defined circumstances. While the legislation has been criticised for being outdated and centralised, its underlying aim remains relevant in the context of rural municipalities reliant on agricultural economies.

RELEVANCE TO NDZ'S AGRICULTURAL ECONOMY AND SETTLEMENT PATTERNS: Agriculture is a cornerstone of NDZ LM's economy, characterised by a dualistic structure of commercial farming (dairy, beef, and crop production in areas around Underberg, Creighton, and Bulwer) alongside extensive smallholder and subsistence farming under traditional tenure systems. The municipality also faces strong pressures from land reform projects and settlement expansion in communal areas. In this context, the restrictive provisions of SALA are both protective and limiting. On the one hand, they safeguard commercial farmlands from being fragmented into parcels too small to sustain viable production. On the other, they constrain flexibility in accommodating the needs of emerging farmers, beneficiaries of land reform, and rural households seeking residential land close to agricultural holdings.

Settlement morphology in NDZ LM is dispersed, with significant rural homestead development under traditional authorities. These areas fall outside the direct scope of SALA because the Act historically excluded land under the Ingonyama Trust, yet the municipality faces spatial pressures as rural housing expansion increasingly encroaches into high-potential farmland. This creates tension between agricultural preservation and settlement growth, particularly in wards where peri-urbanisation is intensifying.

CHALLENGES IN IMPLEMENTATION: Several challenges hinder the effective application of SALA within NDZ LM. Firstly, land tenure complexity in communal areas creates uncertainty about whether and how SALA applies, complicating subdivision approvals where traditional authorities play a central role. Secondly, smallholder pressures often demand smaller, subdivided parcels for viability at household scale, which contradicts the Act's intent to avoid uneconomic units. Thirdly, the demand for rural housing, including sites for government-subsidised housing projects, frequently collides with the protective provisions of SALA when agricultural land near towns must be released for settlement.

Recent case law has highlighted tensions between SALA and constitutional imperatives of equitable land reform. In *Minister of Agriculture v Tongaat Hulett Sugar Ltd* (2013), the courts reinforced the Minister's discretion under the Act, while emphasising the need to balance preservation of agricultural land with broader development needs. Furthermore, the Constitutional Court in *Maccsand v City of Cape Town* (2012) underlined the interplay between national statutes and municipal planning authority, confirming that local government retains a core mandate over land use even where national legislation applies. These precedents illustrate that while SALA restricts subdivision, municipalities such as NDZ LM retain obligations to integrate land reform and settlement planning within their SDFs.

SPATIAL PLANNING IMPLICATIONS AND SPLUMA INTERACTIONS: The Spatial Planning and Land Use Management Act (SPLUMA) of 2013 has reshaped the planning landscape, granting municipalities primary responsibility for land use management. SPLUMA requires municipalities to adopt Land Use Schemes (LUS) and Spatial Development Frameworks (SDFs) that balance competing land demands. Within NDZ LM, SPLUMA's decentralised planning framework creates a structural tension with SALA's

centralised, ministerial control. While the Department of Agriculture retains authority to approve subdivision of farmland, SPLUMA obliges the municipality to integrate agricultural protection, land reform, and settlement expansion into coherent spatial strategies.

The planning implication is that NDZ LM must proactively identify high-potential agricultural zones for protection, while designating appropriate areas for settlement expansion in its SDF. This reduces the likelihood of conflict between national-level subdivision restrictions and local development imperatives. It also highlights the need for alignment between SALA decisions and municipal land use management, particularly where rural housing projects or land reform allocations intersect with commercial farmland.

KEY PLANNING CONSIDERATIONS FOR NDZ LM: From a planning perspective, several considerations emerge:

- Balancing Preservation and Settlement Expansion: High-value agricultural land must be safeguarded, but mechanisms should be developed to release strategically located land for settlement in alignment with the SDF.
- Integration with Land Reform: SALA's rigidity can undermine land reform objectives in NDZ LM; municipal planners should work with provincial and national counterparts to ensure flexibility in supporting emerging farmers.
- Harmonisation with SPLUMA: Municipal land use management tools must explicitly map agricultural zones, communal areas, and settlement expansion areas, creating a spatial framework that mediates between SALA and local development imperatives.
- Capacity and Institutional Coordination: NDZ LM requires stronger institutional linkages with the Department of Agriculture to streamline subdivision decisions and ensure consistency with municipal planning priorities.
- Future Reforms: There is growing policy debate about replacing or reforming SALA to align with SPLUMA and constitutional mandates. For NDZ LM, this presents an opportunity to advocate for context-sensitive approaches that protect commercial agriculture while enabling inclusive rural development.

8.12.4.2. PROTECTED AGRICUTURAL LAND

The KwaZulu-Natal Department of Agriculture and Rural Development (KZN DARD) has identified and designated Protected Agricultural Land (PAL) as part of its mandate to safeguard high-potential and unique agricultural resources from non-agricultural encroachment. This policy instrument is rooted in provincial agricultural policy and aligns with national imperatives to ensure long-term food security and sustainable rural livelihoods. PAL status is granted to areas with high-value soils, strategic water availability, or unique production potential, and it restricts or regulates conversion of such land to non-agricultural uses. The objective is to prevent fragmentation, sterilisation, or inappropriate development on land critical to the province's agricultural economy.

RELEVANCE TO NDZ'S AGRICULTURAL ECONOMY AND SETTLEMENT PATTERNS: NDZ LM is predominantly rural, with agriculture forming a major pillar of its economy. Dairy, beef, maize, and horticultural production dominate commercial farming areas around Underberg, Creighton, and Bulwer, while subsistence and smallholder farming are widespread under traditional tenure systems. Parts of this landscape fall within areas earmarked by KZN DARD as strategic agricultural zones, suitable for PAL designation.

For NDZ, this designation is highly relevant. PAL offers a mechanism to protect the municipality's most productive farmland, particularly in areas where commercial agriculture underpins local employment and value chains. However, the municipality also faces pressure from rural housing demand, land reform projects, and settlement expansion within traditional authority areas.

PAL therefore introduces a dual dynamic: it safeguards the agricultural base but simultaneously limits land available for alternative uses in areas where spatial demand is intensifying.

CHALLENGES IN IMPLEMENTATION: Several challenges complicate PAL implementation within NDZ LM.

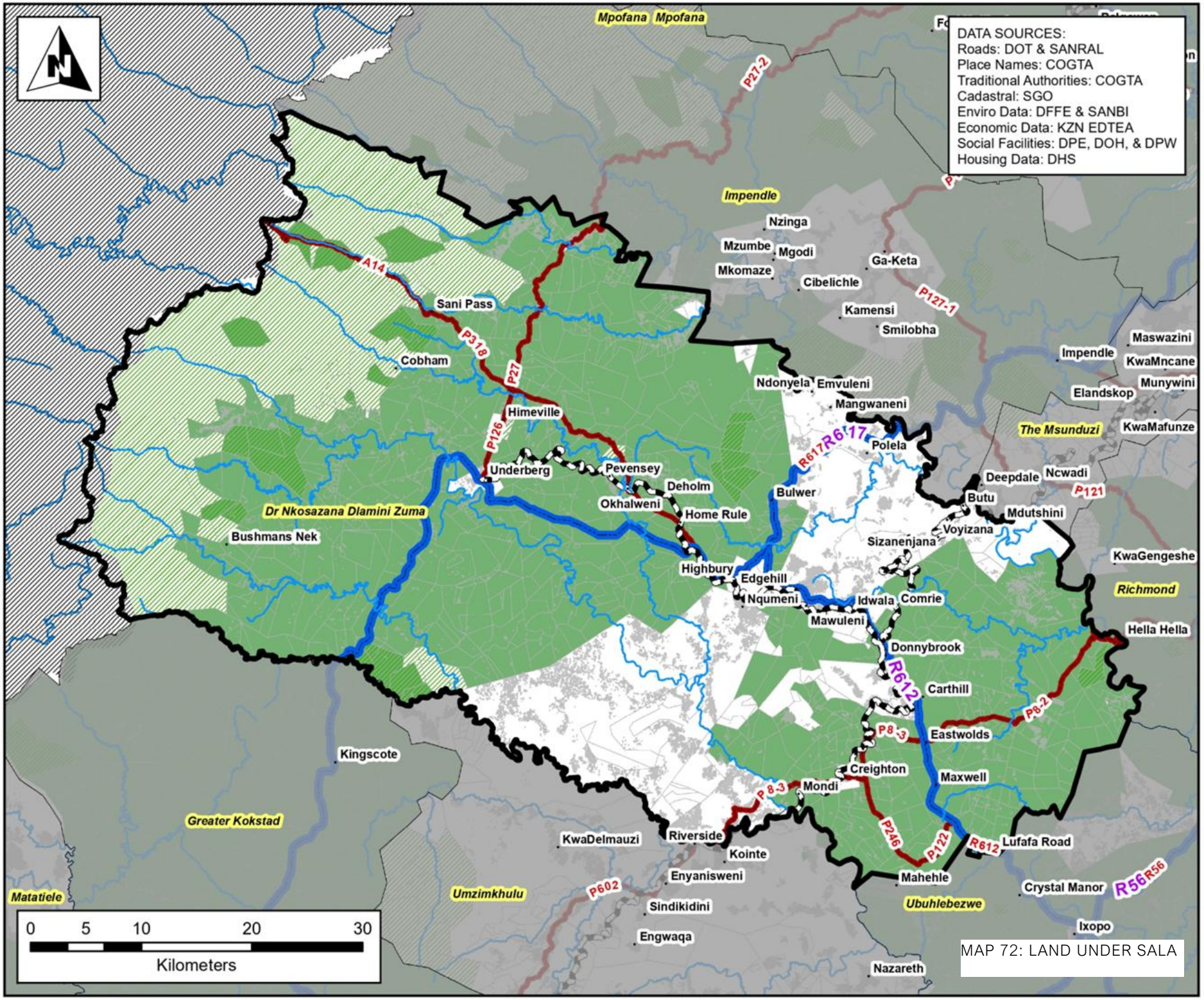
- Land Tenure Complexity: Much of the municipality falls under the Ingonyama Trust, where communal land governance overlaps with municipal land use management. Determining the application of PAL in these areas remains ambiguous, creating potential institutional conflict.
- Settlement Pressure: As population grows, especially in peri-urban areas around nodal towns such as Bulwer and Underberg, demand for residential land often competes directly with high-potential farmland. PAL restrictions may be viewed as constraining social development objectives.
- Land Reform Dynamics: Redistribution and restitution projects in NDZ often result in fragmented agricultural holdings or mixed land uses. PAL designation can create additional layers of regulation, sometimes perceived as barriers to entry for emerging farmers.
- Resource Constraints: Effective monitoring and enforcement of PAL relies on strong intergovernmental coordination, yet municipal planning capacity and DARD oversight remain limited.

SPATIAL PLANNING IMPLICATIONS AND SPLUMA INTERACTIONS: Under the Spatial Planning and Land Use Management Act (SPLUMA), municipalities are required to adopt Spatial Development Frameworks (SDFs) and Land Use Schemes (LUS) that integrate provincial directives such as PAL. This creates a direct intersection between provincial agricultural protection and municipal planning responsibilities.

For NDZ LM, PAL designation has several implications:

- Settlement Management: PAL restricts expansion into high-value farmland, compelling municipalities to channel settlement growth into less productive zones. This aligns with SPLUMA's principle of spatial efficiency but may conflict with community preferences for homestead expansion on arable land.
- Land Use Schemes: The municipality's LUS must incorporate PAL zones explicitly, ensuring that applications for subdivision, rezoning, or development comply with agricultural protection policies.
- Food Security and Rural Development: PAL supports the SDF's objective of promoting food security and sustainable rural economies. By protecting productive land, it enhances long-term resilience but requires complementary planning to accommodate settlement needs elsewhere.

Recent case law reinforces the primacy of agricultural protection in land use decisions. In *Maccsand v City of Cape Town* (2012), the Constitutional Court confirmed that while municipalities hold planning powers, they must integrate national and provincial mandates into decision-making. This principle is directly applicable to PAL: NDZ LM cannot ignore provincial agricultural protection when preparing or applying its SDF and LUS.



MAP 72: LAND UNDER SALA

A Better Place for All

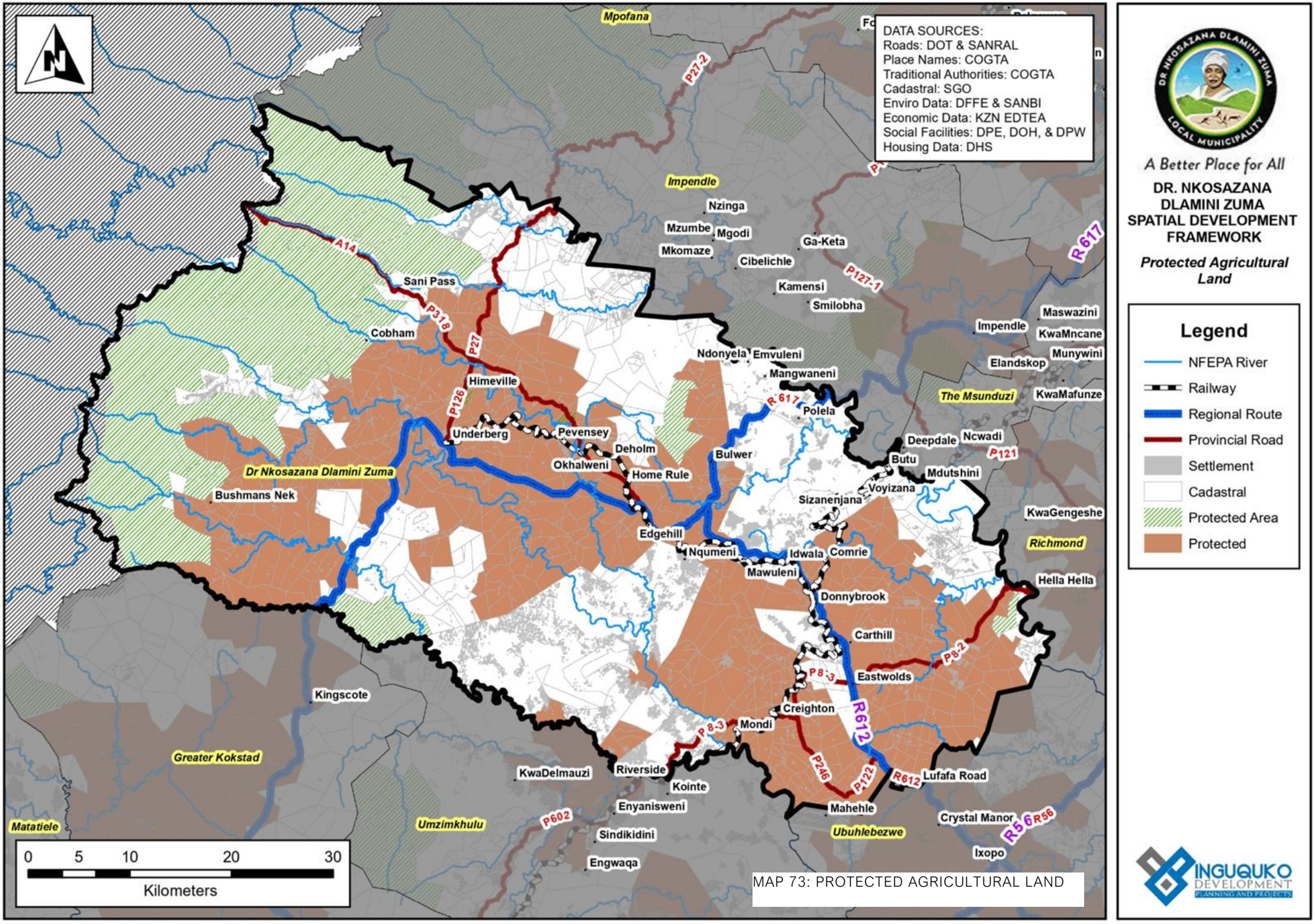
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Included

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 73: PROTECTED AGRICULTURAL LAND

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Protected Agricultural Land

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Protected

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

8.13. ENVIRONMENTAL SWOT ANALYSIS

TABLE 56: ENVIRONMENTAL SWOT ANALYSIS

TYPE	ISSUE	WHY IT MATTERS	SDF / POLICY RESPONSE	RELEVANT NEMA EIA LISTING NOTICES
STRENGTHS	High connectivity between CBAs, rivers, and protected areas	Maintains ecological processes, species migration, climate resilience	Map & designate CBA Overlay Zone; integrate corridors into scheme	LN3 (R.985) – Activities 12, 14, 18 (development in CBAs/ESA)
	Intact Drakensberg Grasslands & high-altitude catchments	Water source areas; low-cost conservation	Conservation/grazing zoning; exclude cultivation	LN3 – Act.12 (sensitive area development)
	Presence of Maloti-Drakensberg World Heritage Site & provincial reserves	Global branding, biodiversity intactness	Absolute conservation zoning; align with reserve management plans	LN2 (R.984) – Act.15 (development in/near protected areas)
	Fertile doleritic clays and alluvial soils	High agricultural potential	Protect as High Potential Agricultural Land; restrict rezoning	LN1 – Act.27 (>1 ha vegetation clearance); DAFF HPA
	Scenic escarpments (basalt & sandstone cliffs)	Tourism/heritage value	Eco-tourism zoning; view-shed protection	LN3 – Act.4/12 (mountain areas >5° slope)
WEAKNESSES	Informal settlement encroachment into CBAs, wetlands, floodplains	Habitat loss, disaster risk	Relocation protocols; strengthen approvals with environmental screening	LN3 – Act.12/18 (wetland/riparian/CBAs)
	Alien invasive plants (wattle, gum, pine) in catchments	Reduce streamflow, alter fire regimes	Multi-year clearing programme linked to EPWP	LN3 – Rehabilitation in watercourses (Act.12)
	Expansive clay soils (Beaufort/Ecca)	Foundation instability for settlements	Require geotechnical reports before approvals	Building regs; LN3 erosion-prone soils
	Fragmentation of Southern & Midlands Mistbelt Grassland	Critically Endangered / Endangered ecosystems	No further land conversion: rehabilitation and offset receiving areas	LN3 – Act.12/14/18 (CR/EN ecosystems)
	Limited municipal environmental capacity	Weak enforcement, GIS/data gaps	Build capacity plan; integrate GIS overlay into scheme	—
	Eco-tourism development (protected areas, CBAs, rivers)	Jobs, local economic diversification	Develop eco-tourism nodes & cultural heritage routes	LN1 – small facilities; LN2 – large tourism projects

TYPE	ISSUE	WHY IT MATTERS	SDF / POLICY RESPONSE	RELEVANT NEMA EIA LISTING NOTICES
OPPORTUNITIES	Green jobs through alien clearing, wetland restoration, corridor rehabilitation	Employment + ecosystem services	Integrate into SDF capital projects pipeline	LN3 – Rehabilitation in watercourses requires EA
	Biodiversity stewardship & offsets with communities	Expands conservation estate	Stewardship agreements with landowners; PES schemes	NEMBA; LN3 – Act.12
	Sustainable grazing & agroforestry in savanna/bushveld	Compatible land use	Zone for extensive agriculture, agroforestry, community projects	LN1 – Act.27 (>1 ha clearance)
	Wetland and riparian restoration	Natural flood/drought buffer; EbA	Integrate into Disaster Risk Management and climate strategies	LN3 – Act.12/14 (watercourses)
	Renewable energy (wind, solar, micro-hydro) in suitable nodes	Diversifies rural economy, resilience	Identify low-sensitivity nodes; align with land use scheme	LN1/2 – depending on facility scale
THREATS	Continued agriculture/settlement expansion into CBAs & floodplains	Ecosystem loss, flood exposure	Strict no-go zones; buffer enforcement in scheme	LN3 – Act.12/14/18
	Sand mining in alluvial deposits	River instability, sedimentation	Formal permit system; exclusion in sensitive reaches	LN2 – Mining/quarrying triggers Scoping & EIA
	Climate change: floods, droughts, altered fire regimes	Settlement & agricultural vulnerability	Embed climate overlays; ecosystem-based adaptation	LN3 – Floodplain activities; DMA Act
	Ongoing deforestation of Southern Mistbelt Forests	Irreplaceable biodiversity & cultural heritage loss	Absolute protection; eco-tourism integration	LN1 – Act.27 (indigenous forest clearance)
	Weak compliance & authorisation duplication (land use vs. EIA)	Legal disputes, project delays	One-window environmental screening checklist in applications	LN1/2/3 applied consistently

8.14. SUMMARY OF KEY BIOPHYSICAL CHALLENGES AND OPPORTUNITIES

8.14.1. KEY CHALLENGES

- Highly erodible soils, steep slopes, and extensive wetlands; gully erosion in identified wards; flood/snow events increasing with climate variability.
- Critical biodiversity areas and endangered ecosystems (mistbelt grasslands/forests) under pressure from encroachment and land-use change.
- Invasive alien plants reducing baseflows and increasing wildfire risk; riparian degradation undermining water quality.
- Human-wildlife conflict and informal harvesting in sensitive areas due to livelihood pressures.

8.14.2. KEY OPPORTUNITIES

- World-class natural assets (World Heritage Site, nature reserves, scenic landscapes) as anchors for conservation-economy tourism.
- Catchment rehabilitation, wetland restoration, fire-wise land management and stewardship with strong jobs content.
- Payment for ecosystem services (water funds), biodiversity offsets, and nature-based solutions eligible for climate and philanthropic finance.
- Eco-agriculture: regenerative grazing, soil health, and agroforestry practices with yield and resilience co-benefits.

8.14.3. SHORT-TERM RECOMMENDATIONS (1–5 YRS)

- Ward-based alien-clearing and firebreak maintenance brigades; wetland buffer demarcation and signage.
- Erosion control micro-projects (gabions, brush-packing, contour ripping) at priority gullies; community training.
- Standard EIA/EMPr templates and environmental guideline checklists for small municipal projects to mainstream compliance.
- Trail maintenance and view-site upgrades tied to tourism routes; local guide accreditation.

8.14.4. MEDIUM/LONG-TERM RECOMMENDATIONS (5–20 YRS)

- Municipal ecological infrastructure investment plan (prioritised catchments, wetlands, riparian corridors) with multi-year funding.
- Biodiversity stewardship agreements with private landowners; expansion of protected area network and ecological corridors.
- Nature-based disaster risk reduction (flood attenuation wetlands, slope stabilisation, fuel load management) integrated with DRM planning.
- Regenerative agriculture support program (extension, market access, certification) in partnership with DALRRD and NGOs.

9. SWOT ANALYSIS, SPATIAL PLANNING ISSUES, AND CHALLENGES

9.1. SPATIAL PLANNING SWOT ANALYSIS

TABLE 57: SPATIAL PLANNING SWOT ANALYSIS

The SWOT analysis reveals a dual reality for NDZ Municipality. The municipality benefits from strategic location, agricultural capacity, and globally significant tourism assets, alongside improvements in housing, service delivery, and socio-economic indicators. These strengths and opportunities position NDZ as a potential regional growth hub, particularly if infrastructure and nodal consolidation strategies are pursued. At the same time, the municipality faces persistent weaknesses and threats: high unemployment, poverty, settlement sprawl, climate vulnerability, and service backlogs in water, sanitation, roads, and housing. Without targeted investment and stronger land use management, these challenges risk undermining inclusive growth. For the SDF, the strategic implication is clear: prioritise nodal densification, infrastructure-led development, and environmental protection, while aligning closely with provincial corridor strategies and funding streams. This approach would maximise NDZ's strengths, address its backlogs, and turn its vulnerabilities into long-term opportunities.

THEME	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Socioeconomic & Demographic	• Population growth from 103,318 (2011) to 128,565 (2022), showing recovery and attractiveness. • Youthful population: 41,281 working-age residents. • Gender balance supports inclusive planning. • Rising education attainment; declining "no schooling" cases. • GDP-R per capita growth to R39.1M (2023). • Sectoral strength in agriculture (LQ 7.66), community services (LQ 1.21), and trade (LQ 1.12).	• Expanded unemployment rate at 47.3%. Very low higher education attainment (609 postgrad, 853 bachelor's). • Rising Gini coefficient (0.65, 2023). • Weak mining, manufacturing, and finance sectors. • Labour force participation only 47%. • 3,632 households with no income • Spatial inequality in access to services and employment.	• Youth investment for skills and employment programmes. • Expanding agriculture and agro processing. • Leveraging tourism growth.	• Ongoing poverty concentration. • Service delivery strain from population growth. • Dependence on grants.

THEME	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
	• Improved HDI from 0.53 (2021) to 0.57 (2023).			
Built Environment	• Strategic location near Drakensberg World Heritage Site. • Connected to major provincial roads (R617, R612). • Diverse settlement hierarchy with nodes and niche towns. • Rich agricultural land and biodiversity corridors. • Significant service delivery progress: piped water (66.6%), sanitation (84%), electricity (96.9%). • Housing backlog reduced from 15,155 (2019) to 9,212 (2023). • Public facilities expanded (66 halls, 283 schools).	• Poor road conditions in rural areas. • Limited refuse removal coverage in villages. • Land tenure complexity (Ingonyama Trust, forestry). • Weak densification; ribbon development. • Service backlogs in certain settlements (schools, policing).	• Eco- and cultural tourism leveraging heritage sites. • Nodal densification and structured infill. • Upgrading cross-border infrastructure with neighbours.	• Environmental degradation of wetlands and grasslands. • Climate change impacts on agriculture and water. • Growing urban–rural inequality.
Infrastructure	• Expanding electrification (96.9%, Table 17). • Bulk water schemes operational (Section 6.3.2). • Sanitation access at 84% (Table 10). • Road network connects to R56/R617 corridors.	• Water backlog: 15,097 households (Table 13). • Sanitation backlog (Table 11, 15). • NRW (non-revenue water) problem (Section 6.6.6). • Poor gravel road conditions (Graph 35) • Waste service coverage only 36.7% households.	• Renewable energy (solar, small hydro, Section 6.8.3). • Upgrading waste management and recycling economy. • Infrastructure-led nodal planning for Ixopo, Underberg, Creighton, Bulwer.	• Ageing infrastructure, maintenance deficits (Section 6.3.5). • Climate hazards (floods, Section 7.5.6). • Rising demand from population growth (Table 18).

THEME	STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Housing & Human Settlements	• Ongoing housing projects across wards (Map 46). • Housing backlog reduced significantly since 2019. • Clear dwelling typologies mapped (Graph 36).	• Current backlog still 9,212 units (Graph 37). • Settlement sprawl in rural areas (Section 8.2.5). • Heavy reliance on subsidies (Section 6.12.7).	• Informal settlement upgrading potential (Section 3.3.2.3). • Land identified for future subsidised housing (Table 29).	• Budget constraints vs. rising demand. • Unstructured land allocation by traditional councils (Section 8.2.7).
Environment & Biodiversity	• High agricultural potential. • Two major rivers (uMkhomazi, uMzimkhulu). • Wetlands providing ecosystem services. • Scenic landscapes, eco-tourism value. • Climate favourable for farming.	• Poor river protection; inadequate ecosystem management. • Weak agricultural land protection. • Lack of Strategic Environmental Assessment (SEA). • Limited productivity on communal lands.	• Eco-tourism development. • Conservation-linked employment. • Sustainable agriculture expansion.	• Climate change risks (Table 32). • Floods, veldfires, lightning storms (Section 7.7). • Encroachment on prime agricultural land.
Tourism & Economic Development	• Tourism hotspots: Sani Pass, Drakensberg, Centocow Mission. • Mix of eco-, cultural, and adventure tourism.	• Limited bulk infrastructure for growth. • Seasonal concentration of visitors.	• Growth in international/domestic tourism (Graphs 28, 29). • Agro-tourism integration with farming sector.	• Competition from better-serviced areas outside NDZ. • Climate impacts on natural assets.

9.2. SPATIAL PLANNING CHALLENGES AND ISSUES

9.2.1. CLIMATE CHANGE

Climate change poses a significant threat to ecosystems, leading to alterations in weather patterns, increased frequency of extreme weather events, and shifts in habitat conditions. These changes can disrupt the balance of ecosystems, affecting biodiversity and the health of natural environments.

The expansion of human settlements into ecologically sensitive areas, such as wetlands, forests, and coastal zones, can lead to habitat destruction, loss of biodiversity, and increased vulnerability to natural disasters. It is crucial to implement land-use planning and zoning regulations to prevent such encroachment.

9.2.2. INADEQUATE PROTECTION AND MANAGEMENT OF ENVIRONMENTAL RESOURCES

There is often inadequate protection and management of environmental and municipal resources, including water bodies, green spaces, and public lands. Strengthening policies and enforcement mechanisms is essential to safeguard these resources for current and future generations.

9.2.3. LAND USE MANAGEMENT IN RURAL AREAS

Rural areas frequently suffer from a lack of effective land use management, leading to unsustainable agricultural practices, deforestation, and soil degradation. Implementing comprehensive land use plans and providing support for sustainable farming practices can help address these issues. The reduction of vegetation cover due to deforestation, overgrazing, and land conversion results in decreased primary productivity and reduced land carrying capacity.

This can lead to soil erosion, loss of habitat, and diminished agricultural yields, impacting both the environment and local communities. Inefficient and unsustainable river management practices can lead to a reduction in water resources, affecting both the quantity and quality of water available for ecosystems and human use. Implementing integrated water resource management strategies is vital to ensure the sustainable use and conservation of water resources.

9.2.4. LACK OF EFFECTIVE LAND USE MANAGEMENT SYSTEMS

One of the challenges include a lack of effective land use management systems, which is primarily caused by insufficient enforcement. This results in settlement sprawl and the loss of valuable land. To address this issue, it is recommended to implement a comprehensive land use scheme across the entire municipality.

9.2.5. CREATION OF DISPERSED SETTLEMENTS

Another challenge is the creation of dispersed, inefficient low-density rural settlements due to ineffective land use management. This can be mitigated by introducing settlement edges to control and organize the growth of these areas.

9.2.6. LACK OF ACCESS TO INFRASTRUCTURE SERVICES

Additionally, there is a significant lack of access to services and infrastructure, as the demand for infrastructure exceeds the supply. This failure to meet basic needs can be addressed and mitigated through the consolidation of cross-border settlements, ensuring that resources and services are more efficiently distributed and accessible to the population.

9.2.7. TRADITIONAL LAND ALLOCATION PRACTICES

Traditional land allocation practices by traditional council authorities often result in the development of unplanned and unstructured human settlements. These settlements frequently find themselves situated in environmentally sensitive areas, geologically unsuitable regions, and zones with high agricultural potential. The lack of structured planning in these areas poses significant challenges for the provision of essential infrastructure and waste management services.

When settlements are established in environmentally sensitive areas, such as wetlands or floodplains, they are at a higher risk of natural disasters like flooding and soil erosion. This not only endangers the lives and properties of the residents but also leads to the degradation of critical ecosystems. Additionally, settlements in geologically unsuitable areas, such as regions prone to landslides or with unstable soil, face increased risks of structural damage and potential loss of life.

The placement of settlements in areas with high agricultural potential can lead to the loss of valuable farmland, which is crucial for food production and local economies. This encroachment reduces the land available for agriculture, impacting food security and the livelihoods of farmers.

The unplanned nature of these settlements complicates the provision of infrastructure such as roads, water supply, electricity, and sanitation facilities. The scattered and haphazard layout makes it difficult and costly to extend these services efficiently. Furthermore, waste management becomes a significant issue, as the lack of proper planning and infrastructure leads to inadequate waste disposal systems. This can result in environmental pollution, health hazards, and a decline in the quality of life for residents.

Addressing these challenges requires a coordinated effort to implement structured land use planning and management practices. This includes working with traditional council authorities to develop and enforce land use policies that prioritize sustainable development, environmental conservation, and the efficient provision of infrastructure and services.

9.2.8. BUIL ENVIRONMENTAL ISSUES

The municipality's main service centres, Creighton and Underberg, are currently facing significant challenges due to a lack of basic urban management upkeep and maintenance. This neglect is evident in several critical areas that collectively undermine the functionality and appeal of these urban centres.

Firstly, the depleting road infrastructure is a major concern. Roads in these areas are in poor condition, with potholes, cracks, and general wear and tear that make transportation difficult and unsafe. This not only affects the daily commute of residents but also deters potential investors and tourists who might be discouraged by the poor state of the roads.

Secondly, there is a lack of proper signage throughout these service centres. Effective signage is crucial for navigation, safety, and providing information to both residents and visitors. The absence of clear and well-maintained signs can lead to confusion, accidents, and a general sense of disorganization.

Additionally, the service centres suffer from a lack of unique landmarks. Landmarks play a vital role in creating a sense of place and identity for urban areas. They can also serve as attractions that draw visitors and enhance the cultural and historical value of the municipality. The absence of such landmarks means that Creighton and Underberg lack distinctive features that could otherwise make them more attractive and memorable.

The presence of derelict and illegal buildings further exacerbates the problem. These structures not only contribute to urban decay but also pose safety

hazards and can become hotspots for criminal activities. They detract from the overall aesthetic appeal of the area and can significantly lower property values.

Moreover, there is a general lack of urban design and urban management. Effective urban design involves planning and organizing the physical layout of the urban environment to create functional, attractive, and sustainable spaces. The absence of such planning in Creighton and Underberg results in haphazard development, inefficient use of space, and a lack of cohesive community areas.

These issues collectively have the potential to deter investors due to a lack of business confidence. Investors are likely to be wary of committing resources to areas that appear neglected and poorly managed. The municipality must address these challenges by investing in infrastructure maintenance, improving urban design, enforcing building regulations, and creating unique landmarks to enhance the appeal and functionality of its main service centres.

9.2.9. INFORMATION AND COMMUNICATION TECHNOLOGY

The municipality faces a severe challenge with its ICT infrastructure, which significantly impacts both urban and rural areas. One of the most pressing issues is the lack of network and signal coverage in the Creighton area, a problem that becomes even more pronounced throughout the townships and rural regions. This lack of connectivity poses several challenges that hinder the municipality's development and economic growth.

Firstly, the inadequate ICT infrastructure deters business-related tourism. Potential investors and business tourists are likely to be discouraged by the poor network coverage, as reliable communication is essential for business operations. This lack of connectivity can lead to missed opportunities for investment and economic development, as businesses may choose to locate in areas with better ICT infrastructure.

Secondly, the absence of basic information and communication infrastructure severely limits residents' access to essential services and opportunities. In today's digital age, access to the internet and reliable communication networks is crucial for accessing employment opportunities, educational resources, and funding options. The lack of ICT infrastructure means that many residents are unable to take advantage of these opportunities, perpetuating cycles of poverty and unemployment.

Moreover, the digital divide exacerbates existing inequalities within the municipality. Rural areas and townships, which are already disadvantaged in terms of infrastructure and services, are further marginalized by the lack of ICT infrastructure. This digital exclusion prevents these communities from participating fully in the digital economy and accessing the benefits of modern technology.

Addressing these ICT infrastructure challenges requires a concerted effort to improve network coverage and connectivity across the municipality. This could involve investing in telecommunications infrastructure, partnering with private sector companies to expand network coverage, and implementing policies that promote digital inclusion. By enhancing ICT infrastructure, the municipality can attract business investment, improve access to essential services, and create new economic opportunities for its residents.

10. INSTITUTIONAL CONTEXT & CAPACITY ANALYSIS

The effectiveness of the Spatial Development Framework (SDF) for Dr. Nkosazana Dlamini Zuma Local Municipality depends heavily on the institutional capacity of the Municipality and the District. The Draft IDP (2025/26) highlights several institutional strengths, weaknesses, and priorities that must be factored into the design, implementation, and monitoring of spatial interventions.

10.1. MUNICIPAL TRANSFORMATION AND ORGANISATIONAL DEVELOPMENT

The Municipality faces challenges in staff retention and development, particularly in critical skill areas where there is a high turnover rate. Attracting and retaining qualified professionals remains a difficulty, compounded by inadequate record-keeping and some resistance to organisational change. The institution is also heavily reliant on external grants and subsidies to sustain operations. In response, the IDP sets out measures such as bursary programmes, staff training and mentorship schemes, the streamlining of internal by-laws and processes, and the establishment of more reliable data management and performance monitoring systems. These initiatives provide the foundation for building long-term institutional resilience.

10.2. GOVERNANCE AND PUBLIC PARTICIPATION

The Municipality has made progress in strengthening governance and public participation. Ward committees, War Rooms, and a dedicated public participation unit are functional, and there is regular monitoring through the Audit Committee, Performance Audit Committee, and the Risk Management Committee. These structures enhance accountability and oversight. However, weaknesses remain in the enforcement of by-laws, and limited communication infrastructure, including the absence of a local radio station and poor connectivity, undermines effective outreach. The municipality also lacks a comprehensive stakeholder database to support partnerships. For the SDF, this means that proposed projects must embed strong community engagement mechanisms, capacitate ward committees, and link participation directly to the planning and monitoring of projects.

10.3. FINANCIAL AND PROJECT MANAGEMENT CAPACITY

The Municipality is financially constrained, with high dependency on grants, low revenue collection rates, and significant levels of municipal debt. Delays in procurement, weaknesses in contract management, and a shortage of skilled project managers and engineers exacerbate difficulties in service and infrastructure delivery. On the positive side, a revenue enhancement strategy is being implemented, the SAMRAS financial management system has been adopted, and the Expanded Public Works Programme (EPWP) provides an entry point for labour-intensive project delivery. For spatial planning, these constraints require that projects be phased realistically, aligned with available financial and technical resources, and supported through public–private partnerships and district or provincial interventions.

10.4. INSTITUTIONAL STRUCTURES FOR LED AND SERVICE DELIVERY

Local Economic Development (LED) and service delivery are supported by established forums and committees, including the LED and Tourism Forums and Ward Agricultural Committees. Intergovernmental relations are generally strong, with active collaboration between the Municipality, Harry Gwala District, and provincial departments such as EDTEA and DARD. An MSME Support Policy has also been adopted, and a database of local enterprises exists. Despite this, the sustainability of many LED projects remains a concern, while poor road and ICT infrastructure and limited business management skills among MSMEs continue to restrict economic growth. For the SDF, this means

that spatial interventions must be integrated with existing institutional platforms, such as the LED Forum, while being complemented by targeted capacity-building to support long-term sustainability.

10.5. CROSS-CUTTING INSTITUTIONAL CHALLENGES

The Municipality continues to face several cross-cutting challenges that affect its institutional performance. These include limited capacity to enforce SPLUMA and land use management by-laws, weak interdepartmental coordination across infrastructure, finance, and planning functions, and a shortage of technical skills to effectively respond to climate change adaptation and environmental management demands.

10.6. KEY TAKEAWAYS FOR THE SDF

In summary, all proposed spatial interventions must be tested against the institutional capacity of the Municipality in terms of manpower, financial resources, and technical skills. Projects should be phased to match current capabilities, with catalytic interventions prioritised and supported by district and provincial funding. Skills development, staff training, and bursaries must be integrated as enabling conditions for project delivery. Finally, the LED Forum, the Project Management Unit, and the Municipality's Public Participation structures should be positioned as the institutional anchors to support the implementation and monitoring of the SDF.

10.7. IMPLICATIONS ON THE SPATIAL DEVELOPMENT FRAMEWORK

The institutional context of the Dr. Nkosazana Dlamini Zuma Municipality underpins the ability of the SDF to be implemented effectively. While the IDP identifies progress in areas such as governance, public participation, and intergovernmental collaboration, institutional weaknesses—particularly in financial management, project implementation, and technical skills—remain significant constraints. These limitations are not peripheral but central to the Municipality's capacity to deliver spatial transformation. Without targeted institutional strengthening, even well-conceived spatial strategies risk delayed or partial implementation.

For the Spatial Challenges and Opportunities framework, this means that institutional issues must be viewed as cross-cutting challenges alongside social, economic, environmental, and built environment themes. The Municipality's ability to respond to scattered settlement patterns, infrastructure deficits, and economic vulnerabilities will hinge on improving institutional functionality. At the same time, the presence of established structures such as LED and Tourism Forums, Ward Agricultural Committees, and a functioning system of ward-level public participation represent opportunities that can be leveraged to strengthen local ownership of spatial proposals.

10.7.1. POSSIBLE INTERVENTIONS

To bridge institutional gaps and support spatial transformation, the following interventions can be advanced in the spatial proposals:

1. Institutional Capacity Building
    - Establish a dedicated Planning and Project Implementation Support Unit within the Municipality, staffed with project managers and engineers seconded from the District or Province.
    - Develop a skills development pipeline by expanding bursary and mentorship programmes, specifically targeting planning, engineering, and financial management skills.
2. Governance and Monitoring
    - Create an Institutional Monitoring and Evaluation Framework aligned to the SDF, with spatial indicators linked to the IDP and District climate change monitoring systems.

- Digitise land use management processes through a GIS-based Land Use Application System, ensuring SPLUMA compliance and improved enforcement capacity.

3. Financial and Project Management Support

   - Introduce a Municipal Revenue Enhancement Task Team to identify new revenue sources and improve billing efficiency.
   - Establish Public–Private Partnership (PPP) models for catalytic spatial projects, especially in dairy, forestry, and tourism hubs.

4. Community and Stakeholder Platforms

   - Strengthen the functionality of LED and Tourism Forums by institutionalising them as advisory structures to the SDF, ensuring regular feedback into spatial proposals.
   - Expand War Rooms and Ward Committees to serve as monitoring points for settlement-level service delivery and project implementation.

5. Cross-Cutting Institutional–Spatial Linkages

   - Prioritise integrated service delivery centres in key nodes (Creighton, Donnybrook, Bulwer, Underberg/Himeville) to improve efficiency and responsiveness.
   - Incorporate capacity-building conditions into project proposals (e.g., every catalytic project must include a local skills transfer plan).
   - Establish a Municipal Climate Change and Spatial Integration Forum that brings together planning, infrastructure, LED, and environmental functions to ensure coordinated implementation.

10.8. SUMMARY OF KEY INSTITUTIONAL AND CAPACITY CHALLENGES AND OPPIRTUNITIES

10.8.1. KEY CHALLENGES

- Capacity constraints in planning, project preparation, development control, asset management, and O&M.
- Siloed functions across municipal, district and provincial spheres; lengthy approvals and weak interdepartmental coordination.
- Limited monitoring, evaluation, and learning systems linked to SDF implementation; weak data pipelines (GIS, asset data, service KPIs).
- Revenue constraints and grant dependency; challenges sustaining maintenance budgets.
- By-law enforcement gaps (building control, waste management, trading, environmental).

10.8.2. KEY OPPORTUNITIES

- Strengthen the “project pipeline to bankability” function: packaging, feasibility, designs, costings, and funding applications.
- Shared-services with district (water, roads planning, GIS), and programmatic MoUs with EDTEA, HS, DOT, DALRRD.
- Institutionalisation of SDF M&E: spatial indicators, service access metrics, land-use change monitoring, project delivery tracking.
- Digital modernisation: permit tracking, e-LUMS, GIS hubs, dashboards, citizen reporting apps.
- Partnerships with local business chambers, farmer associations, tourism organisations and NGOs.

10.8.3. SHORT-TERM RECOMMENDATIONS (1–5 YRS)

- Establish a small Spatial Implementation Unit (cross-functional) to drive SDF priority precincts and catalytic projects, with a monthly pipeline forum.
- Adopt a one-page development facilitation charter: turnaround targets, pre-consults, checklists, and concurrent reviews.
- Core by-law refresh and light-touch enforcement plan (trading, signage, waste, building control), starting in town cores and school zones.
- M&E starter-dashboard: 20–30 indicators covering spatial, service, project delivery and financial health; quarterly learning sessions.
- GIS "minimum viable product": base layers, SDF, services, environmental sensitivities; standardised map templates for all directorates.

10.8.4. MEDIUM/LONG-TERM RECOMMENDATIONS (5–20 YRS)

- Multi-year Capacity & Systems Plan: staffed project preparation function, asset management improvement program, preventative maintenance regime.
- Integrated permitting platform (land-use, building plans, wayleaves) with case management and public status tracking.
- Rolling three-year capital investment framework (CIF) with readiness gates and O&M affordability tests.
- Municipal-district joint technical committees for water, roads, human settlements, and environment with shared workplans and data.

TABLE 58: KEY CHALLENGES AND OPPORTUNITIES IDENTIFIED

CATEGORY	CHALLENGES	OPPORTUNITIES	LOW-HANGING FRUIT (1–5 YRS QUICK WINS)	MEDIUM–LONG TERM (5–20 YRS)
Provincial Alignment (PSDF Context)	Peripheral location; weak corridor performance; fragmented settlements; constrained institutional project packaging	Tourism gateway to Drakensberg/Lesotho; agriculture & agro-processing potential; nodal hierarchy support; green economy transition	Alignment briefs for catalytic projects; corridor signage, pedestrian & trader upgrades; town-entry landscaping; development guidelines for sensitive landscapes	Corridor revitalisation packages (logistics, NMT, telecoms); spatial densification frameworks for nodes; ecological infrastructure investment programme; cross-border trade & tourism compacts
Socioeconomic & Demographic	Poverty & food insecurity; youth skills mismatch; out-migration; dispersed settlements; thin formal job base; weak informal economy support	Tourism, adventure & heritage products; agricultural value chains; care economy employment; digital inclusion for education & commerce	Informal trader facilities; short vocational training; farmers'/artisan markets; public Wi-Fi hotspots and device-charging benches	Workforce development pathways (school-to-work pipelines); settlement cluster service hubs with co-located social services; SMME incubation & micro-industrial parks
Built Environment	Ageing town cores & poor maintenance; weak urban design; housing pressure vs sprawl; land readiness & tenure issues	Compact mixed-use development; main-street & station/market precincts; brownfield infill; NMT "green streets"	Tactical urbanism (crossings, furniture, lighting); stormwater quick fixes; town entry/wayfinding upgrades; façade improvement micro-grants; development facilitation desk	Precinct-level urban design frameworks; serviced land pipelines for mixed/light-industrial uses; social/gap housing partnerships; smart maintenance regimes for urban infrastructure
Infrastructure (Water, Sanitation, Energy, Roads, Waste, ICT)	Intermittent water; sanitation backlogs; rural road degradation; illegal dumping; weak recycling; poor ICT coverage	District role in bulk water; climate finance for water/ecological infrastructure; solar energy retrofits; community recycling; fibre along corridors	Pressure management & leak repairs in hotspots; rural road blading/drainage clearing; illegal dumping response kits; solar/LED retrofits on public facilities; Wi-Fi nodes at taxi ranks & libraries	Bulk water/sanitation expansions at growth nodes; modular wastewater plants; complete streets in town cores; regional MRF & transfer station network; fibre rollout with ducting policies
Biophysical Environment	Highly erodible soils; flood & snow risk; endangered ecosystems; alien invasives; wetland/riparian degradation	World-class natural assets (heritage site, reserves); catchment/wetland rehabilitation; PES & biodiversity offsets; regenerative agriculture	Ward-based alien-clearing/firebreaks; erosion-control micro-projects; standardised EIA/EMPr templates; trail & view-site upgrades	Ecological infrastructure investment plan; biodiversity stewardship agreements; nature-based disaster risk reduction (wetlands, slope stabilisation); regenerative agriculture support programmes

CATEGORY	CHALLENGES	OPPORTUNITIES	LOW-HANGING FRUIT (1–5 YRS QUICK WINS)	MEDIUM–LONG TERM (5–20 YRS)
Institutional Context & Capacity	Capacity & skills gaps in planning/asset management; siloed functions; weak M&E; limited revenue; by-law enforcement gaps	Project packaging & shared services with District/Province; SDF-linked M&E system; digital modernisation (GIS, dashboards); partnerships with business & NGOs	Establish Spatial Implementation Unit; one-page development facilitation charter; refresh by-laws & light enforcement; starter M&E dashboard; basic GIS hub with SDF/service layers	Multi-year capacity & systems plan; integrated permitting/e-permit platform; rolling 3-year capital investment framework; joint technical committees (water, roads, settlements, environment)

11. STRATEGIC AREAS FOR INTERVENTION & SPATIAL PRIORITY AREAS

The identification of strategic intervention areas within the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM) Spatial Development Framework (SDF) represents a critical step in translating the municipality's developmental vision into actionable spatial priorities. Intervention areas function as thematic focus points where challenges and opportunities intersect most sharply, requiring targeted strategies to guide municipal planning, infrastructure investment, and social development over the medium to long term. Given the municipality's predominantly rural character, dispersed settlement patterns, and reliance on agriculture and tourism as primary economic drivers, there is a clear need to structure interventions that are context-sensitive, evidence-based, and aligned with both provincial and national planning directives.

The rationale for defining these intervention areas is twofold. Firstly, they provide a framework for addressing current developmental backlogs and spatial inequities that continue to affect residents' quality of life. Persistent challenges such as high unemployment, service delivery deficits, housing shortages, and environmental degradation underscore the urgency of focused interventions. Secondly, they create a basis for leveraging future opportunities associated with NDZ LM's strategic location, natural resource base, and cultural assets. By focusing on the economy, environment, infrastructure, and housing as the four primary domains of intervention, the SDF ensures that its strategies are comprehensive, integrated, and aligned with the settlement hierarchy that underpins spatial planning in the municipality.

The economic intervention areas are premised on the understanding that a resilient and diversified local economy is essential for sustainable development. Agriculture and tourism are well-established pillars but require strengthening through agro-processing, enterprise development, and improved market access to generate inclusive growth. Similarly, environmental intervention areas are justified by the municipality's unique ecological assets and the need to ensure long-term sustainability in the face of climate change and resource depletion. Protecting wetlands, rehabilitating degraded land, and building resilience into settlement planning are indispensable for sustaining both livelihoods and biodiversity.

The infrastructure intervention areas respond to persistent backlogs and uneven service provision across the municipality. Roads, water, sanitation, energy, and digital connectivity form the foundation of spatial efficiency and economic competitiveness. Without targeted intervention, infrastructure deficits will continue to reinforce patterns of spatial inequality, limiting opportunities for both urban nodes and rural households. Finally, housing intervention areas address the pressing need to consolidate settlements, formalise informal areas, and provide affordable, well-located housing options. These interventions are particularly significant in a municipality characterised by dispersed traditional settlements and growing demand for serviced land.

These four areas have been identified not in isolation, but through a process of critical analysis that considered settlement morphology, service delivery trends, land use pressures, and the policy environment. They also align with the principles of the Spatial Planning and Land Use Management Act (SPLUMA), which emphasises spatial justice, spatial efficiency, and sustainability, as well as with the KwaZulu-Natal Provincial SDF and the NDZ Integrated Development Plan (IDP). By grounding the SDF in these strategic areas, the municipality positions itself to not only address immediate backlogs but also to proactively shape future development trajectories.

It must be emphasised that the identification of these intervention areas represents a conceptual and strategic phase of the SDF. The interventions outlined in this section provide broad directions and thematic priorities; they are not intended to serve as detailed projects at this stage. Rather, they will be

further expanded and spatially articulated in the Spatial Proposals phase of the SDF process. During that stage, the interventions will be tied explicitly to the municipality's settlement hierarchy, growth nodes, and rural service centres, supported by detailed mapping and project identification. This phased approach ensures that the SDF remains both visionary and pragmatic: visionary in its articulation of long-term priorities, and pragmatic in its commitment to phased implementation through tangible proposals and projects.

11.1. ALIGNMENT WITH THE KZN PROVINCIAL SPATIAL INTEGRATION FRAMEWORK

The KZN Provincial Spatial Integration Report (2023/24) provides an annual assessment of how municipalities in KwaZulu-Natal are progressing towards spatial transformation. It is part of the province's response to the National Development Plan (NDP) and the Medium-Term Strategic Framework (MTSF), which both highlight the persistence of apartheid-era spatial patterns and their direct link to inequality, poverty, and economic inefficiency. Recognising that fragmented planning and service delivery continue to undermine transformation, the KwaZulu-Natal Executive Council endorsed the Spatial Integration Framework (SIF) in 2022. This framework sets the basis for systematically measuring municipal performance against clear spatial integration outcomes.

11.1.1. ANALYTICAL FRAMEWORK

The report evaluates municipalities across six elements of spatial integration, each representing a critical dimension of transformation:

- **Inclusion**: Ensuring secure land tenure and recognition of land rights.
- **Access**: Guaranteeing households access to basic services, housing, and safe living environments.
- **Transformation**: Restructuring spatial form through densification, mixed land uses, and governance improvements.
- **Cohesion**: Building social trust, reducing community dissatisfaction, and strengthening ward functionality.
- **Economic Transformation**: Diversifying local economies and promoting equitable ownership.
- **Economic Inclusion**: Expanding access to employment and reducing inequality.

Each element is measured through a set of indicators, combining census data, municipal statistics, and sector department inputs. Scores are expressed as percentages, with municipalities ranked according to their overall level of spatial integration.

11.1.2. PROVINCIAL TRENDS AND PERFORMANCE

The assessment reveals clear disparities between municipalities. Top-performing municipalities include Alfred Duma, uMngeni, Msunduzi, Mkhambathini, Richmond, and Endumeni, with overall scores in the range of 67–70%. These municipalities demonstrate relatively strong performance in inclusion, access to services, and governance-led transformation.

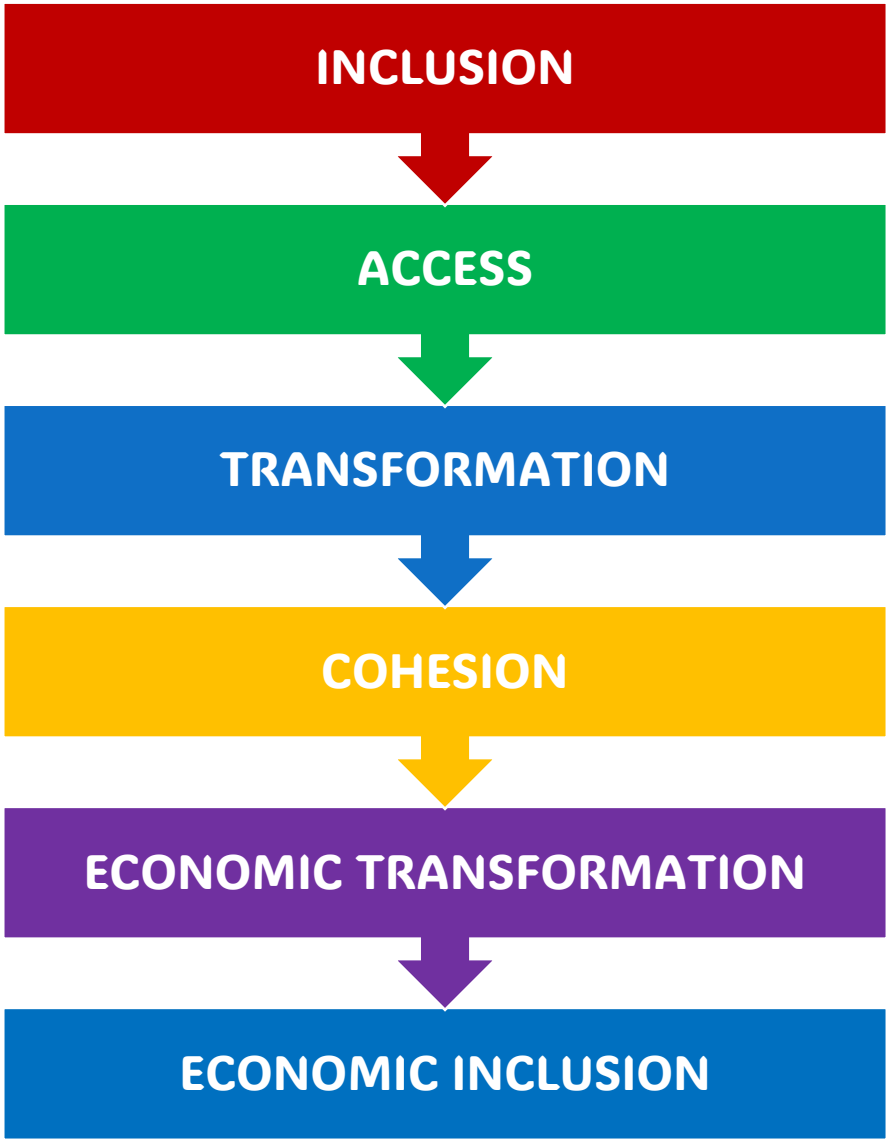
On the other end, bottom-performing municipalities include Umzimkhulu, Impendle, Umzumbe, Nkandla, Big Five Hlabisa, and Dr Nkosazana Dlamini Zuma (NDZ), with scores ranging between 31–43%. These municipalities face serious deficits in social cohesion, economic diversification, and service access, underscoring the uneven progress towards spatial integration across the province.

11.1.3. NDZ MUNICIPALITY PERFORMANCE

The report places NDZ among the **lowest-performing municipalities**, with an overall spatial integration score of **43.3%**. However, the breakdown of scores across the six elements provides important insights:

- **Inclusion (56.7%)**: NDZ performs relatively well, with tenure rights more secure compared to many municipalities. This positions NDZ among the top municipalities on inclusion.
- **Access (62.5%)**: The municipality records low scores, reflecting continued service delivery backlogs in water, sanitation, refuse removal, and electricity provision.
- **Transformation (82.35%)**: NDZ scores strongly, demonstrating solid planning processes, SPLUMA compliance, and potential for facility clustering. This indicates that planning systems are in place.
- **Cohesion (0%)**: NDZ records the lowest possible score, indicating serious challenges in community trust, ward functionality, and citizen satisfaction. This is the municipality's most critical weakness.
- **Economic Transformation (12.5%)**: NDZ scores poorly due to a lack of economic diversification, limited private sector investment, and weak GVA growth.
- **Economic Inclusion (33.3%)**: The municipality performs below average, reflecting weak labour absorption, high unemployment, and persistent inequality.

This profile highlights a key paradox: while NDZ has a strong planning foundation, it struggles to translate this into inclusive economic growth and community confidence.



11.1.4. RECOMMENDED PROVINCIAL ACTIONS

The report proposes a set of actions for municipalities and sector departments to improve spatial integration. These include:

- Inclusion: Establishing Local Land Offices to improve tenure security, strengthening traditional authority capacity, and developing differentiated land reform strategies.
- Access: Releasing well-located land for housing along transport corridors and nodes, adopting differentiated servicing models for rural areas, and improving housing needs analysis.
- Transformation: Implementing the Provincial Densification Framework, clustering facilities around nodes and transport corridors, and improving data on ICT and public transport.
- Cohesion: Developing Traditional Settlement Master Plans, conducting citizen satisfaction surveys, and linking crime statistics to ward-level data.
- Economic Transformation: Reviewing incentives for investment, implementing economic recovery initiatives, and streamlining development approvals to reduce red tape.
- Economic Inclusion: Strengthening partnerships with the private sector, improving labour absorption programmes, and targeting employment for youth and women.

11.1.5. IMPLICATIONS FOR NDZ MUNICIPALITY

For NDZ, the report underscores the need to bridge the gap between planning and outcomes. While strong performance in transformation suggests that planning systems are functional, the near-zero performance in cohesion and poor economic indicators show that communities are not experiencing meaningful change. The SDF must therefore prioritise:

- Enhancing social cohesion and citizen trust through participatory planning and community safety programmes.
- Stimulating local economic diversification, particularly through agro-processing, tourism, and corridor-based investment.
- Targeting inclusive employment initiatives to improve labour absorption.
- Strengthening rural service models and nodal development to address access backlogs efficiently.

TABLE 59: SPAITAL INTEGRATION & SDF ALIGNMENT MATRIX

SPATIAL INTEGRATION ELEMENT	NDZ PROVINCIAL SCORE	NDZ CHALLENGES (PHASE 3 REPORT)	NDZ OPPORTUNITIES (PHASE 3 REPORT)	PROVINCIAL ALIGNMENT & RECOMMENDED ACTIONS
Inclusion	56.7% (High)	- Tenure insecurity in traditional areas. - Weak land management by traditional authorities.	- Ingonyama Trust land can be leveraged if governance improves. - Potential for Local Land Offices.	- Establish Local Land Offices. - Awareness campaigns on land use. - Strengthen Traditional Authority capacity.
Access	62.5% (Low)	- Backlogs in water, sanitation, refuse, electricity. - Dispersed rural settlements make servicing costly.	- Nodal development framework can concentrate services. - Transport corridors present opportunities.	- Release well-located land near corridors/nodes. - Provincial policy on differentiated servicing. - Housing backlog analysis.
Transformation	82.35% (High)	- Weak rural-urban linkages. - Poorly performing service centres.	- Strong SPLUMA compliance. - Potential for facility clustering at nodes.	- Implement Densification Framework. - Cluster facilities at nodes and corridors. - Strengthen data on ICT and public transport.
Cohesion	0% (Critical Weakness)	- Poverty and inequality. - Weak ward functionality. - High dissatisfaction with services.	- Traditional Settlement Master Plans can stabilise communities.	- Develop Traditional Settlement Master Plans. - Run citizen satisfaction surveys. - Link crime stats to ward data.
Economic Transformation	12.5% (Very Low)	- Undiversified economy (dependency on agriculture and informal trade). - Weak private sector investment.	- Agro-processing and tourism potential. - Corridor-based investment.	- Introduce investment incentives. - Implement economic recovery initiatives. - Reduce red tape in development processes.
Economic Inclusion	33.3% (Low)	- High unemployment. - Weak labour absorption and inequality.	- LED and SMME support opportunities. - Skills training in agriculture/tourism.	- Strengthen LED-private sector partnerships. - Targeted youth and women employment programmes. - Track labour absorption indicators.

11.2. ECONOMIC INTERVENTION AREAS

11.2.1. STRATEGIC RATIONALE

NDZ LM's economy is anchored by agriculture, agro-processing, and tourism. However, the municipality faces persistent challenges of high unemployment, weak diversification, and under-exploited rural development potential. Economic interventions are necessary to strengthen value chains, stimulate rural enterprise, and ensure inclusive growth that benefits both nodal towns and dispersed settlements.

11.2.2. HIGH-LEVEL INTERVENTIONS

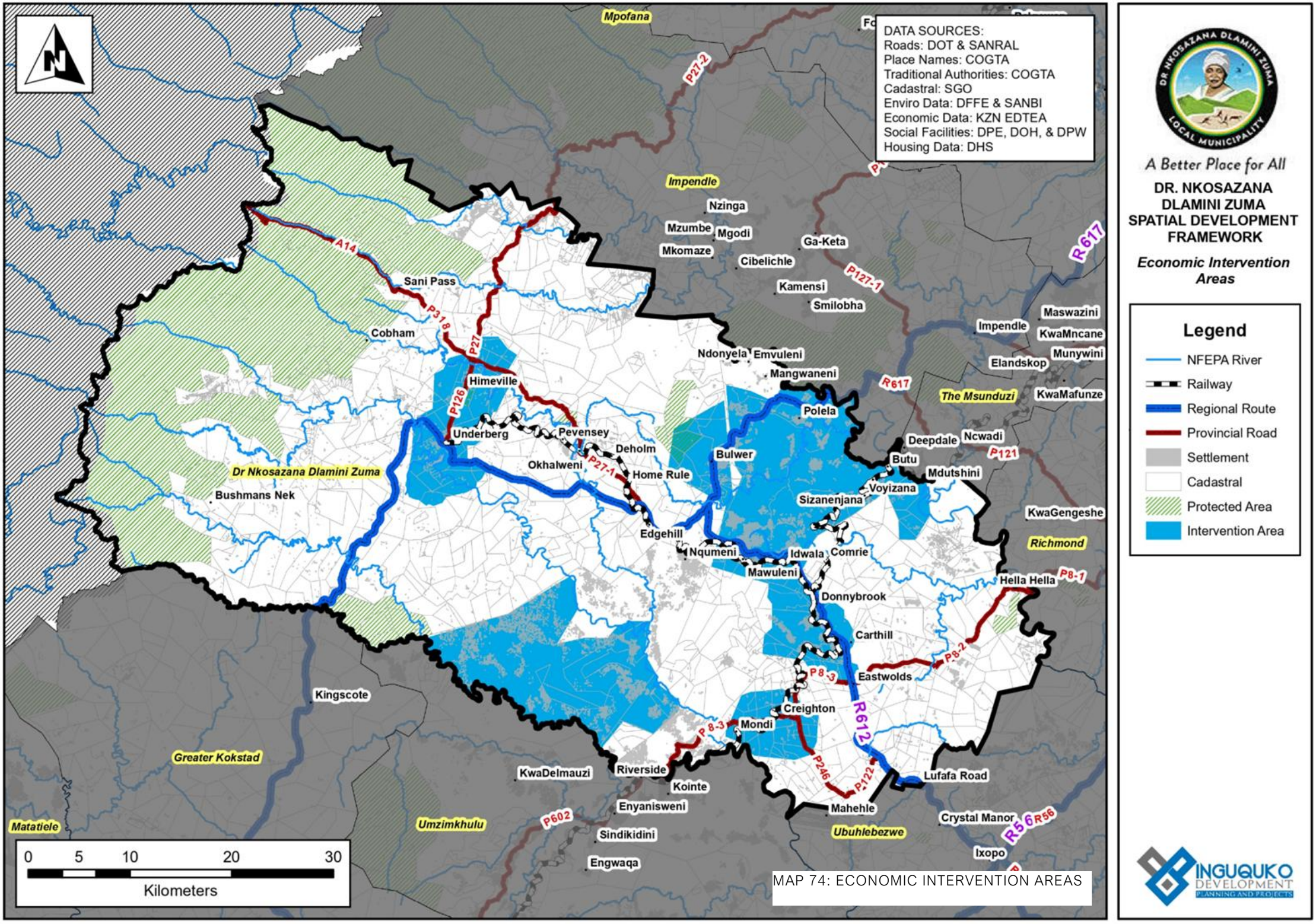
- **Agro-processing and agri-business hubs:** Support value-addition in dairy, beef, forestry, and horticulture, leveraging the area's strong agricultural base.
- **Tourism development corridors:** Consolidate tourism nodes in Underberg–Himeville and extend linkages to Bulwer and Creighton, focusing on eco-tourism, cultural tourism, and adventure tourism.
- **Rural enterprise support:** Facilitate smallholder farmer markets, cooperatives, and SMME development to integrate informal and emerging producers into formal value chains.
- **Skills and training programmes:** Expand agricultural extension and tourism skills training to improve employability and productivity.

11.2.3. POLICY ALIGNMENT

- **SPLUMA**: Promotes spatial justice and economic inclusion through equitable access to economic opportunities.
- **KZN Provincial SDF (2021)**: Identifies NDZ as a strategic agricultural and tourism corridor.
- **NDZ IDP**: Prioritises job creation, local economic development, and rural development initiatives.

11.2.4. PLANNING IMPLICATIONS

- Strengthening nodal economies will reinforce the settlement hierarchy and reduce pressure on dispersed rural areas.
- Economic clustering in towns can catalyse urban regeneration and attract investment.
- Broadening access to markets and skills training enhances spatial equity by addressing marginalisation of rural households.



MAP 74: ECONOMIC INTERVENTION AREAS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Economic Intervention Areas

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Intervention Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

11.3. ENVIRONMENTAL INTERVENTION AREAS

11.3.1. STRATEGIC RATIONALE

NDZ LM is located in a sensitive environmental zone characterised by the Drakensberg foothills, wetlands, rivers, and high-potential soils. Climate change, land degradation, deforestation, and unsustainable settlement expansion pose threats to ecological integrity and long-term resilience. Environmental interventions are critical for safeguarding ecosystem services, water security, and tourism assets while balancing human development needs.

11.3.2. HIGH-LEVEL INTERVENTIONS

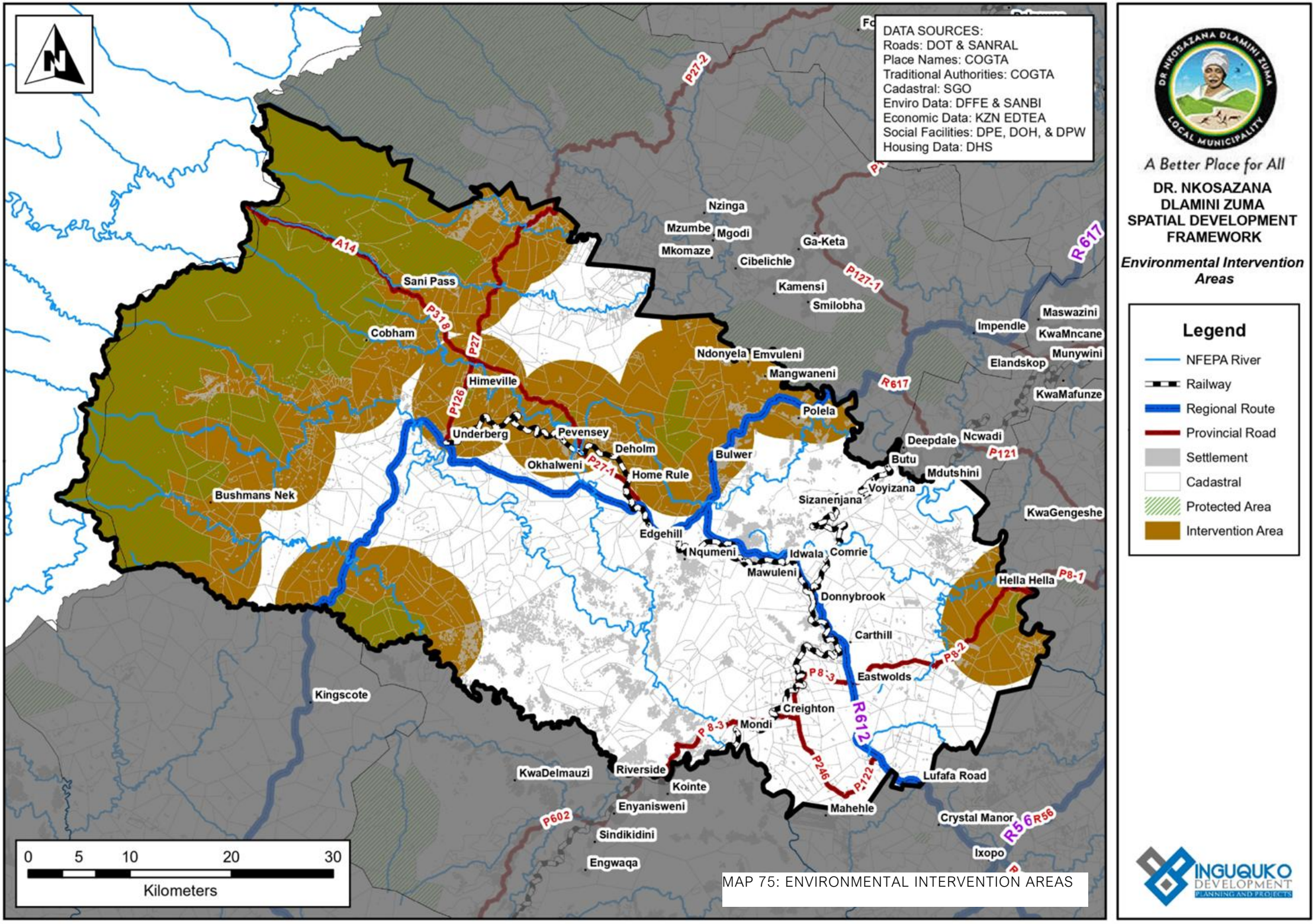
- **Protected area consolidation:** Strengthen conservation areas and buffer zones around Ukhahlamba Drakensberg Park and wetlands, preventing encroachment.
- **Land rehabilitation:** Implement soil conservation, reforestation, and alien vegetation clearing in degraded communal and commercial lands.
- **Climate resilience planning:** Develop climate-adaptive land use strategies addressing flooding, drought, and fire risks.
- **Sustainable resource management:** Promote responsible land use practices (e.g., conservation agriculture, water harvesting).

11.3.3. POLICY ALIGNMENT

- **SPLUMA**: Advocates for spatial sustainability and environmental protection.
- **Provincial SDF (2021)**: Identifies NDZ as an ecological priority zone due to biodiversity and water catchments.
- **NDZ IDP**: Prioritises environmental sustainability and climate resilience initiatives.

11.3.4. PLANNING IMPLICATIONS

- Integration of conservation priorities into the SDF ensures that settlement growth avoids ecologically sensitive areas.
- Environmental rehabilitation projects create local employment (e.g., Expanded Public Works Programme in alien clearing).
- Balancing conservation with agricultural and settlement needs improves spatial equity, ensuring both environmental and livelihood security.



MAP 75: ENVIRONMENTAL INTERVENTION AREAS

11.4. INFRASTRUCTURE INTERVENTION AREAS

11.4.1. STRATEGIC RATIONALE

The municipality faces infrastructure backlogs in roads, sanitation, water, energy, and digital connectivity, particularly in rural wards. These deficits constrain economic growth, undermine service delivery, and deepen inequalities between town nodes and dispersed settlements. Infrastructure interventions are required to unlock development potential, enable mobility, and support settlement consolidation.

11.4.2. HIGH-LEVEL INTERVENTIONS

- **Road and transport upgrades:** Prioritise maintenance of district and access roads to improve connectivity between rural settlements and towns.
- **Water and sanitation expansion:** Extend reliable water supply and improved sanitation services, addressing backlogs in rural wards.
- **Electricity and energy resilience:** Expand grid access while promoting off-grid renewable solutions in remote areas.
- **Digital infrastructure:** Partner with private operators to improve mobile and internet coverage, particularly in growth nodes and schools.

11.4.3. POLICY ALIGNMENT

- **SPLUMA**: Emphasises spatial efficiency and infrastructure investment to support sustainable development.
- **Provincial SDF**: Calls for infrastructure investment in nodal settlements to drive balanced growth.
- **NDZ IDP**: Identifies infrastructure backlogs as a key development challenge and service delivery priority.

11.4.4. PLANNING IMPLICATIONS

- Infrastructure investment in towns will strengthen nodal functions, attracting population and reducing pressure on dispersed settlements.
- Equitable extension of basic services addresses spatial injustice by improving conditions in historically underserved rural wards.
- Improved mobility and digital connectivity can integrate NDZ more effectively into district and provincial economies.

11.5. FARM DWELLERS AND BASIC SERVICES

11.5.1. STRATEGIC RATIONALE

Farm dwellers and farm workers constitute one of the most vulnerable and spatially marginalised population groups in the Dr. Nkosazana Dlamini Zuma Local Municipality. Their dispersed settlement patterns on privately-owned agricultural land have historically excluded them from municipal infrastructure programmes. This exclusion has resulted in persistent service delivery backlogs, poverty, and vulnerability, despite the municipality's constitutional obligation to provide services to all residents.

The Guidelines for the Provision of Basic Services to Farm Dwellers (2025) reaffirm municipalities' duty to extend basic services regardless of land tenure status. These guidelines provide minimum service standards, clarify institutional roles, and propose innovative approaches to serving low-density rural populations. For NDZ, aligning infrastructure interventions with these guidelines is essential to advance spatial justice, equity, and rural inclusion.

11.5.2. CHALLENGES IDENTIFIED

- Severe deficits in water, sanitation, refuse removal, and electricity among farm dwellers.

- Dispersed settlement patterns increase per capita service costs and complicate conventional infrastructure delivery models.
- Weak intergovernmental coordination between local municipalities, Eskom, Human Settlements, DALRRD, and farm owners.
- Lack of recognition of farm dwellers as a formal settlement typology in municipal planning systems.

11.5.3. OPPORTUNITIES FOR INTERVENTION

- Use of innovative, low-cost infrastructure models such as:
  - Communal boreholes and water tanks.
  - Clustered sanitation facilities.
  - Off-grid solar energy systems.
  - Mobile refuse collection points.
- Recognition of farm dwellers as a priority service group in the municipal settlement hierarchy and IDP.
- Integration of farm dweller service provision into District Development Model (DDM) structures to leverage support from sector departments.
- Potential to link service delivery with land reform initiatives and rural economic development programmes (e.g., agro-processing, food security).

11.5.4. STRATEGIC INFRASTRUCTURE PROPOSALS

1. Farm Dweller Service Clusters
   - Identify and map concentrations of farm dwellers in high-density agricultural zones.
   - Pilot "service cluster points" offering communal water, sanitation, solar energy, and refuse facilities.
2. Rural Off-Grid Energy Programme
   - Partner with Eskom and private providers to roll out household-level and community-level solar systems.
   - Prioritise schools and health facilities on farms for early implementation.
3. Integrated Water and Sanitation Hubs
   - Provide shared borehole-fed water points and ecological sanitation units in areas with multiple farm dweller households.
   - Develop a municipal maintenance programme in partnership with landowners and traditional authorities.
4. Farm Dweller Housing Inclusion
   - Incorporate farm dwellers into the municipality's Human Settlements Strategy, ensuring their recognition in housing subsidies and rural settlement upgrades.

11.5.5. PHASING OF IMPLEMENTATION

- Short-term (0–3 years)
  - Map farm dweller concentrations across NDZ.
  - Establish pilot farm dweller service clusters.
  - Initiate off-grid solar rollouts in partnership with Eskom.
- Medium-term (4–7 years)
  - Scale up clustered service hubs across all agricultural wards.

- Introduce mobile refuse collection points.
- Integrate farm dweller settlements into the municipal housing pipeline.

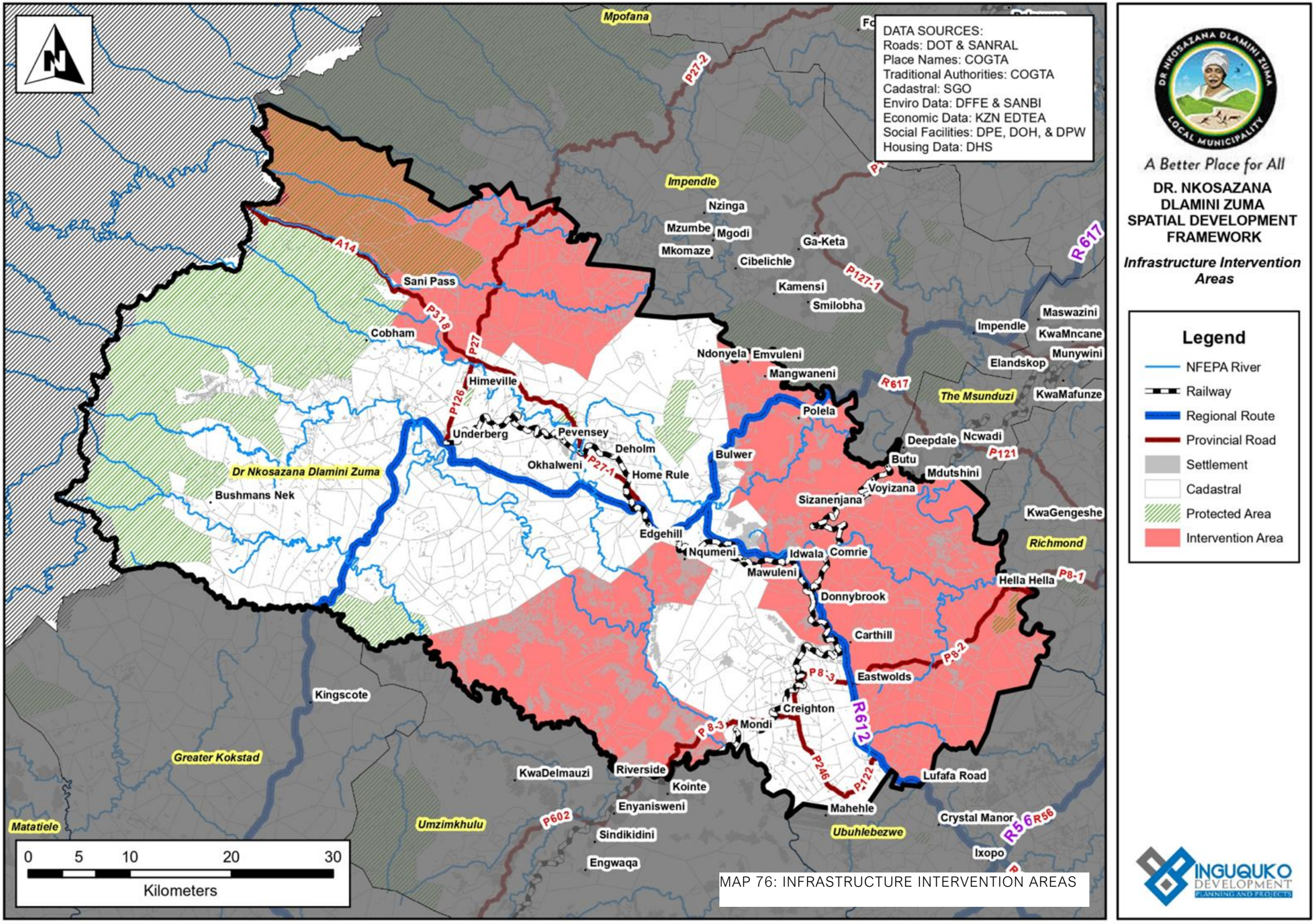
- Long-term (8–15 years)
  - Institutionalise farm dweller service provision into the settlement hierarchy.
  - Fully align farm dweller infrastructure with DDM and provincial programmes.
  - Link service delivery with rural economic development initiatives (agriculture and agro-processing).

11.5.6. PRIORITY AND ALIGNMENT

This intervention area is a high priority for NDZ, as it directly addresses the constitutional right to basic services and aligns with provincial and national directives on spatial justice and rural development. It supports NDZ's identified challenges of service access, rural exclusion, and poverty reduction, while operationalising the 2025 Guidelines.

TABLE 60: FARM DWELLER SERVICE PRIORITISATION MATRIX

PROPOSED PROJECT	URGENCY	IMPACT	FEASIBILITY	PRIORITY RANKING	NOTES / ALIGNMENT
Farm Dweller Service Cluster Pilots (communal water, sanitation, solar, refuse facilities in high-density agricultural areas)	High – immediate need to demonstrate service delivery to vulnerable communities	High – directly addresses basic rights to water, sanitation, and energy	Medium – requires mapping, coordination with landowners and district WSA	1	Aligns with 2025 Guidelines (minimum service standards). Should be initiated as flagship short-term project.
Rural Off-Grid Solar Energy Programme (household/community solar systems for farm dwellers, prioritising schools and clinics)	High – electricity backlog is severe in dispersed areas	Medium – improves health, education, livelihoods, but requires external funding	Medium – partnership with Eskom, private providers essential	2	Supports Energy access targets in provincial plans and NDZ's rural development strategy.
Integrated Water & Sanitation Hubs (shared boreholes, ecological sanitation units for farm clusters)	High – critical for health, dignity, and SDG alignment	High – immediate health/environmental benefits	Medium-High – technical feasibility proven, but maintenance needs municipal capacity	3	Links to provincial differentiated servicing policy; scalable to other rural settlements.
Mobile Refuse Collection Points (innovative waste management solutions for dispersed farm communities)	Medium – less urgent than water/sanitation, but essential for environmental health	Medium – improves health and dignity, reduces illegal dumping	High – low-cost and logistically feasible with municipal fleet	4	Can be phased in medium-term once service clusters are established.
Farm Dweller Housing Inclusion (integration into municipal housing strategy and Human Settlements pipeline)	Medium – housing backlog is long-term, requires provincial/national coordination	High – addresses tenure security and long-term integration	Low-Medium – dependent on policy reform and funding	5	Long-term structural intervention; aligns with Human Settlements and land reform frameworks.



MAP 76: INFRASTRUCTURE INTERVENTION AREAS

11.6. HOUSING INTERVENTION AREAS

11.6.1. STRATEGIC RATIONALE

NDZ LM faces housing backlogs, informal settlement growth, and inadequate land use planning in traditional areas. The challenge is to balance the demand for housing with the protection of agricultural and environmental resources, while ensuring equitable access to land and services. Strategic housing interventions are required to consolidate settlements, formalise informal areas, and integrate housing delivery into spatial planning frameworks.

11.6.2. HIGH-LEVEL INTERVENTIONS

- **Nodal housing consolidation:** Focus new housing projects in town nodes such as Underberg, Creighton, Bulwer, and Himeville to strengthen the settlement hierarchy.
- **Upgrading informal settlements:** Formalise and service existing informal areas, providing tenure security and basic services.
- **Traditional settlement planning:** Partner with traditional authorities to introduce managed layouts and service provision in communal areas.
- **Affordable housing models:** Promote incremental housing, social housing, and mixed-use development in nodal centres to diversify housing supply.

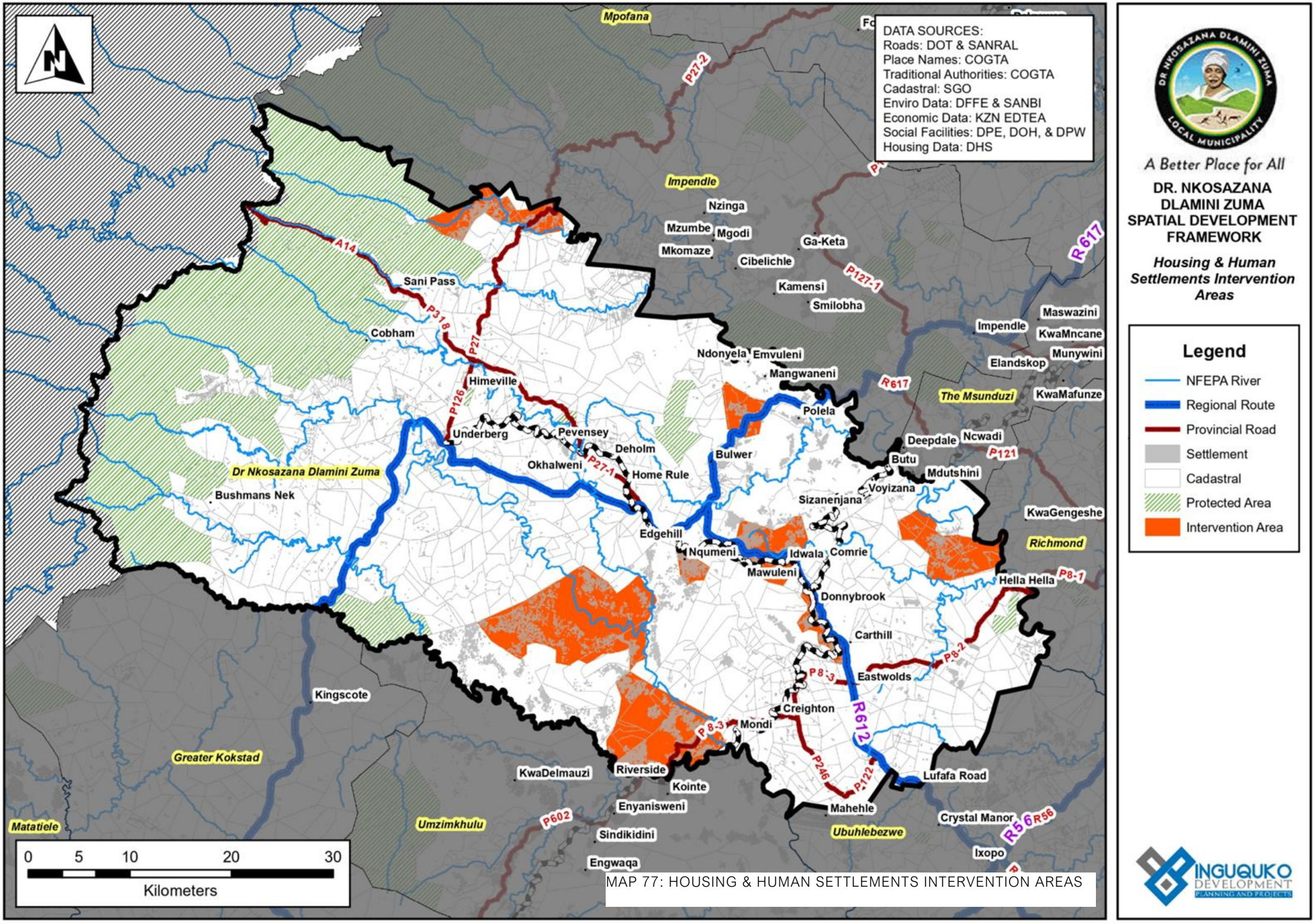
11.6.3. POLICY ALIGNMENT

- **SPLUMA**: Promotes spatial justice and access to land through inclusive settlement planning.
- **Provincial SDF**: Calls for consolidation of settlements and avoidance of scattered development.
- **NDZ IDP**: Identifies housing backlog reduction as a key social development priority.

11.6.4. PLANNING IMPLICATIONS

- Focusing housing in nodes enhances spatial efficiency and reduces service delivery costs.
- Formalising informal and traditional settlements improves spatial equity and living conditions for vulnerable groups.
- Introducing diverse housing models in towns encourages inclusive urban development and reduces pressure on agricultural land.

The four strategic intervention areas collectively address NDZ LM's most pressing development challenges while unlocking future opportunities. Economic interventions aim to diversify and strengthen the local economy; environmental interventions safeguard natural assets and resilience; infrastructure interventions address service delivery backlogs and connectivity gaps; and housing interventions respond to settlement pressures while promoting consolidation and equity. Together, these interventions align with SPLUMA, the Provincial SDF, and the NDZ IDP, and provide a spatial framework for guiding investment and planning decisions. The integration of these interventions into maps and nodal strategies will ensure that NDZ LM advances towards a more sustainable, inclusive, and spatially just future.



MAP 77: HOUSING & HUMAN SETTLEMENTS INTERVENTION AREAS

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Housing & Human Settlements Intervention Areas

Legend

- NFEPA River
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Intervention Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

11.7. STRATEGIC PROGRAMMES AND PROJECTS FOR PRIORITY AREAS

TABLE 61: STRATEGIC PROGRAMMES AND PROJECTS FOR PRIORITY AREAS

THEME	PROGRAMME	PROJECTS	LEAD STAKEHOLDERS	POTENTIAL FUNDING SOURCES
ECONOMIC	Agro-Processing Development	• Dairy processing hub (Underberg) • Timber & furniture hub (Bulwer) • Fresh produce packaging facility (Creighton)	NDZ LED Unit, Harry Gwala District, Dept. of Agriculture, DEDTEA	Agri-Park, DRDLR grants, SMME funding, DBSA
	Rural Enterprise & SMME Support	• Rural Enterprise Support Centres (Creighton & Donnybrook) • Youth & women cooperative incubation • Informal trading stalls upgrade (Bulwer)	NDZ LED Unit, SEDA, NYDA, Traditional Councils	LED budget, COGTA LED Support, EPWP
	Tourism Development	• Drakensberg Gateway Precinct (Underberg-Himeville) • Donnybrook Train Station Heritage Hub • Ntsikeni eco-tourism trails & facilities	NDZ LED Unit, Dept. of Tourism, Private Sector	Tourism Incentive Programme, PPPs, Provincial Tourism Fund
	Agricultural Support	• Expansion of food gardens (Stepmore, Kilmon) • Farmer Support Units (linked to Agri-Park) • Livestock improvement (Centocow)	Dept. of Agriculture, NDZ LED, NGOs	CASP (Comprehensive Agricultural Support Programme), EPWP
ENVIRONMENTAL	Wetland & River Rehabilitation	• Wetland restoration (Bulwer, Centocow) • Riparian buffer rehabilitation (Umzimkhulu & Umkomaas)	NDZ Environmental Unit, SANBI, DWS	Green Fund, Working for Wetlands
	Climate Resilience & Ecosystem Management	• Indigenous tree planting (Mqatsheni, Stepmore) • Firebreak programme in forestry zones	NDZ Env. Unit, Traditional Councils, Working on Fire	DEA-NRM, COGTA Disaster Grants

THEME	PROGRAMME	PROJECTS	LEAD STAKEHOLDERS	POTENTIAL FUNDING SOURCES
	Integrated Waste Management	• Regional transfer stations (Creighton, Underberg) • Closure of informal dumpsites • School-based recycling initiatives	NDZ Waste Management, HGDM, Schools	IWMP Budget, MIG, DEA Waste Management Grants
	Renewable & Green Energy	• Solar streetlights (Bulwer, Creighton) • Biogas digesters for schools/clinics • Mini-hydro pilot (Umzimkhulu)	NDZ Infrastructure, Eskom, Independent Power Producers	Green Fund, IPP Office, DBSA
INFRASTRUCTURE	Transport & Mobility	• Upgrade R612 & P429 • Surface rural roads (Kilmon–Stepmore) • Formalise taxi ranks (Underberg, Bulwer, Donnybrook)	SANRAL, DOT, NDZ Infrastructure	MIG, Provincial Roads Grant
	Bulk Services Expansion	• Creighton water treatment upgrade • Bulwer sanitation expansion • Rural electrification (Ndodeni, Mqatsheni)	NDZ Infrastructure, DWS, Eskom, HGDM	MIG, INEP, DWS Grants
	Social Infrastructure	• Thusong Centres (Bulwer, Centocow) • Clinic upgrades (Donnybrook, Himeville) • Underberg indoor sports centre	NDZ Community Services, Dept. of Health, DSAC	COGTA Community Facilities Fund, MIG
	ICT & Connectivity	• Broadband expansion (Underberg, Bulwer) • Wi-Fi hotspots (Creighton CBD, schools) • Smart village pilot (Stepmore)	NDZ ICT, DTPS, SITA	SA Connect, USAASA
HOUSING & HUMAN SETTLEMENTS	Formal Housing Development	• Creighton housing project • Donnybrook housing project • Himeville middle-income housing	NDZ Housing, DHS, HGDM	Human Settlements Grants, FLISP
	Rural Housing Upgrading	• EPHP rollout (Centocow, Stepmore, Kilmon)	NDZ Housing, DHS, Traditional Councils	EPHP Programme, DHS

THEME	PROGRAMME	PROJECTS	LEAD STAKEHOLDERS	POTENTIAL FUNDING SOURCES
		• Community-based rural upgrading projects		
	Social & Rental Housing	• Rental units for farm workers (Underberg) • Refurbish municipal rental stock (Creighton)	NDZ Housing, Social Housing Institutions	SHRA, DHS
	Emergency & Transitional Housing	• Emergency housing allocations • Transitional shelter programme	NDZ Housing, Disaster Management Unit	DHS Emergency Housing Fund
	Integrated Settlement Development	• Serviced sites in peri-urban nodes (Bulwer, Creighton) • Mixed-use housing in Underberg • Himeville precinct	NDZ Housing, Town Planning, DHS	DHS, PPPs, Municipal Land Disposal

11.7.1. STRATEGIC INTERVENTIONS IMPLEMENTATION

TABLE 62: STRATEGIC INTERVENTIONS IMPLEMENTATION

THEME	PROGRAMME	CURRENT SITUATION (BASELINE)	FUTURE NEEDS (5–10 YRS)	LEAD STAKEHOLDERS	FUNDING SOURCES
WATER & SANITATION	Water Reticulation (Per Settlement)	Many rural settlements (e.g., Stepmore, Ndodeni, Kilmon) have reticulation but poor infrastructure maintenance; others (Mqatsheni, parts of Centocow) lack piped supply entirely.	Upgrade failing infrastructure in settlements with networks but poor delivery; roll out new reticulation to unserved villages; community-based leak detection programmes.	NDZ Infrastructure, HGDM Water Services Authority, DWS	MIG, WSDP, DWS Water Grants
	Bulk Water Provision & Supply Capacity	Current water treatment works (e.g., Creighton, Bulwer) are operating at or near capacity; borehole systems serve smaller villages but are unreliable.	Expansion of Creighton WTW; new reservoirs in Underberg-Himeville; regional bulk scheme alignment with HGDM; borehole rehabilitation.	HGDM, DWS, NDZ Infrastructure	Regional Bulk Infrastructure Grant (RBIG), MIG
	Sanitation Infrastructure	VIP latrines dominate rural areas; Bulwer and Creighton have partial sewer systems; poor maintenance and overflow issues noted.	Expand sewer networks in growth nodes (Bulwer, Creighton, Underberg); upgrade rural sanitation with alternative tech (UD toilets, biodigesters).	NDZ Infrastructure, HGDM	MIG, Sanitation Grant

THEME	PROGRAMME	CURRENT SITUATION (BASELINE)	FUTURE NEEDS (5–10 YRS)	LEAD STAKEHOLDERS	FUNDING SOURCES
ROADS & MOBILITY	Regional Routes (R612, P429)	Single carriageways; mixed use with heavy freight, taxis, and private vehicles; surfacing fair but with poor maintenance.	Widening of critical sections; upgrade to all-weather asphalt surface; creation of truck stop facilities (Underberg).	DOT, SANRAL, NDZ Infrastructure	Provincial Roads Grant, SANRAL
	Secondary/Connector Roads	Many D-graded gravel roads (e.g., Donnybrook–Kilmon, Ndodeni access) suffer erosion and poor drainage; inadequate signage.	Surfacing of priority connectors; reclassification of roads to reflect actual traffic (esp. freight/taxi routes); stormwater management upgrades.	NDZ, DOT, COGTA	MIG, EPWP (labour-intensive roadworks)
	Village Access Roads	Many tracks and gravel roads only accessible in dry weather; low levels of pedestrian safety (no sidewalks).	Introduce low-volume sealed roads; provision of pedestrian pathways and NMT (non-motorised transport) facilities; improve signage and lighting.	NDZ Infrastructure, Traditional Councils	MIG, DBSA, Expanded Public Works Programme
OTHER INFRASTRUCTURE	Electricity & Energy	Eskom grid covers towns (Creighton, Bulwer, Underberg), but rural areas (Stepmore, Ndodeni) still lack access; load-shedding affects supply reliability.	Electrification of unserved settlements; explore hybrid off-grid solutions (solar mini-grids, household solar kits).	Eskom, NDZ Infrastructure, DoE	INEP, Green Fund
	ICT & Connectivity	Weak mobile/broadband coverage in rural areas; Underberg, Bulwer, Creighton better served.	Broadband rollout in nodes (Underberg, Creighton); Wi-Fi hotspots at schools; smart-village pilot in Stepmore.	DTPS, NDZ ICT, SITA	SA Connect, USAASA
	Waste Management	Few formal disposal sites; illegal dumping common; landfill nearing capacity.	Establish regional waste transfer stations (Creighton, Underberg); formal recycling cooperatives.	NDZ Waste Unit, HGDM	IWMP, DEA Waste Grants

11.7.2. STRATEGIC INTERVENTION IMPLEMENTATION PER SETTLEMENT

11.7.2.1. WATER RETICULATION AND BULK SUPPLY NEEDS (PER SETTLEMENT/CLUSTER)

TABLE 63: WATER RETICULATION AND BULK SUPPLY NEEDS (PER SETTLEMENT/CLUSTER)

SETTLEMENT/CLUSTER	CURRENT WATER SITUATION	CHALLENGES	FUTURE NEEDS (5–10 YEARS)
Underberg–Himeville	Piped water available via small WTW, supplemented by boreholes; higher coverage in urban core.	WTW nearing capacity; seasonal shortages in peak tourism season.	Expand Underberg bulk supply; construct new reservoir; improve rural extensions to surrounding villages.

SETTLEMENT/CLUSTER	CURRENT WATER SITUATION	CHALLENGES	FUTURE NEEDS (5–10 YEARS)
Bulwer	Piped water network exists; reliant on boreholes and small reservoirs.	Poor maintenance, frequent pipe bursts; outlying settlements poorly served.	Upgrade Bulwer WTW; replace aging pipes; extend reticulation to Ndodeni and Shabhu.
Creighton	Reticulation present with a small WTW; central areas covered.	WTW at capacity; intermittent supply; poor connections to outer villages.	Expand Creighton WTW; construct additional boreholes; ensure village-level distribution.
Donnybrook	Limited reticulation in town; rural households rely on springs and boreholes.	Groundwater unreliable; infrastructure gaps.	Develop small-scale WTW; extend reticulation to peri-urban housing areas.
Centocow	Minimal piped supply; reliance on streams, boreholes, and rainwater harvesting.	No formal bulk infrastructure.	New borehole systems; roll out household rainwater harvesting tanks; explore package plant.
Kilmon & Stepmore	Mostly unserved; reliance on springs and rainwater harvesting.	No piped network; contamination risks.	New reticulation system; borehole rehabilitation; household water tanks.
Mqatsheni	No reliable piped supply; dispersed households.	Dependence on springs and rivers; water quality concerns.	Implement gravity-fed reticulation; promote household water storage solutions.

11.7.2.2. ROAD INFRASTRUCTURE STATUS AND NEEDS (PER ROUTE/CLUSTER)

TABLE 64: ROAD INFRASTRUCTURE STATUS AND NEEDS (PER ROUTE/CLUSTER)

ROUTE/SETTLEMENT	CURRENT ROAD TYPE	CHALLENGES	FUTURE NEEDS (5–10 YEARS)
R612 (Ixopo–Donnybrook–Bulwer)	Single carriageway (tarred), regional route.	High freight/taxi volumes; surface deteriorating; unsafe for pedestrians.	Upgrade to dual carriageway sections; add sidewalks, lay-bys, truck stop (Underberg).
P429 (Creighton–Centocow–Underberg)	Single-lane tar/gravel mix.	Narrow, unsafe in wet season; limited surfacing.	Upgrade to all-weather surface; widen critical bends.
Donnybrook–Kilmon–Stepmore access	Gravel D-road.	Erosion, no drainage; impassable during heavy rain.	Surface with low-volume seal; add culverts and stormwater management.
Ndodeni cluster roads	Gravel, poorly graded.	Limited accessibility; no public transport lay-bys.	Upgrade to all-weather gravel; build taxi stops.
Bulwer–Centocow connector	Gravel connector.	Worn surface; critical for accessing health and schools.	Tar upgrade; signage and safety measures.
Creighton local streets	Partially tarred CBD streets; rural edges gravel.	Poor stormwater drainage; potholes.	CBD resurfacing; improve drainage; rural access sealing.
Underberg–Himeville link	Tarred, fair condition.	Congestion in town centres; lacks pedestrian facilities.	Widen main road; add pedestrian sidewalks and cycle lanes.

12. SPATIAL DEVELOPMENT PRINCIPLES, GOALS & OBJECTIVES

12.1. SPLUMA DEVELOPMENT PRINCIPLES

The Spatial Planning and Land Use Management Act (SPLUMA), Act No. 16 of 2013, provides the overarching legislative framework for spatial planning and land use management in South Africa. At the heart of SPLUMA are five interrelated development principles that underpin all spatial planning instruments, including Spatial Development Frameworks (SDFs), Land Use Schemes, and precinct plans. These principles aim to guide municipalities toward spatial transformation, sustainability, and equity.

- **SPATIAL SUSTAINABILITY** ensures that land development supports long-term ecological integrity, efficient resource use, and economic viability. It seeks to promote sustainable settlements by encouraging development in areas with existing infrastructure, protecting high-value agricultural land, conserving biodiversity, and minimising urban sprawl.
- **SPATIAL JUSTICE** is concerned with redressing historical spatial inequalities and ensuring equitable access to land, services, and opportunities. It prioritises inclusive settlement planning, tenure security, and the integration of marginalised communities into the urban and rural economy. Through this principle, spatial planning becomes a tool for social and economic redress.
- **SPATIAL EFFICIENCY** emphasises compact development forms that optimise infrastructure, reduce travel distances, and improve the cost-effectiveness of public investment. It advocates for higher densities, mixed-use developments, and the alignment of land use with transport corridors to create functional, accessible, and vibrant settlements.
- **SPATIAL RESILIENCE** focuses on the ability of places and systems to adapt to environmental, economic, and social change. It promotes risk-sensitive development that considers climate change, natural hazards, and resource scarcity, ensuring that settlements remain viable and adaptive over time.
- **GOOD ADMINISTRATION** underpins the implementation of the other four principles. It calls for integrated, transparent, and participatory planning and decision-making processes across all spheres of government. Together, these principles ensure that spatial planning in South Africa contributes to a sustainable, equitable, and inclusive spatial future for all communities.

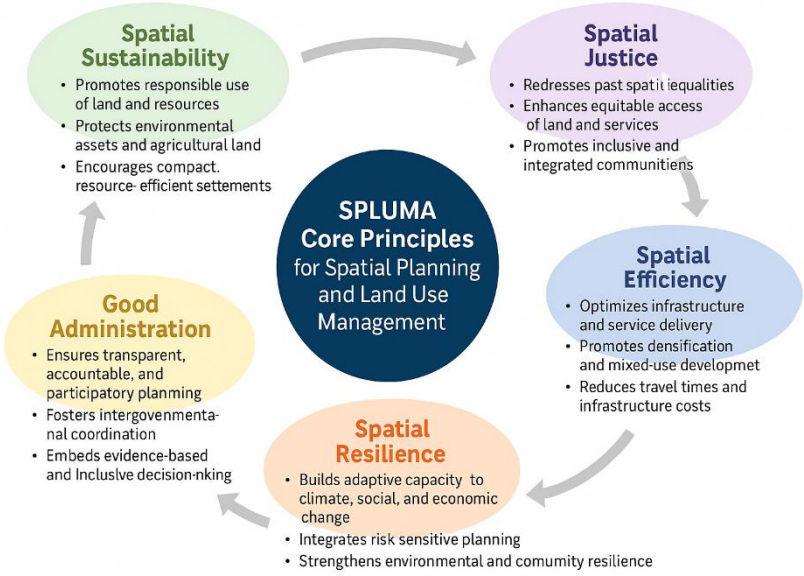


FIGURE 2: SPLUMA PRINCIPLES

12.2. DEVELOPMENT OBJECTIVES

The Development Objectives for the Dr Nkosazana Dlamini Zuma Local Municipality Spatial Development Framework (NDZ SDF) provide a concise, implementation-ready translation of the municipality's spatial vision into measurable intentions. They give effect to the normative framework of the Spatial Planning and Land Use Management Act, 2013 (SPLUMA), align with the KZN PSDF and district strategies, and consolidate evidence from the SDF's Phase 4 proposals (including settlement restructuring, catalytic precincts, environmental management, infrastructure and mobility, and institutional delivery). Each objective below is decomposed into sub-objectives explicitly aligned with SPLUMA's five development principles — Spatial Sustainability, Spatial Justice, Spatial Efficiency, Spatial Resilience, and Good Administration — and is accompanied by focused strategies to guide instruments (scheme, by-laws, capital programmes, and precinct plans) and monitoring (M&E).

12.2.1. OBJECTIVE #1: RESTRUCTURE AND CONSOLIDATE THE SETTLEMENT SYSTEM TO ACHIEVE A COMPACT, CONNECTED, AND EFFICIENT SPATIAL FORM

TABLE 65: DEVELOPMENT OBJECTIVE #1

SPLUMA PRINCIPLE	DESCRIPTION OF PRINCIPLE	SUB-OBJECTIVE (ALIGNED)	STRATEGIES / INTERVENTIONS
Spatial Sustainability	Protect environmental assets and high-value agricultural land while directing growth to suitable areas.	Direct 80% of new urban development to identified nodes/corridors and away from CBAs, riparian buffers and prime agricultural land.	Adopt/declare settlement edges for Bulwer, Donnybrook, Creighton, Underberg–Himeville; embed biophysical constraints in the scheme; apply agricultural protection overlays; require environmental screening at pre-application.
Spatial Justice	Redress historical spatial exclusion and unequal access to services and opportunities.	Prioritise serviced land release and tenure regularisation in rural growth clusters and historic townships within the nodal hierarchy.	Prepare incremental upgrading layouts and township establishment for prioritised clusters; reserve well-located public land for social housing/RDP; implement land value capture for inclusionary outcomes.
Spatial Efficiency	Promote compact form, reduce infrastructure travel/time costs.	Achieve minimum net densities of 35–60 du/ha in priority nodes and along public transport corridors.	Densification policy in scheme; mixed-use zoning along main spines; parking reform; brownfield infill incentives; TOD overlays around taxi ranks/transfer points.
Spatial Resilience	Build adaptive capacity to climate, disaster and economic shocks.	Prevent settlement expansion into floodplains, steep slopes (>1:5) and fire-risk interfaces.	Risk-based development control map; enforce 1:100 floodline set-backs; SUDS standards; defensible open-space edges and fuel-breaks; climate-responsive building guidelines.
Good Administration	Evidence-based, transparent, coordinated decision-making.	Embed a spatial pipeline (schemes, precints, AIPs) with annual M&E on settlement performance.	Annual SDF implementation report; cross-department site clearance protocol; digital application tracking; pre-app forum with provincial entities and traditional councils.

12.2.2. OBJECTIVE #2: DELIVER INTEGRATED, INCLUSIVE HUMAN SETTLEMENTS WITH EQUITABLE ACCESS TO SOCIAL FACILITIES AND BASIC SERVICES

TABLE 66: DEVELOPMENT OBJECTIVES #2

SPLUMA PRINCIPLE	DESCRIPTION	SUB-OBJECTIVE	STRATEGIES / INTERVENTIONS
Spatial Sustainability	Balance settlement delivery with sustainable resource use.	Align housing pipelines with bulk capacity and water-wise layouts.	Bulk feasibility gates in project selection; phased services; water demand management; on-site renewable/solar water heaters in municipal housing specs.
Spatial Justice	Prioritise vulnerable groups and under-served areas.	Achieve CSIR social facility access norms within walking distance in priority settlements.	Social facility catchment mapping; co-location of schools/clinics/MPCs; land banking for sites; universal access standards in public realm upgrades.
Spatial Efficiency	Optimise lifecycle costs and land utilisation.	Mix tenure and typologies (RDP, CRU, FLISP/rental, incremental) in well-located land parcels.	Inclusionary housing policy for private rezonings; subdivision/second-dwelling rights; pre-approved pattern books for incremental housing.
Spatial Resilience	Healthy, safe, climate-adapted neighbourhoods.	Introduce NMT networks and safe routes to school/clinic/taxi in each node.	Sidewalks, zebra crossings, traffic calming; lighting; shade/trees; stormwater attenuation and permeable surfaces linked to green corridors.
Good Administration	Coordinated intergovernmental delivery.	Sign precinct-level implementation compacts (LM, District, Human Settlements, Transport, Education, Health).	Joint Implementation Plans; adopt service charters; quarterly portfolio alignment forums; publish facility delivery dashboards.

12.2.3. OBJECTIVE #3: DIVERSIFY AND GROW A PRODUCTIVE LOCAL ECONOMY ANCHORED IN AGRICULTURE, TOURISM, SMMES AND AGRO-PROCESSING

TABLE 67: DEVELOPMENT OBJECTIVES #3

SPLUMA PRINCIPLE	DESCRIPTION	SUB-OBJECTIVE	STRATEGIES / INTERVENTIONS
Spatial Sustainability	Safeguard productive landscapes and ecosystem services.	Protect and intensify high-potential agricultural land and water sources supporting agri-value chains.	Agricultural zoning with right-to-farm; agro-processing zones in nodes; irrigation efficiency; riparian buffer restoration.
Spatial Justice	Broaden participation and access to market spaces.	Formalise and service trading spaces for informal/SMME enterprises in all nodes.	Market sheds, storage, ablutions, affordable rentals; micro-logistics bays; simplified permits; incubation hubs with shared services.

SPLUMA PRINCIPLE	DESCRIPTION	SUB-OBJECTIVE	STRATEGIES / INTERVENTIONS
Spatial Efficiency	Cluster economic uses along serviced corridors/nodes.	Allocate serviced, accessible plots for light industry and agro-processing.	Land release programme; fast-track rezoning/consent uses; last-mile logistics improvements; signage and wayfinding.
Spatial Resilience	Build adaptive local economies.	Promote year-round tourism and circular economy initiatives.	Drakensberg gateway branding; trail networks and heritage routes; waste-to-value pilots; enterprise support for repair/reuse services.
Good Administration	Enable investment through clear, predictable governance.	Reduce average land-use decision turnaround to <90 days and building plan approval to <30 days.	Development facilitation unit; pre-application clinics; service level agreements with internal/external reviewers; digitised submissions and tracking.

12.2.4. OBJECTIVE #4: PROTECT BIODIVERSITY, WATER RESOURCES AND LANDSCAPE CHARACTER; AND MAINSTREAM CLIMATE RISK REDUCTION

TABLE 68: DEVELOPMENT OBJECTIVE #4

SPLUMA PRINCIPLE	DESCRIPTION	SUB-OBJECTIVE	STRATEGIES / INTERVENTIONS
Spatial Sustainability	Conserve CBAs/ESAs, wetlands, grasslands and forests.	Establish a connected municipal open-space system.	Map and adopt OSF; stewardship agreements; ecological corridors; invasive alien control; wetland buffers; environmental overlays in scheme.
Spatial Justice	Equitable access to environmental amenities and benefits.	Provide safe, accessible green public spaces in dense areas.	Pocket parks; riparian greenways; community stewardship; ECD/School greening programmes.
Spatial Efficiency	Use land and resources efficiently including energy/water.	Mandate SUDS, rainwater harvesting and efficient lighting in municipal projects.	Green Bylaw standards; municipal retrofit programme; procurement criteria; demonstration projects in civic buildings.
Spatial Resilience	Reduce hazard exposure and build adaptive capacity.	Implement a municipal climate adaptation plan integrated with disaster risk management.	Hazard maps; early-warning systems; heat refuge and shade planning; defensible space standards; emergency access routes.
Good Administration	Institutionalise environmental governance and monitoring.	Establish cross-department Environmental Review Panel with quarterly reporting.	Screening checklist; biodiversity offset policy; compliance monitoring; citizen reporting channels.

12.2.5. OBJECTIVE #5: BUILD RELIABLE, AFFORDABLE AND INCLUSIVE INFRASTRUCTURE AND MOBILITY NETWORKS

TABLE 69: DEVELOPMENT OBJECTIVE #5

SPLUMA PRINCIPLE	DESCRIPTION	SUB-OBJECTIVE	STRATEGIES / INTERVENTIONS
Spatial Sustainability	Resource-efficient infrastructure provision and O&M.	Prioritise asset management and non-revenue water/electricity loss reduction.	AMP and condition assessment; pressure management; smart metering pilots; preventive maintenance funding ring-fence.
Spatial Justice	Universal access to essential services and mobility.	Achieve minimum service levels and safe public transport in all wards.	Rural water schemes; sanitation upgrades; electrification infill; formal taxi ranks; accessible stops; universal design standards.
Spatial Efficiency	Integrate land use and transport to reduce travel costs.	Establish a nodal-corridor TOD framework with freight management.	Access management on R-routes; NMT networks; truck routes and a truck stop near Underberg; shared-ride facilities; demand-responsive transport pilots.
Spatial Resilience	Climate-robust infrastructure.	Climate-proof bridges, culverts and road alignments at high-risk crossings.	Flood-resilient design standards; slope stabilisation; culvert upsizing; redundancy in water sources.
Good Administration	Coordinated planning, budgeting, and delivery.	Publish a rolling 3-year municipal Capital Investment Framework (CIF) linked to SDF priorities.	Project pipeline gating; cross-sphere funding compacts; quarterly capex performance reviews; open data portal for projects.

12.2.6. OBJECTIVE #6: STRENGTHEN GOVERNANCE, LAND ADMINISTRATION AND IMPLEMENTATION CAPACITY

TABLE 70: DEVELOPMENT OBJECTIVE #6

SPLUMA PRINCIPLE	DESCRIPTION	SUB-OBJECTIVE	STRATEGIES / INTERVENTIONS
Spatial Sustainability	Integrate environmental/economic/social trade-offs transparently.	Institutionalise sustainability screening in all capital and land decisions.	Decision templates with sustainability scorecards; mandatory alternatives analysis; public disclosure of major decisions.
Spatial Justice	Procedural fairness and inclusive participation.	Deepen ward- and traditional council-level participation in plan-making and land-use decisions.	Annual ward SDF roadshows; multilingual notices; participatory mapping; grievance and appeal mechanisms.
Spatial Efficiency	Capable, streamlined processes and systems.	Modernise land use management and cadastral data for faster, accurate decisions.	GIS cadastre maintenance; e-LUMS; digital archive of conditions/approvals; standardised conditions library.

SPLUMA PRINCIPLE	DESCRIPTION	SUB-OBJECTIVE	STRATEGIES / INTERVENTIONS
Spatial Resilience	Institutional continuity and learning.	Establish SDF M&E with indicators and adaptive review.	Annual indicator reporting (density, access, backlog, land consumption, carbon); 5-year adaptive SDF review; learning exchanges with peers.
Good Administration	Legality, accountability, intergovernmental alignment.	Align SDF, scheme, IDP, sector plans and budget; strengthen enforcement.	LUMS/SDF alignment audit; compliance teams; penalties for contraventions; performance KPIs tied to plan implementation.

12.3. VISION STATEMENT

The vision statement for the Dr. Nkosana Dlamini Zuma Local Municipality is:

"By 2046, Dr. Nkosazana Dlamini Zuma Local Municipality will be a spatially integrated, resilient, and inclusive rural municipality that harnesses its agricultural potential, environmental assets, and tourism appeal to drive sustainable livelihoods, equitable access to services, and a thriving green rural economy. Through strategic nodal development, efficient land use management, and resilient infrastructure networks, NDZ will serve as a vibrant gateway between KwaZulu-Natal and Lesotho — a better place for all its people to live, work, and prosper."

12.4. ALIGNMENT WITH PROVINCIAL AND DISTRICT DEVELOPMENT VISIONS

This Spatial Vision aligns with the KwaZulu-Natal Provincial Spatial Development Framework (PSDF 2021–2027), which envisions *a spatially equitable, sustainable, and resilient KwaZulu-Natal* that promotes spatial transformation, environmental stewardship, and inclusive economic growth. It also draws on the Harry Gwala District Growth and Development Strategy (2024), which aspires toward *a leading rural district leveraging its agricultural and tourism potential for sustainable development and climate resilience*.

At the municipal scale, the NDZ IDP (2025/26) articulates the vision *"A Better Place for All"*. The Spatial Vision provides the spatial expression of this overarching goal — guiding where and how development should occur to achieve balanced growth, social justice, and environmental sustainability.

12.5. THE DESIRED SPATIAL CHARACTER OF NDZ IN 2046

By 2046, NDZ will be characterized by:

- A network of vibrant rural service centres—Creighton, Underberg-Himeville, Bulwer, Donnybrook, Kilmun, and emerging nodes such as Stepmore and Centocow—anchoring a functional settlement hierarchy that balances urban and rural growth.
- An inclusive, connected rural economy, with agro-processing hubs, eco-tourism corridors, and small enterprise zones linked by strategic transport routes such as the R612 and R617.
- Sustainable and resilient settlements, offering dignified housing, quality public facilities, and climate-resilient infrastructure within defined settlement edges that prevent urban sprawl.
- A thriving natural landscape, where agricultural productivity coexists with biodiversity conservation, protected wetlands, and ecosystem-based climate adaptation measures.
- A spatially just municipality, where historically marginalized rural settlements have equitable access to services, markets, and development opportunities.

The municipality will function as a bridge between the coastal and inland economies of KwaZulu-Natal and as a transboundary gateway into Lesotho, enhancing regional integration and mobility.

12.6. CORE SPATIAL DEVELOPMENT THEMES

SPATIAL INTEGRATION & CONNECTIVITY: NDZ's future spatial form will be structured around a networked nodal system connected by well-developed corridors of movement. The R612, R617, and P429 routes will serve as

strategic connectors between local nodes and regional economic centres (such as Ixopo, Kokstad, and Pietermaritzburg). Secondary linkages to Lesotho and the Drakensberg tourism belt will strengthen NDZ's regional competitiveness.

RURAL TRANSFORMATION & ECONOMIC DIVERSIFICATION: The local economy will evolve from subsistence agriculture toward a diversified, value-added rural economy driven by:

- Agro-processing, dairy, and forestry industries.
- Eco- and cultural tourism leveraging the Drakensberg World Heritage Site, rivers, and scenic landscapes.
- Expansion of rural enterprise zones and smallholder empowerment initiatives; and
- Green economy innovations (renewable energy, sustainable agriculture, and environmental rehabilitation).

These initiatives align with the PGDS Goal 3: Inclusive Economic Growth and HGDM's Sectoral Programmes in agriculture and tourism.

ENVIRONMENTAL RESILIENCE & CLIMATE ADAPTION: Building on the Harry Gwala Climate Change Response Strategy (2023) and NDZ's Environmental Management Plan (2020–2025), the Spatial Vision promotes a landscape-based planning approach that integrates:

- Protection of Critical Biodiversity Areas (CBAs) and ecological corridors.
- Sustainable management of water catchments (uMkhomazi and uMzimkhulu Rivers);
- Ecosystem-based disaster risk reduction measures; and
- The creation of a Green Corridor Network linking conservation, recreation, and tourism assets.

SETTLEMENT CONSOLIDATION & SPATIAL JUSTICE: The vision emphasizes spatial transformation through:

- Defined settlement edges around major and emerging nodes to manage urban expansion.

- Incremental housing consolidation in rural villages.
- Densification within serviceable nodes; and
- Equitable distribution of social facilities guided by accessibility thresholds and service standards.

This approach supports SPLUMA's principles of spatial justice, efficiency, and sustainability, and responds to the housing and infrastructure priorities outlined in the NDZ Human Settlements Sector Plan (2024).

INSTITUTIONAL INTEGRATION & GOVERNANCE: The realization of this vision requires spatial alignment across all spheres of government. NDZ will position itself as a central player in the district's spatial governance network—strengthening coordination with Harry Gwala District Municipality, Provincial COGTA, and Traditional Councils. This collaborative governance approach will ensure coherent investment planning, transparent land management, and improved service delivery.

12.7. GUIDING SPATIAL PRINCIPLES AND STRUCTURING ELEMENTS

TABLE 71: GUIDING SPATIAL PRINCIPLES AND STRUCTURING ELEMENTS

PRINCIPLE	SPATIAL APPLICATION
Integration	Reinforce nodal linkages through corridor development, transport mobility, and digital connectivity.
Sustainability	Promote compact growth within settlement edges, energy-efficient infrastructure, and protection of ecological assets.
Equity	Direct infrastructure and social investment to marginalized rural settlements and traditional authority areas.
Resilience	Embed climate adaptation measures and ecosystem-based planning in all spatial interventions.
Productivity	Prioritize land for agriculture, agri-industry, and tourism development to enhance local economic output.
Identity	Preserve cultural heritage, rural character, and scenic landscapes as integral to NDZ's sense of place.

These structuring principles will underpin spatial tools such as the Composite Spatial Development Framework Map, the Plan of Nodes, and the Settlement Hierarchy and Corridors Framework.

12.8. SPATIAL STRUCTURING AND FUNCTIONAL RELATIONSHIPS

The Spatial Vision translates into a multi-nodal, corridor-linked spatial structure:

- Primary Nodes: Underberg–Himeville (tourism hub and regional service centre); Creighton (administrative and logistics hub).
- Secondary Nodes: Bulwer, Donnybrook, and Kilmun (agro-processing and rural service centres).
- Emerging Nodes: Centocow, Stepmore/Mqatsheni, and Pholela (community and agricultural support nodes).
- Tourism and Environmental Corridors: Drakensberg–Sani Pass, Umkomaas–uMzimkhulu River, and Green Corridor systems connecting eco-cultural destinations.

This spatial configuration supports balanced development, economic connectivity, and resource sustainability across the municipality.

12.9. THE SPATIAL TRANSFORMATION AGENDA

NDZ's Spatial Vision commits to addressing the historical spatial inequities inherited from apartheid-era planning through:

- Redirection of capital investment toward rural service nodes and neglected traditional areas.
- Prioritization of basic services, housing, and public facilities in areas of greatest need.
- Strengthening land tenure security and expanding access to productive land for emerging farmers; and
- Enhancing mobility and accessibility through upgraded roads, bridges, and digital infrastructure to connect people to opportunities.

This transformation agenda will enable NDZ to evolve from a fragmented rural municipality into a spatially integrated, climate-smart, and opportunity-driven territory.

13. SOCIOECONOMIC & DEMOGRAPHIC PROPOSALS

The socioeconomic and demographic dimension of the NDZ Spatial Development Framework (SDF) addresses the human development challenges and opportunities identified in the Phase 3 Status Quo Report. With a population of approximately 128,565 (2022), high poverty and unemployment rates, and significant disparities in access to education, health, and social services, the municipality requires spatial strategies that integrate social and economic interventions. The proposals in this chapter aim to restructure how and where services are provided, expand opportunities for livelihoods, and build inclusive communities that can thrive within the municipality's rural and small-town context.

13.1. STRATEGIC INTERVENTION 1: EDUCATION AND SKILLS DEVELOPMENT FOR INCLUSIVE GROWTH

Education and skills development are central to breaking the cycle of poverty and unemployment in NDZ LM. The municipality's population profile shows that the majority of residents are under 35 years of age, yet school drop-out rates remain high, and there is a limited availability of post-school education and training opportunities. This mismatch between the education system and the needs of the local economy perpetuates a situation where young people are unable to access employment in key growth sectors such as agriculture, agro-processing, tourism, and renewable energy.

13.1.1. ESTABLISHMENT OF AN EDUCATION & SKILLS DEVELOPMENT FRAMEWORK

The strategic intervention proposed here is the establishment of an education and skills development framework anchored in spatially distributed training hubs. These hubs would be located in Creighton, Underberg, and Donnybrook, aligning with the settlement hierarchy and ensuring that educational opportunities are accessible across the municipality. Each hub would integrate secondary schooling, vocational training, adult education, and skills development programmes tailored to the local economy. For instance, the Creighton hub could focus on agricultural sciences, agro-processing, and entrepreneurship training, while the Underberg hub could specialise in tourism, hospitality, and conservation-related skills. Donnybrook, given its history as a transport node, could provide training in logistics, construction, and artisanal skills.

The intervention would be phased over time. In the short term (1–5 years), it would prioritise upgrading existing schools, establishing partnerships with TVET colleges, and deploying mobile training units to rural wards. In the medium term (5–10 years), it would focus on constructing multipurpose education hubs in strategic nodes and expanding digital learning facilities. In the long term (10–20 years), the municipality could advocate for the establishment of a satellite campus of a university or agricultural college to serve both NDZ and the broader Harry Gwala District.

This intervention directly addresses challenges of youth unemployment, migration pressures (where young people leave for opportunities elsewhere), and low skills levels. It also seizes opportunities presented by the municipality's agricultural and tourism base, positioning education as a driver of inclusive growth. Importantly, it aligns with the KZN PSDF's call for sustainable human settlements with integrated social facilities and the Harry Gwala DGDS's focus on human capital development.

13.2. STRATEGIC INTERVENTION 2: LIVELIHOOD CREATION AND LOCAL ECONOMIC DEVELOPMENT

The second key intervention focuses on expanding opportunities for livelihoods and employment creation within NDZ LM. The municipality's economy is dominated by agriculture and tourism, yet much of the agricultural production is either subsistence-based or controlled by commercial farms with limited linkages to local small-scale producers. At the same time, informal trading, small-scale retail, and services are important survivalist activities, particularly in rural settlements and small towns.

13.2.1. DIVERSIFICATION OF LOCAL ECONOMY



The proposed intervention is to develop a diversified local economy that strengthens agriculture, promotes agro-processing, supports small enterprise development, and expands tourism value chains. Spatially, this will involve the establishment of agro-processing clusters along key corridors (R612 and R617), farmer support centres in rural wards, and tourism nodes connected to the Drakensberg World Heritage Site and natural reserves.

The short-term focus will be on creating enabling infrastructure for livelihoods—such as formalised market spaces for informal traders, small packhouses for agricultural produce, and tourism information centres in Underberg and Bulwer. The medium-term will see the development of agro-processing zones, supported by partnerships with private investors and agricultural cooperatives, where value addition activities such as dairy processing, fruit drying, and timber products can be developed. In the long term, NDZ could position itself as a regional hub for organic agriculture and eco-tourism, branding its products and services in ways that attract both domestic and international markets.

The intervention also integrates cross-cutting themes of youth and women empowerment. Dedicated programmes should target young people in agricultural entrepreneurship, ICT-enabled services, and eco-tourism, while women should be supported in cooperative-based enterprises such as craft production, catering, and childcare services linked to education hubs.

By building a more diversified and inclusive local economy, this intervention addresses the municipality's challenge of economic leakage, where local resources are not retained in the community, and creates pathways for sustainable livelihoods. It also aligns with the DGDS's emphasis on rural economic development and the PSDF's promotion of productive rural regions.

13.3. STRATEGIC INTERVENTION 3: EXPANDING ACCESS TO SOCIAL AND HEALTH SERVICES

Despite incremental improvements, access to health facilities, social infrastructure, and safety services remains uneven across NDZ LM. Rural wards in particular face significant challenges in accessing clinics, social workers, and community facilities, leading to poor health outcomes and

persistent social inequalities. The COVID-19 pandemic further highlighted the vulnerabilities of communities with limited access to primary healthcare and social safety nets.

13.3.1. DEVELOPMENT OF MULTI-PURPOSE COMMUNUTY CENTRES

The proposed intervention is to develop a network of multipurpose community centres strategically located in secondary and tertiary nodes, ensuring that every resident is within reasonable travel distance of basic services. These centres would integrate primary healthcare services, social worker offices, early childhood development (ECD) facilities, libraries, and safe community spaces. They would be designed as multi-functional hubs that not only deliver services but also act as anchors for community cohesion and empowerment.

Short-term actions would include upgrading existing clinics, mobile health outreach programmes, and expanding ECD provision in rural settlements. Medium-term actions would involve constructing multipurpose centres in Donnybrook, Bulwer, and Creighton, with satellite facilities in traditional authority areas. Long-term actions would involve the consolidation of regional facilities, such as a district-level hospital or specialised health facility in Creighton, ensuring that the municipality contributes to regional health infrastructure.

Spatially, this intervention will reduce inequalities in service access, particularly for vulnerable groups such as children, the elderly, and people with disabilities. It also enhances resilience by ensuring that communities have access to safe spaces and essential services during disasters. This intervention is consistent with the PSDF's principle of clustering social services in accessible nodes and the NDZ IDP's priority of expanding healthcare and social support.

13.4. STRATEGIC INTERVENTION 3: SETTLEMENT HIERARCHY AND SERVICE DISTRIBUTION

The first major spatial proposal is the definition of a settlement hierarchy that organises where growth, investment, and service delivery should be prioritised within NDZ LM. At present, settlements are dispersed, leading to high service delivery costs and inefficiencies. By adopting a structured hierarchy of primary, secondary, and tertiary nodes, the municipality can rationalise investment and improve accessibility.

Creighton and Underberg are designated as primary nodes, serving as administrative, commercial, and service hubs. Donnybrook and Bulwer are identified as secondary nodes, with a focus on serving their surrounding rural hinterlands. Smaller rural settlements and traditional authority centres are classified as tertiary nodes, where services should be delivered at a basic level, complemented by mobile and satellite facilities.

This spatial proposal ensures that investment is focused in areas with the greatest potential to act as service anchors, while still providing for basic needs in smaller settlements. It directly addresses the challenge of scattered settlement patterns identified in the Phase 3 report and aligns with the PSDF's call for nodal development as a tool for restructuring.

13.5. STRATEGIC INTERVENTION 4: NODAL AND CORRIDOR DEVELOPMENT

A central spatial restructuring tool for the Dr. Nkosazana Dlamini Zuma Local Municipality is the deliberate strengthening of a nodal and corridor development system. Currently, the municipality is characterised by scattered rural settlements with limited clustering, resulting in high service delivery costs, duplication of facilities, and low economic viability. By consolidating investment along well-defined nodes and corridors, the municipality can achieve both spatial efficiency and socio-economic equity.

13.5.1. DEVELOPMENT OF A NODAL HIERARCHY

The proposed nodal development system is structured around three tiers. At the apex are the primary nodes, Creighton and Underberg, which already function as administrative and economic centres and are well positioned to accommodate future population and service growth. These primary nodes will be the focus for higher-order facilities such as regional hospitals, tertiary education hubs, and administrative complexes. Below them are the secondary nodes, Donnybrook and Bulwer, which have significant catchment populations and economic functions but require upgrading and revitalisation. These towns will be targeted for medium-order services, agro-processing facilities, and expanded housing development. The tertiary nodes, comprising rural service centres and traditional authority settlements, will serve as access points for basic services, localised trading, and community infrastructure such as clinics and schools.

13.5.2. DEVELOPMENT OF A CORRIDOR DEVELOPMENT HIERARCHY

Complementing the nodal framework is the corridor strategy, with two primary corridors identified: the R612 corridor linking Ixopo–Donnybrook–Bulwer–Underberg, and the R617 corridor connecting Pietermaritzburg–Boston–Underberg. These corridors serve dual purposes: they are economic lifelines that facilitate the movement of goods, services, and people, and they are spatial structuring elements that guide the clustering of development along their axes. Strengthening these corridors will require targeted infrastructure investment, such as upgrading road quality, formalising public transport facilities, and promoting mixed-use developments at key intersections.

The benefits of this approach are multiple. Service delivery becomes more cost-effective when clustered around nodes and corridors. Economic activity is enhanced by the agglomeration of enterprises, traders, and consumers in well-located areas. Accessibility is improved as rural households gain easier connections to markets, jobs, and social services. Importantly, the strategy promotes spatial equity by ensuring that previously neglected areas are integrated into the development fabric.

Short-term actions will focus on upgrading basic infrastructure within secondary nodes (such as water, sanitation, and electrification in Donnybrook and Bulwer) and improving road connectivity along the R612. Medium-term actions will involve the development of multi-use precincts in secondary nodes and targeted densification in primary nodes. Long-term actions will focus on consolidating the corridor as an integrated economic zone, with logistics hubs, tourism routes, and renewable energy developments.

This proposal aligns directly with the KZN PSDF's call for corridor-led development and the Harry Gwala DGDS's priority of strengthening connectivity and small-town revitalisation. It also ensures that the NDZ LM can capitalise on its strategic location within regional transport networks, linking Pietermaritzburg, and the Drakensberg.

13.6. STRATEGIC INTERVENTION 5: DENSIFICATION AND INFILL DEVELOPMENT

Densification and infill development are critical strategies for addressing the municipality's sprawling and fragmented settlement patterns. At present, many towns and rural settlements in NDZ LM are characterised by low-density, dispersed development, which undermines the viability of public transport, increases infrastructure costs, and reduces opportunities for vibrant economic activity. By promoting higher-density development in well-located areas, the municipality can achieve a more compact and efficient urban form.

13.6.1. TARGETED DENSIFICATION IN TOWNS & INFILL DEVELOPMENT OF UNDER-UTILISED LAND PARCELS

The proposal centres on two main strategies: targeted densification in towns and infill development in under-utilised land parcels. In Creighton, Underberg, Donnybrook, and Bulwer, residential densification will be promoted through the provision of medium-density housing typologies such as social housing units, rental stock, and gap housing projects. This will not only accommodate projected population growth but also provide affordable housing options for low- to middle-income households who currently face exclusion from formal housing markets. Higher densities will also support the viability of retail, public transport, and social services in these nodes.

Infill development will focus on vacant or under-utilised land within existing urban footprints. This includes land held by the state, land awaiting development in existing housing projects, and private land identified for redevelopment. By filling in these gaps, the municipality can prevent further outward expansion into sensitive environmental areas, reduce the cost of extending bulk infrastructure, and create more coherent and functional settlement patterns.

13.6.2. PROMOTION OF MIXED-USE DEVELOPMENT

An important component of the densification strategy is the integration of mixed-use development, particularly along main streets and around transport hubs. This approach combines residential, commercial, and community facilities within walkable catchments, fostering inclusive and vibrant urban environments. In Creighton, for example, the redevelopment of the town centre into a higher-density, mixed-use precinct could revitalise the local economy, improve safety, and create public spaces that encourage community interaction.

Short-term actions will involve identifying priority land parcels for infill, updating land use schemes to allow higher densities, and piloting social housing projects in Creighton and Underberg. Medium-term actions will expand the provision of gap housing and mixed-use developments in Donnybrook and Bulwer, supported by infrastructure upgrades. Long-term actions will focus on creating compact, resilient towns with densities that support efficient service delivery and sustainable mobility.

13.6.3. PROMOTION OF SUSTAINABLE HUMAN SETTLEMENT PATTERNS

Densification and infill development directly respond to challenges of inefficient land use, high infrastructure costs, and limited access to affordable housing. They also seize opportunities presented by under-utilised land and align with the Human Settlements Sector Plan's call for sustainable human settlement patterns. In doing so, they contribute to the PSDF's vision of integrated, compact, and connected towns.

13.7. STRATEGIC INTERVENTION 6: URBAN REGENERATION AND SMALL-TOWN REVITALISATION

The small towns of NDZ LM—Creighton, Donnybrook, Bulwer, and Underberg-Himeville—are not only administrative and service centres but also gateways to economic opportunities in agriculture and tourism. However, these towns face significant challenges, including deteriorating infrastructure, declining business activity, informal trading pressures, and limited investment in public spaces. Without intervention, they risk further decline, which would undermine the municipality's ability to function as an integrated and resilient space economy.

13.7.1. COMPREHENSIVE URBAN REGENERATION & SMALL-TOWN REVITALISATION PROGRAMME

The proposed spatial strategy is a comprehensive urban regeneration and small-town revitalisation programme, drawing on both the Provincial Small Town Revitalisation Strategy and local precinct plans. This programme seeks to transform small towns into vibrant, well-managed, and economically viable centres that can serve their hinterlands effectively.

Key interventions include upgrading the public realm through streetscaping, lighting, pedestrian-friendly pathways, and improved stormwater management. Formalisation of trading spaces will provide dignified and accessible facilities for informal traders, while reducing congestion and improving town aesthetics. The revitalisation of heritage assets, particularly in Underberg-Himeville, will support tourism development, while the introduction of new public amenities such as community halls and sports facilities will enhance the quality of life for residents.

13.7.2. IMPLEMENTATION OF INCENTIVE PACKAGES

Economic revitalisation measures will focus on attracting investment into agro-processing, retail, and tourism-related businesses. Incentive packages streamlined land use approvals, and partnerships with the private sector will be pursued to stimulate business growth. At the same time, local enterprise development programmes will support small businesses and cooperatives, particularly those led by youth and women.

Short-term actions will focus on visible public realm improvements in all four towns, alongside the formalisation of informal trading. Medium-term actions will involve implementing precinct-based regeneration projects, such as the Creighton town centre upgrade and the Bulwer market precinct. Long-term actions will consolidate the towns as well-managed, economically competitive centres that attract investment and support livelihoods.

This proposal directly addresses challenges of town decline, lack of investment, and inadequate facilities. It also builds on opportunities identified in the Donnybrook, Bulwer, Creighton, and Underberg-Himeville precinct plans. By aligning with the KZN Small Town Revitalisation Strategy, it ensures coherence with provincial priorities while responding to local needs.

13.8. STRATEGIC INTERVENTION 7: SETTLEMENT UPGRADING IN HIGH-POVERTY WARDS

The Phase 3 analysis of NDZ LM highlighted that poverty is spatially concentrated in specific wards, with limited access to basic services, inadequate housing, and fragile livelihoods. Many of these settlements fall under traditional authority areas, where tenure insecurity, poor infrastructure, and low levels of investment create conditions of persistent deprivation. If left unaddressed, these conditions will perpetuate cycles of poverty and exclusion, while also undermining municipal efforts to create sustainable and resilient settlements.

13.8.1. COMPREHENSIVE SETTLEMENT UPGRADING PROGRAMME

The proposed spatial strategy is a comprehensive settlement upgrading programme targeted at high-poverty wards. The focus is on incremental but structured improvements that enhance quality of life, reduce vulnerability, and create opportunities for socio-economic advancement. Settlement upgrading will be approached in three integrated dimensions:

- **Basic service provision**: Priority will be given to ensuring universal access to water, sanitation, electricity, and waste management. This includes the installation of standpipes, on-site sanitation solutions, and electrification of informal clusters.
- **Social and community facilities**: Upgraded settlements will be provided with essential social infrastructure, such as early childhood development centres, clinics, community halls, and recreational spaces. These facilities will serve as anchors for community cohesion and provide residents with access to opportunities previously out of reach.
- **Housing and tenure security**: Working with the Human Settlements Sector Plan, the municipality will prioritise in-situ

upgrading of informal settlements, combined with tenure regularisation in traditional authority areas. This will provide residents with greater security and enable investment in housing improvements.

Short-term actions will involve the identification of priority settlements, quick-win interventions in basic services, and the deployment of mobile facilities (clinics, libraries, training units) to bridge immediate gaps. Medium-term actions will focus on the development of serviced sites, incremental housing projects, and the establishment of multipurpose community centres in high-poverty wards. Long-term actions will consolidate settlement upgrading through full-service integration, tenure security programmes, and economic development initiatives (such as local cooperatives and food gardens).

This proposal addresses challenges of social inequality, service backlogs, and insecure tenure. It also leverages opportunities to promote inclusive development by bringing vulnerable communities into the mainstream of the municipal settlement system. By aligning with the National Upgrading of Informal Settlements Programme (NUSP), the Human Settlements Sector Plan, and the KZN PSDF's focus on sustainable rural settlements, the programme positions NDZ LM to mobilise both national and provincial resources for implementation.

13.9. DEMOGRAPHIC & SOCIOECONOMIC PROPOSALS INDICATIVE PROJECT MATRIX

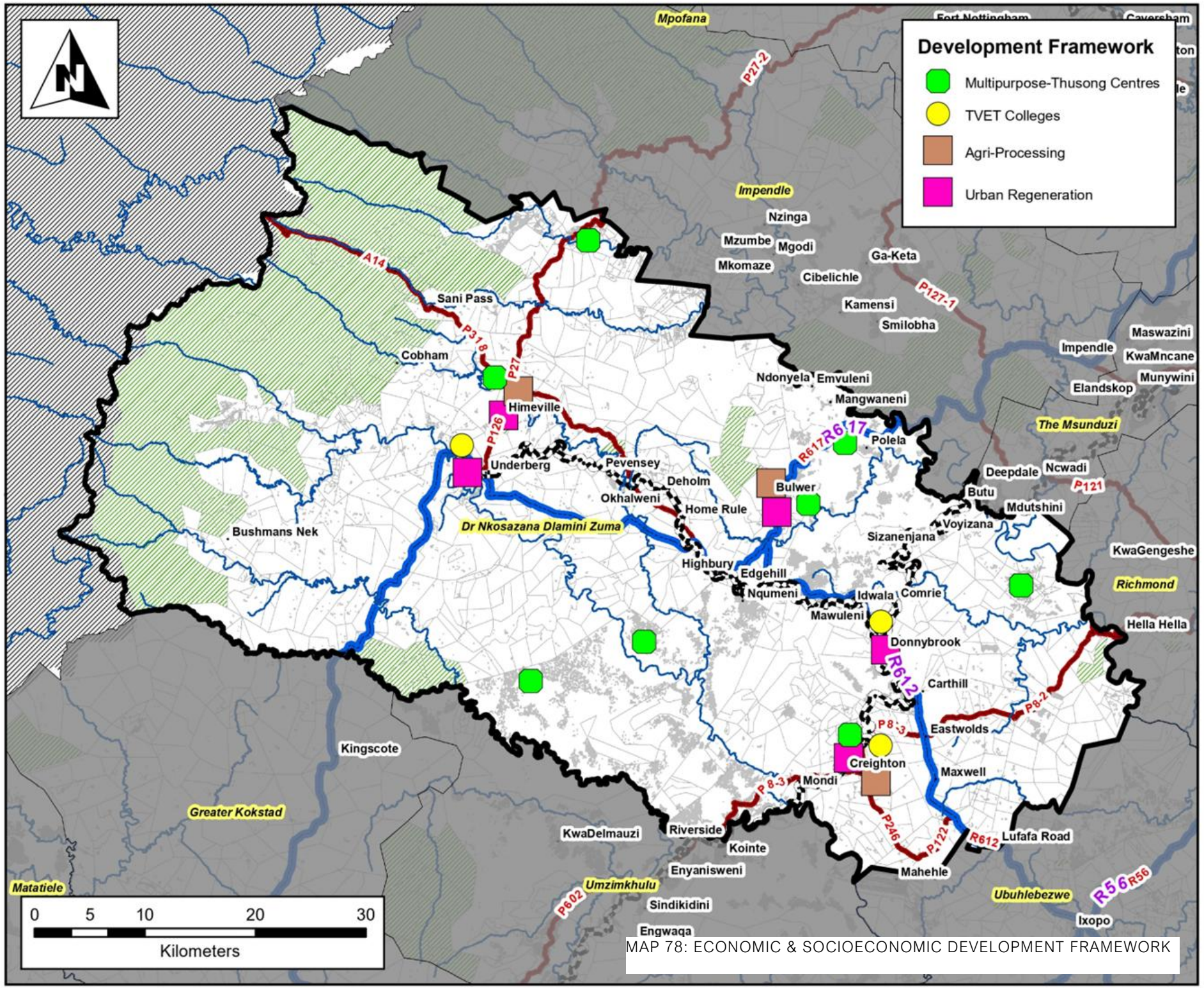
TABLE 72: DEMOGRAPHIC AND SOCIOECONOMIC PROPOSALS INDICATIVE PROJECT MATRIX

THEME	STRATEGIC INTERVENTION / SPATIAL PROPOSAL	INDICATIVE PROJECTS / PROGRAMMES	LEAD STAKEHOLDERS	PHASING
Education & Skills Development	Establish education and skills hubs	Upgrade schools, establish TVET hubs in Creighton/Donnybrook/Underberg, mobile training units	Dept. of Education, NDZ LM, TVET Colleges	Short, Medium, Long
Livelihood Creation & LED	Agro-processing and tourism value chains	Farmer support centres, agro-processing clusters along R612/R617, tourism information centres, cooperatives for youth/women	Dept. of Agriculture, EDTEA, NDZ LM	Short, Medium, Long
Social & Health Services	Multipurpose community centres	New clinics, ECD centres, multipurpose centres in Donnybrook/Bulwer/Creighton	Dept. of Health, NDZ LM, NGOs	Short, Medium, Long
Nodal & Corridor Development	Strengthen settlement hierarchy & corridors	Upgrade R612 & R617, formalise taxi ranks, mixed-use nodes at intersections	DoT, NDZ LM, HGDM	Short, Medium, Long
Densification & Infill	Compact urban form in primary & secondary nodes	Social housing, infill development on vacant land, mixed-use precincts	DHS, NDZ LM, private sector	Short, Medium, Long
Urban Regeneration	Small-town revitalisation	Streetscaping, formal trading facilities, heritage site revitalisation, Creighton/Bulwer precinct upgrades	NDZ LM, COGTA, private sector	Short, Medium, Long
Settlement Upgrading	High-poverty ward upgrading	Service upgrades, incremental housing, tenure regularisation, multipurpose facilities	NDZ LM, DHS, Traditional Authorities	Short, Medium, Long

13.10. PRIORITISATION MATRIX

TABLE 73: DEMOGRAPHIC & SOCIOECONOMIC PRIORITISATION MATRIX

CRITERIA	WEIGHTING	EDUCATION HUBS	AGRO-PROCESSING & TOURISM	MULTIPURPOSE CENTRES	NODAL & CORRIDOR UPGRADES	DENSIFICATION & INFILL	TOWN REVITALISATION	SETTLEMENT UPGRADING
Impact on Poverty Reduction	30%	High	Very High	High	Medium	Medium	High	Very High
Alignment with Policy	20%	High	High	High	High	High	High	High
Feasibility / Readiness	20%	Medium	Medium	Medium	Medium	Low	Medium	Medium
Urgency / Settlement Pressure	15%	Medium	High	High	Medium	Medium	High	Very High
Potential for Partnerships	15%	High	High	Medium	High	Medium	High	Medium
Composite Priority Ranking	100%	High	Very High	High	Medium-High	Medium	High	Very High



MAP 78: ECONOMIC & SOCIOECONOMIC DEVELOPMENT FRAMEWORK

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Economic & Socioeconomic Development Framework

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

14. BUILT ENVIRONMENT PROPOSALS

The built environment of Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) is characterised by dispersed rural settlements, small service towns, and a fragmented spatial pattern inherited from historical underdevelopment. This has resulted in high service delivery costs, weak urban economies, and significant disparities in access to housing, infrastructure, and social facilities. The proposals in this chapter aim to restructure the settlement system, revitalise small towns, and promote sustainable urban development that is compact, inclusive, and efficient.

14.1. STRATEGIC INTERVENTION #1: NODAL/SETTLEMENT HIERARCHY AND SPATIAL STRUCTURING

A clearly defined settlement hierarchy is essential for guiding future development, ensuring that public investment is strategically directed, and that towns and rural settlements perform their intended functions within the municipal system. NDZ LM is home to four main towns—Creighton, Underberg-Himeville, Donnybrook, and Bulwer—that serve as service centres for a large rural population. However, the current distribution of investment has been uneven, with certain nodes underperforming and many rural settlements left with minimal services.

The proposed settlement hierarchy has three tiers. Primary nodes are Creighton and Underberg-Himeville, both of which serve as administrative, economic, and service anchors for the municipality. Creighton, as the municipal seat, should accommodate higher-order services such as government administration, district health facilities, and tertiary education centres. Underberg-Himeville, as the tourism gateway to the Drakensberg and Lesotho, should host tourism infrastructure, conservation services, and niche residential development. Secondary nodes, Donnybrook and Bulwer, will function as important service points for their hinterlands. They will be strengthened with additional health, education, retail, and agro-processing facilities to reduce pressure on the primary nodes. Tertiary nodes, comprising rural service centres and traditional authority settlements, will be provided with basic services, multipurpose centres, and mobile outreach facilities.

The structuring of settlements into this hierarchy enables more rational planning and investment. Service delivery will be better coordinated, transport networks more efficiently aligned, and economic growth more concentrated in strategic centres. The hierarchy also allows for tailored interventions in each node, recognising their unique locational advantages. For example, Creighton is better suited to administrative and agro-processing functions, while Underberg-Himeville can capitalise on eco-tourism and conservation.

Short-term actions include finalising the nodal classification through a revised land use scheme, upgrading secondary nodes to ensure balanced service distribution, and introducing multipurpose community facilities in tertiary nodes. Medium-term actions will focus on housing expansion, infill development, and economic clustering in primary and secondary nodes. Long-term actions will consolidate settlement upgrading and ensure full integration of rural nodes into the municipal economy.

By structuring growth into a clear hierarchy, NDZ LM will achieve both spatial equity and efficiency, consistent with the KwaZulu-Natal Provincial Spatial Development Framework (PSDF) principle of sustainable human settlements and the Harry Gwala District Growth and Development Strategy (DGDS) call for balanced nodal development.

14.1.1. NODAL HIERARCHY

14.1.1.1. PURPOSE OF A NODAL HIERARCHY

The establishment of a nodal hierarchy provides a systematic approach to restructuring settlement patterns within NDZ. In a municipality characterised by highly dispersed rural settlements, small towns and rural service centres play a crucial role in consolidating infrastructure investment, promoting economic growth, and ensuring equitable service delivery. The nodal hierarchy:

- Defines settlement functions relative to population thresholds, economic roles, and service levels.
- Aligns municipal nodes with provincial PSDF categories (Primary, Secondary, Tertiary, Rural Service Centres).
- Provides a basis for sequencing investment and development interventions.
- Supports the implementation of SPLUMA principles, especially spatial sustainability, efficiency, and justice.

14.1.2. NDZ NODAL CLASSIFICATION

Based on the Final Plan of Nodes (2022), the Phase 3 Challenges & Opportunities Report (2025), and precinct-level planning (Underberg-Himeville, Bulwer URP, Creighton, Donnybrook), the NDZ nodal hierarchy is structured as follows:

14.1.2.1. PRIMARY NODES (UNDERBERG & BULWER)

- Underberg: A gateway to the uKhahlamba Drakensberg World Heritage Site, serving as a tourism hub and regional service centre. It has strong agro-processing potential and is strategically located on the R617 corridor.
- Bulwer: A growing town with urban regeneration needs, identified for its potential to consolidate as a municipal-level service hub and anchor the R617 corridor towards Pietermaritzburg.

ROLE IN PROVINCIAL/DISTRICT CONTEXT: Both nodes are classified as Quaternary Nodes in the PSDF, serving as local service and economic centres. The Harry Gwala DM SDF identifies them as key growth points for tourism and agriculture.

14.1.2.2. SECONDARY NODES (HIMEVILLE, CREIGHTON, & DONNYBROOK)

- Himeville: Linked functionally to Underberg, Himeville plays a role as a community-level service hub, offering social facilities, housing expansion areas, and serving as a tourism gateway to Sani Pass.
- Creighton: The municipal administrative seat, with a role as a government and institutional service hub. The Creighton Precinct Plan (2022) highlights opportunities in mixed-use development and agro-processing.
- Donnybrook: A rural town with strategic potential for agro-processing, small-scale industrial development, and improved transport linkages. The Donnybrook Precinct Plan (2013) emphasises the upgrading of services, facilities, and integration of informal trade.

ROLE IN PROVINCIAL/DISTRICT CONTEXT: These are Secondary Service Centres, recognised in the PSDF as intermediate nodes that provide services beyond local rural settlements but below the level of regional hubs.

14.1.2.3. TERTIARY NODES (CENTOCOW, PHOLELA, STEPMORE/MQATSHENI & RICHENAU)

- Centocow: Identified as a tertiary service node with a strong cultural and heritage role linked to missionary history, with potential for niche tourism and local economic development.
- Pholela: Functions as a small service settlement with access to clinics, schools, and markets.
- Richenau: A tertiary node with agricultural and heritage value, also linked to tourism and local service provision.
- Dazini
- Memela
- Masomeni

ROLE IN PROVINCIAL/DISTRICT CONTEXT: Classified as Rural Service Centres within the PSDF, tertiary nodes in NDZ consolidate dispersed settlements and reduce service delivery costs.

14.1.2.4. RURAL SERVICE NODE

- Hlanganani: Serves surrounding traditional council areas, providing first-level access to services such as clinics, education, and local markets. It is critical for addressing spatial justice by extending services to remote rural communities.

ROLE IN PROVINCIAL/DISTRICT CONTEXT: Aligned with PSDF's definition of Rural Service Centres, these are critical for ensuring equitable service delivery in areas of poverty concentration.

14.1.2.5. TOURISM NODES

- Sani Pass: International gateway into Lesotho, recognised as a premier tourism development corridor.
- Bushman's Nek: Linked to cross-border eco-tourism and cultural heritage tourism.
- Cobham: Conservation and eco-tourism node, located within the buffer of the uKhahlamba Drakensberg Park.

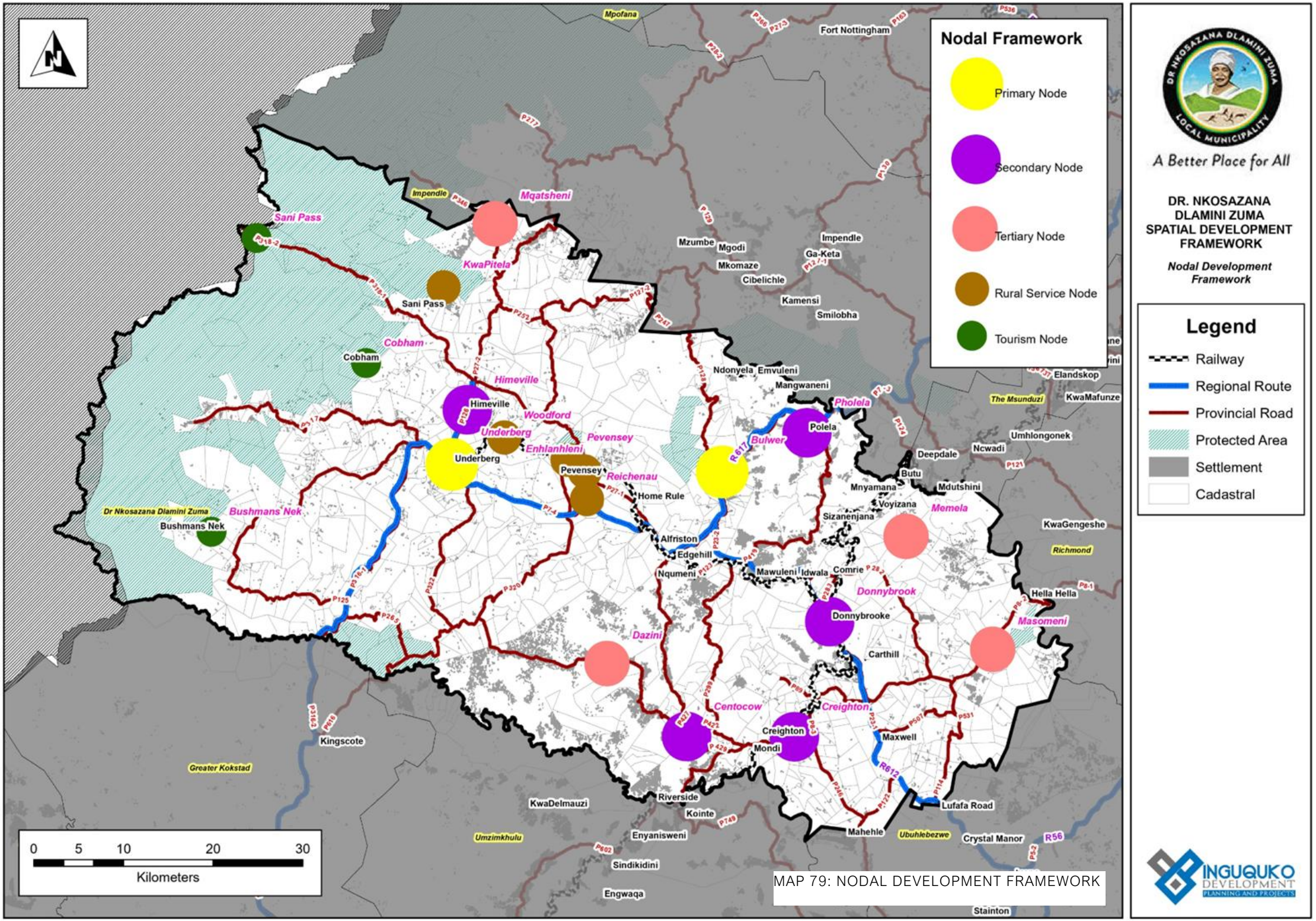
ROLE IN PROVINCIAL/DISTRICT CONTEXT: These nodes reinforce the provincial tourism corridor strategy in the PSDF and align with Harry Gwala DM's focus on leveraging the Drakensberg for eco- and adventure tourism.

14.1.2.6. GROWTH HOTSPOTS

Growth hotspots are settlement areas experiencing rapid population expansion, intensified housing demand, and increasing pressure on existing social and engineering infrastructure. These locations include:

- Kilmun
- Stepmore
- Nkumba,
- Qulashe

These settlements exhibit accelerated spatial growth due to improved accessibility and emerging economic activity. Growth hotspots represent strategic nodes where development must be guided and consolidated to prevent uncontrolled sprawl, environmental degradation, and service backlogs, while promoting compact, mixed-use, and sustainable urban expansion.



MAP 79: NODAL DEVELOPMENT FRAMEWORK

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

14.2. STRATEGY #2 – STRENGTHENING THE ROLE OF THE NODAL HIERARCHY IN SPATIAL RESTRUCTURING

The nodal hierarchy plays a structuring role in shifting NDZ from a dispersed, infrastructure-intensive settlement pattern to a compact and efficient spatial form. Its restructuring role is as follows:

- **Concentration of Investment:** Directing bulk infrastructure investment into Primary and Secondary Nodes ensures economies of scale and cost recovery.
- **Corridor-based Development:** The nodal hierarchy reinforces development along strategic corridors (R617, R612, P126), reducing isolation of rural settlements and improving trade flows.
- **Integration of Rural Settlements:** Rural Service Nodes such as Hlanganani act as gateways for traditional council areas, linking dispersed rural households to the municipal service network.
- **Tourism Diversification:** Tourism nodes strengthen NDZ's role in the provincial tourism economy, creating economic opportunities beyond agriculture and forestry.
- **Phased Growth Management:** The hierarchy enables phased implementation, with short-term focus on backlog reduction in Secondary/Tertiary Nodes, and long-term transformation driven by Primary and Tourism Nodes.

14.2.1. NODAL PROFILES & STRATEGIES

14.2.1.1. UNDERBERG

Underberg is strategically positioned as a Primary Node in the NDZ municipal spatial hierarchy, functioning as both a local service centre for surrounding rural settlements and a regional tourism hub for the southern Drakensberg. The Underberg-Himeville Precinct Plan (2025) identifies the town as a gateway to the uKhahlamba Drakensberg World Heritage Site and as a critical link to Lesotho via Sani Pass. Despite its strategic importance, Underberg faces several challenges that undermine its ability to sustain growth and provide services efficiently. These include seasonal strain on infrastructure, particularly water, sanitation, and waste management systems, which are frequently overburdened during peak tourism periods. Road congestion on the R617 and inadequate public transport facilities create further accessibility constraints, limiting mobility for residents and tourists alike. Housing provision is another pressing issue, with limited options for middle-income households resulting in a fragmented settlement pattern and uncoordinated peri-urban growth. Environmental pressures, including streambank erosion, wetland degradation, and flood risks, exacerbate vulnerabilities, especially in peri-urban areas where land development has occurred without sufficient infrastructure support.

DEVELOPMENT OPPORTUNITIES: Despite these challenges, Underberg holds significant development opportunities that can be leveraged to reposition it as a resilient and dynamic growth node. The town's function as a gateway to Lesotho through Sani Pass provides opportunities for tourism diversification, international trade, and cross-border economic linkages. Agriculture and agro-processing, particularly dairy and potato farming, are well-established economic sectors in the area, presenting opportunities to strengthen value chains and create employment. The town also has a relatively strong base of services and facilities—schools, healthcare centres, commercial enterprises—that make it attractive as a regional service hub. The precinct planning process further highlighted Underberg's potential for infill development, densification, and the regeneration of its CBD to support mixed-use activities.

SPATIAL PROPOSALS & STRATEGIES: The spatial proposals and strategies for Underberg are framed around consolidating its role as a tourism and agricultural anchor while restructuring land use to achieve greater efficiency and sustainability. A key proposal is the reinforcement of mixed-use development in the CBD, integrating retail, tourism, and higher-density residential components to create a compact urban form. Upgrading transport

infrastructure is a strategic priority, including improvements to the taxi rank, pedestrian walkways, and the development of a truck stop and bypass on the R617 to reduce congestion. To strengthen the agricultural economy, the establishment of an Agro-processing Hub is proposed, which would provide value-adding opportunities in dairy and crop processing while also supporting skills development and training.

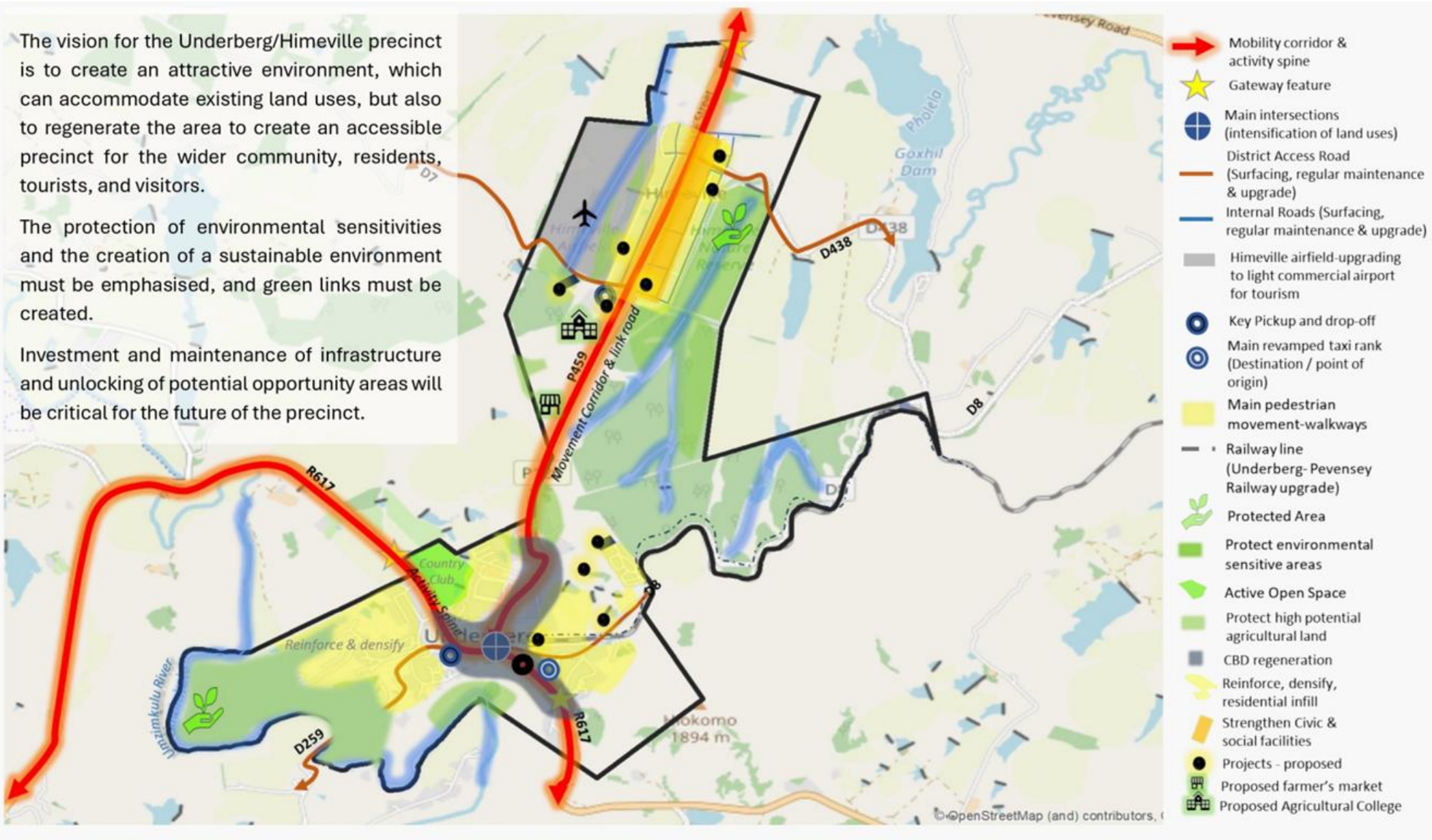
Residential development should focus on densification through serviced sites and middle-income housing projects, thereby curbing sprawl and improving affordability. Parallel to economic and infrastructural initiatives, environmental strategies such as the protection of wetlands, flood mitigation infrastructure, and the creation of green corridors are critical to safeguard ecological functions and build resilience against climate change impacts.

PROPOSED PROJECTS: Several catalytic projects are identified to operationalise these strategies.

- Short-Term Projects: In the short term (0–5 years), quick-win interventions such as the expansion and formalisation of the Underberg Farmers' Market, the upgrade of the taxi rank, and the implementation of basic flood mitigation projects should be prioritised.
- Medium-Term Projects: In the medium term (5–10 years), larger capital projects such as the Agro-processing Hub, the truck stop and bypass, and middle-income housing developments should be rolled out, providing both economic stimulus and much-needed infrastructure.
- Long-Term Projects: The long-term vision (10–20 years) focuses on consolidating Underberg's role as a tourism anchor, with projects such as an expanded Tourism Information Centre, an integrated eco-trails network, and the establishment of a regional agricultural logistics hub.

Collectively, these initiatives will not only reinforce Underberg's strategic role in the provincial nodal hierarchy but also advance SPLUMA's principles of spatial justice, sustainability, and resilience by ensuring equitable service delivery, economic diversification, and ecological protection.





MAP 80: UNDERBERG-HIMEVILLE PRECINCT PLAN CONCEPT

14.2.1.2. BULWER

Bulwer, situated along the R617 corridor between Pietermaritzburg and Underberg, functions as the second Primary Node within NDZ and plays a critical role as a service hub for the surrounding rural hinterland. The Bulwer Urban Regeneration Plan (2019) and the Small-Town Revitalisation Strategy (2021) emphasise Bulwer's significance as a strategic gateway town but also highlight pressing challenges undermining its development trajectory. Chief among these is the visible urban decay in the CBD, characterised by deteriorating public realm conditions, underutilised buildings, and declining investor confidence. Road conditions along the R617 are poor, with insufficient pedestrian facilities and inadequate integration between public transport services and the CBD. Infrastructure backlogs in water, sanitation, and electricity provision continue to affect surrounding rural settlements, placing pressure on Bulwer's role as a service centre. Economically, Bulwer has struggled to diversify beyond small-scale trade and public-sector employment, leaving the town vulnerable to outmigration and economic stagnation.

DEVELOPMENT OPPORTUNITIES: Despite these constraints, Bulwer possesses several development opportunities that can reposition it as a vibrant and competitive town. Its strategic location on the R617 provides strong accessibility and regional connectivity, making it a logical anchor for corridor-based development. The town has considerable tourism potential, particularly linked to birding, adventure tourism, and its proximity to the southern Drakensberg. The presence of government facilities, schools, and clinics positions Bulwer as an accessible service hub for rural hinterlands. Importantly, Bulwer has been identified in provincial and district frameworks as a priority for urban regeneration and infrastructure investment, creating the policy support necessary for catalytic change.

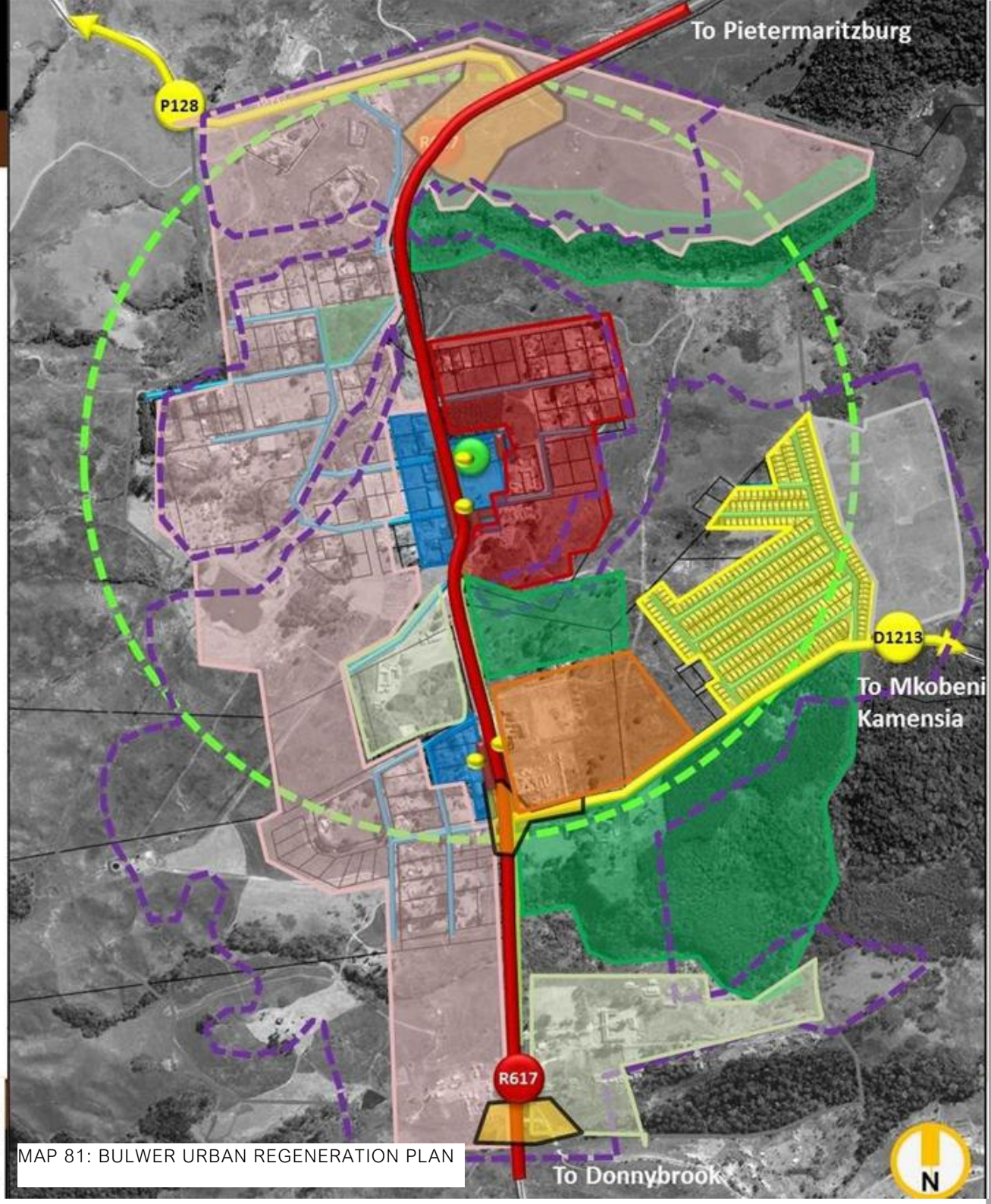
SPATIAL PROPOSALS & STRATEGIES: The spatial proposals and strategies for Bulwer are centred on urban regeneration, mixed-use densification, and economic diversification. The regeneration of the CBD is a critical priority, involving streetscape upgrades, public realm improvements, lighting, pedestrian-friendly design, and the formalisation of trading facilities for informal businesses. This should be coupled with the introduction of mixed-use infill development, combining retail, residential, and small enterprise spaces, thereby creating a more compact settlement pattern. To address infrastructure backlogs, phased water and sanitation upgrades should be implemented, while electricity access programmes should be extended to surrounding rural settlements. The promotion of the tourism economy is another strategic thrust, which could include the development of birding trails, cultural festivals, and eco-tourism facilities. Social infrastructure development, such as a community and recreational centre, will further strengthen Bulwer's role as a liveable and inclusive town.

PROPOSED PROJECTS: A set of catalytic projects is proposed to operationalise these strategies.

- Short-Term Projects: In the short term (0–5 years), interventions should prioritise CBD revitalisation projects, including streetscapes, trading stalls, and public lighting, alongside bulk water and sanitation upgrades. These projects will not only improve quality of life but also signal renewed investor confidence.
- Medium-Term Projects: In the medium term (5–10 years), focus should shift towards the development of a community and recreational centre, affordable housing infill projects, and the promotion of eco-tourism through targeted marketing campaigns and the creation of cultural tourism products.
- Long -Term Projects: In the long term (10–20 years), Bulwer can consolidate its position as a regional tourism and service hub by hosting annual regional festivals, expanding its hospitality sector, and positioning itself as a logistics-support town along the R617 corridor.

COMBINED CONCEPT

- REGENERATION BOUNDARY
- REGIONAL CONNECTIONS
- LOCAL ACCESS ROUTES
- LOCAL DISTRIBUTORS
- VEHICLE/ PEDESTRIAN SEPARATION
- GATEWAYS
- TAXI RANK
- EXISTING RESIDENTIAL
- GOVERNMENT & SOCIAL
- FORMAL RETAIL/OFFICES
- TOURISM/ UPPER RESIDENTIAL
- OPEN SPACE & CONSERVATION
- RETAIL COMMERCIAL CENTRE
- LIGHT INDUSTRIAL
- PARKING AREAS
- INFORMAL TRADE



MAP 81: BULWER URBAN REGENERATION PLAN

14.2.1.3. HIMEVILLE

Himeville is designated as a Secondary Node within the NDZ SDF, closely linked functionally and spatially to Underberg. Located just 7 km to the north, Himeville acts as a community service centre, providing local facilities, housing, and tourism services while also serving as a critical gateway to Sani Pass. The Underberg-Himeville Precinct Plan (2025) emphasises that Himeville's role is both complementary to Underberg and distinct in terms of community services, housing, and agricultural education. However, the town faces a series of structural challenges.

First, the absence of a formalised public transport hub reduces mobility for residents commuting to Underberg, resulting in high levels of dependency on informal taxi services. The quality of bulk infrastructure, particularly sanitation and stormwater management, is insufficient to support projected growth. Housing backlogs persist, with limited affordable housing projects delivered in recent years. The sports and recreational facilities are underutilised and in need of upgrade, while the lack of coordinated land use management has led to unplanned sprawl in peri-urban areas.

DEVELOPMENT OPPORTUNITIES: Notwithstanding these challenges, Himeville offers several development opportunities. Its location at the foot of the Sani Pass positions it as a unique tourism node with potential to attract both domestic and international visitors. The area's rich cultural and agricultural heritage, coupled with its proximity to the uKhahlamba Drakensberg World Heritage Site, provides a strong foundation for heritage and eco-tourism initiatives. The Precinct Plan (2025) identifies opportunities for the development of a local agricultural college, which would serve as a skills development centre, focusing on agricultural innovation, food security, and agro-processing value chains. Himeville also has land available for middle-income housing projects, with potential to absorb some of the residential demand currently spilling over from Underberg.

SPATIAL PROPOSALS & STRATEGIES: The spatial proposals and strategies for Himeville therefore seek to reinforce its role as a service and residential satellite to Underberg, while strengthening its unique tourism and agricultural identity. A critical proposal is the formalisation of a public transport hub, complemented by pedestrian-friendly design and the provision of trading facilities for small-scale informal businesses. Residential development should prioritise the delivery of affordable and middle-income housing, with compact, serviced layouts to prevent urban sprawl. To unlock economic opportunities, the establishment of the Agricultural College and Skills Centre is proposed as a catalytic anchor, alongside targeted upgrades to the Himeville sports field and recreational facilities. The tourism potential of the town should be enhanced through the creation of heritage trails, eco-tourism packages, and partnerships with tour operators, positioning Himeville as the cultural counterpart to Underberg's commercial tourism.

PROPOSED PROJECTS: The catalytic projects identified for Himeville include:

- Short-Term Projects: in the short term (0–5 years), the upgrade of the Himeville sports field, the planning and initiation of the public transport hub, and the introduction of a small-scale housing pilot project.
- Medium-Term Projects: In the medium term (5–10 years), the rollout of the middle-income housing project and the development of the Agricultural College should take centre stage, accompanied by upgrades to water and sanitation infrastructure.
- Long-Term Projects: In the long term (10–20 years), Himeville should consolidate its tourism function through the expansion of the heritage and eco-tourism economy, the formalisation of linkages with the Sani Pass tourism route, and the establishment of a tourism information and cultural centre. Together, these initiatives will reinforce Himeville's role as a resilient, well-serviced, and economically diverse secondary node within the NDZ spatial system.

14.2.1.4. CREIGHTON

Creighton is the administrative seat of NDZ and holds a central role as a Secondary Node in the nodal hierarchy. The Creighton Precinct Plan (2022) highlights the town's strategic function as a government and institutional hub, but also acknowledges its challenges in urban design, economic vibrancy, and infrastructure capacity. The most pressing challenge is the limited economic diversification, with Creighton's economy heavily dependent on government services and small-scale retail. Infrastructure backlogs in water, sanitation, and roads remain problematic, with stormwater management posing a recurrent risk of flooding in low-lying areas.

The CBD is underutilised, with vacant and derelict land undermining urban quality. Employment opportunities are limited, resulting in high outmigration of skilled youth to larger centres. Furthermore, the town lacks sufficient tourism infrastructure despite being well located within the Harry Gwala district's eco-tourism network.

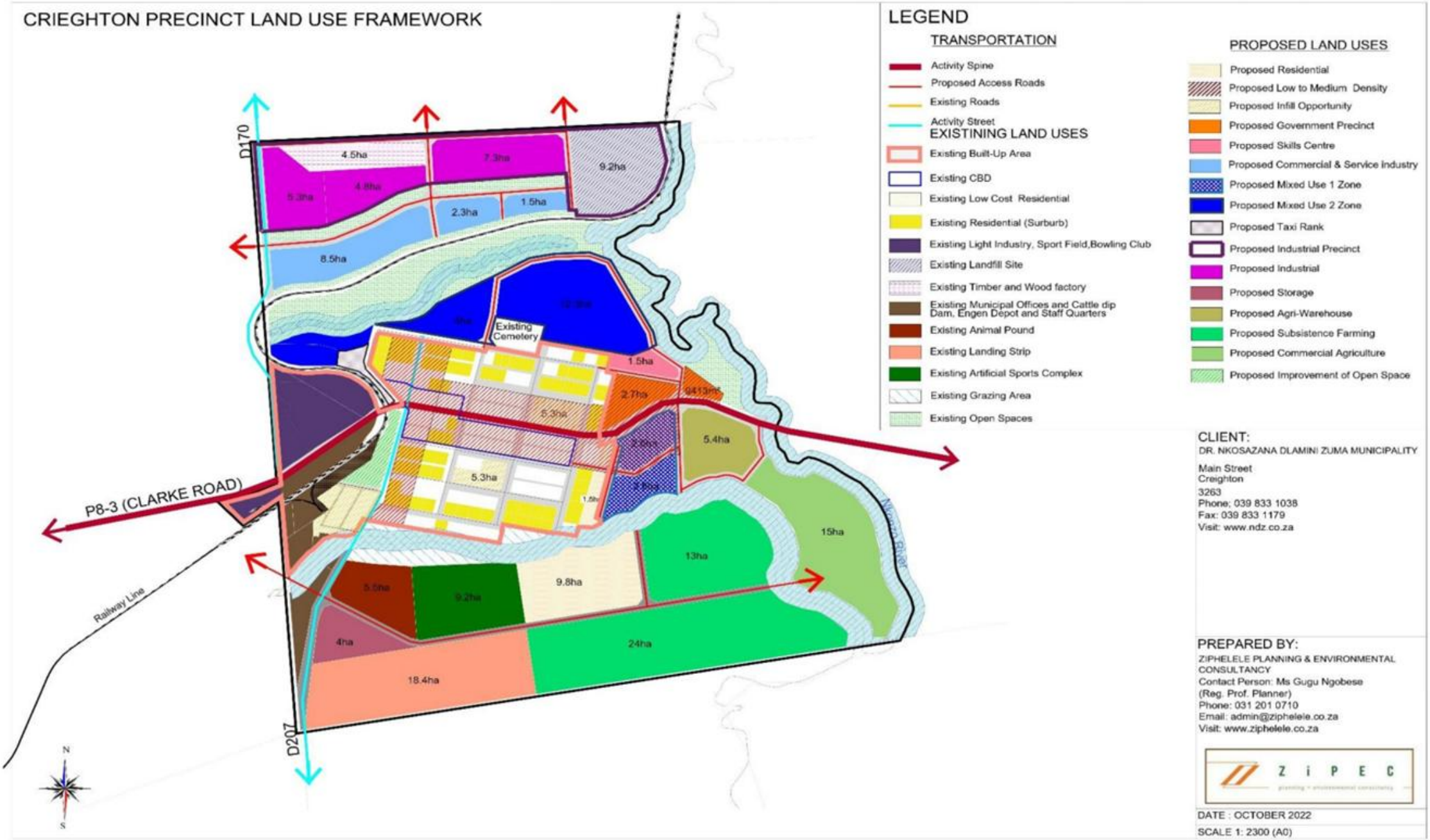
DEVELOPMENT OPPORTUNITIES: Nevertheless, Creighton's opportunities lie in its position as a government service hub and in its potential to develop as a mixed-use, compact settlement. The town has large tracts of vacant land within the urban edge that can be redeveloped for housing, social facilities, and commercial enterprises. Its central location within NDZ positions it as a natural anchor for rural service delivery, allowing for service clustering and efficient administration.

The town also sits within a scenic landscape that can be leveraged for tourism, particularly in cultural, agricultural, and adventure niches. The Precinct Plan identifies potential to develop an Agro-industrial framework, building on local agricultural production while promoting small business development and value-added industries.

SPATIAL PROPOSALS: & STRATEGIES: The spatial proposals and strategies for Creighton emphasise compact growth, economic diversification, and urban design improvements. The CBD should be revitalised through the redevelopment of vacant land into mixed-use precincts combining government offices, retail, housing, and small-scale enterprise. A green corridor framework should be implemented to integrate ecological areas with urban design, improving both resilience and quality of life. The introduction of an industrial and agro-processing framework is critical to stimulate employment and expand beyond a government-driven economy. Social infrastructure, particularly health and education facilities, should be upgraded to meet municipal-wide demand.

PROPOSED PROJECTS: The catalytic projects for Creighton include:

- Short-Term Projects: In the short term (0–5 years), the upgrade of government and institutional precincts, streetscape improvements in the CBD, and the identification of land for redevelopment.
- Medium-Term Projects: In the medium term (5–10 years), focus should shift to the rollout of the agro-processing and small business hubs, the delivery of affordable and middle-income housing, and the implementation of the green corridor.
- Long-Term Projects: In the long term (10–20 years), Creighton should consolidate its role as the administrative capital of NDZ, with a fully functional government precinct, a diversified economic base, and integrated tourism packages that highlight the town's agricultural and cultural assets.



MAP 82: CREIGHTON PRECINCT PLAN CONCEPT

14.2.1.5. DONNYBROOK

Donnybrook is designated as a Secondary Node with strong potential to become a local economic and service hub, particularly for the north-eastern part of NDZ. The Donnybrook Precinct Plan (2013) provides a detailed baseline of challenges, many of which remain relevant today. Chief among these is the poor condition of infrastructure, including deteriorating road networks, inadequate water and sanitation services, and the absence of formalised trading facilities.

The CBD is fragmented, with a "dual economy" pattern resulting in spatial separation between formal and informal businesses. The town lacks sufficient health and social facilities, while the absence of a formal taxi rank and pedestrian infrastructure undermines accessibility. Donnybrook also faces developmental constraints in terms of land tenure, with unresolved land reform and ownership issues delaying investment.

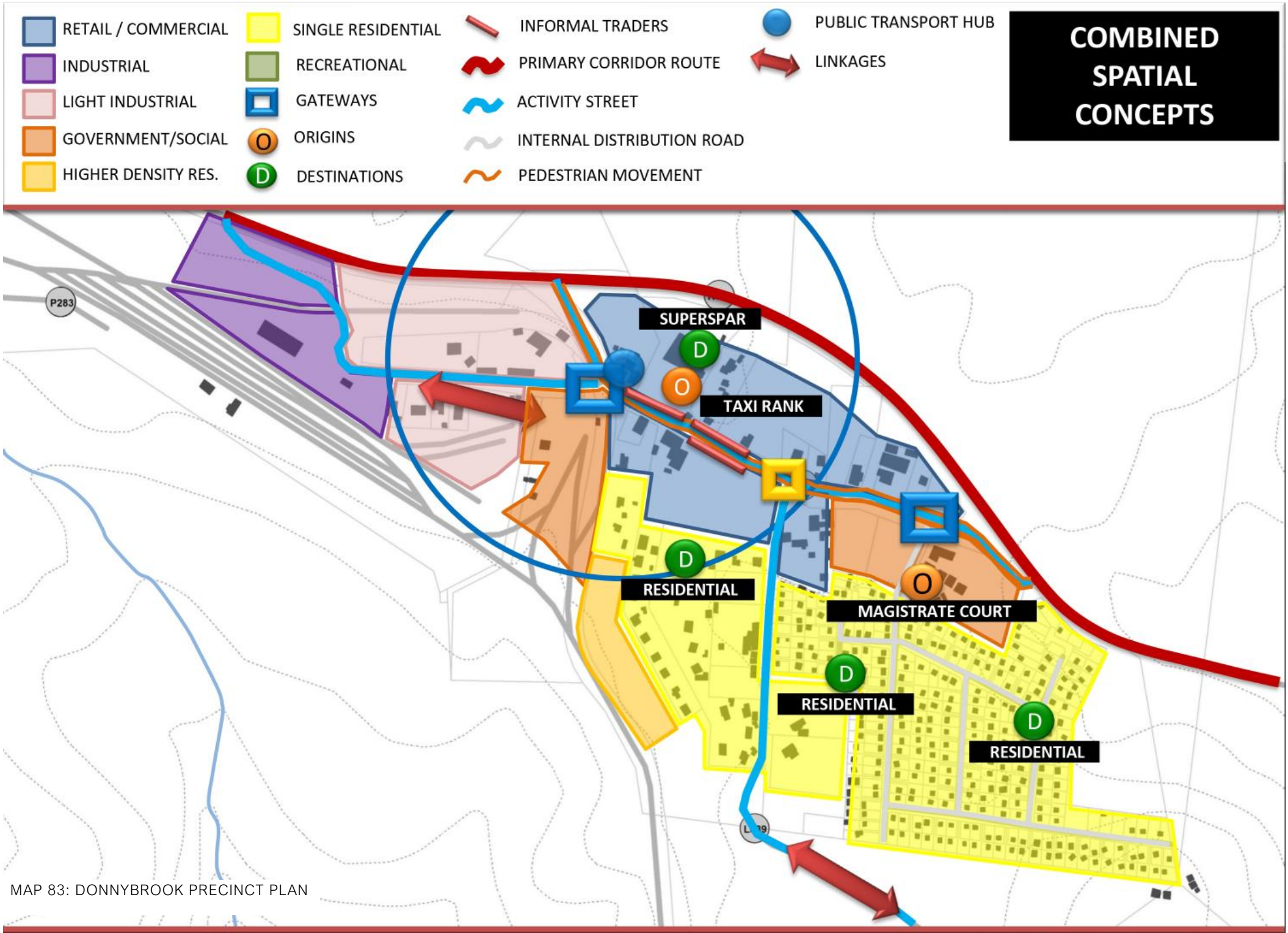
DEVELOPMENT OPPORTUNITIES: However, Donnybrook has significant opportunities. Located on the R612 regional corridor, it has strategic accessibility and potential to function as a logistics and service hub. The presence of large tracts of land suitable for redevelopment and higher-density housing provides an opportunity to restructure the town spatially. Agriculture and forestry dominate the surrounding economy, providing opportunities for agro-processing, timber industries, and agricultural support services. The town also has underutilised tourism potential, including cultural heritage and proximity to scenic landscapes. Importantly, Donnybrook is identified in the Small-Town Revitalisation Strategy (2021) as a settlement with strong potential for urban renewal.

SPATIAL PROPOSALS: & STRATEGIES: The spatial proposals and strategies for Donnybrook focus on restructuring the CBD, improving infrastructure, and stimulating the local economy. A formalised taxi rank and public transport hub should be developed to improve accessibility, supported by pedestrian linkages and trading facilities for informal businesses. The CBD should be spatially restructured into mixed-use districts, integrating retail, government services, and housing. Bulk service upgrades in water, sanitation, and electricity should be prioritised to support redevelopment. Economic strategies should focus on establishing an Agro-processing and Timber Hub, supporting both local farmers and regional markets. Social development strategies include upgrading health facilities, developing a community hall and recreational facilities, and improving educational infrastructure.

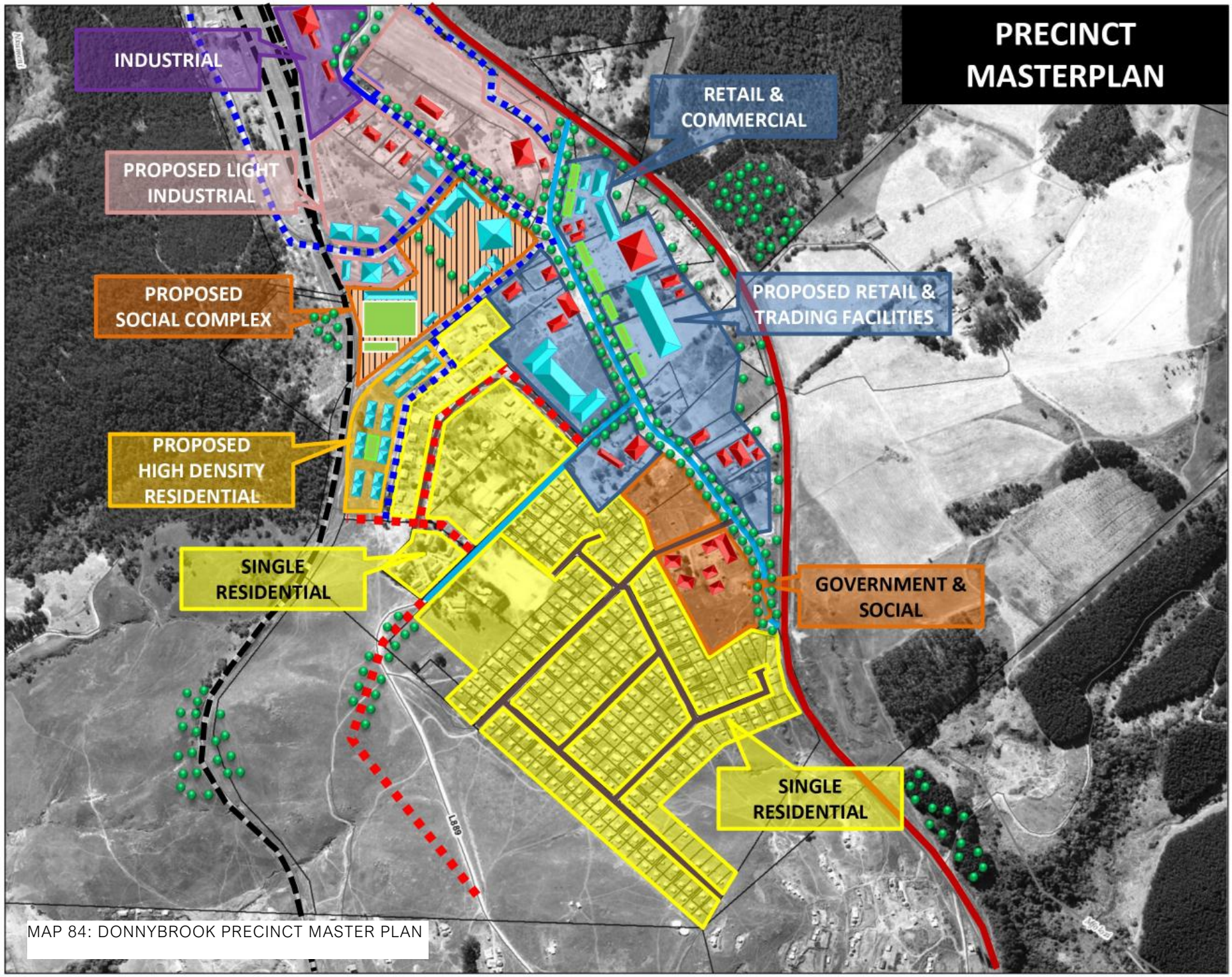
PROPOSED PROJECTS: The catalytic projects for Donnybrook are phased as follows:

- Short-Term Projects: in the short term (0–5 years), the development of a formal taxi rank, the upgrade of pedestrian infrastructure, and the initiation of basic water and sanitation upgrades are essential.
- Medium-Term Projects: In the medium term (5–10 years), rollout of the Agro-processing and Timber Hub, the restructuring of the CBD into mixed-use districts, and the construction of a community hall and recreational facilities should be prioritised.
- Long-Term Projects: In the long term (10–20 years), Donnybrook should consolidate as a regional service centre, with a diversified economy, functional land tenure systems, and integration into regional tourism and logistics networks.

COMBINED SPATIAL CONCEPTS



MAP 83: DONNYBROOK PRECINCT PLAN



MAP 84: DONNYBROOK PRECINCT MASTER PLAN

14.2.1.6. CENTOCOW

The settlement is historically known for the Centocow Mission Station, which positions it uniquely within the municipal tourism economy. Despite its heritage significance, Centocow is constrained by a series of challenges. Foremost among these is poor accessibility, with inadequate road linkages to higher-order nodes such as Creighton and Donnybrook. Infrastructure provision is limited: households in Centocow and the surrounding villages face persistent water and sanitation backlogs, unreliable electricity supply, and minimal solid waste management services. The town lacks higher-order social facilities, with only basic clinics and primary schools available, forcing residents to travel long distances for advanced healthcare, education, and administrative services. Furthermore, the economy is underdeveloped and dependent largely on subsistence agriculture and informal trading, with limited formal employment opportunities.

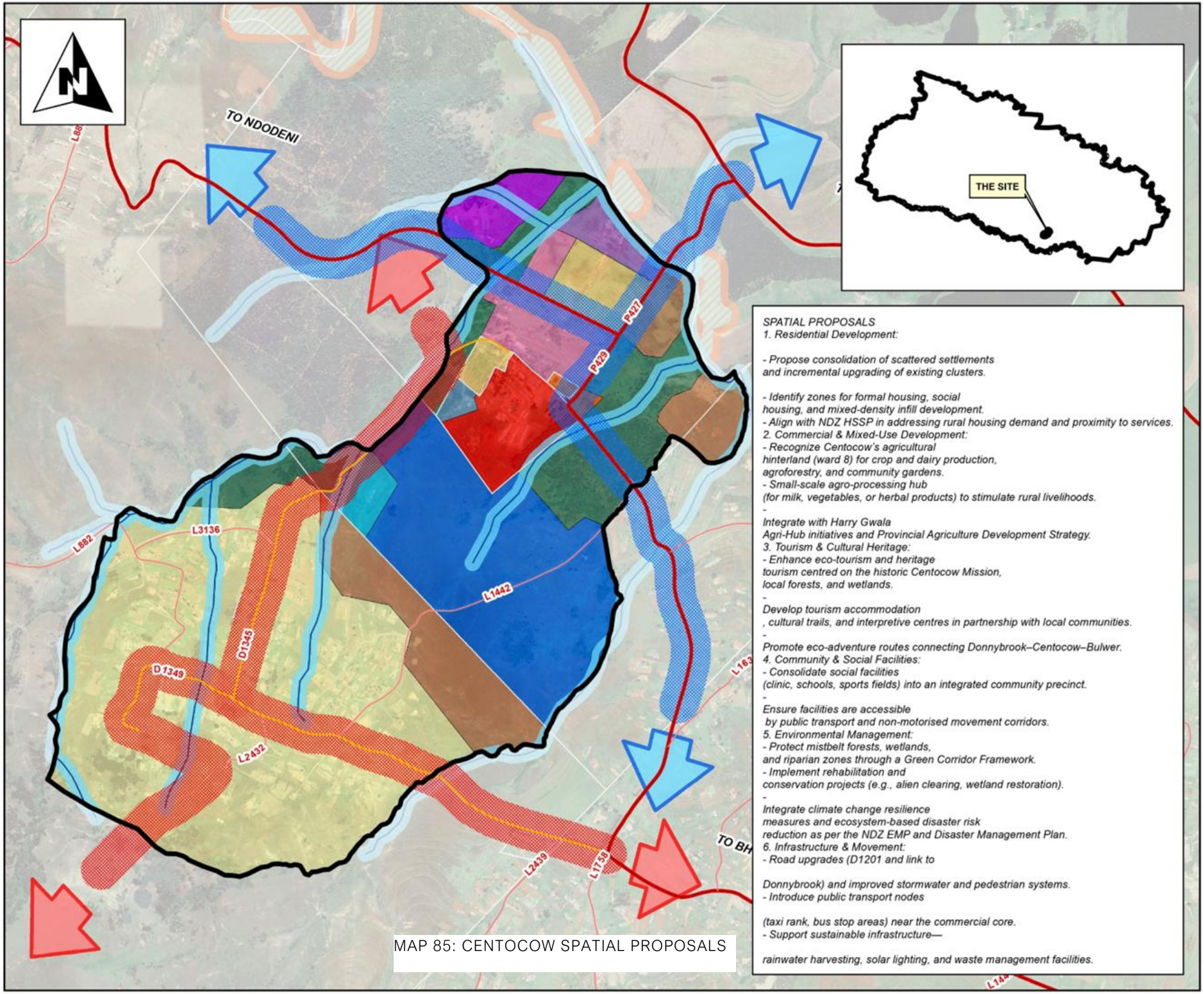
DEVELOPMENT OPPORTUNITIES: However, Centocow also presents unique opportunities that can be leveraged for development. Its cultural heritage, particularly the mission station and associated churches, provides a strong foundation for heritage tourism, which could be linked to regional cultural routes promoted by the Small-Town Revitalisation Strategy (2021). The settlement's agricultural base, though largely subsistence-oriented, has potential for small-scale commercialisation, particularly in livestock and horticulture. The surrounding rural population provides a threshold for services if infrastructure and facilities are upgraded. Centocow is also well positioned to serve as a gateway for eco- and cultural tourism within the NDZ, complementing the tourism anchors of Underberg and Sani Pass.

SPATIAL PROPOSALS: & STRATEGIES: The spatial proposals and strategies for Centocow focus on consolidating it as a local service hub and cultural heritage destination. From a service delivery perspective, infrastructure upgrades in water supply, sanitation, and electrification must be prioritised. A service centre cluster should be developed around the existing clinic, school, and traditional council office, with provision for future expansion of health and educational services.

Economically, Centocow should be integrated into the heritage tourism value chain, with the mission station forming the anchor for cultural tourism. Small-scale agricultural support, including co-operatives, training, and access to local markets, should be introduced to strengthen rural livelihoods. Spatially, compact development should be encouraged around the service cluster to limit sprawl and improve efficiency of infrastructure provision.

PROPOSED PROJECTS: The catalytic projects for Centocow include:

- Short-Term Projects: In the short term (0–5 years), water and sanitation upgrades, the formalisation of a service cluster precinct, and the introduction of a Heritage Tourism Trail centred on the mission station.
- Medium-Term Projects: In the medium term (5–10 years), investment should be directed towards the establishment of a Heritage & Cultural Centre, the improvement of road access to Creighton and Donnybrook, and the rollout of agricultural co-operative support programmes.
- Long-Term Projects: In the long term (10–20 years), Centocow should be consolidated as a regional cultural tourism hub, with expanded hospitality facilities, integrated tourism routes, and improved connectivity to higher-order nodes. This trajectory ensures that Centocow evolves into a resilient tertiary node, balancing service delivery with economic development grounded in heritage and culture.



MAP 85: CENTOCOW SPATIAL PROPOSALS

SPATIAL PROPOSALS
1. Residential Development:

- Propose consolidation of scattered settlements and incremental upgrading of existing clusters.

- Identify zones for formal housing, social housing, and mixed-density infill development.
- Align with NDZ HSSP in addressing rural housing demand and proximity to services.
2. Commercial & Mixed-Use Development:
- Recognize Centocow's agricultural hinterland (ward 8) for crop and dairy production, agroforestry, and community gardens.
- Small-scale agro-processing hub (for milk, vegetables, or herbal products) to stimulate rural livelihoods.
-
Integrate with Harry Gwala Agri-Hub initiatives and Provincial Agriculture Development Strategy.
3. Tourism & Cultural Heritage:
- Enhance eco-tourism and heritage tourism centred on the historic Centocow Mission, local forests, and wetlands.
-
Develop tourism accommodation , cultural trails, and interpretive centres in partnership with local communities.
-
Promote eco-adventure routes connecting Donnybrook–Centocow–Bulwer.
4. Community & Social Facilities:
- Consolidate social facilities (clinic, schools, sports fields) into an integrated community precinct.
-
Ensure facilities are accessible by public transport and non-motorised movement corridors.
5. Environmental Management:
- Protect mistbelt forests, wetlands, and riparian zones through a Green Corridor Framework.
- Implement rehabilitation and conservation projects (e.g., alien clearing, wetland restoration).
-
Integrate climate change resilience measures and ecosystem-based disaster risk reduction as per the NDZ EMP and Disaster Management Plan.
6. Infrastructure & Movement:
- Road upgrades (D1201 and link to

Donnybrook) and improved stormwater and pedestrian systems.
- Introduce public transport nodes

(taxi rank, bus stop areas) near the commercial core.
- Support sustainable infrastructure—

rainwater harvesting, solar lighting, and waste management facilities.

DR. NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPAITAL DEVELOPMENT FRAMEWORK

Centocow Spatial Proposals

Legend

- Provincial Road
- District Road
- Local Road
- Public Transport Spine
- Activity Spine
- River
- Erven
- River 32m Buffer
- Wetland
- Wetland 32m Buffer
- Existing Residential
- Agriculture
- Mixed-Use
- Commercial & Retail
- Industry
- WWTW Upgrade
- SMME Hub
- Environmental Management
- Agro-Processing
- Medium-Density Residential
- Health Precinct
- Tourism & Cultural Heritage

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

14.2.1.7. PHOLELA

The settlement is characterized by dispersed rural households, communal tenure land, and an economy largely dependent on subsistence farming, government employment, and small-scale trading. The settlement's growth is constrained by limited infrastructure, poor road connectivity, and low levels of investment. The NDZ Spatial Development Framework (SDF) Phase 4 identifies key challenges in Pholela, including inadequate access to potable water and sanitation, fragmented land use patterns, low economic diversification, environmental degradation, and vulnerability to climate-related hazards. Despite these challenges, the area benefits from its proximity to the R612 corridor, relatively fertile soils, and scenic landscapes that present potential for eco-tourism and agri-based enterprise development.

SPATIAL CHALLENGES: Pholela faces a number of spatial and socio-economic constraints that hinder sustainable growth. Poor road conditions and limited access to regional routes have constrained the area's integration into the broader municipal economy, while scattered settlement patterns make infrastructure provision costly and inefficient. Environmental sensitivity is a major factor, with the surrounding terrain characterized by wetlands, steep slopes, and biodiversity-rich grasslands that require careful management. However, opportunities exist through the protection and sustainable use of these natural assets for eco-tourism, environmental education, and conservation employment. The settlement also lies within a productive agricultural belt where small-scale farmers can be supported through training, cooperative formation, and agro-processing initiatives. Pholela's location along key transport routes linking Bulwer, Creighton, and Underberg provides a strategic advantage for the development of small business nodes, rural service centres, and mixed-use facilities. Additionally, the presence of communal land under traditional leadership structures presents opportunities for participatory land use planning, localized food production, and youth-based entrepreneurial development. Integrating disaster risk management and climate adaptation measures, as recommended in the NDZ Disaster Management and Climate Change Response Strategies, will be essential for ensuring long-term resilience.

Land use proposals for Pholela include the following:

RESIDENTIAL DEVELOPMENT: The residential framework for Pholela should promote a balance between incremental and formal housing delivery, guided by the NDZ Human Settlements Sector Plan. Priority should be given to consolidating existing settlements and densifying areas close to key social and economic facilities to improve service efficiency. Incremental housing support should be extended to informal and traditional areas, while future formal housing projects should be located in proximity to transport routes and public facilities. Partnerships between the municipality, Department of Human Settlements, and traditional councils will be essential to facilitate tenure regularization and sustainable housing development.

COMMERCIAL & MIXED-USE DEVELOPMENT: Pholela's local economy can be enhanced by establishing a mixed-use development node along its main access route to support trading, small business incubation, and agro-processing. This node should integrate retail, administrative, and light industrial functions, including spaces for informal traders and cooperatives. Opportunities exist for small enterprises in agricultural processing, craft production, and tourism services. Development should be encouraged near transport interchanges to maximize accessibility, and public spaces should be designed to stimulate local business activity and social interaction.

CIVIC PRECINCT (SOCIAL & COMMUNITY FACILITIES): Provision of social infrastructure must be aligned with population growth and spatial accessibility standards. The area requires improved access to healthcare, early childhood development centres, secondary education facilities, and community recreation spaces. Social facilities should be clustered around the primary node to create a multifunctional service hub. Collaboration with provincial

departments and NGOs can enhance delivery efficiency and promote integrated service provision.

INDUSTRIAL & AGRO-PROCESSING DEVELOPMENT: Small-scale industrial and agro-processing zones should be designated near existing agricultural operations to facilitate value addition and job creation. Potential activities include dairy processing, timber product development, and small-scale manufacturing aligned with local resource bases. Such development must be supported by adequate bulk services, access roads, and waste management systems, and should adhere to the environmental guidelines set out in the NDZ Integrated Environmental Management Plan.

AGRICULTURE & RURAL DEVELOPMENT: Agriculture remains the cornerstone of Pholela's local economy. Land use proposals should focus on protecting high-potential agricultural land, promoting conservation agriculture, and supporting smallholder productivity. Programmes for training, cooperative development, and market linkages should be implemented to build capacity among emerging farmers. Agricultural extension services and partnerships with the Department of Agriculture can assist in diversifying production into high-value crops, dairy, and horticulture. The creation of community food gardens and shared mechanization centres can improve food security and livelihoods.

ENVIORNMENTAL MANAGEMENT: Pholela's environmental framework must safeguard wetlands, steep slopes, and riparian corridors through clearly defined conservation zones and ecological buffers. Green corridors should be established to connect natural areas and promote biodiversity conservation, in line with the NDZ Integrated Environmental Management Plan (2020–2025). Rehabilitation of degraded land, especially eroded slopes, will reduce sedimentation and flooding risks. Climate adaptation strategies, including wetland restoration and tree planting, should be integrated with community-based environmental stewardship programmes.

INFRASTRUCTURE & MOVEMENT NETWORK: Improving access and mobility is critical to supporting economic growth and service delivery in Pholela. Road upgrades along regional connectors such as the R612 and local access routes should be prioritized to enhance linkages to Creighton, Bulwer, and Underberg. Public transport facilities, pedestrian walkways, and taxi ranks should be formalized within the main node. Infrastructure investments in water, sanitation, electricity, and ICT must be guided by the NDZ IDP and the Harry Gwala District infrastructure plans to ensure long-term sustainability and equitable access.

SPATIAL DEVELPPMENT CONCEPT: The proposed spatial development concept for Pholela envisions a compact, integrated rural service node surrounded by productive agricultural and conservation zones. The spatial structure will be anchored around a central mixed-use core comprising commercial, administrative, and social facilities, supported by residential clusters and agricultural hinterlands. Strategic corridors will connect Pholela to Bulwer and Creighton, forming part of the regional nodal system envisioned in the NDZ SDF. The open space framework will integrate green belts, river buffers, and community parks, while designated agricultural areas will ensure the protection of prime soils and landscape character. The spatial concept seeks to create a balanced relationship between human settlements, ecological systems, and economic opportunities.

IMPLEMENTATION OF THE PROPOSALS: Implementation of the Pholela land use proposals should be phased and aligned with municipal and district investment priorities. In the short term (1–5 years), the focus should be on basic infrastructure provision, housing consolidation, and establishment of the local mixed-use node. The medium term (5–10 years) should emphasize agro-processing facilities, SMME support infrastructure, and road connectivity improvements. Long-term (10–20 years) interventions should focus on environmental rehabilitation, tourism diversification, and the creation of sustainable employment sectors. Public-private partnerships, community

cooperatives, and intergovernmental coordination mechanisms should be established to leverage funding and expertise. Alignment with the IDP, LED Strategy, and Climate Change Response Strategy will ensure integrated implementation across sectors.

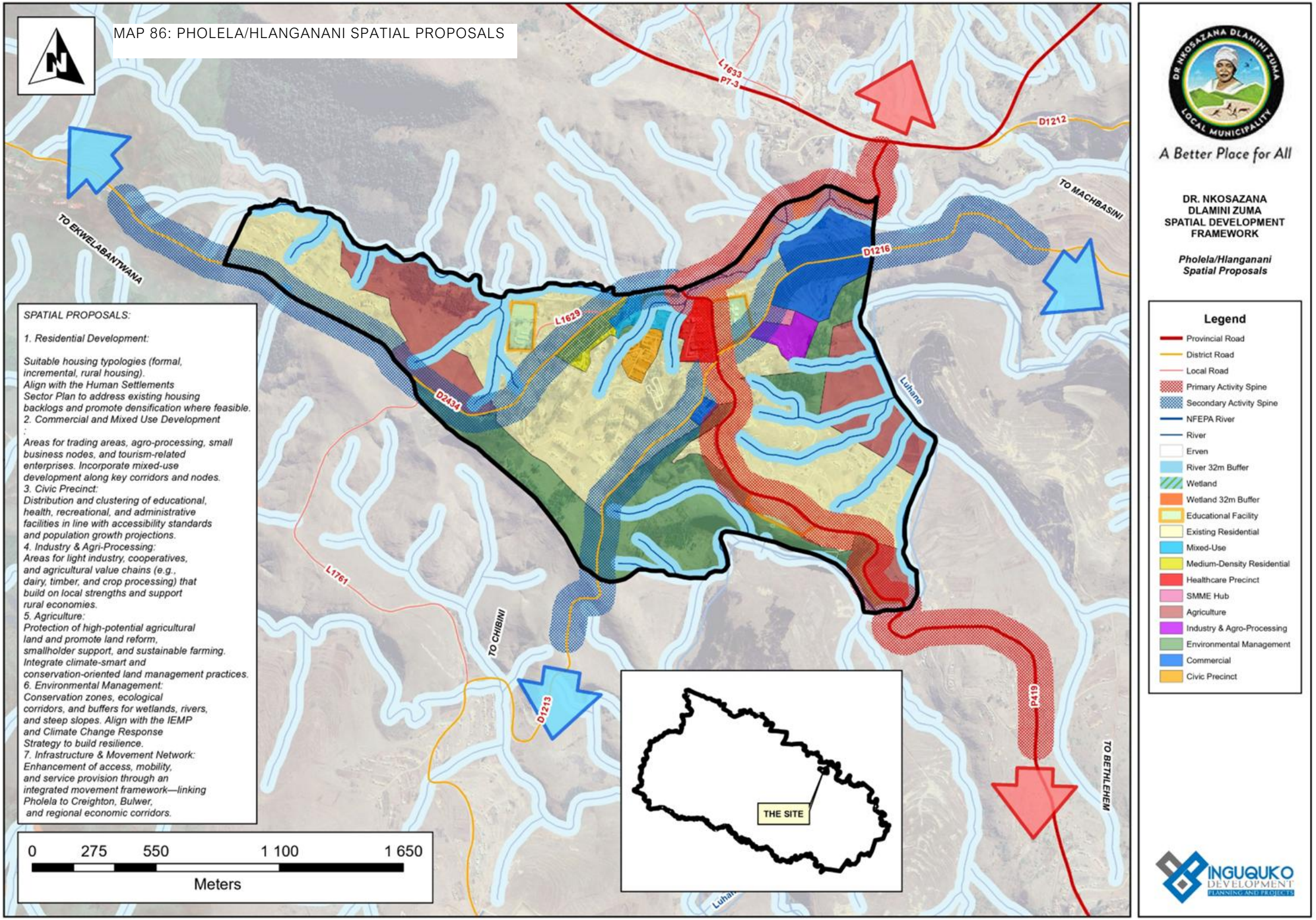
PROPOSED PROJECTS: The catalytic projects for Pholela include:

- Short-Term Projects: In the short term (0–5 years), the development of a multi-purpose community service cluster, the upgrading of water and sanitation infrastructure, and the improvement of local access roads.
- Medium-Term Projects: In the medium term (5–10 years), investment should focus on the rollout of agricultural co-operatives and market support, coupled with the expansion of education and health facilities.
- Long-Term Projects: In the long term (10–20 years), Pholela should aim to diversify its economy by developing eco-tourism initiatives and consolidating its role as a resilient service node for surrounding rural communities.

MONITORING & EVALUATION: A structured monitoring and evaluation framework should accompany implementation to track progress and ensure accountability. Key indicators will include the number of serviced residential units, kilometres of roads upgraded, hectares of agricultural land protected, number of jobs created through agro-processing and tourism initiatives, and improvements in access to social services. Data collection and spatial monitoring through GIS will enable evidence-based decision-making and adaptive planning. Continuous community engagement and interdepartmental reporting will sustain progress and allow adjustments in response to emerging challenges.






MAP 86: PHOLELA/HLANGANANI SPATIAL PROPOSALS
L1633
P7-3
D1212
TO MACHBASINI
TO EKWELABANTWANA
D1216
L1629
D2434
Luhane
L1761
TO CHIBINI
D1213
P419
TO BETHLEHEM
THE SITE
SPATIAL PROPOSALS:
1. Residential Development:
Suitable housing typologies (formal, incremental, rural housing). Align with the Human Settlements Sector Plan to address existing housing backlogs and promote densification where feasible.
2. Commercial and Mixed Use Development :
Areas for trading areas, agro-processing, small business nodes, and tourism-related enterprises. Incorporate mixed-use development along key corridors and nodes.
3. Civic Precinct:
Distribution and clustering of educational, health, recreational, and administrative facilities in line with accessibility standards and population growth projections.
4. Industry & Agri-Processing:
Areas for light industry, cooperatives, and agricultural value chains (e.g., dairy, timber, and crop processing) that build on local strengths and support rural economies.
5. Agriculture:
Protection of high-potential agricultural land and promote land reform, smallholder support, and sustainable farming. Integrate climate-smart and conservation-oriented land management practices.
6. Environmental Management:
Conservation zones, ecological corridors, and buffers for wetlands, rivers, and steep slopes. Align with the IEMP and Climate Change Response Strategy to build resilience.
7. Infrastructure & Movement Network:
Enhancement of access, mobility, and service provision through an integrated movement framework—linking Pholela to Creighton, Bulwer, and regional economic corridors.
0 275 550 1 100 1 650
Meters
DR NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY
A Better Place for All
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK
Pholela/Hlanganani Spatial Proposals
Legend
Provincial Road
District Road
Local Road
Primary Activity Spine
Secondary Activity Spine
NFEPA River
River
Erven
River 32m Buffer
Wetland
Wetland 32m Buffer
Educational Facility
Existing Residential
Mixed-Use
Medium-Density Residential
Healthcare Precinct
SMME Hub
Agriculture
Industry & Agro-Processing
Environmental Management
Commercial
Civic Precinct
INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

14.2.1.8. RICHENAU

Richenau is a Tertiary Node with unique historical and agricultural significance. Established as a mission settlement, Richenau retains heritage assets that provide cultural tourism opportunities, but it is constrained by a weak economic base and limited infrastructure. Key challenges include poor connectivity to regional transport corridors, inadequate water and sanitation services, and limited electricity coverage in surrounding areas. The settlement is small and dispersed, making infrastructure provision costly and inefficient. The economy is underdeveloped, with livelihoods dominated by subsistence farming, particularly livestock rearing. Social facilities are limited, with only basic education and health services available locally. As in other tertiary nodes, poverty, unemployment, and outmigration are high.

DEVELOPMENT OPPORTUNITIES: Despite these constraints, Richenau has development opportunities that can be harnessed through targeted interventions. Its heritage significance positions it for cultural and religious tourism, which could be integrated into wider heritage trails alongside Centocow. The surrounding agricultural land has potential for improved productivity through support programmes, irrigation, and market access. The Final Plan of Nodes (2022) highlights Richenau as a tertiary service node with potential to expand its role in agro-based livelihoods and heritage tourism.

SPATIAL PROPOSALS: & STRATEGIES: The spatial proposals and strategies for Richenau focus on consolidating it as a heritage and agricultural service hub. Infrastructure interventions are critical, particularly in upgrading water and sanitation systems and extending electricity access. A service cluster should be formalised, integrating health, education, and trading facilities. Heritage tourism should be developed around the mission settlement, with investments in signage, trails, and interpretation centres. Agricultural support strategies should focus on livestock productivity, crop diversification, and co-operatives. Compact settlement planning should be promoted to reduce costs and improve service efficiency.

PROPOSED PROJECTS: The catalytic projects for Richenau include:

- **Short-Term Projects:** In the short term (0–5 years), upgrading water and sanitation systems, extending electricity, and formalising a basic service cluster.
- **Medium-Term Projects:** In the medium term (5–10 years), investments should focus on the development of a Heritage Interpretation Centre, the promotion of agro-co-operatives, and the upgrading of access roads.
- **Long-Term Projects:** In the long term (10–20 years), Richenau should consolidate as a heritage tourism node, integrated into the wider cultural tourism network, while simultaneously strengthening its agricultural base to sustain rural livelihoods.

14.2.1.9. STEPMORE/MQATSHENI

The Mqatsheni/Stepmore settlement is located in the north-eastern portion of the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM), within the Harry Gwala District of KwaZulu-Natal. It lies near the boundary with Impendle Local Municipality and is situated within a high-altitude area characterised by rolling grasslands, streams, and scattered rural homesteads. The settlement is strategically positioned within a cluster of rural settlements that serve as service points for the dispersed rural population. It is accessible via local district roads that link to Bulwer and Underberg, though these routes require upgrading to fully support regional connectivity.

Mqatsheni/Stepmore is recognised within the NDZ SDF and the Final Plan of Nodes as a secondary-level rural service node that provides basic services and limited economic opportunities to surrounding rural areas. The settlement exhibits a traditional and organic settlement pattern, defined by scattered homesteads along road corridors and valley slopes, with limited formal planning. The settlement's structure is influenced by its topography, with residential clusters occupying flatter areas and agricultural activities occurring

in adjacent arable lands. Overall, the area plays a supporting role in the municipal settlement hierarchy, acting as a rural service centre with potential to strengthen agro-economic and eco-tourism linkages.

SPATIAL CHALLENGES: The settlement faces multiple spatial and developmental challenges that constrain its growth potential. The NDZ Human Settlements Sector Plan (2024) identifies a high housing backlog in Mqatsheni/Stepmore, with the majority of residents living in traditional or informal dwellings that lack basic services. Infrastructure provision is limited, particularly with respect to bulk water, sanitation, and electricity. Roads are generally gravel and poorly maintained, restricting access during the rainy season.

From an environmental perspective, the area is characterised by steep slopes, erosion-prone soils, and sensitive wetlands that require protection and careful management. The NDZ Environmental Management Plan (2020–2025) highlights significant soil degradation and gully erosion in nearby catchments. Economically, the settlement has limited formal employment opportunities, and the majority of residents rely on subsistence agriculture and small-scale trading. Climate change poses additional challenges through increased rainfall variability, flooding, and land degradation, as noted in the Harry Gwala Climate Change Response Strategy (2023).

SPATIAL OPPORTUNITIES: Despite these constraints, the area has several notable opportunities that can be leveraged for sustainable development. Its proximity to the uKhahlamba Drakensberg Park World Heritage Site positions Mqatsheni/Stepmore as a potential entry point for eco-tourism and cultural tourism initiatives. The surrounding agricultural land presents opportunities for smallholder and cooperative farming that could supply agro-processing enterprises within the municipality.

The 2025/26 Draft NDZ IDP identifies Mqatsheni/Stepmore as a key area for service delivery and rural development interventions. The presence of existing social facilities, such as schools and a community hall, provides a foundation for upgrading and expanding institutional and community infrastructure. Furthermore, the area's scenic landscape and natural assets provide an opportunity for integrating conservation and tourism-oriented land uses that could support local livelihoods while protecting the environment

Land use proposals for the node include the following:

RESIDENTIAL DEVELOPMENT: Residential development in Mqatsheni/Stepmore should focus on providing a balanced mix of formal, incremental, and social housing options while ensuring environmental sensitivity. The introduction of formal housing through a phased project should prioritise serviced sites and subsidy-linked units, particularly for low-income households. Densification within existing settlement clusters should be promoted to create more compact and efficient development patterns, thereby limiting encroachment into agricultural and environmentally sensitive areas.

Incremental upgrading of traditional areas is recommended to formalise existing settlements through improved tenure security and access to basic services. Limited social housing may be introduced in areas close to the main road and trading nodes, particularly to accommodate government employees and young professionals. The housing strategy should align with SPLUMA principles by promoting spatial justice and sustainability while addressing service backlogs identified in the NDZ Human Settlements Sector Plan.

COMMERCIAL & MIXED USE: The proposed commercial strategy centres on creating a small, functional trading node within Mqatsheni/Stepmore to support local economic activity. This node should be located along the main access road and include facilities for formal and informal traders, such as kiosks, market shelters, ablution facilities, and waste collection points.

Mixed-use development should be encouraged around the community centre, integrating small-scale retail, services, and residential uses in a pedestrian-

friendly environment. Agro-processing opportunities—such as maize milling, dairy collection, and vegetable packaging—should be prioritised to strengthen the local economy and create jobs. In addition, the area's proximity to scenic landscapes makes it suitable for small-scale tourism and hospitality ventures, such as cultural villages, craft markets, and community lodges that can complement the broader Drakensberg tourism network.

INSTITUTIONAL & SOCIAL FACILITIES: Institutional and social facilities in Mqatsheni/Stepmore require significant enhancement to meet community needs. Existing schools should be expanded and equipped with ICT infrastructure to improve educational outcomes. The establishment of a local primary healthcare clinic or a permanent mobile clinic service is critical to address health access challenges.

The existing community hall can be upgraded into a multipurpose centre that accommodates government services, youth training programmes, and social gatherings. Provision should also be made for a small library and an early childhood development (ECD) centre. Given the rural context and prevalence of livestock theft, a satellite police or community safety office should be established to enhance local security.

AGRICULTURE: Agriculture remains a cornerstone of the Mqatsheni/Stepmore economy. The land use framework should prioritise the protection of high-potential agricultural soils and discourage conversion of arable land for settlement expansion. Cooperative and smallholder farming initiatives should be supported through training, input provision, and market access programmes.

An agro-hub concept is proposed to serve as a collection and distribution point for local farmers, linking them to larger markets and processing facilities. Climate-smart agricultural practices such as crop diversification, soil conservation, and rainwater harvesting should be promoted to improve resilience. Partnerships with the Harry Gwala District and the Department of Agriculture can facilitate technical support and extension services to improve productivity.

LIGHT INDUSTRY: The establishment of a small light industrial precinct is recommended along the main road to accommodate activities such as brick-making, welding, carpentry, and vehicle repair workshops. These activities should be spatially clustered to promote efficiency and reduce land-use conflicts. Industrial activities should be linked to local economic development initiatives and youth employment programmes. The light industrial area can also function as a training hub for artisans and cooperatives involved in manufacturing and agro-processing support services.

ENVIRONMENTAL MANAGEMENT: Environmental protection and the creation of accessible public spaces are central to sustainable development in Mqatsheni/Stepmore. Green corridors should be established along riverbanks and wetland areas to protect ecological systems and mitigate erosion. Community parks, sports fields, and open spaces should be developed within residential clusters to provide recreational opportunities.

Wetland rehabilitation and soil stabilisation programmes should be implemented in line with the NDZ Environmental Management Plan. Erosion control measures such as gabion structures and re-vegetation of degraded slopes should be prioritised. Furthermore, the promotion of eco-tourism initiatives, including hiking trails and cultural tours, can help reinforce the link between environmental conservation and local economic growth.

INFRASTRUCTURE & SERVICES: Infrastructure development forms the foundation of all proposed land uses. The extension of bulk water and sanitation infrastructure from nearby schemes should be prioritised. In remote areas, boreholes and decentralized sanitation systems should be introduced as interim measures. Electricity supply should be expanded through grid connections complemented by off-grid solar systems for dispersed homesteads.

Improving ICT connectivity is essential for education, business, and communication; thus, public Wi-Fi hotspots should be established at schools, trading centres, and community facilities. Transport upgrades should focus on re-graveling and paving key access routes, establishing a formal taxi rank, and improving pedestrian infrastructure. Waste management should be addressed through the introduction of localised collection points and community recycling initiatives to ensure environmental cleanliness and sustainability.

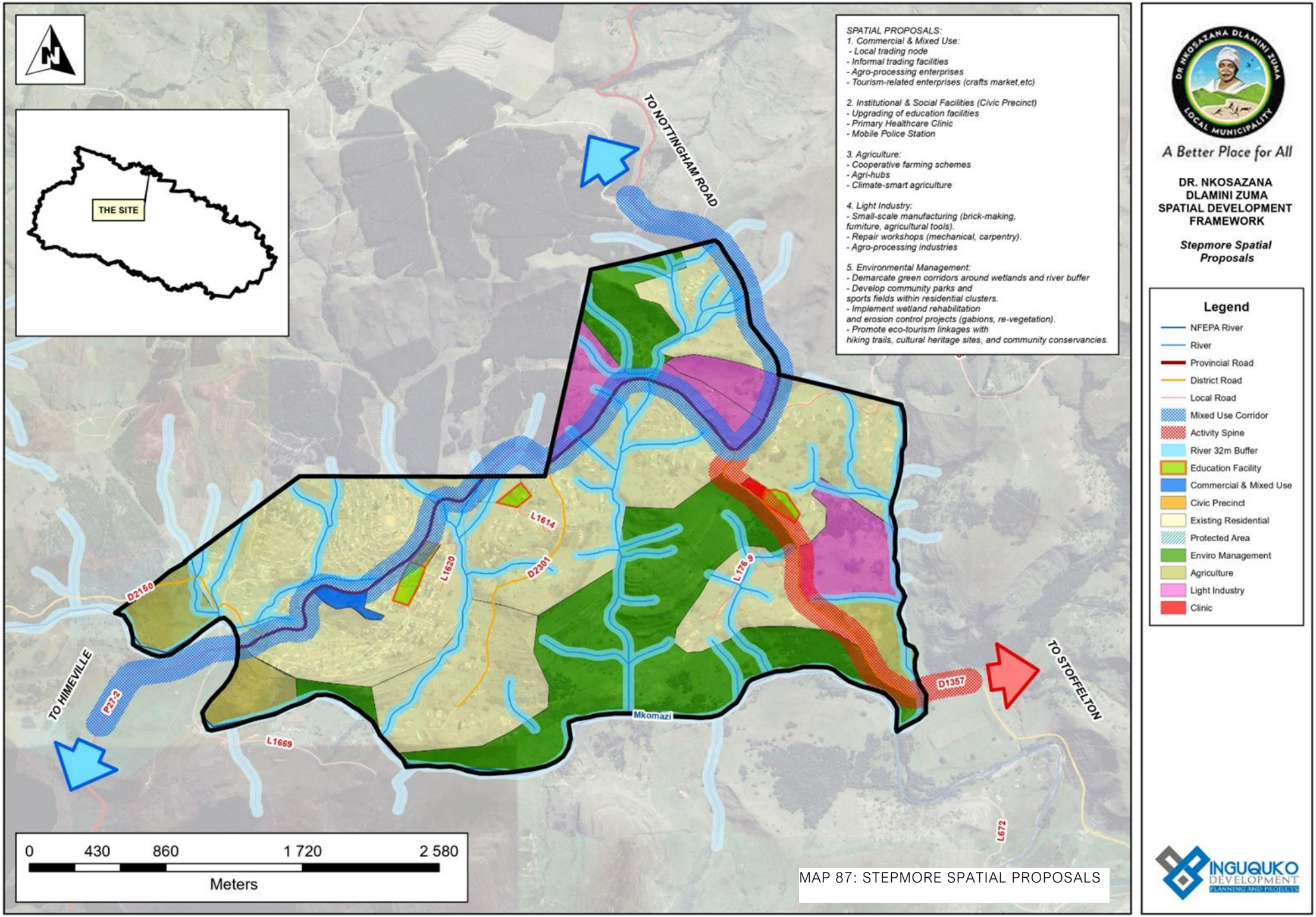
GUIDING PRINCIPLES: The proposals for Mqatsheni/Stepmore are underpinned by the principles of the Spatial Planning and Land Use Management Act (SPLUMA). These include spatial justice through equitable access to land and services, spatial sustainability through environmental protection and compact development, spatial efficiency through the optimal use of infrastructure, and spatial resilience to address climate change impacts.

The proposals align with the KwaZulu-Natal Provincial Spatial Development Framework (2021), which promotes compact and connected rural service nodes, protection of biodiversity corridors, and strengthening of the agricultural economy. In line with the Harry Gwala Growth and Development Strategy, the proposals promote rural development, smallholder farming, and tourism diversification. Climate change and disaster risk reduction are central guiding elements, with the integration of floodline mapping, slope management, and resilient building techniques within future planning.

The implementation and phasing of the proposals will be in the following manner:

- **SHORT-TERM (1-5 YEARS):** Short-term priorities include the rollout of basic services such as water, sanitation, and electricity; the upgrading of the community hall into a multipurpose centre; and the formalisation of informal trading facilities. A pilot housing project comprising the first 100 serviced units should be initiated, accompanied by erosion control and wetland rehabilitation programmes to stabilise the local environment.
- **MEDIUM-TERM (5-10 YEARS):** The medium-term phase should focus on the development of the formal trading centre and agro-processing hub, the construction of a local healthcare clinic, and the upgrading of educational and recreational facilities. Incremental upgrading of traditional residential areas should continue, alongside the expansion of community parks and open spaces.
- **LONG-TERM (10-20 YEARS)** Over the long term, the light industrial precinct should be fully established, with linkages to regional markets and training institutions. Mixed-use nodes should evolve around the main settlement core, integrating residential, commercial, and public facilities in a compact form. Eco-tourism developments, including accommodation and cultural experiences, should be pursued to create sustainable rural livelihoods. Bulk infrastructure systems should also be expanded to accommodate projected growth and to ensure long-term service sustainability.
- **ENVISAGED OUTCOMES:** The land use proposals for Mqatsheni/Stepmore aim to create a balanced, inclusive, and environmentally sustainable rural settlement. The proposed framework provides for structured residential growth, improved service delivery, and strengthened economic opportunities through agro-processing, tourism, and local enterprise development. The integration of environmental management and green infrastructure ensures ecological resilience and adaptation to climate change.

Ultimately, these proposals will support Mqatsheni/Stepmore's transformation into a well-functioning rural service centre that contributes to the NDZ Municipality's vision of sustainable human settlements, spatial equity, and inclusive local economic development.



MAP 87: STEPMORE SPATIAL PROPOSALS

14.2.1.10. KILMUN

The Kilmun area, situated within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) in the Harry Gwala District, forms part of a critical rural settlement cluster positioned along the P429 and D1201 access routes. It serves as a sub-regional node linking Creighton to the north and Bulwer to the south, functioning as a strategic intermediary settlement that supports rural economic activity, local mobility, and community access to services. The Kilmun cluster, as delineated in the NDZ Plan of Nodes and Consolidated Framework, has been earmarked as a key growth and service centre with potential for agri-processing, local commerce, and social infrastructure consolidation.

The settlement exhibits a dispersed rural pattern with a semi-formalised core comprising community facilities, small-scale retail, and a taxi rank. Surrounding areas are characterized by traditional land tenure under communal ownership, interspersed with agricultural lands and wetlands.

Environmental constraints identified in the Integrated Environmental Management Plan (2020–2025) include steep slopes, high erosion potential, and sensitive wetland systems requiring rehabilitation. The area's opportunities lie in its locational accessibility, agricultural base, availability of developable land, and proximity to the regional tourism route connecting the Drakensberg corridor.

Service delivery backlogs remain notable, particularly in sanitation, waste management, and formalised trading infrastructure. However, ongoing infrastructure initiatives, including road improvements and public facility upgrades, provide a foundation for integrated development. The settlement's strategic role is thus to serve as a secondary rural service node, facilitating agro-economic development, local enterprise, and improved access to social and economic opportunities.

Land use proposals for the Kilmun area include the following:

RESIDENTIAL DEVELOPMENT: Residential development within Kilmun must accommodate a diversity of typologies to support both existing rural households and anticipated growth. Formal residential areas should be developed adjacent to the settlement core, supported by incremental and social housing programmes as guided by the Human Settlements Sector Plan (2024).

Priority should be given to infill and densification within serviced areas, minimizing environmental encroachment. Incremental housing opportunities can be promoted through managed site-and-service schemes, allowing households to improve over time. The HSSP identifies Kilmun as suitable for rural housing expansion due to its moderate topography and service connectivity. Future residential layouts must integrate green buffers along wetland edges and establish linkages to social amenities, thereby supporting compact, service-efficient settlement growth.

COMMERCIAL & MIXED-USE DEVELOPMENT: The Kilmun Local Area Plan (2021) proposes a community commercial centre as a focal point for economic activity, complemented by small business and informal trading zones. Land use proposals reinforce this through the consolidation of a mixed-use corridor along the P429 route, accommodating retail, service industries, and public facilities within walkable distance of the taxi rank and market area.

The development of SMME infrastructure and agro-processing incubation spaces should be prioritised to enhance local economic resilience. Mixed-use nodes are to integrate community services, retail, and public transport facilities, supporting a vibrant rural centre with extended operating hours and improved safety.

INDUSTRIAL & AGRO-PROCESSING: Given the agricultural orientation of the surrounding area, light industrial and agro-processing activities form the backbone of local economic development. A designated light industrial zone is proposed on the periphery of the settlement, strategically located to minimize

land-use conflict with residential areas while maintaining proximity to transport corridors. This area should accommodate small-scale manufacturing, repair workshops, cooperatives, and processing facilities for dairy, vegetable, and poultry products.

The NDZ SDF (2021) identifies agro-processing as a catalytic driver for rural employment, and Kilmun's role should be to act as a sub-district agro-service node linking local farmers to regional markets. Infrastructure provision such as water reticulation, waste management, and electricity supply must align with industrial development needs and environmental safeguards.

TOURISM & RECREATION: Kilmun's natural landscape, open grasslands, and cultural context provide opportunities for tourism-related development, consistent with the Harry Gwala Growth and Development Strategy (2024). The LAP identifies a horse-racing precinct and multifunctional sports complex as catalytic tourism and recreational anchors.

These, combined with eco-tourism trails, community-based accommodations, and cultural events, can attract visitors from the Drakensberg–Creighton route. The area's tourism vision should promote rural hospitality enterprises, local craft markets, and events linked to agricultural shows and traditional festivals. Public open spaces and green corridors will serve as connectors between the tourism precinct, the settlement core, and surrounding rural landscapes.

SOCIAL & INSTITUTIONAL FACILITIES: The consolidation of social facilities is fundamental to Kilmun's nodal role. Existing facilities, including schools, a clinic, and community halls, require upgrading and better spatial integration. Future land use should allocate centrally located sites for a multi-purpose community centre that houses administrative, youth, and training functions. Provision should also be made for early childhood development centres, a satellite library, and a potential health outreach facility.

The NDZ Draft IDP (2025/26) underscores the need to cluster facilities to improve access, reduce travel times, and optimize infrastructure investment. Institutional partnerships with the Department of Social Development and Department of Education should be leveraged to coordinate service delivery and community empowerment programmes.

ENVIRONMENTAL MANAGEMENT: The Environmental Management Plan (2020–2025) identifies wetlands within Kilmun as sensitive ecological zones requiring rehabilitation and protection. Land use proposals support the establishment of a green corridor network linking these areas with open spaces, community parks, and pedestrian routes. Wetland rehabilitation should be undertaken through community-based programmes that provide employment and enhance ecosystem resilience.

Environmental buffers should be maintained between development areas and natural systems, with stormwater management infrastructure designed to prevent erosion and siltation. Greening initiatives, such as roadside planting and small public gardens, should be integrated into the built environment to improve aesthetics and ecological performance.

INFRASTRUCTURE & SERVICES: Infrastructure upgrades are essential to sustain the proposed land uses. Priority interventions include upgrading of the P429 and D1201 roads, formalisation of pedestrian walkways, and establishment of a stormwater management system. Water and sanitation infrastructure should align with district-level schemes under the Harry Gwala Water Services Development Plan, with emphasis on sustainable technologies such as rainwater harvesting.

Solid waste management must be guided by the NDZ Integrated Waste Management Plan, promoting waste minimisation and community collection points. ICT connectivity and renewable energy initiatives, including solar-powered public lighting, are recommended to enhance service accessibility

and support rural innovation. These interventions collectively aim to strengthen Kilmun's role as a sustainable service hub.

IMPLEMENTATION FRAMEWORK: The implementation of Kilmun's land use proposals should be phased and prioritised based on resource availability and catalytic potential. Short-term projects (1–5 years) include upgrading of access roads, development of the taxi rank and community commercial centre, establishment of SMME and agro-processing facilities, and initiation of wetland rehabilitation programmes.

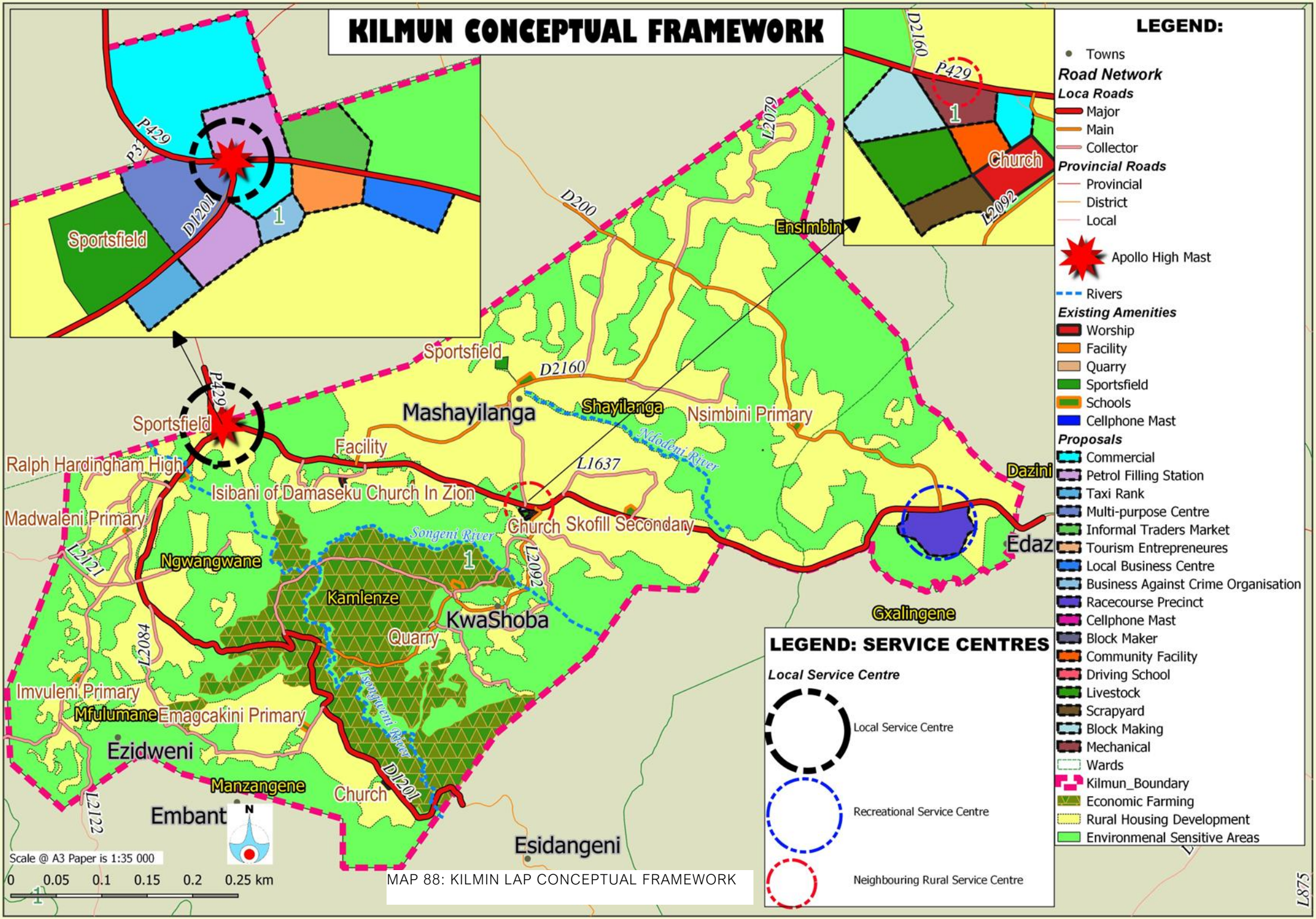
Medium-term interventions (5–10 years) should focus on housing development, institutional cluster construction, and tourism precinct implementation. Long-term projects (10–20 years) include industrial park expansion, regional market linkages, and integrated transport connections with Creighton and Bulwer.

A prioritisation matrix should be developed to evaluate projects according to social impact, economic viability, and environmental sustainability. Funding sources will include the Municipal Infrastructure Grant (MIG), the Department of Human Settlements for housing programmes, the Department of Agriculture for agro-processing, and potential public–private partnerships.

Institutional coordination must be led by NDZ Municipality's Development Planning Directorate in collaboration with Traditional Councils, the Harry Gwala District Municipality, and COGTA. The implementation framework must adhere to the principles of SPLUMA, promoting spatial justice, sustainability, and efficient land use.







MAP 88: KILMIN LAP CONCEPTUAL FRAMEWORK

14.2.1.11. HLANGANANI

Hlanganani is identified in the NDZ nodal hierarchy as a Rural Service Node, fulfilling the essential function of providing first-level access to services for dispersed rural settlements in its catchment area. The Final Plan of Nodes (2022) highlights Hlanganani's importance in addressing historical inequities, as it serves communities located far from higher-order towns such as Underberg and Bulwer.

Yet, despite this recognition, Hlanganani continues to face severe developmental challenges. Infrastructure deficits are pronounced: water and sanitation services are unreliable and do not meet minimum standards, electricity access is incomplete, and solid waste management is absent. Road connectivity to the R617 and other strategic corridors is poor, limiting both service delivery and economic participation. Social facilities are insufficient, with clinics overstretched, schools under-resourced, and recreational spaces largely non-existent. Unemployment and poverty levels are extremely high, with most livelihoods dependent on subsistence agriculture, remittances, and government grants. The absence of a defined economic base has perpetuated dependency and entrenched spatial marginalisation.

DEVELOPMENT OPPORTUNITIES: Nevertheless, Hlanganani offers significant development opportunities if approached strategically. Its role as a Rural Service Node means it can act as a gateway for rural development, consolidating dispersed settlements and enabling service clustering. The population threshold in the surrounding traditional council areas is sufficient to support expanded education, health, and retail services. The area's agricultural potential, while largely underdeveloped, provides an opportunity for agrarian reform and food security programmes, particularly if linked to local markets in Creighton and Bulwer. From a social perspective, Hlanganani could host facilities such as a community hall, multi-purpose centre, and training facilities, reducing the need for residents to travel long distances. There is also potential to introduce youth skills development programmes linked to construction, agriculture, and small business development, addressing both unemployment and social cohesion.

SPATIAL PROPOSALS: & STRATEGIES: The spatial proposals and strategies for Hlanganani are focused on service clustering, compact settlement planning, and rural economic activation. A Rural Service Centre Precinct should be established, consolidating a clinic, schools, trading stalls, and government satellite offices within a walkable core. This would reduce service delivery costs and create a focal point for development. Bulk infrastructure upgrades in water, sanitation, and electricity are critical, supported by the upgrading of access roads to connect Hlanganani with higher-order nodes.

Agricultural development strategies should focus on small-scale irrigation, co-operatives, and extension services, supported by partnerships with the Department of Agriculture. Social development strategies include the construction of a multi-purpose community centre providing space for skills training, youth activities, and small business incubation. Spatial planning should discourage further scattered settlement allocation and instead promote infill housing within the service cluster to reduce costs and improve accessibility.

PROPOSED PROJECTS: The catalytic projects for Hlanganani include:

- Short-Term Projects: In the short term (0–5 years), the formalisation of the Rural Service Centre Precinct, the upgrading of the clinic and school facilities, and the rollout of water and sanitation infrastructure improvements.
- Medium-Term Projects: In the medium term (5–10 years), the development of a multi-purpose community centre, the establishment of agricultural co-operatives, and the upgrading of access roads should be prioritised.
- Long-Term Projects: In the long term (10–20 years), Hlanganani should consolidate as a fully functional Rural Service Node, with a

diversified economy based on agriculture, expanded social facilities, and improved connectivity to the NDZ nodal system. This trajectory will ensure that Hlanganani advances SPLUMA's principles of spatial justice and sustainability, bridging the gap between remote rural communities and municipal service networks.

14.2.1.12. SANI PASS

Sani Pass functions as the premier tourism node in NDZ, serving as both an international gateway into Lesotho and a scenic destination within the uKhahlamba Drakensberg World Heritage Site. Its challenges, however, are rooted in infrastructure and management constraints. Road access remains precarious, with steep gradients and weather-related disruptions frequently limiting accessibility.

Tourism facilities are underdeveloped, with limited visitor accommodation, signage, and interpretation centres. Environmental pressures, including soil erosion, waste dumping, and biodiversity threats, are increasing due to rising visitor numbers. Local communities in nearby Himeville and Underberg derive limited direct benefit from the tourism economy, as the sector remains dominated by external operators.

DEVELOPMENT OPPORTUNITIES: Opportunities for Sani Pass are extensive. Its global reputation as one of the world's most scenic mountain passes provides a strong marketing base for eco- and adventure tourism. The area's biodiversity and cultural heritage offer opportunities for guided tours, hiking, and conservation-based tourism. Sani Pass can also function as a trade gateway, particularly if integrated with Lesotho tourism and agricultural markets.

SPATIAL PROPOSALS: & STRATEGIES: Spatial proposals emphasise sustainable tourism infrastructure: the development of a Tourism Gateway Precinct at the base of Sani Pass with parking, markets, and information services; improved road access with environmental safeguards; and community-based tourism facilities such as homestays and craft markets. Short-term projects should prioritise signage, waste management, and the upgrade of visitor facilities. Medium-term interventions include the establishment of the gateway precinct and expanded accommodation options. Long-term strategies should focus on cross-border integration with Lesotho, positioning Sani Pass as a regional tourism hub.

14.2.1.13. BUSHMAN'S NEK

Bushman's Nek is a tourism node located near the southern boundary of NDZ, known for its scenic trails and cross-border linkages with Lesotho. Challenges include poor road access, limited formal accommodation, and inadequate marketing. Environmental management is weak, with trails suffering from erosion and overuse.

DEVELOPMENT OPPORTUNITIES: Opportunities lie in positioning Bushman's Nek as a niche eco-tourism node specialising in hiking, birding, and cross-border cultural exchanges. Its location complements Sani Pass, providing diversity within the tourism economy.

SPATIAL PROPOSALS: & STRATEGIES: Spatial proposals include upgrading trails, formalising accommodation facilities, and developing a Bushman's Nek Tourism Precinct with parking, markets, and ranger stations.

PROPOSED PROJECTS:

- Short-Term Projects: Short-term interventions should focus on trail rehabilitation and signage.
- Medium-Term Projects: Medium-term strategies should deliver community-owned lodges and eco-tourism facilities.
- Long-Term Projects: Long-term projects include integration into the Drakensberg Heritage Tourism Route, ensuring sustainability and broader economic impact.

14.2.1.14. COBHAM

Cobham, located within the buffer of the uKhahlamba Drakensberg Park, is primarily a conservation and eco-tourism node. Its challenges are linked to limited accessibility, underinvestment in visitor facilities, and fragile ecosystems threatened by uncontrolled visitor activity.

DEVELOPMENT OPPORTUNITIES: Opportunities are rooted in its pristine natural environment. Cobham can be developed as a low-impact eco-tourism node, with emphasis on conservation, guided hiking, and biodiversity education. Spatial strategies focus on strengthening Cobham's role as a conservation anchor, supported by investment in eco-friendly facilities, interpretive trails, and partnerships with SANBI and Ezemvelo KZN Wildlife.

PROPOSED PROJECTS:

- **Short-Term Projects:** Short-term priorities include trail maintenance and basic infrastructure upgrades.
- **Medium-Term Projects:** Medium-term projects should develop eco-lodges and interpretation centres.
- **Long-Term Projects:** Long-term strategies focus on consolidating Cobham as a flagship eco-tourism node, integrated with broader conservation networks.

14.3. STRATEGIC INTERVENTION #3: CORRIDOR DEVELOPMENT

The nodal hierarchy must be reinforced by a corridor development strategy that connects towns, facilitates trade, and promotes regional integration. NDZ LM is traversed by key provincial routes, including the R612, linking Ixopo–Donnybrook–Bulwer–Underberg, and the R617, connecting Pietermaritzburg–Boston–Underberg. These routes are lifelines for economic activity, tourism, and agricultural trade, but remain underdeveloped in terms of supporting infrastructure and services.

The proposed corridor strategy focuses on consolidating the R612 and R617 as economic spines. Along these corridors, secondary nodes such as Donnybrook and Bulwer will be revitalised, with new market facilities, agro-processing plants, and formalised taxi ranks to serve both local communities and through-travellers. Key intersections will be identified as mixed-use development zones, accommodating retail, warehousing, and light industry. Rural settlements adjacent to the corridors will be supported with farmer support centres, trading hubs, and improved access roads.

Short-term actions include upgrading road infrastructure, formalising public transport stops, and developing small-scale trading infrastructure along the corridors. Medium-term actions will focus on establishing agro-processing and logistics facilities, supported by partnerships with district and provincial agencies. Long-term actions envision the development of a regional logistics hub, renewable energy projects along the corridors, and integrated eco-tourism routes linking the Drakensberg World Heritage Site.

The corridor strategy will not only reduce the cost of moving goods and services but also create inclusive economic opportunities for small farmers, traders, and entrepreneurs. It will strengthen NDZ LM's integration into regional economies while supporting the PSDF's emphasis on corridor-led development and the DGDS's focus on strategic infrastructure investment.

14.3.1. HOUSING STRATEGIES AND SUSTAINABLE HUMAN SETTLEMENTS

Housing provision remains one of the most pressing challenges in NDZ LM. The Human Settlements Sector Plan identifies significant backlogs in rural and urban areas, with a particular shortage of affordable housing for low- and middle-income households. Informal settlements, insecure tenure in traditional

authority areas, and poor-quality housing stock exacerbate vulnerability and spatial inequality.

14.3.1.1. INSITU UPGRADING AND GREENFIELD DEVELOPMENT

The proposed housing strategy combines in-situ upgrading, greenfield development, and gap housing programmes to create sustainable and integrated settlements. In-situ upgrading will focus on informal settlements in and around Donnybrook, Bulwer, and Creighton, where incremental service provision and tenure regularisation will be implemented. Greenfield development will target well-located sites in primary and secondary nodes, where serviced housing projects can accommodate population growth. Gap housing and social housing will be promoted in towns such as Creighton and Underberg to provide options for working families currently excluded from state subsidies but unable to afford private housing. A critical element of the housing strategy is integration with infrastructure and services. Housing projects must be accompanied by roads, water, sanitation, schools, and clinics to ensure sustainability. Design standards should also incorporate principles of compact development, energy efficiency, and climate resilience, including rainwater harvesting and solar technologies.

Short-term priorities include finalising land audits to identify suitable sites, initiating in-situ upgrading pilots, and securing provincial housing subsidies. Medium-term actions will involve rolling out integrated housing projects in secondary nodes and promoting mixed-use developments. Long-term actions will consolidate housing programmes with sustainable settlement planning, including densification and transit-oriented development along corridors.

14.3.2. URBAN REGENERATION AND REVITALISATION OF SMALL TOWNS

The small towns of NDZ LM are critical to its economic and social fabric but are currently under pressure from poor infrastructure, informalisation, and declining business activity. Creighton, Donnybrook, Bulwer, and Underberg-Himeville each face unique challenges, but collectively they require interventions that revitalise their economies, improve urban management, and enhance public spaces.

14.3.2.1. PRECINCT-BASED REVITALISATION

The urban regeneration strategy focuses on precinct-based revitalisation, drawing from existing urban regeneration plans and the Provincial Small Town Revitalisation Programme. Interventions include upgrading public spaces, improving stormwater and sanitation systems, enhancing pedestrian networks, and providing designated trading areas for informal traders. Streetscape improvements, lighting, and public amenities will enhance safety and attract investment, while heritage and cultural assets in Underberg-Himeville and Bulwer will be leveraged for tourism development.

Short-term interventions include visible public realm improvements, clean-up campaigns, and the formalisation of trading facilities. Medium-term interventions involve implementing precinct plans in each town, with catalytic projects such as the Creighton CBD upgrade, Donnybrook transport interchange, Bulwer market precinct, and Underberg tourism gateway. Long-term interventions will consolidate revitalisation with private sector partnerships, integrated urban management systems, and sustained investment in housing and services.

14.4. BUILT ENVIRONMENT PROPOSALS INDICATIVE PROJECT MATRIX

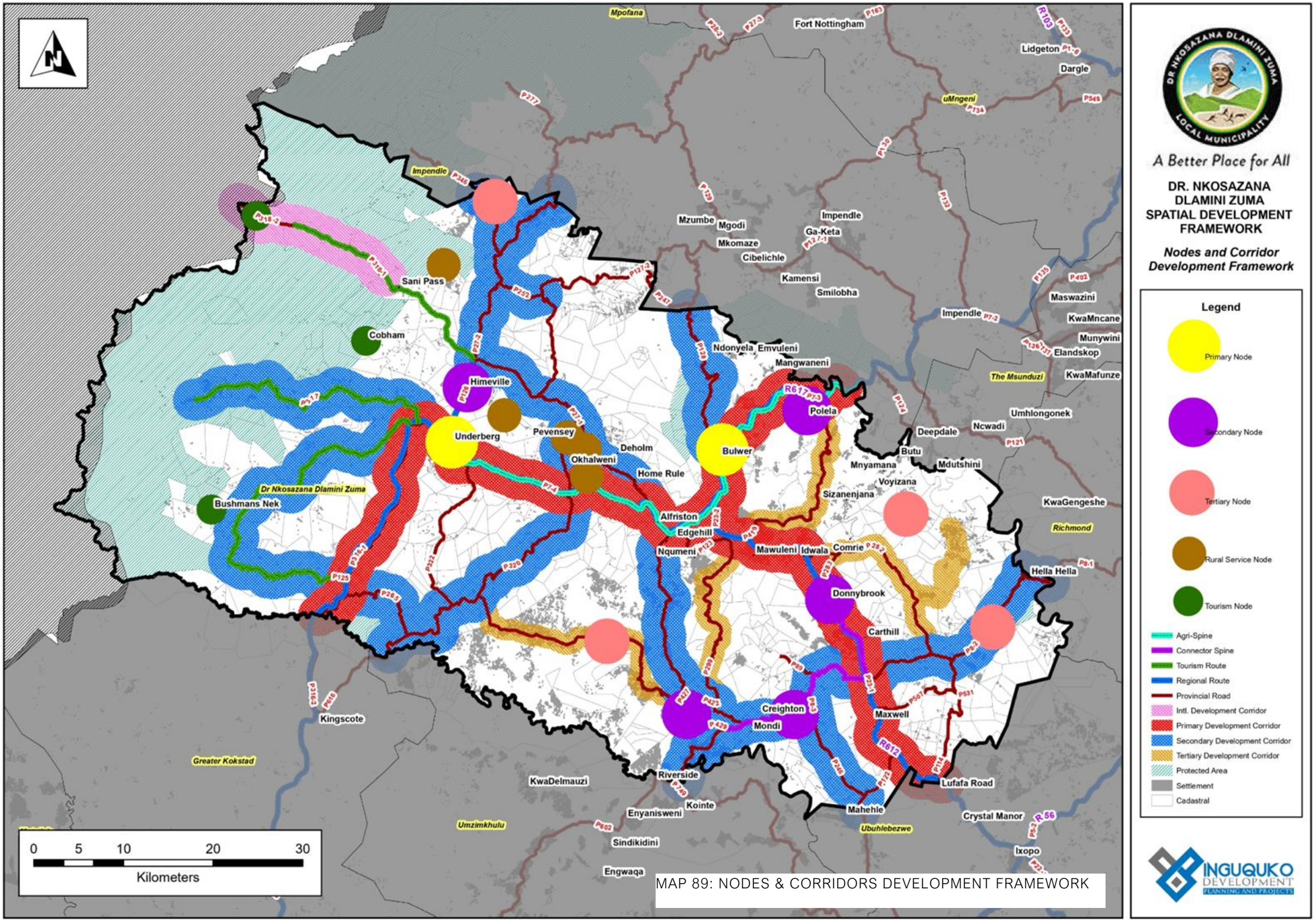
TABLE 74: BUILT ENVIRONMENT PROPOSALS INDICATIVE PROJECT MATRIX

THEME	SPATIAL PROPOSAL	INDICATIVE PROJECTS / PROGRAMMES	LEAD STAKEHOLDERS	PHASING
Settlement Hierarchy	Structuring of primary, secondary, and tertiary nodes	Upgrade secondary nodes (Donnybrook, Bulwer) with clinics, schools, and multipurpose centres; Establish multipurpose service centres in rural tertiary nodes	NDZ LM, COGTA, DHS, Traditional Councils	Short: Node upgrades; Medium: multipurpose centres; Long: service consolidation
Corridor Development	Strengthen R612 & R617 corridors	Upgrade R612 & R617 roads; Develop market facilities and taxi ranks; Establish agro-processing hubs and logistics support; Develop mixed-use precincts at intersections	DoT, NDZ LM, HGDM, EDTEA	Short: Road upgrades & taxi ranks; Medium: agro-processing & logistics; Long: integrated eco-tourism corridors
Housing Strategy	Integrated human settlements	In-situ upgrading of informal settlements; Serviced site development in primary/secondary nodes; Gap housing & social housing in Creighton & Underberg	DHS, NDZ LM, HGDM	Short: In-situ pilots; Medium: integrated housing projects; Long: compact, mixed-use settlements
Urban Regeneration	Small-town revitalisation	Public realm upgrades (streetscape, lighting, sanitation); Formalisation of informal trading facilities; Precinct upgrades in Creighton, Bulwer, Donnybrook, and Underberg-Himeville	NDZ LM, COGTA, EDTEA, Private Sector	Short: public realm & trading facilities; Medium: precinct upgrades; Long: private investment leverage

14.5. BUILT ENVIRONMENT PROPOSALS PRIORITISATION MATRIX

TABLE 75: BUILT ENVIRONMENT PROPOSALS INDICATIVE PRIORITISATION MATRIX

CRITERIA	WEIGHTING	SETTLEMENT HIERARCHY	CORRIDOR DEVELOPMENT	HOUSING STRATEGY	URBAN REGENERATION
Impact on Poverty Reduction	30%	High	Very High	Very High	High
Alignment with Policy (SPLUMA, PSDF, DGDS, IDP)	20%	High	High	High	High
Feasibility / Readiness	20%	Medium	Medium	Medium	Medium
Urgency / Settlement Pressure	15%	Medium	High	Very High	High
Potential for Partnerships	15%	Medium	High	High	Medium
Composite Priority Ranking	100%	High	Very High	Very High	High



MAP 89: NODES & CORRIDORS DEVELOPMENT FRAMEWORK

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Nodes and Corridor Development Framework

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

15. INFRASTRUCTURE PROPOSALS

This Infrastructure Strategic Interventions and Spatial Proposals Report forms Phase 4 of the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) Spatial Development Framework (SDF). Its purpose is to translate the infrastructure-related challenges and opportunities identified in the Spatial Challenges and Opportunities Report (Phase 3) into actionable strategic interventions, indicative projects, and spatial proposals. The report aims to provide a roadmap for addressing service delivery backlogs, strengthening resilience, and enabling inclusive and sustainable growth across the municipality.

Infrastructure is the foundation for achieving the National Development Plan (NDP 2030) objectives of inclusive development, as well as the KwaZulu-Natal Provincial Spatial Development Framework (PSDF, 2021 Draft) and the Harry Gwala District Growth and Development Strategy (2024). This report therefore aligns local priorities with broader district, provincial, and national frameworks, while responding to community needs expressed through the NDZ Integrated Development Plans (IDPs, 2023–2026).

15.1. OBJECTIVES

This section has four primary objectives:

- Identify strategic infrastructure interventions that directly address NDZ LM's current and future service delivery challenges.
- Develop spatial proposals that reinforce nodal development, rural service hubs, and economic corridors.
- Propose indicative projects with phased implementation (short-, medium-, long-term) aligned to realistic funding and institutional capacities.
- Introduce a prioritisation matrix to guide decision-making, resource allocation, and monitoring.

15.2. STRATEGIC INFRASTRUCTURE INTERVENTIONS

15.2.1. WATER SUPPLY & SANITATION INFRASTRUCTURE

Water and sanitation remain among the most critical development challenges in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM). The NDZ IDP (2025/26) highlights that towns such as Underberg, Bulwer, and Creighton benefit from bulk water schemes and localized reticulation networks, yet rural and traditional council areas are still underserved, with many households walking long distances to fetch water from communal standpipes, rivers, or unprotected springs.

The Harry Gwala District Municipality IDP (2023/24), which functions as the water services authority, similarly points to backlogs in scattered rural villages, where infrastructure delivery is hampered by difficult terrain and low settlement densities. The municipality also faces aging bulk infrastructure, high levels of non-revenue water due to leaks and illegal connections, and the additional stress of climate variability, which brings prolonged droughts followed by intense rainfall.

Sanitation is equally inadequate, with large sections of the population reliant on unimproved pit latrines and some still practicing open defecation. Inadequate school and clinic sanitation facilities compound the problem, leading to serious implications for public health, environmental quality, and the dignity of residents.

15.2.1.1. STRATEGIC OBJECTIVE

The strategic objective is to achieve universal, reliable, and climate-resilient access to potable water and safe sanitation services by 2035. This target is consistent with Sustainable Development Goal 6, the National Development Plan 2030, the KwaZulu-Natal PSDF (2021 Draft) emphasis on sustainable human settlements, and the Harry Gwala District vision of becoming a leading water services provider.

15.2.1.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – EXPANSION OF BULK WATER SUPPLY SYSTEMS: One of the central proposals is the expansion and upgrading of bulk water supply systems to guarantee reliable provision for the largest settlements and their hinterlands. This includes extending the Umkomaas River Bulk Water Scheme through the installation of a new treatment works near Creighton, the construction of regional reservoirs, and the development of pipelines to reach rural wards. Similarly, integration of the Umzimkhulu water system will strengthen supply to Himeville and Underberg, while additional reservoir construction at elevated points will improve storage capacity and system pressure. Alongside these bulk schemes, a rural water supply strategy must be prioritised. This involves drilling new boreholes equipped with solar-powered pumps, securing and protecting natural springs for safe community use, and laying small-diameter pipelines to provide clustered villages with reticulated supply.

STRATEGY #2 – EXPANSION OF SANITATION INFRASTRUCTURE: Sanitation interventions must also be scaled up. The rollout of ventilated improved pit latrines across rural settlements can provide an immediate and affordable improvement over unimproved pits. In water-stressed areas, dry composting toilets or other ecological sanitation options offer sustainable alternatives. Urban centres such as Underberg, Bulwer, and Donnybrook require the upgrading of sewerage systems and the installation of modular wastewater treatment plants designed for future expansion. Schools and clinics across the municipality should be prioritised for sanitation upgrades, both to reduce health risks and to improve the quality of public services. Wastewater management will require further investments, including the establishment of a wastewater treatment plant in Bulwer with modular capacity to expand as the town grows, and a compact package plant for Donnybrook in line with precinct development plans. The upgrading of older oxidation ponds across smaller nodes should also be undertaken to improve effluent quality and reduce environmental degradation.

15.2.1.3. PHASING OF IMPLEMENTATION

The phasing of interventions will ensure progressive improvements while balancing financial and institutional capacity.

SHORT-TERM IMPLEMENTATION: In the short term, defined as the next one to five years, the focus should be on borehole drilling, spring protection, pilot ecological sanitation projects in targeted rural settlements, and the rehabilitation of leaking bulk pipelines in Creighton and Underberg. Environmental approvals and design work for the Bulwer and Donnybrook wastewater plants should also be completed in this phase.

MEDIUM-TERM IMPLEMENTATION: The medium term, between five and ten years, should concentrate on expanding the Umkomaas and Umzimkhulu bulk water schemes, constructing the wastewater plants in Bulwer and Donnybrook, rolling out ventilated improved pit latrines to at least 5,000 rural households, and extending household-level reticulation in clustered settlements adjacent to bulk pipelines.

LONG-TERM IMPLEMENTATION: In the long term, defined as ten to twenty years, NDZ LM should pursue full regional water supply integration, including the establishment of new storage dams and the extension of waterborne sanitation systems to all urban and peri-urban areas. This final phase should

also see the introduction of smart water management technologies such as GIS-linked metering, leak detection systems, and real-time monitoring.

15.2.1.4. CLIMATE RESILIENCE AND SUSTAINABILITY

This intervention makes a direct contribution to climate adaptation and resilience. With increasing variability in rainfall and rising temperatures, water security is under strain. By diversifying supply sources to include surface water, groundwater, and rainwater harvesting, and by shifting to sustainable sanitation solutions, the municipality can better withstand both drought and flood conditions. Wastewater treatment upgrades will reduce contamination of rivers and aquifers, while expanded storage will mitigate seasonal shortages. Together, these measures build a water and sanitation system that is not only more equitable but also more resilient in the face of climate change.

15.2.2. ENERGY AND RENEWABLE INFRASTRUCTURE

Access to reliable and affordable energy is a key enabler of development, yet within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM), energy provision remains uneven and constrained. The municipality is almost entirely dependent on Eskom for supply, and this centralised dependence exposes communities to national-level challenges such as load shedding, rising tariffs, and aging grid infrastructure. According to the NDZ IDP (2025/26), electrification backlogs persist in both rural villages and scattered homesteads, where settlement patterns make grid connections expensive. Many households still rely on paraffin, wood, and coal for cooking and heating, which contributes to deforestation, indoor air pollution, and negative health outcomes.

In urban nodes such as Underberg, Bulwer, and Creighton, businesses face electricity supply interruptions that undermine productivity and investment confidence. Small enterprises, particularly those in agro-processing, tourism, and retail, report significant losses during outages. Public facilities such as schools, clinics, and administrative offices also struggle to deliver quality services when power is unreliable. The municipality has enormous renewable energy potential, particularly solar and small-scale hydro, but this potential is not yet harnessed in a structured manner. Furthermore, climate change adaptation strategies adopted at the district level emphasise the urgent need to transition to cleaner, more resilient energy systems.

15.2.2.1. STRATEGIC OBJECTIVE

The strategic objective is to create a diversified and resilient energy system that reduces dependence on the national grid, ensures universal household electrification by 2035, supports local economic development, and contributes to climate change mitigation through renewable energy deployment.

15.2.2.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – ACCELERATION OF ELECTRIFICATION IN RURAL AND PERI-URBAN AREAS: The first proposal is to accelerate electrification in rural and peri-urban areas. This should combine conventional grid extension with decentralised off-grid and mini-grid systems. Grid extension will target higher-density rural settlements within reach of existing lines, while solar mini-grids and standalone photovoltaic systems should be introduced in remote homesteads where grid connection is economically unfeasible. In this regard, partnerships with independent power producers and non-governmental organisations can play a significant role in mobilising finance and technical expertise.

STRATEGY #2 – DEVELOPMENT OF RENEWABLE ENEGEY GENERATION: A second intervention involves developing renewable energy generation capacity within NDZ LM. Rooftop solar installations on municipal buildings, schools, and clinics can provide reliable daytime energy while reducing municipal electricity bills. At a larger scale, the municipality can designate renewable energy zones in areas with high solar radiation, such as

the open landscapes near Donnybrook and Bulwer, and encourage private sector investment in solar farms. There is also potential for small hydroelectric projects along mountain streams in the Underberg–Himeville area, which could provide power for tourism lodges and surrounding communities.

STRATEGY #3 – RESILIENCE IN ENERGY GENERATION: Third, energy resilience must be strengthened through investments in battery storage, micro-grids, and energy-efficient technologies. Pilot projects can include equipping rural clinics with solar panels and battery systems to ensure uninterrupted power for refrigeration of vaccines and medicines. Similarly, installing energy-efficient street lighting in towns and along main corridors will improve safety while reducing municipal energy costs.

STRATEGY #4 – MUNICIPAL RENEWABLE ENEGRY TRAINING & SUPPORT: Finally, there is a need for programmes that address both energy poverty and economic empowerment. A municipal renewable energy training and support programme could help develop local skills in solar installation, maintenance, and energy-efficient construction. This would create jobs, particularly for youth, and build local capacity to sustain the transition to renewable energy.

15.2.2.3. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term, between one and five years, the municipality should focus on quick wins such as rolling out solar lighting for public spaces, piloting rooftop solar systems on municipal offices and schools, and implementing a rural household solar electrification programme for the most remote settlements. Repair and maintenance of existing grid connections should also be prioritised to reduce outages.

MEDIUM-TERM IMPLEMENTATION: In the medium term, over five to ten years, larger investments should be made in mini-grid systems for villages, solar farms near Donnybrook and Bulwer, and micro-hydro schemes in Underberg–Himeville. Public-private partnerships will be crucial at this stage to mobilise capital and expertise. Additionally, municipal bylaws can be revised to encourage private households and businesses to install rooftop solar, with mechanisms to feed excess energy back into the grid.

LONG-TERM IMPLEMENTATION: In the long term, over ten to twenty years, the municipality should aim for a fully integrated and diversified energy system where renewable energy contributes significantly to the overall mix. This includes scaling up renewable energy zones, expanding storage technologies, and ensuring that all households and economic sectors are connected to resilient energy systems. By this point, NDZ LM could establish itself as a net generator of renewable energy, contributing surplus to the district grid and supporting economic competitiveness.

15.2.2.4. CLIMATE RESILIENCE AND SUSTAINABILITY

Renewable energy interventions not only reduce greenhouse gas emissions but also improve resilience against climate-induced risks. Solar and hydro projects reduce reliance on fossil fuels and build localised energy independence, which is essential in the face of national grid instability. These interventions directly support the Harry Gwala Climate Change Strategy (2023), which highlights energy diversification as a cornerstone of adaptation and mitigation.

15.2.3. ICT AND BROADBAND ACCESS

Information and communication technology (ICT) is increasingly recognised as the backbone of modern economies and an essential component of inclusive development. In the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM), however, access to reliable ICT infrastructure is uneven and inadequate. While urban centres such as Underberg and Bulwer benefit from basic mobile and broadband connectivity, many rural settlements remain underserved, with weak mobile coverage, slow internet speeds, and limited access to digital

services. According to the NDZ IDP (2025/26), these deficiencies exacerbate social and economic exclusion, particularly in relation to education, healthcare, local business development, and governance.

The COVID-19 pandemic highlighted the importance of digital connectivity, as learners struggled to access online education platforms and small businesses were unable to pivot to e-commerce. Farmers, who form the backbone of NDZ's economy, often lack access to real-time market information, weather data, and digital financial services, putting them at a disadvantage. Public institutions such as municipal offices, clinics, and schools are also hampered by weak ICT systems, undermining service delivery efficiency and responsiveness. While the National Integrated ICT Policy White Paper (2016) and the Digital Economy Masterplan emphasise universal broadband access, NDZ LM still lags behind due to its mountainous topography, low settlement densities, and high infrastructure costs.



15.2.3.1. STRATEGIC OBJECTIVE

The strategic objective is to achieve universal access to reliable, affordable, and high-speed broadband by 2035, with a focus on bridging the rural–urban digital divide, enabling e-government services, and supporting economic competitiveness through digital transformation.

15.2.3.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – ESTABLISHMENT OF BACKBONE BROADBAND INFRASTRUCTURE: The first proposal is to establish a backbone of broadband infrastructure across the municipality. This involves extending fibre-optic networks along key corridors, such as the R617 connecting Bulwer, Underberg, and Donnybrook, and integrating with district-level digital infrastructure initiatives. By creating a strong core ICT corridor, the municipality can ensure that nodal centres and service towns have the capacity to host advanced digital services and attract investment in ICT-related industries.

STRATEGY #2 – LAST-MILE CONNECTIVITY FOR RURAL AND REMOTE AREAS: A second intervention focuses on last-mile connectivity for rural and remote communities. Public–private partnerships with mobile operators should be prioritised to expand 4G and eventually 5G coverage into traditional council areas. Where commercial viability is limited, the municipality can support the rollout of community Wi-Fi hotspots, particularly in schools, clinics, and community halls. Satellite broadband services, which are becoming more affordable, can also be piloted in sparsely populated areas where terrestrial infrastructure is impractical.

STRATEGY #3 – MAINSTREAMING ICT INFRASTRUCTURE INTO PUBLIC SERVICE DELIVERY: Third, ICT infrastructure must be mainstreamed into public service delivery. This includes digitising municipal systems such as billing, licensing, and land-use applications, which would not only improve

efficiency but also enhance transparency and accountability. Clinics should be equipped with telemedicine capabilities to extend access to healthcare specialists, while schools must be connected to e-learning platforms to supplement classroom instruction.

STRATEGY #4 – DIGITAL INCLUSION PROGRAMME: Finally, a digital inclusion programme is essential to ensure that access is matched with capability. Training programmes in digital literacy, coding, and entrepreneurship should be established in partnership with local NGOs, tertiary institutions, and private ICT firms. Special focus should be placed on empowering youth and women, who are often most excluded from digital opportunities. Such initiatives would complement infrastructure investment by building human capital that can fully harness digital technologies.

15.2.3.3. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term, spanning one to five years, NDZ LM should focus on creating community access points by installing Wi-Fi hotspots at municipal offices, schools, and clinics. Mobile coverage gaps in priority rural wards should be identified and addressed through partnerships with network operators. Pilot digital literacy programmes should be launched, targeting both learners and small business owners.

MEDIUM-TERM IMPLEMENTATION: In the medium term, defined as five to ten years, the backbone broadband corridor should be established, with fibre running along the R617 and connecting major towns to regional networks. Expansion of 4G coverage to all wards should be pursued, while pilot 5G nodes can be introduced in Underberg and Bulwer to support tourism and agro-processing sectors. Digitisation of municipal services should be completed, including e-permitting, online billing, and digital engagement platforms for citizen participation.

LONG-TERM IMPLEMENTATION: In the long term, over ten to twenty years, the municipality should aim for universal household broadband coverage, with 5G extended across the main corridors and satellite broadband covering remote settlements. By this stage, NDZ LM should have fully integrated digital systems across governance, healthcare, education, and commerce. The municipality could also position itself as a regional digital hub by promoting co-working spaces, business process outsourcing centres, and ICT-enabled tourism services.

15.2.3.4. CLIMATE RESILIENCE AND SUSTAINABILITY



ICT is not only about connectivity but also about resilience. Enhanced broadband access will enable better disaster management systems, such as early-warning alerts for floods, storms, and wildfires, which are critical in a municipality highly vulnerable to climate variability. Digital systems also reduce the need for physical travel, lowering carbon emissions while improving efficiency.

Moreover, access to real-time climate and agricultural data will support farmers in adapting to changing weather patterns and market conditions.

15.2.4. TRANSPORT AND MOBILITY INFRASTRUCTURE

Transport and mobility are central to economic competitiveness, social inclusion, and spatial integration. In the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM), however, mobility is severely constrained by inadequate road networks, limited public transport facilities, and weak intermodal connectivity. The mountainous terrain, coupled with a dispersed rural settlement pattern, makes the provision and maintenance of roads particularly challenging. The NDZ IDP (2025/26) notes that many rural access roads are gravel or earth tracks that become impassable during heavy rains, isolating communities and disrupting service delivery. Provincial and district-level reports highlight the R617 as the municipality's primary economic artery, linking Bulwer, Underberg, Himeville, and Donnybrook to Pietermaritzburg and Kokstad, yet even this route suffers from periodic congestion, surface degradation, and insufficient roadside facilities.

Public transport is dominated by minibus taxis, which operate informally without adequate infrastructure such as taxi ranks, shelters, or pedestrian safety measures. While Donnybrook and Bulwer have basic taxi ranks, most settlements rely on informal stops that lack safety, shelter, or amenities. Pedestrian infrastructure is particularly poor, with limited sidewalks or safe crossings, even in town centres. Freight movement is another critical concern. Agricultural products, especially dairy and timber, must be transported efficiently to processing plants and markets, yet poor road surfaces increase transport costs, vehicle damage, and delays. Tourism, which is a major economic driver in Underberg and Himeville, is also undermined by deteriorating access roads and insufficient signage, deterring visitors.

15.2.4.1. STRATEGIC OBJECTIVE

The strategic objective is to establish a safe, efficient, and climate-resilient transport system that connects all communities to economic opportunities, supports agricultural and tourism value chains, and integrates NDZ LM into regional and provincial mobility corridors.



15.2.4.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – UPGRADING OF MAIN ROAD NETWORK: The first major proposal is to upgrade and maintain the strategic road network. The R617 must be prioritised for consistent resurfacing, widening in critical sections, and the addition of lay-bys for freight vehicles. Secondary routes, such as the road linking Donnybrook to Creighton and the corridor connecting Underberg to the Sani Pass border post, require significant improvements to handle both freight and tourism flows. Rural access roads should be rehabilitated using labour-intensive methods where possible, providing employment while improving connectivity to schools, clinics, and markets.

STRATEGY #2 – DEVELOPMENT OF FORMAL PUBLIC TRANSPORT INFRASTRUCTURE: A second intervention is the development of formal public transport infrastructure. This includes constructing modern taxi ranks in Donnybrook, Underberg, and Himeville, equipped with shelter, ablution facilities, and trader stalls to support the informal economy. Smaller satellite ranks should be introduced in rural service nodes, complemented by pedestrian priority zones to improve safety. Non-motorised transport infrastructure, such as sidewalks, cycle lanes, and safe crossings, must be integrated into town centres, especially around schools and clinics, to protect vulnerable groups.

STRATEGY #3 – FREIGHT & LOGISTICS PLANNING: Third, freight and logistics planning must be embedded into transport infrastructure development. Designated freight routes should be formalised to protect residential areas from heavy vehicle traffic. Consolidation points or agri-logistics hubs can be developed near Donnybrook and Bulwer, allowing farmers to aggregate produce for cost-effective transport. Such hubs could also host cold storage and processing facilities, linking directly to the agro-processing sector.

STRATEGY #4 – INTEGRATION OF TOURISM & TRANSPORT PLANNING: Finally, transport planning must integrate tourism development. The upgrade of access roads to heritage and natural sites, particularly the Sani Pass, Ntsikeni Nature Reserve, and hiking trails around Underberg, is essential. Scenic routes can be branded and developed with appropriate signage, parking, and rest areas to enhance visitor experiences. Public–private partnerships with the tourism sector can support maintenance and co-investment in these projects.

15.2.4.3. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term, defined as the next one to five years, the municipality should focus on maintaining and rehabilitating priority rural access roads to reduce isolation. Immediate improvements should also be made to existing taxi ranks in Bulwer and Donnybrook, while new ranks are planned for Underberg and Himeville. Labour-intensive road maintenance programmes can be rolled out as part of Expanded Public Works Programmes (EPWP), creating jobs while addressing infrastructure backlogs.

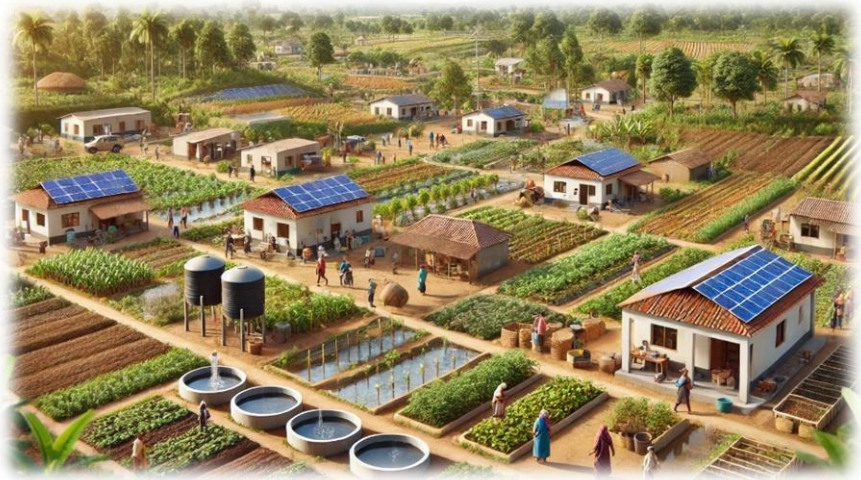
MEDIUM-TERM IMPLEMENTATION: In the medium term, spanning five to ten years, larger upgrades to the R617 and secondary corridors should be implemented, including road widening, resurfacing, and improved stormwater management. The establishment of agri-logistics hubs and satellite taxi ranks should be completed in this phase. Pedestrian infrastructure should also be mainstreamed into all town development projects, ensuring safe, walkable environments.

LONG-TERM IMPLEMENTATION: In the long term, over ten to twenty years, NDZ LM should pursue fully integrated mobility systems, including dedicated freight routes, climate-resilient bridges, and advanced public transport networks linking all major nodes. By this stage, the municipality should aim for seamless connectivity to regional hubs such as Pietermaritzburg and Kokstad, supported by an upgraded R617 and improved cross-border links at Sani Pass. Investment in tourism-related roads and scenic routes should culminate in NDZ LM becoming a premier destination with world-class accessibility.

15.2.4.4. CLIMATE RESILIENCE AND SUSTAINABILITY

Transport infrastructure in NDZ LM is highly vulnerable to climate change impacts such as flooding, landslides, and erosion. Incorporating climate resilience into design is therefore essential. Roads should be constructed with improved drainage, slope stabilisation, and climate-proof materials. Bridges must be elevated to accommodate more intense storm events, while routine maintenance should prioritise clearing culverts and stormwater channels to reduce flood damage. Promoting non-motorised transport will also reduce

emissions and enhance sustainability. Together, these measures contribute to a transport system that not only supports development but also withstands climate shocks.



15.2.5. SOLID WASTE AND CIRCULAR ECONOMY INFRASTRUCTURE

Solid waste management in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) is a persistent challenge, shaped by limited institutional capacity, inadequate infrastructure, and widespread illegal dumping. The NDZ Integrated Waste Management Plan (IWMP) and the NDZ IDP (2025/26) highlight that formal waste collection is generally confined to towns such as Underberg, Himeville, Bulwer, Creighton, and Donnybrook, while the majority of rural villages receive little or no waste services. Rural households often resort to burning or dumping waste in open spaces and rivers, which contributes to environmental degradation, groundwater contamination, and public health risks. Illegal dumping is particularly visible along main transport corridors and within urban fringes.

Existing landfill and transfer facilities are insufficient to cope with growing volumes. The Bulwer landfill is nearing capacity, while waste disposal in Underberg and Donnybrook is handled through small, unregulated sites that fail to comply with environmental legislation. Recycling initiatives are still at a pilot stage and lack adequate separation, processing, or market linkages. The Harry Gwala District and KZN Department of Economic Development, Tourism, and Environmental Affairs have called for municipalities to adopt circular economy principles, yet NDZ LM continues to operate on a predominantly linear model of waste collection and disposal. With population growth, urbanisation, and expanding tourism, the pressure on waste systems is increasing, and urgent interventions are required.

15.2.5.1. STRATEGIC OBJECTIVE

The strategic objective is to create a sustainable, inclusive, and circular solid waste management system that ensures universal service coverage, reduces environmental and health risks, promotes recycling and re-use, and contributes to green job creation by 2035.

15.2.5.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – NETWORK OF WASTE MANAGEMENT INFRASTRUCTURE: The first proposal is the development of a network of waste management infrastructure across the municipality. This includes upgrading existing landfill sites to meet compliance standards, decommissioning unsafe dumps, and constructing new regional transfer stations in Donnybrook and Creighton. These facilities should be strategically located along major transport corridors to facilitate efficient collection, reduce illegal dumping, and enable integration with recycling operations.

STRATEGY #2 – IMPLEMENT WASTE COLLECTION SERVICES INTO RURAL AREAS: A second intervention is the formalisation and expansion of waste collection services into rural areas. This could begin with the

establishment of community-based collection schemes, where cooperatives or local SMMEs are contracted to provide door-to-door or communal bin services in traditional council areas. The municipality can support these initiatives by providing waste receptacles, vehicles, and training, thereby extending service coverage while creating employment.

STRATEGY #3 – RECYCLING & CIRCULAR ECONOMY STRATEGY: Third, the municipality should implement a comprehensive recycling and circular economy strategy. This would include the introduction of waste separation at source in urban areas, the establishment of buy-back centres in Bulwer and Underberg, and partnerships with private recyclers for glass, plastics, paper, and metals. Organic waste from households, schools, and markets can be channelled into composting initiatives that support local agriculture. Timber and agricultural by-products can also be processed for energy generation or secondary products, creating local circular value chains.

STRATEGT #4 – PUBLIC AWARENESS AND EDUCATION CAMPAIGNS: Finally, public awareness and education campaigns are essential to shift community behaviour. Illegal dumping and open burning are often linked to a lack of knowledge about waste impacts. Schools, community halls, and local media should be used to promote recycling, waste minimisation, and environmental stewardship. Enforcement of waste management by-laws must complement education, ensuring that illegal dumping is penalised and that businesses comply with waste separation regulations.

15.2.5.3. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term, over one to five years, the municipality should focus on closing unsafe dumps, rehabilitating the Bulwer landfill, and introducing pilot rural collection schemes in two wards. Awareness campaigns should be rolled out concurrently, targeting schools and community organisations. Pilot recycling initiatives, such as buy-back centres in Underberg and Bulwer, can also be launched during this phase.

MEDIUM-TERM IMPLEMENTATION: In the medium term, spanning five to ten years, regional transfer stations should be established in Donnybrook and Creighton, and waste collection services expanded to all traditional council areas. Recycling operations should be scaled up, with waste separation at source introduced in all major towns, supported by municipal bylaws. Composting projects linked to agriculture and tourism enterprises can also be rolled out.

LONG-TERM IMPLEMENTATION: In the long term, over ten to twenty years, NDZ LM should aim to achieve a fully integrated circular waste economy. This includes full-service coverage across rural areas, zero tolerance for illegal dumping, universal recycling participation, and the development of secondary industries based on waste beneficiation, such as eco-bricks, bioenergy, and agro-waste processing. At this stage, the municipality could position itself as a green hub within the Harry Gwala District, attracting investment in the circular economy.

15.2.5.4. CLIMATE RESILIENCE AND SUSTAINABILITY

Effective waste management directly supports climate change mitigation and adaptation. By reducing open burning and methane emissions from landfills, the municipality will contribute to lower greenhouse gas emissions. Recycling and composting reduce pressure on natural resources and create resilience in agricultural systems. Furthermore, well-managed waste infrastructure reduces vulnerability to flooding by preventing blockages in stormwater systems, which have previously caused severe damage in NDZ settlements.

15.2.6. CLIMATE CHANGE RESILIENCE INFRASTRUCTURE

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) is highly vulnerable to climate change, with rising temperatures, erratic rainfall, flooding, wildfires, and prolonged droughts already affecting local communities. The Harry Gwala Climate Change Response Strategy (2023) and the NDZ Disaster

Management Sector Plan (2020) highlight that the municipality's mountainous terrain, dispersed settlements, and high levels of poverty make adaptation particularly urgent. Extreme weather events have already damaged infrastructure, including rural roads, bridges, water schemes, and community facilities, isolating communities and increasing service delivery costs.

In addition, the municipality's economy is heavily reliant on climate-sensitive sectors such as agriculture, tourism, and forestry. Crop failures, livestock losses, and reduced water availability are already evident in certain wards, while tourism activities in Underberg and Himeville are increasingly disrupted by floods and snow events. Social infrastructure, such as clinics and schools, is also at risk from extreme weather, while poor housing conditions in informal and traditional settlements increase exposure to disasters. The existing disaster management infrastructure, including fire stations, early warning systems, and emergency shelters, is inadequate to deal with the frequency and severity of climate-related hazards.

15.2.6.1. STRATEGIC OBJECTIVE

The strategic objective is to build a resilient municipal infrastructure base that can withstand, adapt to, and recover from the impacts of climate change, thereby protecting lives, livelihoods, and the local economy while promoting sustainable development.

15.2.6.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – STORMWATER & FLOOD MANAGEMENT SYSTEMS: The first major proposal is the upgrading of stormwater and flood management systems across towns and rural service nodes. Many settlements experience flooding due to inadequate drainage, poorly maintained culverts, and encroachment into floodplains. Investment is needed in stormwater channels, retention ponds, and wetland rehabilitation to absorb excess runoff. In high-risk areas, river embankments should be reinforced and floodplain management enforced through land use controls.

STRATEGY #2 – MULTIPURPOSE DISASTER MANAGEMENT INFRASTRUCTURE: A second intervention is the development of multi-purpose disaster management infrastructure. This includes establishing an emergency operations centre in Creighton to serve as the municipal disaster management hub, as well as decentralised community-based disaster response units in Underberg, Himeville, and Bulwer. These centres should be equipped with communication technology, emergency shelters, medical supplies, and training facilities for volunteers. In addition, existing community halls and schools can be retrofitted to serve as temporary evacuation centres during extreme events.

STRATEGY #3 – FIRE PREVENTION & FIREFIGHTING INFRASTRUCTURE: Third, NDZ LM should invest in fire prevention and firefighting infrastructure. The municipality is prone to veld and forest fires, which threaten lives, property, and timber-based industries. A dedicated fire station in Donnybrook, mobile firefighting units for rural wards, and community fire breaks should form part of this intervention. Partnerships with forestry companies and local farmers will be essential for integrated fire management.

STRATEGY #4 – CLIMATE-RESILIENT HOUSING AND SOCIAL INFRASTRUCTURE: Fourth, climate-resilient housing and social infrastructure must be promoted. This involves upgrading informal settlements and traditional housing through resilient building materials, rainwater harvesting systems, and improved insulation. Clinics and schools should be climate-proofed by installing solar panels, water storage tanks, and flood-resistant foundations. Such upgrades will protect vulnerable populations and ensure continuity of essential services.

STRATEGY #5 – IMPLEMENTATION OF EARLY WARNING AND INFORMATION SYSTEMS: Finally, early warning and information systems

must be strengthened. The municipality can deploy ICT-based platforms to disseminate weather alerts, road closures, and evacuation notices. These should be linked to the broadband expansion strategy, ensuring that even remote communities receive timely information. Integration with provincial and district-level climate data platforms will improve local preparedness.

15.2.6.3. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term, over one to five years, priority actions should include rehabilitation of stormwater systems in flood-prone towns, establishment of pilot wetland restoration projects, and retrofitting of at least five schools or community halls as evacuation centres. A mobile firefighting unit should also be procured to serve high-risk wards.

MEDIUM-TERM IMPLEMENTATION: In the medium term, spanning five to ten years, NDZ LM should complete the construction of a central emergency operations centre in Creighton, establish decentralised disaster response units, and expand fire stations and equipment in Donnybrook and Bulwer. Larger flood management projects, including river embankment reinforcement and floodplain zoning, should also be rolled out.

LONG-TERM IMPLEMENTATION: In the long term, covering ten to twenty years, the municipality should aim for a fully integrated climate resilience system. This includes universal access to early warning systems, a fully functional disaster management hub with regional linkages, and the mainstreaming of resilient building standards across all human settlements and public facilities. By this stage, NDZ LM should have the institutional and infrastructural capacity to withstand major climate shocks while continuing to grow sustainably.

15.2.6.4. CLIMATE RESILIENCE AND SUSTAINABILITY

The proposed interventions align closely with the Harry Gwala Climate Change Strategy (2023), which emphasises disaster risk reduction, resilient human settlements, and ecosystem-based adaptation. By investing in flood management, fire prevention, resilient housing, and early warning systems, NDZ LM will not only reduce vulnerability but also enhance adaptive capacity in agriculture, tourism, and social services. The integration of ecosystem restoration, such as wetlands and river buffers, further strengthens long-term sustainability by using nature-based solutions alongside hard infrastructure.

15.3. PRIORITISATION MATRIX

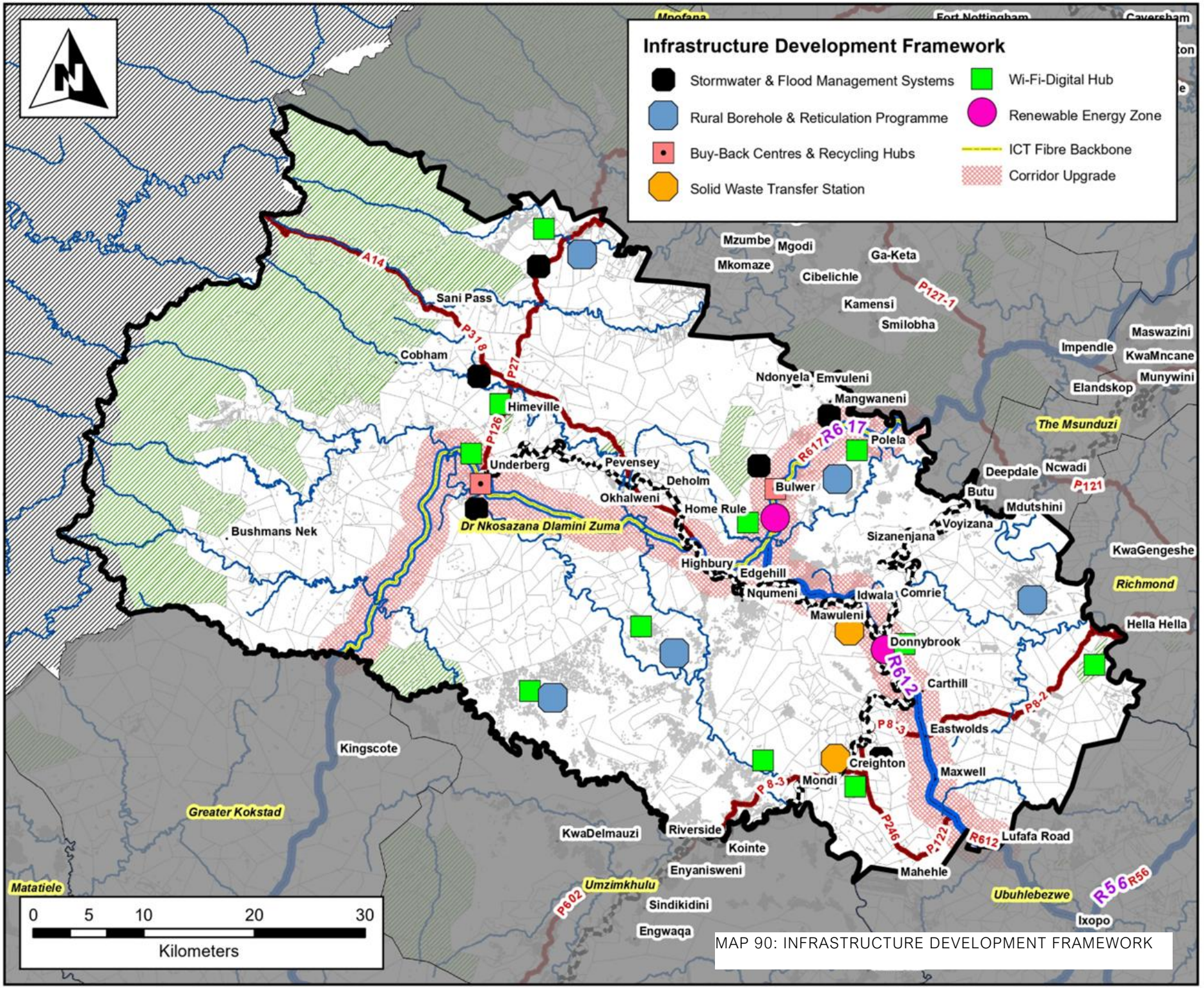
The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) faces significant infrastructure backlogs across multiple sectors, while financial and institutional resources remain limited. It is therefore essential to prioritise interventions based on urgency, developmental impact, feasibility, and alignment with strategic goals. The prioritisation matrix presented in this chapter provides a structured framework for guiding investment decisions, ensuring that projects with the greatest potential to transform spatial and socio-economic conditions are implemented first. The following criteria were applied:

- Urgency of Need – The extent to which the project addresses critical service delivery backlogs or disaster risks (Weight: 30%).
- Economic Impact – Potential to stimulate local economic growth, support key sectors (agriculture, tourism, forestry), and create jobs (Weight: 25%).
- Social Equity – Contribution to improving access for vulnerable groups, including rural households, women, and youth (Weight: 20%).
- Environmental Sustainability and Climate Resilience – Alignment with climate change adaptation and mitigation strategies, environmental compliance, and ecosystem protection (Weight: 15%).
- Funding Feasibility and Partnerships – Likelihood of securing funding from national, provincial, district, or private sector sources (Weight: 10%).

TABLE 76: INFRASTRUCTURE PROPOSALS PROJECTS PRIORITISATION MATRIX

INTERVENTION / INDICATIVE PROJECT	URGENCY OF NEED (30%)	ECONOMIC IMPACT (25%)	SOCIAL EQUITY (20%)	CLIMATE & ENVIRONMENTAL (15%)	FUNDING FEASIBILITY (10%)	WEIGHTED SCORE (100%)	PHASING
Bulk Water Augmentation (Umkomaas & Umzimkhulu Schemes)	30	25	18	12	8	93	Short Term
Rural Borehole & Reticulation Programme	28	20	20	13	7	88	Short Term
Bulwer & Donnybrook Wastewater Plants	25	23	16	12	8	84	Medium Term
Rural Sanitation Upgrade (VIP & Eco-Systems)	27	18	20	12	6	83	Short Term
Renewable Energy Zones (Bulwer/Donnybrook Solar Farms)	22	25	15	13	7	82	Medium Term
Rural Household Solar Electrification	26	20	18	13	7	84	Short Term
Agri-Logistics Hubs (Donnybrook/Bulwer)	20	25	15	10	8	78	Medium Term
Public Transport Nodes (Taxi Ranks & Pedestrian Facilities)	25	22	18	10	7	82	Short Term
R617 Corridor Upgrade	27	25	15	11	8	86	Medium Term
ICT Broadband Corridor (R617 Fibre Backbone)	23	24	17	10	9	83	Medium Term
Community Wi-Fi & Digital Hubs	26	20	18	10	7	81	Short Term
Solid Waste Transfer Stations (Donnybrook/Creighton)	24	18	17	12	8	79	Medium Term
Buy-Back Centres & Recycling Hubs (Bulwer/Underberg)	23	20	18	12	7	80	Medium Term
Stormwater & Flood Management Systems	28	20	16	14	7	85	Short Term

INTERVENTION / INDICATIVE PROJECT	URGENCY OF NEED (30%)	ECONOMIC IMPACT (25%)	SOCIAL EQUITY (20%)	CLIMATE & ENVIRONMENTAL (15%)	FUNDING FEASIBILITY (10%)	WEIGHTED SCORE (100%)	PHASING
Emergency Operations Centre (Creighton)	26	19	18	14	7	84	Medium Term
Fire Stations & Mobile Units (Donnybrook & Rural Wards)	27	20	17	13	7	84	Short Term
Wetland & Ecosystem Restoration Projects	21	15	14	15	6	71	Long Term



MAP 90: INFRASTRUCTURE DEVELOPMENT FRAMEWORK

DR NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Infrastructure Development Framework

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

16. BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT PROPOSALS

The Biophysical Strategic Interventions and Spatial Proposals section forms a core component of the Phase 4 Spatial Development Framework (SDF) for the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM). Its purpose is to translate the findings of the Biophysical Analysis in the Phase 3 Spatial Challenges and Opportunities Report into actionable proposals, indicative projects, and long-term strategies that integrate biodiversity, ecological infrastructure, and natural resource systems into the spatial development vision of the municipality.

Biophysical systems form the ecological foundation on which human settlement, infrastructure, agriculture, and economic activity rest. Their degradation directly threatens water security, food production, disaster resilience, and tourism. Conversely, their sustainable management provides opportunities for livelihoods, eco-tourism, and climate resilience. This report therefore positions environmental sustainability not as a stand-alone concern, but as a cross-cutting driver of development within NDZ LM.

16.1. OBJECTIVES

The objectives of the report are fourfold:

- To identify and expand upon strategic interventions that address the key environmental challenges highlighted in the Phase 3 Biophysical Analysis.
- To provide spatial proposals that safeguard Critical Biodiversity Areas (CBAs), hydrological systems, fertile agricultural soils, and high-value landscapes while guiding settlement expansion away from sensitive areas.
- To propose indicative projects with phased implementation (short-, medium-, and long-term) that align with conservation priorities, climate change response, and local development opportunities.
- To present a prioritisation framework that assists NDZ LM in allocating scarce resources to the most impactful biophysical interventions, balancing ecological imperatives with socio-economic needs.

16.2. STRATEGIC ENVIRONMENTAL INTERVENTIONS

16.2.1. CRITICAL BIODIVERSITY AREAS (CBAS) PROTECTION AND INTEGRATION

Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) forms part of one of the most ecologically diverse landscapes in KwaZulu-Natal, containing extensive Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) that play a vital role in sustaining ecosystem services such as water purification, soil fertility, flood regulation, and habitat provision for threatened species. Despite their ecological significance, these areas are under pressure from expanding human settlements, agriculture, forestry, and infrastructure projects. Encroachment into wetlands and riparian zones, unsustainable cultivation on steep slopes, and uncontrolled livestock grazing are accelerating biodiversity loss. The Harry Gwala District SDF and KZN Biodiversity Sector Plan both highlight NDZ LM as an area of concern, where biodiversity loss is projected to worsen without urgent interventions.

The importance of these areas extends beyond environmental value. Agriculture and tourism, which are central to the municipality's economy, depend heavily on healthy ecosystems. Natural habitats support agriculture by regulating water cycles, maintaining soil quality, and enabling pollination, while intact landscapes and wildlife underpin eco-tourism in Underberg, Himeville, and Ntsikeni. Unchecked degradation therefore threatens both ecological integrity and the municipality's economic base, while increasing vulnerability to floods, landslides, and droughts.

16.2.1.1. STRATEGIC OBJECTIVE

The strategic objective is to secure, protect, and integrate CBAs into the spatial development framework of NDZ LM, ensuring that ecological systems are safeguarded while contributing to sustainable livelihoods, eco-tourism, and climate resilience.

16.2.1.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – INCORPORATION OF CBA INTO LAND USE SCHEME AND LAND USE MANAGEMENT: A key intervention is the incorporation of CBAs into the Land Use Scheme and the municipal SDF, recognising them as no-go or highly controlled development zones in line with the KwaZulu-Natal Biodiversity Sector Plan. Development applications affecting these areas must be subjected to environmental assessments and, where unavoidable, biodiversity offsets. Alongside this, ecological corridors must be secured to maintain connectivity between CBAs, particularly in mountainous areas and along river systems. These corridors are critical for species migration and ecosystem adaptation in the face of climate change, with specific emphasis on links between Ntsikeni Nature Reserve, the Sani Pass catchments, and riparian buffers of the Umkomaas and Umzimkhulu Rivers.

STRATEGY #2 – BROADENING OF CONSERVATION COVERAGE BEYOND STATE-OWNED LAND: To broaden conservation coverage beyond state-owned land, a biodiversity stewardship programme should be developed in partnership with Ezemvelo KZN Wildlife. Through voluntary agreements, private landowners and traditional councils can commit land to conservation while receiving technical and financial incentives. Such stewardship provides a cost-effective mechanism to protect biodiversity at scale. In addition, ecosystem-based livelihoods and eco-tourism must be promoted within CBAs. This includes the establishment of birding routes, hiking trails, and community conservation areas, all of which generate income while reinforcing the social value of biodiversity. Rehabilitation measures are also necessary, with priority given to restoring wetlands, clearing alien invasive plants, and reforesting riparian zones. These activities can be implemented through Expanded Public Works Programmes (EPWP), offering employment while enhancing ecological resilience.

16.2.1.3. INDICATIVE PROJECTS

- The main projects include the Biodiversity Land Use Integration Project, which will update the NDZ Land Use Scheme with GIS-based CBA and ESA zoning
- Ecological Corridor Mapping and Protection Project to safeguard linkages between Ntsikeni, Umkomaas, and Sani Pass ecosystems.
- The establishment of at least five Community Stewardship Agreements by 2030.
- Wetland and Riparian Rehabilitation Programme focusing on alien clearing, indigenous planting, and erosion control.
- Creation of eco-tourism trails in CBAs linked to Underberg–Himeville tourism infrastructure.

16.2.1.4. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term (1–5 years), the focus will be on incorporating CBAs into the municipal Land Use Scheme, piloting wetland rehabilitation, and securing the first stewardship agreement with a traditional council.

MEDIUM-TERM IMPLEMENTATION: The medium term (5–10 years) will expand ecological corridors, extend stewardship agreements to cover at least 10 percent of municipal CBAs, and develop eco-tourism initiatives in Underberg and Donnybrook.

LONG-TERM IMPLEMENTATION: In the long term (10–20 years), the municipality should aim for a fully integrated network of CBAs and ecological

corridors, aligned with protected areas and embedded in municipal disaster management and development planning frameworks.

16.2.1.5. CLIMATE RESILIENCE AND SUSTAINABILITY

Securing CBAs is one of the most cost-effective climate adaptation strategies available to NDZ LM. Intact wetlands mitigate floods and sustain river baseflows during droughts, while forested slopes and riparian buffers stabilise soils and reduce erosion. By protecting CBAs, the municipality enhances resilience for both ecosystems and communities, reducing the long-term costs of infrastructure repair and disaster relief.

16.2.2. PROTECTED AREAS EXPANSION AND CO-MANAGEMENT

Protected areas are the cornerstone of biodiversity conservation, providing legal recognition and long-term security for ecologically important landscapes. Within Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM), the most notable protected areas include Ntsikeni Nature Reserve, a wetland of international importance, and parts of the uKhahlamba-Drakensberg Park, which forms part of a UNESCO World Heritage Site. These areas safeguard critical habitats, support endemic and threatened species, and attract eco-tourism that contributes to the local economy. However, the overall extent of protected land in NDZ LM is still limited relative to the ecological value of its landscapes.

The Phase 3 Biophysical Analysis identified several unprotected Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) that remain vulnerable to land use pressures such as agriculture, settlement expansion, and forestry. Fragmentation and encroachment around existing protected areas are reducing ecological integrity and weakening ecosystem services. Additionally, the municipality faces challenges in managing existing reserves. Resource constraints mean that law enforcement, invasive alien plant control, and infrastructure maintenance are inconsistent, undermining the effectiveness of these areas.

Traditional councils and private landowners play a significant role in the landscape, yet there are limited formal mechanisms to integrate them into protected area management. Without deliberate expansion and co-management strategies, the current network of protected areas will be insufficient to conserve NDZ LM's unique biodiversity or to sustain the ecosystem services that underpin agriculture, water security, and tourism.

16.2.2.1. STRATEGIC OBJECTIVE

The strategic objective is to expand the coverage of formally protected areas within NDZ LM and to establish co-management arrangements with traditional councils, communities, and private landowners in order to enhance conservation outcomes, diversify livelihoods, and strengthen eco-tourism.

16.2.2.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – EXPANSION OF PROTECTED AREA ESTATE: The first spatial proposal is the expansion of the protected area estate by targeting high-priority CBAs adjacent to existing reserves. Extending buffer zones around Ntsikeni Nature Reserve and the uKhahlamba-Drakensberg Park would improve ecological connectivity and resilience. Similarly, upland grasslands and wetlands identified in the KwaZulu-Natal Biodiversity Sector Plan should be prioritised for formal protection, as they are critical water source areas.

STRATEGY #2 – CO-MANAGEMENT FRAMEWORKS WITH TRADITIONAL COUNCILS & PRIVATE LANDOWNERS: A second intervention is the development of co-management frameworks with traditional councils and private landowners. Many high-value ecosystems are located on communal and privately-owned land. Through biodiversity stewardship agreements, these areas can be voluntarily set aside for conservation while

landowners benefit from technical support, eco-tourism opportunities, and access to incentives such as tax rebates or conservation-linked grants.

STRATEGY #3 – MANAGEMENT OF CAPACITY WITH EXISTING RESERVES: Third, NDZ LM should strengthen management capacity within existing reserves. This requires investment in ranger services, invasive alien plant clearing, fire management, and tourism infrastructure. Upgrades such as eco-lodges, boardwalks, and interpretive centres can increase tourism revenue while enhancing visitor experiences. Partnerships with NGOs and the private sector can help bridge resource gaps and build long-term sustainability.

STRATEGY #4 – ECO-TOURISM & COMMUNITY DEVELOPMENT INITAITIVE: Finally, the municipality should link protected area expansion with eco-tourism and community development initiatives. By integrating conservation with local livelihoods, communities will have stronger incentives to participate in and support protected area management. Examples include community-owned lodges, guided hiking trails, and cultural tourism linked to natural landscapes.

16.2.2.3. INDICATIVE PROJECTS

Key projects include

- Ntsikeni Expansion and Buffer Zone Project, which would secure surrounding wetlands and grasslands under formal protection.
- The Drakensberg Corridor Initiative, aimed at linking NDZ LM's high-altitude ecosystems with neighbouring municipalities.
- a Community Stewardship Programme targeting traditional councils in Donnybrook and Bulwer for co-managed conservation.
- Protected Area Infrastructure Upgrade Project, focusing on tourism facilities, ranger housing, and alien plant control in Ntsikeni and Underberg.

16.2.2.4. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term (1–5 years), NDZ LM should undertake detailed mapping of expansion areas, initiate pilot stewardship agreements, and implement alien plant clearing and fire management programmes within existing reserves.

MEDIUM-TERM IMPLEMENTATION: The medium term (5–10 years) should focus on formalising buffer zones, expanding Ntsikeni by at least 2,000 hectares, and launching eco-tourism facilities linked to protected areas.

LONG-TERM IMPLEMENTATION: In the long term (10–20 years), NDZ LM should aim for at least 20 percent of its municipal area under some form of protection, with fully operational co-management agreements that integrate conservation, tourism, and local livelihoods.

16.2.2.5. CLIMATE RESILIENCE AND SUSTAINABILITY

Protected areas serve as natural infrastructure for climate resilience. Wetlands within reserves regulate floods and droughts, while intact forests and grasslands sequester carbon and stabilise soils. Expanding and properly managing protected areas will therefore strengthen NDZ LM's adaptive capacity to climate change. Moreover, by embedding stewardship and co-management, conservation can coexist with human development, reducing conflicts and ensuring sustainability.

16.2.3. HYDROLOGICAL SYSTEMS AND CATCHMENT PROTECTION

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) is strategically located within the headwaters of several major river systems, including the Umkomaas, Umzimkhulu, and Mkhomazi rivers. These rivers are not only vital to the municipality but also provide downstream water to millions of people across KwaZulu-Natal. The Phase 3 Biophysical Analysis highlights that NDZ LM's wetlands, streams, and aquifers function as critical water source areas,

underpinning agriculture, forestry, human settlements, and tourism. However, these hydrological systems are increasingly threatened by land degradation, alien invasive plants, agricultural expansion into riparian zones, and poorly managed settlement growth.

Wetland encroachment and cultivation on steep slopes have reduced natural water storage capacity, increasing flood risks during heavy rains and diminishing base flows during dry seasons. Alien invasive plants such as wattle and gum trees consume large volumes of groundwater, exacerbating water scarcity. Poor sanitation infrastructure in rural areas and unregulated waste disposal further contribute to river pollution. Climate variability, including prolonged droughts followed by intense storm events, amplifies the stress on catchment systems, undermining both ecological resilience and water security.

The municipality's dependence on agriculture, particularly dairy, timber, and small-scale crop farming, makes it especially vulnerable to deteriorating water quality and quantity. Furthermore, eco-tourism in Underberg, Himeville, and Sani Pass relies on pristine rivers and wetlands, meaning that hydrological degradation poses a direct risk to tourism competitiveness. Without targeted interventions, NDZ LM faces a future of water insecurity, environmental degradation, and compromised economic potential.

16.2.3.1. STRATEGIC OBJECTIVE

The strategic objective is to safeguard and restore NDZ LM's hydrological systems by protecting wetlands, rehabilitating catchments, reducing pollution, and ensuring sustainable use of surface and groundwater resources. This will secure water supply for local communities, support agriculture and tourism, and strengthen resilience to climate change.

16.2.3.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – PROTECTION & RESTORATION OF WETLANDS & RIPARIAN ZONES: A central proposal is the protection and restoration of wetlands and riparian zones. These areas must be formally designated as high-control zones within the municipal Land Use Scheme, prohibiting cultivation, grazing, or construction within buffer areas. Rehabilitation efforts should include the removal of alien vegetation, replanting with indigenous wetland species, and the construction of small-scale retention ponds to slow runoff and enhance infiltration.

STRATEGY #2 – CATCHMENT REHABILITATION PROGRAMME: Another intervention is the catchment rehabilitation programme, targeting degraded slopes and eroded areas. Erosion control measures such as contour bunds, gabions, and re-vegetation will reduce sedimentation in rivers while improving soil fertility. This should be complemented by community training programmes in sustainable land management, particularly in wards where subsistence farming encroaches on steep terrain.

STRATEGY #3 – IMPLEMENTATION OF INTEGRARED WATER RESOURCE MANAGEMENT (IWRM): A third intervention is the implementation of Integrated Water Resource Management (IWRM) at municipal scale, aligned with the Harry Gwala District and KZN provincial water strategies. This involves monitoring groundwater extraction, promoting rainwater harvesting at household and institutional levels, and integrating water-sensitive urban design into new settlements and precinct developments.

Pollution reduction is another critical intervention. This includes upgrading sanitation facilities in rural areas to prevent faecal contamination of rivers, enforcing by-laws against illegal dumping, and introducing waste management systems in informal settlements. Schools and clinics should also be prioritised for improved sanitation to reduce direct discharge into watercourses.

STRATEGY #4 – ECOSYSTEMS-BASED TOURISM LINKED TO WATER RESOURCES: Finally, NDZ LM should promote ecosystem-based tourism linked to water resources. The Sani Pass and Underberg area already attract visitors for trout fishing, canoeing, and hiking along rivers. By enhancing conservation of hydrological systems and creating eco-tourism trails linked to wetlands and rivers, the municipality can both protect ecosystems and expand its tourism economy.

16.2.3.3. INDICATIVE PROJECTS

Key projects include:

- Wetland Rehabilitation and Alien Clearing Programme targeting the Umzimkhulu and Umkomaas headwaters.
- Riparian Buffer Restoration Project focusing on replanting indigenous vegetation and stabilising banks.
- Catchment Erosion Control Project deploying gabions, stone packing, and grass seeding in degraded slopes.
- Community Rainwater Harvesting Programme distributing tanks and training households.
- Water-Sensitive Settlement Planning Initiative incorporating stormwater harvesting and constructed wetlands in new developments.

16.2.3.4. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term (1–5 years), emphasis should be on mapping and securing wetland buffers, piloting alien plant clearing, and launching rainwater harvesting in schools and clinics. Immediate sanitation upgrades in high-risk rural areas should also be prioritised to reduce water pollution.

MEDIUM-TERM IMPLEMENTATION: In the medium term (5–10 years), large-scale catchment rehabilitation projects should be rolled out, riparian restoration expanded to all major rivers, and municipal-level IWRM systems implemented, including monitoring stations.

LONG-TERM IMPLEMENTATION: In the long term (10–20 years), NDZ LM should aim to establish fully rehabilitated and functional catchments, with wetlands serving as natural flood buffers, all major rivers under sustainable management, and community livelihoods integrated into eco-tourism and sustainable land-use practices.

16.2.3.5. CLIMATE RESILIENCE AND SUSTAINABILITY

Hydrological protection is a cornerstone of climate resilience. Healthy wetlands and catchments regulate floods, store water for dry seasons, and protect against soil erosion. By reducing reliance on grey infrastructure and investing in ecosystem-based solutions, NDZ LM will build adaptive capacity at lower cost. These interventions also support biodiversity, agriculture, and tourism simultaneously, ensuring that ecological sustainability and economic development are mutually reinforcing.

16.2.4. GEOLOGICAL AND SOIL CONSERVATION MEASURES

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) lies within a geologically diverse area characterised by sandstone formations, basaltic plateaus, and deeply weathered soils that sustain both agriculture and biodiversity. According to the Phase 3 Biophysical Analysis, much of the land is highly erodible due to steep slopes, fragile soils, and inappropriate land uses such as overgrazing, deforestation, and poorly managed cultivation. Soil erosion, gully formation, and sedimentation of rivers are widespread, reducing agricultural productivity and degrading water quality downstream.

Geological instability is also a concern, particularly in settlements located on steep slopes or within floodplains. Unregulated housing expansion, driven by population pressures and limited formal housing options, has led to

encroachment into geologically sensitive areas. These include unstable slopes, dolerite dykes prone to weathering, and riverbanks where soil compaction and cultivation have weakened natural buffers. In some cases, erosion has undermined rural roads and community infrastructure, increasing maintenance costs and isolating villages during heavy rainfall events.

The degradation of soil resources has direct socio-economic consequences. Agriculture, both subsistence and commercial, depends heavily on fertile soils. Yet, nutrient depletion and erosion are steadily reducing productivity. In addition, sediment-laden rivers clog small dams and irrigation systems, raising costs for water users. Without deliberate interventions to protect soils and manage geology-sensitive areas, NDZ LM risks a downward spiral of reduced agricultural capacity, environmental degradation, and higher vulnerability to climate-induced disasters.

16.2.4.1. STRATEGIC OBJECTIVE

The strategic objective is to conserve and rehabilitate NDZ LM's geological and soil resources by implementing sustainable land management practices, preventing erosion, and integrating geotechnical risk assessments into spatial planning.

16.2.4.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – INTEGRATION OF SOIL CONSERVATION INTO LAND USE MANAGEMENT: The first proposal is to mainstream soil conservation into land-use management. This requires the mapping of erosion-prone areas, steep slopes, and unstable geological formations, and incorporating them into the Land Use Scheme as restricted development zones. Guidelines should specify where agriculture must be limited, where grazing intensity must be reduced, and where construction requires geotechnical approval.

STRATEGY #2 – IMPLEMENTATION OF COMMUNITY-BASED SOIL REHABILITATION PROGRAMMES: The second intervention is the implementation of community-based soil rehabilitation programmes. This includes contour ploughing, cover cropping, agroforestry, and rotational grazing to stabilise soils and restore fertility. Such measures can be implemented in partnership with local farmers, cooperatives, and traditional councils. Rehabilitation of eroded gullies using gabions, stone packing, and indigenous re-vegetation must also be prioritised, especially in high-risk wards where gully expansion threatens settlements and infrastructure.

STRATEGY #3 – INTEGRATION OF GEOTECHNICAL RISK INTO SETTLEMENT PLANNING: A third intervention is the integration of geotechnical risk into settlement planning. Housing developments should avoid unstable slopes, floodplains, and dolerite dykes where soil stability is compromised. The NDZ SDF and Human Settlements Sector Plan should clearly demarcate "no-build" areas based on geological risk. Where settlements already exist in high-risk areas, engineering solutions such as slope stabilisation, retaining walls, and improved drainage should be introduced.

STRATEGY #4 – PROMOTION OF CONSERVATION AGRICULTURE: Another proposal is the promotion of conservation agriculture. By combining minimum tillage, mulching, crop rotation, and organic fertilisation, conservation agriculture enhances soil fertility while reducing erosion. Pilot projects can be launched in partnership with the Department of Agriculture and NGOs to demonstrate cost-effective techniques to small-scale farmers.

STRATEGY #5 – AWARENESS AND TRAINING PROGRAMMES: Finally, awareness and training programmes are crucial. Many soil and geological risks stem from a lack of knowledge about appropriate land-use practices. Farmer field schools, community workshops, and training for municipal officials in geotechnical risk management should be institutionalised.

16.2.4.3. INDICATIVE PROJECTS

Key projects include:

- Soil and Erosion Mapping Project, which will produce GIS-based maps of erosion-prone and geotechnically sensitive areas.
- Gully Rehabilitation Programme focusing on high-risk wards.
- Conservation Agriculture Demonstration Project with pilot sites in Donnybrook and Bulwer.
- Settlement Risk Assessment Initiative that integrates geotechnical analysis into land allocation
- Community Soil Awareness Campaign targeting farmers, schools, and ward committees.

16.2.4.4. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term (1–5 years), NDZ LM should complete mapping of erosion-prone areas, pilot gully rehabilitation in at least two wards, and initiate conservation agriculture demonstrations. Basic training for farmers and municipal officials should also be rolled out.

MEDIUM-TERM IMPLEMENTATION: In the medium term (5–10 years), community-based rehabilitation should be scaled up, with at least 500 hectares under conservation agriculture and multiple gullies stabilised. Settlement planning frameworks should fully integrate geotechnical risk maps, preventing new development in unstable areas.

LONG-TERM IMPLEMENTATION: In the long term (10–20 years), NDZ LM should achieve significant reductions in soil erosion, with rehabilitated catchments, institutionalised conservation farming practices, and fully climate-proofed settlement planning based on geological risk assessments.

16.2.4.5. CLIMATE RESILIENCE AND SUSTAINABILITY

Soil and geological conservation are central to climate resilience. Healthy soils absorb rainfall, reduce runoff, and act as buffers during droughts. By preventing erosion and stabilising slopes, the municipality reduces vulnerability to floods and landslides, which are projected to become more frequent with climate change. Conservation agriculture also increases carbon sequestration, contributing to climate mitigation. By linking soil health with food security and settlement safety, NDZ LM ensures that geological and soil conservation is both an environmental and socio-economic imperative.

16.2.5. VEGETATION BIOME AND CONSERVATION STATUS INTERVENTIONS

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) lies within a mosaic of vegetation types that include Montane Grasslands, Indigenous Forests, and Wetland Ecosystems, each contributing to biodiversity richness and ecological functionality. The Phase 3 Biophysical Analysis highlights that these vegetation types are under increasing pressure from agriculture, afforestation, invasive alien plants, settlement expansion, and unsustainable harvesting. Grasslands, which dominate much of the municipal area, are being steadily converted to croplands or degraded through overgrazing, reducing their ecological integrity and diminishing their role as carbon sinks. Indigenous forests, while relatively limited in extent, host unique species assemblages and provide ecosystem services such as water regulation, yet they are threatened by fuelwood collection, invasive alien species, and clearance for agriculture. Wetlands, often embedded within grassland systems, are critically endangered due to cultivation, drainage, and erosion.

The conservation status of NDZ LM's vegetation is of national and provincial concern. According to the KZN Biodiversity Sector Plan, many grassland and wetland ecosystems within the municipality are classified as endangered or vulnerable. Loss of these systems not only threatens biodiversity but also

undermines agriculture, water security, and tourism potential. Furthermore, climate change is expected to alter the distribution and resilience of vegetation types, with grasslands shifting upslope and wetlands becoming more vulnerable to drying and invasive encroachment. Unless proactive measures are taken, NDZ LM risks the permanent loss of key ecosystems and the services they provide.

16.2.5.1. STRATEGIC OBJECTIVE

The strategic objective is to conserve and restore NDZ LM's diverse vegetation biomes, particularly grasslands, wetlands, and indigenous forests, while integrating conservation into agricultural and settlement planning to sustain biodiversity, ecosystem services, and economic opportunities.

16.2.5.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – MAPPING & ZONING OF VEGETATION PRIORITY AREAS: The first proposal is the mapping and zoning of vegetation priority areas. Grassland ecosystems identified as endangered should be designated as high-control areas within the Land Use Scheme, restricting ploughing and overgrazing. Indigenous forests should be zoned as conservation areas, with strict limits on harvesting and clearance. Wetlands should be mapped with buffers of at least 30 metres, with land-use restrictions to prevent encroachment.

STRATEGY #2 – IMPLEMENTATION OF ECOLOGICAL RESTORATION PROGRAMMES: A second intervention is the implementation of ecological restoration programmes. Grassland rehabilitation should focus on reseeding degraded pastures, controlling invasive alien species, and promoting rotational grazing systems. Forest restoration should prioritise replanting of indigenous species, removal of alien invaders such as wattle and gum, and regulation of fuelwood harvesting. Wetland rehabilitation must include blocking drainage channels, re-vegetation with indigenous sedges and grasses, and erosion control to restore natural hydrology.

STRATEGY #3 – PROMOTION OF SUSTAINABLE USE OF VEGETATION RESOURCES: Third, NDZ LM should promote sustainable use of vegetation resources through community-based initiatives. Traditional councils can be supported to establish woodlots for fuelwood supply, reducing pressure on indigenous forests. Medicinal plant harvesting can be formalised through cooperatives that ensure sustainable use and equitable benefit-sharing. Agroforestry systems, integrating trees with crop and livestock farming, should also be piloted to diversify incomes while conserving vegetation cover.

STRATEGY #4 – INTEGRATION OF VEGETATION CONSERCATION INTO TOURISM DEVELOPMENT: Another intervention is the integration of vegetation conservation into tourism development. Eco-tourism routes should highlight grassland wildflowers, birding in wetlands, and forest hiking trails. By positioning natural vegetation as a tourism asset, NDZ LM can incentivise conservation while strengthening its tourism economy in areas such as Underberg, Himeville, and Ntsikeni.

STRATEGY #5 – CLIMATE CHANGE MITIGATION AND ADATPION: Finally, vegetation conservation must be linked to climate change mitigation and adaptation. Grasslands and forests are major carbon sinks, and their conservation contributes to national commitments under the Paris Agreement. Restoration of wetlands enhances resilience to floods and droughts. By aligning vegetation interventions with the Harry Gwala Climate Change Response Strategy (2023), NDZ LM can secure co-benefits in climate finance and resilience building.

16.2.5.3. INDICATIVE PROJECTS

Indicative projects include:

- Vegetation Mapping and Zoning Project to integrate endangered ecosystems into the Land Use Scheme.
- Grassland Rehabilitation Programme covering at least 1,000 hectares over ten years
- Forest Restoration and Alien Clearing Initiative targeting priority forest patches
- Community Woodlot and Medicinal Plant Project supporting sustainable harvesting
- Vegetation-Based Tourism Development Project creating eco-trails, interpretive centres, and tourism products around natural vegetation sites.

16.2.5.4. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term (1–5 years), NDZ LM should complete vegetation mapping and zoning, initiate pilot rehabilitation projects in grasslands and wetlands, and establish the first community woodlots.

MEDIUM-TERM IMPLEMENTATION: In the medium term (5–10 years), large-scale restoration should be implemented, with alien clearing expanded to major forest patches, rotational grazing systems introduced in partnership with farmers, and vegetation-based tourism routes launched.

LONG-TERM IMPLEMENTATION: In the long term (10–20 years), NDZ LM should aim to achieve measurable improvements in the conservation status of endangered ecosystems, with grasslands, wetlands, and forests fully integrated into municipal planning, community-based conservation systems institutionalised, and eco-tourism generating sustainable income streams.

16.2.5.5. CLIMATE RESILIENCE AND SUSTAINABILITY

Vegetation conservation strengthens climate resilience by stabilising soils, enhancing water regulation, and providing carbon storage. Restored grasslands reduce runoff and erosion, forests protect river catchments, and wetlands buffer against floods and droughts. By securing vegetation biomes, NDZ LM builds resilience not only for ecosystems but also for human communities dependent on agriculture, tourism, and natural resources.

16.2.6. CLIMATE CHANGE ADAPTATION AND ECOSYSTEM-BASED INFRASTRUCTURE

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) is increasingly vulnerable to the impacts of climate change, which manifest in the form of prolonged droughts, flash floods, heatwaves, wildfires, and snow events. The Phase 3 Biophysical Analysis together with the Harry Gwala District Climate Change Response Strategy (2023) highlights that NDZ LM's mountainous terrain, reliance on agriculture and forestry, and widespread poverty make it especially sensitive to climate shocks. Extreme weather events have already damaged roads, water schemes, and housing, while crop losses and livestock deaths are increasingly reported by farmers.

The municipality also faces growing challenges with settlement exposure. Many rural households are located on steep slopes, in floodplains, or in areas prone to wildfires. Poor housing conditions further exacerbate vulnerability, as traditional structures are less resistant to storms, fires, and cold snaps. Public facilities such as schools and clinics are often under-prepared, with inadequate energy systems, poor drainage, and limited capacity to serve as emergency shelters. The cumulative effect is a municipality where climate impacts threaten not only environmental systems but also livelihoods, infrastructure, and human safety.

16.2.6.1. STRATEGIC OBJECTIVE

The strategic objective is to build climate-resilient communities and ecosystems in NDZ LM through ecosystem-based adaptation (EbA), climate-proofing of infrastructure, and the integration of climate risk reduction into spatial planning and service delivery.

16.2.6.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – PROMOTION OF ECOSYSTEM-BASED ADAPTION: The first proposal is the mainstreaming of ecosystem-based adaptation. This involves using natural systems—such as wetlands, forests, and grasslands—to buffer communities from climate impacts. Wetland restoration can regulate floods and maintain water supplies during droughts, while reforestation and grassland rehabilitation can stabilise soils and reduce erosion. EbA should be explicitly integrated into municipal planning frameworks, ensuring that ecological infrastructure complements grey infrastructure in settlement and infrastructure planning.

STRATEGY #2 – CLIMATE-PROOFING OF SETTLEMENTS & PUBLIC FACILITIES: A second intervention is the climate-proofing of settlements and public facilities. This includes upgrading housing in vulnerable areas with resilient materials, raising foundations above flood levels, and promoting the use of renewable energy systems such as solar panels. Schools and clinics should be fitted with rainwater harvesting tanks, solar energy systems, and improved drainage so they can function as both service centres and emergency shelters during extreme events. Municipal roads and bridges must also be designed to withstand flooding and landslides, with improved stormwater channels and slope stabilisation in risk-prone areas.

STRATEGY #3 – STRENGTHENING OF DISASTER RISK REDUCTION INFRASTRUCTURE: Third, NDZ LM must strengthen its disaster risk reduction infrastructure. A central emergency operations centre should be developed in Creighton, supported by decentralised disaster response units in Underberg, Bulwer, and Donnybrook. These should be equipped with early warning systems, communications equipment, and shelters capable of accommodating displaced households. Fire management infrastructure is also essential, including a fire station in Donnybrook, mobile firefighting units for rural wards, and community-based fire breaks established in partnership with forestry companies and farmers.

STRATEGY #4 – PRMOTION OF CLIMATE-SMART AGRICULTURE: Another critical intervention is the promotion of climate-smart agriculture. Farmers should be supported to adopt drought-resistant crops, water-efficient irrigation, and conservation agriculture practices that improve soil moisture retention. Agroforestry and mixed farming systems should be introduced to diversify income and reduce vulnerability. Access to climate information, including seasonal forecasts and early warning alerts, should be mainstreamed into agricultural extension services.

STRATEGY #5 – ESTABLISHMENT OF CLIMATE MONITORING & LEARNING PLATFORM: Finally, the municipality should establish a climate change monitoring and learning platform. This would use ICT systems to track rainfall, temperature, and extreme weather events, while also recording impacts on agriculture, infrastructure, and human settlements. Such a platform, linked to district and provincial databases, will improve preparedness and allow for adaptive planning.

16.2.6.3. INDICATIVE PROJECTS

Key projects include:

- Ecosystem-Based Adaptation Programme focused on wetland and grassland restoration
- Climate-Proof Housing Pilot in vulnerable rural settlements

- Resilient Public Facilities Upgrade Project targeting schools and clinics with solar and rainwater systems
- Municipal Disaster Management Infrastructure Programme establishing an emergency centre and fire stations
- Climate-Smart Agriculture Demonstration Project with pilot farms showcasing drought-resistant crops and efficient irrigation.

16.2.6.4. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term (1–5 years), NDZ LM should initiate wetland restoration pilots, retrofit selected schools and clinics with solar and water systems, and establish a mobile firefighting unit. Early warning systems should also be rolled out in collaboration with the South African Weather Service.

MEDIUM-TERM IMPLEMENTATION: In the medium term (5–10 years), the emergency operations centre in Creighton should be completed, multiple settlements upgraded with resilient housing materials, and climate-smart agriculture scaled up through farmer training.

LONG-TERM IMPLEMENTATION: In the long term (10–20 years), NDZ LM should achieve a fully integrated system of EbA and climate-resilient infrastructure, with functional disaster centres, climate-proofed settlements, and widespread adoption of sustainable farming practices.

16.2.6.5. CLIMATE RESILIENCE AND SUSTAINABILITY

By combining ecosystem restoration with resilient infrastructure, NDZ LM can create a cost-effective adaptation system. Wetlands and forests reduce disaster risks while providing ecosystem services, while resilient housing and public facilities safeguard human wellbeing. Climate-smart agriculture ensures food security and economic stability, while ICT-based monitoring enhances preparedness. These interventions not only protect against climate shocks but also contribute to sustainable development pathways, aligning with the Harry Gwala Climate Change Response Strategy (2023) and the Sustainable Development Goals.

16.2.7. AGRICULTURAL LAND PROTECTION AND ECO-AGRICULTURE MODELS

Agriculture is the backbone of the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM), supporting livelihoods, providing food security, and forming a key pillar of the local economy. The Phase 3 Biophysical Analysis highlights that the municipality possesses fertile soils, particularly in the Donnybrook, Creighton, and Underberg–Himeville areas, which are highly suitable for dairy, timber, vegetables, and mixed crop production. These fertile lands are strategically important not only to NDZ LM but also to the wider Harry Gwala District, which relies on agricultural output for economic growth and employment.

Despite this importance, agricultural land is under increasing threat from a range of pressures. Unplanned settlement expansion, often into high-potential agricultural zones, is steadily reducing the land available for farming. Soil degradation from overgrazing, unsustainable cultivation practices, and erosion further undermines long-term productivity. The spread of timber plantations into unsuitable areas has also altered hydrological systems, reducing water availability for crops. Climate variability, including droughts and erratic rainfall, is exacerbating these pressures, placing both small-scale and commercial farmers at risk. Without targeted land protection and sustainable practices, NDZ LM risks losing one of its most important comparative advantages.

16.2.7.1. STRATEGIC OBJECTIVE

The strategic objective is to protect high-potential agricultural land from incompatible land uses while promoting eco-agriculture models that enhance productivity, restore soil fertility, and build resilience to climate change.

16.2.7.2. STRATEGIC SPATIAL PROPOSALS AND INTERVENTIONS

STRATEGY #1 – IDENTIFICATION & PROTECTION OF HIGH-VALUE AGRICULTURAL ZONES: The first proposal is the identification and protection of high-value agricultural zones. The NDZ SDF and Land Use Scheme must explicitly designate fertile agricultural land as priority agricultural areas where settlement expansion, mining, and industrial uses are restricted. This requires integration with cadastral data, soil and land capability assessments, and alignment with the Harry Gwala District Agricultural Development Framework.

STRATEGY #2 – PROMOTION OF ECO-AGRICULTURE MODELS: A second intervention is the promotion of eco-agriculture models that combine modern productivity techniques with environmental sustainability. Conservation agriculture, incorporating practices such as minimum tillage, crop rotation, mulching, and organic fertilisation, should be encouraged to restore soil fertility. Agroforestry systems, where trees are integrated with crops or livestock, can provide multiple benefits, including shade, erosion control, and diversified income. Integrated pest management and organic farming techniques should also be promoted, particularly for smallholder farmers supplying local markets.

STRATEGY #3 – INVESTMENT INTO IRRIGATION & WATER-EFFICIENT AGRICULTURE: Third, the municipality should invest in irrigation and water-efficient agriculture. With rainfall variability increasing, rainwater harvesting, small farm dams, and drip irrigation systems must be introduced to ensure reliable production. These systems should be prioritised in dairy and vegetable production zones, where water demand is highest. Training programmes should also be implemented to build farmer capacity in water-efficient farming.

STRATEGY #4 – DEVELOPMENT OF THE VALUE CHAINS & AGRI-PROCESSING FACILITIES: Another critical intervention is the development of value chains and agro-processing facilities. Protecting land is insufficient if farmers cannot derive economic value from their produce. NDZ LM must therefore link agricultural land protection to the establishment of dairy processing plants, vegetable packhouses, and timber value-addition facilities. This will not only increase local incomes but also reduce post-harvest losses and create jobs.

STRATEGY #5 – COMMUNITY & TRADITIONAL COUNCIL PARTNERSHIPS: Finally, land stewardship must be promoted through community and traditional council partnerships. Many high-potential agricultural areas fall under communal tenure. Stewardship agreements can ensure that land remains dedicated to farming while introducing eco-agriculture models. Cooperatives should be supported with access to finance, inputs, and extension services to ensure sustainability.

16.2.7.3. INDICATIVE PROJECTS

Key projects include:

- Agricultural Land Zoning and Protection Project, integrating land capability maps into the Land Use Scheme
- Conservation Agriculture Expansion Programme providing training and support to smallholder farmers
- Agroforestry Demonstration Project piloting tree-crop-livestock systems in three wards
- Water-Efficient Agriculture Project installing drip irrigation and rainwater harvesting systems
- Agro-Processing and Market Linkages Initiative developing dairy and vegetable processing facilities and connecting farmers to district and provincial markets.

16.2.7.4. PHASING OF IMPLEMENTATION

SHORT-TERM IMPLEMENTATION: In the short term (1–5 years), NDZ LM should complete land capability mapping, designate agricultural protection zones, and launch pilot conservation agriculture and agroforestry projects. Initial investments in rainwater harvesting and small-scale agro-processing facilities should also be made.

MEDIUM-TERM IMPLEMENTATION: In the medium term (5–10 years), agricultural land protection must be fully integrated into the SDF and Land Use Scheme, with conservation agriculture scaled up across 1,000 hectares and water-efficient irrigation introduced in key production zones. Agro-processing hubs should also be established by this phase, linked to value chains in dairy and horticulture.

LONG-TERM IMPLEMENTATION: In the long term (10–20 years), NDZ LM should achieve a resilient agricultural sector characterised by protected fertile soils, widespread adoption of eco-agriculture, and robust value chains that sustain jobs and incomes across the municipality.

16.2.7.5. CLIMATE RESILIENCE AND SUSTAINABILITY

Eco-agriculture contributes directly to climate resilience. Conservation agriculture reduces soil erosion, increases water retention, and enhances yields under variable rainfall. Agroforestry sequesters carbon while protecting soils and diversifying farmer incomes. Efficient irrigation systems reduce vulnerability to droughts. By aligning agricultural land protection with climate-smart practices, NDZ LM ensures that farming remains viable under changing climatic conditions while also contributing to national sustainability targets.

16.2.8. PRIORITISATION MATRIX

The Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) faces multiple, overlapping environmental challenges that demand careful sequencing of interventions. Limited financial resources and institutional capacity make it essential to prioritise those projects that deliver the greatest ecological, social, and economic returns. The prioritisation matrix presented in this chapter provides a structured decision-making framework, ensuring that projects addressing urgent ecological risks and supporting community resilience are implemented first, while longer-term ecosystem restoration projects are phased in gradually.

This approach is aligned with the KwaZulu-Natal Biodiversity Sector Plan (2016), the Harry Gwala District Climate Change Response Strategy (2023), and the KZN PSDF (2021 Draft), which all emphasise the integration of ecological infrastructure into spatial planning and service delivery.

16.2.8.1. METHODOLOGY

The prioritisation matrix applies a **multi-criteria assessment model**. Each project is assessed against a set of weighted criteria reflecting municipal and provincial priorities:

- **Ecological Urgency (30%)** – The degree to which the project addresses critically endangered ecosystems, threatened species, or irreversible environmental damage.
- **Socio-Economic Co-Benefits (25%)** – The extent to which the project supports livelihoods, tourism, agriculture, or community development.
- **Resilience Value (20%)** – The contribution of the project to climate adaptation, disaster risk reduction, and long-term ecological security.
- **Feasibility and Partnerships (15%)** – The practicality of implementation, including institutional readiness and potential for partnerships.
- **Alignment with Strategic Plans (10%)** – The project's consistency with district, provincial, and national strategies.

Scores are weighted to provide a total out of 100, which determines phasing:

- **Short Term (1–5 years):** High urgency, high feasibility.
- **Medium Term (5–10 years):** Important but requiring more resources or coordination.
- **Long Term (10–20 years):** Strategic but less urgent, often requiring gradual phasing.

16.2.8.2. BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT PROJECTS PRIORITISATION MATRIX

TABLE 77: BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT PROJECTIONS PRIORITISATION MATRIX

INTERVENTION / INDICATIVE PROJECT	ECOLOGICAL URGENCY (30%)	SOCIO-ECONOMIC CO-BENEFITS (25%)	RESILIENCE VALUE (20%)	FEASIBILITY & PARTNERSHIPS (15%)	ALIGNMENT (10%)	WEIGHTED SCORE (100%)	PHASING
CBAs Integration into Land Use Scheme & Corridors	30	20	20	12	10	**92**	Short Term
Wetland & Riparian Rehabilitation Programme	28	20	19	12	9	**88**	Short Term
Community Stewardship Agreements (CBA/ESA)	27	19	18	13	9	**86**	Short Term
Protected Area Expansion (Ntsikeni, Sani Pass)	28	22	18	10	9	**87**	Medium Term
Co-Management Pilot with Traditional Councils	25	23	17	12	9	**86**	Medium Term

INTERVENTION / INDICATIVE PROJECT	ECOLOGICAL URGENCY (30%)	SOCIO-ECONOMIC CO-BENEFITS (25%)	RESILIENCE VALUE (20%)	FEASIBILITY & PARTNERSHIPS (15%)	ALIGNMENT (10%)	WEIGHTED SCORE (100%)	PHASING
Catchment Rehabilitation & Erosion Control	27	21	20	12	8	**88**	Short Term
Community Rainwater Harvesting Programme	24	22	18	13	9	**86**	Short Term
Soil & Erosion Mapping & Risk Zoning	26	18	17	13	8	**82**	Short Term
Gully Rehabilitation Programme	25	19	18	12	8	**82**	Medium Term
Vegetation Rehabilitation (Grasslands & Forests)	26	21	19	11	9	**86**	Medium Term
Community Woodlots & Medicinal Plant Projects	22	20	15	12	9	**78**	Medium Term
Ecosystem-Based Adaptation (Wetlands, Forests)	28	21	20	12	9	**90**	Short Term
Resilient Housing & Public Facility Upgrades	25	23	19	11	9	**87**	Medium Term
Emergency Operations Centre & Fire Units	24	22	20	12	9	**87**	Medium Term
Climate-Smart Agriculture Demonstration Projects	25	24	18	12	9	**88**	Medium Term
Agro-Processing & Value Chain Development	22	25	16	11	9	**83**	Medium Term
Agricultural Land Protection Zoning	27	23	17	12	10	**89**	Short Term
Eco-Agriculture & Conservation Agriculture Models	26	22	19	12	9	**88**	Medium Term

16.3. WORLD HERITAGE SITE DEVELOPMENT INTERVENTIONS

The Drakensberg Park / Okhahlamba World Heritage Site (WHS) forms a critical environmental, economic and cultural anchor for the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). As the primary interface between the municipality and the southern Maloti-Drakensberg Transboundary World Heritage Site, the region represents an area of exceptional natural heritage value, significant biodiversity, high tourism potential and fragile ecological systems that are increasingly vulnerable to climate risks. The interface functions not only as an international tourism gateway—particularly via Underberg, Himeville and the Sani Pass Corridor—but also as a livelihood zone for rural communities dependent on agriculture, informal enterprises and tourism-adjacent opportunities. Yet, despite its potential, the region faces mounting pressures as a result of uncoordinated land use changes, infrastructure deficits, settlement expansion into sensitive environmental areas, climate-induced hazards such as extreme rainfall and snow events, and institutional fragmentation across local, district, provincial and national authorities.

This report presents a comprehensive set of spatial development strategies and implementation interventions aligned with the NDZ SDF (2021/22), NDZ Draft IDP 2025/26, precinct plans (Underberg–Himeville 2025, Bulwer URP, Kilmun LAP), the Harry Gwala District Climate Change Response Strategy, the KZN PSDF (2021), UNESCO WHS directives, and national legislative frameworks including SPLUMA and NEMA. The strategies span tourism development, environmental management and climate resilience, rural livelihoods and agrarian support, infrastructure and accessibility planning, as well as governance and institutional coordination. A detailed project matrix, phasing schedule and prioritisation framework accompany the report to guide implementable, evidence-based and financially feasible development actions. Collectively, the interventions aim to safeguard the Outstanding Universal Value (OUV) of the WHS while leveraging its economic potential for inclusive development, ensuring the environmental integrity and climate resilience of the interface, and strengthening NDZ's role as the principal gateway to the southern Drakensberg World Heritage landscape.

16.3.1. CONTEXTUAL OVERVIEW

16.3.1.1. THE ROLE OF THE WHS IN NDZ

The Drakensberg Park / Okhahlamba WHS is central to the spatial identity and development potential of NDZ LM, functioning as both a conservation asset of global significance and a catalyst for regional tourism and economic activity. The interface area includes the Underberg–Himeville node, the Sani Pass route, extensive rural settlements, and agricultural landscapes that collectively form the eastern foothills of the Maloti-Drakensberg. The WHS hosts critical biodiversity, high-altitude wetlands, endemic flora and fauna, and cultural heritage sites featuring San rock art. For NDZ, this area represents an economic lifeline: it attracts domestic and international tourists, anchors nature-based recreation industries, and supports a wide range of hospitality and adventure tourism enterprises. Simultaneously, it provides ecosystem services such as water regulation, carbon sequestration and climate buffering for both local and regional scales. The municipality's responsibility lies in balancing economic opportunity with stringent protection of ecological assets.

16.3.1.2. ECOLOGICAL SENSITIVITY

The ecological sensitivity of the region stems from its steep mountain slopes, pristine grasslands, river headwaters, wetlands, and climate-sensitive high-altitude environments. These areas serve as crucial hydrological systems feeding the uMkhomazi and Mzimkhulu river catchments. They are vulnerable to erosion, invasive alien species, unregulated grazing, and uncontrolled development. The NDZ SDF and KZN PSDF identify these zones as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), requiring strict land-use control. Climate change amplifies risks, with increased extreme weather events, frost, wildfires and shorter rainfall intervals threatening environmental stability and rural settlements.

16.3.1.3. SETTLEMENT AND ECONOMIC INTERFACE

Human settlement and economic activity cluster around Underberg, Himeville, Bulwer, Kilmun and Donnybrook, forming dispersed settlement patterns typical of NDZ's rural landscape. The tourism economy—hospitality establishments, recreation services, guiding companies, craft industries, and small-scale tourism enterprises—is concentrated in Underberg and Himeville, with Bulwer serving as a secondary gateway node. Agriculture, particularly dairy and horticulture, remains a dominant economic activity. However, infrastructure and services are strained during peak tourist seasons, while rural communities often lack formal access to economic opportunities generated by the WHS. This complex interface requires spatial management that reconciles ecological integrity with development needs.

16.3.2. KEY SPATIAL, ENVIRONMENTAL & DEVELOPMENT CHALLENGES

The WHS interface faces several intersecting spatial, environmental, infrastructural and socio-economic challenges. Fragmented, dispersed settlement patterns—typical across NDZ—often extend toward environmentally sensitive landscapes, increasing the risk of ecological disturbance and erosion. Infrastructure capacity, particularly in Underberg–Himeville, is under strain due to high tourist influx, limited parking, inadequate stormwater systems and traffic congestion. Climate change contributes to snowstorms, flash floods, drought events, and increased fire frequency, placing both ecological systems and human settlements at risk. Invasive alien plants and poor land management degrade biodiversity, while unregulated activities such as uncontrolled grazing, informal tourism development, and unmanaged access to natural areas threaten WHS value.

Rural livelihoods remain vulnerable, with limited access to formal markets, reliance on subsistence agriculture, and minimal integration into the tourism value chain. Institutional fragmentation—across NDZ LM, Harry Gwala DM, EDTEA, Ezemvelo, SANBI, DOT and Traditional Councils—weakens coordinated planning. The road network, including the R617, D roads and Sani Pass route, suffers from maintenance deficits, reducing accessibility and undermining tourism competitiveness. Addressing these challenges requires integrated planning, strong environmental regulation, targeted investment and coordinated governance structures.

16.3.3. STRATEGIC DEVELOPMENT INTERVENTIONS

STRATEGY #1 - TOURISM DEVELOPMENT & VISITOR INFRASTRUCTURE: Tourism development in the Drakensberg Park interface is essential for harnessing the municipality's comparative advantage and diversifying the local economy. The Underberg–Himeville–Sani Pass corridor serves as the principal gateway to the southern Maloti-Drakensberg World Heritage Site, attracting domestic and international visitors for hiking, fly-fishing, mountain biking, birding, horse-riding and cultural heritage exploration. However, current infrastructure is insufficient to manage visitor numbers sustainably, threatens the ecological integrity of the WHS, and limits local community participation in tourism value chains.

- The first critical intervention is the establishment of an integrated WHS Gateway and Interpretation Centre in Underberg–Himeville. This facility would provide centralised information services, environmental education, visitor orientation, safety briefings for Sani Pass, and cultural storytelling spaces, thereby enhancing the visitor experience while supporting conservation awareness.
- The second priority involves formalising and upgrading the Sani Pass tourism infrastructure, including safe parking, ablutions, controlled access points, emergency response facilities, and coordinated operations between tour companies, border authorities and conservation agencies. This will improve visitor safety and experience while protecting sensitive mountain environments from unmanaged footfall and vehicle movements. Enhancing connectivity within the

tourism node is also essential. The creation of Non-Motorised Transport (NMT) networks, including mountain biking trails, nature walkways and equestrian routes, linking Underberg and Himeville to WHS access points, will improve visitor circulation, reduce traffic congestion, and promote sustainable mobility.

- To strengthen community benefits, the municipality must promote community-based tourism enterprises such as homestays, craft markets, cultural tours and small-scale accommodation facilities. These enterprises should be aligned with the Kilmun LAP and Bulwer URP, ensuring spatial integration. Upgrading streetscapes, signage, pedestrian infrastructure, and public spaces in Underberg and Himeville will enhance visitor comfort and promote extended stays.
- A coordinated tourism marketing strategy, shared with district and provincial tourism agencies, will allow NDZ to position itself globally as the premier gateway to the Drakensberg WHS. Ensuring tourism growth is environmentally responsible requires strong monitoring, guided access, and compliance with UNESCO buffer zone principles.

STRATEGY #2 - ENVIRONMENTAL MANAGEMENT & CLIMATE RESILIENCE: Given the ecological significance and vulnerability of the Drakensberg WHS interface, environmental management and climate resilience must be central to NDZ's spatial strategy. Climate projections indicate increased flood events, snow accumulation, wildfire risk and temperature variability, all of which threaten biodiversity, water systems, settlements and tourism operations. A key intervention involves adopting ecosystem-based adaptation (EbA) approaches, which integrate ecological restoration with community resilience. Wetlands in the Underberg–Himeville catchment areas require immediate rehabilitation to stabilise hydrological systems, reduce sedimentation, improve water quality and enhance carbon sequestration. Restoring riparian buffers, replanting indigenous vegetation, and controlling access to sensitive wetlands will mitigate the impacts of both climate change and human encroachment.

Alien invasive plant species—particularly wattle and gum—pose severe threats to biodiversity corridors and water availability. A coordinated invasive alien clearing programme, implemented with Ezemvelo, SANBI, Working for Water, and local community cooperatives, should prioritise buffer zones, riverbanks and steep slopes. Fire management must be strengthened through controlled burns, firebreaks, community fire protection units, and the use of digital early-warning systems aligned with the HGDM Climate Response Strategy. Rangeland management interventions, including rotational grazing and soil stabilisation measures, are essential to reduce erosion and maintain grassland health.

Spatial planning tools must play a formative role in environmental protection. Strengthening land-use management systems (LUMS) to enforce biodiversity corridors, ecological support areas and settlement edges will prevent inappropriate development. Climate-resilient settlement design—including snow-ready rooftops, flood-resilient stormwater systems and improved drainage—should be incorporated into development guidelines. Investing in ecosystem monitoring technologies (GIS mapping, drones, remote sensing) will support long-term ecological health assessments. Through integrated environmental governance, NDZ can protect its Outstanding Universal Value while enhancing local community resilience.

STRATEGY #3 - RURAL LIVELIHOODS & AGRARIAN SUPPORT: Rural communities surrounding the WHS interface depend heavily on agriculture, livestock rearing, small-scale trade and seasonal tourism employment. However, declining soil productivity, climatic shifts, limited market access, land tenure complexities, and fragmented agricultural support systems hinder livelihood improvement. Strategic interventions must therefore position rural communities at the centre of inclusive development. One major opportunity lies in expanding agritourism, which merges agricultural activities with tourism experiences. NDZ should develop designated agritourism routes linking farms, homesteads and rural villages with Underberg and Himeville. Activities could include dairy farm tours, artisanal cheese and yoghurt production, horse and

cattle farming demonstrations, organic vegetable sales, and traditional cooking experiences. These would diversify income, boost visitor circulation into rural areas, and foster cultural exchange.

Improved agricultural support is essential for enhancing food security and income generation. Strengthening partnerships with DARDLR, agricultural colleges and NGOs can provide training in climate-smart agriculture, organic farming, improved livestock management and small-scale irrigation. The municipality should facilitate cooperative development to enable smallholders to consolidate produce, negotiate better market access, and supply tourism establishments and urban markets. The establishment of cold storage and aggregation facilities in Underberg would reduce post-harvest losses and enhance profitability.

Rangeland degradation in high-altitude areas is a concerning trend requiring targeted interventions. Community-based rangeland management programmes can promote sustainable grazing, soil restoration and fodder production. Women and youth should be specifically targeted for entrepreneurial development within agriculture-linked value chains such as crafts, herbal products, poultry rearing and beekeeping. Improving rural infrastructure—access roads, water harvesting systems, and local marketplaces—will further integrate rural communities into the broader WHS-linked economy. Ultimately, rural livelihoods will flourish when agriculture and tourism are spatially, economically and institutionally interlinked.

STRATEGY #4 - INFRASTRUCTURE & ACCESSIBILITY: Infrastructure deficits represent one of the most significant constraints to sustainable development and tourism competitiveness within the WHS interface. The spatial logic of the NDZ SDF identifies Underberg, Himeville, Bulwer and Kilmun as critical service nodes requiring targeted investment in transportation, mobility, public facilities and environmental infrastructure. The R617, Sani Pass Road, P429 and associated D roads provide essential connections for tourism, agriculture and community mobility but require comprehensive upgrading and routine maintenance. Improving these routes will strengthen NDZ's role as a regional gateway, reduce travel times, enhance safety, and stimulate business confidence.

Congestion in Underberg is particularly acute during peak tourism periods, exacerbated by inadequate parking, narrow streets and incompatible land-use patterns. Implementing the planned Underberg Bypass and Truck Stop would relieve traffic pressure, separate heavy vehicles from tourism flows, and improve pedestrian safety. The development of integrated public transport facilities, including upgraded taxi ranks, bus loading bays and designated tourism shuttle stops, will further enhance accessibility.

Water, sanitation and stormwater infrastructure are under severe strain and must be upgraded to meet both resident and visitor demands. Bulk water augmentation, improved reservoir capacity, wastewater treatment upgrades and stormwater canal improvements are essential for environmental health and community wellbeing. Green infrastructure solutions—including permeable surfaces, rain gardens, and natural stormwater detention systems—can reduce flooding risks while enhancing the public realm.

Investing in Non-Motorised Transport (NMT) networks—such as walkways, cycling routes and bridle paths—supports sustainable tourism, reduces vehicle dependency, and improves the mobility of rural households. Energy resilience, through small-scale solar installations and improved public lighting, is vital for safety and economic activity. Overall, integrated infrastructure development must prioritise environmental sensitivity, climate resilience and spatial efficiency.

STRATEGY #5 - GOVERNANCE & INSTITUTIONAL COORDINATION: Effective governance is foundational to achieving coordinated, sustainable and long-term development outcomes in the WHS interface. The current institutional landscape involves numerous actors—NDZ LM, Harry Gwala DM, EDTEA, Ezemvelo KZN Wildlife, SANBI, Department of Tourism, Department

of Transport, Traditional Councils, private tourism operators and community organisations. Fragmentation across these institutions often leads to duplication of efforts, inconsistent land-use controls, delays in implementation, and limited enforcement of environmental regulations. Strengthening governance structures must therefore be prioritised.

A central recommendation is the establishment of a WHS Coordination Unit within the NDZ Municipality. This unit would act as a dedicated facilitation and oversight body for all WHS-related planning, development applications, environmental monitoring, tourism product development, and intergovernmental engagement. It would coordinate land-use decisions to safeguard Outstanding Universal Value, ensure the implementation of UNESCO buffer zone guidelines, and streamline environmental impact assessment processes. The unit should also promote partnerships between municipal departments, Traditional Councils, conservation agencies and private operators, enabling joint planning and shared responsibility.

Cross-border coordination with Lesotho is equally essential, particularly for Sani Pass tourism management, ecological corridor protection and emergency response collaboration. A formalised bilateral working group could enhance information sharing and corridor-based development. Strengthening enforcement capacity—through improved environmental compliance monitoring, land-use inspections and disaster readiness—will support regulatory effectiveness.

Community participation is vital to ensure inclusive governance. NDZ should institutionalise community forums linked to the WHS interface, allowing rural households and small enterprises to influence tourism and environmental decision-making. Digital governance tools, including GIS-based environmental monitoring, permit-tracking dashboards, and disaster risk mapping, can enhance transparency and performance management. By consolidating institutional roles, improving coordination, and leveraging technology, NDZ can evolve into a well-governed, resilient and globally recognised WHS interface municipality.

16.3.4. INDICATIVE PROJECTS

The implementation framework provides a structured, actionable set of interventions that align strategic proposals with timeframes, responsible stakeholders, indicative cost ranges and prioritisation criteria. The project matrix categorises interventions into environmental, tourism, infrastructure, institutional and rural economic projects, ensuring balanced development across sectors. Projects designated as short-term focus on catalytic interventions such as the establishment of the WHS Coordination Unit, wetland rehabilitation, alien clearing, NMT network roll-out and essential stormwater upgrades.

Medium-term interventions emphasise structural improvements including the Underberg Bypass, agritourism routes, rural homestay development and Sani Pass tourism infrastructure upgrades. Long-term interventions address high-capital investments, road upgrades and ecological restoration over extended periods. These are complemented by a detailed prioritisation matrix assessing each project's relevance to conservation outcomes, economic impact, social benefits, climate resilience, cost feasibility, spatial logic and readiness. This framework ensures that project sequencing supports efficient resource utilisation and maximises developmental impact.

TABLE 78: WHS DEVELOPMENT INDICATIVE PROJECTS

PROJECT DESCRIPTION	SPATIAL LOCATION	TIMEFRAME	STAKEHOLDERS	COST ESTIMATE	PRIORITY	CRITERIA BASIS
WHS Gateway & Interpretation Centre	Underberg-Himeville	Short	NDZ, EKZNW, EDTEA, Tourism KZN	R25–40m	High	Tourism impact, OUV compliance
Sani Pass Tourism Infrastructure Upgrade	Sani Pass Corridor	Medium	DOT, NDZ, EDTEA	R60–90m	High	Visitor safety, economic return
Wetland Rehabilitation Programme	Underberg catchments	Short	NDZ, HGDM, SANBI	R10–20m	High	Climate resilience
Alien Clearing & Rangeland Restoration	Buffer zones	Ongoing	NDZ, EKZNW	R3m/year	High	Environmental integrity
Rural Homestay Programme	Bulwer–Kilmun	Medium	NDZ, COGTA, Traditional Councils	R8–12m	Medium	Community benefit
Agritourism Route Development	Drakensberg foothills	Medium	NDZ, DARDLR	R5–10m	Medium	LED diversification
NMT Trail Network	Underberg–WHS	Short	NDZ, EPWP	R3–6m	Medium	Accessibility & tourism
Road Upgrades (D Roads, R617)	Transport corridors	Long	DOT, NDZ	R200m+	High	Strategic access
Underberg Truck Bypass & Stop	Underberg	Medium	DOT, NDZ	R50–70m	Medium	Traffic relief
Fire Management Programme	Rural settlements	Short	NDZ, EKZNW	R2–4m	Medium	Disaster risk reduction
Stormwater Upgrades	Underberg/Himeville	Short	NDZ, HGDM	R15–25m	High	Flood mitigation
WHS Institutional Coordination Unit	NDZ	Short	NDZ	R3–5m	High	Governance alignment

16.3.5. WHS DEVELOPMENT PROJECT PHASING PLAN

TABLE 79: WHS DEVELOPMENT PROJECTS PHASING PLAN

PROJECT / INTERVENTION	DESCRIPTION	PHASE	TIMEFRAME	DEPENDENCIES / NOTES
WHS Coordination Unit	Establishment of a dedicated municipal unit to coordinate WHS oversight, planning, compliance, and stakeholder management.	Short-term	0–3 Years	Requires municipal budget allocation and stakeholder agreements.

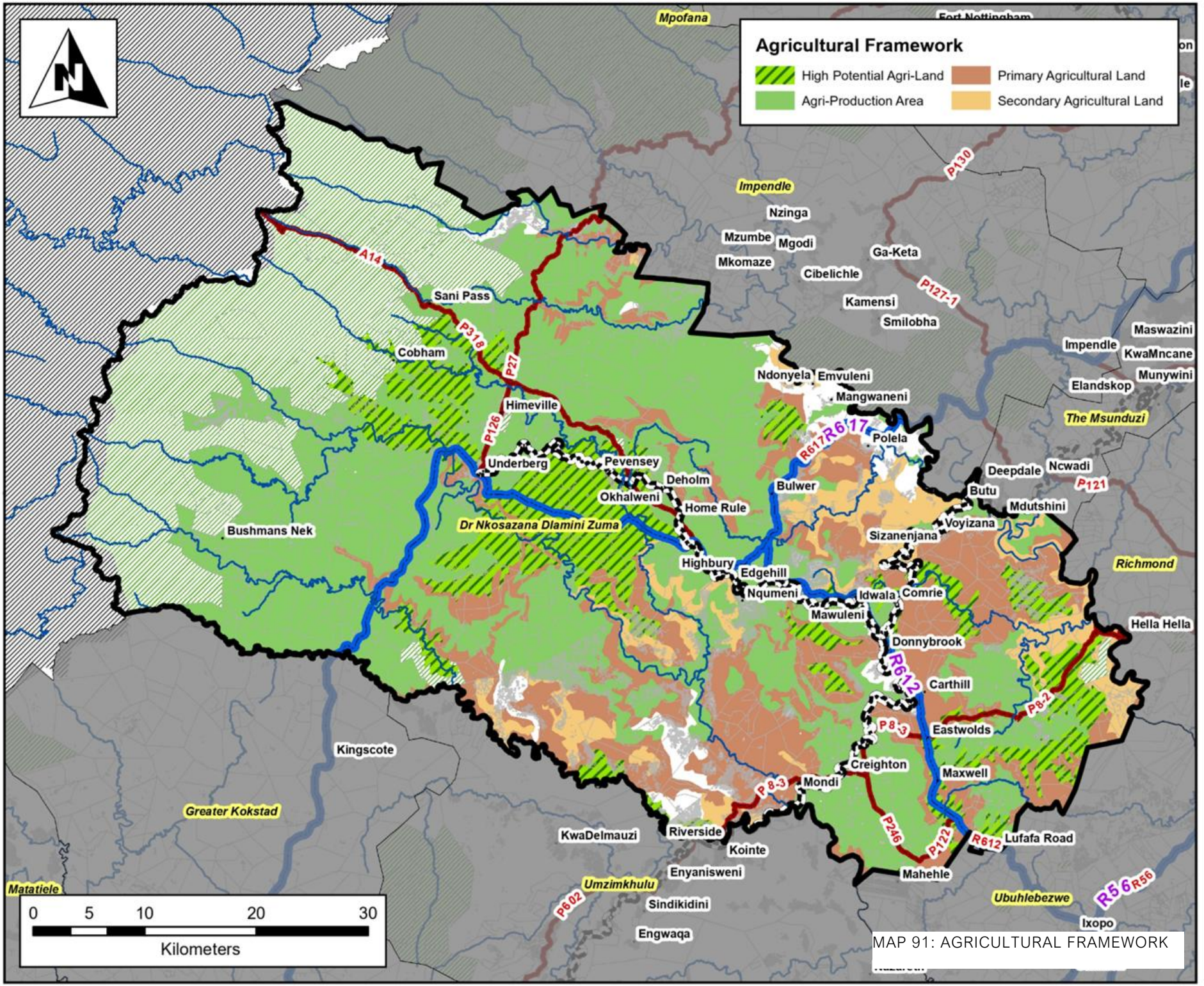
PROJECT / INTERVENTION	DESCRIPTION	PHASE	TIMEFRAME	DEPENDENCIES / NOTES
Wetland Rehabilitation Programme	Restoration of wetlands in the Underberg–Himeville catchments to enhance climate resilience and water quality.	Short-term	0–3 Years	Must align with SANBI/Ezemvelo ecological guidelines.
Invasive Alien Plant Clearing	Clearing of alien species (e.g., wattle, gum) in buffer zones and riparian areas using community cooperatives.	Short-term (ongoing)	0–3 Years (Ongoing)	Can be co-funded by Working for Water.
NMT Trail Network (Phase 1)	Establishment of cycling, hiking and equestrian trails linking Underberg, Himeville and key WHS access points.	Short-term	0–3 Years	Requires land agreements with private owners in some segments.
Stormwater Management Upgrades	Upgrading stormwater channels, culverts and drainage systems in Underberg–Himeville.	Short-term	0–3 Years	Should precede major tourism precinct upgrades.
Fire Management Programme	Community fire units, firebreak establishment, early warning systems.	Short-term	0–3 Years	Align with HGDM Disaster Management.
Sani Pass Tourism Infrastructure Upgrade (Phase 1)	Formalisation of parking, safety signage, ablutions, controlled access.	Medium-term	4–7 Years	Requires DOT and border authorities' collaboration.
Rural Homestay Development Programme	Community-based accommodation facilities in Kilmun, Bulwer, and rural nodes.	Medium-term	4–7 Years	Linked to tourism training and enterprise development.
Agritourism Route Development	Creation of themed routes linking farms, craft hubs, and rural markets.	Medium-term	4–7 Years	Dependent on rural road improvements.
Underberg Truck Bypass & Truck Stop	Construction of a bypass route to divert heavy vehicles around the tourism centre.	Medium-term	4–7 Years	Major CAPEX; requires DOT funding.
Public Transport Facility Enhancements	Upgrading taxi ranks, bus stops, and shuttle service areas in Underberg–Himeville.	Medium-term	4–7 Years	Integrates with precinct plans.
NMT Trail Network (Phase 2)	Expansion into extended mountain routes and rural settlement links.	Medium-term	4–7 Years	Builds on Phase 1 implementation.
Sani Pass Tourism Node: Full Upgrade	Development of an integrated tourism hub including viewing decks, information centre, and controlled access systems.	Long-term	8–15 Years	Dependent on environmental approvals and cross-border agreements.
Major Road Upgrades (R617, P429, D Roads)	Large-scale rehabilitation of key regional and rural access roads.	Long-term	8–15 Years	High-cost; requires provincial funding.
Expanded Ecological Restoration Programme	Long-term restoration of biodiversity corridors, rangelands, and degraded high-altitude areas.	Long-term	8–15 Years	Requires ongoing ecological monitoring.

PROJECT / INTERVENTION	DESCRIPTION	PHASE	TIMEFRAME	DEPENDENCIES / NOTES
Tourism Precinct Development (Underberg–Himeville)	Full redevelopment including streetscape upgrades, public spaces, markets, and visitor amenities.	Long-term	8–15 Years	Must follow stormwater, mobility, and early-phase interventions.
Climate-Resilient Settlement Upgrades	Upgrading of housing and infrastructure to withstand snow, flooding, and extreme rainfall.	Long-term	8–15 Years	Must align with Human Settlements Sector Plan.

16.3.6. WHS DEVELOPMENT PRIORITISATION MATRIX

TABLE 80: PRIORITISATION MATRIX

CRITERIA	WEIGHT	DESCRIPTION
WHS Protection & OUV Integrity	25%	Prevents degradation of heritage value
Economic Impact	20%	Jobs, tourism revenue, SMME development
Social Benefit	15%	Rural livelihoods, equity, empowerment
Climate Resilience	15%	Flood, fire, drought resilience
Spatial Logic	10%	Alignment to SDF nodes & corridors
Cost & Feasibility	10%	Affordability & ease of implementation
Institutional Readiness	5%	Stakeholders and governance structures in place



MAP 91: AGRICULTURAL FRAMEWORK

DR. NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

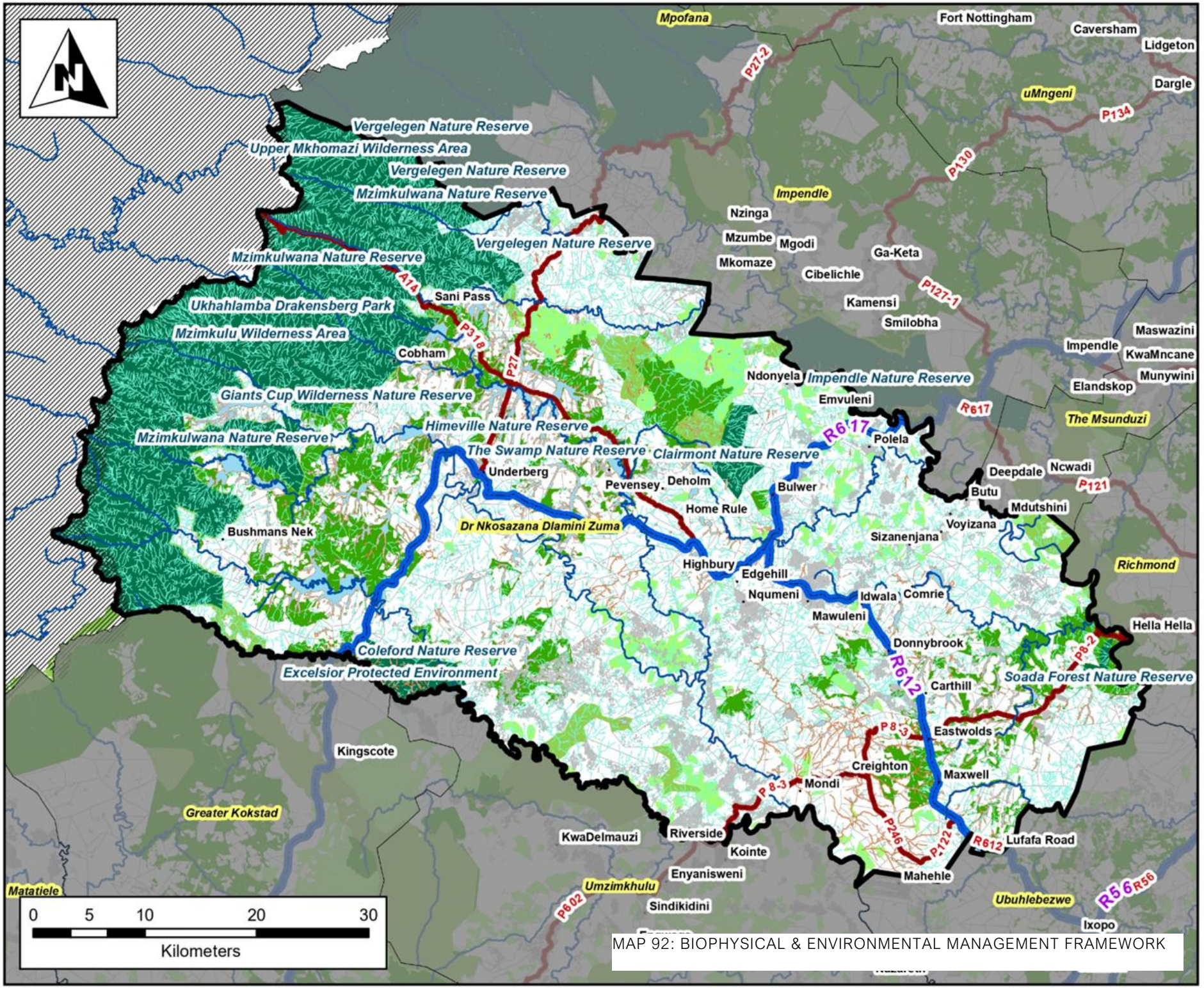
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Agricultural Framework

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 92: BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT FRAMEWORK

17. TOURISM DEVELOPMENT FRAMEWORK

This section provides a detailed analysis of interventions, proposals, and strategies to enhance tourism within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM). This section consolidates key insights on challenges and opportunities in the tourism sector and formulates strategies aligned with the Spatial Planning and Land Use Management Act (SPLUMA), the KwaZulu-Natal Provincial Spatial Development Framework (PSDF 2021), and the NDZ Spatial Development Framework (SDF 2021).

The objective is to guide municipal spatial planning and economic development policies that position tourism as a catalyst for inclusive growth, environmental conservation, and rural development.

17.1. ROLE OF TOURISM IN THE MUNICIPALITY

Tourism is a cornerstone of NDZ's local economy, supported by unique natural, cultural, and heritage assets. The municipality encompasses the Southern uKhahlamba-Drakensberg World Heritage Site, a globally recognised ecological and tourism resource, and boasts attractions such as Paton's Country Narrow Gauge Railway, Sani Pass, Centocow Mission, and Kevelaer Mission. The NDZ area functions as a gateway to Lesotho, offering potential for cross-border tourism, eco-tourism, and adventure-based activities.

Tourism's contribution to local GDP has grown significantly post-pandemic. Tourist spending rose from R821.8 million in 2019 to R1.05 billion in 2023, reflecting a 28% increase over pre-COVID levels, with increased visitor numbers and longer stays driving economic growth.

17.2. OVERVIEW OF TOURISM IN NDZ

17.2.1. TOURISM PROFILE

The tourism profile of the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) reflects a distinctive blend of ecological richness, cultural depth, and rural authenticity, positioning the area as one of KwaZulu-Natal's most diverse and underexploited destinations. Geographically, NDZ LM occupies the southern portion of the Harry Gwala District Municipality, encompassing the towns of Underberg, Himeville, Bulwer, Donnybrook, and Creighton, all of which serve as gateways to the uKhahlamba-Drakensberg Park World Heritage Site. This natural asset alone confers global tourism significance upon the municipality, while its surrounding mountain ranges, wetlands, grasslands, and rivers provide the foundation for eco-tourism, adventure activities, and nature-based recreation.

Tourism in NDZ LM is both multi-scalar and multi-thematic functioning at local, regional, and international levels. At the regional scale, the municipality forms part of the Southern Drakensberg Tourism Corridor, which links key destinations across KwaZulu-Natal and the Eastern Cape, particularly through the Sani Pass route that connects South Africa to Lesotho. At the local scale, the area's smaller settlements—such as Mqatsheni, Kilmun, and Centocow—anchor community tourism initiatives, agricultural festivals, and heritage trails.

The NDZ Spatial Challenges and Opportunities Report (Phase 3) identifies tourism as one of the municipality's "high-impact economic sectors," second only to agriculture. According to the report, visitor expenditure within NDZ LM exceeded R1 billion in 2023, marking a 28% increase since 2019, largely due to post-pandemic recovery and the municipality's growing reputation for rural and adventure tourism. The area attracts both domestic and international

visitors, with domestic arrivals forming the majority, particularly from KwaZulu-Natal, Gauteng, and the Western Cape. The municipality's unique combination of natural beauty, heritage attractions, and affordability has positioned it as a year-round destination catering to eco-adventure tourists, cultural heritage enthusiasts, and leisure travellers seeking rural authenticity.

17.2.2. VISITOR STATISTICS

Visitor statistics indicate that tourism in NDZ LM is experiencing steady growth and diversification. Between 2019 and 2023, the municipality recorded an increase of more than 40% in overnight bednights, reflecting both longer stays and higher average spending per visitor.

This growth was supported by the reopening of international travel and domestic rediscovery of rural destinations following the COVID-19 pandemic. International tourist arrivals, particularly from Europe, Australia, and North America, rebounded strongly, with more than 150,000 international bednights recorded in 2023, while domestic tourists remained the primary market segment.

The report further notes that trip purposes have become more varied: while leisure and recreation remain dominant, significant proportions of travel relate to events, education, religious tourism, and cultural heritage. Creighton's Steam Train Festival, the Donnybrook Agricultural Show, and birding weekends in Bulwer contribute to the growing events-based tourism segment. These activities, in turn, generate demand for accommodation, catering, retail, and transport services, creating vital linkages between tourism and other sectors of the local economy.

17.2.3. ECONOMIC CONTRIBUTION

Tourism contributes significantly to NDZ LM's Gross Value Added (GVA), ranking as the third-largest economic sector after agriculture and community services. The tourism value chain extends well beyond direct visitor expenditure to include agri-processing, craft production, local transport, and hospitality services, thereby multiplying its impact on employment and income generation. The *NDZ LED Strategy* identifies tourism as a "catalytic sector" capable of promoting spatial transformation and rural inclusion, given its strong potential for small business participation and gender-responsive employment creation.

The Harry Gwala District Growth and Development Strategy (2024) estimates that the tourism sector in NDZ directly employs several thousand people, with multiplier effects supporting many more in informal and peripheral activities such as cultural crafts, guiding, and event logistics.

Importantly, tourism development aligns with national policy objectives under the National Development Plan (NDP 2030) and Provincial Growth and Development Strategy (PGDS 2035), both of which prioritise sustainable rural economies and environmental stewardship. NDZ LM's tourism economy thus holds the potential to anchor long-term socio-economic resilience, provided that infrastructure, policy, and institutional alignment challenges are addressed effectively.

17.2.4. SPATIAL DISTRIBUTION OF TOURISM ACTIVITIES

Spatially, tourism activities in NDZ LM are concentrated along two primary development corridors. The first, the Underberg–Himeville–Sani Pass Corridor, serves as the principal tourism hub, linking the municipality to the uKhahlamba-Drakensberg Park and Lesotho.

This corridor hosts a cluster of lodges, guesthouses, adventure sports facilities, and cultural attractions, with Himeville Museum and the Sani Pass route as key anchors. The second corridor, the Creighton–Donnybrook–Bulwer Route, is defined by historical and cultural tourism assets, including the Paton's Narrow

Gauge Steam Train, mission stations such as Centocow and Kevelaer, and agricultural tourism ventures.

Peripheral nodes such as Kilmun, Mqatsheni, and Nokweja present opportunities for community-based eco-tourism and homestays, while rural landscapes in the eastern and southern parts of the municipality offer potential for agro-tourism and nature-based retreats. This spatial pattern reflects both opportunity and challenge: while the northern and western corridors are relatively well-developed, the eastern hinterlands remain under-served by infrastructure and investment, highlighting the need for targeted spatial interventions and equitable tourism expansion.

17.3. KEY CHALLENGES AFFECTING TOURISM DEVELOPMENT

17.3.1. INFRASTRUCTURE AND ACCESSIBILITY CHALLENGES

The most persistent constraint on tourism development in NDZ LM is inadequate infrastructure and limited accessibility. Many of the municipality's most valuable natural and cultural assets are located in remote areas, connected by poorly maintained gravel roads. The R612, P429, and D1201 routes are critical tourism arteries but suffer from potholes, poor signage, and limited maintenance. This restricts visitor mobility, discourages investment, and limits the viability of tour circuits. Public transport integration is weak, with few reliable connections between major nodes such as Creighton, Donnybrook, and Underberg, making independent travel difficult.

Furthermore, basic visitor facilities—such as rest stops, viewing platforms, toilets, and visitor information centres—are insufficient or unevenly distributed. Tourism signage is fragmented and inconsistent, reducing the visibility of attractions and the overall visitor experience. The lack of ICT infrastructure and broadband connectivity in rural areas compounds these challenges, as modern tourists increasingly depend on digital navigation, online booking, and social media connectivity. The result is a disjointed visitor experience that undermines NDZ's competitiveness relative to better-equipped destinations such as the Midlands or Central Drakensberg.

17.3.2. ENVIRONMENTAL AND CONSERVATION CHALLENGES

While the municipality's environmental assets underpin its tourism appeal, they are also vulnerable to degradation and climate-related risks. The *Integrated Environmental Management Plan (2020–2025)* identifies soil erosion, wetland loss, invasive alien vegetation, and deforestation as growing threats to biodiversity and scenic value. Climate change has intensified weather extremes, with periodic floods and droughts affecting both access and ecosystem stability. Inadequate enforcement of land-use controls in environmentally sensitive zones has resulted in unplanned settlements and agriculture encroaching on conservation areas.

Furthermore, limited environmental awareness among tourism operators and communities has led to unsustainable practices, such as unregulated hiking and poor waste disposal, which compromise ecological integrity. The municipality faces the dual challenge of promoting tourism growth while ensuring environmental protection—a balance that requires integrated planning, strict environmental management frameworks, and partnerships with conservation agencies.

17.3.3. SOCIOECONOMIC CHALLENGES

Tourism's potential for inclusive growth in NDZ LM is constrained by several socioeconomic factors. The skills base in hospitality, guiding, and tourism management remains limited, particularly among youth and women. Many local businesses lack the managerial and marketing capacity to attract high-value clientele or to participate in regional value chains. Seasonal fluctuations exacerbate economic vulnerability, as tourism activity peaks during summer and holiday seasons, leaving large employment gaps during the off-season.

Moreover, financial exclusion and limited access to credit hinder the ability of local entrepreneurs to invest in tourism-related enterprises. The absence of formalised cooperatives and weak linkages between tourism and agriculture further limit diversification and resilience. As a result, tourism revenue tends to benefit external investors and established operators rather than local communities, perpetuating inequality within the sector.

17.3.4. INSTITUTIONAL AND GOVERNANCE CHALLENGES

Institutional fragmentation poses a major obstacle to coherent tourism development. Coordination between NDZ LM, the Harry Gwala District Municipality (HGDM), the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA), and private sector stakeholders remains weak. The Community Tourism Organisation (CTO)—a structure mandated by provincial policy to promote community participation—has been inactive or under-resourced for several years, resulting in poor data management and limited stakeholder collaboration.

Additionally, the lack of a dedicated municipal tourism unit or a clear tourism development policy within NDZ LM hampers strategic alignment and resource mobilisation. Planning and investment decisions often occur in silos, leading to duplication or gaps. Monitoring and evaluation mechanisms for tourism projects are also underdeveloped, making it difficult to track impact or measure progress against strategic objectives. Without institutional coherence, tourism development remains reactive rather than strategic, undermining the municipality's ability to leverage its full potential.

17.4. TOURISM OPPORTUNITIES IDENTIFIED

17.4.1. NATURE-BASED AND ADVENTURE TOURISM

NDZ LM's topography and climate create exceptional conditions for nature-based and adventure tourism. The Drakensberg escarpment, Mistbelt forests, and uKhahlamba-Drakensberg Park provide settings for hiking, birdwatching, horse riding, mountain biking, and paragliding. The municipality's rivers and wetlands offer potential for canoeing, fly-fishing, and nature trails, while the Marutswa Forest Trail and Boardwalk in Bulwer exemplifies successful small-scale eco-tourism initiatives. Expanding such facilities, while maintaining ecological sensitivity, could position NDZ as a premier adventure destination in the province.

Sani Pass remains the municipality's flagship adventure attraction. Its international appeal and cross-border potential with Lesotho present opportunities for transfrontier tourism and joint marketing under the Maloti-Drakensberg Transfrontier Programme. Sustainable infrastructure development, regulation of off-road driving, and improved visitor facilities could significantly enhance its economic yield and environmental sustainability.

17.4.2. CULTURAL AND HERITAGE TOURISM

Cultural and heritage tourism represents one of NDZ's most distinctive competitive advantages. The Centocow and Kevelaer Mission stations—established in the late 19th century—offer rare insights into the region's religious, social, and architectural history. The Himeville Museum, housed in a historic stone fort, is another anchor of cultural tourism. Traditional Zulu heritage, expressed through music, crafts, storytelling, and festivals, adds a vibrant contemporary layer to this cultural landscape.

Developing thematic heritage routes, such as the "Mission Trail" or "Rail and Faith Route," could attract both domestic and international visitors. Restoration of historical sites, establishment of interpretation centres, and integration with cultural events would enhance authenticity and educational value. Such initiatives also support community pride, cultural preservation, and youth employment in the creative economy.

17.4.3. AGRI-TOURISM AND RURAL TOURISM

Given NDZ's strong agricultural base, agri-tourism offers a natural extension of the local economy. Visitors increasingly seek authentic farm-based experiences such as farm stays, cheese-making workshops, horse riding, and seasonal harvest festivals. The Underberg Farmers' Market and Donnybrook agricultural fairs already serve as prototypes for this niche. Expanding these into a structured Agri-Tourism Route linking farms, local producers, and community enterprises could create year-round tourism flows while supporting local food security and branding.

Additionally, the establishment of rural tourism cooperatives in traditional areas could promote inclusive participation. These cooperatives could manage homestays, eco-lodges, and community trails, supported by municipal training and marketing programmes. This approach aligns with the SPLUMA objective of spatial equity by integrating marginalised rural areas into the tourism economy.

17.4.4. RAIL, CYCLING, AND HIKING TOURISM

The Paton's Country Narrow Gauge Railway in Creighton remains a unique asset with national heritage value. Revitalising this attraction through extended routes, themed excursions, and complementary facilities such as rail cafés or craft markets could transform Creighton into a tourism anchor town. Cycling and hiking routes—linking Underberg, Bulwer, and Donnybrook—should be formalised, mapped, and marketed to domestic and international adventure tourists.

The growing demand for sustainable and active travel aligns with NDZ's landscapes, making it an ideal destination for cycle tours, marathons, and hiking festivals. Integrating these routes with local homestays and small lodges would further spread tourism benefits spatially.

17.4.5. EVENT TOURISM

Event tourism offers immediate opportunities to stimulate visitor inflows and promote brand visibility. Existing events such as the Creighton Steam Train Festival, Underberg Farmers Market, and Bulwer Birding Weekend can be scaled up into signature annual attractions. Introducing new events—such as cultural festivals, sports competitions, or gastronomy fairs—could address seasonality and attract different market segments.

Strategic partnerships with provincial and national tourism bodies can help secure sponsorships, professional event management, and media coverage. In addition, events provide platforms for showcasing local products, crafts, and performances, deepening community participation. Over time, NDZ LM could evolve into a regional hub for eco-cultural festivals, strengthening its identity as the heart of the Southern Drakensberg.

17.5. STRATEGIC INTERVENTIONS, PROPOSALS, AND PROGRAMMES

17.5.1. POLICY AND PLANNING INTERVENTIONS

Policy and planning interventions form the foundation of tourism transformation in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM). As identified in the *NDZ Spatial Challenges and Opportunities Report (Phase 3)*, the municipality's tourism potential remains underutilised due to fragmented planning, lack of coherent spatial integration, and weak alignment between the municipal SDF, LED Strategy, and provincial frameworks such as the KwaZulu-Natal PSDF (2021). Effective tourism planning must therefore embed the sector firmly within the municipality's spatial, environmental, and economic policies, ensuring that tourism development becomes a deliberate spatial driver of growth rather than a by-product of other sectors.

STRATEGY #1 – INTEGRATION OF TOURISM AS SPATIAL STRUCTURE ELEMENT: The first critical policy intervention is the integration of tourism as a spatial structuring element in the NDZ SDF. This involves identifying and designating Tourism Development Zones (TDZs) and Tourism Priority Corridors (TPCs) in line with the PSDF's spatial principles of *connectivity, sustainability, and inclusivity*. The Underberg–Himeville–Sani Pass corridor, for example, should be delineated as a primary tourism growth axis, while the Creighton–Donnybrook–Bulwer corridor should be formalised as a heritage and cultural tourism route. By embedding these zones in the SDF, the municipality can guide infrastructure investment, environmental management, and land use regulation in a manner that maximises tourism yield and spatial equity.

STRATEGY #2 – REVISION OF MUNICIPAL TOURISM BY-LAWS: A second policy imperative involves revising the municipal tourism by-laws and institutional frameworks to provide a supportive regulatory environment for investors and community tourism enterprises. Currently, tourism development processes are constrained by overlapping mandates between the municipality, district, and provincial authorities. The adoption of a Municipal Tourism Policy Framework (MTPF), harmonised with the Harry Gwala District Growth and Development Strategy (2024), would streamline roles and responsibilities, while introducing incentives for eco-friendly and community-based tourism.

STRATEGY #3 – CROSS-SECTORAL PLANNING MECHANISMS: The NDZ LM should also institutionalise cross-sectoral planning mechanisms, linking tourism planning with environmental management, disaster risk reduction, and land reform. For instance, the Integrated Environmental Management Plan (2020–2025) identifies fragile biodiversity areas and wetlands requiring conservation-compatible tourism planning. Aligning this with the SDF ensures that tourism expansion supports ecological resilience while diversifying livelihoods for communities in environmentally sensitive areas.

STRATEGY #4 – SPATIAL DATA INTEGATION & TOURISM MAPPING: Another critical intervention is spatial data integration and tourism mapping. A digital spatial database of tourism assets, routes, and land ownership must be created using GIS technology, building upon the spatial layers developed in the NDZ-MSDF baseline studies. This will enhance evidence-based decision-making, allowing planners to prioritise tourism investment zones and monitor spatial impacts. Moreover, mapping should include cultural heritage sites, scenic routes, and underutilised public assets to facilitate adaptive re-use and investment.

STRATEGY #5 – INTEGRATION INTO MUNICIPAL IDP: Finally, NDZ LM should embed tourism planning into its Integrated Development Plan (IDP) through clear performance indicators. This will institutionalise accountability, ensure budget alignment, and attract funding from programmes such as COGTA's Small Town Revitalisation Programme and EDTEA's Tourism Infrastructure Development Fund. Policy and planning interventions thus provide the strategic backbone for all subsequent initiatives—linking tourism with the municipality's broader spatial transformation and economic diversification agenda.

17.5.2. INFRASTRUCTURE DEVELOPMENT STRATEGIES

Tourism infrastructure is the physical and service backbone that enables access, experience, and competitiveness of destinations. In NDZ LM, tourism infrastructure challenges are among the most significant impediments to growth. An assessment of the municipality highlights poor road quality, inadequate signage, unreliable ICT coverage, limited tourism facilities, and weak transport integration as critical constraints. Infrastructure development strategies must therefore focus on accessibility, functionality, and sustainability of the tourism system.

STRATEGY #1 – ROAD ACCESS & MOBILITY IMPROVEMENTS: The first major infrastructure strategy should prioritise road access and mobility improvements. The P429, D1201, and R612 routes are crucial for linking tourism nodes such as Underberg, Himeville, Creighton, Donnybrook, and Bulwer. Upgrading and maintaining these routes will not only enhance visitor accessibility but also reduce operational costs for tourism enterprises. Coordination with the Department of Transport and the Harry Gwala District Municipality (HGDM) is essential for integrating these upgrades into the district's transport investment plan. Moreover, road maintenance contracts should include labour-intensive community participation, providing local employment and skills transfer in alignment with the EPWP framework.

STRATEGY #2 – DEVELOPMENT OF VISITORS FAFCILITIES & TOURISM INFRASTRUCTURE HUBS: The second focus area is the development of visitor facilities and tourism infrastructure hubs. Each primary node—Underberg, Himeville, and Creighton—should be equipped with functional visitor information centres, safe parking, rest areas, ablution facilities, and signage in multiple languages. Bulwer, as a secondary node, should be developed as a gateway hub, incorporating cultural markets and heritage interpretation centres. Public amenities such as picnic sites, viewing decks, and trailheads should also be strategically positioned along key routes to improve visitor satisfaction.

STRATEGY #3 – INVESTMENT IN ICT: Digital infrastructure is another essential component. NDZ LM's limited broadband access inhibits online marketing, booking systems, and real-time visitor management. Therefore, ICT infrastructure investments must accompany physical upgrades, enabling the adoption of smart tourism applications such as mobile tourism maps, QR-coded heritage sites, and digital visitor surveys. Public Wi-Fi zones at major attractions and markets could further promote local economic activity, particularly for informal traders and small tourism enterprises.

STRATEGY #4 – DEVELOPMENT OF GREEN INFRASTRUCTURE PRINCIPLES: Complementing these interventions, green infrastructure principles should be embedded within all tourism projects. Infrastructure upgrades must incorporate renewable energy solutions, water conservation technologies, and eco-friendly waste management systems to align with both the NDZ Integrated Waste Management Plan and the PSDF's sustainability outcomes. The establishment of eco-parks and rehabilitation of degraded landscapes (as identified in the Environmental Management Plan 2020–2025) can serve as dual-purpose investments that protect biodiversity while enhancing aesthetic appeal.

STRATEGY #5 – DEVELOPMENT OF TOURISM INFRASTRUCTURE INVESTMENT REGISTER: Finally, NDZ LM should create a Tourism Infrastructure Investment Register linked to its Spatial Capital Investment Framework (SCIF). This will help prioritise, cost, and sequence projects, enabling effective coordination of funding sources such as MIG, DBSA, EDTEA, and private PPP investment. Collectively, these infrastructure strategies will transform NDZ's tourism landscape from fragmented and inaccessible to well-connected, visitor-friendly, and environmentally sustainable.

17.5.3. DESTINATION MARKETING STRATEGIES

Destination marketing is central to positioning NDZ LM as a competitive and recognisable tourism destination within KwaZulu-Natal and beyond. Despite its exceptional natural and cultural assets, the municipality suffers from low brand visibility, fragmented promotional efforts, and an absence of coherent storytelling that ties its various attractions together. The SDF identifies marketing deficiencies as a major constraint limiting domestic and international tourism growth. To address this, a multi-tiered, data-driven marketing strategy must be developed and implemented.

STRATEGY #1 – DEVELOPMENT OF A UNIFIED DESTINATION BRAND: The first step is to develop a unified destination brand for NDZ LM, anchored in its unique selling proposition as the "Gateway to the Southern Drakensberg." This branding should communicate the area's dual identity as both an eco-adventure and cultural heritage destination. The brand narrative must reflect the municipality's scenic landscapes, World Heritage status, rich Zulu traditions, agricultural authenticity, and cross-border appeal via the Sani Pass route into Lesotho. Branding should not only focus on visual identity (logos, slogans, colours) but also on thematic storylines—linking experiences such as rail tourism in Creighton, hiking in Himeville, birding in Bulwer, and spiritual pilgrimages to Centocow Mission into a cohesive narrative.

STRATEGY #2 – COLLABORATIVE MARKETING & REGIONAL PARTNERSHIPS: A second component involves collaborative marketing and regional partnerships. NDZ LM should work closely with Harry Gwala District Municipality, Tourism KwaZulu-Natal (TKZN), and neighbouring municipalities (Ubuhlebezwe, Greater Kokstad, uMzimkhulu) to promote the district as an integrated tourism region. Joint marketing campaigns shared digital platforms, and cross-promotional events (e.g., district festivals or trail circuits) can amplify visibility while optimising resource use. Establishing a Regional Tourism Marketing Forum under HGDM's coordination will institutionalise this collaboration.

STRATEGY #3 – DEDICATED TOURISM WEBSITE & MOBILE APPLICATION: Digital marketing must be prioritised as a cost-effective and high-impact channel. NDZ LM should invest in a dedicated tourism website and mobile application, featuring real-time information on accommodation, attractions, events, and routes. Social media marketing—through Instagram, Facebook, and TikTok—should highlight authentic local stories, seasonal activities, and user-generated content. Partnerships with travel influencers, tour operators, and online booking platforms (e.g., Airbnb, Expedia) will further enhance reach. To ensure inclusivity, training for local tourism businesses in digital literacy and e-marketing is essential.

STRATEGY #4 – EVENTS-BASED MARKETING: The municipality should also leverage events-based marketing as a catalyst for brand visibility. Annual events such as the Creighton Steam Train Festival, Underberg Farmers Market, and Bulwer Birding Weekend can be scaled up and marketed nationally through coordinated calendars and sponsorships. Linking these events to regional circuits—such as the Drakensberg Experience Route—will attract both repeat and first-time visitors.

STRATEGY #5 – IMPLEMNENTATION OF A TOURISM MARKETING UNIT: Finally, performance-based marketing evaluation mechanisms must be instituted. Key indicators such as website traffic, visitor inquiries, social media engagement, and visitor satisfaction surveys should be tracked by a newly established Tourism Marketing Unit within the municipality. This evidence-based approach will ensure that marketing resources are directed toward high-yield segments. Through consistent branding, digital transformation, and strategic partnerships, NDZ LM can reposition itself as a premier tourism destination—driving economic diversification and inclusive local development.

17.5.4. ENTERPRISE DEVELOPMENT STRATEGIES

Local enterprise development is the linchpin of sustainable and inclusive tourism in NDZ LM. While the municipality's tourism economy generates substantial spending, the municipality SDF reveals that much of this revenue "leaks" out of the local economy due to the dominance of externally owned enterprises and limited community participation. To reverse this trend, enterprise development strategies must focus on enabling local ownership, capacity building, and integration of small businesses into the tourism value chain.

STRATEGY #1 – ESTABLISHGMENT OF TOURISM ENTERPRISE SUPPORT CENTRES (TESC): A foundational intervention is the establishment of Tourism Enterprise Support Centres (TESCs) in key nodes such as Underberg, Creighton, and Bulwer. These centres should serve as one-stop platforms for SMME support—offering business incubation, access to funding information, mentorship, and market linkages. NDZ LM can partner with agencies such as SEDA, EDTEA, and Tourism Enterprise Partnership (TEP) to deliver tailored training programmes in hospitality management, product development, financial literacy, and digital marketing. Priority must be given to youth and women entrepreneurs, aligning with the National Tourism Sector Strategy (NTSS) and the National Youth Policy (2020–2030).

STRATEGY #2 – ESTABLISHMENT OF COMMUNITY-BASED TOURISM: To expand participation in the tourism value chain, NDZ LM should promote community-based tourism (CBT) models. Communities in traditional council areas—such as Mqatsheni, Kilmun, and Nokweja—can operate homestays, craft cooperatives, and guided cultural experiences. The municipality can facilitate cooperative registration, access to microfinance, and linkages to mainstream tour operators. Such initiatives not only create jobs but also preserve local culture and foster ownership of tourism assets.

STRATEGY #3 – CREATION OF LOCAL TOURISM PROCUREMENT POLICY: A key complementary strategy is the creation of a local tourism procurement policy that prioritises NDZ-based suppliers for municipal and event-related services. Encouraging hotels, lodges, and tour operators to source from local producers (food, crafts, maintenance, logistics) will stimulate secondary economic benefits and strengthen backward linkages.

STRATEGY #4 – ESTABLISHMENT OF E-COMMERCE MARKETPLACE: Digital entrepreneurship also offers new opportunities. NDZ LM should establish an e-commerce marketplace for local tourism products—connecting crafters, guides, and accommodation providers with national and international buyers. Training in digital marketing, photography, and online transactions will ensure competitiveness. The integration of mobile payment solutions can further formalise informal enterprises.

STRATEGY #5 – TOURISM DEVELOPMENT FUND: Finally, a dedicated Tourism Enterprise Development Fund should be established, potentially co-financed by HGDM and private sponsors. This fund would provide small grants or low-interest loans to emerging tourism enterprises for infrastructure improvements, product diversification, or marketing. By embedding enterprise development within the municipality's LED implementation framework, NDZ LM can ensure that tourism growth translates directly into community wealth creation, inclusive participation, and long-term economic resilience.



17.6. PROJECTS AND PROGRAMMES

TABLE 81: PROJECTS AND PROGRAMMES

STRATEGIC INTERVENTION	PROGRAMME / PROJECT TITLE	DESCRIPTION	LEAD / PARTNERS	EXPECTED BENEFITS
Policy and Planning Interventions	Tourism Spatial Development Framework (TSDF)	Preparation of a tourism spatial plan identifying nodes, corridors, and priority investment areas.	NDZ LM / DEDTEA / HGDM	Guides infrastructure and investment; supports alignment with PSDF and SDF.
	Municipal Tourism Policy Framework (MTPF)	Establishment of a local policy governing tourism investment, regulation, and community participation.	NDZ LM / COGTA	Creates coherent institutional framework and investor confidence.
	Tourism GIS and Asset Mapping Project	Digital mapping of tourism assets and spatial data integration with SDF.	NDZ LM / SANBI / CSIR	Improves data-driven planning and marketing.
Infrastructure Development Strategies	Tourism Roads Rehabilitation Programme	Upgrading of key access roads: P429, D1201, and R612 routes.	DOT / NDZ LM / HGDM	Improves connectivity and access to key attractions.
	Visitor Infrastructure Enhancement Project	Construction of visitor centres, rest areas, signage, ablutions, and parking in priority nodes.	NDZ LM / TKZN / DEDTEA	Enhances visitor experience and safety.
	Smart Tourism Connectivity Programme	Expansion of broadband and Wi-Fi access at main nodes and tourism clusters.	NDZ LM / SITA / DTPS	Improves digital presence and accessibility.
Destination Marketing Strategies	NDZ Tourism Branding Campaign	Development of unified branding: “Gateway to the Southern Drakensberg”.	NDZ LM / TKZN / HGDM	Improves destination visibility and competitiveness.
	Digital Tourism Platform (Website & App)	Creation of a real-time booking and marketing platform.	NDZ LM / Private IT Partner	Enhances digital engagement and marketing.
	Regional Tourism Marketing Forum	Establishment of inter-municipal marketing partnership with HGDM.	HGDM / NDZ LM / TKZN	Strengthens district-level cooperation.
Enterprise Development Strategies	Tourism Enterprise Support Centres (TESCs)	Establish business incubation hubs in Underberg, Creighton, Bulwer.	NDZ LM / SEDA / DEDTEA	Builds capacity and creates local employment.
	Community-Based Tourism Cooperatives	Facilitate cooperative formation in traditional areas (Kilmun, Nokweja, Mqatsheni).	NDZ LM / Traditional Councils	Promotes inclusive rural development.
	Tourism SMME Fund	Establishment of a local tourism grant and microloan facility.	NDZ LM / DBSA / Private Sector	Improves access to finance for small operators.

STRATEGIC INTERVENTION	PROGRAMME / PROJECT TITLE	DESCRIPTION	LEAD / PARTNERS	EXPECTED BENEFITS
Environmental Management Strategies	Eco-Tourism Corridor Development	Establish ecologically sensitive tourism trails and conservation zones.	NDZ LM / Ezemvelo KZN Wildlife	Balances tourism and environmental protection.
	Green Tourism Certification Programme	Encourage lodges and attractions to adopt sustainability practices.	DEDTEA / NDZ LM / TKZN	Promotes environmental stewardship and green branding.
	Community Environmental Education Initiative	Training on biodiversity, conservation, and waste management in tourism areas.	NDZ LM / DEFF / NGOs	Builds community capacity for sustainable tourism.
Investment Promotion Strategies	Tourism Investment Nodes Development	Develop catalytic projects in Underberg-Himeville and Creighton-Bulwer.	NDZ LM / DEDTEA / DBSA	Attracts private investment and creates jobs.
	PPP Tourism Infrastructure Fund	Public-private investment scheme for lodges, trails, and event venues.	NDZ LM / DBSA / Private Sector	Mobilises funding and promotes shared risk.
	Tourism Incentive Scheme	Introduce land-use and rates rebates for tourism investors.	NDZ LM / Treasury / DEDTEA	Encourages private investment.
Institutional Strengthening Strategies	NDZ Tourism Forum	Establish a coordination platform between NDZ, HGDM, and private sector.	NDZ LM / HGDM / CTOs	Improves collaboration and governance.
	Municipal Tourism Unit Establishment	Create a dedicated tourism office with professional staff.	NDZ LM / COGTA	Enhances planning, monitoring, and service delivery.
	Tourism Data and Monitoring Observatory	Develop data systems for visitor tracking and impact assessment.	NDZ LM / Stats SA / DEDTEA	Improves evidence-based decision-making.

17.7. PROJECT PHASING PLAN

TABLE 82: PROJECT PHASING PLAN

TIMEFRAME	PRIORITY PROJECTS / PROGRAMMES	INDICATIVE ACTIONS	EXPECTED OUTPUTS
Short-Term (1–5 years)	• NDZ Tourism Branding & Marketing Campaign- Tourism Spatial Development Framework (TSDF) • Rehabilitation of P429 & D1201 Roads • Establishment of NDZ Tourism Forum- Tourism GIS & Asset Mapping Project • Visitor Infrastructure Enhancement (Phase 1) • Establishment of TESCs in Underberg & Creighton	• Develop marketing tools and visual identity- Initiate Road rehabilitation works • Conduct asset mapping and geospatial integration • Formalise tourism forum and committees	• Coherent brand identity- Improved accessibility • Updated spatial database • Operational stakeholder platform
Medium-Term (5–10 years)	• Eco-Tourism Corridor Development- Tourism Investment Node: Underberg-Himeville • Regional Tourism Marketing Forum- Smart Tourism Connectivity Programme- Green Tourism Certification Scheme • Tourism Enterprise Fund- Expansion of Visitor Infrastructure (Phase 2)	• Implement eco-trails and signage • Construct visitor centre at Himeville • Deploy Wi-Fi infrastructure- Launch SMME funding facility	• Sustainable product diversification • Improved connectivity • Empowered enterprises • Increased visitor stay and spend
Long-Term (10–20 years)	• Tourism Investment Node: Creighton-Bulwer Corridor • PPP Tourism Infrastructure Fund • Rail Heritage Revitalisation Project (Paton's Steam Train) • Comprehensive Event Tourism Programme • Tourism Data and Monitoring Observatory • Community-Based Tourism Expansion (Kilmun, Nokweja)	• Attract PPP investors • Extend heritage rail route • Establish event calendar and brand partnerships • Implement data observatory	• Regional investment hub • Expanded tourism circuits • Sustainable event economy • Data-driven governance

17.8. PRIORITISATION MATRIX

TABLE 83: PRIORITISATION MATRIX

CRITERIA	WEIGHT (%)	EXPLANATION
Spatial Impact	25	Degree to which the project enhances nodal or corridor development and improves spatial equity.
Economic Viability / Return	25	Potential to generate revenue, employment, and private investment.
Readiness / Implementability	20	Availability of feasibility studies, land, and institutional readiness.
Social Inclusion / Community Benefit	15	Extent to which project benefits local communities, youth, and women.
Environmental Sustainability	15	Alignment with conservation principles and climate resilience goals.

17.8.1. TOURISM PROJECTS PRIORITISATION MATRIX

TABLE 84: TOURISM PROJECTS PRIORITISATION MATRIX

PROJECT / PROGRAMME	SPATIAL IMPACT (25)	ECONOMIC RETURN (25)	READINESS (20)	SOCIAL BENEFIT (15)	ENVIRONMENTAL (15)	WEIGHTED SCORE (100)	PRIORITY LEVEL
Tourism Roads Rehabilitation Programme	25	20	18	10	10	**83**	**High**
NDZ Tourism Branding Campaign	22	23	20	12	8	**85**	**High**
Tourism Enterprise Support Centres (TESCs)	18	22	15	15	10	**80**	**High**
Eco-Tourism Corridor Development	20	18	15	13	15	**81**	**High**
Smart Tourism Connectivity Programme	17	20	14	12	10	**73**	**Medium**
Tourism GIS and Asset Mapping Project	18	16	18	10	12	**74**	**Medium**
Green Tourism Certification Programme	15	14	12	10	15	**66**	**Medium**

PROJECT / PROGRAMME	SPATIAL IMPACT (25)	ECONOMIC RETURN (25)	READINESS (20)	SOCIAL BENEFIT (15)	ENVIRONMENTAL (15)	WEIGHTED SCORE (100)	PRIORITY LEVEL
Rail Heritage Revitalisation Project	20	23	10	10	12	**75**	**Medium–High**
Tourism Investment Nodes Development	25	25	14	13	10	**87**	**Top Priority**
NDZ Tourism Forum / Institutional Setup	18	10	20	12	10	**70**	**Medium**

18. INSTITUTIONAL DEVELOPMENT FRAMEWORK

The Institutional Proposals section forms a critical component of the Dr. Nkosazana Dlamini Zuma Local Municipality's Spatial Development Framework (SDF). Its primary purpose is to establish the institutional mechanisms, governance structures, and organisational capacity required to effectively implement the spatial vision and proposals contained in the SDF. While spatial planning identifies the "where" of development, institutional planning addresses the "how" — ensuring that the municipality and its partners possess the necessary capacity, resources, and coordination mechanisms to translate strategies into tangible outcomes.

This chapter outlines the rationale for institutional proposals within the SDF, highlighting the pressing need for effective governance, intergovernmental alignment, and robust monitoring frameworks in order to respond to the challenges of rural underdevelopment, poverty, fragmented land governance, and environmental vulnerability in NDZ LM.

18.1. ALIGNMENT WITH BROADER POLICY FRAMEWORKS

Institutional proposals within NDZ LM are designed to be consistent with and reinforce broader frameworks:

- National Development Plan (NDP 2030): Emphasises capable and developmental local government.
- Spatial Planning and Land Use Management Act (SPLUMA 2013): Requires municipalities to align institutional capacity with spatial governance functions.
- KwaZulu-Natal PSDF (2021): Calls for strengthened governance, improved intergovernmental coordination, and enhanced municipal capacity.
- Harry Gwala District GDS (2024): Stresses the need for institutional integration across the district family of municipalities.
- NDZ IDP (2025/26): Identifies weak governance capacity and lack of alignment with traditional councils as key challenges to be resolved.

By situating institutional proposals within these frameworks, the report ensures policy coherence and strengthens the ability of NDZ LM to secure intergovernmental and donor support for implementation.

18.2. CURRENT INSTITUTIONAL CHALLENGES IN NDZ LM

The local municipality faces a number of institutional challenges that constrain its ability to implement spatial development priorities. The NDZ IDP 2025/26 identifies limited staff capacity, over-reliance on consultants, weak financial management, and insufficient intergovernmental coordination as persistent obstacles. Furthermore, the Human Settlements Sector Plan Review (2024) highlights bottlenecks in housing delivery linked to a lack of project management capacity, insufficient coordination between municipal and provincial housing departments, and weak enforcement of land use management by-laws.

In addition, sectoral studies such as the Environmental Management Plan (2020–2025) point to challenges in monitoring environmental compliance and integrating ecological concerns into development approvals. Similarly, the Disaster Management Sector Plan (2019/20) stresses that the municipality lacks adequate institutional frameworks to manage risks, especially in wards vulnerable to floods, fires, and climate change impacts.

These weaknesses result in implementation delays, uncoordinated investment, and uneven service delivery, particularly in rural traditional council areas.

Addressing these institutional deficits is therefore fundamental to ensuring that the Spatial Development Framework can be translated into practice.

18.3. STRATEGIC INSTITUTIONAL DEVELOPMENT PROPOSALS

18.3.1. HUMAN RESOURCE DEVELOPMENT AND SKILLS ENHANCEMENT

One of the most pressing institutional challenges in NDZ LM is the shortage of skilled personnel in critical areas such as spatial planning, engineering, financial management, and environmental management. The 2025/26 Draft IDP identifies capacity gaps across departments, where staff often hold multiple portfolios, leading to diluted focus and overstretched service delivery. The municipality also relies heavily on external consultants, particularly for technical functions like GIS mapping, environmental assessments, and feasibility studies. While consultants play an important role in plugging gaps, this approach is not sustainable because institutional memory is lost once external service providers exit.

To address this, NDZ LM must invest in a long-term human resource development strategy. This strategy should focus on:

- **STRATEGY #1 – PROFESSIONALISATION OF MUNICIPAL STAFF:** Recruitment of qualified urban and regional planners, environmental officers, engineers, and project managers should be prioritised. A dedicated skills audit is required to identify exact gaps and establish a roadmap for recruitment. For instance, the Human Settlements Sector Plan Review (2024) highlights that the municipality struggles to manage housing backlogs due to the absence of dedicated housing specialists and social facilitators.
- **STRATEGY #2 – TARGETED CAPACITY-BUILDING PROGRAMMES:** Partnerships with the LGSETA, SALGA, and local universities (University of KwaZulu-Natal, Durban University of Technology) could facilitate accredited training for staff. Specific training modules should include project cycle management, municipal financial management (in line with MFMA requirements), and advanced GIS techniques.
- **STRATEGY #3 – GRADUATE INTERNSHIP & PLACEMENT SCHEMES:** The municipality should institutionalise a pipeline programme that places planning, engineering, and built environment graduates in municipal departments for two years. This not only reduces reliance on consultants but also ensures long-term retention of skills within the municipality.
- **STRATEGY #4 – IMPLEMENTATION OF RETENTEION STRATEGIES:** Rural municipalities like NDZ often lose skilled professionals to better-resourced urban municipalities. To counter this, NDZ should adopt incentive schemes such as housing allowances, bursary opportunities for postgraduate studies, and professional development recognition programmes.

The overarching goal is to transform NDZ LM into a “learning municipality” where continuous professional development is institutionalised. By investing in people, the municipality will be able to fulfil its developmental mandate and effectively implement its spatial strategies.

18.3.2. ESTABLISHMENT OF A MUNICIPAL SPATIAL PLANNING AND GIS UNIT

At present, NDZ LM lacks a fully resourced Geographic Information System (GIS) and spatial planning unit. Spatial data is fragmented, often outdated, and spread across different departments and consultants. This creates challenges for evidence-based decision-making, monitoring land use changes, and aligning infrastructure with settlement growth. For example, the Creighton Precinct Plan (2022) and the Underberg-Himeville Precinct Plan (2025) both flagged inadequate mapping and monitoring capacity as barriers to integrated development.

The proposed GIS Unit would function as the central spatial intelligence hub of the municipality. Its core functions would include:

- **STTATEGY #1 – LAND USE MANAGEMENT SUPPORT:** Providing accurate zoning, cadastral, and settlement maps to support SPLUMA compliance. This will strengthen enforcement of the Land Use Management Scheme and curb unregulated development.
- **STRATEGY #2 – ENVIRONMENTAL & BIOPHYSICAL DATA INTEGRATION:** By digitising data from the Environmental Management Plan (2020–2025), the municipality can ensure that development proposals consider wetlands, biodiversity corridors, and erosion-prone areas.
- **STRATEGY #3 – INFRASTRUCTURE & SERVICE MONITIRING:** The GIS Unit would map water and sanitation backlogs at ward level, supporting Harry Gwala District's bulk service planning and ensuring that IDP priorities are evidence-based.
- **STRATEGY #4 – COMMUNITY-BASED PLANNING TOOLS:** GIS outputs can be simplified into accessible maps that ward committees, and traditional councils can use for participatory planning. This improves transparency and enhances local accountability.
- **STRATEGY #5 – DISASTER RISK MAPPING:** Integrating data from the Disaster Management Sector Plan (2019/20), the unit could identify high-risk settlements prone to flooding, wildfires, or snow hazards.

The GIS Unit would require at least two full-time GIS specialists, one land use planner, and a data technician. Start-up support could come from the Harry Gwala District Municipality and the KZN COGTA Shared Services Programme, with NDZ progressively taking full responsibility. Over time, the GIS Unit would allow the municipality to make informed, data-driven decisions, ensuring that scarce resources are allocated where they are most needed.

18.3.3. INTERGOVERNMENTAL PLANNING AND COORDINATION DESK

Fragmentation between local, district, and provincial spheres of government undermines the implementation of spatial priorities. NDZ LM relies on Harry Gwala District Municipality for water services, on the provincial Department of Human Settlements for housing, and on the Department of Transport for road upgrades. At the same time, traditional councils administer large tracts of land, particularly in rural settlements. Without a central coordination mechanism, investments often occur in silos, leading to duplication and inefficiency.

The proposed Intergovernmental Planning and Coordination Desk (IPCD) would be a dedicated institutional platform located within NDZ LM's Municipal Manager's office. Its functions would include:

- **STRATGEY #1 – PROMOTION OF VERTICAL ALIGNMENT:** Ensuring NDZ priorities are captured in district and provincial sector budgets. For example, housing pipeline projects must align with the municipal SDF and HSSP. Similarly, district water infrastructure investments must support NDZ's nodal development priorities.
- **STRATEGY #2 – PROMOTION OF HORIZONTAL ALIGNMENT:** Facilitating engagement between traditional councils, ward committees, and municipal officials. This is critical in NDZ, where 16 traditional councils govern land, and customary land governance must be integrated with SPLUMA-based planning.
- **STRATEGY #3 – CONVENING INTEGRATED PLANNING FORUMS:** Institutionalising quarterly forums where representatives from NDZ LM, Harry Gwala District, provincial departments, and traditional councils jointly review spatial priorities.
- **STRATEGY #4 – INTERGOVERNMENT PROJECT PIPELINE:** Developing a consolidated project pipeline across spheres, ensuring infrastructure delivery is sequenced correctly (e.g., bulk water before housing).

18.3.4. STRENGTHENED PROJECT MANAGEMENT UNIT (PMU)

The Project Management Unit (PMU) plays a pivotal role in managing infrastructure projects funded through the Municipal Infrastructure Grant (MIG) and other funding streams. In NDZ LM, the PMU is under-resourced, with too few technical staff to manage the volume of projects. This results in delays, under-expenditure, and in some cases, poor-quality delivery. The 2024 Human Settlements Sector Plan Review noted that housing projects often stall due to weak project management oversight. A reformed PMU should be expanded and professionalised with the following components:

- **STRATEGY #1 – EMPLOYMENT OF DEDICATED TECHNICAL STAFF:** Hiring additional engineers, quantity surveyors, and project managers to handle project scoping, procurement, and implementation oversight.
- **STRATEGY #2 – INTRODUCTION OF STANDARDISED PROJECT APPRAISAL TOOLS:** Introducing appraisal criteria to ensure projects align with SDF spatial priorities and sustainability principles before funding is committed.
- **STRATEGY #3 – IMPLEMENTATION OF MONITORING & REPORTING SYSTEMS:** Quarterly dashboards should be produced for Council, highlighting progress, budget utilisation, and risks. The dashboards can also feed into the M&E framework of the SDF.
- **STRATEGY #4 – CAPACITY SUPPORT FROM DEVELOPMENT PARTNERS:** Partnerships with the Development Bank of Southern Africa (DBSA) and the Municipal Infrastructure Support Agency (MISA) can provide training, mentoring, and technical expertise.
- **STRATEGY #5 – COMMUNITY-BASED OVERSIGHT:** Local project monitoring committees should be institutionalised to provide grassroots oversight, increasing accountability and reducing risks of mismanagement.

By strengthening the PMU, NDZ LM will improve its ability to deliver infrastructure on time and within budget, reduce the risk of fiscal underperformance, and build public trust in the municipality's ability to meet service delivery needs.

18.3.5. PARTNERSHIPS AND RESOURCE MOBILISATION

No local municipality can meet the scale of institutional and developmental challenges alone. Partnerships and innovative resource mobilisation are critical to ensuring that NDZ LM builds institutional resilience and financial sustainability. Proposals include:

- **STRATEGY #1 – PROMOTION OF TERTIARY PARTNERSHIPS:** Formal memoranda of understanding with universities such as UKZN and DUT could establish joint research hubs, GIS laboratories, and internship programmes. These partnerships can bridge the skills gap and create a pipeline of young professionals to support NDZ.
- **STRATEGY #2 – PROMOTION OF PUBLIC-PRIVATE PARTNERSHIPS (PPPs):** Leveraging PPPs in agro-processing, tourism, and renewable energy sectors can bring private investment while also transferring technical expertise to municipal staff. For example, agro-processing ventures in Underberg-Himeville could be linked to municipal spatial and LED strategies.
- **STRATEGY #3 – DONOUR DEVELOPMENT FINANCE:** Engaging with donors such as the European Union, UN-Habitat, and DBSA can unlock funding for pilot projects, institutional reforms, and training programmes.
- **STRATEGY #4 – COMMUNITY & TRADITIONAL COUNCIL INVOLVEMENT:** Building local partnerships with ward committees, NGOs, and traditional councils ensures that governance is participatory and inclusive. Training traditional council representatives

in land use management can help integrate customary systems with statutory frameworks.

- **STRATEGY #5 – CORPORATE SOCIAL RESPONSBILITY (CSR) PROGRAMMES:** Partnering with local agribusinesses, forestry companies, and tourism operators to co-fund social infrastructure (schools, clinics, waste management) can ease municipal fiscal pressures.

Ultimately, resource mobilisation should not only be about money, but also about harnessing expertise, innovation, and community energy. With a deliberate partnership framework, NDZ LM can transform itself into a collaborative municipality that draws strength from diverse actors.

18.3.6. GOVERNANCE ARRANGEMENTS

Governance in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM) is complex, involving multiple actors across local, district, provincial, and traditional structures. The municipality operates in a context where traditional councils govern significant portions of land, the Harry Gwala District Municipality holds key service delivery mandates (particularly water and sanitation), and provincial sector departments drive housing, roads, and education provision. The challenge, as repeatedly highlighted in the NDZ IDP 2025/26 and the KZN PSDF (2021), is that alignment across these spheres is often weak.

Fragmented governance results in duplicated investments, poorly sequenced service delivery, and confusion in land administration. This chapter proposes governance arrangements to improve vertical and horizontal alignment, strengthen coordination with traditional councils, and institutionalise participatory mechanisms.

18.3.7. VERTICAL ALIGNMENT: LOCAL–DISTRICT–PROVINCIAL–NATIONAL COORDINATION

The vertical relationship between NDZ LM, the Harry Gwala District Municipality (HGDM), KwaZulu-Natal Province, and National Government is critical for ensuring coherent development outcomes. Currently, NDZ LM's ability to implement its SDF is constrained by the fact that many core functions fall outside its direct mandate:

- Water and sanitation are managed at the district level.
- Housing projects are implemented by the provincial Department of Human Settlements.
- Roads and education facilities are driven by provincial sector departments.

Without structured vertical alignment mechanisms, NDZ's spatial priorities are often overlooked in provincial and district budgets. For instance, the Human Settlements Sector Plan Review (2024) noted that many NDZ housing projects stalled because provincial allocations did not align with municipal priorities. Similarly, the Disaster Management Sector Plan (2019/20) highlighted that provincial disaster resources are often deployed reactively rather than proactively coordinated with municipal planning. To address this, NDZ LM should institutionalise the following governance reforms:

- **STRATEGY #1 - INTERGOVERNMENTAL PLANNING FORUMS (IGPFS):** NDZ LM should convene quarterly planning forums with HGDM and provincial departments to jointly review project pipelines, budget allocations, and implementation progress. These forums should be formally recognised in the IDP process and linked to district-level IDP Representative Forums.
- **STRATEGY #2 - PROVINCIAL-MUNICIPAL JOINT TECHNICAL COMMITTEES:** Sectoral committees (housing, roads, water) should be established where municipal officials sit alongside provincial

planners to co-design projects. For example, an NDZ–Province Housing Committee could jointly prioritise settlement upgrades in Donnybrook and Creighton.

- **STRATEGY #3 - ALIGNMENT PROTOCOLS:** A binding protocol should be developed (modelled on SPLUMA Section 33 provisions) that requires all district and provincial projects within NDZ LM to be assessed for SDF alignment before implementation.
- **STRATEGY #4 - NATIONAL TREASURY ENGAGEMENT:** NDZ should leverage conditional grants (MIG, INEP, USDG) more effectively by aligning them with SDF priorities and engaging National Treasury to support capacity-building for project preparation.

The benefit of these measures is a shared project pipeline, where bulk services, housing, and road investments are coordinated in sequence, avoiding mismatched infrastructure delivery. This reduces waste, accelerates service delivery, and ensures that NDZ's SDF guides all development actors.

18.3.8. HORIZONTAL ALIGNMENT: COORDINATION BETWEEN LOCAL DEPARTMENTS AND INSTITUTIONS

Horizontal alignment refers to coordination across NDZ LM's own departments and with external local institutions. Internally, departmental silos often hinder integrated planning. For instance, the planning department may approve developments without adequate input from infrastructure services or environmental management. This was highlighted in the Environmental Management Plan (2020–2025), which found that developments were being approved without sufficient environmental screening.

Externally, horizontal alignment must also occur with institutions such as local NGOs, community-based organisations, and parastatals (e.g., Eskom, Transnet, SANRAL). In many cases, parastatal projects within NDZ (such as electricity expansions or rail upgrades) are planned in isolation from municipal processes. Proposals for strengthening horizontal alignment include:

- **STRATEGY #1 - INTEGRATED DEVELOPMENT REVIEW COMMITTEES:** Establish municipal committees where all departments review major project proposals collectively before approval. This ensures that planning, finance, infrastructure, environment, and housing functions are aligned.
- **STRATEGY #2 - JOINT INFRASTRUCTURE PLANNING PLATFORMS:** Coordinate with parastatals like Eskom and SANRAL to align investment plans with municipal spatial priorities. For example, new transmission lines or road upgrades should coincide with designated SDF nodes such as Underberg and Bulwer.
- **STRATEGY #3 - LOCAL CIVIL SOCIETY PARTNERSHIPS:** Institutionalise collaboration with NGOs (e.g., in housing and environmental conservation) through Memoranda of Understanding (MOUs). This leverages external expertise and fosters co-production of development.
- **STRATEGY #4 - SPATIAL INTEGRATION TASK TEAM:** A municipal task team dedicated to cross-departmental spatial integration, reporting quarterly to Council, can ensure that all departments align with the SDF vision.

18.3.9. INTEGRATING TRADITIONAL COUNCILS INTO MUNICIPAL GOVERNANCE

A distinctive feature of NDZ LM is that over 70% of its land is under traditional council authority. This creates unique governance challenges, as customary land allocation processes often operate outside formal SPLUMA systems. Traditional leaders play a crucial role in allocating land for housing, agriculture, and businesses, but without coordination with the municipality, such allocations can result in unplanned settlements, infrastructure mismatches, and land use conflicts.

The NDZ SDF (2021) and the Draft IDP 2025/26 both identify the lack of integration between municipal planning and traditional council decision-making as a major institutional weakness. For example, new rural housing clusters often emerge without corresponding water or road infrastructure, straining the district's capacity to respond. To address this, the following proposals are advanced:

- **STRATEGY #1 - CUSTOMARY LAND GOVERNANCE FORUM:** Establish a municipal–traditional council forum where all land allocation decisions are tabled before finalisation. This ensures coordination with the SDF and bulk service planning.
- **STRATEGY #2 - CAPACITY-BUILDING FOR TRADITIONAL LEADERS:** Provide training on SPLUMA, environmental management, and disaster risk reduction. This empowers traditional councils to make land decisions that are compliant with statutory frameworks.
- **STRATEGY #3 - JOINT LAND USE REGISTERS:** Develop a joint land allocation register between the municipality and traditional councils, maintained through the proposed GIS Unit (Chapter 2). This creates a transparent record of all land allocations.
- **STRATEGY #4 - REVENUE-SHARING AGREEMENTS:** Where customary land is used for commercial ventures, establish agreements for rates and service payments to support municipal fiscal sustainability.

18.3.10. INSTITUTIONALISING PARTICIPATORY GOVERNANCE

Good governance is not only about coordination between institutions but also about meaningful citizen participation. NDZ LM has ward committees and IDP Representative Forums, but participation is often tokenistic, limited to consultation without meaningful influence on decision-making. This was noted in the Bulwer Urban Regeneration Plan (2021), where community members expressed frustration that their priorities were not translated into budget allocations. Proposals for institutionalising participatory governance include:

- **STRATEGY #1 - WARD DEVELOPMENT PLANS (WDP):** Each ward should prepare a participatory development plan annually, linked to the IDP and SDF. WDPs would be collated into the municipal development framework, ensuring local voices directly inform municipal budgeting.
- **STRATEGY #2 - COMMUNITY-BASED MONITORING:** Communities should be equipped with scorecards to monitor project delivery, linked to the municipal M&E framework (Chapter 4). This increases accountability and transparency.
- **STRATEGY #3 - DIGITAL PARTICIPATION PLATFORMS:** Develop an online portal where communities can track projects, lodge concerns, and access municipal maps. This modernises participation and engages youth more effectively.
- **STRATEGY #4 - CIVIL SOCIETY REPRESENTATION IN FORUMS:** NGOs, faith-based organisations, and cooperatives should have representation in IDP and SDF forums to ensure diverse perspectives.

18.4. INSTITUTIONAL PROPOSALS INDICATIVE PROJECTS

TABLE 85: INSTITUTIONAL PROPOSALS INDICATIVE PROJECTS

PROJECT	OBJECTIVES & RATIONALE	KEY STAKEHOLDERS	EXPECTED INSTITUTIONAL IMPACT
Creation of the Intergovernmental Planning & Coordination Desk (IPCD)	• Establish a dedicated mechanism in the Municipal Manager's office to address fragmentation across spheres of government. • Convene quarterly intergovernmental forums. • Develop a consolidated project pipeline (housing, water, roads). • Align customary land allocations with SDF priorities.	• NDZ LM: Municipal Manager's Office (lead). • Harry Gwala District Municipality. • Provincial Depts: Human Settlements, Transport, Health, Education. • Traditional Councils. - National Treasury (oversight of grants).	• Reduced duplication and improved sequencing of infrastructure and housing. • Better alignment between local, district, and provincial projects. • Stronger municipal influence on higher-level budgets and programmes. • Integration of customary and statutory systems.
Strengthening the Project Management Unit (PMU)	• Expand and professionalise the PMU to reduce under-expenditure and delays. • Recruit engineers, quantity surveyors, and project managers. • Introduce standardised project appraisal frameworks aligned to SDF. • Develop dashboards for quarterly monitoring of expenditure and progress. - Institutionalise community monitoring committees.	• NDZ LM: Infrastructure Services Dept. (lead). • Harry Gwala District (bulk services alignment). • Provincial Treasury (fiscal oversight). • DBSA & MISA (capacity support). - Community monitoring committees.	• Accelerated infrastructure delivery and reduced project delays. • Improved fiscal performance and budget absorption. • Strengthened alignment of infrastructure projects with SDF priorities. • Increased community trust and accountability.
Traditional Council Integration Programme	• Formalise collaboration between municipal and traditional councils (covering >70% of NDZ land). • Establish Customary Land Governance Forum. • Provide SPLUMA, environmental, and disaster training to traditional leaders. • Develop a joint land allocation register.	• Traditional Councils (lead partners). • NDZ Planning & Development Dept. • KZN COGTA (oversight). • Local communities (beneficiaries).	• Reduced land-use conflicts and unplanned settlements. • Better integration of customary and statutory systems. • Improved coordination between land allocation and service delivery.

PROJECT	OBJECTIVES & RATIONALE	KEY STAKEHOLDERS	EXPECTED INSTITUTIONAL IMPACT
	• Introduce revenue-sharing mechanisms for commercial ventures on customary land.		• Strengthened legitimacy of municipal governance in rural areas.
Community-Based Monitoring & Scorecards	• Institutionalise citizen oversight of municipal projects to improve transparency. • Develop Ward Development Scorecards. • Train ward committees and NGOs in monitoring. • Create an online portal for project tracking and citizen feedback. • Link community monitoring to municipal M&E framework.	• NDZ Office of the Speaker (lead). • Ward Committees. • NGOs and civil society groups. • Municipal departments.	• Increased transparency and accountability. • Enhanced citizen participation in monitoring delivery. • Reduction of mistrust between communities and the municipality. • Complemented M&E with grassroots oversight mechanisms.

18.5. INSTITUTIONAL PROPOSALS INDICATIVE PROJECT PHASING

TABLE 86: INSTITUTIONAL PROPOSALS PROJECT PHASIN

PROJECT	SHORT-TERM (1–5 YEARS)	MEDIUM-TERM (5–10 YEARS)	LONG-TERM (10–20 YEARS)
Intergovernmental Planning & Coordination Desk (IPCD)	• Establish desk in Municipal Manager's office. • Convene first Intergovernmental Planning Forum with HGDM, Province, and Traditional Councils. • Draft Intergovernmental Alignment Protocol.	• Fully institutionalise quarterly IGR forums. • Joint project pipeline adopted by province and district. • Customary land allocation processes integrated into SDF reviews.	• Mature IPCD serving as a permanent intergovernmental hub. • NDZ recognised for best practice in vertical & horizontal governance alignment. • IPCD evolves into a District-wide planning model.
Strengthening the Project Management Unit (PMU)	• Recruit additional engineers and project managers. • Develop project appraisal and screening tools aligned with SDF.	• Consolidate PMU as a high-capacity delivery unit.	• PMU functions as a regional implementing agent, managing provincial/district infrastructure projects. Achieve >95% annual capital budget expenditure.

PROJECT	SHORT-TERM (1–5 YEARS)	MEDIUM-TERM (5–10 YEARS)	LONG-TERM (10–20 YEARS)
	• Launch quarterly performance dashboards.	• Introduce e-Procurement and online tracking of projects. • Community monitoring committees fully operational in all wards.	
Traditional Council Integration Programme	• Establish Customary Land Governance Forum. • Begin training traditional leaders on SPLUMA, environment, and disaster risk. • Pilot joint land allocation register in 2 traditional councils.	• Scale up land allocation register to all traditional councils. • Institutionalise joint review of customary land allocations before finalisation. • Develop revenue-sharing mechanisms for commercial ventures.	• Fully integrated customary–statutory planning system. • Sustainable land governance model balancing tradition & modern planning. • Long-term stability in settlement growth patterns.
Community-Based Monitoring & Scorecards	• Develop ward scorecards for project monitoring. • Train ward committees and NGOs. • Launch pilot digital portal for 3 wards.	• Scale up portal across municipality. • Institutionalise scorecards as part of annual IDP reviews. • Publish annual "Community Accountability Report".	• Mature dual accountability system where communities and municipal M&E jointly assess performance. • Fully digitalised citizen engagement (mobile apps, real-time reporting).

19. COMMERCIALISATION OF THE SANI PASS BORDER POST

The Sani Pass / Lesotho border post represents one of the most strategically distinctive yet under-leveraged economic gateways within the Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). Although internationally recognised for its scenic, tourism, and heritage value, the border post currently functions in a narrow and largely transactional manner, focused primarily on immigration control and seasonal visitor movement. Its broader potential as a generator of sustained local economic value remains unrealised. This report responds directly to that gap by setting out a coherent strategy to commercialise the Sani Pass border post on the South African side, repositioning it as a multi-functional economic gateway that contributes meaningfully to the municipal space economy.



The section is intended to inform Phase 4 (Spatial Proposals) and Phase 5 (Implementation) of the NDZ Spatial Development Framework. It adopts a hybrid approach that combines strategic spatial-economic positioning with implementable, institutionally grounded actions. The level of analysis and framing is designed to support informed deliberation by Municipal Council, while remaining sufficiently flexible to adapt to future policy refinement and intergovernmental processes.

19.1. STRATEGIC RATIONALE

The Sani Pass occupies a unique position within the municipal and regional spatial system. It functions simultaneously as a cross-border interface between NDZ LM and Lesotho, a gateway into a high-value tourism and conservation landscape, and a potential point of exchange for goods, services, and value-added activities linked to agriculture and niche logistics. These overlapping roles provide a strong strategic rationale for deliberate commercialisation, particularly in a municipality where economic diversification opportunities are limited and spatially constrained.

Despite these inherent advantages, economic activity associated with the border post remains fragmented and weakly integrated into the broader municipal economy. Opportunities for local value retention, enterprise development, and employment creation are largely missed, while informal and seasonal trading activities occur without adequate spatial structuring or regulatory support. The absence of an explicit commercialisation framework has therefore resulted in both underperformance and unmanaged pressures, reinforcing the need for a planned, SDF-consistent intervention.

19.2. CORE APPROACH

This report advances a graduated commercialisation model grounded in established spatial planning principles and calibrated to the institutional and environmental realities of NDZ LM. Rather than proposing a single, large-scale intervention, the approach emphasises incremental development that expands the functional role of the border post over time. This includes the introduction of customs-compatible logistics and light freight activities at a scale appropriate to a rural and environmentally sensitive context, the facilitation of agri-trade and cross-border value chains linked to the municipality's agricultural base, and the strengthening of tourism-linked commercial functions that enhance visitor experience while supporting local enterprise development.

In this framework, informal and small-scale cross-border trade is treated as a secondary but integral layer of the local economy. The report deliberately avoids both marginalising and romanticising such activity. Instead, it proposes structured spatial accommodation, gradual formalisation, and regulatory integration measures that improve economic outcomes while mitigating operational, safety, and governance risks.

19.3. INSTITUTIONAL EMPHASIS

A central premise of the report is that the successful commercialisation of the Sani Pass border post is fundamentally dependent on institutional alignment rather than spatial planning alone. The border post operates within a complex governance environment involving multiple spheres of government and regulatory mandates. Accordingly, the report explicitly analyses the roles and responsibilities of NDZ Local Municipality, national border management, customs and immigration authorities, relevant provincial economic development and tourism entities, and potential private-sector partners.

Particular emphasis is placed on identifying realistic coordination mechanisms, clarifying institutional interfaces, and highlighting governance risks and capacity constraints. While all spatial interventions are strictly confined to the NDZ municipal side, the report also outlines partnership approaches for engagement with cross-border and transfrontier institutions, recognising that economic functionality cannot be fully realised in isolation from these actors.

19.4. IMPLEMENTATION OUTLOOK

To ensure that proposals are credible and actionable, the report sets out a phased implementation framework structured around short-, medium-, and long-term horizons. In the short term (0–5 years), the focus is placed on institutional alignment, spatial safeguarding, feasibility refinement, and pilot commercial activities that test market demand and operational capacity. The medium-term phase (5–10 years) emphasises consolidation, including the strengthening of logistics, agri-trade, and tourism support functions, as well as the formalisation of governance and partnership arrangements. Over the long term (10–20 years), the report envisages the maturation of the Sani Pass border post into a recognised cross-border economic gateway node embedded within the municipal settlement and corridor system.

19.5. OUTCOME

If implemented in a coordinated and incremental manner, the commercialisation of the Sani Pass border post has the potential to significantly enhance NDZ LM's role within the regional space economy. It can contribute to economic diversification, improve local income retention, create employment opportunities aligned with local skills, and strengthen the functional performance of a strategically important border gateway. Crucially, these outcomes can be achieved in a manner that reinforces the objectives of the NDZ Spatial Development Framework, particularly with respect to nodal strengthening, spatial integration, and sustainable rural development.

19.6. STRATEGIC CONTEXT

The strategic context for the commercialisation of the Sani Pass border post is shaped by its position within a layered spatial system that operates simultaneously at local, district, provincial, national, and cross-border scales. Within this system, the Sani Pass performs a role that is functionally significant but strategically under-articulated in existing planning practice. Understanding this context is essential to ensuring that commercialisation initiatives are spatially appropriate, policy-consistent, and institutionally realistic.

At a municipal level, the Sani Pass is located within a predominantly rural and environmentally sensitive part of the municipality, characterised by low settlement densities, limited economic diversification, and strong dependence on agriculture and tourism. In this setting, conventional models of nodal development and industrial concentration are neither appropriate nor feasible. Instead, the border post must be understood as a specialised gateway node, whose value derives from movement, exchange, and access rather than from scale or agglomeration alone. Its strategic role is therefore qualitatively different from that of urban or service nodes elsewhere in the municipal hierarchy.

From a district and provincial perspective, the Sani Pass forms part of a broader pattern of peripheral gateways that connect rural hinterlands to regional and international systems. These gateways are increasingly recognised in spatial policy as critical points for unlocking niche economic opportunities, supporting rural economies, and strengthening cross-border integration. However, they are also identified as areas where weak coordination between spheres of government and limited municipal capacity often undermine development outcomes. The Sani Pass exemplifies this tension between opportunity and constraint.

The border post's strategic context is further shaped by its relationship to regional tourism systems associated with the Drakensberg and adjacent highland landscapes. Tourism flows through the Sani Pass are significant in symbolic and experiential terms, but remain seasonal and highly sensitive to weather, access conditions, and regulatory processes. Without deliberate intervention, tourism alone is unlikely to generate the depth of economic activity required to transform the local economy. This reality reinforces the need to situate tourism within a broader commercialisation strategy that includes trade facilitation, logistics support, and value-chain development.

Nationally, the Sani Pass operates within a highly regulated border management environment, where functions such as customs control, immigration, security, and biosecurity are governed by mandates that lie largely outside municipal control. This creates both limitations and opportunities. While the municipality cannot unilaterally redefine the operational role of the border post, it can influence the spatial environment, supporting land uses, and local economic interfaces that shape how border functions translate into local development outcomes. The strategic context therefore demands an approach that works with, rather than against, national regulatory frameworks.

Cross-border dynamics add a further layer of complexity. Although all spatial interventions proposed in this report are confined to the municipal side, the economic logic of commercialisation is inseparable from conditions beyond the border. Trade patterns, tourism circuits, and value chains do not stop at administrative boundaries. The strategic context thus requires the municipality to adopt a relational planning stance, in which partnerships and coordination mechanisms are treated as core components of the development strategy rather than as peripheral considerations.

Within the Spatial Development Framework, the Sani Pass should therefore be understood not merely as a point of entry, but as a strategic interface zone. Its commercialisation must reinforce broader SDF objectives, including nodal differentiation, corridor functionality, rural economic diversification, and sustainable use of environmental assets. Framed in this way, the Sani Pass

becomes a place where spatial planning, economic strategy, and institutional coordination intersect, providing a strong foundation for the more detailed conceptual and sectoral proposals that follow.

19.7. BORDER POST AS AN ECONOMIC GATEWAY

In spatial planning terms, a gateway is not simply a place of passage, but a zone of interaction where movement, regulation, exchange, and local economic activity converge. This conceptual repositioning is critical to unlocking the border post's development potential while remaining consistent with its regulatory and environmental constraints.

At present, the functional logic of the Sani Pass border post is predominantly administrative, with infrastructure and operations oriented almost exclusively toward immigration and customs control. While this function is non-negotiable, it represents only one dimension of the border post's spatial role. The conceptual framework advanced in this report recognises that border processes generate predictable flows of people, goods, vehicles, and services. These flows, if spatially structured and institutionally supported, can form the basis of sustainable commercial activity without compromising border security or environmental integrity.

The gateway concept proposed here is deliberately multi-layered. At its core is the border control function, which remains the primary anchor and determinant of operational standards. Surrounding this core is a layer of supporting economic functions, including logistics handling, agri-trade facilitation, tourism-oriented services, and limited commercial activities that directly benefit from proximity to the border. These functions are not intended to compete with established urban centres or industrial nodes, but rather to perform specialised roles that are location-dependent and complementary to the border post.

A key principle underpinning this framework is appropriate scale. Given the remoteness, environmental sensitivity, and infrastructure limitations of the Sani Pass area, the gateway model explicitly rejects high-volume freight terminals, large-scale industrial estates, or intensive urban development. Instead, it promotes a low- to medium-intensity development logic that prioritises quality, control, and value addition over volume. This includes facilities designed for light logistics, niche agri-processing or consolidation, regulated trading spaces, and tourism-supportive commercial uses.

Another central element of the conceptual framework is functional integration. Commercialisation is not treated as a collection of standalone projects, but as an integrated system in which spatial layout, access management, service provision, and institutional oversight are aligned. This requires careful consideration of how different functions relate to one another spatially, how movement is managed between them, and how conflicts between uses are minimised. The gateway framework therefore emphasises clear spatial structuring, defined development envelopes, and strong management controls.

The framework also incorporates a temporal dimension, recognising that commercialisation will occur incrementally rather than all at once. Early-stage interventions focus on enabling conditions and pilot activities, while later stages allow for consolidation and expansion as demand, capacity, and institutional coordination improve. This phased logic is essential to managing risk and ensuring that development remains responsive to real economic signals rather than speculative assumptions.

Finally, the gateway concept situates the Sani Pass border post within the broader objectives of the municipal Spatial Development Framework. By strengthening the functional performance of a strategically located gateway, the municipality can enhance corridor efficiency, support rural economic diversification, and improve local value retention.

19.8. SECTORAL COMMERCIALISATION STRATEGIES

The commercialisation of the Sani Pass border post requires a differentiated, sector-based approach that recognises both the opportunities created by cross-border movement and the constraints imposed by geography, environmental sensitivity, and institutional capacity. Rather than pursuing a single dominant economic function, the strategy advanced in this report is based on a portfolio of complementary sectors, each operating at an appropriate scale and reinforcing the gateway role of the border post. These sectors are not proposed in isolation, but as interrelated components of an integrated spatial-economic system located entirely within the Dr Nkosazana Dlamini Zuma Local Municipality.

19.8.1. STRATEGY #1 - LOGISTICS AND FREIGHT (APPROPRIATE SCALE)



The logistics and freight potential of the Sani Pass border post lies not in high-volume or heavy industrial freight, but in controlled, niche, and light logistics functions that are directly linked to cross-border movement. The mountainous terrain, climatic conditions, and road geometry of the Sani Pass preclude conventional freight terminals or large-scale warehousing. However, there is clear potential for limited logistics activities such as goods consolidation, inspection support, short-term holding, and customs-compatible handling facilities that improve efficiency and compliance at the border.

These functions can serve both formal traders and regulated small-scale operators, reducing delays, improving predictability, and supporting value retention on the South African side. From a spatial planning perspective, logistics facilities should be compact, well-managed, and clearly separated from sensitive environmental areas, with strict controls on access, operating hours, and vehicle types. Over time, such facilities can contribute to the professionalisation of cross-border trade while remaining aligned with rural infrastructure realities.

19.8.2. STRATEGY #2 - AGRI-TRADE AND CROSS-BORDER VALUE CHAINS

Agriculture remains a foundational component of the NDZ municipal economy, and the Sani Pass presents an opportunity to strengthen cross-border agri-trade linkages and associated value chains. Rather than exporting raw produce without local benefit, the border post can function as a point of aggregation, quality control, and limited value addition for agricultural goods moving across the border. This may include cold-chain support, grading, packaging, or consolidation activities that enhance market access and pricing outcomes for local producers.

The agri-trade strategy is particularly relevant in a context where formal employment opportunities are limited and where agriculture provides an accessible entry point into the economy. Spatially, agri-trade facilities should

be designed to be modular and scalable, allowing for gradual expansion as demand and capacity increase. Institutionally, success in this sector depends on coordination between municipal economic development functions, provincial agriculture departments, customs authorities, and producer organisations.

19.8.3. STRATEGY #3 - TOURISM AND THE VISITOR ECONOMY

Tourism is the most visible economic activity associated with the Sani Pass, but its current contribution to local economic development is constrained by seasonality, limited product diversity, and weak integration with other sectors. The commercialisation strategy therefore positions tourism as a gateway-supporting sector rather than a standalone driver. The emphasis is on enhancing visitor experience, extending length of stay, and increasing local spend through complementary commercial activities.

Potential interventions include visitor orientation facilities, regulated retail and service offerings, guided experience hubs, and support infrastructure that improves safety, information access, and comfort. These activities should reinforce the identity of the Sani Pass as a premium, environmentally sensitive destination, while ensuring that tourism-related commercialisation does not undermine landscape quality or border operations. Importantly, tourism facilities should also be designed to function year-round to the extent possible, reducing vulnerability to seasonal fluctuations.

19.8.4. STRATEGY #4 - SEZ-LITE AND SPECIAL DEVELOPMENT PRECINCT LOGIC

While the Sani Pass context does not lend itself to a formal Special Economic Zone, there is merit in applying SEZ-lite or special development precinct principles at a micro scale. This involves creating a clearly delineated area with targeted incentives, streamlined processes, and coordinated management arrangements tailored to border-related economic activity. Such an approach allows for flexibility and experimentation without the institutional and financial burdens associated with full-scale SEZ designation.

Within this precinct, priority can be given to activities that are border-dependent, value-adding, and employment-generating, while excluding incompatible land uses. The SEZ-lite concept also provides a useful framework for aligning infrastructure investment, land-use controls, and institutional responsibilities in a coherent manner. Over time, this can enhance investor confidence and improve the municipality's ability to manage development outcomes proactively.

19.8.5. STRATEGY #5 - INTEGRATION ACROSS SECTORS

A defining feature of the sectoral strategy is the deliberate integration between logistics, agri-trade, tourism, and special precinct functions. The viability of each sector is enhanced when it operates as part of a connected system rather than as an isolated intervention. For example, improved logistics can support agri-trade efficiency, while tourism flows can create demand for local products and services. This integrated approach reinforces the gateway concept and ensures that commercialisation contributes to broader spatial and economic objectives rather than generating fragmented or competing activities.

19.9. INFORMAL AND SMALL-SCALE TRADE INTEGRATION

Informal and small-scale cross-border trade forms a persistent, though often understated, component of economic activity at the Sani Pass border post. While this form of trade is not the primary driver of the commercialisation strategy proposed in this report, it cannot be ignored or treated as peripheral. In the absence of deliberate spatial and regulatory accommodation, informal trading tends to manifest in ad hoc, inefficient, and sometimes unsafe ways that undermine both border operations and broader development objectives. The integration of informal trade into the commercialisation framework is

therefore approached as a supporting and stabilising intervention, rather than a central economic pillar.

This section adopts a pragmatic stance toward informal and small-scale trade, recognising its role in livelihood support and cross-border exchange while avoiding romanticisation or uncritical endorsement. Informal trade at the Sani Pass is shaped by a combination of limited formal market access, regulatory complexity, and the high costs associated with formal cross-border commerce. These structural factors suggest that outright suppression of informal activity is neither realistic nor desirable. Instead, the strategic objective is to progressively integrate such activity into a more structured and regulated spatial environment.

From a spatial planning perspective, this integration requires the designation of clearly defined areas where informal and small-scale traders can operate without interfering with border control functions, logistics activities, or sensitive environmental zones. Such areas should be modest in scale, carefully located, and supported by basic infrastructure such as shelter, sanitation, waste management, and access control. The emphasis is on order, safety, and visibility rather than on large or permanent structures, ensuring that trading activity remains adaptable and manageable.

Regulatory integration is equally important. Informal traders operating in proximity to the border often face uncertainty regarding permissible activities, enforcement practices, and compliance requirements. The report therefore advocates for simplified, locally administered regulatory mechanisms that operate in alignment with national border management systems. This may include trader registration, designated operating times, and clear rules regarding the types of goods that may be traded. Such measures can reduce conflict, improve compliance, and create pathways for gradual formalisation where appropriate.

Institutionally, the integration of informal trade requires coordination between the municipality, border authorities, and provincial economic development agencies. The municipality's role is primarily to provide spatial structure, basic services, and local economic development support, while national authorities retain responsibility for customs, immigration, and security. Effective communication and joint operational protocols are essential to prevent regulatory gaps and inconsistent enforcement.

Over time, a well-managed informal trading environment can serve as an entry point into more formal economic participation, particularly in sectors such as agri-trade, tourism services, and small-scale logistics. By situating informal trade within the broader gateway framework, the municipality can reduce negative externalities while enhancing the inclusivity and resilience of the local economy. This approach aligns with the broader objectives of the Spatial Development Framework by promoting orderly development, economic integration, and improved governance outcomes.

19.10. INSTITUTIONAL AND GOVERNANCE ARRANGEMENTS

The commercialisation of the Sani Pass border post is fundamentally dependent on effective institutional coordination and governance, given the multiplicity of actors involved and the highly regulated nature of border environments. While spatial planning provides the framework within which development can occur, it is institutional alignment that ultimately determines whether commercial activities can be enabled, managed, and sustained over time. This section therefore sets out the key institutional roles, relationships, and governance mechanisms required to support the proposed commercialisation strategy.

At the local level, the Dr Nkosazana Dlamini Zuma Local Municipality holds primary responsibility for spatial planning, land-use management, and local economic development within its jurisdiction. The municipality's role is not to

manage border control functions, but to shape the spatial and economic environment within which those functions operate. This includes safeguarding land for gateway-related uses, providing or facilitating basic infrastructure, supporting local enterprise development, and coordinating local stakeholders. The municipality also plays a critical convening role, bringing together different spheres of government and private actors around a shared spatial-economic vision.

National government departments retain authority over core border functions, including customs, immigration, security, and biosecurity. These functions are governed by national legislation and operational protocols that cannot be overridden at the municipal level. However, the effectiveness of these functions is influenced by the quality of supporting infrastructure, access management, and local spatial organisation. The report therefore emphasises the need for structured engagement between the municipality and national authorities to ensure that commercialisation initiatives are compatible with border management requirements and do not introduce operational risks.

Provincial departments responsible for economic development, tourism, agriculture, and transport occupy a critical intermediary position. These departments can provide technical support, funding alignment, and programme integration that enhance the viability of commercialisation initiatives. In particular, provincial involvement is essential for aligning the Sani Pass strategy with broader regional development priorities and for facilitating access to sector-specific support programmes. Clear articulation of provincial roles and expectations is therefore a key governance requirement.

The private sector has an important role to play in the delivery and operation of commercial facilities associated with the border post, particularly in areas such as logistics services, tourism-related infrastructure, and agri-trade support. Given the scale and risk profile of the Sani Pass context, public–private partnership (PPP) arrangements should be carefully structured, focusing on manageable projects with clear revenue streams and defined performance obligations. The municipality's role in such arrangements is to provide regulatory certainty, spatial clarity, and facilitative support rather than to assume direct commercial risk.

Traditional leadership structures may also be relevant, depending on land ownership patterns and local governance arrangements in the Sani Pass area. Where applicable, early and continuous engagement with traditional authorities is essential to ensure legitimacy, reduce conflict, and align development objectives with local priorities. Such engagement should be formalised through agreed consultation and participation mechanisms.

A recurring governance challenge in border environments is fragmented decision-making and unclear accountability. To address this, the report recommends the establishment of a dedicated intergovernmental coordination mechanism focused specifically on the Sani Pass gateway. This mechanism need not be a permanent institution, but should provide a structured platform for planning alignment, information sharing, and issue resolution across spheres of government and key stakeholders. Over time, such coordination can significantly reduce implementation delays and governance risk.

19.11. INTERNATIONAL CASE STUDY INSIGHTS AND LOCAL APPLICATION

International experience demonstrates that border posts located in remote, environmentally sensitive, or mountainous regions can be successfully commercialised when development is grounded in realism, strong governance, and an explicit gateway logic. While the Sani Pass operates within a unique South African and Southern African context, comparative insights from international case studies provide valuable guidance on how economic activity can be structured around border functions without undermining environmental quality or regulatory integrity.

FUNCTIONAL SPECIALISATION > SCALE: A recurring lesson from international mountain and rural border crossings is the importance of functional specialisation rather than scale. Successful cases do not attempt to replicate large inland ports or urban logistics hubs. Instead, they focus on activities that are directly enabled by border proximity, such as customs-support services, light logistics, visitor-oriented commerce, and niche agri-trade. These functions tend to be compact, highly managed, and designed to complement rather than compete with nearby urban centres. Applied to the Sani Pass, this insight reinforces the emphasis on low- to medium-intensity development and the avoidance of high-volume freight or industrial land uses.

INTEGRATION OF TOURISM & BORDER POST OPERATIONS: Another key lesson relates to the integration of tourism and border operations. In several international contexts, border posts in scenic regions have been repositioned as part of the visitor experience rather than as purely administrative spaces. This has been achieved through the provision of high-quality orientation facilities, controlled retail and service offerings, and clear spatial separation between operational and public areas. For the Sani Pass, this suggests that tourism-related commercialisation should be designed to enhance, rather than disrupt, both the border process and the landscape experience, reinforcing the gateway identity of the area.

INSTITUTIONAL COHERENCE & LONG-TERM MANAGEMENT: International case studies also highlight the importance of institutional coherence and long-term management. Where border commercialisation initiatives have failed, this has often been due to fragmented governance, unclear responsibilities, or over-reliance on short-term project funding. Successful examples typically feature dedicated coordination mechanisms, clear development frameworks, and phased implementation strategies that allow for learning and adaptation. This reinforces the recommendation in this report for structured intergovernmental coordination and incremental development rather than once-off flagship projects.

A further insight concerns the treatment of informal and small-scale trade. In many international settings, informal border trading has been progressively integrated into formal spatial and regulatory systems through designated trading zones, simplified compliance mechanisms, and gradual upgrading of facilities. These approaches have reduced conflict and improved economic outcomes without erasing the livelihoods that depend on cross-border exchange. Applied locally, this supports the report's recommendation for managed integration rather than suppression of informal activity at the Sani Pass.



Translating these international lessons into the NDZ context requires careful calibration. The municipality's fiscal capacity, institutional reach, and infrastructure base differ significantly from those of many international examples. Accordingly, the local application of best practice must be selective and adaptive. The focus should be on principles—such as appropriate scale, integration, phased delivery, and strong governance—rather than on replicating specific physical models or institutional arrangements.

In practical terms, the local application of international insights supports a commercialisation pathway for the Sani Pass that is incremental, tightly managed, and aligned with spatial planning objectives. It strengthens the case for a gateway-oriented development model that combines border functionality with economic opportunity, while maintaining environmental integrity and governance clarity. These lessons provide a critical bridge between conceptual strategy and implementation, informing the phased framework set out in the following section.

19.12. PHASED IMPLEMENTATION FRAMEWORK

The commercialisation of the Sani Pass border post requires a phased implementation approach that aligns ambition with institutional capacity, funding realities, and market demand. Given the complexity of border governance and the environmental sensitivity of the area, a sequential framework is essential to manage risk, allow for learning, and ensure that development outcomes remain aligned with Spatial Development Framework objectives. The phased approach set out below provides a structured pathway from enabling conditions to long-term consolidation.

19.12.1. SHORT-TERM PHASE (0–5 YEARS): ENABLING AND POSITIONING

The short-term phase focuses on establishing the foundational conditions required for commercialisation. During this period, the priority is not large-scale physical development, but institutional alignment, spatial safeguarding, and pilot interventions that test feasibility and demand. Key actions include formal recognition of the Sani Pass border post as a specialised gateway node within municipal planning instruments, including the SDF and related implementation frameworks. This spatial recognition is critical for protecting land, guiding future development applications, and signalling intent to external partners.

Institutionally, the short-term phase requires the establishment of structured coordination mechanisms between the municipality, national border authorities, and relevant provincial departments. This includes clarifying roles, agreeing on development parameters, and aligning operational requirements. Parallel to this, the municipality should undertake targeted feasibility assessments for priority commercial activities such as light logistics support, agri-trade facilitation, and tourism-oriented services.

Pilot projects play a central role in this phase. These may include modest, low-risk interventions such as regulated trading areas, temporary logistics support facilities, or visitor orientation infrastructure. The objective is to generate evidence, build institutional confidence, and refine design and management approaches before committing to more permanent investments.

19.12.2. MEDIUM-TERM PHASE (5–10 YEARS): CONSOLIDATION AND EXPANSION

The medium-term phase is characterised by consolidation of successful pilot initiatives and the gradual expansion of commercial activities that have demonstrated viability. By this stage, governance arrangements should be functioning more smoothly, and relationships between the municipality, national authorities, and private partners should be sufficiently mature to support more substantial investment.

Spatially, this phase may involve the development of permanent facilities for logistics support, agri-trade handling, and tourism services within a clearly defined gateway precinct. Infrastructure investment during this phase should be targeted and incremental, focusing on improving functionality rather than scale. Examples include improved access management, utilities upgrades, and purpose-designed structures that replace temporary facilities introduced in the short term.

From an economic development perspective, the medium-term phase emphasises strengthening value chains and local linkages. This includes supporting local producers, service providers, and small enterprises to participate more effectively in gateway-related economic activity. Institutional support programmes, skills development initiatives, and targeted incentives can play an important role in maximising local benefit during this phase.

19.12.3. LONG-TERM PHASE (10–20 YEARS): MATURATION AND INTEGRATION

The long-term phase envisages the maturation of the Sani Pass border post into a fully functioning, well-managed economic gateway that is firmly embedded within the municipal and regional spatial system. By this stage, commercial activities should be stable, governance arrangements institutionalised, and the gateway precinct recognised as a strategic asset within the broader development framework.

Long-term interventions may include refinement and optimisation of existing facilities, adaptation to changing trade and tourism patterns, and selective expansion where justified by demand and capacity. Importantly, the emphasis remains on quality, resilience, and sustainability rather than on growth for its own sake. Environmental management and climate resilience considerations become increasingly important as development intensifies.

At this stage, the gateway's role within regional and cross-border networks should be more clearly articulated, with established partnerships supporting trade facilitation, tourism development, and value-chain integration. The municipality's focus shifts toward long-term management, monitoring, and adaptation, ensuring that the Sani Pass continues to contribute to economic diversification and spatial efficiency over time.



19.12.4. PHASED IMPLEMENTATION FRAMEWORK

TABLE 87: PHASED IMPLEMENTATION FRAMEWORK

PHASE	TIMEFRAME	STRATEGIC FOCUS	KEY ACTIONS AND INTERVENTIONS	PRIMARY INSTITUTIONAL LEADS	KEY OUTPUTS / OUTCOMES
SHORT TERM	0–5 YEARS	ENABLING AND POSITIONING	Formal recognition of the Sani Pass border post as a specialised gateway node within the NDZ SDF and related planning instruments to safeguard land and guide future development decisions.	NDZ LM (Planning & LED), Municipal Council	Gateway node formally embedded in SDF; land-use certainty established
			Establishment of a structured intergovernmental coordination mechanism involving NDZ LM, national border authorities, and relevant provincial departments to align mandates, operational requirements, and development parameters.	NDZ LM, National Border Authorities, Provincial Departments	Improved intergovernmental coordination and role clarity
			Preparation of targeted feasibility and concept studies for priority commercial activities, including light logistics support, agri-trade facilitation, and tourism-supportive services.	NDZ LM, Provincial Economic Development Agencies	Evidence-based decision-making and refined development concepts
			Implementation of low-risk pilot projects such as regulated informal trading areas, temporary logistics support facilities, or visitor orientation infrastructure to test demand and operational feasibility.	NDZ LM, Private Operators (where applicable)	Tested pilot interventions; institutional learning and confidence building
MEDIUM TERM	5–10 YEARS	CONSOLIDATION AND EXPANSION	Consolidation of successful pilot initiatives into permanent, purpose-designed facilities within a clearly defined gateway precinct on the NDZ side of the border.	NDZ LM, Provincial Departments, PPP Partners	Functional gateway precinct with permanent infrastructure
			Incremental infrastructure investment focused on access management, utilities upgrades, and replacement of temporary structures with durable, well-managed facilities.	NDZ LM, Sector Departments	Improved operational efficiency and service quality
			Strengthening of agri-trade, logistics, and tourism value chains through targeted enterprise support, skills development programmes, and local supplier integration.	NDZ LM, Provincial Economic & Agriculture Departments	Increased local value retention and participation
			Formalisation of governance and management arrangements for gateway-related activities, including operational protocols and performance monitoring mechanisms.	NDZ LM, National Authorities	Stable governance environment and reduced implementation risk
LONG TERM	10–20 YEARS	MATURATION AND INTEGRATION	Optimisation and refinement of existing gateway facilities to respond to changing trade, tourism, and regulatory conditions while maintaining appropriate scale.	NDZ LM, Intergovernmental Partners	Mature, adaptive gateway with sustained economic function

PHASE	TIMEFRAME	STRATEGIC FOCUS	KEY ACTIONS AND INTERVENTIONS	PRIMARY INSTITUTIONAL LEADS	KEY OUTPUTS / OUTCOMES
			Selective expansion of gateway functions where justified by demonstrated demand, institutional capacity, and environmental considerations.	NDZ LM, PPP Partners	Controlled growth aligned with spatial and environmental objectives
			Integration of the Sani Pass gateway into broader municipal and regional spatial-economic networks, reinforcing corridor efficiency and cross-border partnerships.	NDZ LM, Provincial & Cross-Border Institutions	Strengthened regional role and strategic positioning
			Ongoing monitoring, environmental management, and climate resilience measures to ensure long-term sustainability of the gateway precinct.	NDZ LM, Environmental Authorities	Resilient, well-managed gateway aligned with SDF objectives

19.13. RISKS, CONSTRAINTS, AND MITIGATION MEASURES

The commercialisation of the Sani Pass border post presents significant opportunities, but it is also subject to a range of risks and constraints that, if not proactively managed, could undermine implementation and long-term sustainability. These risks arise from institutional complexity, environmental sensitivity, infrastructure limitations, market uncertainty, and governance capacity. A clear understanding of these constraints, together with targeted mitigation measures, is essential to ensuring that the proposed gateway strategy remains realistic and resilient.

One of the most significant risks relates to institutional misalignment and fragmented governance. The border post operates within a multi-sphere governance environment where national, provincial, and local mandates intersect but are not always well coordinated. Without structured alignment, there is a risk of delays, conflicting decisions, and uncertainty for potential investors and local stakeholders. This risk is mitigated through the establishment of dedicated intergovernmental coordination mechanisms, clear role definition, and ongoing engagement protocols that embed collaboration into routine planning and implementation processes.

Environmental and climatic constraints present another critical risk. The Sani Pass is located within a highly sensitive mountain environment characterised by steep terrain, extreme weather conditions, and ecological vulnerability. Uncontrolled or poorly designed development could result in environmental degradation, increased disaster risk, and reputational damage to both the municipality and the tourism destination. Mitigation requires strict adherence to environmental management principles, careful siting and design of facilities, and a development approach that prioritises quality and control over scale and intensity. Climate resilience measures must be integrated from the outset rather than treated as an afterthought.

Infrastructure limitations, particularly relating to road access, utilities, and service capacity, also constrain the pace and scale of commercialisation. The risk lies in overestimating the ability of existing infrastructure to support expanded economic activity, leading to operational inefficiencies or safety concerns. This risk is addressed through phased infrastructure investment aligned with demonstrated demand, the use of modular and adaptable facility designs, and close coordination with sector departments responsible for infrastructure provision and maintenance.

Market and demand uncertainty represents a further risk, especially in a context where economic activity is seasonal and sensitive to external factors such as weather, regulatory changes, and cross-border dynamics. Premature or speculative investment could result in underutilised assets and financial strain. The phased implementation framework directly mitigates this risk by emphasising pilot projects, incremental expansion, and continuous monitoring of economic performance before committing to more substantial capital investment.

Finally, there is a risk associated with capacity constraints at the municipal level, including limited technical expertise, financial resources, and project management capacity. Without adequate support, the municipality may struggle to drive complex, multi-actor initiatives. Mitigation measures include leveraging provincial and national technical support, structuring partnerships with experienced private-sector operators, and focusing municipal effort on coordination, regulation, and facilitation rather than direct operational control.

Taken together, these risks underscore the importance of a cautious, well-managed approach to commercialisation. By explicitly identifying constraints and embedding mitigation measures into the strategy, NDZ LM can reduce implementation uncertainty and improve the likelihood that the Sani Pass border post evolves into a functional, sustainable economic gateway aligned with Spatial Development Framework objectives.

TABLE 88: RISKS, CONSTRAINTS AND MITIGATION MEASURES

RISK / CONSTRAINT CATEGORY	NATURE OF RISK OR CONSTRAINT	POTENTIAL IMPLICATIONS	MITIGATION MEASURES	RESPONSIBLE / LEAD ACTORS
Institutional and Governance Risk	Fragmented mandates and weak coordination between municipal, provincial, and national authorities involved in border management and economic development.	Implementation delays, conflicting decisions, regulatory uncertainty, reduced investor confidence.	Establishment of a dedicated intergovernmental coordination mechanism; clear role definition; formal engagement protocols between spheres of government.	NDZ LM, National Border Authorities, Provincial Departments
Environmental and Climatic Constraints	Environmentally sensitive mountain landscape, extreme weather conditions, and high ecological vulnerability of the Sani Pass area.	Environmental degradation, increased disaster risk, reputational damage, regulatory non-compliance.	Strict environmental controls; careful siting and design of facilities; low- to medium-intensity development; integration of climate resilience measures from the outset.	NDZ LM, Environmental Authorities, Sector Departments
Infrastructure Capacity Constraints	Limited road capacity, utilities, and service infrastructure relative to potential commercialisation demand.	Operational inefficiencies, safety risks, service delivery failures, stalled development.	Phased and demand-led infrastructure investment; modular and adaptable facility design; coordination with infrastructure sector departments.	NDZ LM, Transport and Infrastructure Departments
Market and Demand Uncertainty	Seasonality of tourism, weather dependence, regulatory changes, and unpredictable cross-border trade volumes.	Underutilised infrastructure, financial losses, stalled or abandoned projects.	Phased implementation with pilot projects; incremental scaling; continuous monitoring and adjustment of development intensity.	NDZ LM, Private Sector Partners
Municipal Capacity Constraints	Limited technical, financial, and project management capacity within the municipality to manage complex gateway development.	Implementation bottlenecks, weak oversight, governance failures.	Leveraging provincial and national technical support; structured PPPs; municipal focus on coordination and regulation rather than direct operation.	NDZ LM, Provincial and National Support Agencies
Reputational and Compliance Risk	Failure to align commercial activities with border control requirements and environmental expectations.	Loss of stakeholder trust, enforcement actions, reduced tourism appeal.	Continuous engagement with national authorities; compliance monitoring; transparent reporting and stakeholder communication.	NDZ LM, National Authorities

19.14. STRATEGIC RECOMMENDATIONS

TABLE 89: STRATEGIC RECOMMENDATIONS

STRATEGIC THEME	KEY CONCLUSION	STRATEGIC RECOMMENDATION
Role of the Sani Pass	The Sani Pass border post's value lies in its function as a gateway of movement, exchange, and identity rather than as a site for large-scale development.	Formally reposition the Sani Pass border post as a specialised economic gateway node within the SDF, distinct from conventional service or urban nodes.
Development Intensity and Scale	Large-scale or industrial development is neither feasible nor desirable due to environmental, infrastructural, and regulatory constraints.	Prioritise low- to medium-intensity, niche, and value-adding activities aligned with border dependency and environmental sensitivity.
Economic Diversification	Border-related economic flows currently generate limited local value retention.	Use logistics support, agri-trade facilitation, and tourism-linked commerce to diversify the local economy and capture border-generated value within the municipality.
Institutional Role of the Municipality	NDZ LM's influence lies primarily in coordination, facilitation, and spatial governance rather than direct delivery or operation.	Position the municipality as a strategic convenor and regulator, safeguarding land, guiding development, and aligning intergovernmental actors.
Governance and Coordination	Fragmented institutional mandates pose a significant risk to implementation.	Establish a Sani Pass–specific intergovernmental coordination mechanism early in the implementation process.
Implementation Logic	Incremental progress is essential to manage risk and capacity constraints.	Apply a phased implementation approach focused on pilot projects, modular infrastructure, and demand-led expansion.
Informal and Small-Scale Trade	Informal trade is a persistent feature that cannot be ignored or suppressed without negative consequences.	Integrate informal and small-scale trade through structured spatial accommodation and progressive regulation rather than exclusion.
Environmental Sustainability	Environmental sensitivity and climate risk are defining constraints of the Sani Pass context.	Treat environmental management and climate resilience as non-negotiable design principles across all development phases.
Long-Term Spatial Outcome	The Sani Pass has the potential to evolve into a resilient, high-quality gateway embedded in the regional space economy.	Commit to long-term monitoring, adaptive management, and refinement of gateway functions rather than fixed end-state development.

20. PROVISION & UPGRADING OF BASISC SERVICES TO FARM DWELLERS

This Strategy for the Provision and Upgrading of Basic Services to Farm Dwellers sets out a phased, legally defensible, and implementable framework to address long-standing service delivery gaps affecting farm-based households within Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). The strategy is written for municipal council and senior officials and is intended to function as a supporting sector strategy to the Integrated Development Plan (IDP) and Spatial Development Framework (SDF).

Farm dwellers in NDZ LM reside predominantly in dispersed, privately owned agricultural areas, where service delivery is constrained by land tenure insecurity, fragmented settlement patterns, limited bulk infrastructure reach, and complex intergovernmental mandates. Despite these constraints, the constitutional obligation to progressively realise access to basic services necessitates a context-sensitive but standards-based approach that balances minimum dignity thresholds with long-term sustainability. The strategy therefore:

- Benchmarks service provision against national norms and standards (including Free Basic Services, CSIR guidelines, and Human Settlements policy),
- Defines explicit minimum, interim, and ultimate service levels for each basic service sector,
- Clearly distinguishes local municipal responsibilities (planning, coordination, access roads, refuse removal, spatial alignment) from district competencies (notably water and sanitation services authority functions) and provincial/national roles (housing, electricity, social facilities),
- Applies an explicitly phased upgrading trajectory over short-term (0–5 years), medium-term (5–10 years), and long-term (10–20 years) horizons,
- Evaluates appropriate technology options for rural and farm contexts, supported by indicative unit cost ranges and feasible delivery models.

The strategic intent is not to replicate urban service models in rural farm areas, but to progressively upgrade service levels in a manner that is:

- legally compliant (including alignment with tenure-related legislation and SPLUMA),
- spatially rational (aligned to the NDZ settlement hierarchy and SDF),
- fiscally realistic (matched to municipal and intergovernmental funding instruments),
- and operationally implementable within existing institutional capacity.

Key outcomes anticipated from implementation include:

- Improved access to safe water, basic sanitation, energy, refuse removal, and all-weather access for farm dwellers,
- Reduced health, safety, and environmental risks associated with sub-standard services,
- Clearer intergovernmental coordination and accountability for rural service delivery,
- A defensible framework for incremental investment decisions by council.

The sections that follow move from policy and contextual grounding to service standards, sector-specific strategies, phased implementation, costing, and risk management, providing council with a coherent basis for oversight, prioritisation, and resolution-making.

20.1. BACKGROUND AND RATIONALE

NDZ LM is characterised by a predominantly rural spatial structure, with extensive commercial farming areas interspersed with small towns and rural settlements. Within this landscape, farm dweller households have historically experienced:

- limited access to potable water and appropriate sanitation,
- dependence on informal or unsafe energy sources,
- poor refuse removal services,
- inadequate all-weather access to social and economic opportunities.

These conditions are compounded by land tenure insecurity, weak historical coordination between landowners and the state, and the division of service delivery mandates across local, district, and provincial spheres of government. As a result, farm dwellers have often fallen outside standard municipal service planning frameworks, including bulk infrastructure investment plans and housing programmes.

This strategy is developed to close that planning and implementation gap by providing a clear, structured, and standards-based approach to service provision and upgrading for farm dwellers, without assuming urbanisation or settlement consolidation that is unlikely to occur in the short to medium term.



20.2. POLICY, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

TABLE 90: POLICY, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

FRAMEWORK / INSTRUMENT	CORE PURPOSE	KEY IMPLICATIONS FOR FARM DWELLER SERVICES	RELEVANCE TO NDZ LM STRATEGY
Constitution of South Africa	Guarantees access to basic services, human dignity, and equality	Farm dwellers are constitutionally entitled to basic services regardless of land ownership; services must be progressively realised within available resources	Establishes the non-negotiable obligation to plan for and improve farm dweller service access
Extension of Security of Tenure Act (ESTA)	Protects lawful occupiers on rural and agricultural land	Service provision must occur on privately owned land with limited tenure security; negotiated access and low-impact infrastructure are required	Justifies incremental, flexible service models and engagement with landowners
SPLUMA	Promotes spatial justice, sustainability, efficiency, and resilience	Dispersed farm settlements should not receive urban-level infrastructure where it is spatially inefficient	Supports differentiated rural service standards aligned to settlement typologies
NDZ Integrated Development Plan (IDP)	Sets municipal development priorities and budget focus	Farm dwellers must be explicitly included in basic service delivery and rural development programmes	Provides the policy basis for prioritising farm dweller services in planning and budgeting
NDZ Spatial Development Framework (SDF)	Guides spatial structuring and service differentiation	Farm dwellers form part of the rural settlement continuum, not urban expansion areas	Ensures service provision aligns with settlement hierarchy and avoids spatial distortion
Human Settlements Policy (National & Provincial)	Guides housing delivery and settlement upgrading	Housing delivery is primarily a provincial function; services should not be delayed pending housing projects	Confirms a “services-first” approach coordinated with, but not dependent on, housing delivery
Free Basic Services Policy	Ensures minimum access to essential services for poor households	Minimum service levels must be defined even where full standards are not immediately feasible	Informs minimum service benchmarks for water, sanitation, energy, and refuse
CSIR Norms and Standards	Provides technical benchmarks for service provision	Standards must be adapted to rural and low-density contexts	Informs interim and ultimate service levels in a technically defensible manner
Local Municipality (NDZ LM)	Spatial planning, coordination, and certain service delivery functions	Responsible for planning, access roads, refuse removal, coordination, and IDP/SDF alignment	Lead coordinating authority for the strategy

FRAMEWORK / INSTRUMENT	CORE PURPOSE	KEY IMPLICATIONS FOR FARM DWELLER SERVICES	RELEVANCE TO NDZ LM STRATEGY
District Municipality	Water Services Authority	Responsible for water and sanitation infrastructure and operations	Key implementation partner for water and sanitation services
Provincial & National Departments	Housing, electricity, health, education	Services require intergovernmental coordination and aligned funding	Strategy must enable coordination without assuming municipal control

20.3. SERVICE DELIVERY CHALLENGES AND CONSTRAINTS

TABLE 91: SERVICE DELIVERY CHALLENGES AND CONSTRAINTS

CONSTRAINT CATEGORY	DESCRIPTION	IMPLICATIONS FOR FARM DWELLER SERVICES	STRATEGIC RESPONSE REQUIRED
Spatial and Settlement Form	Dispersed, low-density farm settlements located far from bulk infrastructure	High per-household costs; lack of economies of scale; urban service models are not viable	Apply differentiated rural service standards; prioritise decentralised and on-site solutions
Land Ownership and Tenure	Services located on privately owned land with insecure tenure	Difficulty securing servitudes; legal risk for permanent infrastructure	Use low-impact, modular, and relocatable service technologies; negotiate access agreements
Institutional Fragmentation	Responsibilities split across local, district, and provincial spheres	Delays and gaps in service delivery; unclear accountability	Establish clear coordination and role delineation in implementation planning
Financial Constraints	Limited capital budgets and high operating costs	Inability to fund full-service standards in short term	Phase investments; prioritise minimum and interim service levels
Free Basic Services Obligations	High proportion of indigent households	Limited cost recovery; increased subsidy requirements	Align services to FBS norms; secure intergovernmental funding support
Technical and Environmental Conditions	Challenging terrain, variable water resources, sensitive environments	Constraints on infrastructure placement and maintenance	Select context-appropriate, low-maintenance technologies
Data and Information Gaps	Incomplete household and land access data	Planning uncertainty and risk of misallocation	Use conservative assumptions; refine through phased implementation
Governance and Community Interface	Weak community structures and landowner–occupier dynamics	Risk of conflict, non-cooperation, or project failure	Implement structured engagement and stakeholder coordination mechanisms

20.4. SERVICE STANDARDS AND LEVELS

TABLE 92: SERVICE LEVEL STANDARDS AND LEVELS

SERVICE SECTOR	MINIMUM SERVICE LEVEL (0–5 YEARS)	INTERIM SERVICE LEVEL (5–10 YEARS)	ULTIMATE SERVICE LEVEL (10–20 YEARS)	NORMATIVE REFERENCE / RATIONALE
Water Supply	Basic access to safe water within reasonable distance (e.g. communal standpipe, protected spring, or basic borehole); minimum quantities aligned to Free Basic Services norms	Improved on-site or shared supply with better reliability and water quality management; limited reticulation where feasible	Full on-site or shared reticulated supply meeting national potable water standards where spatially and economically viable	Free Basic Water policy; CSIR rural water norms
Sanitation	Safe, basic on-site sanitation (e.g. VIP or equivalent) that meets minimum health and environmental standards	Upgraded on-site systems (e.g. ventilated, lined pits, septic tanks where appropriate) with improved management	Waterborne or small-scale treatment solutions only where densities and long-term settlement stability justify investment	National sanitation norms; environmental health requirements
Electricity / Energy	Basic household energy access (e.g. non-grid electrification, solar home systems, or formalised limited connections)	Expanded and more reliable household energy supply; selective grid extension where feasible	Full grid electrification where justified by settlement permanence and cost-benefit analysis	National electrification policy; rural energy programmes
Solid Waste Management	Basic refuse management through communal collection points, periodic collection, or supervised disposal	Regularised collection schedules and improved waste storage solutions	Full household-level collection only where settlement access and density allow	Municipal waste service norms adapted to rural context
Access Roads and Mobility	Minimum all-weather access to farm dweller clusters using gravel roads or track upgrades	Upgraded gravel roads with drainage improvements and maintenance regimes	Sealed access roads only where traffic volumes and settlement stability justify investment	Rural road standards; municipal access norms
Access to Social Facilities	Reasonable access (distance-based) to clinics, schools, and community facilities via transport or outreach services	Improved physical and transport access; mobile or satellite services strengthened	Permanent facilities only where aligned with settlement hierarchy and population thresholds	CSIR social facility norms; IDP/SDF alignment

20.5. DEVELOPMENT STRATEGIES

This section translates the service standards framework into practical, sector-specific strategies for implementation within Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). Each sector strategy responds directly to the spatial, legal, and institutional constraints identified earlier, while remaining aligned with national norms and intergovernmental mandates.

20.5.1. STRAREGT #1 – PROVISION OF WATER SUPPLY

Water provision to farm dwellers is primarily a district municipal responsibility as Water Services Authority, with NDZ LM playing a coordinating and planning role. Given the dispersed settlement pattern, the strategy prioritises decentralised and localised water solutions over long-distance reticulation in the short to medium term.

- In the short term, emphasis is placed on securing safe, reliable basic water access through protected springs, communal standpipes, rainwater harvesting systems, and boreholes where hydrogeological conditions permit. NDZ LM's role is to spatially identify priority clusters, facilitate land access agreements, and integrate farm dweller needs into district water services development planning.
- Over the medium term, the strategy supports incremental upgrading of water systems through improved storage, treatment, and distribution at a local scale. Selective reticulation may be considered only where farm dweller clusters demonstrate permanence, sufficient density, and legal access certainty.
- In the long term, full reticulated potable water supply is envisaged only in exceptional cases, where spatial policy supports consolidation and where investment is fiscally and legally defensible.

20.5.2. STRATEGY #2 – PROVISION OF SANITATION

Sanitation solutions for farm dwellers must prioritise public health protection and environmental safety while recognising land tenure constraints. The strategy therefore adopts a predominantly on-site sanitation approach.

- In the short term, the focus is on ensuring that all households have access to safe basic sanitation, such as properly constructed ventilated improved pit latrines or equivalent systems that meet environmental health standards. NDZ LM's Environmental Health Practitioners play a critical monitoring and support role.
- Medium-term interventions involve upgrading and standardising on-site systems, including lined pits, improved ventilation, and, where appropriate, septic tanks with controlled effluent disposal. Education and maintenance support are essential to ensure sustainability.
- Waterborne sanitation or small-scale treatment systems are only considered in the long term and only where settlement conditions, land access, and long-term planning justify such investment.

20.5.3. STRATEGY #3 – PROVISION OF ELECTRICITY AND HOUSEHOLD ENERGY

Electricity provision falls primarily within national and provincial mandates, with municipalities facilitating planning and access. For farm dwellers, the strategy adopts a technology-neutral energy access approach, prioritising reliability and safety over grid dependency.

- In the short term, basic household energy access is addressed through non-grid solutions, including solar home systems and formalised limited connections, reducing reliance on unsafe energy sources. NDZ LM's role is to identify priority households and coordinate with energy service providers.

- Medium-term actions include expanding capacity and reliability of household energy solutions, with selective grid extensions considered where feasible and cost-effective.
- Full grid electrification is a long-term objective only where settlement permanence, demand, and affordability align.

20.5.4. STRATEGY #4 – UPGRADING OF SOLID WASTE MANAGEMENT

Solid waste services are a local municipal responsibility yet are often logistically challenging in farm areas. The strategy adopts a graduated service model.

- In the short term, the focus is on basic waste management through communal collection points, scheduled collection, or supervised disposal arrangements, aimed at reducing illegal dumping and health risks.
- Medium-term interventions seek to regularise collection schedules, improve waste containment, and integrate farm areas into broader municipal waste routes where feasible.
- Full household-level refuse collection is considered a long-term option only where access conditions and settlement patterns permit efficient service delivery.

20.5.5. STRATEGY #5 – PROVISION OF ACCESS ROADS AND MOBILITY

Access roads are a critical enabler of all other services and fall squarely within the local municipal mandate. The strategy prioritises functional access rather than high engineering standards.

- Short-term actions focus on ensuring all-weather access to farm dweller clusters through basic gravel road upgrades, drainage improvements, and routine maintenance.
- In the medium term, targeted upgrades improve reliability and reduce maintenance costs, particularly on routes serving multiple households or essential services.
- Sealed roads are considered only in the long term, where traffic volumes, settlement stability, and economic justification are clear.

20.5.6. STRATEGY #6 - ACCESS TO SOCIAL FACILITIES

While NDZ LM is not responsible for constructing most social facilities, it plays a key role in spatial coordination and access planning. The strategy therefore focuses on improving physical and functional access rather than duplicating facilities.

- In the short term, access is enhanced through transport planning, outreach services, and mobile facilities coordinated with provincial departments.
- Medium-term measures include improving road access and strengthening service outreach in priority farm areas.
- Permanent social facilities in farm areas are considered only where population thresholds and spatial policy support such investment.

20.5.7. SUMMARY OF DEVELOPMENT STRATEGIES

TABLE 93: SUMMARY OF DEVELOPMENT STRATGIES

SECTOR	STRATEGIC FOCUS	SHORT-TERM APPROACH	MEDIUM-TERM DIRECTION	LONG-TERM POSITION
Water	Decentralised, reliable basic access	Communal/local water sources	Upgraded local systems	Reticulation only where justified
Sanitation	On-site, health-focused solutions	Basic compliant on-site systems	Improved on-site sanitation	Limited waterborne systems
Electricity / Energy	Safe and flexible energy access	Non-grid/basic connections	Expanded capacity, selective grid	Full grid in exceptional cases
Solid Waste	Graduated service model	Communal or periodic collection	Regularised services	Household collection where viable
Access Roads	Functional all-weather access	Basic gravel upgrades	Targeted improvements	Sealed roads only if justified
Social Facilities Access	Mobility and coordination	Outreach and transport access	Improved physical access	Permanent facilities where justified

20.6. PHASED IMPLEMENTATION FRAMEWORK

This section consolidates the preceding sector strategies into a phased, implementable programme for farm dweller service delivery within Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM). The phasing recognises fiscal constraints, institutional mandates, and spatial realities, while providing council with a clear investment and oversight roadmap. The phased approach is based on four core principles:

- **Progressive realisation**: prioritising minimum service levels first, then upgrading incrementally.
- **Risk management**: limiting exposure to legal and financial risk on privately owned land.
- **Institutional alignment**: matching interventions to the responsible sphere of government.
- **Spatial rationality**: avoiding infrastructure commitments that contradict the SDF settlement hierarchy.

Each phase builds on the previous one; failure to complete short-term foundations will undermine medium- and long-term outcomes.

20.6.1. SHORT-TERM PHASE (0–5 YEARS): SECURING MINIMUM SERVICE LEVELS

The short-term phase focuses on universal access to minimum basic services, targeting the most acute health, safety, and dignity deficits.

Key characteristics of this phase include:

- prioritisation of decentralised and low-capital solutions,
- rapid deployment using existing programmes and grants,
- strong emphasis on coordination with the district municipality and provincial departments.

Primary interventions include:

- basic safe water access (communal or localised),
- compliant on-site sanitation,
- basic household energy access,
- rudimentary but reliable refuse management,
- all-weather gravel access to farm dweller clusters.

The municipality's role is primarily planning, coordination, facilitation, and monitoring, rather than sole delivery.

20.6.2. MEDIUM-TERM PHASE (5–10 YEARS): INCREMENTAL UPGRADING AND CONSOLIDATION

The medium-term phase shifts from access to service quality, reliability, and standardisation, while still avoiding premature urban-level investments. This phase is characterised by:

- upgrading of interim service technologies,
- selective infrastructure investment in stable farm dweller clusters,
- improved integration of farm dwellers into routine municipal service systems.

Key outcomes include:

- improved water reliability and storage,
- upgraded sanitation systems with better environmental controls,
- expanded and more reliable energy solutions,
- regularised refuse removal schedules,
- improved road durability and reduced maintenance burden.

This phase requires stronger intergovernmental planning alignment and more predictable funding streams.

20.6.3. LONG-TERM PHASE (10–20 YEARS): CONDITIONAL ATTAINMENT OF ULTIMATE SERVICE LEVELS

The long-term phase is selective and conditional, not universal. It targets only those farm dweller areas where:

- settlement permanence is clearly established,
- land access arrangements are secure,
- population thresholds justify higher service levels,
- spatial policy supports consolidation.

Interventions may include:

- limited reticulated water supply,
- advanced sanitation solutions,
- full grid electricity,
- sealed access roads,
- permanent social facilities (where justified).

Council oversight is critical in this phase to ensure that investments remain spatially defensible and fiscally sustainable.

TABLE 94: PHASED IMPLEMENTATION PLAN

PHASE	TIMEFRAME	PRIMARY OBJECTIVE	KEY INTERVENTIONS	LEAD RESPONSIBILITY
Short Term	0–5 years	Universal minimum service access	Basic water, sanitation, energy, refuse management, gravel access roads	NDZ LM (coordination), District (water & sanitation), Province (energy)
Medium Term	5–10 years	Improved reliability and service quality	Upgraded local water systems, improved sanitation, regularised waste services, road upgrades	NDZ LM with District and Provincial partners
Long Term	10–20 years	Conditional attainment of ultimate standards	Selective reticulation, grid electrification, sealed roads, permanent facilities	Multi-sphere, subject to council approval

20.6.4. KEY RISKS AND DEPENDENCIES (CROSS-CUTTING)

Across all phases, implementation is dependent on:

- sustained intergovernmental cooperation,
- availability of conditional grant funding,
- successful landowner engagement,
- continuous refinement of farm dweller spatial data.

These dependencies are addressed more fully in the costing, funding, and risk management sections that follow.

20.7. FUNDING SOURCES & INTERGOVERNMENTAL ALIGNMENT

TABLE 95: FUNDING SOURCES, AND INTERGOVERNMENTAL ALIGNMENT

SERVICE SECTOR	INDICATIVE COST PROFILE	TYPICAL COST DRIVERS	PRIMARY FUNDING SOURCES	LEAD RESPONSIBILITY	KEY FINANCIAL RISKS	RISK MITIGATION MEASURES
Water Supply	Low–moderate for decentralised systems; high for reticulation	Boreholes, storage tanks, treatment, long-distance pipelines	MIG; District capital budgets; sector grants	District Municipality (WSA); NDZ LM (planning & coordination)	High capital exposure on private land; O&M sustainability	Phase investments; prioritise decentralised systems; secure access agreements
Sanitation	Low for basic on-site; moderate for upgraded systems	VIP construction, lining, septic systems, desludging	MIG; Environmental Health budgets	NDZ LM (with District support)	Environmental non-compliance; maintenance failure	Standardise designs; strengthen EHP oversight; community education
Electricity / Energy	Low for non-grid; very high for grid extension	Solar systems, network extension, transformers	Provincial/national energy programmes	Province (delivery); NDZ LM (planning support)	Grid extension unaffordability; demand uncertainty	Prioritise non-grid solutions; conditional grid rollout
Solid Waste Management	Low–moderate operational costs	Collection frequency, access distance, staffing	Municipal own revenue	NDZ LM	High per-household operating costs	Communal collection points; route optimisation
Access Roads and Mobility	Moderate for gravel; high for sealed roads	Earthworks, drainage, maintenance cycles	Municipal capital budgets; MIG (where eligible)	NDZ LM	Long-term maintenance liabilities	Focus on functional gravel standards; targeted upgrades
Access to Social Facilities	Low for access interventions; high for new facilities	Transport support, outreach services, facility construction	Provincial sector budgets	Provincial departments; NDZ LM (coordination)	Duplication of facilities; underutilisation	Emphasise access and outreach; apply CSIR thresholds

20.8. RISKS, LEGAL CONSTRAINTS AND M&E CONSIDERATIONS

TABLE 96: RISKS, CONSTRAINTS AND M&E CONSIDERATIONS

RISK CATEGORY	DESCRIPTION	POTENTIAL IMPACT	MITIGATION STRATEGY	MONITORING INDICATOR	RESPONSIBLE AUTHORITY
Land Tenure and Access Risk	Services provided on privately owned land without permanent servitudes	Legal disputes; stranded assets	Use low-impact, relocatable infrastructure; secure written access agreements	% of projects with documented land access consent	NDZ LM
Unfunded Mandates	Municipality assumes responsibilities outside its legal functions	Financial strain; audit findings	Clear role delineation; intergovernmental agreements	Alignment of projects with assigned functions	NDZ LM / District
Capital Overcommitment	High-cost infrastructure installed prematurely	Unsustainable operating costs	Phased investment; council approval for long-term upgrades	Capital spend vs approved phase	NDZ LM Council
Operational Sustainability	Inability to maintain dispersed services	Service failure; reputational damage	Appropriate technology choice; realistic O&M planning	Service functionality rates	NDZ LM / District
Intergovernmental Misalignment	Poor coordination with district or province	Project delays; duplication	Joint planning and aligned MTEF cycles	Number of jointly planned projects	NDZ LM
Community and Landowner Conflict	Resistance from landowners or occupants	Project stoppages; legal action	Structured engagement and mediation	Number of disputes affecting projects	NDZ LM
Environmental Non-Compliance	Inappropriate sanitation or water systems	Health risks; regulatory penalties	Environmental screening and EHP oversight	Compliance inspection outcomes	NDZ LM
Data and Planning Uncertainty	Incomplete information on households and services	Misallocation of resources	Incremental planning and data updates	Accuracy of service coverage data	NDZ LM

21. URBAN EDGES

This section establishes the conceptual, policy and spatial framework for the identification, delineation, and management of settlement edges within the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM). Settlement edges, also referred to as urban growth boundaries or settlement boundaries, are spatial planning instruments designed to guide the growth of settlements in a structured, sustainable, and controlled manner.

In municipalities such as NDZ LM—characterised by a predominantly rural settlement structure, a network of small towns (Creighton, Underberg-Himeville, Bulwer, Donnybrook), and extensive traditional authority areas—settlement edges are crucial. They provide a mechanism to prevent uncontrolled urban sprawl, protect high-value agricultural land, safeguard environmentally sensitive areas, and ensure that investments in infrastructure and social services are concentrated within viable and designated settlement zones. This report therefore serves to:

- Interpret legislation and policy directives that mandate the identification of settlement edges, particularly the Spatial Planning and Land Use Management Act (SPLUMA), 2013.
- Provide guidelines and criteria for demarcating settlement edges in the NDZ municipal context.
- Develop proposals for settlement edges around key growth nodes and settlements.
- Recommend governance, monitoring and enforcement mechanisms to ensure adherence to settlement edge policies.

21.1. DEFINITION OF SETTLEMENT EDGES

Settlement edges are legally or policy-defined lines that demarcate the limits of urban expansion for a given settlement. Within the boundary, development and densification are promoted to achieve sustainable settlement patterns. Outside the boundary, development is restricted to rural, agricultural, or conservation-related land uses. Key principles underlying settlement edges include:

- **Containment of urban sprawl** – Preventing leapfrog and fragmented development.
- **Efficient infrastructure provision** – Ensuring service delivery within compact, clearly defined areas.
- **Environmental protection** – Safeguarding wetlands, rivers, biodiversity areas, and agricultural land.
- **Promotion of compact settlements** – Encouraging densification, mixed land uses, and integrated development.
- **Clarity for land use management** – Assisting municipal officials, communities, and developers with a clear guide on where urban growth can or cannot occur.

21.1.1. DEMOGRAPHIC AND URBANISATION TRENDS

- **Population growth:** According to the NDZ Draft IDP 2025/26, the municipality's population increased from 103,318 in 2011 to 128,565 in 2022, a growth rate of nearly 20%. This growth is concentrated in towns like Underberg-Himeville, Bulwer, and Creighton.
- **Household size:** The average household size rose to around five persons per household, intensifying housing demand.
- **Urbanisation pressures:** While the municipality remains predominantly rural, there is a marked shift towards peri-urbanisation around service towns, driven by housing subsidies, employment in tourism and agriculture, and migration from remote villages to nodes with better access to services.

- **Youth-dominated population:** The demographic structure is youthful, with a large share of the population under 35 years. This creates pressures for housing, education, and employment, which in turn fuels settlement expansion.

IMPLICATION: If not contained, population growth and urbanisation will result in sprawling peri-urban settlements, often informal in character, consuming agricultural and conservation land. Settlement edges can provide a framework for compact, well-serviced growth.

21.1.2. ENVIRONMENTAL SENSITIVITIES AND RISKS

NDZ LM is ecologically significant, containing part of the uKhahlamba Drakensberg World Heritage Site, extensive wetlands, mist-belt grasslands, and high-value biodiversity areas.

Key environmental considerations:

- **Biodiversity:** Mist-belt forests and grasslands are home to endangered species like the blue swallow and Cape parrot.
- **Water systems:** The municipality hosts critical river catchments (Umkomaas, Umzimkhulu) and wetlands that provide water security for local communities and downstream areas.
- **Soil and erosion:** Many soils are highly erodible. Settlement sprawl onto steep slopes (e.g., around Bulwer and Centocow) accelerates land degradation.
- **Climate risks:** The Harry Gwala Climate Change Strategy highlights vulnerabilities such as increased flooding, droughts, and snow hazards. Poorly planned settlement expansion into floodplains or steep slopes increases disaster risks.

IMPLICATION: Settlement edges are vital to protect sensitive ecological assets, align human settlement growth with environmental thresholds, and reduce climate-related vulnerabilities.

21.1.3. INFRASTRUCTURE AND SERVICE DELIVERY PRESSURES

One of the strongest rationales for settlement edges is their role in ensuring infrastructure efficiency.

- **Water and sanitation:** Bulk infrastructure remains limited. Many villages still rely on communal standpipes or spring sources. Extending services to scattered rural settlements is costly and unsustainable.
- **Electricity:** While electrification levels are improving, scattered settlement patterns raise the cost per household connection.
- **Transport:** Road infrastructure is strained, with many rural access roads in poor condition. Leapfrog development exacerbates these challenges.
- **Waste management:** Limited landfill and waste removal capacity highlights the need for compact service areas.
- **Social facilities:** Clinics, schools, and police stations are concentrated in towns. Expansion of settlements beyond planned edges creates service backlogs.

IMPLICATION: Settlement edges help the municipality prioritise infrastructure investment within compact areas, reducing the per-unit cost of service delivery, and ensuring alignment with fiscal realities.

21.1.4. SOCIO-ECONOMIC PRESSURES AND HOUSING DEMAND

- **Housing backlog:** The Human Settlements Sector Plan (HSSP 2024) identifies a significant backlog, with demand concentrated in growth towns such as Underberg-Himeville, Bulwer, and Donnybrook.

- **Informal settlements:** These are growing in peri-urban areas where housing projects have not kept pace with demand.
- **Economic drivers:** Agriculture (dairy, forestry, crop farming) and tourism are the economic backbone. Uncontrolled expansion of settlements into agricultural land threatens long-term livelihoods.
- **Poverty and unemployment:** With 67% of the population living below the poverty line, many households occupy land informally. Edges provide a framework for incremental upgrading and inclusionary housing.

IMPLICATION: Settlement edges support coordinated housing delivery by aligning projects with serviced land, while protecting economic assets such as farmland and tourism landscapes.

21.1.5. TRADITIONAL AUTHORITY AND LAND TENURE CONSIDERATIONS

NDZ LM is dominated by traditional land under the custodianship of 16 Traditional Councils. Land allocation practices in these areas often result in scattered, incremental settlement patterns. Without boundaries, this growth can become unstructured and environmentally damaging.

IMPLICATION: Settlement edges negotiated with Traditional Authorities can balance customary land rights with municipal planning needs, ensuring structured growth in rural villages while safeguarding agricultural and conservation land.

21.1.6. DISASTER RISK AND CLIMATE CHANGE

The NDZ Disaster Management Sector Plan (2019) highlights recurring risks: floods, veld fires, and snow hazards. Settlement expansion into hazard-prone areas increases community vulnerability.

IMPLICATION: Settlement edges serve as a risk reduction tool, steering development away from floodplains, fire-prone slopes, and geologically unstable zones.

21.2. GUIDELINES FOR SETTLEMENT EDGES

The guidelines draw from SPLUMA (2013), the KZN Provincial Spatial Development Framework (2021), the Harry Gwala District Growth and Development Strategy (2024), and NDZ-specific instruments such as the SDF 2021, IDP 2025/26, and the Human Settlements Sector Plan 2024.

The guidelines are structured around three settlement typologies:

- **Urban Centres and Small Towns** (e.g., Creighton, Underberg-Himeville, Bulwer, Donnybrook).
- **Peri-Urban Nodes** (emerging growth areas along corridors and near towns).
- **Rural Villages and Traditional Authority Areas** (dispersed settlements under customary land tenure).

21.2.1. GENERAL PRINCIPLES FOR SETTLEMENT EDGE DELINEATION

1. **Containment of Urban Sprawl**
    - Define clear boundaries to prevent uncontrolled settlement expansion.
    - Encourage densification and infill before considering outward growth.
2. **Infrastructure Efficiency**
    - Direct growth to areas with existing or planned bulk services.

- Ensure cost-effective service delivery and avoid unsustainable extensions.

3. Environmental Protection
    - Exclude sensitive ecosystems (wetlands, rivers, biodiversity corridors, steep slopes >1:5).
    - Protect prime agricultural land for food security and livelihoods.
4. Disaster Risk Reduction
    - Prevent development in floodplains, erosion-prone soils, fire-prone slopes, and snow hazard areas.
5. Socio-Economic Integration
    - Promote compact, mixed-use settlements that integrate housing, jobs, and services.
    - Support incremental upgrading in informal areas within edges.
6. Governance and Alignment
    - Ensure boundaries are negotiated with Traditional Authorities and aligned with provincial/district frameworks.
    - Embed edges in the Land Use Management Scheme (LUMS) for legal enforcement.

21.2.2. GUIDELINES FOR URBAN CENTRES AND SMALL TOWNS

Urban centres in NDZ LM (Creighton, Underberg-Himeville, Bulwer, Donnybrook) serve as service and administrative hubs. They face pressure from both formal and informal settlement growth.

Criteria for delineation:

- Use existing town planning schemes as the starting point.
- Include areas zoned or designated for future housing projects as per the Human Settlements Sector Plan (2024).
- Incorporate land suitable for economic expansion (light industry, commercial services) but ensure this occurs inward or adjacent to existing built-up areas.
- Protect the interface with rural land—particularly prime agriculture (e.g., dairy farms near Underberg) and conservation zones (e.g., Drakensberg Park near Himeville).

21.2.3. GUIDELINES FOR PERI-URBAN NODES

Peri-urban areas often emerge along transport routes (e.g., R617, R612) where rural and urban functions overlap. These nodes experience incremental settlement growth often driven by housing subsidies, economic activity, and proximity to towns.

Criteria for delineation:

- Delineate settlement edges using transport corridors as structuring elements.
- Incorporate land designated for low- to middle-income housing and mixed-use development in peri-urban locations.
- Ensure inclusion of social facilities (schools, clinics, community halls) in projected growth areas.
- Exclude fragile environmental assets (e.g., wetlands along the Umkomaas River, forestry plantations under high erosion risk).

21.2.4. GUIDELINES FOR RURAL VILLAGES AND TRADITIONAL AUTHORITY AREAS

The majority of NDZ LM's population resides in traditional council areas, where land allocation is managed by traditional leaders. Settlements here are typically dispersed, with low densities and scattered homesteads.

Criteria for delineation:

- Identify village clusters (minimum of 500–800 households) as candidates for settlement edges.
- Delineate boundaries around serviced cores (e.g., villages near clinics, schools, or trading hubs).
- Exclude prime grazing, arable land, and environmentally sensitive areas.
- Allow flexible "soft edges" in traditional areas where population growth is moderate but still define broad limits to prevent uncontrolled expansion.

21.2.5. CROSS-CUTTING GUIDELINES

- **Integration with Human Settlements Planning:** All housing projects must be located within or adjacent to settlement edges.
- **Alignment with Environmental Management:** Edges must align with the NDZ Environmental Management Plan (2020–2025) to exclude biodiversity hotspots.
- **Use of GIS and Spatial Data:** Settlement edges must be mapped using **GIS overlays** of land use, slope, biodiversity, infrastructure, and cadastral data.
- **Phased Implementation:** Settlement edges should allow for short-term (1–5 years), medium-term (5–10 years), and long-term (10–20 years) expansion zones, to guide phased infrastructure investment.

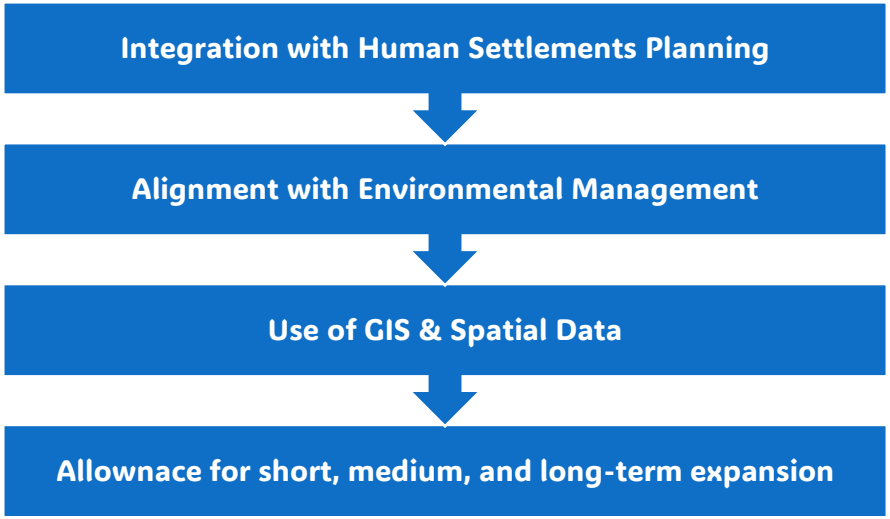


FIGURE 3: CROSS-CUTTING GUIDELINES

21.3. PROPOSED SETTLEMENT EDGES

This section translates the legislative directives (Chapter 2), rationale (Chapter 3), and guidelines (Chapter 4) into spatial proposals for the delineation of settlement edges in the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM). The proposed edges are informed by:

- SPLUMA (2013) requirements for spatial structuring elements.
- The NDZ SDF 2021 and IDP 2025/26, which identify settlement typologies and structuring elements.
- The NDZ Human Settlements Sector Plan (2024), highlighting housing demand and informal settlement pressures.
- The NDZ Integrated Environmental Management Plan (2020–2025), which maps sensitive ecosystems and ecological constraints.
- The Harry Gwala DGDS (2024), which promotes nodal and corridor-based growth.

Settlement edges are proposed for the four primary towns—Creighton, Underberg-Himeville, Bulwer, and Donnybrook—as well as for selected rural village clusters under traditional authorities.

21.3.1. PROPOSED SETTLEMENT EDGE: CREIGHTON

Creighton functions as the administrative centre of NDZ LM and is identified in the IDP and SDF as a primary service node.

Drivers of growth:

- Population growth linked to its role as the municipal seat.
- Housing demand concentrated around Creighton as per the HSSP (2024).
- Availability of limited but expandable bulk services (water, sanitation, electricity).
- Existing road infrastructure connecting to Ixopo and Bulwer.

Proposed Edge Criteria:

- Follow cadastral boundaries of existing urban footprint.
- Incorporate land earmarked for social housing projects in the HSSP.
- Exclude steep slopes and environmentally sensitive areas to the north-east.
- Protect adjacent agricultural land from encroachment.





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Creighton Urban Edge

Legend

- Rivers
- Railway
- Provincial Road
- Residential Road
- Erven
- Urban Edge

MAP 93: CREIGHTON URBAN EDGE

21.3.2. PROPOSED SETTLEMENT EDGE: UNDERBERG-HIMEVILLE

Underberg and Himeville form a dual-town system, functioning as the municipality's tourism and agricultural hub. The Underberg-Himeville Precinct Plan (2025) identifies rapid growth pressures.

Drivers of growth:

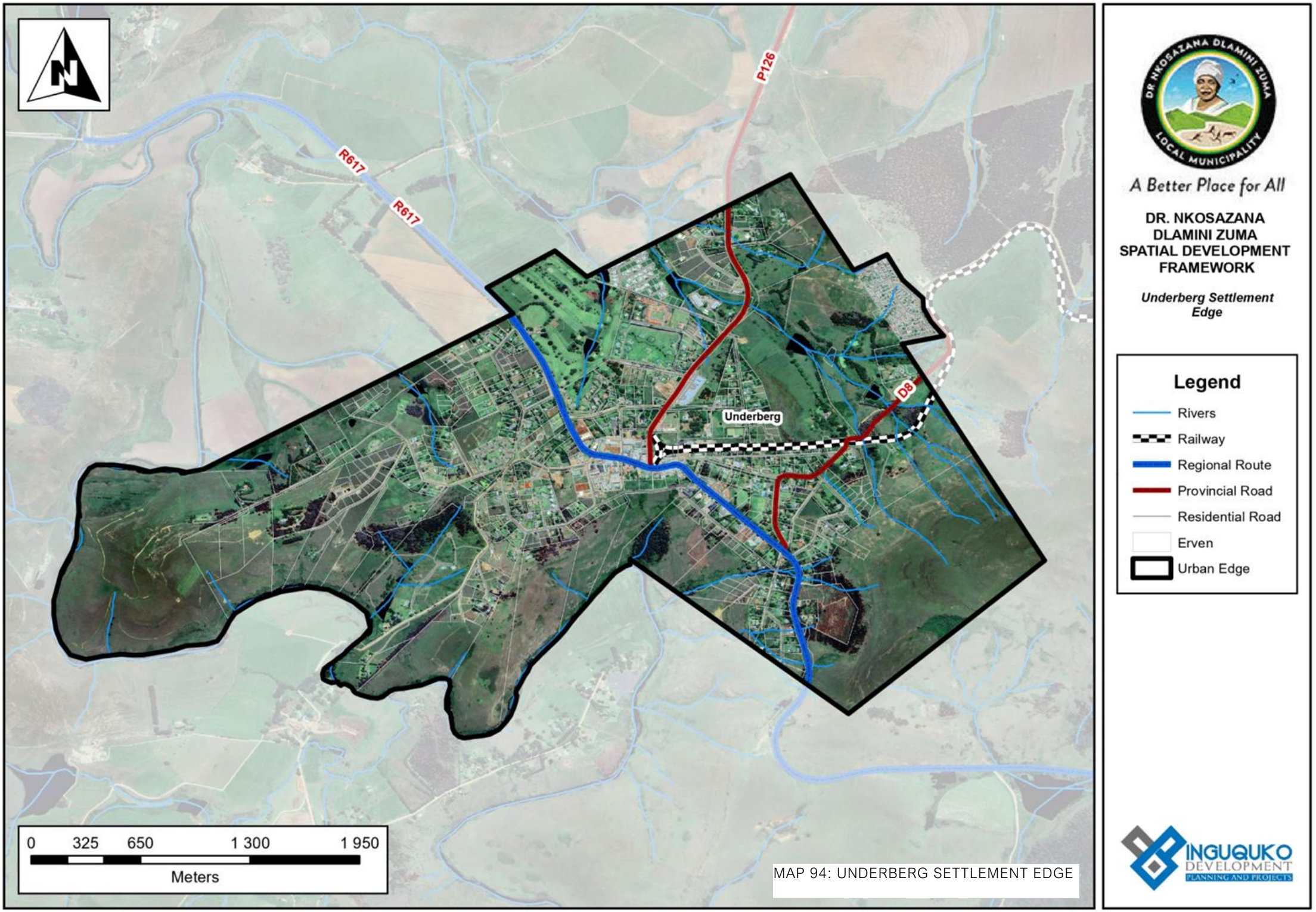
- High demand for residential development, including middle-income and upmarket housing.
- Strategic tourism and agro-processing opportunities.
- Infrastructure constraints, particularly in sanitation and waste management.
- Sensitive biodiversity areas, with proximity to the uKhahlamba Drakensberg World Heritage Site.

Proposed Edge Criteria:

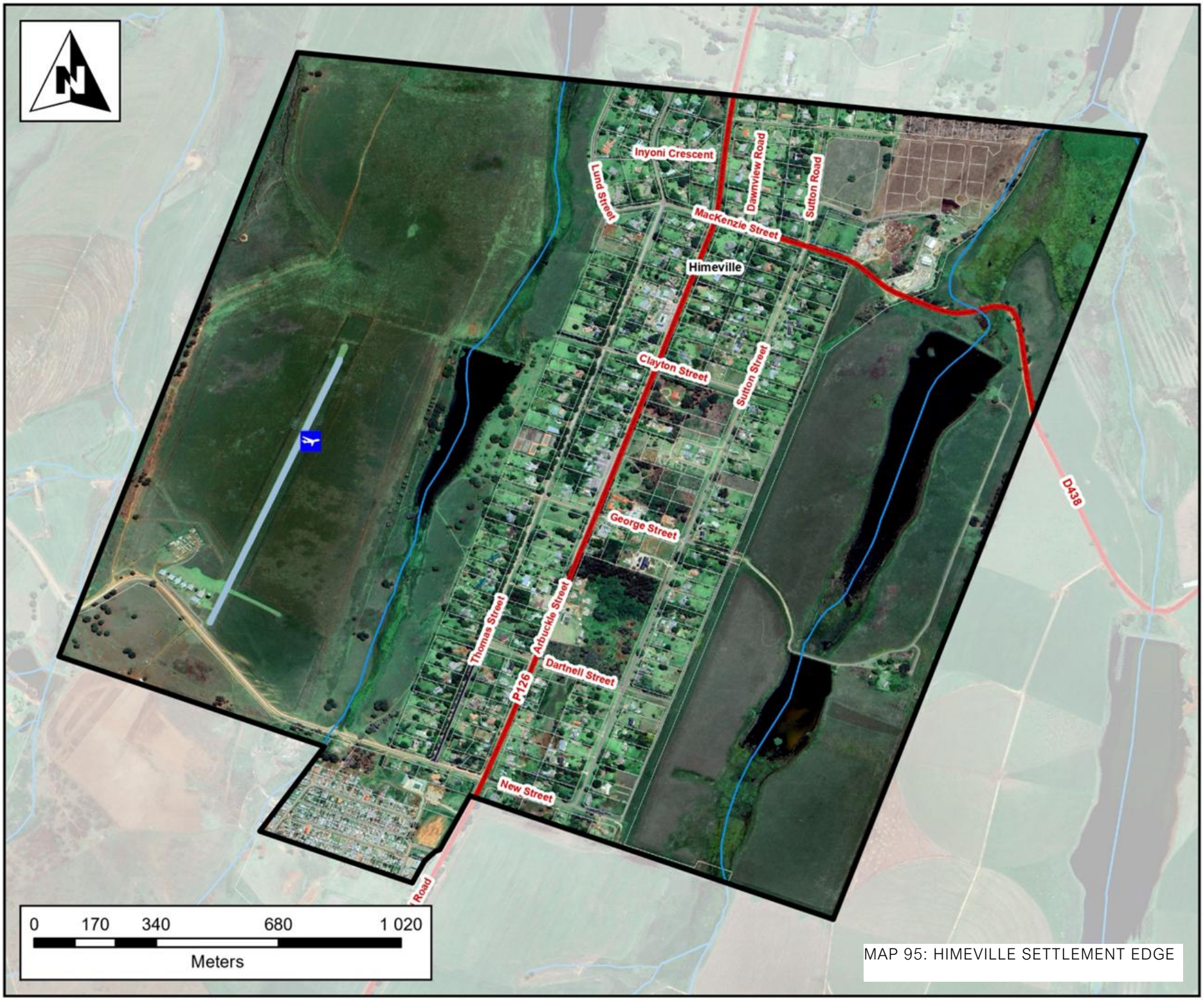
- Consolidate Underberg and Himeville into a single settlement edge to encourage functional integration.
- Allow expansion along the R617 corridor to support tourism-related development.
- Exclude wetlands and conservation zones to the north and east.
- Incorporate the proposed housing and agro-processing sites identified in the Precinct Plan.







MAP 94: UNDERBERG SETTLEMENT EDGE



MAP 95: HIMEVILLE SETTLEMENT EDGE

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Himeville Settlement Edge

Legend

- Airfield
- Rivers
- Railway
- Provincial Road
- Residential Road
- Erven
- Landing Strip
- Urban Edge

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

21.3.3. PROPOSED SETTLEMENT EDGE: BULWER

Bulwer is an important forestry, transport, and tourism node, identified as a secondary growth point.

Drivers of growth:

- Growth around the R617 transport corridor.
- Forestry and related employment activities.
- Tourism potential linked to Bulwer Mountain and Marutswa Forest.
- Environmental constraints: wetlands, steep slopes, and biodiversity corridors.

Proposed Edge Criteria:

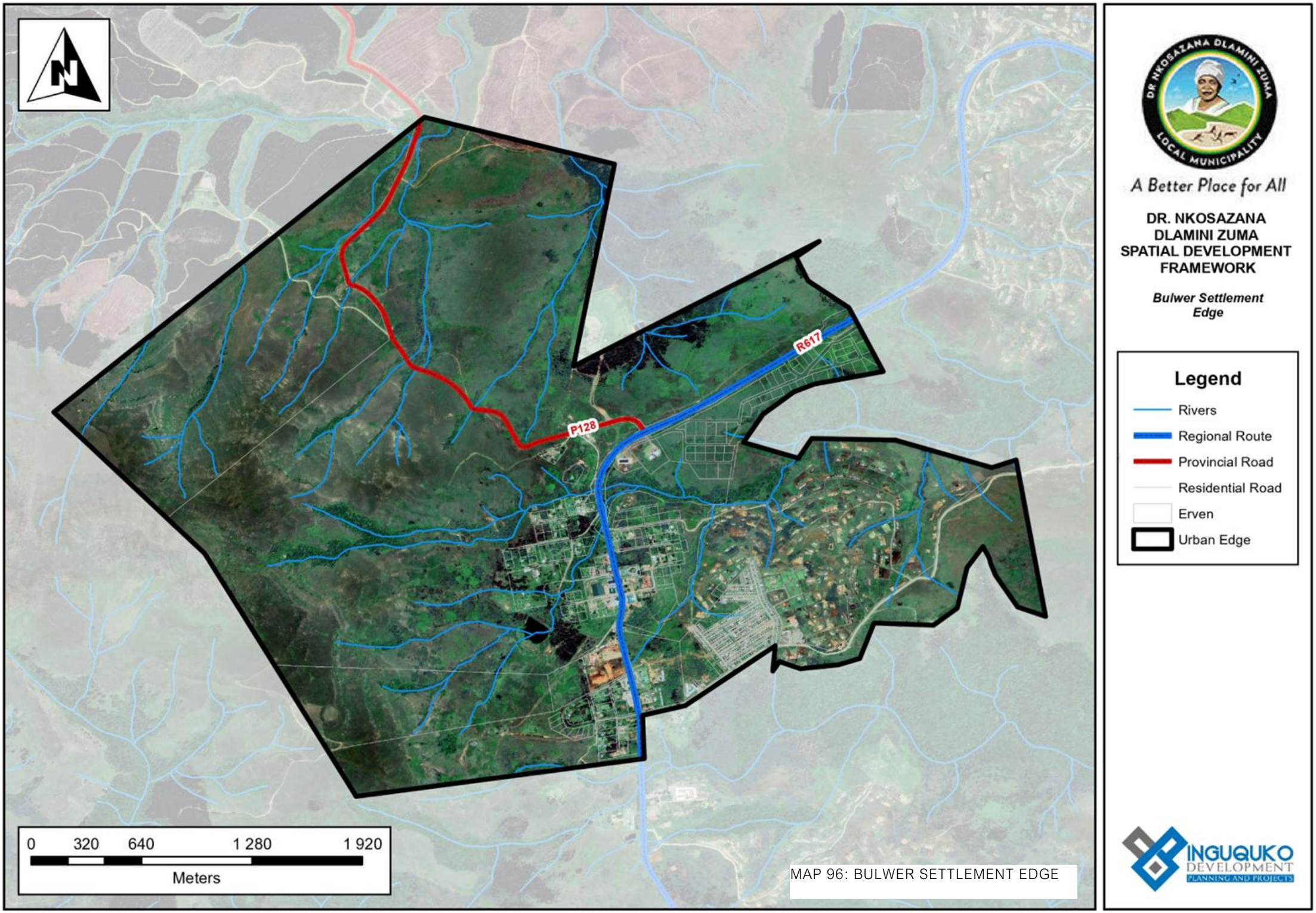
- Define a compact boundary around the existing settlement core.
- Incorporate planned low- to middle-income housing projects identified in the HSSP.
- Protect the wetlands to the south-east and forests to the north.
- Reserve space along the R617 corridor for future commercial expansion.

Policy Directive:

- Prioritise consolidation and upgrading of the existing settlement before outward growth.
- Expansion should be phased westwards, avoiding environmentally sensitive land.







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Bulwer Settlement Edge

Legend

- Rivers
- Regional Route
- Provincial Road
- Residential Road
- Erven
- Urban Edge

MAP 96: BULWER SETTLEMENT EDGE

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

21.3.4. PROPOSED SETTLEMENT EDGE: DONNYBROOK

Donnybrook is a small town with historical significance as a railway hub and has been prioritised for urban regeneration.

Drivers of growth:

- Housing demand driven by its strategic location.
- Agro-processing and transport potential.
- Large tracts of land with redevelopment potential (old rail precinct).
- Environmental constraints: rivers and steep slopes.

Proposed Edge Criteria:

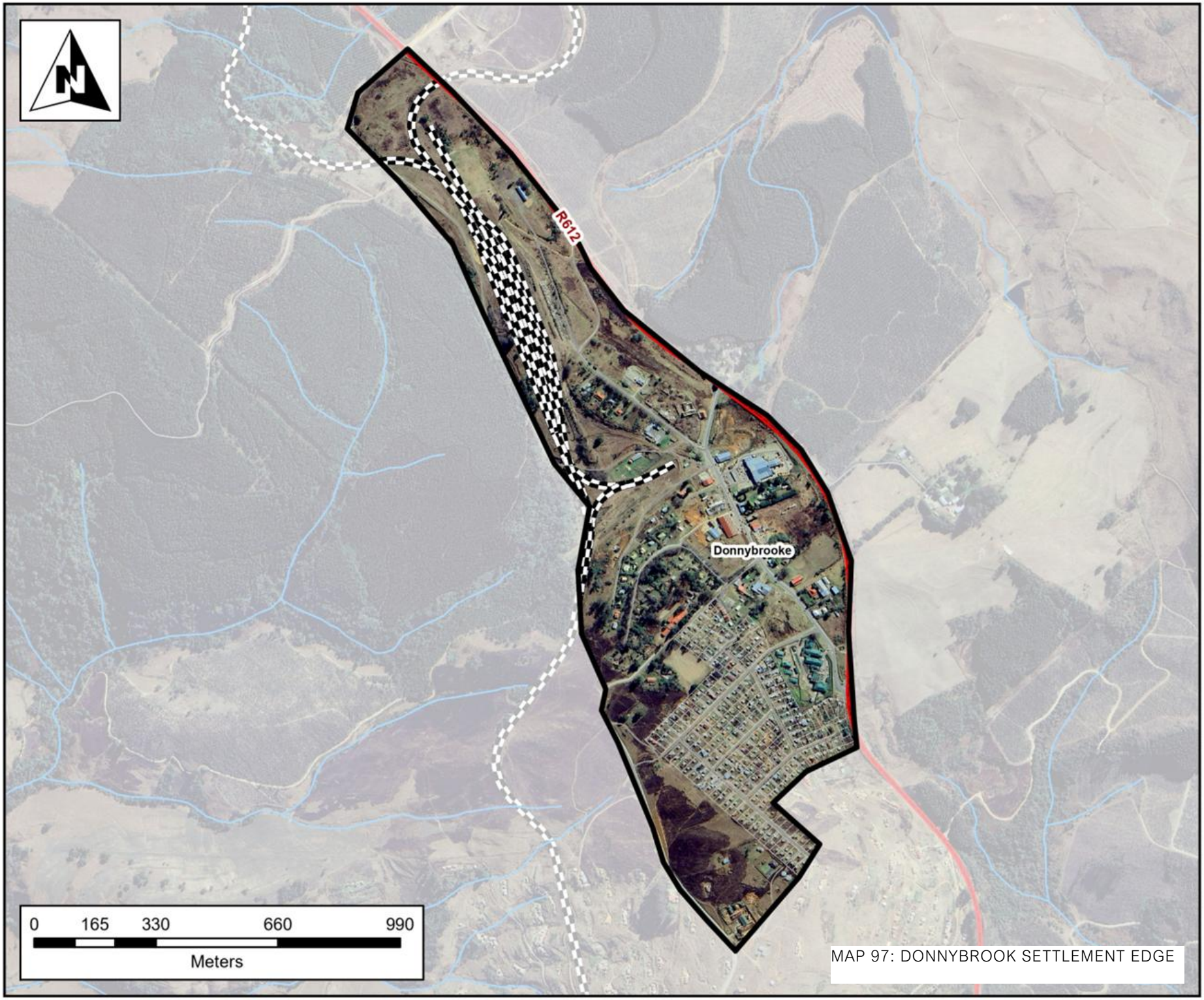
- Align edge with regeneration plans for the old railway precinct.
- Include land for housing and commercial redevelopment.
- Exclude conservation areas to the west and agricultural land to the east.

Policy Directive:

- Encourage mixed-use redevelopment of brownfield sites.
- Expansion directed northwards in phases to support economic growth.







MAP 97: DONNYBROOK SETTLEMENT EDGE

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Donnybrook Settlement Edge

Legend

- Rivers
- Railway
- Regional Route
- Residential Road
- Erven
- Urban Edge

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

22. TRADITIONAL SETTLEMENT MASTER PLANNING

The Traditional Settlement Master Plans Programme was conceptualised by the KwaZulu-Natal Department of Cooperative Governance and Traditional Affairs (COGTA) to address spatial fragmentation, service inequality, and uncoordinated development within traditional authority areas. It forms part of the province's drive to ensure that spatial planning and land use management (SPLUMA) principles are extended to rural communal land where traditional leadership remains the dominant form of land governance.

COGTA's programme aims to create a high-level, spatially referenced framework for development in traditional areas, integrating human settlement planning, infrastructure provision, environmental sustainability, and local economic development. These plans respond to persistent rural under-development, dispersed settlement patterns, and inadequate service delivery which continue to undermine inclusive growth and spatial transformation.

In essence, the programme seeks to:

- Coordinate planning between traditional authorities, municipalities, and sector departments;
- Provide a spatial structure that guides future land allocation, settlement consolidation, and investment prioritisation;
- Promote sustainable rural livelihoods through spatially targeted interventions; and
- Support COGTA's commitment to integrated development under the *District Development Model (DDM)*.

It is important to emphasise that the Traditional Settlement Master Plans (TSMPs) in this section represent a strategic, high-level spatial framework. They are not detailed physical plans or project blueprints but rather a guiding instrument that identifies settlement clusters, growth nodes, and priority development areas.

COGTA's intention is that each Traditional Council (TC) will subsequently be supported to prepare its own detailed Traditional Settlement Master Plan, building on the framework and spatial logic set out in this overarching programme. These future detailed plans will:

- Translate the spatial vision into implementable projects;
- Identify land-use zoning, infrastructure layouts, and service catchments; and
- Be informed by participatory processes involving Amakhosi, Izinduna, community structures, and municipal officials.

Within NDZ LM, this programme forms a critical pillar of the municipality's Spatial Development Framework (SDF 2021), the Integrated Development Plan (2025/26), and the Consolidated Framework (2024). Collectively, these instruments promote a hierarchy of plans—from the Municipal SDF to Nodal and Local Area Plans, and finally to Traditional Settlement Master Plans—to ensure consistency between municipal development priorities and spatial targeting.

In this context, the section that follows outlines the spatial proposals, interventions, and strategies that should guide future detailed TSMPs within the NDZ LM. It draws extensively on the municipality's sectoral plans—including the Human Settlements Sector Plan (2024), LED Strategy, and precinct plans for Creighton, Underberg-Himeville, Donnybrook, Bulwer, and Kilmun—to present a coherent, evidence-based spatial development approach for traditional areas.

22.1.1. ALIGNMENT WITH NDZ MUNICIPAL FRAMEWORKS

The NDZ LM's Spatial Development Framework (SDF 2021) defines the municipality's spatial vision as *"a rural municipality that promotes sustainable human settlements, local economic development and environmental stewardship through integrated spatial planning."*

The SDF outlines three critical structuring elements that the TSMPs must reinforce:

- A hierarchy of nodes and service centres, ranging from the primary town of Creighton to rural service points such as Donnybrook, Bulwer, and Underberg-Himeville.
- Settlement clusters and rural service corridors that guide infrastructure investment and mobility; and
- Environmental management zones and agricultural protection areas to safeguard ecological assets and food security.

The Integrated Development Plan (IDP 2025/26) emphasises the need for spatial transformation through integrated traditional settlement planning, noting that over 70% of the municipal population resides in traditional areas. The IDP identifies pressing challenges such as:

- Dispersed and unstructured rural settlements.
- Inadequate access to basic services and social facilities.
- Limited economic activity and weak local markets; and
- Poor connectivity to regional corridors and service nodes.

The NDZ Consolidated Framework (2024) and the Human Settlements Sector Plan (HSSP 2024) call for a more structured approach to settlement development, focusing on upgrading informal and traditional settlements, promoting mixed-use rural centres, and ensuring housing delivery aligns with bulk infrastructure capacity.

The Local Economic Development (LED) Strategy complements this by advocating for agricultural cooperatives, eco-tourism nodes, and SMME support hubs within traditional areas—key elements that the TSMPs are expected to spatially integrate.

22.1.2. INTEGRATIVE ROLE OF THE TRADITIONAL SETTLEMENT MASTER PLANS

Within this web of plans, the Traditional Settlement Master Plans function as intermediary spatial frameworks — linking the municipal SDF to detailed Local Area or Precinct Plans. Their purpose is not to duplicate the SDF but to translate its strategic directives into spatially referenced, area-specific development proposals for traditional territories. They play three vital integrative roles:

- **Spatial Coordination:** Aligning housing, infrastructure, and economic initiatives with the spatial hierarchy of nodes and corridors.
- **Institutional Integration:** Strengthening partnerships between Traditional Councils, sector departments, and the municipality.
- **Implementation Prioritisation:** Identifying catalytic interventions and sequencing investments for sustainable rural development.

Through this alignment, the TSMPs operationalise the intent of the NDZ SDF and PSDF by ensuring that traditional settlements evolve as well-structured, serviced, and economically active rural centres that contribute to spatial equity and resilience across the municipality.

22.1.3. BACKGROUND TO THE TRADITIONAL SETTLEMENT MASTER PLANS PROGRAMME

The Traditional Settlement Master Plans Programme emerged in response to the fragmented and uncoordinated spatial development characterizing South Africa's traditional rural areas. Historically, these settlements evolved

organically under customary tenure systems, without the benefit of formal planning, infrastructural investment, or alignment with municipal development frameworks. The resulting settlement patterns—characterized by low densities, poor infrastructure connectivity, and scattered social facilities—have perpetuated poverty and limited access to services.

COGTA initiated the TSMP Programme as part of its broader Integrated Rural Development and Land Reform agenda, seeking to guide the transformation of traditional settlements into sustainable, serviceable, and spatially efficient rural nodes. The programme was conceptualized as a collaborative planning mechanism involving provincial COGTA, municipalities, traditional leadership structures, and sector departments. It provides a spatial blueprint for the integration of traditional land management practices with municipal spatial planning systems.

At the local scale, the NDZ municipality has been an active participant in this initiative, particularly through the Final Plan of Nodes (2023/24)—a pilot project commissioned by COGTA to develop a hierarchy of development nodes within traditional council areas. This plan directly links to the NDZ Spatial Development Framework and provides spatial guidance on where and how development should occur in traditional settlements.

The programme's evolution also reflects a shift in policy towards "functional rural urbanism"—an approach that recognizes traditional settlements as dynamic components of the municipal economy rather than peripheral zones. It thus bridges the gap between traditional governance and formal municipal planning, fostering a shared spatial vision that aligns community aspirations, ecological considerations, and economic potential.

22.1.4. SPATIAL VISION AND RATIONALE

22.1.4.1. THE SPATIAL TRANSFORMATION IMPERATIVE

Dr Nkosazana Dlamini Zuma Local Municipality (NDZ LM) occupies a predominantly rural landscape, characterised by dispersed traditional settlements, a rugged topography, and a dual land tenure system that juxtaposes communal land under traditional authorities with privately owned commercial farms. This spatial configuration, inherited from apartheid-era spatial segregation, continues to constrain equitable access to services, infrastructure, and economic opportunities.

The municipality's Spatial Development Framework (SDF 2021) and Integrated Development Plan (IDP 2025/26) highlight that more than 70% of the population resides within traditional areas, yet these areas experience the highest levels of poverty, unemployment, and infrastructure backlog. The current spatial form—marked by scattered homesteads, limited-service nodes, and weak connectivity—undermines spatial efficiency and economic potential.

In response, the TSMPs aim to restructure rural settlement patterns through spatial consolidation, improved accessibility, and the creation of sustainable, serviced, and economically vibrant rural nodes. This approach supports the national and provincial objective of spatial transformation, as articulated in the National Development Plan (NDP 2030) and the KwaZulu-Natal Provincial Spatial Development Framework (PSDF 2021), which advocate for *"balanced development across the urban–rural continuum."*

22.1.4.2. STRATEGIC SPATIAL RATIONALE

The spatial rationale underpinning the TSMPs is built upon five interconnected principles derived from the NDZ SDF, Consolidated Framework, and District Growth and Development Strategy (GDS 2024/25–2028/29):

- **Hierarchy of Settlements and Nodes:** The spatial structure of NDZ LM is anchored on a system of primary, secondary, and tertiary nodes, linked by strategic development corridors (notably the R612 and R617 routes). The TSMPs must reinforce this hierarchy by clustering traditional settlements around accessible nodes to support service delivery, infrastructure efficiency, and economic clustering.
- **Spatial Integration and Connectivity:** Traditional areas should no longer function as isolated hinterlands. The TSMPs will enhance spatial integration by improving road linkages, pedestrian movement networks, and public transport connectivity between settlement clusters and service centres such as Creighton, Underberg-Himeville, Donnybrook, Bulwer, and Kilmun.
- **Sustainable Rural Livelihoods:** Land use planning must support diversified livelihoods through designated areas for agriculture, small-scale industry, eco-tourism, and community enterprises. This aligns with the NDZ LED Strategy's focus on agri-processing, tourism development, and cooperative farming.
- **Environmental Protection and Resilience:** Settlements must evolve within an ecological framework that recognises critical biodiversity areas, river corridors, wetlands, and steep slopes as environmental constraints. The TSMPs will integrate the NDZ Environmental Management Plan (2020) and Disaster Management Sector Plan (2019) to ensure resilience against climate-induced risks such as flooding, erosion, and drought.
- **Inclusive Governance and Traditional Leadership Partnership:** The TSMPs are co-produced instruments. Their success depends on collaborative governance between the municipality, Traditional Councils, and sector departments. This partnership ensures that spatial proposals are both culturally appropriate and administratively enforceable under the municipal Land Use Management System (LUMS).

22.1.4.3. SPATIAL DEVELOPMENT GOALS

Drawing on the NDZ SDF and PSDF, the following spatial development goals provide the foundation for the TSMPs:

TABLE 97: SPATIAL DEVELOPMENT GOALS

GOAL	DESCRIPTION	STRATEGIC LINKAGE
Goal 1: Spatial Transformation and Integration	Reorganise traditional settlements into well-defined clusters connected by corridors and service nodes.	NDP 2030; PSDF 2021; NDZ SDF (2021)
Goal 2: Livelihood and Economic Empowerment	Promote agri-processing, eco-tourism, and small enterprise hubs in rural centres.	NDZ LED Strategy (2020); HGDM GDS (2024–2029)
Goal 3: Sustainable Infrastructure Provision	Prioritise bulk and connector infrastructure to support clustered settlement development.	NDZ IDP (2025/26); HSSP (2024)
Goal 4: Environmental Stewardship and Climate Resilience	Integrate land use planning with conservation, water management, and disaster risk reduction.	NDZ EMP (2020); Climate Change Strategy (HGDM 2023)
Goal 5: Good Governance and Traditional Leadership Inclusion	Strengthen institutional collaboration and local participation in spatial planning.	COGTA TSMP Framework; SPLUMA (2013)

22.1.4.4. DESIRED SPATIAL OUTCOMES

The Traditional Settlement Master Plans seek to achieve the following spatial outcomes:

- A structured rural landscape defined by compact settlement clusters linked to service and economic nodes.
- Efficient service delivery through targeted infrastructure investment and reduced settlement sprawl.
- Economically viable rural centres that host markets, SMME hubs, and agri-support facilities.
- Environmentally resilient communities supported by sustainable land use and disaster preparedness; and
- Culturally grounded spatial planning, integrating traditional governance systems with statutory planning frameworks.

These outcomes represent a shift from reactive settlement expansion to proactive spatial management, enabling NDZ LM to optimise land resources, support livelihoods, and reduce vulnerability across its traditional territories.

22.1.5. LAND USE PROPOSALS

22.1.5.1. GUIDING PRINCIPLES

The land use proposals for Traditional Settlement Master Plans (TSMPs) are guided by the strategic objectives of the NDZ Spatial Development Framework (2021), the Human Settlements Sector Plan (2024), and the Local Economic Development (LED) Strategy (2020). Together, these documents advocate for integrated, inclusive, and sustainable rural land use systems that enable human development, economic diversification, and environmental resilience. Key guiding principles include:

- **Compact and connected settlement form** – promoting densification around rural nodes to optimise infrastructure use.
- **Mixed-use functionality** – allowing complementary economic, residential, and social activities within walkable areas.
- **Environmental integration** – aligning land use with ecological sensitivity and climate adaptation.
- **Socio-cultural compatibility** – ensuring land use aligns with customary land allocation and traditional authority governance; and
- **Equitable access** – ensuring that all residents benefit from social services, economic infrastructure, and land opportunities.



22.1.5.2. LAND USE CATEGORIES AND SPATIAL INTENT

The TSMPs define a set of standardised land use categories applicable across all Traditional Council areas. These are tailored to NDZ's rural development vision and spatial hierarchy of nodes.

LAND USE CATEGORY	PURPOSE AND DESCRIPTION	KEY SPATIAL INTERVENTIONS / STRATEGIES
Residential (Traditional and Upgraded Rural Settlements)	To provide for existing and future household accommodation within traditional areas, encouraging clustered development near service nodes.	• Consolidate scattered homesteads into defined clusters. • Introduce in-situ upgrading with road access, sanitation, and energy connections. • Promote incremental housing support and self-build models.
Civic and Social Facilities	To cluster educational, health, recreational, and administrative facilities within accessible village centres.	• Co-locate schools, clinics, multipurpose halls, and community centres. • Develop Rural Service Hubs within tertiary nodes. • Establish ward-based OSS (Operation Sukuma Sakhe) centres.
Commercial and Mixed Use	To facilitate small-scale business, retail, and service activity within rural centres and along corridors.	• Designate mixed-use zones around Donnybrook, Bulwer, Underberg-Himeville, Kilmun, and Nokweja nodes. • Provide trading stalls, taxi ranks, and micro-enterprise spaces. • Encourage Rural Business Support Hubs (SMME nodes).
Agriculture and Agri-Cooperative Zones	To promote household and cooperative-based farming as a driver of rural livelihoods.	• Protect high-value agricultural land identified in the NDZ EMP and SDF. • Establish Agri-Cooperative Precincts around Riverside, Nkumba, and Kilmun. • Support processing and training facilities through partnerships with DALRRD and the District Agri-Park.
Light Industry / Agri-Processing	To stimulate rural industrialisation and value addition to agricultural products.	• Allocate land near transport corridors (R612, R617) for small-scale industrial parks. • Prioritise agri-processing (dairy, timber, fruit drying, packaging) in Donnybrook, Bulwer, and Underberg. • Integrate with youth skills and entrepreneurship centres.
Eco-Tourism and Cultural Precincts	To leverage the municipality's natural and cultural assets for sustainable tourism.	• Identify eco-tourism nodes near Drakensberg World Heritage Site, Umkomaas River corridor, and Ntsikeni Reserve.

LAND USE CATEGORY	PURPOSE AND DESCRIPTION	KEY SPATIAL INTERVENTIONS / STRATEGIES
		• Promote community-based lodges, homestays, and cultural heritage sites. • Integrate with Tourism & Eco-Cultural Precincts in precinct plans.
Environmental Conservation and Open Space	To safeguard ecosystems, water resources, and biodiversity.	• Enforce no-development zones in wetlands, floodplains, and steep slopes. • Promote green corridors linking protected areas. • Encourage community forestry and reforestation initiatives.
8. Infrastructure and Utilities	To designate land for public infrastructure (water, sanitation, waste, energy, communications).	• Plan for decentralised infrastructure nodes. • Incorporate renewable energy systems (solar micro-grids). • Identify waste management and recycling sites at sub-regional scale.
Public Open Space and Recreation	To provide safe, accessible areas for sport, leisure, and cultural gatherings.	• Develop multi-use sports fields, playgrounds, and parks. • Integrate green buffers within settlement layouts. • Include youth activity zones and women's gardens.
Transport and Movement	To strengthen access, mobility, and transport interchange points.	• Upgrade key local access roads (P429, D1201, D663). • Develop formalised taxi ranks and pedestrian networks. • Introduce non-motorised transport (NMT) routes linking schools and markets.

22.1.5.3. LAND USE INTEGRATION BY SETTLEMENT TYPE

The application of these categories varies according to the settlement typology defined in Section 4.

- Primary and Secondary Nodes:
    1. Support mixed-use cores combining commerce, civic facilities, and medium-density housing.
    2. Encourage formalisation of existing trade and services through designated plots.
- Tertiary Nodes and Rural Clusters:
    1. Prioritise infill residential development and social facilities within walking distance.
    2. Allocate land for local markets, cooperatives, and community halls.
- Dispersed Rural Settlements:
    1. Implement basic service upgrading rather than full formalisation.
    2. Designate agricultural and grazing zones to prevent land-use conflict.
- Environmentally Sensitive Areas:
    1. Restrict development and promote eco-tourism, conservation, and low-impact agriculture.
    2. Use buffer zones to protect biodiversity and river systems.

22.1.5.4. LAND USE MANAGEMENT AND TENURE CONSIDERATIONS

Given that traditional land is governed under customary tenure, effective implementation requires:

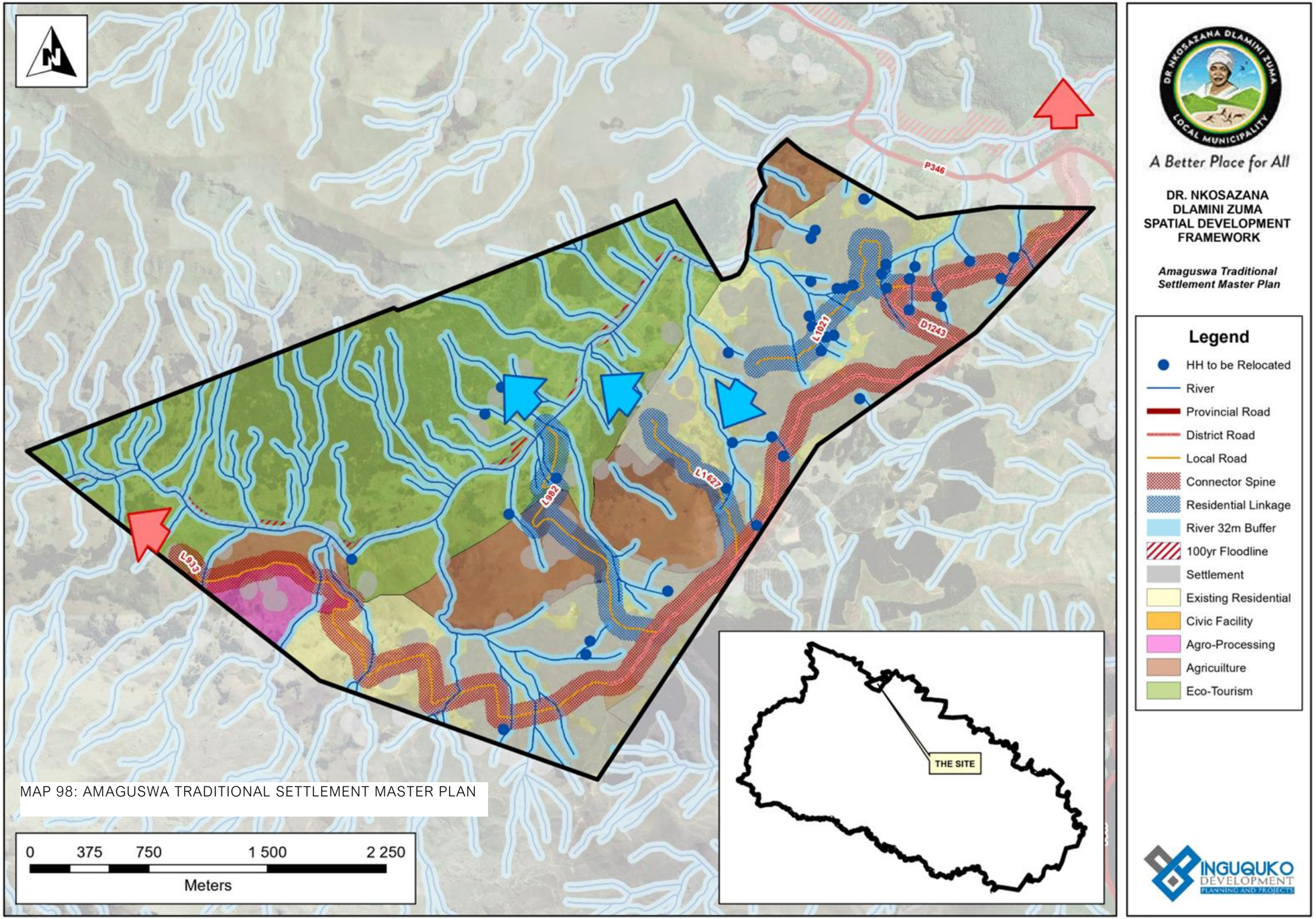
- Joint spatial approval mechanisms between the Traditional Council and the municipality's Land Use Management System (LUMS).
- Development of customary land allocation maps to guide future settlement expansion.
- Introduction of zoning overlays compatible with communal tenure (e.g., "Traditional Settlement Zone", "Agri-Cooperative Zone"); and
- Regularisation of community projects through land use agreements to facilitate funding and infrastructure delivery.

The TSMPs will thus serve as a bridge between customary land governance and statutory planning, ensuring that all spatial decisions are legitimate, inclusive, and implementable.

22.1.5.5. EXPECTED SPATIAL OUTCOMES

Implementation of the proposed land use framework will result in:

- Consolidated and serviced rural settlements with clear functional identities.
- Increased accessibility to social and economic facilities.
- Reduced environmental degradation through controlled land allocation.
- Improved food security and rural income generation; and
- Strengthened collaboration between Amakhosi and municipal planners in land governance.



MAP 98: AMAGUSWA TRADITIONAL SETTLEMENT MASTER PLAN

DR. NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

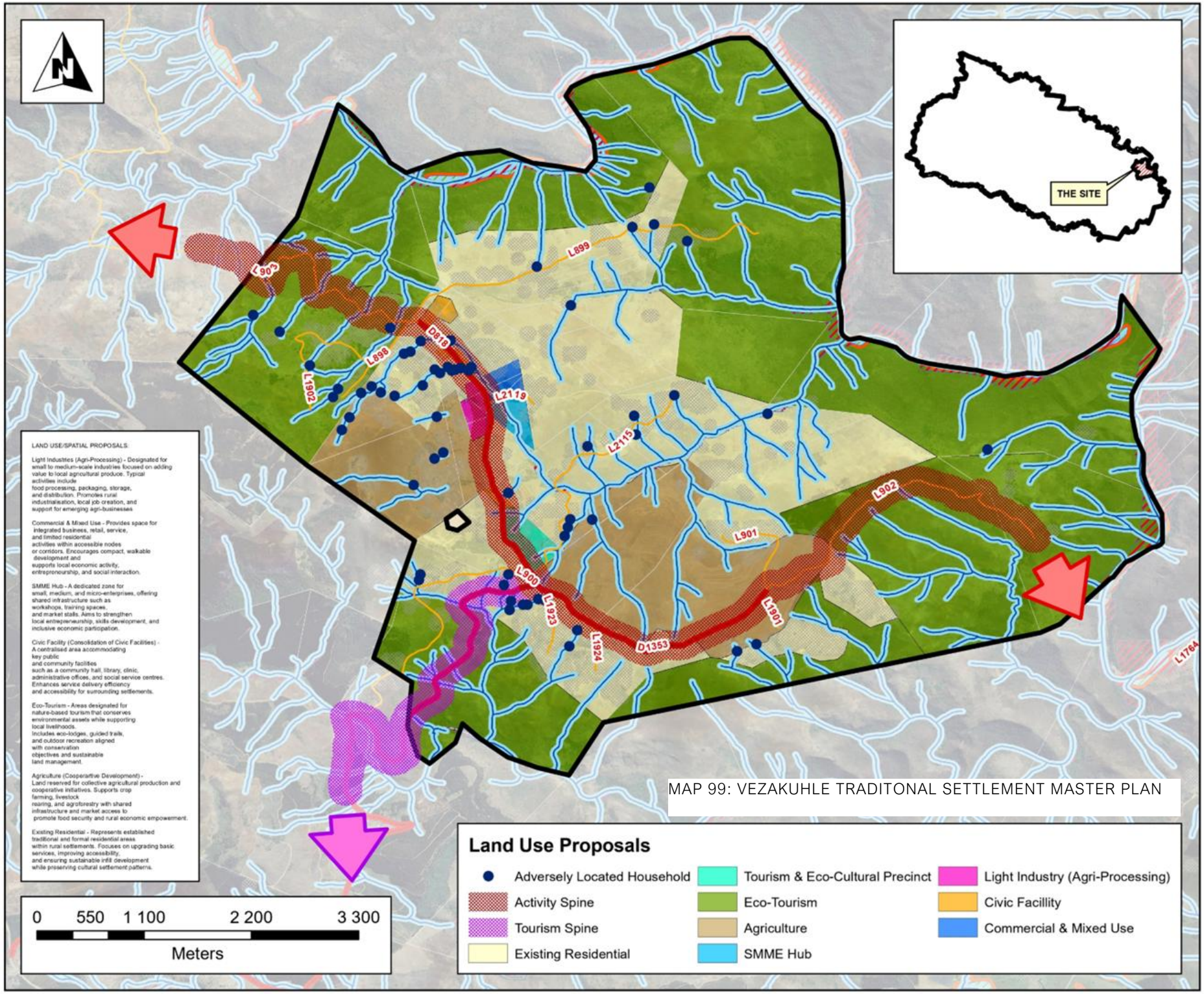
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Amaguswa Traditional Settlement Master Plan

Legend

- HH to be Relocated
- River
- Provincial Road
- District Road
- Local Road
- Connector Spine
- Residential Linkage
- River 32m Buffer
- 100yr Floodline
- Settlement
- Existing Residential
- Civic Facility
- Agro-Processing
- Agricuilture
- Eco-Tourism

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 99: VEZAKUHLE TRADITONAL SETTLEMENT MASTER PLAN

DR NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

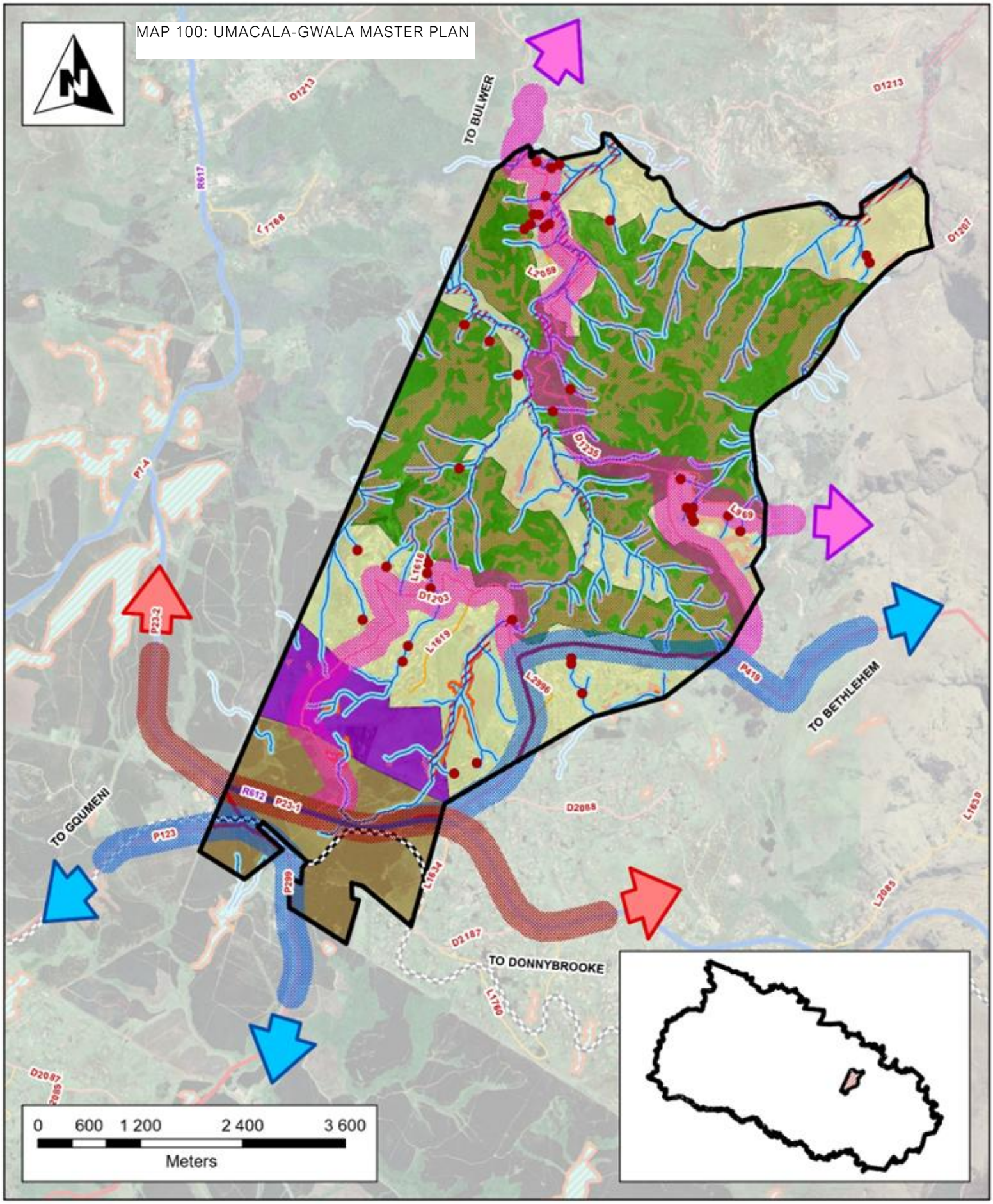
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Vezakhule Traditional Settlement Master Plan

Legend

- District Road
- Local Road
- River
- 100yr Floodline
- Wetland
- Wetland 32m Buffer
- Settlement
- Cadastral

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



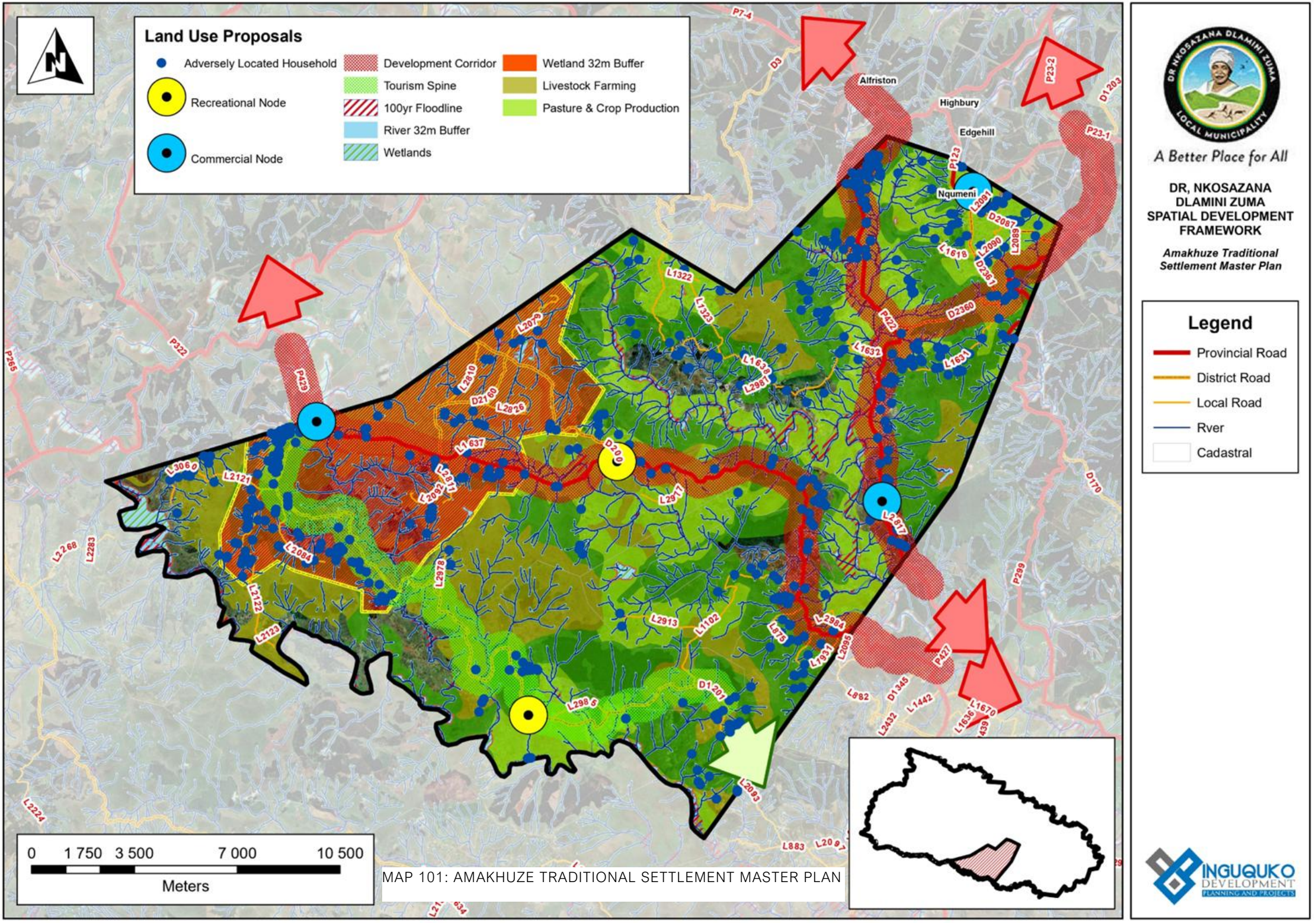
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

uMacala-Gwala Traditional Settlement Master Plan

Legend

- Adversely Located HH
- River
- Railway
- Regional Route
- Provincial Road
- District Road
- Local Road
- Regional Corridor
- Development Spine
- Public Transport Corridor
- Cadastral
- Steep Slope
- 100yr Floodline
- River 32m Buffer
- Wetland
- Wetland 32m Buffer
- Residential
- Eco-Tourism
- Agri-Forestry
- Agri-Processing

A Better Place for All



MAP 101: AMAKHUZE TRADITIONAL SETTLEMENT MASTER PLAN

DR NKOSAZANA DLAMINI ZUMA LOCAL MUNICIPALITY

A Better Place for All

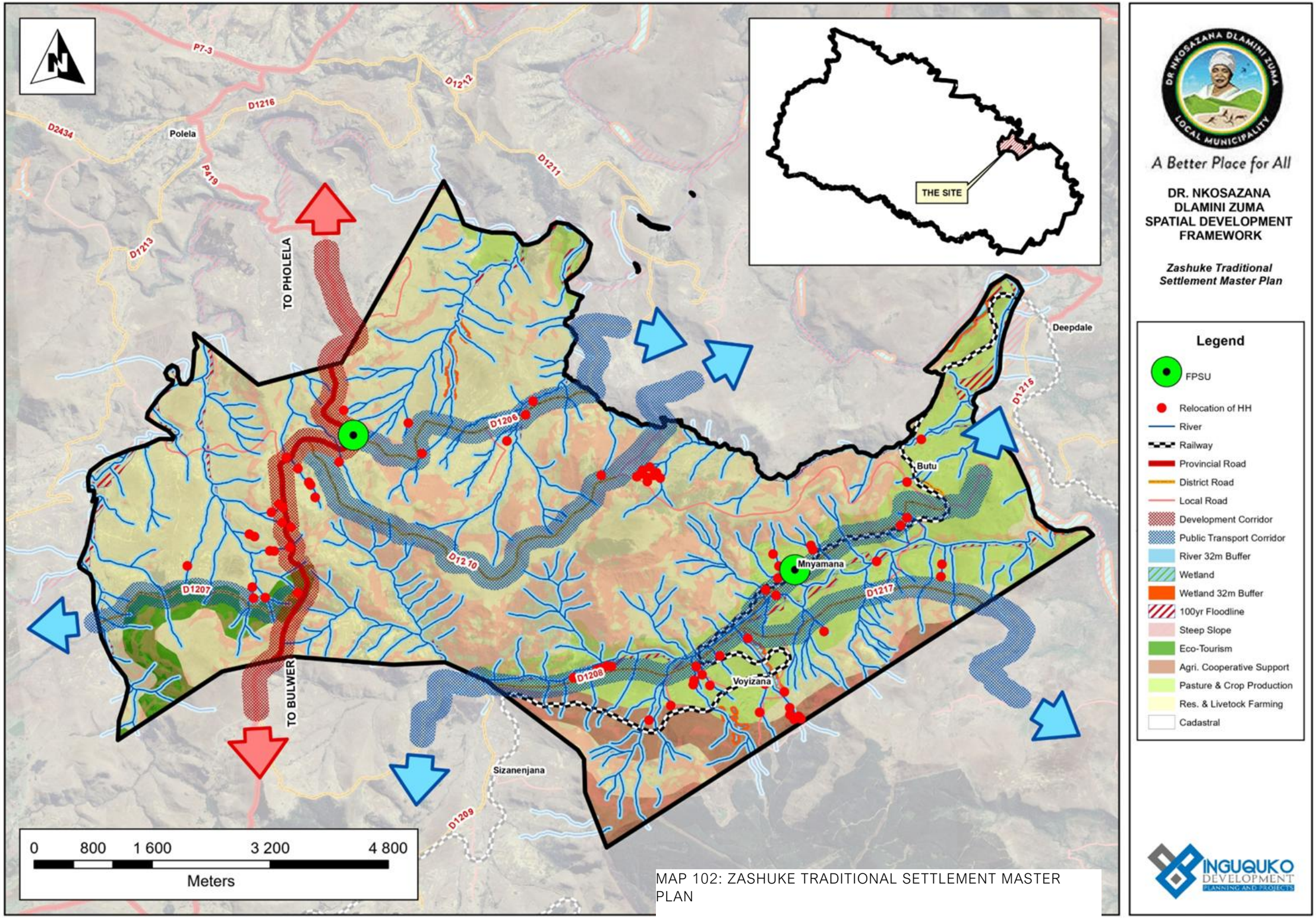
DR, NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Amakhuze Traditional Settlement Master Plan

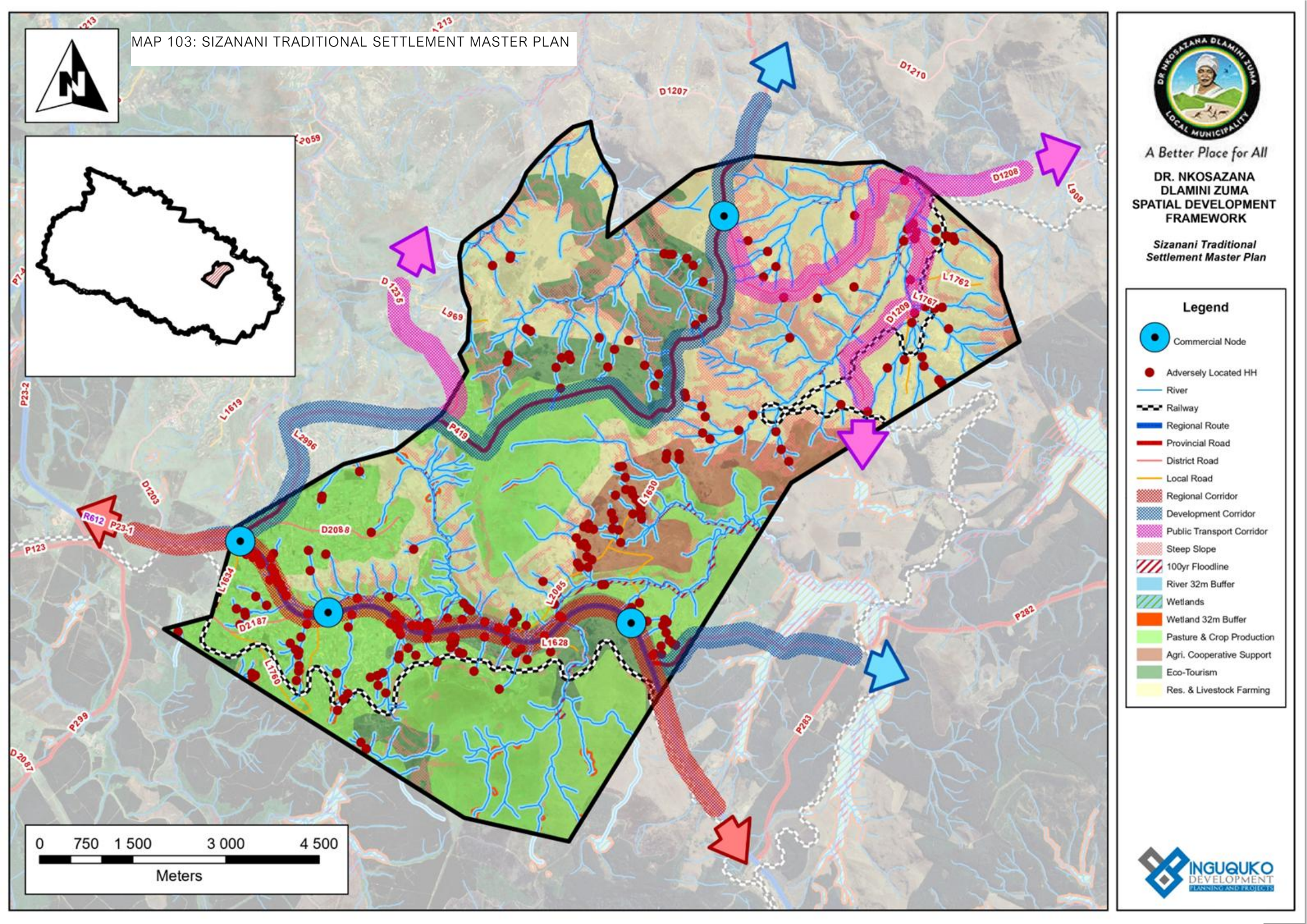
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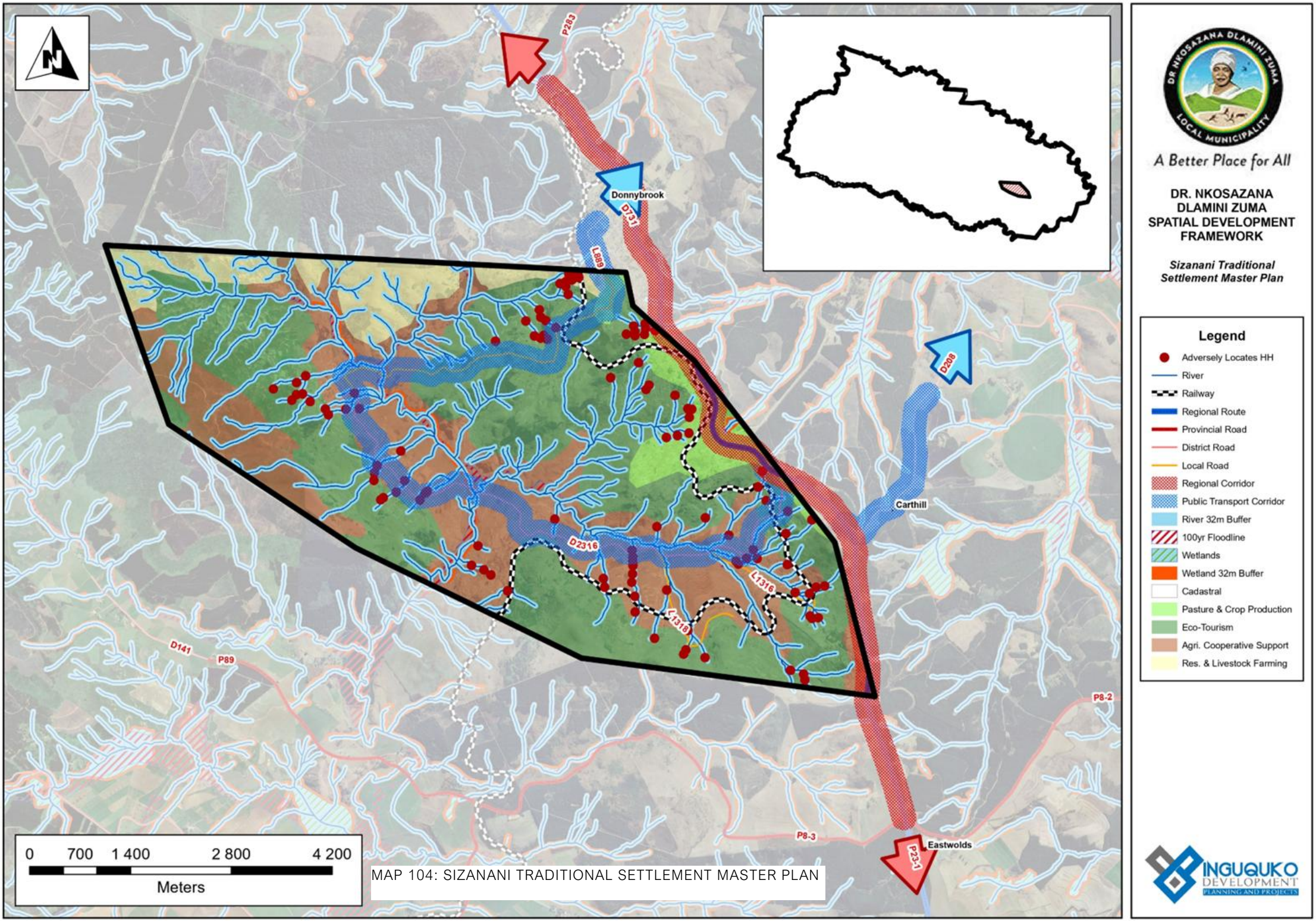
- Provincial Road
- District Road
- Local Road
- Rver
- Cadastral

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

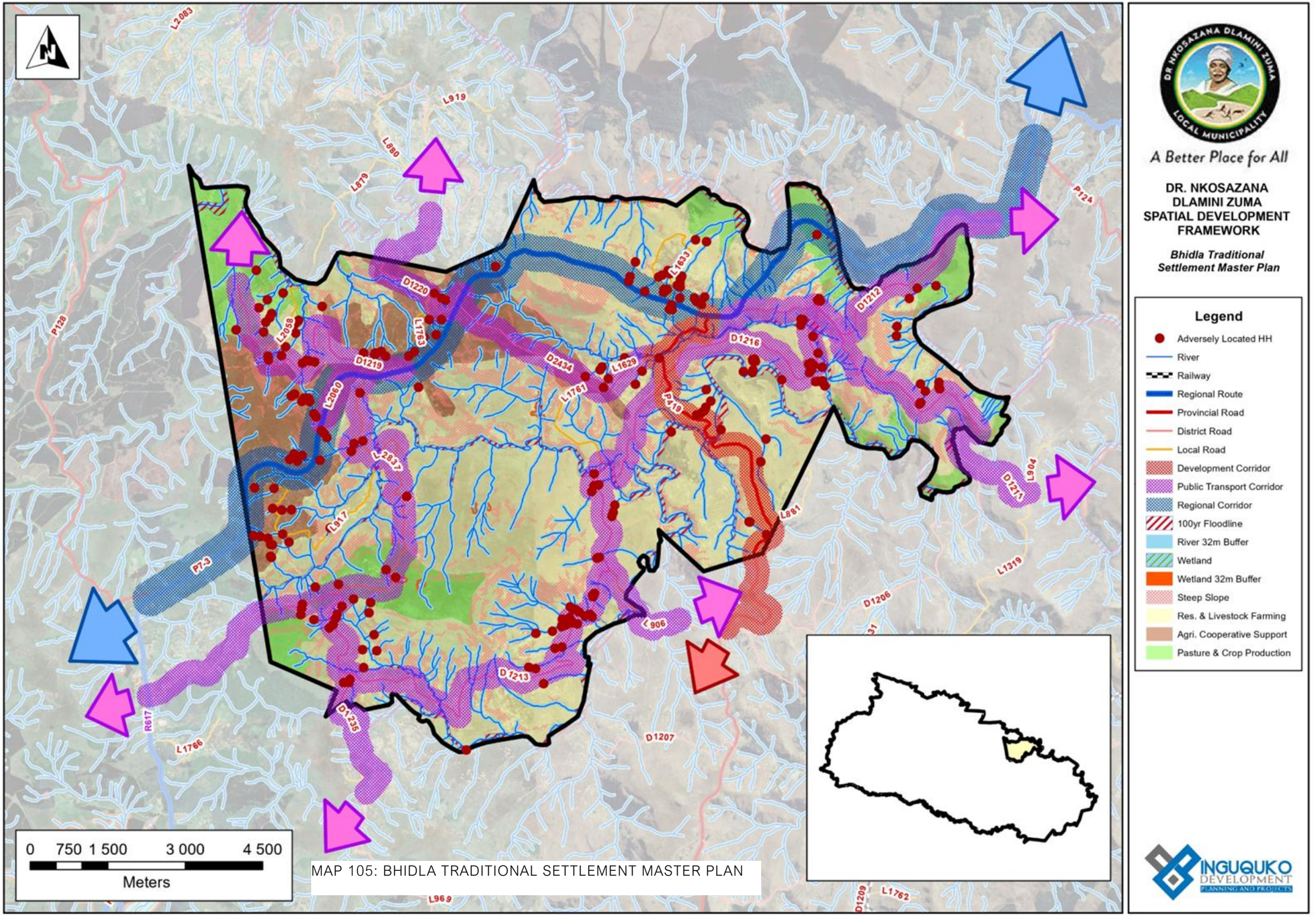


MAP 102: ZASHUKE TRADITIONAL SETTLEMENT MASTER PLAN


MAP 103: SIZANANI TRADITIONAL SETTLEMENT MASTER PLAN
A Better Place for All
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK
Sizanani Traditional Settlement Master Plan
Legend
Commercial Node
Adversely Located HH
River
Railway
Regional Route
Provincial Road
District Road
Local Road
Regional Corridor
Development Corridor
Public Transport Corridor
Steep Slope
100yr Floodline
River 32m Buffer
Wetlands
Wetland 32m Buffer
Pasture & Crop Production
Agri. Cooperative Support
Eco-Tourism
Res. & Livestock Farming
0 750 1 500 3 000 4 500
Meters
INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



MAP 104: SIZANANI TRADITIONAL SETTLEMENT MASTER PLAN



MAP 105: BHIDLA TRADITIONAL SETTLEMENT MASTER PLAN

22.2. OBJECTIVES OF THE PROGRAMME

The objectives of the Traditional Settlement Master Plans Programme are multi-dimensional and closely aligned with the developmental outcomes outlined in the KZN PSDF (2021) and NDZ SDF (2021). The principal objectives include:

- **Promoting Integrated Rural Development and Spatial Equity:** The TSMP framework seeks to integrate rural areas into the broader spatial economy by ensuring equitable access to social infrastructure, basic services, and economic opportunities. This approach directly supports the Provincial Growth and Development Strategy (PGDS) goals of inclusive growth and spatial justice.
- **Supporting Settlement Restructuring and Densification:** Many traditional settlements within NDZ exhibit fragmented and sprawling patterns, leading to inefficient land use and high service delivery costs. The programme promotes nodal clustering, infill development, and densification within strategic growth areas.
- **Enhancing Environmental Resilience and Sustainable Land Use:** Given NDZ's sensitive biophysical environment—characterized by steep slopes, high rainfall, and critical biodiversity areas—the TSMP integrates environmental management principles and climate adaptation measures. These include the conservation of wetlands, erosion control, and the promotion of climate-resilient infrastructure.
- **Facilitating Alignment Between Traditional Councils, Municipalities, and COGTA:** The programme formalizes cooperative governance by aligning traditional land administration with municipal planning instruments. This alignment ensures that local spatial plans and human settlement programmes are endorsed and implemented jointly by traditional authorities and municipalities, reducing land conflicts and enabling joint service delivery.

Collectively, these objectives contribute to the creation of sustainable, compact, and serviceable rural settlements—the core spatial vision promoted by SPLUMA and the PSDF.



23. THE COMPOSITE SPATIAL DEVELOPMENT FRAMEWORK

The Composite Spatial Development Framework (SDF) Map of the Dr. Nkosazana Dlamini Zuma Local Municipality represents the integrated spatial expression of the development proposals advanced in Phase 4 of the Spatial Proposals Report. As the culmination of planning processes, the map provides a holistic view of settlement hierarchy, growth nodes, economic corridors, environmental management areas, and service infrastructure, consolidating both sectoral strategies and precinct-level plans into a single visual narrative.

The map fulfils the legislative and policy requirements of the Spatial Planning and Land Use Management Act (SPLUMA, 2013) by spatially articulating the desired development pattern of the municipality. Furthermore, it aligns with the KwaZulu-Natal Provincial Spatial Development Framework (PSDF, 2021) and the Harry Gwala District Municipality SDF and Growth & Development Strategy (2024), thereby ensuring vertical integration of planning objectives. At the local scale, it translates the vision of sustainable, inclusive, and resilient spatial development into a framework that guides land use management, investment prioritisation, and infrastructure rollout. The composite map is not simply a cartographic product; it is a decision-making tool. It demonstrates how the municipality can balance competing imperatives of economic growth, rural development, environmental stewardship, and equitable service delivery. Its role is to anchor the municipality's development trajectory towards 2035 and beyond, while serving as a monitoring and evaluation reference point for future reviews of the SDF.

23.1. KEY SPATIAL PROPOSALS

23.1.1. SETTLEMENT HIERARCHY AND NODAL DEVELOPMENT

The composite map illustrates a settlement hierarchy comprising primary nodes (Underberg-Himeville and Bulwer), secondary nodes (Creighton, Donnybrook, and Franklin), and a constellation of tertiary rural service centres. These nodes correspond to the growth potential identified in Phase 4, where settlement clusters were evaluated in terms of economic viability, population dynamics, and infrastructural capacity.

Primary nodes emerge as economic and service hubs, strategically linked to regional corridors and capable of supporting higher-order facilities, including agro-processing zones, tourism infrastructure, and logistics support services. Secondary nodes consolidate local service delivery and function as intermediate connectors between dispersed rural settlements and primary nodes. Tertiary nodes and rural service centres play a critical role in providing access to basic services and localised markets for farming and tourism-related products.

23.1.2. SETTLEMENT EDGES AND URBAN CONTAINMENT

The map clearly delineates settlement edges to manage urban sprawl and direct growth within defined boundaries. These edges provide spatial certainty for infrastructure planning, prevent uncontrolled expansion into environmentally sensitive or agriculturally productive land, and ensure compact, efficient settlement patterns. The delineation of edges corresponds with the recommendations in the IDP (2025/26) and Human Settlements Sector Plan (2024), which emphasise densification of existing nodes, consolidation of informal settlements, and prioritisation of well-located housing projects.

23.1.3. CORRIDORS AND CONNECTIVITY

Strategic corridors are central structuring elements in the composite map. The R612 (connecting Bulwer, Donnybrook, and Creighton) and the R617 (linking

Underberg-Himeville to regional markets and the Lesotho border) function as key economic spines. These corridors are designed to stimulate agro-processing, eco-tourism, and logistics opportunities while strengthening regional linkages. Secondary and tertiary connector routes are also reflected, enabling greater accessibility for rural households to social services, markets, and employment opportunities.

23.1.4. ENVIRONMENTAL MANAGEMENT AREAS

The composite map integrates critical biodiversity areas, wetlands, rivers, and protected landscapes, including the uKhahlamba-Drakensberg World Heritage Site. Environmental corridors are delineated to maintain ecosystem services and enhance climate resilience, in line with the Harry Gwala Climate Change Response Strategy (2023). These spatial elements ensure that conservation objectives are integrated into settlement planning, reinforcing the municipality's long-term environmental sustainability.

23.1.5. AGRICULTURAL AND RURAL DEVELOPMENT ZONES

Large tracts of high-value agricultural land are safeguarded in the map to support food security, land reform, and rural development initiatives. Agro-processing hubs, farmers' markets, and agricultural colleges (as proposed in precinct plans such as Underberg-Himeville and Donnybrook) are spatially anchored to ensure value-chain integration. This reflects the municipality's dual objective of promoting agrarian transformation while maintaining commercial farming productivity.

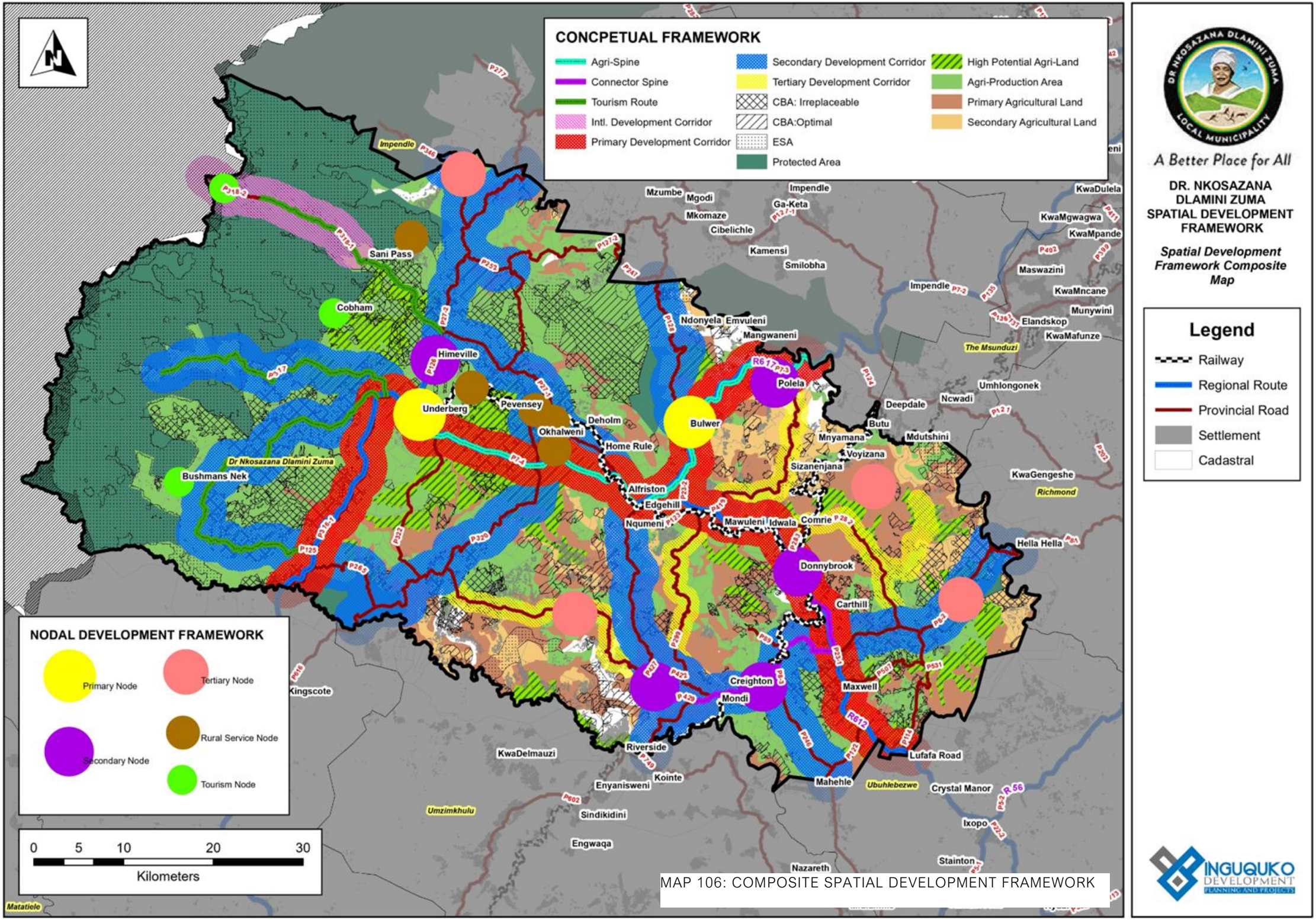
23.1.6. INTEGRATION OF PRECINCT AND STRATEGIC PLANS

The composite map synthesises multiple precinct-level interventions into a coherent municipal-wide vision. In Underberg-Himeville, catalytic projects such as the proposed bypass, light industrial development, and agricultural college are integrated as regional growth drivers. Bulwer is reinforced as a tourism and service hub, with its urban regeneration strategies incorporated into the broader nodal framework. Donnybrook and Creighton are positioned as secondary service nodes, supporting localised housing delivery, community facilities, and agro-support services. This integration ensures that precinct-specific priorities are not viewed in isolation but contribute to a unified spatial form. Furthermore, the map highlights cross-cutting catalytic projects—including agro-processing hubs, housing interventions, and tourism gateways—that transcend nodal boundaries and reinforce the municipality's strategic vision.

23.1.7. CROSS-CUTTING CONSIDERATIONS

The composite SDF map also reflects cross-cutting priorities central to sustainable development.

- **Climate Resilience and Disaster Risk:** Settlement planning is guided by identification of flood-prone areas, fire-prone grasslands, and other disaster risks, with buffers incorporated into the map.
- **Infrastructure Alignment:** Bulk services (water, sanitation, energy, ICT) are prioritised along major nodes and corridors to ensure cost-effective investment.
- **Land Reform and Human Settlements:** Land restitution projects, rural housing schemes, and densification strategies are integrated, supporting both social equity and spatial restructuring.



MAP 106: COMPOSITE SPATIAL DEVELOPMENT FRAMEWORK

24. TWENTY (20) YEAR SPATIAL DEVELOPMENT PLANNING

In compliance with section 21 (b) of SPLUMA, Dr. Nkosazana Dlamini Zuma Local Municipality SDF, 2026-2046) will plan and envisage the following visions for the next 20-year long term period. This will be achieved in the following four council terms up to the year 2046, that is for 2026-2030 council term office, followed by the 2031-2035 term, then the 2036-2040 and then 2041-2046. The long-term spatial vision will be broken down in these four five-year terms, as if enlisted below, being denoted as development areas. This is done in order to archive the longer-term development vision.

24.1. PRIMARY DEVELOPMENT AREAS (2026-2030)

The aim for the council term 2026-2030 must not divert from the longer vision which will be attained by the year 2046. In other words, what is being planned for, for the next five years must partially attempt to achieve the objectives of the main vision of the municipal SDF. Therefore, for this subsequent period, a proposed aim is as follows:

"Between 2026 and 2030, Dr. Nkosazana Dlamini Zuma Local Municipality will transition into a resilient, connected, and opportunity-driven rural municipality. Through strategic investment in agro-processing, tourism infrastructure, small-town revitalisation, and climate-smart infrastructure, NDZ will strengthen its economic base, consolidate service nodes, and embed spatial justice across traditional and urban areas. By this period, the municipality will have achieved tangible progress in creating inclusive, sustainable settlements supported by efficient infrastructure, empowered institutions, and an integrated rural economy."

24.1.1. KEY INITIATIVES, PROGRAMMES, AND PROJECTS FOR 2026–2030

The key initiatives, programmes, and projects identified for the medium-term (5–10 years) projects — corresponding to the 2026–2030 timeframe — across thematic areas. These are summarised below:

24.1.1.1. ECONOMIC AND NODAL DEVELOPMENT

- Agro-Processing and Value Addition Programme – Establishment of agro-processing hubs (Underberg, Bulwer, Donnybrook) focusing on dairy, forestry, and crop processing.
- Corridor Development Programme – Consolidation of R612 and R617 as economic corridors with mixed-use development zones, logistics depots, and rural trading hubs.
- Tourism Development Programme – Development of Sani Pass and Bushman's Nek gateway precincts, eco-lodges, and cross-border tourism routes.
- Establishment of Underberg Agro-Processing Hub.
- Truck stop and bypass on R617 to reduce congestion and enhance freight flow.
- Bulwer Market Precinct development and public realm upgrade.
- Creighton CBD Precinct revitalisation and Donnybrook transport interchange.
- Tourism Gateway Precinct at Sani Pass and community-owned lodges at Bushman's Nek.

24.1.1.2. INFRASTRUCTURE DEVELOPMENT

- **Road and Transport Upgrades** – Major upgrades to R617 and secondary corridors; new formal taxi ranks in Underberg and Himeville; pedestrian infrastructure mainstreamed into town projects.
- **Agri-Logistics and Freight Infrastructure** – Development of agri-logistics hubs and consolidation points near Donnybrook and Bulwer for bulk produce aggregation.
- **Climate-Resilient Infrastructure Programme** – Integrating flood mitigation, slope stabilisation, and stormwater management in all major transport upgrades.
- Upgrading R617 corridor (widening, resurfacing, stormwater control).
- Completion of satellite taxi ranks in secondary nodes.
- Implementation of non-motorised transport facilities (cycle lanes, walkways).
- Development of climate-resilient bridges and flood-mitigation infrastructure.

24.1.1.3. HUMAN SETTLEMENTS AND URBAN REGENERATION

- **Integrated Housing Delivery Programme** – Greenfield developments and gap housing in Creighton, Underberg, and Donnybrook.
- **Precinct-Based Urban Regeneration Programme** – Implementation of precinct plans in all small towns through streetscape upgrades, trading facilities, and heritage revitalisation.
- Completion of mixed-use housing developments in Creighton and Underberg.
- Implementation of Donnybrook Transport Interchange and Bulwer Urban Regeneration.
- **Public realm enhancement** (lighting, sanitation, pedestrianisation) across small towns.

24.1.1.4. ENVIRONMENTAL AND CLIMATE RESILIENCE

- **Green Corridors and Biodiversity Network** – Integration of conservation and eco-tourism along Drakensberg buffer and Umkomaas–uMzimkhulu river systems.
- **Ecosystem-Based Adaptation Projects** – Flood mitigation, wetland rehabilitation, and eco-trails infrastructure near Underberg and Himeville.
- Expansion of eco-trail networks and rehabilitation of degraded wetlands.
- Establishment of renewable energy pilot projects along economic corridors.
- Implementation of waste management facilities in rural service centres.

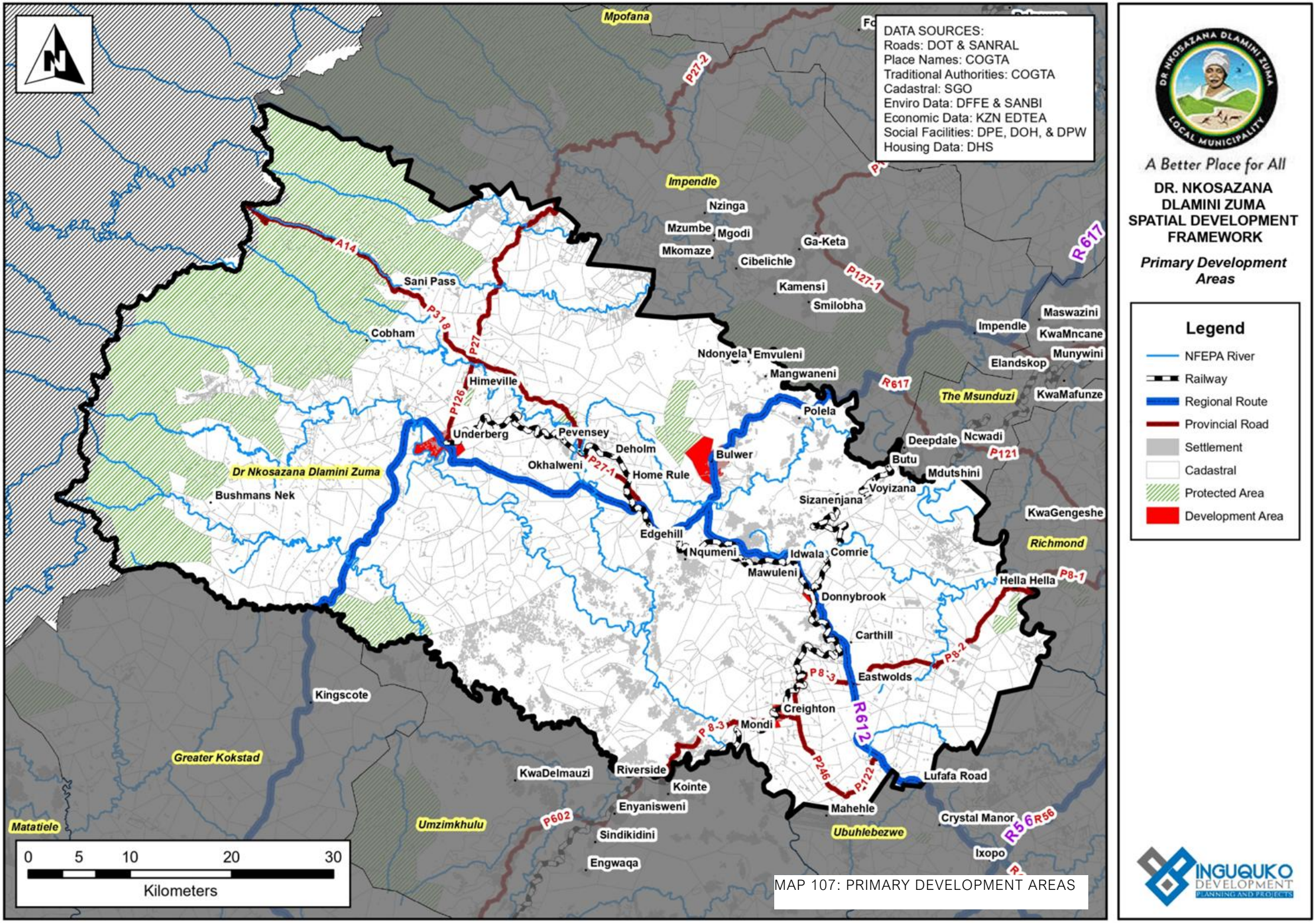
24.1.1.5. INSTITUTIONAL CAPACITY AND GOVERNANCE

- **Human Resource Development Programme** – Professionalisation and training of planning, engineering, and environmental staff.
- **Municipal Spatial Planning and GIS Unit** – Establishment of an integrated spatial data management and monitoring system.
- **Intergovernmental Coordination Framework** – Strengthened cooperation with District and Traditional Councils for project alignment.
- Formation of a Municipal Spatial Planning and GIS Unit.
- Launch of graduate internship and skills pipeline programmes.
- Establishment of Intergovernmental Planning Desk for project coordination.

TABLE 98: 2026–2030 PRIORITY PROJECTS

SECTOR	PROGRAMME/INITIATIVE	KEY PROJECTS (2026–2030)
Economic Development	Agro-processing & Corridor Development	Agro-processing hub (Underberg), Bulwer Market Precinct, Donnybrook transport hub
Tourism	Gateway & Eco-Tourism	Sani Pass Gateway Precinct, Bushman's Nek Eco-Lodge, Integrated Trails
Infrastructure	Mobility & Climate Resilience	R617 upgrade, satellite taxi ranks, climate-resilient bridges
Housing & Urban Development	Integrated Housing & Precinct Plans	Creighton mixed-use housing, Underberg middle-income housing
Environment	Green Corridors & Biodiversity	Wetland rehabilitation, renewable energy pilots
Institutional	Governance & Skills	GIS Unit establishment, capacity-building, intergovernmental coordination





MAP 107: PRIMARY DEVELOPMENT AREAS

24.2. SECONDARY DEVELOPMENT AREAS (2031-2035)

The aim for the council term 2031-2035 must not divert from the longer vision which will be attained by the year 2046. In other words, what is being planned for, for the next five years must partially attempt to achieve the objectives of the main vision of the municipal SDF. Therefore, for this subsequent period, a proposed aim is as follows:

"Between 2031 and 2035, Dr. Nkosazana Dlamini Zuma Local Municipality will emerge as a fully integrated, climate-smart, and digitally connected rural district. The municipality will harness renewable energy, broadband infrastructure, and green innovation to sustain inclusive growth. Vibrant towns and sustainable rural nodes will anchor an economy powered by agro-processing, tourism, and digital enterprise. Through spatial justice, environmental resilience, and circular economy systems, NDZ will consolidate its position as a regional leader in sustainable rural transformation — an equitable, connected, and resilient municipality."

24.2.1. KEY INITIATIVES, PROGRAMMES, AND PROJECTS (2031–2035)

24.2.1.1. RENEWABLE ENERGY AND CLIMATE RESILIENCE

The municipality's long-term energy strategy aims for full energy diversification and resilience by 2035:

- Renewable Energy Zones Expansion – Scaling up solar farms near Bulwer and Donnybrook and small hydro projects along Underberg–Himeville streams.
- Energy Storage and Microgrid Systems – Deployment of battery storage and decentralized microgrids in rural settlements.
- Municipal Renewable Energy Training & Support Programme – Building local technical capacity in solar and hydro systems installation and maintenance.
- Rural Electrification Consolidation – Universal electrification achieved through a mix of grid and off-grid systems.
- Establishment of Bulwer–Donnybrook Renewable Energy Corridor.
- Installation of mini-hydro power stations at uMzimkhulu tributaries.
- Development of a Municipal Renewable Energy Centre of Excellence (training and innovation hub).

24.2.1.2. ICT AND BROADBAND INFRASTRUCTURE DEVELOPMENT

By 2035, NDZ aims for universal broadband access, enabling e-governance, e-learning, and digital entrepreneurship:

- Backbone Broadband Infrastructure – Extension of fibre-optic networks along R617 and R612 corridors, linking Bulwer, Underberg, Donnybrook, and Creighton.
- Municipal Digital Hubs – Establishment of public Wi-Fi zones and community ICT centres in all secondary nodes.
- E-Government and Digital Inclusion Programme – Digitalization of municipal services and remote learning facilities.
- Completion of R617 Fibre Backbone and integration with district-level ICT systems.
- Launch of Community Wi-Fi and Digital Innovation Hubs in all nodes.
- Establishment of Smart Rural Settlements Pilot Programme.

24.2.1.3. CIRCULAR ECONOMY AND SOLID WASTE MANAGEMENT

By 2035, NDZ will have implemented a sustainable, circular waste management model.

- **Recycling and Buy-Back Centres** – Upgraded facilities in Bulwer, Underberg, and Donnybrook.
- **Regional Landfill and Transfer System** – Establishment of compliant waste disposal sites and waste-to-energy pilot projects.
- **Green Enterprise Development Programme** – Promoting local cooperatives in recycling, composting, and eco-innovation.
- Commissioning of Regional Waste Processing Plant.
- Expansion of Bulwer–Underberg Recycling Hubs into value-adding enterprises.
- Launch of Waste-to-Energy Pilot Plant.

24.2.1.4. SUSTAINABLE HUMAN SETTLEMENTS AND SMART GROWTH

Long-term housing and settlement strategies focus on densified, resilient urban systems and rural service nodes:

- **Transit-Oriented Development Corridors** – Mixed-use growth along R612 and R617, integrating housing, transport, and services.
- **Greenfield Expansion Projects** – Completion of Creighton, Underberg, and Donnybrook housing precincts.
- **Rural Service Nodes Consolidation** – Full development of Hlanganani and Centocow as self-sustaining rural service centres.
- Completion of mixed-income housing precincts in Creighton and Himeville.
- Implementation of Sustainable Settlement Upgrading Programme (eco-housing, water harvesting, renewable energy integration).
- Finalization of Settlement Edge Delineation and Enforcement across all major nodes.

24.2.1.5. TOURISM AND CULTURAL ECONOMY EXPANSION

By 2035, NDZ will have established itself as a key component of the Drakensberg Heritage Tourism Route.

- **Sani Pass and Cobham Eco-Tourism Projects** – Expansion of eco-lodges, heritage trails, and interpretation centres.
- **Heritage and Cultural Infrastructure Programme** – Establishment of cultural centres in Himeville and Donnybrook.
- **Integrated Tourism Corridors** – Linkages between Sani Pass, Underberg, Bulwer, and Cobham eco-destinations.
- Development of Drakensberg Heritage Eco-Tourism Route.
- Expansion of Cobham Eco-Lodge Network and cultural interpretation trails.
- Creation of Donnybrook Cultural Heritage and Craft Centre.

24.2.1.6. INSTITUTIONAL STRENGTHENING AND GOVERNANCE

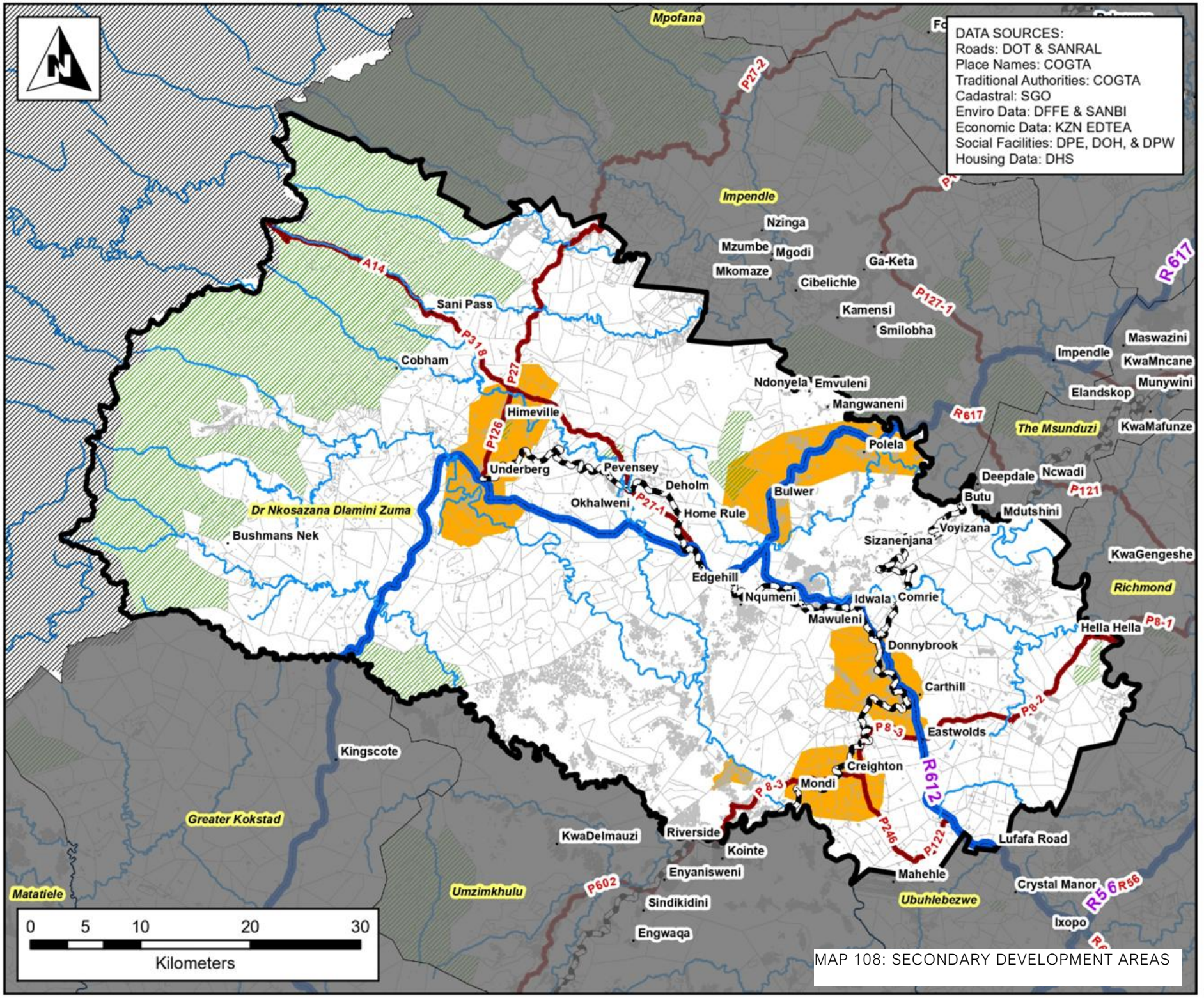
Institutional reforms over this period consolidate previous investments:

- **SDF Implementation and Monitoring Office** – Fully operationalized with integrated GIS systems and monitoring dashboards.
- **Intergovernmental Planning Forum** – Institutionalized vertical coordination with district and provincial structures.
- **Performance-Based Spatial Investment Framework** – Annual tracking of project impacts on poverty reduction and sustainability.
- Implementation of Municipal Spatial Governance Portal.

- Launch of Annual Spatial Equity Performance Review.
- Integration of Community-Based Planning Forums across all nodes.

TABLE 99: 2031–2035 PRIORITY PROJECTS

SECTOR	PROGRAMME/INITIATIVE	KEY PROJECTS (2031–2035)
Energy & Climate	Renewable Energy Diversification	Solar and hydro expansion, microgrids, renewable energy training hub
ICT	Digital Connectivity Expansion	R617 fibre backbone, digital hubs, Smart Rural Settlements
Environment	Circular Economy & Waste Management	Regional waste processing plant, buy-back centres, waste-to-energy pilot
Human Settlements	Sustainable Settlements Programme	Densified housing precincts, settlement edge enforcement
Tourism	Heritage & Eco-Tourism Expansion	Drakensberg Heritage Route, Cobham eco-lodges, cultural centres
Governance	Institutional Strengthening	SDF Monitoring Office, Spatial Governance Portal, participatory planning



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DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Secondary Development Areas

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Development Area

MAP 108: SECONDARY DEVELOPMENT AREAS

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

24.3. TERTIARY DEVELOPMENT AREAS (2036-2040)

The aim for the council term 2036-2040 must not divert from the longer vision which will be attained by the year 2046. In other words, what is being planned for, for the next five years must partially attempt to achieve the objectives of the main vision of the municipal SDF. Therefore, for this subsequent period, a proposed aim is as follows:

"Between 2036 and 2040, Dr. Nkosazana Dlamini Zuma Local Municipality will consolidate its transformation into a connected, low-carbon, and self-sustaining rural municipality. NDZ will stand as a regional hub for green innovation, agro-industrial productivity, and eco-tourism excellence — where smart infrastructure, resilient ecosystems, and inclusive governance ensure equitable opportunities for all. By 2040, the municipality will have achieved full spatial integration across its settlements, renewable energy independence, and sustainable resource management, symbolising a resilient, liveable, and globally competitive rural district within KwaZulu-Natal."

24.3.1. KEY 2036–2040 INITIATIVES, PROGRAMMES, AND PROJECTS

24.3.1.1. REGIONAL LOGISTICS AND ECONOMIC INTEGRATION

- Development of the NDZ Regional Logistics Hub – establishment of a logistics and trade hub at Donnybrook–Bulwer along the R612/R617 economic spine.
- Consolidation of Corridor-Led Development – full realization of the R612–R617 as an integrated trade corridor linking Ixopo, Bulwer, Underberg, and Pietermaritzburg.
- Integration of NDZ into Provincial and Cross-Border Economies – strengthening linkages with Lesotho via Sani Pass and Bushman's Nek for agricultural and tourism trade.
- Completion of NDZ Regional Logistics and Freight Terminal.
- Construction of Cold Storage, Agro-Processing, and Warehousing Clusters.
- Launch of Cross-Border Trade and Tourism Gateway Programme.

24.3.1.2. SMART MOBILITY AND INTEGRATED TRANSPORT SYSTEMS

- Fully Integrated Mobility System – implementation of modern, sustainable transport systems including electric bus routes and non-motorised infrastructure networks.
- Intermodal Rural Transport System – seamless connectivity between rural settlements and service nodes through electric public transport, e-hailing, and digital ticketing.
- Establishment of Smart Mobility Nodes in Underberg–Himeville and Creighton.
- Expansion of electric and hybrid public transport fleet.
- Development of green transport corridors with smart logistics integration.

24.3.1.3. SUSTAINABLE HUMAN SETTLEMENTS AND GREEN URBANISM

- Consolidation of Compact Settlements – full implementation of settlement edge delineations for Creighton, Underberg, Bulwer, and Donnybrook, promoting densified, serviced nodes.
- Completion of Smart Settlements Programme – expansion of eco-friendly, energy-efficient housing and smart utilities infrastructure.

- **Regional Urban Management System** – integration of GIS-based urban management tools for land use, services, and infrastructure maintenance.
- Completion of Smart Settlement Upgrading Programme in all major nodes.
- Full deployment of solar-powered, water-efficient housing units.
- Operationalisation of Integrated Urban Management and GIS Monitoring Centre.

24.3.1.4. TOURISM AND CULTURAL ECONOMY CONSOLIDATION

- **Drakensberg Heritage Tourism Route Consolidation** – integrating Sani Pass, Bushman's Nek, and Cobham as part of a unified eco-cultural tourism network.
- **Event and Festival Economy Expansion** – establishing Bulwer and Underberg as regional centres for heritage festivals and international tourism events.
- **Community-Based Tourism Ownership** – complete localisation of tourism enterprises and training in hospitality management.
- Full integration of **Sani Pass and Bushman's Nek tourism hubs** into provincial tourism systems.
- Development of **annual regional cultural festivals** in Bulwer and Himeville.
- Establishment of **Tourism Skills and Innovation Academy** in Underberg.

24.3.1.5. ENVIRONMENTAL AND CLIMATE RESILIENCE EXPANSION

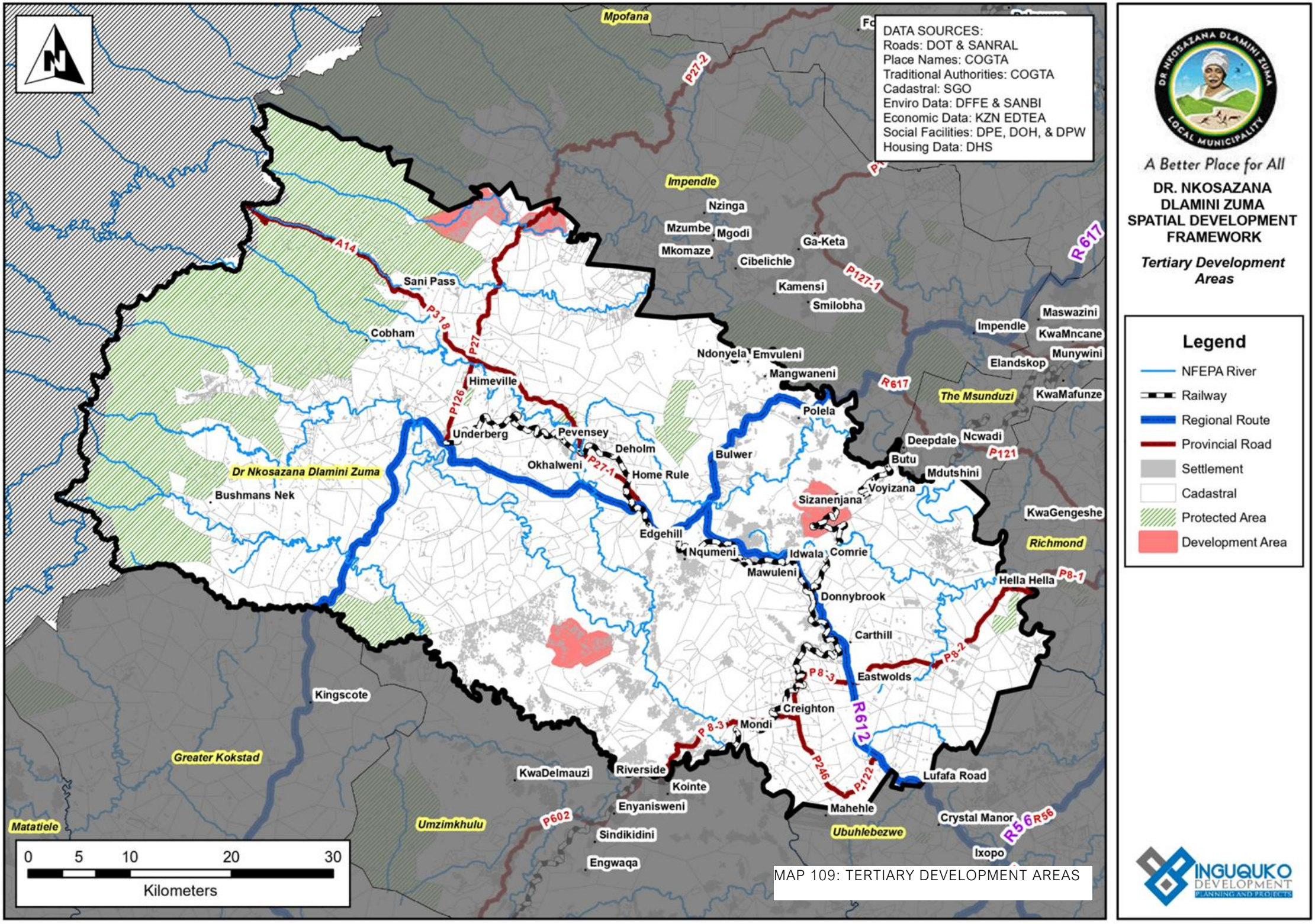
- **Long-Term Ecosystem Restoration Programme** – scaling up wetland and forest rehabilitation across the uKhahlamba Drakensberg and Umzimkhulu catchments.
- **Circular Water and Energy Systems** – full adoption of water recycling, renewable energy microgrids, and waste-to-energy facilities.
- **Carbon Neutral Municipality Initiative** – NDZ to achieve net-zero emissions by 2040 through energy efficiency and offset programmes.
- Expansion of Ecological Corridors and protected areas linking conservation nodes.
- Implementation of municipal carbon offset and renewable credit programme.
- Regional Green Energy Grid supplying public facilities and housing.

24.3.1.6. INSTITUTIONAL EXCELLENCE AND SMART GOVERNANCE

- **Full Institutional Modernisation** – consolidation of the Municipal Spatial Planning and GIS Unit with real-time monitoring and decision support systems.
- **Performance-Based Investment Framework** – automated tracking of spatial indicators linked to the SDF.
- **Smart Governance and Citizen Engagement Systems** – real-time public service feedback, transparency portals, and AI-supported planning analytics.
- Establishment of NDZ Smart Governance Hub.
- Deployment of Digital SDF Monitoring Dashboard integrated with district and provincial systems.
- Implementation of Community Digital Participation Platform.

TABLE 100: 2036–2040 PRIORITY PROGRAMMES AND PROJECTS

SECTOR	PROGRAMME/INITIATIVE	KEY PROJECTS (2036–2040)
Economic Integration	Regional Logistics and Trade	Donnybrook Logistics Hub, agro-processing warehouses, cross-border trade systems
Transport	Smart Mobility & Integrated Systems	Electric bus corridors, intermodal transport networks, mobility hubs
Settlements	Green Urbanism & Smart Settlements	Solar-powered housing, compact growth, urban management GIS system
Tourism	Heritage and Festival Economy	Drakensberg Heritage Route, cultural festivals, Tourism Innovation Academy
Environment	Carbon Neutral and Resilience Programme	Eco-corridor expansion, water recycling, renewable energy grid
Governance	Smart Governance & Digital Monitoring	NDZ Smart Governance Hub, digital participation platform, SDF Dashboard



MAP 109: TERTIARY DEVELOPMENT AREAS

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DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Tertiary Development Areas

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Development Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

24.4. QUATERNARY DEVELOPMENT AREAS (2041-2046)

The aim for the council term 2041-2046 must not divert from the longer vision which will be attained by the year 2046. In other words, what is being planned for, for the next five years must partially attempt to achieve the objectives of the main vision of the municipal SDF. Therefore, for this subsequent period, a proposed aim is as follows:

"Between 2041 and 2046, Dr. Nkosazana Dlamini Zuma Local Municipality will stand as a regional leader in sustainable rural transformation — a municipality defined by innovation, resilience, and inclusion. With its renewable energy network fully operational, its towns integrated through smart mobility corridors, and its ecosystems restored, NDZ will function as a dynamic, circular economy hub linking KwaZulu-Natal, the Eastern Cape, and Lesotho. By this period, NDZ will have achieved spatial equity, digital integration, and ecological balance, reflecting a mature, connected, and globally competitive rural municipality."

24.4.1. KEY 2041–2046 INITIATIVES, PROGRAMMES, AND PROJECTS

24.4.1.1. REGIONAL ECONOMIC INTEGRATION AND INNOVATION CLUSTERS

By 2041, NDZ LM's economy will be driven by regional cooperation and advanced rural innovation.

- Cross-Border Economic Integration Programme – Full integration of NDZ's logistics and trade systems with Lesotho through upgraded Sani Pass and Bushman's Nek trade nodes.
- Agro-Industrial and Technology Innovation Clusters – Creation of regional agro-industrial zones, digital innovation parks, and sustainable manufacturing clusters within Donnybrook–Bulwer and Underberg corridors.
- Smart Agricultural Programme – Deployment of precision agriculture, automation, and climate-adaptive production systems supported by municipal innovation partnerships.
- Establishment of Lesotho–NDZ Regional Trade and Logistics Centre.
- Creation of Agro-Tech Park in Donnybrook Corridor.
- Development of Smart Agriculture Innovation Centre in Creighton.

24.4.1.2. GREEN ENERGY AND CLIMATE NEUTRALITY

This phase focuses on NDZ becoming a net-zero emissions municipality with energy self-sufficiency.

- Municipal Carbon Neutrality Initiative – Full decarbonisation of municipal operations and public facilities through renewable sources and carbon offsetting.
- Integrated Renewable Energy Network – Interconnection of solar, hydro, and biogas systems into a district-level smart energy grid.
- Circular Water and Waste Systems – Conversion of waste-to-energy plants into full circular resource recovery centres.
- Commissioning of District Renewable Energy Grid (solar, hydro, wind).
- Launch of Carbon Offset Marketplace for municipal and private sector trade.
- Expansion of Integrated Water Reuse Systems across urban nodes.

24.4.1.3. REGIONAL MOBILITY AND CONNECTIVITY

By 2046, NDZ will host a smart mobility network integrated with district and provincial systems.

- **Regional Smart Mobility Corridors** – Advanced electric transport corridors connecting R617–R612 to the provincial freight network.
- **Public Transport Automation and AI Integration** – AI-based scheduling and smart ticketing for rural mobility.
- **Rural Accessibility Programme** – Completion of universal access to rural settlements via climate-resilient infrastructure.
- Expansion of Autonomous Electric Bus Fleet across regional corridors.
- Establishment of Smart Freight Management System for Donnybrook and Bulwer.
- Upgrading of Rural Access Road Networks with green engineering techniques.

24.4.1.4. URBAN-RURAL SYNERGY AND SMART SETTLEMENTS

The municipality's settlements will have reached full-service integration and smart system functionality.

- **Integrated Smart Settlement Framework** – Application of IoT systems in urban management (energy, waste, water).
- **Compact Growth Programme** – Enforcing settlement edges and maintaining efficient spatial form.
- **Inclusive Land Management System** – Digitisation of land allocation in traditional areas and smart cadastral mapping.
- Expansion of Smart Settlement Management System in all nodes.
- Completion of Urban Compaction and Edge Enforcement Programme.
- Rollout of Digital Land Information System (DLIS) for traditional areas.

24.4.1.5. CULTURAL AND TOURISM CONSOLIDATION

Tourism diversification will reach its mature phase, centred on eco-cultural branding and global positioning.

- **Global Eco-Tourism Integration Programme** – Linking NDZ's Drakensberg nodes (Sani Pass, Cobham, Bushman's Nek) into the international tourism circuit.
- **Cultural Heritage Innovation Programme** – Digitisation of heritage assets and establishment of virtual cultural tourism.
- **Community-Owned Tourism Enterprise Network** – Full localisation of tourism ownership and reinvestment models.
- Completion of Global Drakensberg Eco-Tourism Corridor.
- Launch of NDZ Virtual Cultural Heritage Platform.
- Establishment of Community Tourism Fund for local equity participation.

24.4.1.6. GOVERNANCE AND INSTITUTIONAL EXCELLENCE

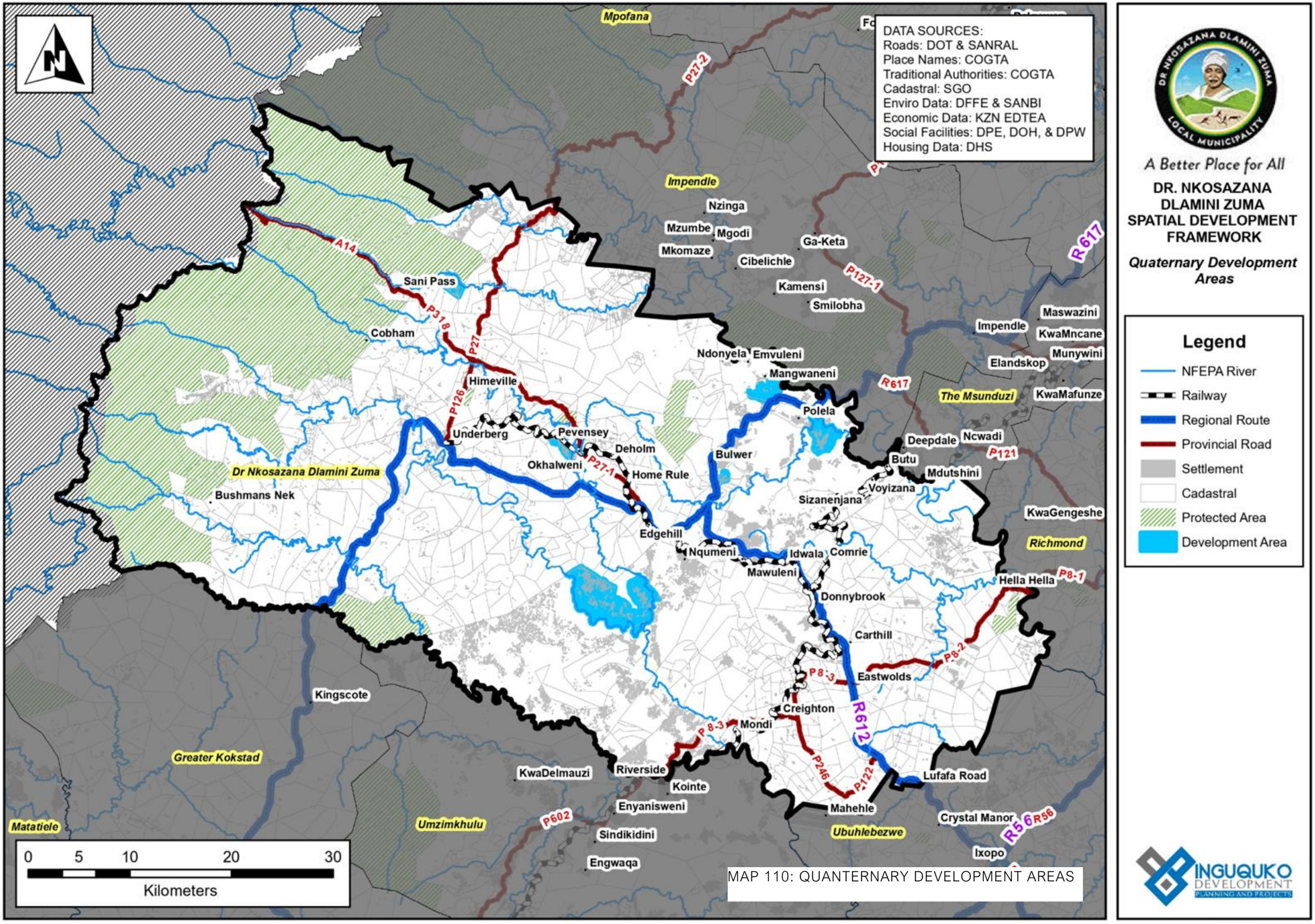
This phase establishes NDZ as a **model municipality in digital governance, spatial accountability, and intergovernmental coordination**.

- **Smart Governance and Open Data Platform** – Consolidation of the municipal digital dashboard for transparency and citizen engagement.
- **Integrated Planning and Monitoring Office (IPMO)** – Real-time tracking of spatial, financial, and environmental performance.
- **International Partnerships Programme** – Cooperation with regional and global municipalities in sustainable development and innovation.

- Establishment of NDZ International Centre for Rural Innovation and Sustainability.
- Full implementation of Open Spatial Governance Portal.
- Launch of AI-supported Performance Monitoring Platform.

TABLE 101: 2041–2046 PRIORITY PROJECTS

SECTOR	PROGRAMME/INITIATIVE	KEY PROJECTS (2041–2046)
Economic Integration	Cross-Border & Innovation Clusters	Lesotho Trade Hub, Agro-Tech Park, Smart Agriculture Centre
Energy & Climate	Carbon Neutrality & Renewable Networks	District Renewable Grid, Carbon Marketplace, Circular Resource Systems
Transport	Smart Mobility Systems	AI-based transport, smart freight management, rural connectivity
Settlements	Smart Urban-Rural Integration	Digital land system, compact settlement growth, IoT smart utilities
Tourism & Culture	Global Eco-Tourism & Cultural Economy	Drakensberg Corridor, Heritage Platform, Community Tourism Fund
Governance	Institutional & Digital Transformation	Open Data Platform, IPMO, Rural Innovation Centre



MAP 110: QUANTERNARY DEVELOPMENT AREAS

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DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Quaternary Development Areas

Legend

- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area
- Development Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

25. DESIRED SPATIAL FORM

25.1. AREAS WHERE DEVELOPMENT INTENSITY SHOULD DECREASE

The delineation of areas where development intensity should decrease within the municipality represents a crucial step toward achieving a spatially sustainable, environmentally resilient, and balanced pattern of growth across the municipality. This process is anchored in the Dr NDZ Spatial Development Framework and draws extensively from a suite of complementary sectoral and spatial instruments, including the following:

- Integrated Environmental Management Plan (2020–2025)
- Climate Change Response Strategy (Harry Gwala District)
- Disaster Management Sector Plan (2019/2020)
- Human Settlements Sector Plan (2024)
- The various precinct and nodal plans such as those for Underberg–Himeville, Creighton, Donnybrook, Bulwer, Kilmun, and the Municipal Plan of Nodes.

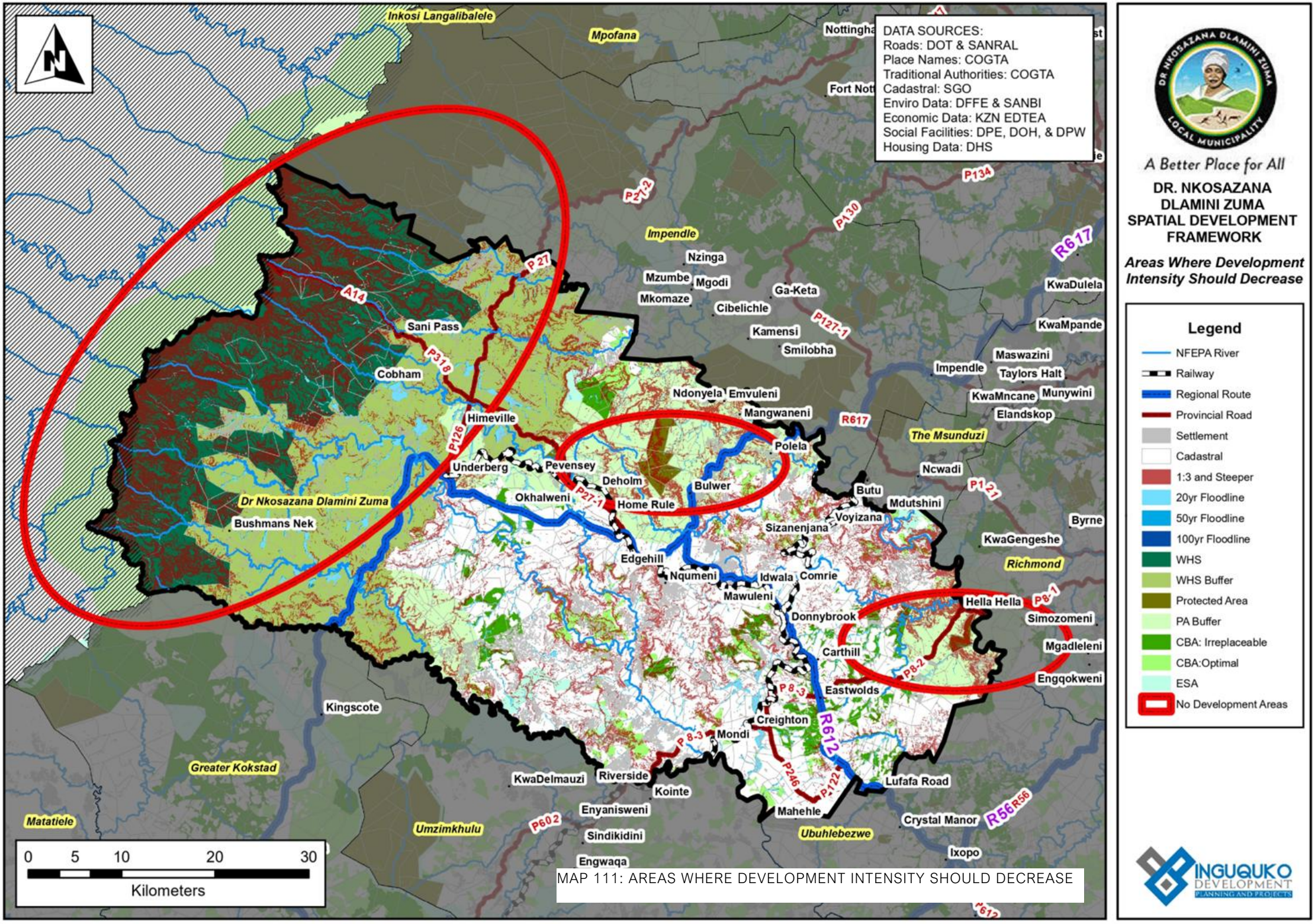
Together, these documents highlight the urgent need to protect and rehabilitate sensitive ecological systems, mitigate environmental degradation, and prevent unsustainable land-use expansion into hazard-prone or ecologically critical landscapes.

Within the NDZ municipal area, environmental constraints such as steep slopes, erodible soils, high rainfall gradients, floodplains, wetlands, and biodiversity hotspots—including mist-belt grasslands, indigenous forests, and critical biodiversity areas (CBAs)—pose substantial challenges to intensive development. These areas, which include the uKhahlamba–Drakensberg foothills, Umkomaas and Umzimkhulu river catchments, Bulwer–Centocow highlands, and Donnybrook–Creighton ecological corridors, function as vital environmental assets providing water regulation, carbon storage, and habitat connectivity. Intensification of development in such regions increases risks of soil erosion, flooding, and ecosystem fragmentation, threatening both livelihoods and municipal infrastructure.

This identification of low-intensity development zones therefore serves as an essential spatial management tool. It informs the municipality's Land Use Scheme, guiding future zoning, investment prioritization, and environmental rehabilitation. Aligned with the Spatial Planning and Land Use Management Act (SPLUMA) principles—particularly spatial sustainability, resilience, efficiency, and good administration—the approach promotes a compact settlement structure, safeguards ecological integrity, and supports climate change adaptation. By strategically reducing development pressure in environmentally sensitive areas, NDZ LM can direct urban growth toward appropriate nodes and corridors, ensuring a sustainable balance between economic development, environmental protection, and long-term spatial resilience.

TABLE 102: AREAS WHERE DEVELOPMENT INTENSITY SHOULD DECREASE

AREA / SUB-AREA	LOCATIONAL DESCRIPTION	KEY SENSITIVITY / RISK	RECOMMENDED ADJUSTMENT TO INTENSITY
Mzimkhulu River corridor (Underberg–Himeville)	River and tributaries forming the south-western boundary of the Underberg–Himeville precinct; includes associated wetlands and riparian zones	Wetlands and floodplains; erosion susceptibility	Exclude a minimum 32 m buffer from any active development; apply strict controls for abutting uses; prioritise riparian rehabilitation
Himeville Nature Reserve and immediate buffer	Protected area on the north of Himeville within the Underberg–Himeville precinct	Protected area; biodiversity conservation	No intensification within reserve boundary; down-scale to conservation/open space uses in abutting buffer
Underberg–Himeville settlement edge: northern & eastern exclusions	Precinct perimeters where the SDF proposes a consolidated single edge	Sensitive biodiversity and wetlands near uKhahlamba-Drakensberg WHS	Maintain consolidated edge; exclude wetlands & conservation zones to north/east from growth footprint
Peri-urban stream valleys around Underberg	Streambanks and wet pockets around the town	Streambank erosion; flood risk under seasonal peaks	Cap densities; redirect growth to infill sites away from watercourses; reinforce greenways
Bulwer steep-slope skirts and erodible soils (including Centocow side)	Hillslopes encircling Bulwer; steep rural slopes toward Centocow	Highly erodible soils; settlement sprawl onto steep slopes accelerates land degradation	Down-scale to very-low density/rural; prohibit new public facilities/housing on >20% slopes; enforce slope-stability standards
All municipal wetlands, rivers, and small drainage lines (municipal-wide rule)	Municipality-wide ecological water network	Flooding, erosion, water-quality protection	Map as non-developable buffers (≥32 m from edge of watercourses/wetlands); incorporate as Environmental Overlay in the Scheme
CBAs/ESAs, mist-belt grasslands & forests (municipal-wide)	Biodiversity corridors & nodes, including mist-belt systems	Endangered species; ecosystem services	Rezone/overlay to conservation or low-impact rural; establish connected open-space system and stewardship
Umkomaas & Umzimkhulu headwaters and catchment hillslopes	Upper catchments and feeder slopes	Strategic water resources; flood & drought buffering	Prevent intensification; promote ecosystem-based adaptation and catchment rehabilitation
Fire-prone forestry–settlement interfaces (e.g., Donnybrook hinterland)	Rural wards with plantation edges and scattered settlement	Wildfire exposure, climate risk	Reduce densities; maintain defensible space; avoid new public facilities in high-risk belts
Environmental Management Areas intersecting R612/R617 secondary corridors	EMAs along key spines (R612 Bulwer–Donnybrook–Creighton; R617 Underberg–Himeville)	Composite map integrates CBAs, rivers & protected landscapes; conflict hotspots with corridor pressures	Where EMAs intersect corridors, shift growth to already-serviced nodal land; reduce intensification in EMA segments



MAP 111: AREAS WHERE DEVELOPMENT INTENSITY SHOULD DECREASE

25.2. AREAS WHERE DEVELOPMENT INTENSITY SHOULD INCREASE

The identification of areas where development intensity should increase within the municipality forms a central pillar of the municipality's spatial transformation and economic revitalisation agenda. Building on the strategic direction established in the Dr NDZ Spatial Development Framework, this assessment seeks to direct growth and investment toward areas that are spatially efficient, economically viable, and environmentally suitable for higher-density and mixed-use development.

It integrates insights from the aforementioned foundational documents. Collectively, these spatial instruments highlight priority locations where targeted densification, service upgrades, and economic clustering can yield significant improvements in accessibility, service delivery, and spatial equity.

Within NDZ, the areas most suited for increased development intensity include the established and emerging nodes identified in the municipal and district settlement hierarchy—namely Underberg–Himeville, Creighton, Bulwer, and Donnybrook, as well as the Kilmun–Centocow–Stepmore rural clusters. These settlements are strategically located along the R612 and R617 development corridors, which function as primary structuring elements linking NDZ to the regional economy of the Harry Gwala District and to the uKhahlamba–Drakensberg tourism region.

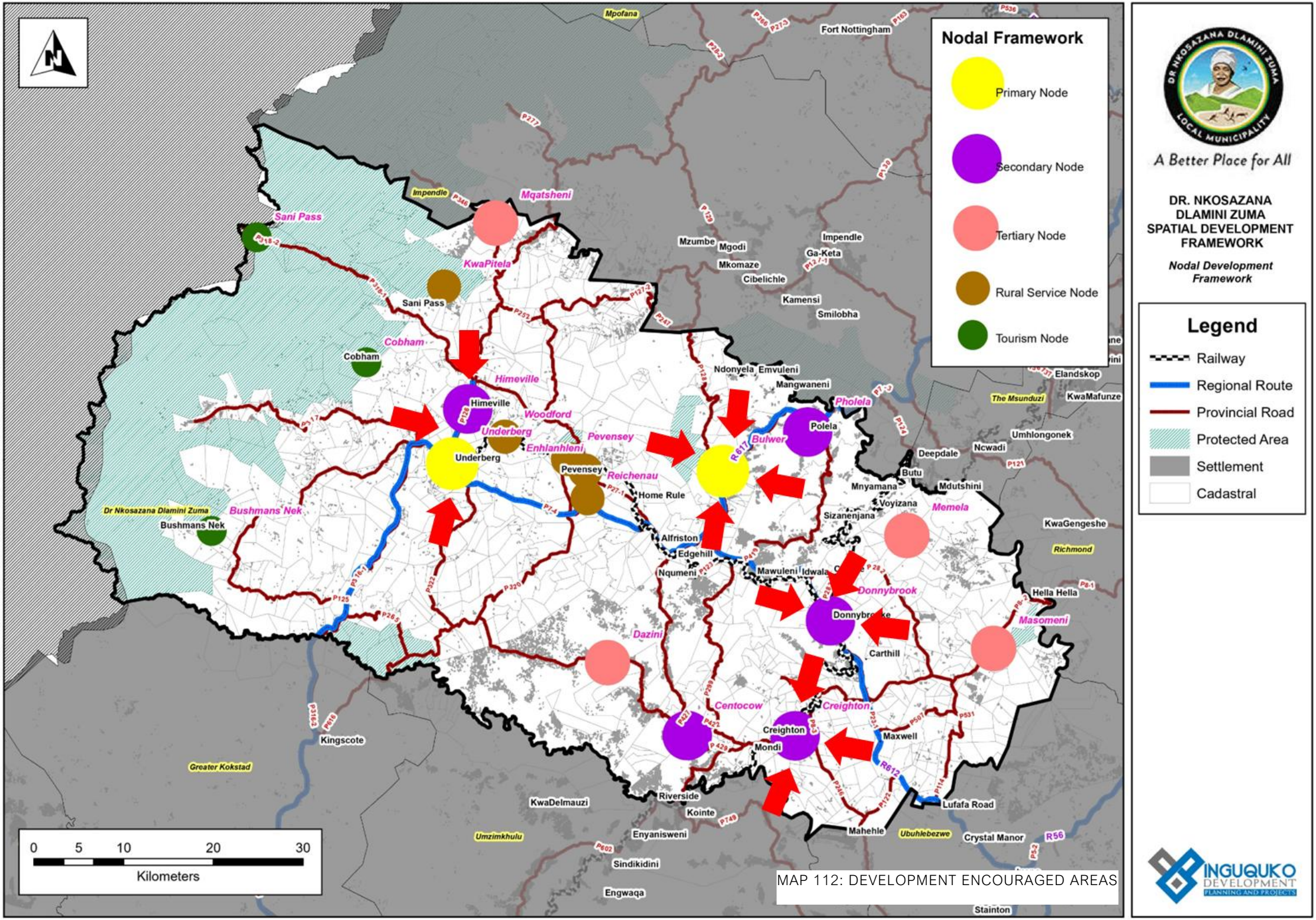
Each node exhibits a combination of existing infrastructure capacity, service accessibility, and economic potential—particularly for agro-processing, tourism, small enterprise development, and human settlement consolidation. Intensification in these areas will promote infill development, optimise land and infrastructure use, and enhance rural–urban linkages while curbing unsustainable sprawl into ecologically sensitive zones.

The prioritisation of high-intensity development zones aligns with the Spatial Planning and Land Use Management Act (SPLUMA) principles of spatial efficiency, integration, and sustainability. By focusing growth within designated nodes and corridors, NDZ LM aims to create vibrant, compact, and service-oriented settlements that support inclusive economic growth, integrated transport systems, and efficient land administration. This targeted approach will enable the municipality to leverage infrastructure investments, strengthen local economies, and progressively achieve a well-structured, resilient, and inclusive spatial form by 2046.

TABLE 103: AREAS WHERE DEVELOPMENT INTENSITY SHOULD INCREASE

AREA / SUB-AREA	LOCATIONAL DESCRIPTION	DEVELOPMENT POTENTIAL AND STRATEGIC ROLE	RECOMMENDED INTENSIFICATION / STRATEGY	SUPPORTING POLICY / SOURCE
Underberg–Himeville Growth Node	Located along the R617 corridor; regional gateway to the uKhahlamba–Drakensberg World Heritage Site	Identified as a Primary Node and tourism–service hub with strong economic and institutional base; has bulk infrastructure capacity (water, sanitation, and road network).	Promote mixed-use densification (commercial, residential, tourism, institutional); establish urban edge infill; upgrade bulk services and promote pedestrianisation and tourism-oriented land uses.	Underberg–Himeville Precinct Plan (2025); NDZ SDF (2025); NDZ IDP (2025/26); PSDF (2021)
Creighton Town	Central NDZ, administrative and service node located on the R612 corridor	Serves as the municipal administrative capital with existing public facilities, business centre, and transport connectivity; identified as a Primary Economic Node.	Increase residential density through infill housing and mixed-use redevelopment; strengthen the CBD; improve access roads, public realm, and trader infrastructure; support agro-processing and logistics hub development.	Creighton Precinct Plan (2022); NDZ SDF (Phase 4, 2025); NDZ HSSP (2024); IDP (2025/26)
Bulwer Urban Regeneration Zone	Strategic node on the R617 corridor with proximity to the Drakensberg and forestry zones	Recognised as a Secondary Urban Node with potential for tourism, small enterprise, and agro-processing; existing but underutilised town centre.	Intensify urban infill and regeneration projects; promote tourism accommodation, cultural markets, and small business incubation; consolidate the urban edge and upgrade stormwater and sanitation infrastructure.	Bulwer URP (2021); NDZ SDF (Phase 4, 2025); LED Strategy (2023); Plan of Nodes (2022)
Donnybrook Development Node	Located west of Bulwer along the R612 regional route	Identified as a Strategic Rural Service Node with good road access, rail potential, and agricultural hinterland; has land availability for infill and formalisation.	Promote formalisation of the town core; strengthen agro-processing and local markets; provide medium-density housing and mixed-use development around the main transport hub; improve water and sanitation infrastructure.	Donnybrook Precinct Plan (2013); NDZ SDF (2025); NDZ IDP (2025/26); LED Strategy
Kilmun / Centocow Rural Cluster	Located north-west of Creighton; rural service cluster under traditional authority	Identified as a Tertiary Node / Rural Service Cluster with high population density and access to local schools, clinics, and agricultural land.	Increase intensity through rural service centre development, compact settlement design, and rural enterprise support; improve connectivity and small-scale agro-processing infrastructure.	Kilmun Local Area Plan (2021); NDZ SDF (Phase 4, 2025); Plan of Nodes (2022)
Stepmore / Mqatsheni Cluster	Situated east of Creighton, within traditional authority areas	Identified as a Rural Consolidation Area with emerging social infrastructure and subsistence agricultural base.	Encourage consolidated rural densification around existing services; develop incremental housing and social facilities; introduce small-scale commercial and cooperative farming activities.	NDZ SDF (2025); Spatial Proposals Report (2024); NDZ HSSP (2024)

AREA / SUB-AREA	LOCATIONAL DESCRIPTION	DEVELOPMENT POTENTIAL AND STRATEGIC ROLE	RECOMMENDED INTENSIFICATION / STRATEGY	SUPPORTING POLICY / SOURCE
R612 Development Corridor (Creighton–Bulwer–Donnybrook)	Major east–west transport and economic corridor linking primary and secondary nodes	Recognised as a Strategic Development Corridor within the NDZ and HGDM SDFs; facilitates trade, tourism, and movement.	Encourage linear intensification around nodes; cluster service activities and light industries; enhance transport logistics and mobility infrastructure; apply corridor-based land use management guidelines.	NDZ SDF (Phase 4, 2025); HGDM Growth & Development Strategy (2024); PSDF (2021)
R617 Corridor (Underberg–Himeville–Bulwer)	North–south regional corridor linking NDZ to Pietermaritzburg and tourism regions	Identified as a Provincial Tourism and Service Corridor with potential for tourism nodes, logistics, and residential growth.	Consolidate settlements along corridor; promote tourism, hospitality, and service industries; support mixed-use residential expansion around transport interchanges.	KZN PSDF (2021); Underberg–Himeville Precinct Plan (2025); NDZ SDF (2025)
Agri-Processing and Rural Enterprise Zones (Centocow, Creighton, Donnybrook)	Agricultural hinterlands around key nodes	Areas with high agricultural productivity and accessibility to roads and markets	Promote intensification of agricultural value chains; establish agro-processing parks and cooperatives; integrate with rural settlement upgrading and LED initiatives.	NDZ LED Strategy (2024); NDZ SDF (2025); Plan of Nodes (2022)
Tourism and Gateway Nodes (Underberg, Bulwer, Himeville)	Major gateways to uKhahlamba–Drakensberg and eco-tourism routes	High tourism and cultural heritage potential; identified as regional anchors for tourism and services	Increase intensity through eco-lodges, hospitality services, mixed-use tourist precincts, and public realm enhancements; encourage private sector partnerships and community tourism enterprises.	NDZ SDF (2025); Underberg–Himeville Precinct Plan (2025); HGDM Climate Strategy (2023); PSDF (2021)



MAP 112: DEVELOPMENT ENCOURAGED AREAS

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

26. CROSS-BORDER ALIGNMENT

Cross-border alignment in spatial planning is a critical requirement under Section 21(n) of the Spatial Planning and Land Use Management Act (SPLUMA), 2013, which obliges municipalities to ensure that their Spatial Development Frameworks (SDFs) are aligned with neighbouring municipal and provincial frameworks. For the Dr. Nkosazana Dlamini Zuma Local Municipality (NDZ LM), cross-border coordination is vital due to its unique geographic location at the southern edge of KwaZulu-Natal, within the Harry Gwala District Municipality (HGDM), and its strategic proximity to Lesotho and the Midlands corridor.

The NDZ area functions as a transitional zone between the Midlands agro-economy and the Drakensberg tourism region. Its settlements such as Bulwer, Donnybrook, Creighton, Underberg, Himeville, and Kilmun are regionally significant, linking the municipality to Greater Kokstad, Ubuhlebezwe, Umzimkhulu, Impendle, Msunduzi, and Richmond Local Municipalities.

The aim of this section is to assess existing cross-border linkages, review spatial and infrastructural alignments between NDZ and neighbouring municipalities, identify collaborative opportunities, and propose strategic interventions to enhance spatial and economic integration. This report builds on the NDZ SDF (2021), Draft IDP (2025/26), Harry Gwala District Growth & Development Strategy (2024), KZN PSDF (2021), and relevant precinct and nodal plans.

26.1. REGIONAL CONTEXT AND NEIGHBOURING MUNICIPALITIES

The NDZ LM forms part of the Harry Gwala District Municipality, bordered by six municipalities:

NEIGHBOURING MUNICIPALITY	KEY CROSS-BORDER LINKAGES	STRATEGIC INTERFACE
Greater Kokstad LM	N2 corridor, agro-logistics, agri-hub connections via Creighton and Donnybrook	Freight, agriculture, logistics and processing
Ubuhlebezwe LM	Ixopo–Creighton transport corridor; tourism and dairy sector	Agricultural and transport synergy
Umzimkhulu LM	Rural settlements and shared infrastructure along district boundary	Rural development, social infrastructure
Impendle LM	Biodiversity conservation, eco-tourism, and shared catchments	uKhahlamba–Maloti World Heritage linkage
Msunduzi LM	Urban linkages and administrative services	Service access and institutional cooperation
Richmond LM	Agricultural hinterlands and rural trade flows	Agro-processing and rural economy
Lesotho (International Border)	Sani Pass gateway; regional tourism corridor	Transnational tourism and trade potential

The regional positioning of NDZ thus defines it as a multi-scalar connector—linking national and provincial corridors such as the R617, R612, and P604, while simultaneously hosting cross-district and transboundary ecological and economic assets.

26.2. EXISTING AND PROPOSED CROSS-BORDER PROJECTS

TABLE 104: CROSS BORDER PROJECTS

PROJECT NAME	TYPE	PARTNER MUNICIPALITY	DESCRIPTION / FOCUS	STATUS	CORRIDOR / LOCATION	ALIGNMENT WITH NDZ SDF OBJECTIVES
R617 Regional Development Corridor	Transport / Economic	Impendle, Msunduzi	Upgrading and maintenance of the R617 linking Bulwer–Underberg–Pietermaritzburg	Ongoing (DoT & SANRAL)	Bulwer–Underberg–Pietermaritzburg	Promotes connectivity and regional mobility
Drakensberg Tourism Route (Sani Pass Corridor)	Tourism	Lesotho, Greater Kokstad	Expansion of Sani Pass Road and associated eco-tourism facilities	Ongoing (DOT / DEAT)	Underberg–Himeville–Sani Pass	Enhances international tourism integration
Agri-Park and Agro-processing Clusters	Economic / Agriculture	Ubuhlebezwe, Kokstad	Shared agri-processing zones and cold-chain logistics	Medium-term	Donnybrook–Creighton	Strengthens agricultural value chains
uMzimkhulu River Catchment Plan	Environmental	Umzimkhulu	Water management and ecological rehabilitation	Planning phase	North-eastern boundary	Aligns with NDZ EMP and PSDF sustainability principles
R612 Corridor Upgrade	Infrastructure	Ubuhlebezwe	Road linking Creighton–Ixopo to improve freight and movement	Ongoing	Southern interface	Supports agro-economic and mobility integration
Shared Waste Management Infrastructure	Environmental Services	Ubuhlebezwe, Kokstad	Regional waste processing and transfer stations	Short-term planning	Creighton–Donnybrook	Promotes sustainability and resource sharing
Transfrontier Eco-Tourism (Maloti–Drakensberg)	Tourism / Environmental	Lesotho	Joint eco-tourism development at Sani Pass	Active (UNESCO / DEFF)	Western boundary	Integrates heritage and tourism nodes

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26.3. ANALYSIS OF CROSS-BORDER INTEGRATION

26.3.1. SPATIAL INTEGRATION

The NDZ SDF (2021) identifies clear spatial continuities with adjacent SDFs, particularly along corridors such as R617 (north–south) and R612 (east–west). However, discrepancies remain in the definition of settlement hierarchies and land use intensity along boundary zones—most notably with Impendle and Ubuhlebezwe, where nodal designations and environmental management areas overlap but are inconsistently zoned.

26.3.2. ECONOMIC INTEGRATION

The regional economy depends heavily on agriculture, tourism, and trade logistics. The Harry Gwala Growth and Development Strategy (2024) highlights NDZ's role as a processing and logistics hub, yet inter-municipal agro-processing initiatives remain fragmented. A coordinated regional agri-logistics platform could address duplication and strengthen value chain integration.

26.3.3. ENVIRONMENTAL ALIGNMENT

Environmental management frameworks such as the NDZ Environmental Management Plan (2020–2025) and Harry Gwala Climate Change Response Strategy (2023) reveal strong cross-boundary ecosystems (uMzimkhulu River, Drakensberg foothills, and wetlands). These require joint environmental monitoring and enforcement.

26.3.4. HUMAN SETTLEMENTS

The NDZ Human Settlements Sector Plan (2024) and district housing programmes indicate settlement overlaps near boundaries with Ubuhlebezwe and Impendle, suggesting the need for shared bulk infrastructure planning and coordinated housing rollout.

26.4. INSTITUTIONAL AND GOVERNANCE ARRANGEMENTS

Current coordination mechanisms include:

- **Harry Gwala District Intergovernmental Forum (IGR):** Facilitates IDP and SDF alignment.
- **COGTA District Planning Alignment Committees:** Review and standardize spatial planning instruments.
- **Cross-Municipal Technical Working Groups:** Established for shared infrastructure and disaster management planning.

However, these structures often lack enforcement capacity and continuity. Recommended institutional enhancements include:

- Establishing a District Spatial Integration Forum chaired by COGTA.
- Creating Bilateral Planning Committees between NDZ and adjacent municipalities for border corridor management.
- Developing a shared GIS and spatial data repository for cross-border monitoring.
- Implementing a District Spatial Compact under the District Development Model (DDM).

26.5. STRATEGIC RECOMMENDATIONS AND ALIGNMENT STRATEGIES

26.5.1. SPATIAL ALIGNMENT AND CORRIDOR PLANNING

- Standardize spatial typologies across boundaries.
- Integrate nodal hierarchies and synchronize the classification of secondary nodes (e.g., Donnybrook–Ixopo, Underberg–Bulwer).

26.5.2. ECONOMIC COLLABORATION

- Promote regional agro-processing clusters and joint marketing of tourism routes.
- Develop cross-municipal economic development strategies within HGDM.

26.5.3. ENVIRONMENTAL STEWARDSHIP

- Establish a Joint Environmental Management Zone (JEMZ) for the uMzimkhulu and uMkhomazi catchments.
- Implement joint biodiversity corridors linking PSDF-designated Critical Biodiversity Areas.

26.5.4. SHARED INFRASTRUCTURE DEVELOPMENT

- Align bulk water, sanitation, and waste infrastructure through HGDM's Water Services Development Plan (WSDP).
- Prioritize road and bridge projects along the R617 and R612 corridors.

26.5.5. HUMAN SETTLEMENT COORDINATION

- Integrate housing pipeline projects along shared growth corridors.
- Adopt cross-border land release protocols to prevent urban sprawl.

26.6. CROSS BORDER IMPLEMENTATION

TABLE 105: CROSS BORDER IMPLEMENTATION

TIMEFRAME	ACTION	RESPONSIBLE ENTITY	PARTNER MUNICIPALITY	EXPECTED OUTCOME
Short-Term (1–5 yrs)	Establish District Spatial Integration Forum	NDZ, COGTA	HGDM, Adjacent LMs	Improved planning coordination
	Conduct Cross-Border Project Audit	NDZ Planning	Ubuhlebezwe, Impendle	Inventory of shared projects
Medium-Term (5–10 yrs)	Develop Joint Corridor Development Plan (R617, R612)	NDZ & DoT	Msunduzi, Ubuhlebezwe	Integrated corridor investment
	Implement Shared Waste Facility	NDZ & HGDM	Kokstad, Ubuhlebezwe	Environmental efficiency
Long-Term (10–20 yrs)	Joint Eco-Tourism and Conservation Zone (Sani Pass)	NDZ, Lesotho	DEFF, UNESCO	Transboundary tourism corridor
	Integrated Agri-Logistics Hub	NDZ, HGDM	Ubuhlebezwe, Kokstad	Regional economic competitiveness

27. IMPLEMENTATION PLAN

27.1. POLICY IMPLICATIONS

27.1.1. INCLUSIVE HOUSING POLICY

The Spatial Development Framework implies a clear shift toward a more spatially inclusive approach to housing delivery within the Dr Nkosazana Dlamini Zuma Local Municipality. Inclusive housing, in this context, extends beyond the provision of subsidised units and encompasses the spatial integration of different income groups, tenure types, and settlement forms within well-located and serviced areas. The implication for policy is that housing interventions should no longer reinforce peripheral, low-density settlement patterns but should instead prioritise locations that improve access to economic opportunities, social facilities, and public infrastructure.

In practical terms, this requires differentiated spatial responses across settlement typologies. In urban nodes and established towns, inclusive housing implies the prioritisation of infill development, redevelopment of underutilised land, and higher-density residential typologies within walking distance of services and public transport. Indicative net residential density ranges of approximately 30–60 dwelling units per hectare are appropriate in these areas in the medium to long term, subject to infrastructure capacity. In peri-urban areas, inclusive housing implies more compact settlement layouts, incremental densification, and a gradual transition from dispersed plots to structured neighbourhoods, with densities in the range of 15–30 dwelling units per hectare over the medium term.

In rural settlements and traditional authority areas, inclusive housing must be pursued through context-sensitive approaches that recognise customary land tenure and settlement practices. The implication here is not immediate high-density development, but rather the gradual structuring of settlements around service points, schools, clinics, and local economic nodes. Short-term interventions should focus on consolidating existing settlement footprints and improving access to basic services, while medium- to long-term planning should guide incremental densification in the range of 8–15 dwelling units per hectare in identified growth areas, where agreed with traditional leadership and supported by infrastructure investment.

From a temporal perspective, the short-term implication is the spatial targeting of housing projects to already serviced or serviceable areas, avoiding premature expansion. In the medium term, inclusive housing policy should be embedded within precinct planning and nodal development initiatives. In the long term, inclusive housing becomes a key instrument for spatial restructuring, contributing to more efficient settlement patterns and reduced service delivery costs.

27.1.2. DENSIFICATION POLICY

The SDF implies that densification is a strategic tool for achieving spatial efficiency and sustainability, rather than an end in itself. The key policy implication is the need to distinguish clearly between planned densification and uncontrolled intensification. Planned densification is infrastructure-led, spatially targeted, and supported by appropriate land use controls, while uncontrolled intensification often results in overcrowding, service failure, and land use conflict.

In urban nodes and towns, the implication is that densification should be actively promoted within defined consolidation zones, particularly along activity spines, around transport routes, and in proximity to social facilities. Indicative density ranges of 40–80 dwelling units per hectare may be appropriate in the long term in selected nodal locations, provided that bulk infrastructure capacity

is upgraded accordingly. In the short term, moderate densification through second dwellings, small-scale multi-unit developments, and mixed-use typologies should be enabled within the existing scheme, using policy guidance and development conditions to manage impacts.

In peri-urban and rural settlements, the implication is that densification should be incremental and selective. Blanket densification targets are inappropriate; instead, density should be concentrated around service nodes and along accessible corridors. Medium-term density thresholds of 15–25 dwelling units per hectare in these focused areas can improve service efficiency without undermining settlement character. Outside these areas, low-density rural settlement patterns should be maintained to protect agricultural land and environmental assets.

Across all settlement types, densification policy must be explicitly linked to infrastructure thresholds. Short-term densification should be limited to areas with spare infrastructure capacity. Medium-term densification can proceed alongside planned infrastructure upgrades, while long-term densification should be aligned with major bulk infrastructure investments identified in sector plans. This phased approach ensures that densification contributes to spatial efficiency rather than creating new service backlogs.

27.1.3. COST–BENEFIT ANALYSIS OF DENSITY

The SDF implies that decisions regarding settlement density have significant financial and spatial consequences for both households and the municipality. A cost–benefit perspective highlights that low-density development, while often perceived as culturally or socially preferable, generally results in higher per-unit infrastructure costs, increased operating and maintenance burdens, and inefficient land consumption. In contrast, higher-density development tends to reduce infrastructure costs per unit, improve service viability, and support more sustainable public transport and facility provision.

At low densities (typically below 10 dwelling units per hectare), the municipality faces high costs for extending bulk infrastructure over large areas, while households experience higher transport costs and reduced access to services. Medium-density development (approximately 20–40 dwelling units per hectare) offers a more balanced outcome, with improved infrastructure efficiency, manageable service loads, and better support for local facilities. High-density development (above 60 dwelling units per hectare), while offering the greatest infrastructure efficiency, requires significant upfront investment in bulk services and careful management to avoid congestion and social stress.

The implication for policy is that density decisions must be informed by a comparative assessment of long-term costs and benefits, rather than short-term delivery pressures. Medium-density development emerges as the most appropriate default for many areas within the municipality, particularly in and around nodes, while higher densities should be reserved for strategic locations with strong infrastructure support.

27.1.4. SOCIO-ECONOMIC BENEFITS OF DENSIFICATION

Densification has important socio-economic implications for the Dr Nkosazana Dlamini Zuma Local Municipality. By concentrating households closer to services, employment opportunities, and social infrastructure, densification can significantly reduce household expenditure on transport and improve access to education, healthcare, and markets. This is particularly important in a municipality characterised by high levels of poverty and limited mobility.

From a municipal perspective, densification improves the viability of public investment by increasing the number of beneficiaries per unit of infrastructure and service expenditure. It also strengthens the local economy by supporting higher levels of activity within nodes and centres, thereby improving opportunities for informal and small-scale enterprise. Over the medium to long term, more compact settlement patterns can contribute to improved municipal revenue generation and reduced per-capita service delivery costs.

The socio-economic benefits of densification, however, are not automatic. The implication is that densification must be accompanied by deliberate measures to ensure quality public spaces, adequate social facilities, and effective land use management. In the short term, these benefits may be modest, but in the medium to long term, densification becomes a key driver of inclusive and resilient local development.

27.1.5. CULTURAL AND TRADITIONAL SETTLEMENT CONSIDERATIONS

The SDF recognises that a significant portion of the municipality falls under traditional authority areas, where settlement patterns are shaped by customary practices and social structures. The policy implication is that spatial transformation cannot be imposed through rigid density standards or urban-centric models. Instead, planning must work incrementally with traditional leadership and communities to guide settlement growth in a manner that respects cultural norms while improving service efficiency.

In practical terms, this implies focusing densification and consolidation around agreed service points, such as schools, clinics, and local economic hubs, rather than attempting to restructure entire settlement areas. Short-term interventions should prioritise clarity on settlement boundaries and protection of environmentally sensitive and agricultural land. Medium-term planning can introduce more structured layouts and serviced plots in growth areas, while long-term planning can support gradual increases in density where social acceptance and infrastructure provision allow.

This approach positions traditional authority areas as an integral component of the municipal spatial system, rather than as exceptions, and ensures that cultural considerations inform, rather than obstruct, spatial development objectives.

27.1.6. REGENERATION POLICY

The SDF implies a proactive regeneration policy aimed at reversing decline, underutilisation, and spatial inefficiency in towns, nodes, and strategic centres. Regeneration is not limited to physical upgrading but includes economic revitalisation, improved public spaces, and institutional coordination. The policy implication is that regeneration should be spatially targeted and led by the public sector, particularly in areas with existing infrastructure and strategic accessibility.

In the short term, regeneration efforts should focus on visible, catalytic interventions that restore confidence and functionality, such as public realm improvements and the upgrading of key facilities. In the medium term, regeneration should be supported through mixed-use development, residential intensification, and support for local economic activity. In the long term, regenerated centres should function as anchors for broader spatial restructuring, attracting private investment and supporting more compact settlement patterns.

By embedding regeneration policy within the SDF Implication Framework, the municipality establishes a clear basis for prioritising resources, coordinating sectoral investments, and guiding development decisions in a manner that supports long-term spatial transformation.

27.2. DEVELOPMENT GUIDELINE IMPLICATIONS

27.2.1. HERITAGE ASSETS AND CONSERVATION OF NATURAL ASSETS

The Spatial Development Framework implies that heritage assets and natural resources are not peripheral considerations but core structuring elements of the municipal spatial system. The primary implication for development guidelines is that growth and investment must be directed in a manner that avoids irreversible loss of cultural, environmental, and landscape assets, while

still allowing for appropriate economic use. This requires a shift from reactive protection, applied at the development application stage, to proactive spatial guidance embedded in planning and land use management instruments.

In practical terms, development within or adjacent to heritage assets and environmentally sensitive areas should be subject to clearly defined buffers, restriction zones, and performance-based development controls. In the short term, this implies the use of policy-based conditions and advisory overlays within the existing Land Use Scheme to manage development pressure. Medium-term implications include the formal incorporation of environmental and heritage overlays into the revised Land Use Scheme, with differentiated levels of control depending on sensitivity and risk. In the long term, conservation priorities should inform settlement boundaries, infrastructure alignment, and investment sequencing, ensuring that natural and heritage assets actively shape spatial form rather than merely constraining it.

The implication for decision-making is that development rights in these areas should be more limited, conditional, or subject to additional scrutiny, while development pressure should be redirected toward less sensitive, better-located areas. This approach supports spatial sustainability and reduces long-term environmental and fiscal risks to the municipality.

27.2.2. SOCIAL FACILITY PROVISION

The SDF implies that social facilities must be planned as part of an integrated spatial system rather than as isolated sectoral investments. The key guideline implication is that facilities such as schools, clinics, community halls, sports facilities, and administrative services should be clustered within nodes and service centres to maximise accessibility, efficiency, and shared use.

Indicative spatial thresholds are central to this approach. In urban and peri-urban contexts, primary social facilities should generally be accessible within a walking distance of approximately 500–1 000 metres, while higher-order facilities may serve catchments of 3–5 kilometres, depending on function and transport availability. In rural and traditional authority areas, catchments may be larger, but facilities should still be strategically located to support settlement consolidation and future densification.

In the short term, the implication is that new facilities should be prioritised in locations that already function as informal service points, even if these are not yet fully developed nodes. In the medium term, facility provision should reinforce the settlement hierarchy identified in the SDF, strengthening primary and secondary nodes. In the long term, social facility planning should be closely aligned with projected population growth and densification patterns, ensuring that investment supports spatial restructuring rather than responding reactively to dispersed demand.

This approach improves service efficiency, reduces duplication, and enhances the social and economic vibrancy of nodes, while providing a clear spatial rationale for facility investment decisions.

27.2.3. NODES AND PRIORITY INFRASTRUCTURE INTERVENTIONS

The SDF implies that nodes are the primary spatial mechanism for guiding development, infrastructure investment, and service delivery within the municipality. The guideline implication is that nodal designation should carry clear consequences for development rights, infrastructure prioritisation, and public investment sequencing.

In practice, this means that areas identified as nodes should be prioritised for bulk and reticulation infrastructure upgrades, higher development intensities, and the clustering of public facilities. In the short term, nodal status should inform the prioritisation of maintenance and upgrading of existing infrastructure, as well as the targeting of catalytic public projects. In the medium term, nodes should be the focus of planned densification, mixed-use development, and economic activity, supported by coordinated sectoral

investment. In the long term, nodes should function as anchors for sustainable settlement patterns, reducing pressure for dispersed development and improving overall spatial efficiency.

Conversely, areas outside identified nodes should be subject to more restrictive development guidance, particularly where infrastructure capacity is limited or environmental and agricultural assets are at risk. The implication for development management is that applications proposing higher-intensity development outside nodes should be carefully evaluated against the SDF's spatial logic and may require additional motivation or phasing conditions.

By clearly linking nodal status to infrastructure investment and development rights, the municipality can use nodes as effective tools for spatial restructuring, rather than as purely conceptual planning constructs.

27.3. LAND USE FRAMEWORK IMPLICATIONS

27.3.1. ROLE OF THE LAND USE SCHEME

The Spatial Development Framework implies that the Land Use Scheme is the primary statutory instrument through which spatial policy is implemented and enforced. While the SDF provides strategic direction, it is the Land Use Scheme that gives legal effect to spatial intentions through zoning, development parameters, and development control mechanisms. In the context of the Dr Nkosazana Dlamini Zuma Local Municipality, the existence of an outdated Land Use Scheme has significant implications for both planning certainty and spatial transformation.

In the short term, the implication is that development decision-making must rely more heavily on the SDF and this Implication Framework to guide discretionary judgments, conditions of approval, and refusals where the existing scheme is silent, inconsistent, or misaligned with current policy. In the medium term, the Land Use Scheme must be systematically reviewed and amended to reflect updated spatial priorities, settlement typologies, and infrastructure realities. In the long term, a revised and regularly updated Land Use Scheme should function as a proactive development management tool that enables desired development outcomes rather than merely regulating land use.

This phased approach recognises institutional and resource constraints while ensuring that the municipality progressively strengthens the alignment between spatial policy and statutory land use control.

27.3.2. LINKAGES BETWEEN THE SPATIAL DEVELOPMENT FRAMEWORK, LAND USE FRAMEWORK, AND LAND USE SCHEME

The SDF implies a clear hierarchy and relationship between strategic spatial intent, spatial translation, and statutory control. The Land Use Framework serves as the intermediary layer that translates the broad spatial proposals of the SDF into spatially differentiated land use policies and development guidelines, which are then codified in the Land Use Scheme.

In practical terms, the implication is that the SDF should inform *where* development is desired, constrained, or phased; the Land Use Framework should clarify *how* development should occur in different spatial contexts; and the Land Use Scheme should regulate *what* development is legally permissible and under what conditions. Weakness or misalignment at any point in this chain undermines the effectiveness of the entire spatial planning system.

For the Dr Nkosazana Dlamini Zuma Local Municipality, the short-term implication is the need to use policy alignment matrices and spatial policy statements to guide decisions in the absence of scheme alignment. In the medium term, these linkages must be formalised through the revision of zoning categories, overlays, and development parameters. In the long term, consistent alignment between these instruments will improve transparency, reduce appeals and disputes, and enhance investor confidence.

27.3.3. PURPOSE AND OBJECTIVES OF THE LAND USE SCHEME

The SDF implies that the Land Use Scheme must move beyond a purely regulatory function and actively support spatial transformation, economic development, and service efficiency. The primary purpose of the revised Land Use Scheme should be to provide development certainty while enabling flexibility where appropriate, particularly in areas targeted for densification, regeneration, and nodal development.

Key objectives emerging from the SDF include protecting strategically important land, such as high-value agricultural areas and environmentally sensitive zones; directing growth toward nodes and serviced areas; and facilitating a range of housing and economic development typologies that respond to local needs. Over the short term, these objectives should guide interim policy decisions. Over the medium to long term, they should be explicitly embedded in the structure, zoning logic, and overlays of the revised scheme.

27.3.4. ADMINISTRATION OF THE SCHEME

Effective administration of the Land Use Scheme is essential to giving effect to the SDF and its Implication Framework. The SDF implies a need for clear institutional roles, consistent decision-making processes, and compliance with SPLUMA procedural requirements. This includes transparent development application processes, clear delegation of authority, and well-defined criteria for assessing applications against spatial policy.

In the short term, administrative implications include the need for training and internal alignment to ensure that officials and decision-makers consistently apply the SDF and Implication Framework in development control. In the medium term, administrative systems and procedures should be updated alongside the revised scheme to support more efficient and predictable decision-making. In the long term, strengthened administration will reduce legal risk, improve governance, and enhance public trust in the land use management system.

27.3.5. CRITICAL AREAS FOR LAND USE MANAGEMENT

The SDF implies that certain areas require heightened attention and differentiated land use management due to their strategic importance or sensitivity. These include environmentally sensitive areas, high-value agricultural land, infrastructure protection corridors, and urban edges or growth management zones.

The implication for land use management is that these areas should be subject to more stringent controls, clearer policy guidance, and, where appropriate, overlay-based regulation. In the short term, such controls may rely on policy directives and development conditions. In the medium term, they should be formalised through overlays and specific zoning provisions in the revised scheme. In the long term, these critical areas should form a stable spatial framework that guides growth and protects key assets.

27.3.6. SCHEME APPROACH

The SDF implies a Land Use Scheme approach that balances flexibility and control. Rigid, one-size-fits-all zoning is unlikely to be effective in a municipality characterised by diverse settlement types and development pressures. Instead, a policy-driven scheme approach is required, with differentiated controls tailored to urban, peri-urban, rural, and traditional authority contexts.

In practice, this implies the use of graduated development parameters, consent uses, and overlays to manage complexity without excessive regulation. Short-term flexibility may be achieved through policy interpretation and conditions of approval, while medium- to long-term revisions should embed this approach structurally within the scheme.

27.3.7. ASPECTS TO BE COVERED BY THE LAND USE SCHEME

The SDF implies that the Land Use Scheme must comprehensively address zoning categories, development parameters, consent uses, and conditions of approval in a manner that reflects spatial priorities. Development parameters such as coverage, floor area ratio, height, and density should be spatially differentiated and aligned with infrastructure capacity and settlement typology.

In the short term, indicative parameters may be applied through policy guidance. In the medium to long term, these parameters should be codified within the scheme to provide clarity and certainty to developers and communities alike.

27.3.8. GUIDELINES FOR DEVELOPMENT IN DIFFERENT LAND USE AREAS

The SDF implies the need for differentiated development guidelines across land use areas. In urban areas, guidelines should support intensification, mixed use, and efficient land utilisation. In peri-urban areas, guidelines should manage transition, prevent sprawl, and support incremental consolidation. In rural areas, guidelines should protect agricultural productivity and environmental assets while accommodating appropriate settlement needs. In traditional authority areas, guidelines should enable development that is culturally appropriate, serviceable, and aligned with agreed settlement structuring principles.

These guidelines should be applied incrementally in the short term and formalised through the revised scheme over the medium to long term.

27.3.9. LAND USE MANAGEMENT OVERLAYS

The SDF implies that overlays are essential tools for managing spatial complexity and risk. Environmental overlays, agricultural protection overlays, and risk-informed overlays allow the municipality to impose additional controls or conditions without overcomplicating base zoning.

In the short term, overlay concepts may be applied through policy interpretation. In the medium term, they should be incorporated into the revised Land Use Scheme. In the long term, overlays should provide a stable, transparent framework for managing sensitive areas, reducing conflict, and supporting sustainable development outcomes.

27.4. STRATEGIC PLANNING PROJECTS

TABLE 106: STRATEGIC PLANNING PROJECTS

PROJECT NAME	PROJECT DESCRIPTION	RESPONSIBLE INSTITUTION	STRATEGIC PRIORITY	TOTAL ESTIMATED COST (ZAR)	2026/27 (ZAR)	2027/28 (ZAR)	2028/29 (ZAR)
Rural Settlement Development Strategy	Municipality-wide framework guiding sustainable growth, service thresholds, and spatial structuring of dispersed rural settlements.	NDZ LM (Lead), KZN COGTA	High	R1,500,000.00	R500,000.00	R500,000.00	R500,000.00
Farmworker Housing Development Strategy	Strategic response to farmworker accommodation needs aligned with ESTA, DHS policy, and rural land reform dynamics.	NDZ LM, KZN Dept. Human Settlements	High	R400,000.00	R200,000.00	R100,000.00	R100,000.00
Agriculture Sector Plan / Strategy	Spatially explicit agricultural development and protection strategy supporting agri-processing, land capability, and rural livelihoods.	NDZ LM, KZN DARD	High	R600,000.00	R300,000.00	R150,000.00	R150,000.00
Review of Local Economic Development Strategy	Update of LED strategy to align with SDF, nodal logic, cross-border dynamics, and district/provincial growth priorities.	NDZ LM, Harry Gwala DM	High	R500,000.00	R250,000.00	R125,000.00	R125,000.00
Tourism Sector Plan	Sector plan positioning tourism nodes, routes, and community-based tourism within the municipal spatial framework.	NDZ LM, KZN EDTEA	Medium	R600,000.00		R250,000.00	R50,000.00
Integrated Transport Plan	Strategic transport and mobility plan addressing accessibility, public transport, and settlement connectivity.	NDZ LM, KZN DoT	High	R700,000.00	R500,000.00	R100,000.00	R100,000.00
Infrastructure Investment Plan	Non-capital strategic plan prioritising infrastructure sequencing, funding leverage, and spatial targeting.	NDZ LM, Harry Gwala DM	High	R700,000.00	R500,000.00	R100,000.00	R100,000.00

PROJECT NAME	PROJECT DESCRIPTION	RESPONSIBLE INSTITUTION	STRATEGIC PRIORITY	TOTAL ESTIMATED COST (ZAR)	2026/27 (ZAR)	2027/28 (ZAR)	2028/29 (ZAR)
Environmental Management Framework	Statutory EMF guiding land-use decision-making, environmental risk management, and climate resilience.	NDZ LM, KZN DEDTEA	High	R650,000.00	R400,000.00	R125,000.00	R125,000.00
Amakuze TSMP	Traditional Settlement Master Plan guiding spatial structure, services, and land management in Amakuze area.	NDZ LM, Traditional Council	High	R300,000.00	R200,000.00	R50,000.00	R50,000.00
Amangwane TSMP	TSMP providing spatial framework and implementation guidance for Amangwane traditional settlements.	NDZ LM, Traditional Council	High	R300,000.00	R200,000.00	R50,000.00	R50,000.00
Basotho TSMP	Spatial master plan for Basotho traditional settlements supporting service planning and land-use management.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Bhidla TSMP	TSMP addressing settlement consolidation, access, and community facilities planning in Bhidla area.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Isibonelo Esihle TSMP	Spatial planning framework for Isibonelo Esihle traditional settlements aligned to municipal SDF.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Madzikane-Bhaca TSMP	Master plan guiding spatial development and land management in Madzikane-Bhaca area.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Maguswa TSMP	TSMP addressing settlement structure, service access, and growth management in Maguswa area.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Sizanani TSMP	Traditional settlement master plan guiding spatial investment and service planning in Sizanani area.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00

PROJECT NAME	PROJECT DESCRIPTION	RESPONSIBLE INSTITUTION	STRATEGIC PRIORITY	TOTAL ESTIMATED COST (ZAR)	2026/27 (ZAR)	2027/28 (ZAR)	2028/29 (ZAR)
uMacala-Gwala TSMP	TSMP supporting coordinated spatial development in uMacala-Gwala traditional authority area.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Vezakuhle TSMP	Spatial master plan for Vezakuhle settlements with emphasis on access, services, and land management.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Zashuke TSMP	TSMP providing long-term spatial structure and service planning for Zashuke area.	NDZ LM, Traditional Council	Medium	R300,000.00		R150,000.00	R150,000.00
Review of Municipal Ward-Based Plans	Consolidation and review of ward plans to align community priorities with IDP, SDF, and budget frameworks.	NDZ LM	High	R1,300,000.00	R1,000,000.00	R150,000.00	R150,000.00
Municipal Waste Diversion Plan	Strategic waste minimisation and diversion plan aligned to IWMP, climate goals, and circular economy principles.	NDZ LM, Harry Gwala DM	High	R700,000.00	R400,000.00	R150,000.00	R150,000.00
Review of Municipal Housing Sector Plan	Comprehensive review with focus on housing pipeline, spatial targeting, and accreditation as a housing developer.	NDZ LM, KZN DHS	High	R500,000.00		R300,000.00	R200,000.00
Feasibility Study: Waterborne Sanitation – Bulwer	Technical, financial, and institutional feasibility of introducing waterborne sanitation in Bulwer.	Harry Gwala DM (WSA), NDZ LM	High	R900,000.00	R500,000.00	R200,000.00	R200,000.00
Feasibility Study: Waterborne Sanitation – Creighton	Feasibility assessment for bulk and reticulation sewer infrastructure in Creighton.	Harry Gwala DM (WSA), NDZ LM	High	R900,000.00	R500,000.00	R200,000.00	R200,000.00
Feasibility Study: Waterborne Sanitation – Underberg	Assessment of technical options, costs, and phasing for waterborne sanitation in Underberg.	Harry Gwala DM (WSA), NDZ LM	High	R900,000.00	R500,000.00	R200,000.00	R200,000.00

PROJECT NAME	PROJECT DESCRIPTION	RESPONSIBLE INSTITUTION	STRATEGIC PRIORITY	TOTAL ESTIMATED COST (ZAR)	2026/27 (ZAR)	2027/28 (ZAR)	2028/29 (ZAR)
Feasibility Study: Waterborne Sanitation – Donnybrook	Strategic feasibility study addressing sanitation upgrading options for Donnybrook.	Harry Gwala DM (WSA), NDZ LM	High	R900,000.00	R500,000.00	R200,000.00	R200,000.00
Feasibility Study: Waterborne Sanitation – Himeville	Feasibility analysis for sewer infrastructure considering environmental and heritage constraints.	Harry Gwala DM (WSA), NDZ LM	High	R900,000.00	R500,000.00	R200,000.00	R200,000.00
Feasibility Study: Waterborne Sanitation – Kilmun	Assessment of sanitation options and infrastructure readiness for Kilmun settlement cluster.	Harry Gwala DM (WSA), NDZ LM	Medium	R900,000.00	R500,000.00	R200,000.00	R200,000.00
Feasibility Study: Waterborne Sanitation – Pholela	Feasibility study for sanitation upgrading aligned with rural settlement service standards.	Harry Gwala DM (WSA), NDZ LM	Medium	R900,000.00	R500,000.00	R200,000.00	R200,000.00

27.4.1. STRATEGIC PLANNING PROJECTS MONITORING & EVALUATION FRAMEWORK

TABLE 107: STRATEGIC PLANNING PROJECTS MONITORING & EVALUATION FRAMEWORK

PROJECT NAME	KEY OUTPUTS	KEY PERFORMANCE INDICATORS (KPIS)	MEANS OF VERIFICATION	MONITORING FREQUENCY
Rural Settlement Development Strategy	Adopted strategy; spatial typologies; service thresholds	Strategy adopted by Council; alignment to SDF & IDP confirmed	Council resolution; final strategy document	Quarterly
Farmworker Housing Development Strategy	Housing strategy; spatial targeting; policy alignment	Strategy approved; DHS concurrence obtained	Approved strategy; stakeholder records	Quarterly
Agriculture Sector Plan	Sector plan; spatial agricultural framework	Plan adopted; integration into SDF maps	Council approval; SDF update	Bi-annual
Review of LED Strategy	Revised LED strategy; implementation framework	Strategy reviewed and adopted within IDP cycle	Council minutes; revised LED	Quarterly

PROJECT NAME	KEY OUTPUTS	KEY PERFORMANCE INDICATORS (KPIS)	MEANS OF VERIFICATION	MONITORING FREQUENCY
Tourism Sector Plan	Tourism development framework; priority nodes	Sector plan approved; alignment with district tourism strategy	Approved plan; alignment memo	Bi-annual
Integrated Transport Plan	Transport strategy; accessibility framework	ITP approved; alignment with district/provincial transport plans	Approved ITP; concurrence letters	Quarterly
Infrastructure Investment Plan	Prioritisation framework; funding logic	Plan adopted; referenced in IDP & MTEF	Council approval; IDP annexure	Quarterly
Environmental Management Framework	Statutory EMF; decision-support maps	EMF approved by MEC; gazetted	MEC approval; gazette notice	Bi-annual
Review of Ward-Based Plans	Consolidated ward plans; alignment report	% wards reviewed; alignment to IDP achieved	Ward plan register; IDP annexure	Quarterly
Municipal Waste Diversion Plan	Waste diversion strategy; targets and actions	Plan adopted; alignment to IWMP	Council approval; IWMP addendum	Bi-annual
Review of Housing Sector Plan	Updated HSP; accreditation roadmap	HSP approved; accreditation milestones defined	Approved HSP; DHS correspondence	Quarterly

28. CAPITAL INVESTMENT FRAMEWORK

The Capital Investment Framework (CIF) constitutes a core implementation instrument of the Dr Nkosazana Dlamini Zuma Local Municipality Spatial Development Framework (SDF). It translates the long-term spatial vision, spatial proposals, and nodal development strategies of the SDF into a structured, prioritised and costed programme of capital investment projects to be implemented over the short term (0–5 years), medium term (5–10 years), and long term (10–20 years).

The CIF focuses exclusively on hard, capital-intensive projects that have a direct spatial footprint and measurable physical outputs, including infrastructure networks, public facilities, environmental works, economic infrastructure, and tourism-enabling assets. It therefore provides the critical link between the SDF, the Integrated Development Plan (IDP), sector plans, and the municipal capital budgeting and Medium-Term Expenditure Framework (MTEF) processes.

28.1. LEGAL FRAMEWORK FOR THE CAPITAL INVESTMENT FRAMEWORK

The preparation of a Capital Investment Framework is grounded in South Africa's interrelated spatial planning, municipal governance, and public finance legislation. The CIF gives effect to the statutory requirement that spatial development frameworks must be implementable, fiscally realistic, and aligned with municipal budgeting instruments. Key legislative and policy foundations informing the CIF include:

- The Spatial Planning and Land Use Management Act (SPLUMA), 2013, which requires municipal SDFs to include implementation mechanisms and capital investment guidance to realise spatial transformation objectives.
- The Municipal Systems Act, 2000, which mandates municipalities to adopt Integrated Development Plans supported by clear infrastructure investment and service delivery programmes.
- The Municipal Finance Management Act, 2003, which governs capital expenditure planning, budgeting, and financial sustainability, requiring that capital projects be prioritised, costed, and aligned to available funding sources.
- National Treasury capital planning and asset management guidelines, which emphasise credible capital investment planning linked to service delivery outcomes and lifecycle costing.
- Provincial and district spatial and infrastructure frameworks, which inform cross-boundary alignment and sector-led investments with a direct spatial footprint in the municipality.

Within this legal context, the CIF functions as a compliance and coordination mechanism that ensures spatial proposals are translated into fundable, implementable capital programmes.

28.2. PURPOSE OF THE CAPITAL INVESTMENT FRAMEWORK

The primary purpose of the Capital Investment Framework is to provide a strategic, phased and prioritised capital investment programme that supports the spatial restructuring, service delivery, and economic development objectives of the municipality.

Specifically, the CIF aims to:

- Translate spatial proposals and nodal strategies into clearly defined capital projects.
- Guide municipal and sectoral capital budgeting over the short, medium and long term.

- Prioritise infrastructure investment in areas of greatest service backlog, economic potential, and spatial impact.
- Align municipal capital projects with national and provincial funding instruments, including conditional grants and sector budgets.
- Support coordinated investment by multiple spheres of government and development partners.
- Provide a transparent and auditable basis for Council decision-making on capital expenditure.

By doing so, the CIF strengthens the municipality's ability to move from spatial policy intent to on-the-ground implementation.

28.3. SERVICE DELIVERY PRIORITY AREAS

The CIF identifies service delivery priority areas based on a synthesis of existing infrastructure backlogs, settlement patterns, nodal hierarchies, environmental constraints, and projected growth areas identified in the SDF. Priority is given to investments that simultaneously address service deficiencies, support economic activity, and reinforce the desired spatial structure.

28.3.1. WATER PRIORITY AREAS

Water-related capital investments prioritised in the CIF focus on improving access to reliable, safe water supply in both urban nodes and rural settlements, while also strengthening system resilience.

Key water priority areas include:

- Primary settlement nodes and service towns, where population concentration and economic activity place pressure on existing water infrastructure.
- High-density rural settlements experiencing persistent service backlogs or reliance on informal water sources.
- Growth and development corridors, where future development will require upgraded bulk and reticulation infrastructure.
- Catchment and source protection areas, where capital investment in green infrastructure, storage, and system efficiency supports long-term water security.

The CIF prioritises capital projects that improve bulk supply capacity, distribution efficiency, storage, and climate resilience, while recognising that some water infrastructure functions may be led by sector departments or the district municipality, with the local municipality playing an enabling and coordinating role.

28.3.2. SANITATION PRIORITY AREAS

Sanitation investments in the CIF are directed toward addressing health risks, environmental degradation, and settlement sustainability. Priority sanitation areas include:

- **Urban and peri-urban settlements** where existing sanitation systems are overloaded, ageing, or environmentally non-compliant.
- **Rural settlements** with inadequate or unsafe on-site sanitation facilities.
- **Environmentally sensitive areas**, particularly river catchments and wetlands, where sanitation failures pose direct ecological risks.
- **Public facilities and community nodes**, where sanitation infrastructure is essential to support social and economic activity.

The CIF emphasises capital investments that improve sanitation service levels, reduce pollution loads, and align sanitation solutions with settlement typologies and environmental constraints.

28.3.3. ELECTRICITY PRIORITY AREAS

Electricity infrastructure priorities within the CIF are shaped by settlement patterns, economic development needs, and public safety considerations.

Priority areas for electricity investment include:

- Urban nodes and economic hubs, where reliable electricity supply is critical for business activity, tourism, and public services.
- Underserved rural settlements, particularly where lack of electrification constrains household wellbeing and economic participation.
- Public facilities and community infrastructure, including schools, clinics, sports facilities, and public spaces.
- Street lighting and public realm areas, where lighting contributes to safety, accessibility, and urban functionality.

The CIF focuses on capital investments that expand network coverage, upgrade ageing infrastructure, and support economic and social infrastructure, while recognising the role of national electrification programmes and utility-led investments.

28.3.4. ECONOMIC INFRASTRUCTURE PRIORITY AREAS

Economic infrastructure is a central focus of the CIF, given the municipality's development challenges and opportunities identified in the SDF. Economic infrastructure priority areas include:

- Strategic nodes and service centres, where investment in markets, warehousing, skills facilities, and logistics infrastructure can stimulate local economic activity.
- Tourism development areas, including gateway nodes, heritage routes, nature-based destinations, and tourism precincts.
- Agricultural production and agro-processing zones, where infrastructure investment supports value chain development and rural livelihoods.
- Transport and access infrastructure that enables movement of goods, services, and people to economic nodes.

The CIF prioritises economic infrastructure projects that have clear spatial impacts, leverage private and sector investment, and contribute to long-term employment and income generation.

28.4. IMPLEMENTATION AND FUNDING APPROACH

28.4.1. IMPLEMENTATION FRAMEWORK AND INSTITUTIONAL RESPONSIBILITIES

The implementation of the Capital Investment Framework (CIF) will be undertaken through a coordinated, multi-year programme of capital delivery aligned with the Integrated Development Plan (IDP), the Medium-Term Expenditure Framework (MTEF), and relevant sector plans.

The Dr Nkosazana Dlamini Zuma Local Municipality will serve as the primary coordinating authority for CIF implementation, with responsibility for:

- integrating CIF projects into the municipal IDP and annual Service Delivery and Budget Implementation Plans (SDBIPs);
- sequencing and prioritising capital projects in line with available financial and institutional capacity;
- facilitating alignment between municipal, district, provincial and national infrastructure programmes; and
- monitoring and reporting on capital project delivery and spatial outcomes.

Where projects fall within the functional competencies of other spheres of government or state-owned entities (e.g. water services, electricity supply, health or education infrastructure), the municipality's role will be primarily enabling and facilitative, including land use approvals, infrastructure coordination, and the provision of supporting municipal services.

28.4.2. PHASED IMPLEMENTATION STRATEGY

The CIF adopts a phased implementation approach to ensure that capital investment is realistic, fiscally sustainable, and responsive to spatial priorities.

- Short-term projects (0–5 years) focus on addressing critical service backlogs, upgrading ageing infrastructure, and implementing high-impact projects within existing nodes and settlements. These projects are prioritised for inclusion in the current IDP and MTEF cycle.
- Medium-term projects (5–10 years) support consolidation of nodes, expansion of economic infrastructure, and incremental implementation of environmental and tourism initiatives.
- Long-term projects (10–20 years) provide for strategic, large-scale investments linked to long-range growth trends, climate resilience, and structural economic transformation.

TABLE 108: CAPITAL INVESTMENT FRAMEWORK PHASING ALIGNED TO IDP FINANCIAL YEARS

CIF PLANNING HORIZON	TIMEFRAME (YEARS)	IDP FINANCIAL YEARS COVERED	PLANNING & BUDGETING IMPLICATION
Short-term	**0–5 years**	**2026/2027 – 2030/2031**	Projects to be prioritised for inclusion in the current and next IDP cycles, SDBIPs, and MTEF capital budgets. These projects should be implementation-ready and aligned to confirmed or highly probable funding sources.
Medium-term	**5–10 years**	**2031/2032 – 2035/2036**	Projects to be planned and progressively packaged during the current SDF horizon, with feasibility refinement and land securing occurring in advance of budgeting. Funding alignment to future MTEF cycles and sector plans required.
Long-term	**10–20 years**	**2036/2037 – 2045/2046**	Strategic and catalytic projects that inform long-range spatial restructuring, economic transformation, and climate resilience. These projects guide future capital planning but are not yet budget-committed.

Phasing will be reviewed on a rolling basis through the annual IDP review process to respond to changing development conditions, funding availability, and implementation performance.

28.4.3. CAPITAL BUDGETING AND FUNDING SOURCES

The implementation of the CIF relies on a diversified funding strategy that draws on municipal own revenue, intergovernmental transfers, sector department budgets, and partnership-based funding mechanisms.

Key funding sources include:

- Municipal capital budgets, funded through own revenue and long-term borrowing where appropriate, primarily for local infrastructure and public facilities.
- National and provincial conditional grants, such as infrastructure and service delivery grants, which support bulk and internal services, public facilities, and environmental projects.
- Sector department capital budgets, particularly for housing, health, education, water services, and energy infrastructure, where the municipality provides enabling support.
- Public-private partnerships (PPPs) and private sector investment, especially for economic infrastructure, tourism facilities, and market-oriented developments.
- Specialised funding programmes, including climate adaptation, environmental rehabilitation, and labour-intensive public works programmes, where projects align with programme criteria.

The CIF provides an indicative capital cost envelope for each project to support funding alignment and to inform engagement with funding partners.

28.4.4. PROJECT PACKAGING AND READINESS

To improve implementation success, CIF projects will be progressively packaged into bankable and implementation-ready project proposals. This includes:

- confirmation of land ownership and development rights.
- alignment with environmental authorisations and regulatory requirements.
- preliminary engineering and design where required.
- confirmation of institutional responsibilities; and
- identification of suitable funding instruments.

Priority will be given to projects that demonstrate high spatial impact, readiness for implementation, and alignment with strategic development objectives.

28.4.5. INTERGOVERNMENTAL AND STAKEHOLDER COORDINATION

Effective implementation of the CIF depends on strong vertical and horizontal coordination across government and with key stakeholders.

The municipality will utilise existing intergovernmental structures, planning forums, and sector coordination platforms to:

- align capital investment programmes with district and provincial infrastructure plans.
- coordinate cross-boundary projects with neighbouring municipalities.
- engage sector departments and utilities on project sequencing and funding; and
- facilitate community and stakeholder participation in major capital projects.

This coordination role is critical to maximising the impact of capital investment and avoiding fragmented or duplicative infrastructure delivery.

28.4.6. MONITORING, REVIEW AND ADAPTIVE MANAGEMENT

The CIF will be monitored and reviewed through the municipal planning and performance management system, with progress tracked against:

- project implementation milestones.
- capital expenditure performance.
- spatial transformation and service delivery outcomes.

Annual IDP reviews will provide an opportunity to update project priorities, adjust phasing, and refine budgets based on implementation experience and changing development dynamics.

28.5. ACTION PLANS

28.5.1. TOURISM DEVELOPMENT PROJECTS

TABLE 109: TOURISM DEVELOPMENT PROJECTS

PROJECT NAME	PHASE (SHORT/MEDIUM/LONG)	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Missions MTB Trail Network (Centocow–Riverside–Donnybrook–Bulwer)	**Medium (5–10 yrs)**	Centocow; Riverside; Donnybrook; Bulwer (Ward TBC)	Develop a cycle trail linking mission settlements (route works, signage, small trailhead facilities).	R15,000,000.00	NDZ LM; landowners/Traditional Councils; local cycling groups; Tourism KZN	EDTEA/Tourism grants; municipal capital; PPP/sponsorship	Based on typical rural trail + trailhead costs; excludes major bridges/earthworks unless specified.
Gerard Bhengu Art Gallery (Centocow)	**Medium (5–10 yrs)**	Centocow (Ward TBC)	Construct an art gallery facility (building + basic services + visitor amenities).	R35,000,000.00	NDZ LM; EDTEA/Tourism KZN; arts/cultural bodies	EDTEA; National Arts Council/DSAC (where applicable); municipal capex; PPP	Budget assumes modest civic building with fit-out; final depends on size/spec.
Tourism Signage Upgrade Programme (Audit + new directional signage)	**Short (0–5 yrs)**	Municipality-wide tourism routes	Undertake signage audit and implement upgraded road/tourism signage to attractions and facilities.	R5,000,000.00	NDZ LM; KZN DOT; Tourism KZN	Municipal capex; EDTEA; KZN DOT (where road reserve applies)	The SDF lists “signage audit” as a project; capex includes fabrication/installation across key routes.
Tourism Offices: New /	**Medium (5–10 yrs)**	Accessible nodes (Underberg/Himeville/Creighton/Bulwer/	Develop/relocate/refurbish tourism information offices	R12,000,000.00	NDZ LM; Tourism KZN; local tourism associations	EDTEA/Tourism KZN; municipal	“Develop new tourism offices…refurbish existing” is

PROJECT NAME	PHASE (SHORT/MEDIUM/LONG)	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Relocation / Refurbishment		Donnybrook – site TBC)	to accessible areas (buildings, fit-out, ICT).			capex; PPP (operators)	listed; budget assumes 1–3 sites and/or upgrades.
Ticketing Offices / Visitor Nodes at Filling Stations & Bus Stops	**Medium (5–10 yrs)**	Key filling stations & bus stops (locations TBC)	Establish small ticketing/info kiosks and visitor information points at transport nodes.	R6,000,000.00	NDZ LM; private filling station operators; taxi/bus operators	PPP; municipal capex; EDTEA	Budget assumes modular kiosks + signage + basic utilities at multiple nodes.
Upgrade/Renovation of Underutilised Nature & Adventure Tourism Infrastructure (with permanent security/staffing presence)	**Medium–Long (5–20 yrs)**	Nature-based/adventure sites (Sani/Drakensberg foothills, forests—sites TBC)	Refurbish/upgrade existing tourism assets (structures, ablutions, viewpoints, trails, access control) and provide on-site security/staff facilities.	R35,000,000.00	NDZ LM; Ezemvelo KZN Wildlife (where applicable); Tourism KZN; landowners	EDTEA; EPWP (where eligible); PPP; municipal capex	The project is listed; budget range depends on number of sites and extent of refurbishment.

28.5.1.1. TOURISM CAPITAL WORKS PROJECTS

TABLE 110: TOURISM CAPITAL WORKS PROJECTS

PROJECT NAME	PLACE/SETTLEMENT	DESCRIPTION	PHASE	BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Upgrade/enable Kilmun racecourse precinct	Kilmun	Capital improvements associated with racecourse as anchor attraction (scope not detailed)	**Short (2021–2025 programme)**	R10,000,000	NDZ LM; racecourse operators; tourism bodies	Private sector/PPP; EDTEA; NDZ capital budget

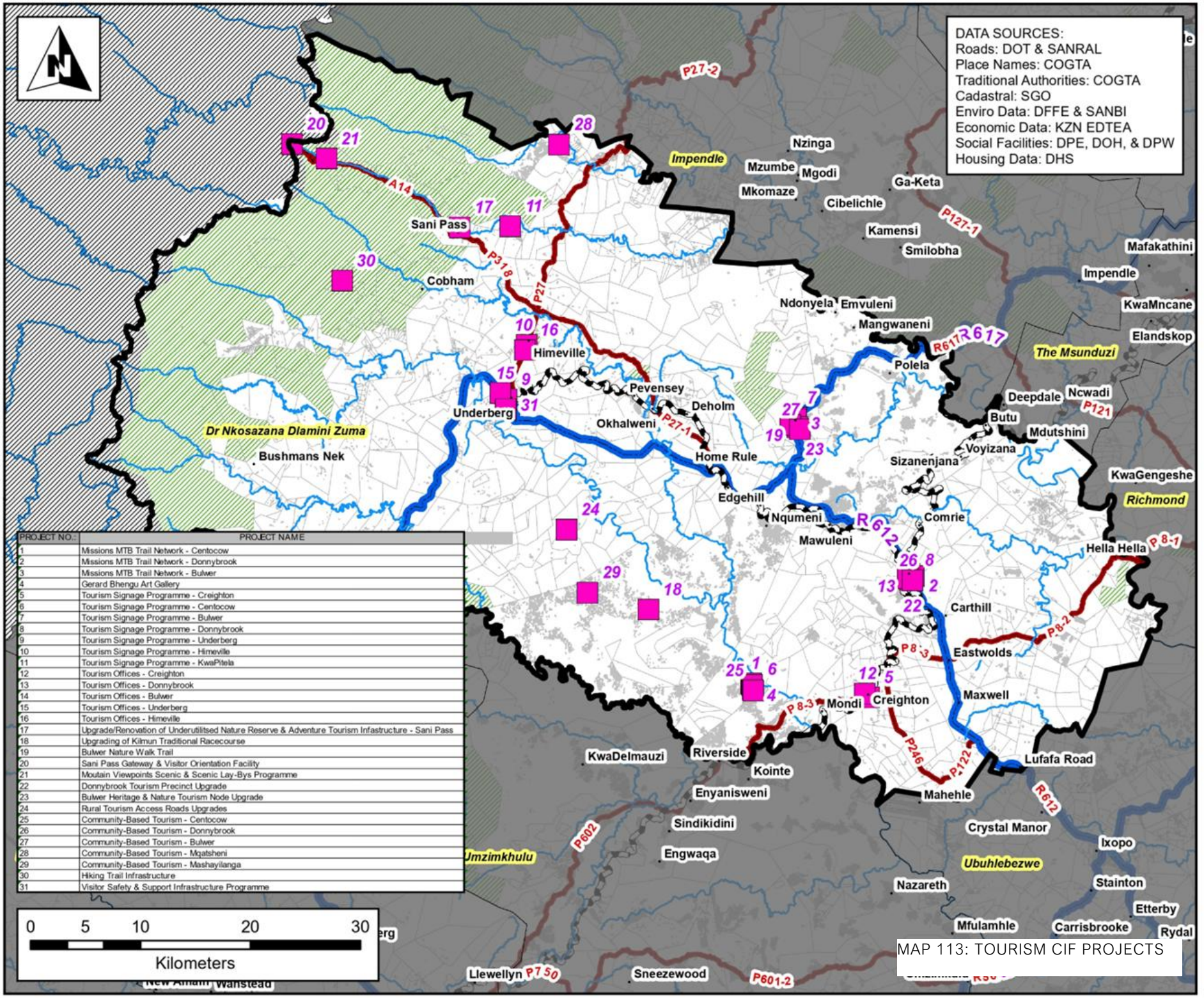
PROJECT NAME	PLACE/SETTLEMENT	DESCRIPTION	PHASE	BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Bulwer nature walk / trail (tourism product)	Bulwer	(Same asset as Environmental table) trail as visitor attraction	**Short-Term**	R3,500,000	NDZ LM; EDTEA; tourism bodies	EDTEA; EPWP; tourism grants

28.5.1.2. TOURISM EXPANSION PROJECTS

TABLE 111: TOURISM EXPANSION PROJECTS

PROJECT NAME (STANDARDISED)	PHASE (SHORT / MEDIUM / LONG)	PLACE / SETTLEMENT / WARD	PROJECT DESCRIPTION (PHYSICAL SCOPE ONLY)	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Sani Pass Gateway & Visitor Orientation Facility (NDZ side)	**Medium (5–10 yrs)**	Underberg / Himeville (Ward TBC)	Develop a gateway facility including visitor orientation centre, ablutions, parking, landscaping, signage, and controlled access infrastructure on the NDZ side of the Sani Pass route.	R120,000,000.00	NDZ LM; EDTEA; Tourism KZN; SANParks/Ezemvelo (interface)	EDTEA; Tourism KZN; DBSA; PPP	Scope limited strictly to NDZ jurisdiction; excludes Lesotho-side infrastructure.
Mountain Viewpoints & Scenic Lay-bys Programme	**Short–Medium (0–10 yrs)**	Sani Pass route; Drakensberg foothills; regional roads	Construct formalised viewpoints and lay-bys with parking, safety barriers, interpretive signage and minor landscaping.	R25,000,000.00	NDZ LM; KZN DoT; Tourism KZN	Tourism grants; KZN DoT; municipal capital	Assumes multiple small sites rather than a single large facility.
Mission Route Heritage Infrastructure (Centocow–Donnybrook–Bulwer)	**Medium (5–10 yrs)**	Mission settlements and heritage nodes	Develop physical heritage infrastructure: signage, small interpretive centres, trailheads, pedestrian links and minor public realm upgrades at mission sites.	R45,000,000.00	NDZ LM; heritage bodies; local churches; Tourism KZN	EDTEA; DSAC; tourism grants; PPP	Builds on previously listed MTB/missions trail; this project focuses on **built heritage assets**.
Donnybrook Tourism Precinct Public Realm Upgrade	**Medium (5–10 yrs)**	Donnybrook town centre	Upgrade streetscape, pedestrian spaces, lighting, signage, landscaping and public amenities to support tourism economy.	R30,000,000.00	NDZ LM; local business forum; Tourism KZN	MIG (eligible elements); municipal capital; PPP	Derived from nodal role of Donnybrook as a service and tourism support town.

PROJECT NAME (STANDARDISED)	PHASE (SHORT / MEDIUM / LONG)	PLACE / SETTLEMENT / WARD	PROJECT DESCRIPTION (PHYSICAL SCOPE ONLY)	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Bulwer Heritage & Nature Tourism Node Upgrade	**Medium (5–10 yrs)**	Bulwer	Develop a combined heritage/nature tourism node including trailheads, public amenities, signage, small visitor facilities and public space upgrades.	R30,000,000.00	NDZ LM; Tourism KZN; community organisations	EDTEA; tourism grants; municipal capital	Complements Bulwer regeneration and nature walk projects already listed.
Rural Tourism Access Roads (Tourism-Serving Only)	**Long (10–20 yrs)**	Rural attractions and lodges (multiple wards)	Upgrade targeted gravel access roads serving tourism destinations (surfacing, drainage, signage).	R200,000,000.00	NDZ LM; KZN DoT; private lodge owners	MIG; KZN DoT; PPP	Includes **only** roads with a clear tourism-serving function; not general rural access.
Community-Based Tourism Facility Programme	**Medium (5–10 yrs)**	Rural settlements with tourism potential	Construct small-scale visitor facilities (craft centres, ablutions, parking, kiosks) linked to cultural/nature attractions.	R25,000,000.00	NDZ LM; community trusts; Tourism KZN	EDTEA; EPWP; tourism grants	Assumes multiple low-cost facilities rolled out incrementally.
Hiking & Trail Infrastructure (non-MTB)	**Short–Medium (0–10 yrs)**	Drakensberg foothills; rural nodes	Develop hiking trails, boardwalks, steps, bridges, signage and trailhead facilities.	R30,000,000.00	NDZ LM; landowners; Tourism KZN	Tourism grants; EPWP; PPP	Distinct from MTB trail project; focuses on pedestrian trails.
Visitor Safety & Support Infrastructure Programme	**Short (0–5 yrs)**	Key tourism nodes and routes	Install physical safety infrastructure: lighting, emergency call points, ranger posts, signage.	R10,000,000.00	NDZ LM; SAPS; Tourism KZN	Municipal capital; Tourism KZN; PPP	Capital elements only; excludes operational policing.



PROJECT NO.:	PROJECT NAME
1	Missions MTB Trail Network - Centocow
2	Missions MTB Trail Network - Donnybrook
3	Missions MTB Trail Network - Bulwer
4	Gerard Bhengu Art Gallery
5	Tourism Signage Programme - Creighton
6	Tourism Signage Programme - Centocow
7	Tourism Signage Programme - Bulwer
8	Tourism Signage Programme - Donnybrook
9	Tourism Signage Programme - Underberg
10	Tourism Signage Programme - Himeville
11	Tourism Signage Programme - KwaPitela
12	Tourism Offices - Creighton
13	Tourism Offices - Donnybrook
14	Tourism Offices - Bulwer
15	Tourism Offices - Underberg
16	Tourism Offices - Himeville
17	Upgrade/Renovation of Underutilitsed Nature Reserve & Adventure Tourism Infastructure - Sani Pass
18	Upgrading of Kilmun Traditional Racecourse
19	Bulwer Nature Walk Trail
20	Sani Pass Gateway & Visitor Orientation Facility
21	Moutain Viewpoints Scenic & Scenic Lay-Bys Programme
22	Donnybrook Tourism Precinct Upgrade
23	Bulwer Heritage & Nature Tourism Node Upgrade
24	Rural Tourism Access Roads Upgrades
25	Community-Based Tourism - Centocow
26	Community-Based Tourism - Donnybrook
27	Community-Based Tourism - Bulwer
28	Community-Based Tourism - Mqatsheni
29	Community-Based Tourism - Mashayilanga
30	Hiking Trail Infrastructure
31	Visitor Safety & Support Infrastructure Programme

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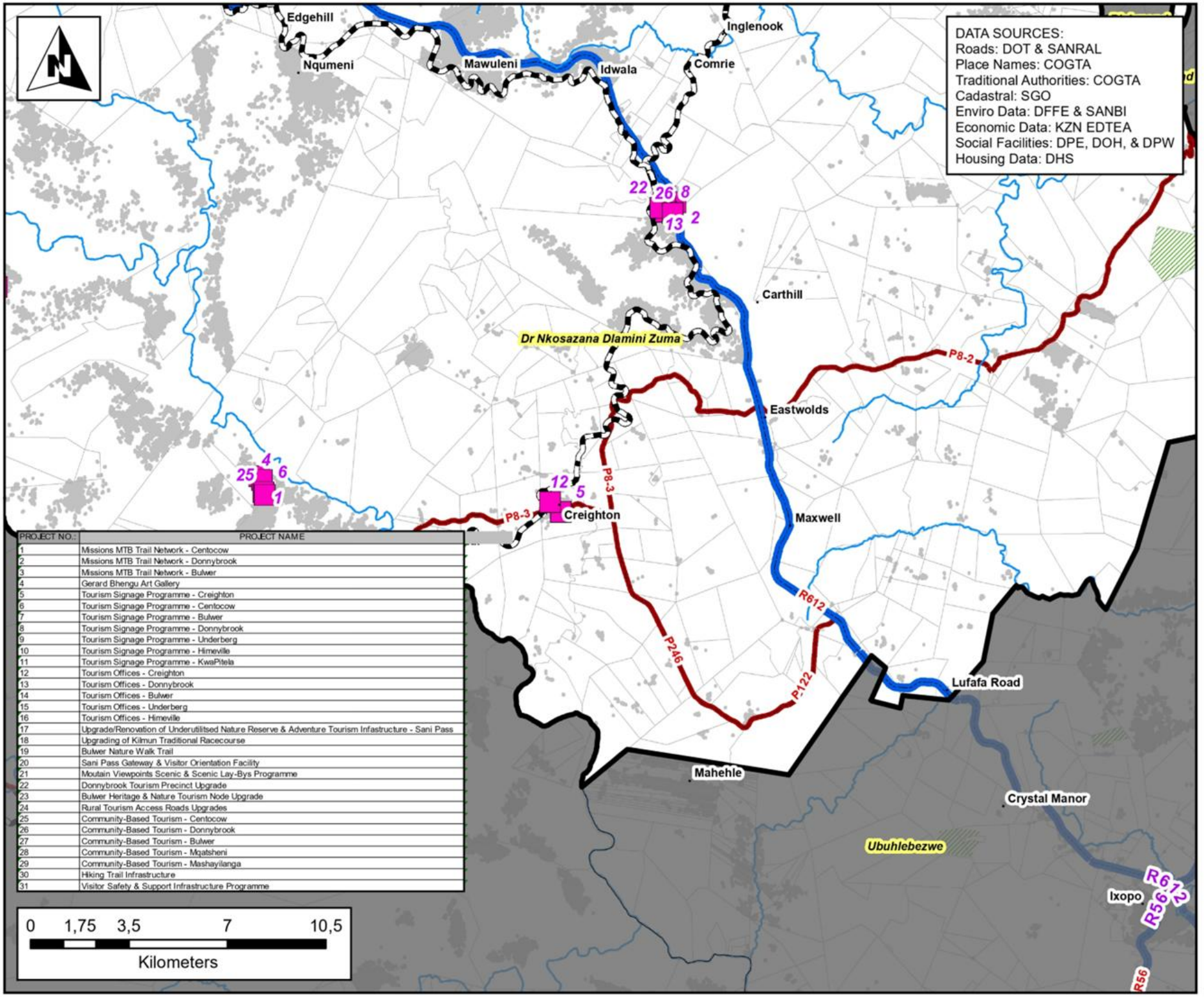
Capital Investment Framework Tourism Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

MAP 113: TOURISM CIF PROJECTS

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



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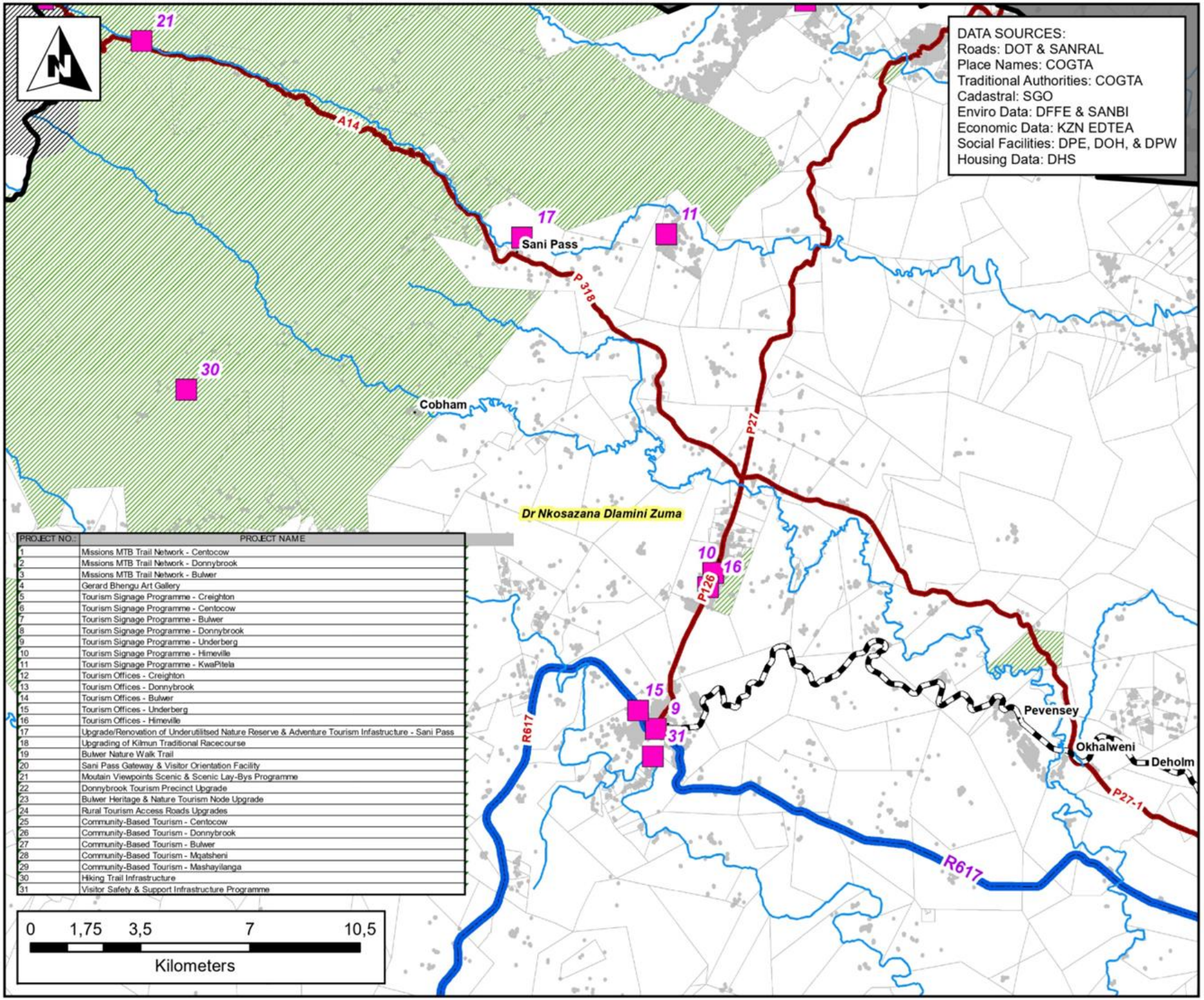
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Capital Investment Framework Tourism Projects

Legend

- Project
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INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



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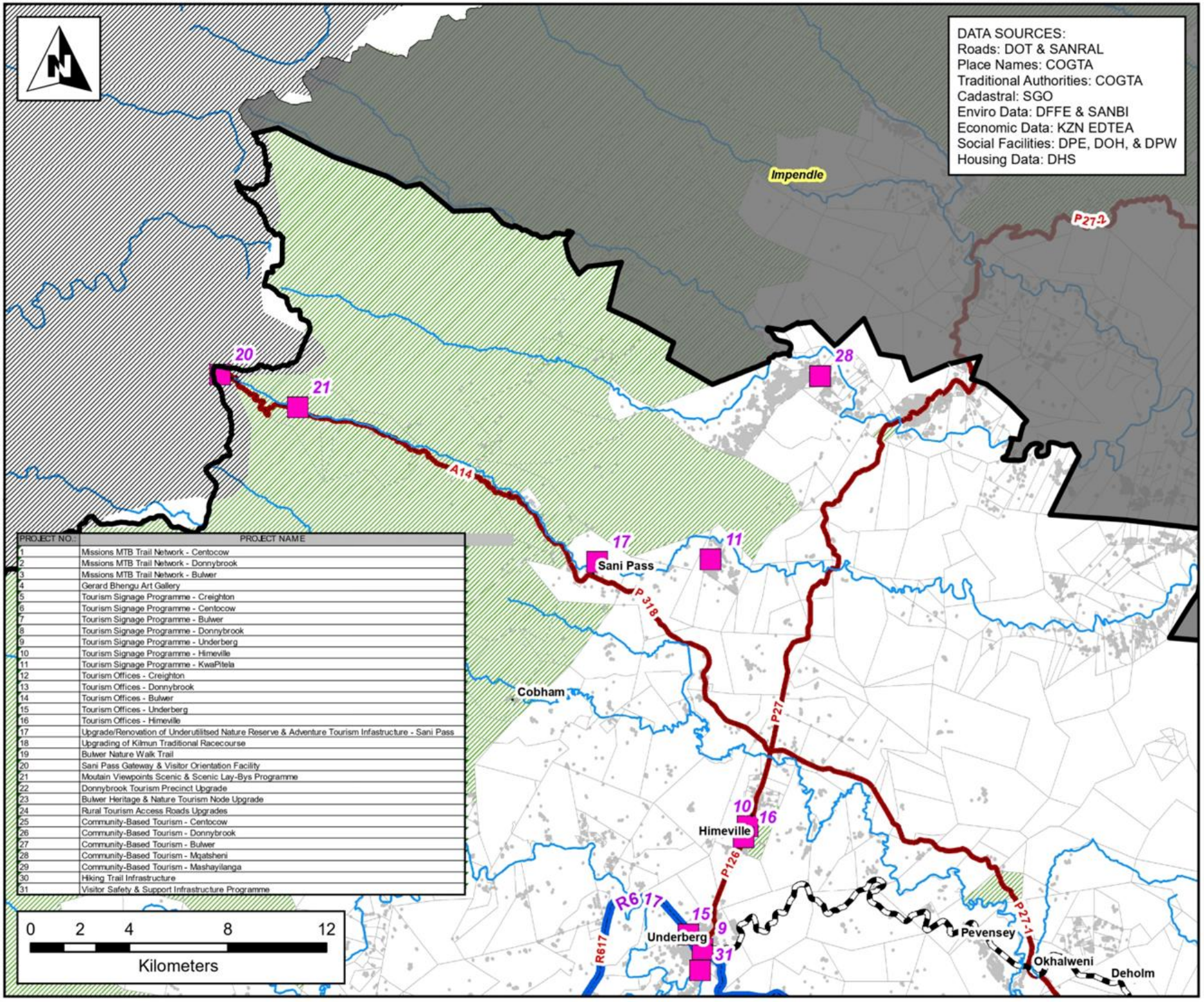
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Capital Investment Framework
Tourism Projects

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INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS



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Tourism Projects

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INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS

28.5.2. ENVIRONMENTAL PROJECTS

TABLE 112: ENVIRONMENTAL PROJECTS (GREEN INFRASTRUCTURE AND CONSERVATION CAPITAL WORKS)

PROJECT NAME	PHASE	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Afforestation / Reforestation of Mzimkhulu & Mkomazi Catchments	**Long (10–20 yrs)**	Catchments (municipality-wide; specific sites TBC)	Large-scale catchment rehabilitation through afforestation/reforestation interventions to protect water resources and ecological function.	R100,000,000.00	NDZ LM; Forestry companies; DFFE; DWS; landowners	DFFE; DWS; carbon finance/offsets; PPP with forestry sector	SDF lists afforestation as a high priority; budget depends on hectares, fencing, alien clearing, aftercare.
Constructed Wetlands / Vegetated Swales / Infiltration Trenches (Nature-based stormwater)	**Medium (5–10 yrs)**	Underberg; Bulwer; Creighton; Donnybrook + rural villages (priority sites TBC)	Implement green stormwater infrastructure to reduce runoff, flooding, erosion and protect rivers/wetlands.	R60,000,000.00	NDZ LM; HGDM (interface); DWS; DFFE	MIG; DWS; climate adaptation funding; DBSA	Justified in SDF narrative as "green infrastructure solutions"; costs depend on number/scale of sites.

28.5.2.1. GREEN INFRASTRUCTURE AND CONSERVATION CAPITAL WORKS PROJECTS

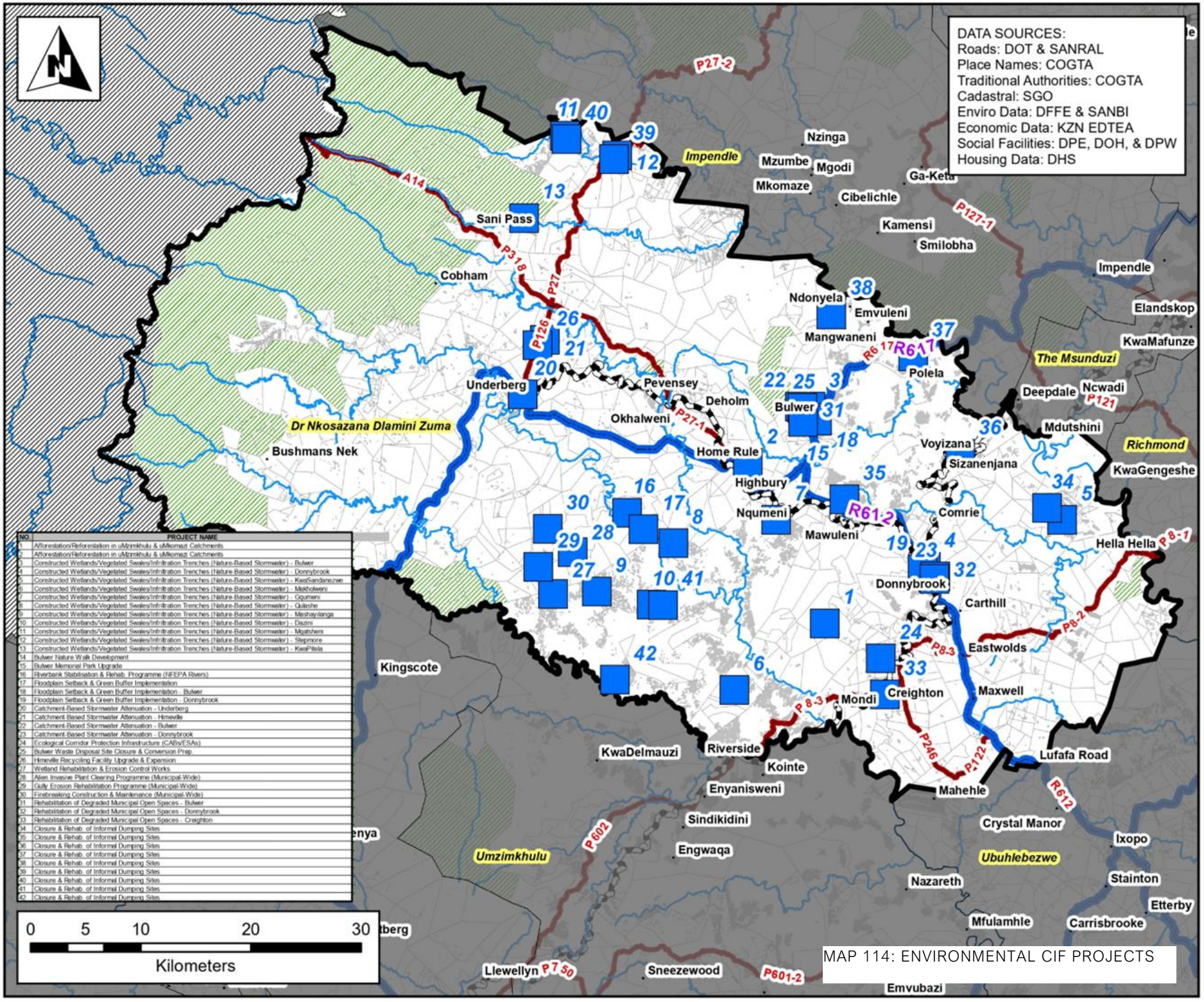
TABLE 113: GREEN INFRASTRUCTURE AND CONSERVATION CAPITAL WORKS PROJECTS

PROJECT NAME	PLACE/SETTLEMENT	DESCRIPTION	PHASE	BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Bulwer nature walk / trail development	Bulwer	Construct and signpost nature walk/trail as public green amenity	**Short (A)**	R3,500,000	NDZ LM; EDTEA; tourism bodies; local landowners	EDTEA; EPWP; tourism grants; NDZ capital budget
Memorial Park upgrade	Bulwer	Upgrade public park (paths, furniture, landscaping)	**Medium (B)**	R300,000	NDZ LM; community	MIG (if eligible); NDZ capital budget

28.5.2.2. ENVIRONMENTAL STRUCTURING ELEMENTS INTERVENTIONS

TABLE 114: ENVIRONMENTAL STRUCTURING ELEMENTS INTERVENTIONS

PROJECT NAME	PHASE	PLACE / SETTLEMENT / WARD	PROJECT DESCRIPTION (PHYSICAL SCOPE ONLY)	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Riverbank Stabilisation & Rehabilitation Programme (priority rivers)	**Short–Medium (0–10 yrs)**	Mzimkhulu River; Mkomazi River; tributaries near Bulwer, Donnybrook, Underberg	Physical riverbank stabilisation, gabions, re-vegetation, access control, erosion protection at high-risk settlement interfaces.	R20,000,000.00	NDZ LM; DWS; EDTEA; landowners; Traditional Councils	DWS; EDTEA; climate adaptation funds; EPWP	Derived from SDF identification of erosion, flood risk and river-adjacent settlement pressure; costs depend on km treated.
Floodplain Setback & Green Buffer Implementation	**Medium (5–10 yrs)**	Flood-prone settlement edges (Bulwer, Donnybrook, rural villages)	Demarcation and physical establishment of green buffers (fencing, planting, paths) along floodplains to reduce risk and guide development.	R5,000,000.00	NDZ LM; DWS; Traditional Authorities	MIG (limited); DWS; climate resilience funding	Capital works only; excludes policy/enforcement components.
Catchment-Based Stormwater Attenuation Ponds (Nature-Based Solutions)	**Medium (5–10 yrs)**	Underberg; Creighton; Bulwer	Construction of attenuation ponds, bio-swales and retention areas upstream of settlements to reduce peak flows.	R25,000,000.00	NDZ LM; DWS; KZN DoT (interfaces)	MIG; DWS; DBSA	Linked to repeated storm damage identified in SDF/IDP; scale varies by catchment.
Landscape & Gateway Rehabilitation at Key Settlement Entrances	**Medium (5–10 yrs)**	Underberg; Donnybrook; Bulwer	Physical landscaping, slope stabilisation, planting and visual enhancement at town gateways.	R15,000,000.00	NDZ LM; local business forums	Municipal capital; EPWP; tourism grants	Gateway concepts appear in precinct/SDF spatial proposals; budget assumes multiple nodes.
Ecological Corridor Protection Infrastructure (priority CBAs/ESAs)	**Long (10–20 yrs)**	Biodiversity corridors across NDZ LM	Fencing, access management, boardwalks (where required), and rehabilitation works to physically protect ecological corridors.	R45,000,000.00	NDZ LM; EDTEA; conservation agencies	EDTEA; biodiversity stewardship funding	Capital interventions only; stewardship agreements excluded.



NO.	PROJECT NAME
1	Afforestation/Reforestation in uMzimkhulu & uMkomazi Catchments
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3	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Bulwer
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6	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mekholweni
7	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Qumeni
8	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Qulashe
9	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mashaylanga
10	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Dazini
11	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mpatsheni
12	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Stepmore
13	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - KwaPitela
14	Bulwer Nature Walk Development
15	Bulwer Memorial Park Upgrade
16	Riverbank Stabilisation & Rehab. Programme (NFEPA Rivers)
17	Floodplain Setback & Green Buffer Implementation
18	Floodplain Setback & Green Buffer Implementation - Bulwer
19	Floodplain Setback & Green Buffer Implementation - Donnybrook
20	Catchment-Based Stormwater Attenuation - Underberg
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22	Catchment-Based Stormwater Attenuation - Bulwer
23	Catchment-Based Stormwater Attenuation - Donnybrook
24	Ecological Corridor Protection Infrastructure (CARs/ESAs)
25	Bulwer Waste Disposal Site Closure & Conversion Prep
26	Himeville Recycling Facility Upgrade & Expansion
27	Wetland Rehabilitation & Erosion Control Works
28	Alien Invasive Plant Clearing Programme (Municipal-Wide)
29	Gully Erosion Rehabilitation Programme (Municipal-Wide)
30	Firebreaking Construction & Maintenance (Municipal-Wide)
31	Rehabilitation of Degraded Municipal Open Spaces - Bulwer
32	Rehabilitation of Degraded Municipal Open Spaces - Donnybrook
33	Rehabilitation of Degraded Municipal Open Spaces - Creighton
34	Closure & Rehab. of Informal Dumping Sites
35	Closure & Rehab. of Informal Dumping Sites
36	Closure & Rehab. of Informal Dumping Sites
37	Closure & Rehab. of Informal Dumping Sites
38	Closure & Rehab. of Informal Dumping Sites
39	Closure & Rehab. of Informal Dumping Sites
40	Closure & Rehab. of Informal Dumping Sites
41	Closure & Rehab. of Informal Dumping Sites
42	Closure & Rehab. of Informal Dumping Sites

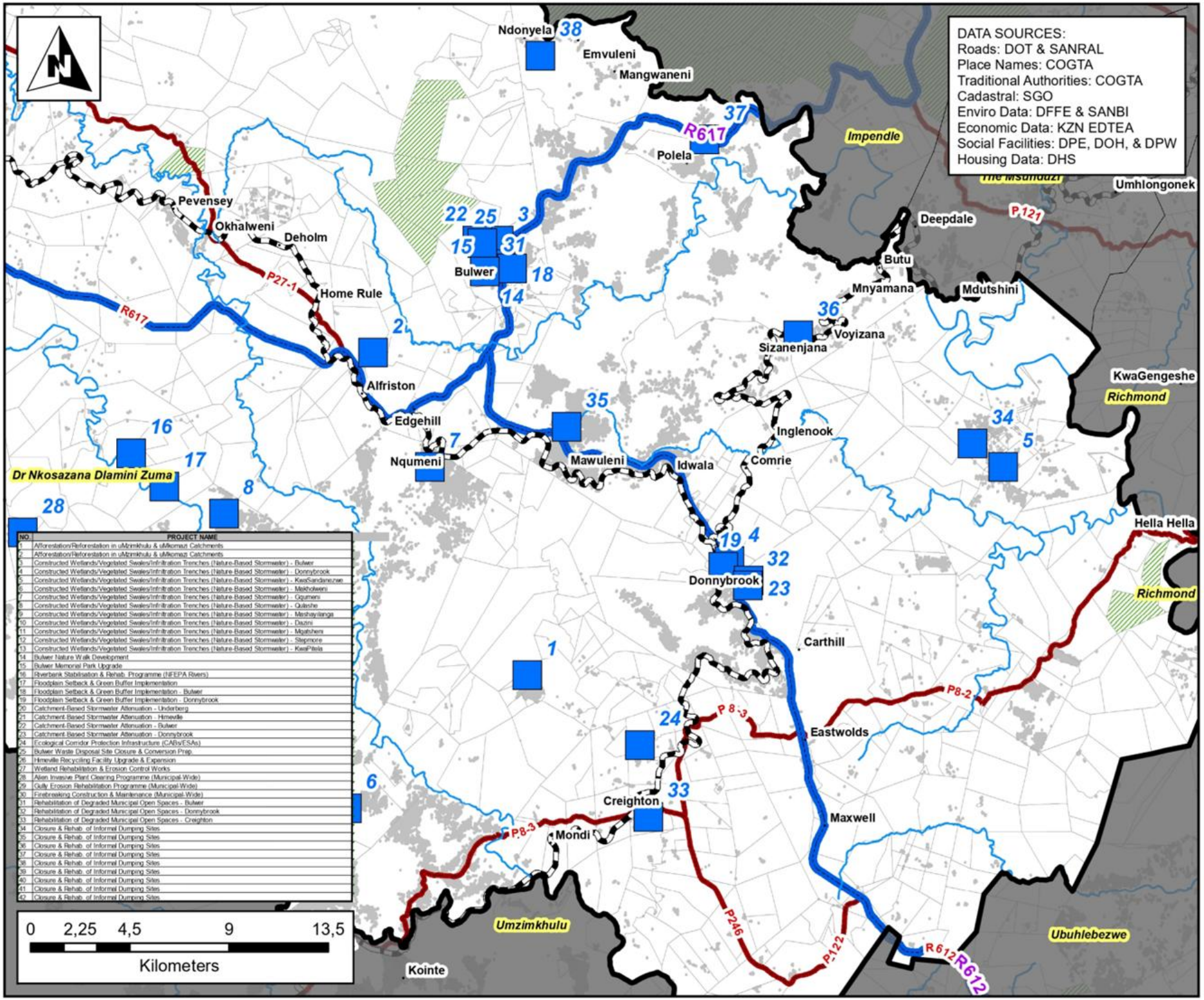
MAP 114: ENVIRONMENTAL CIF PROJECTS

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Capital Investment Framework Environmental Projects

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Afforestation/Reforestation in uMzimkhulu & uMkomazi Catchments
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42	Closure & Rehab. of Informal Dumping Sites

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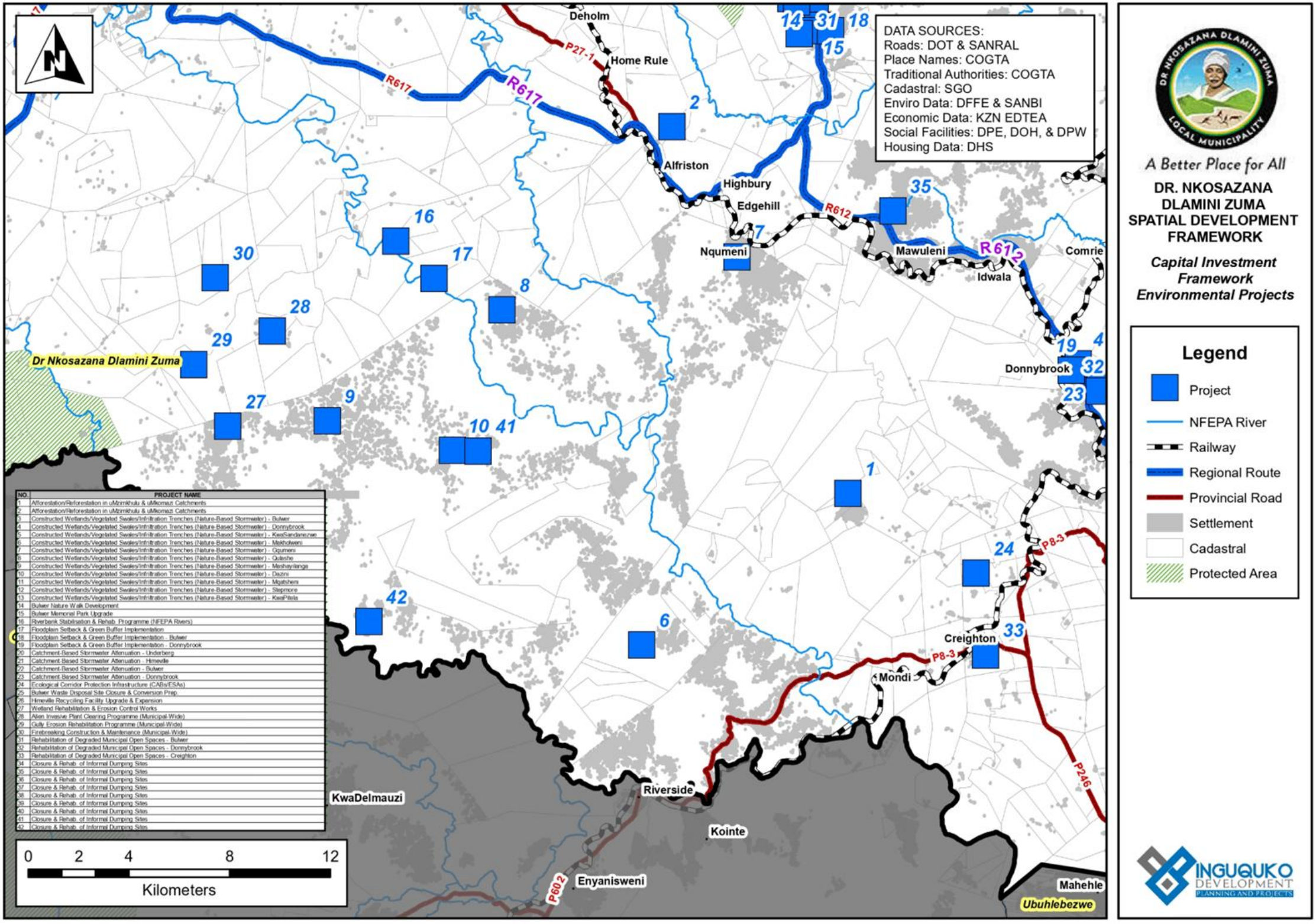
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

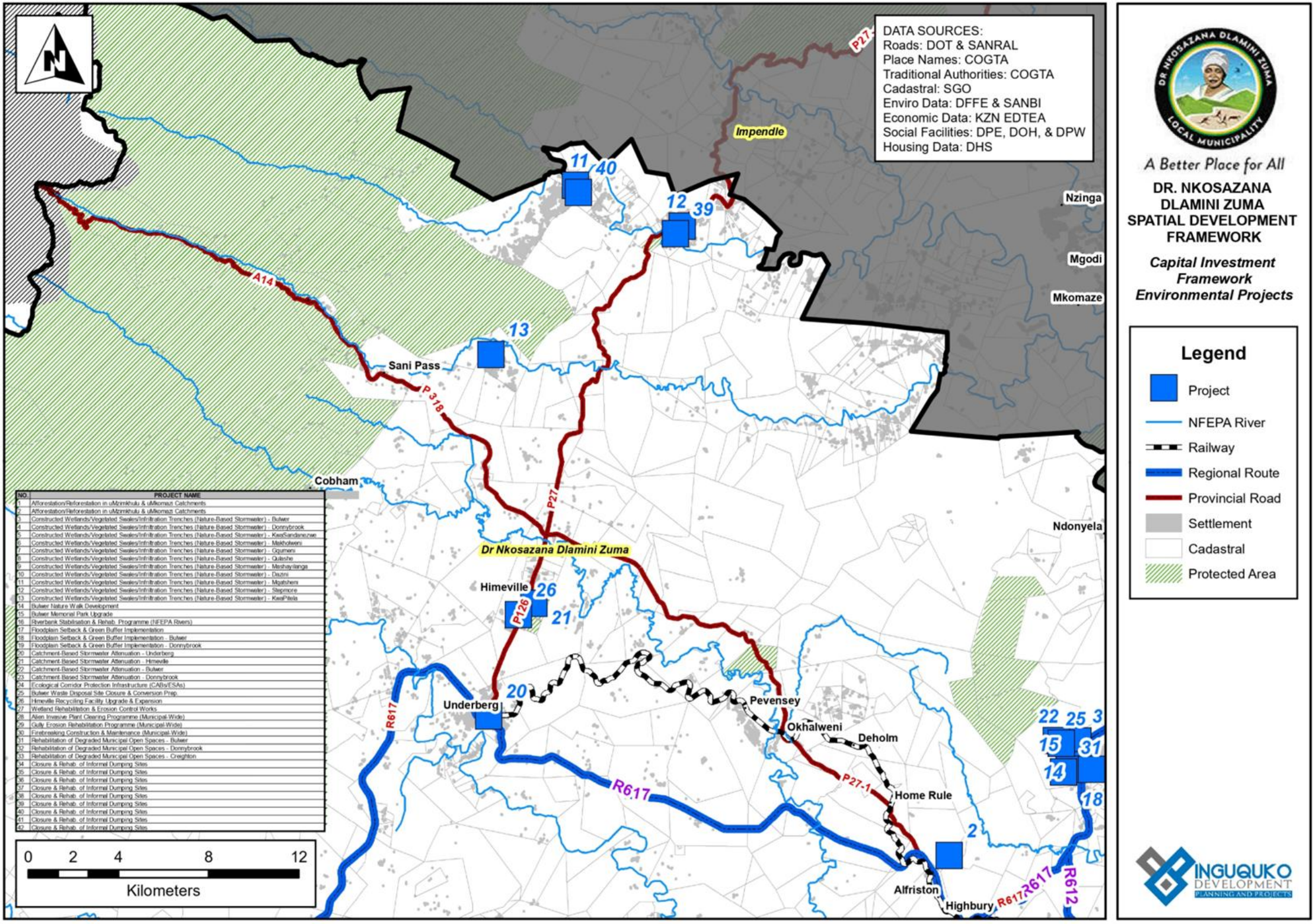
Capital Investment Framework Environmental Projects

Legend

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- NFEPA River
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- Regional Route
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- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS


DATA SOURCES:
Roads: DOT & SANRAL
Place Names: COGTA
Traditional Authorities: COGTA
Cadastral: SGO
Enviro Data: DFFE & SANBI
Economic Data: KZN EDTEA
Social Facilities: DPE, DOH, & DPW
Housing Data: DHS
Deholm
Home Rule
P27-1
R617
R617
Alfriston
Highbury
Edgehill
Nqumeni
R612
Mawuleni
R612
Idwala
Comrie
Donnybrook
Dr Nkosazana Dlamini Zuma
KwaDelmauzi
Riverside
Kointe
Enyanisweni
P602
Mondi
Creighton
P8-3
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P246
Mahehle
Ubuhlebezwe
14
31
18
15
2
35
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28
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10
41
42
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1
24
33
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32
23
0 2 4 8 12
Kilometers
NO. PROJECT NAME
1 Afforestation/Reforestation in uMzimkhulu & uMkomazi Catchments
2 Afforestation/Reforestation in uMzimkhulu & uMkomazi Catchments
3 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Bulwer
4 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Donnybrook
5 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - KwaSandanezwe
6 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mekholweni
7 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Qumeni
8 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Qulashe
9 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mashaylanga
10 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Dazini
11 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mpatsheni
12 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Stepmore
13 Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - KwaPitela
14 Bulwer Nature Walk Development
15 Bulwer Memorial Park Upgrade
16 Riverbank Stabilisation & Rehab. Programme (NFEPA Rivers)
17 Floodplain Setback & Green Buffer Implementation
18 Floodplain Setback & Green Buffer Implementation - Bulwer
19 Floodplain Setback & Green Buffer Implementation - Donnybrook
20 Catchment-Based Stormwater Attenuation - Underberg
21 Catchment-Based Stormwater Attenuation - Himeville
22 Catchment-Based Stormwater Attenuation - Bulwer
23 Catchment-Based Stormwater Attenuation - Donnybrook
24 Ecological Corridor Protection Infrastructure (CARs/ESAs)
25 Bulwer Waste Disposal Site Closure & Conversion Prep
26 Himeville Recycling Facility Upgrade & Expansion
27 Wetland Rehabilitation & Erosion Control Works
28 Alien Invasive Plant Clearing Programme (Municipal-Wide)
29 Gully Erosion Rehabilitation Programme (Municipal-Wide)
30 Firebreaking Construction & Maintenance (Municipal-Wide)
31 Rehabilitation of Degraded Municipal Open Spaces - Bulwer
32 Rehabilitation of Degraded Municipal Open Spaces - Donnybrook
33 Rehabilitation of Degraded Municipal Open Spaces - Creighton
34 Closure & Rehab. of Informal Dumping Sites
35 Closure & Rehab. of Informal Dumping Sites
36 Closure & Rehab. of Informal Dumping Sites
37 Closure & Rehab. of Informal Dumping Sites
38 Closure & Rehab. of Informal Dumping Sites
39 Closure & Rehab. of Informal Dumping Sites
40 Closure & Rehab. of Informal Dumping Sites
41 Closure & Rehab. of Informal Dumping Sites
42 Closure & Rehab. of Informal Dumping Sites
A Better Place for All
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK
Capital Investment Framework Environmental Projects
Legend
Project
NFEPA River
Railway
Regional Route
Provincial Road
Settlement
Cadastral
Protected Area
INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Afforestation/Reforestation in uMzimkhulu & uMkomazi Catchments
2	Afforestation/Reforestation in uMzimkhulu & uMkomazi Catchments
3	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Bulwer
4	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Donnybrook
5	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - KwaSandanezwe
6	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Makholweni
7	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Qumeni
8	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Quleshe
9	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mashaylanga
10	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Dazini
11	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Mqatsheni
12	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - Stepmore
13	Constructed Wetlands/Vegetated Swales/Infiltration Trenches (Nature-Based Stormwater) - KwaPitela
14	Bulwer Nature Walk Development
15	Bulwer Memorial Park Upgrade
16	Riverbank Stabilisation & Rehab. Programme (NFEPA Rivers)
17	Floodplain Setback & Green Buffer Implementation
18	Floodplain Setback & Green Buffer Implementation - Bulwer
19	Floodplain Setback & Green Buffer Implementation - Donnybrook
20	Catchment-Based Stormwater Attenuation - Underberg
21	Catchment-Based Stormwater Attenuation - Himeville
22	Catchment-Based Stormwater Attenuation - Bulwer
23	Catchment-Based Stormwater Attenuation - Donnybrook
24	Ecological Corridor Protection Infrastructure (CARs/ESAs)
25	Bulwer Waste Disposal Site Closure & Conversion Prep
26	Himeville Recycling Facility Upgrade & Expansion
27	Wetland Rehabilitation & Erosion Control Works
28	Alien Invasive Plant Clearing Programme (Municipal-Wide)
29	Gully Erosion Rehabilitation Programme (Municipal-Wide)
30	Firebreaking Construction & Maintenance (Municipal-Wide)
31	Rehabilitation of Degraded Municipal Open Spaces - Bulwer
32	Rehabilitation of Degraded Municipal Open Spaces - Donnybrook
33	Rehabilitation of Degraded Municipal Open Spaces - Creighton
34	Closure & Rehab. of Informal Dumping Sites
35	Closure & Rehab. of Informal Dumping Sites
36	Closure & Rehab. of Informal Dumping Sites
37	Closure & Rehab. of Informal Dumping Sites
38	Closure & Rehab. of Informal Dumping Sites
39	Closure & Rehab. of Informal Dumping Sites
40	Closure & Rehab. of Informal Dumping Sites
41	Closure & Rehab. of Informal Dumping Sites
42	Closure & Rehab. of Informal Dumping Sites

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Capital Investment Framework Environmental Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.5.3. BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT PROJECTS

TABLE 115: BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT PROJECTS (ONGOING PHYSICAL LAND/ECOSYSTEM MANAGEMENT)

PROJECT NAME	PHASE	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Bulwer Waste Disposal Site Closure & Conversion Prep (Closure licensing + transition)	**Medium–Long (5–20 yrs)**	Bulwer	Physical closure measures and transition arrangements due to capacity constraints (engineering closure works likely required).	R40,000,000.00	NDZ LM; DFFE/EDTEA; waste contractors	DFFE/EDTEA; municipal capex; DBSA	SDF states Bulwer site has reached capacity and closure licensing is underway; closure works cost varies by compliance requirements.
Recycling Facility Upgrade / Expansion (Himeville transfer/recycling)	**Short–Medium (0–10 yrs)**	Himeville	Upgrade/expand recycling operations (storage, baling/processing equipment, hardstand, security, small structures).	R10,000,000.00	NDZ LM; local co-op; EPWP	Municipal capex; EPWP; DFFE/EDTEA green economy programmes	SDF confirms existing facility/transfer station; budget assumes adding equipment + basic infrastructure.

28.5.3.1. ONGOING LAND/ECOSYSTEM MANAGEMENT INTERVENTIONS

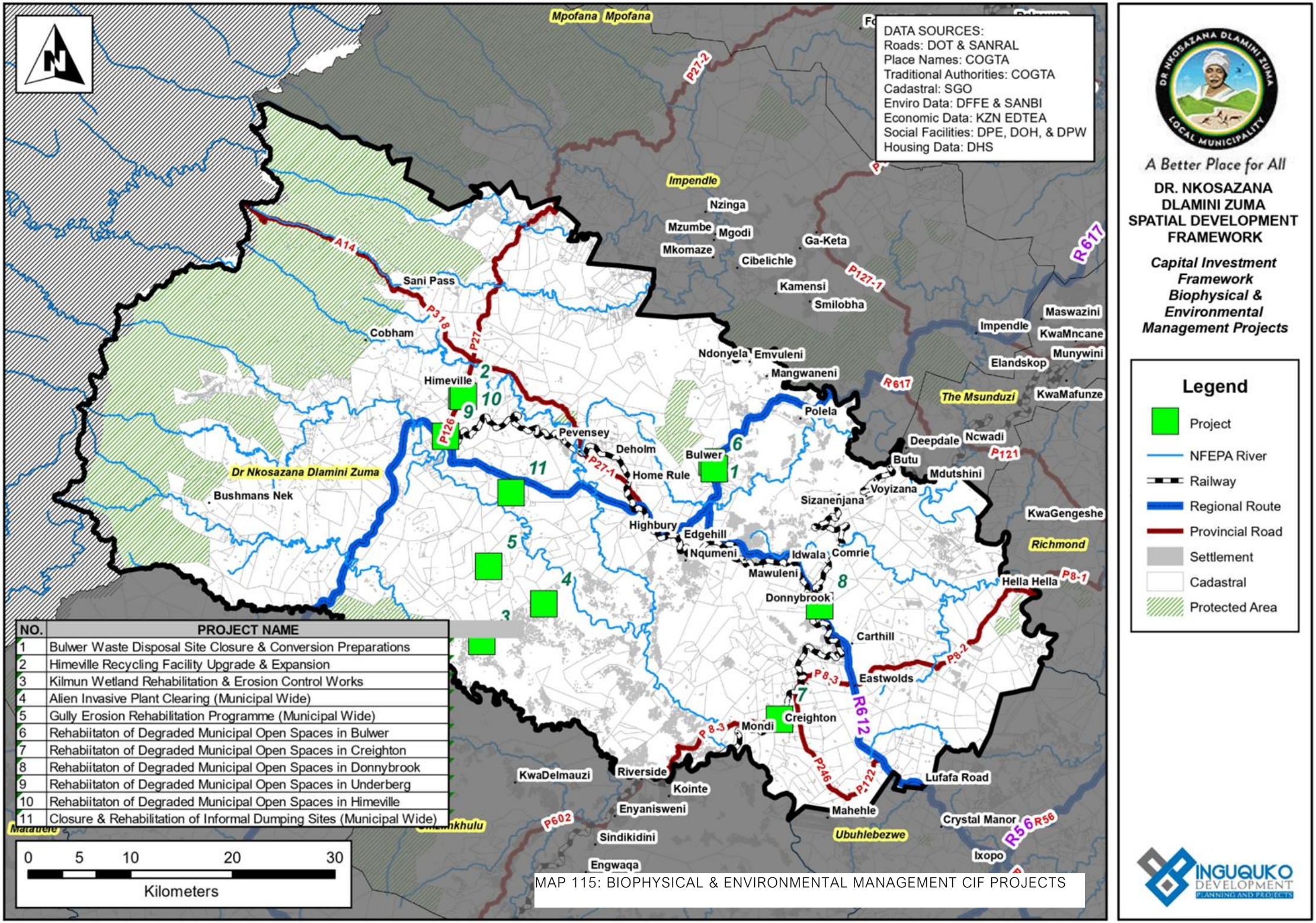
TABLE 116: ONGOING LAND/ECOSYSTEM MANAGEMENT INTERVENTIONS

PROJECT NAME	PLACE/SETTLEMENT	DESCRIPTION	PHASE	BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Wetland rehabilitation & erosion control works	Kilmun	Rehabilitate degraded/polluted wetland; implement erosion control measures	**Short–Medium**	R8,000,000.00	NDZ LM; EDTEA; DWS (water resource); community stewardship	EDTEA environment programmes; DWS; EPWP; climate resilience funding

28.5.3.2. BIOPHYSICAL RECURRENT INTERVENTIONS

TABLE 117: BIOPHYSCAL RECURRENT INTERVENTIONS

PROJECT NAME	PHASE	PLACE / SETTLEMENT / WARD	PROJECT DESCRIPTION (PHYSICAL SCOPE ONLY)	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Alien Invasive Plant Clearing Programme (priority catchments)	**Short–Long (0–20 yrs)**	River corridors; wetlands; slopes (municipality-wide)	Physical clearing of invasive species, follow-up clearing, access tracks and disposal.	R10,000,000.00	NDZ LM; DFFE; landowners	DFFE (Working for Water); EPWP	Capitalised as physical intervention; ongoing operational phases expected.
Gully Erosion Rehabilitation Programme	**Short–Medium (0–10 yrs)**	Rural settlements; agricultural land	Earthworks, gabions, re-vegetation to stabilise gullies threatening settlements and roads.	R20,000,000.00	NDZ LM; DARD; landowners	DARD; EPWP; climate adaptation funding	Explicitly identified in SDF as a land degradation issue.
Firebreak Construction & Maintenance (strategic interfaces)	**Short–Medium (0–10 yrs)**	Urban–rural interfaces; forestry-adjacent settlements	Construction of firebreaks, access tracks and fire control infrastructure.	R15,000,000.00	NDZ LM; landowners; forestry sector	DFFE; private forestry PPPs	Physical works only; excludes fire management planning.
Rehabilitation of Degraded Municipal Open Spaces	**Medium (5–10 yrs)**	Bulwer; Creighton; Donnybrook	Soil rehabilitation, drainage correction, re-grassing, minor hardscape repairs.	R10,000,000.00	NDZ LM	Municipal capital; EPWP	Supports long-term usability of public land assets.
Closure & Rehabilitation of Informal Dumping Sites	**Short–Medium (0–10 yrs)**	Settlement edges; rural villages	Physical closure, reshaping, capping, fencing and rehabilitation of illegal dumping areas.	R5,000,000.00	NDZ LM; EDTEA; communities	EDTEA; municipal capital	Complements waste infrastructure projects already captured.



NO.	PROJECT NAME
1	Bulwer Waste Disposal Site Closure & Conversion Preparations
2	Himeville Recycling Facility Upgrade & Expansion
3	Kilmun Wetland Rehabilitation & Erosion Control Works
4	Alien Invasive Plant Clearing (Municipal Wide)
5	Gully Erosion Rehabilitation Programme (Municipal Wide)
6	Rehabiitaton of Degraded Municipal Open Spaces in Bulwer
7	Rehabiitaton of Degraded Municipal Open Spaces in Creighton
8	Rehabiitaton of Degraded Municipal Open Spaces in Donnybrook
9	Rehabiitaton of Degraded Municipal Open Spaces in Underberg
10	Rehabiitaton of Degraded Municipal Open Spaces in Himeville
11	Closure & Rehabilitation of Informal Dumping Sites (Municipal Wide)

MAP 115: BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT CIF PROJECTS

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Capital Investment Framework Biophysical & Environmental Management Projects

Legend

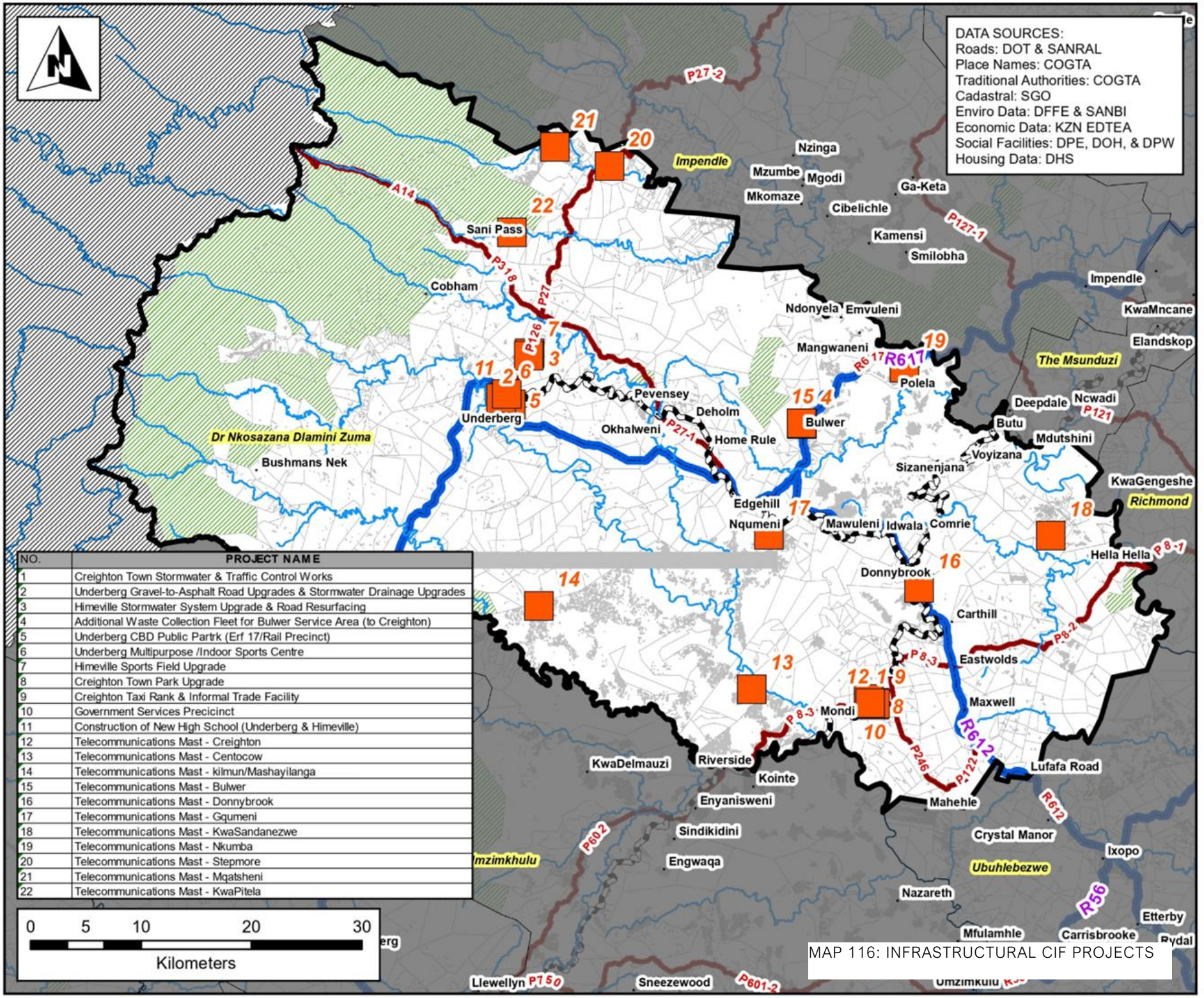
- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.5.4. INFRASTRUCTURAL PROJECTS (BULK + INTERNAL INFRASTRUCTURE)

TABLE 118: INFRASTRUCTURE PROJECTS

PROJECT NAME	PHASE	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Creighton Town Stormwater & Traffic Control Works (incl. pedestrian walkways, bus stops/shelters)	**Short–Medium (0–10 yrs)**	Creighton	Construct proper stormwater infrastructure and traffic control measures; include pedestrian walkways and public transport facilities.	R60,000,000.00	NDZ LM; KZN DOT (interface); local business	MIG; municipal capital; KZN DOT (elements in road reserve)	IDP narrative describes designs underway and phased implementation; budget assumes townwide works (not a single street).
Underberg Gravel-to-Asphalt Road Upgrades + Stormwater Drainage Upgrades	**Short–Medium (0–10 yrs)**	Underberg	Upgrade key gravel roads to surfaced standard and upgrade stormwater systems to reduce flooding risks.	R120,000,000.00	NDZ LM; KZN DOT (R617 interface)	MIG; municipal capital	IDP highlights backlog and ongoing phased upgrades; budget depends on km and stormwater scope.
Himeville Stormwater System Upgrade + Road Resurfacing	**Medium (5–10 yrs)**	Himeville	Upgrade stormwater drainage and resurface ageing roads.	R60,000,000.00	NDZ LM	MIG; municipal capital	IDP narrative notes stormwater upgrade need and resurfacing due to end-of-life pavements.
Additional Waste Collection Fleet for Bulwer Service Area (to haul to Creighton)	**Short (0–5 yrs)**	Bulwer–Creighton corridor	Procure additional refuse collection/haulage fleet to maintain reliable service given diversion to Creighton disposal site.	R25,000,000.00	NDZ LM	Municipal capex; possible conditional grants (where applicable)	SDF explicitly notes fleet shortage and 80km haul distance; budget assumes trucks/compactors + OHS requirements.



MAP 116: INFRASTRUCTURAL CIF PROJECTS

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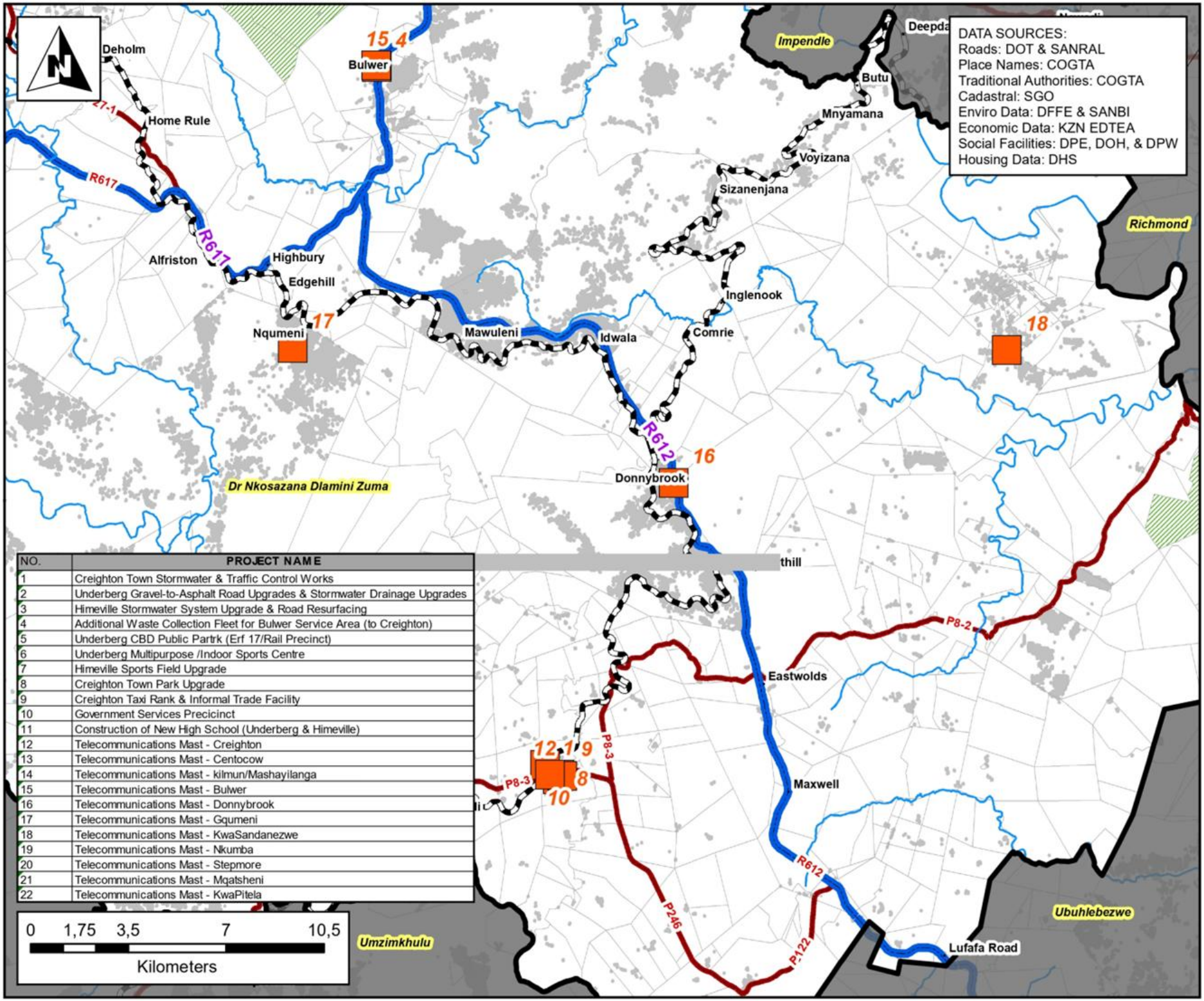
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Capital Investment Framework Infrastructural Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Creighton Town Stormwater & Traffic Control Works
2	Underberg Gravel-to-Asphalt Road Upgrades & Stormwater Drainage Upgrades
3	Himeville Stormwater System Upgrade & Road Resurfacing
4	Additional Waste Collection Fleet for Bulwer Service Area (to Creighton)
5	Underberg CBD Public Partrk (Erf 17/Rail Precinct)
6	Underberg Multipurpose /Indoor Sports Centre
7	Himeville Sports Field Upgrade
8	Creighton Town Park Upgrade
9	Creighton Taxi Rank & Informal Trade Facility
10	Government Services Precicinct
11	Construction of New High School (Underberg & Himeville)
12	Telecommunications Mast - Creighton
13	Telecommunications Mast - Centocow
14	Telecommunications Mast - kilmun/Mashayilanga
15	Telecommunications Mast - Bulwer
16	Telecommunications Mast - Donnybrook
17	Telecommunications Mast - Gqumeni
18	Telecommunications Mast - KwaSandanezwe
19	Telecommunications Mast - Nkumba
20	Telecommunications Mast - Stepmore
21	Telecommunications Mast - Mqatsheni
22	Telecommunications Mast - KwaPitela

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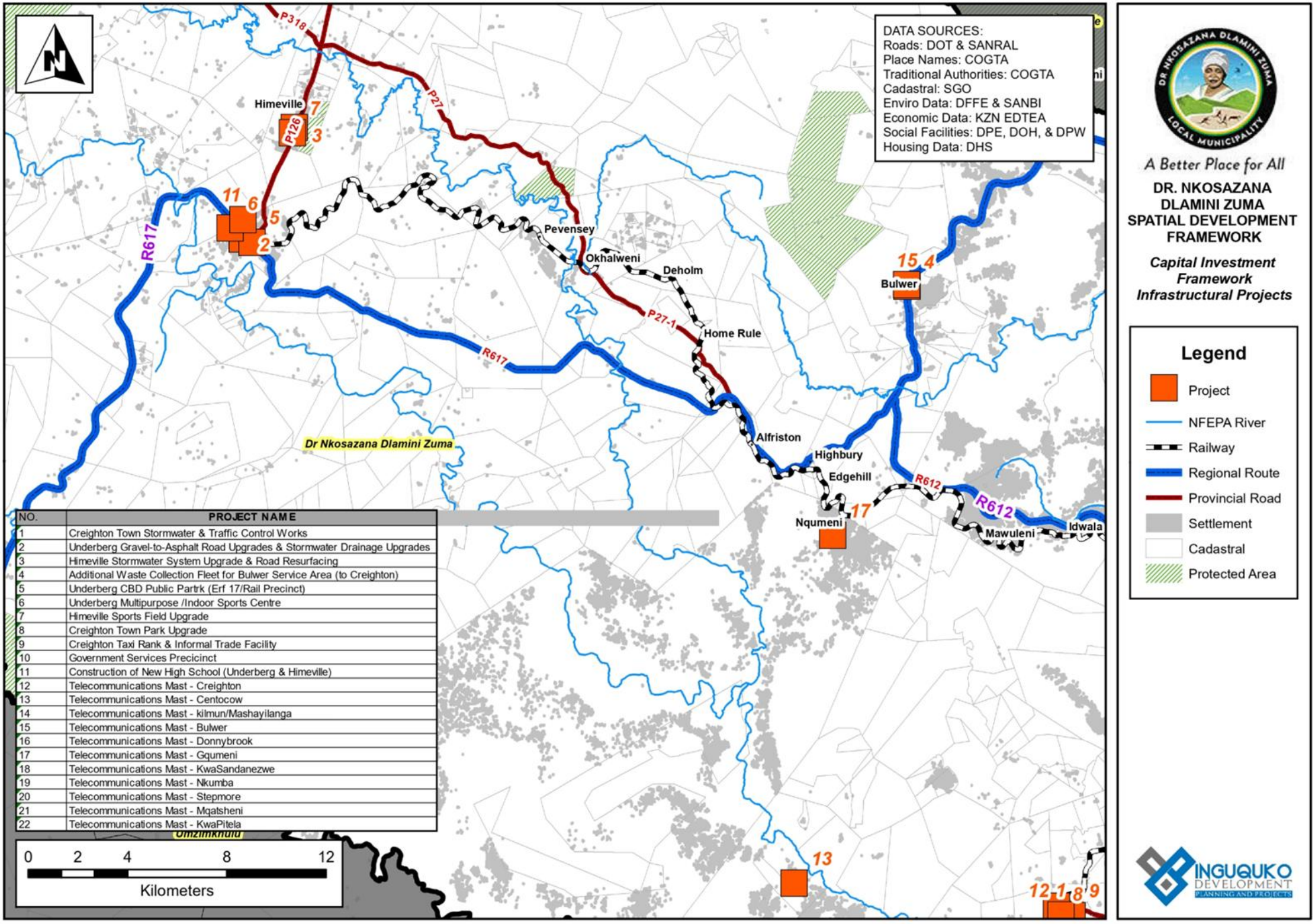
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Capital Investment Framework Infrastructural Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Creighton Town Stormwater & Traffic Control Works
2	Underberg Gravel-to-Asphalt Road Upgrades & Stormwater Drainage Upgrades
3	Himeville Stormwater System Upgrade & Road Resurfacing
4	Additional Waste Collection Fleet for Bulwer Service Area (to Creighton)
5	Underberg CBD Public Partrk (Erf 17/Rail Precinct)
6	Underberg Multipurpose /Indoor Sports Centre
7	Himeville Sports Field Upgrade
8	Creighton Town Park Upgrade
9	Creighton Taxi Rank & Informal Trade Facility
10	Government Services Precicinct
11	Construction of New High School (Underberg & Himeville)
12	Telecommunications Mast - Creighton
13	Telecommunications Mast - Centocow
14	Telecommunications Mast - kilmun/Mashayilanga
15	Telecommunications Mast - Bulwer
16	Telecommunications Mast - Donnybrook
17	Telecommunications Mast - Gqumeni
18	Telecommunications Mast - KwaSandanezwe
19	Telecommunications Mast - Nkumba
20	Telecommunications Mast - Stepmore
21	Telecommunications Mast - Mqatsheni
22	Telecommunications Mast - KwaPitela

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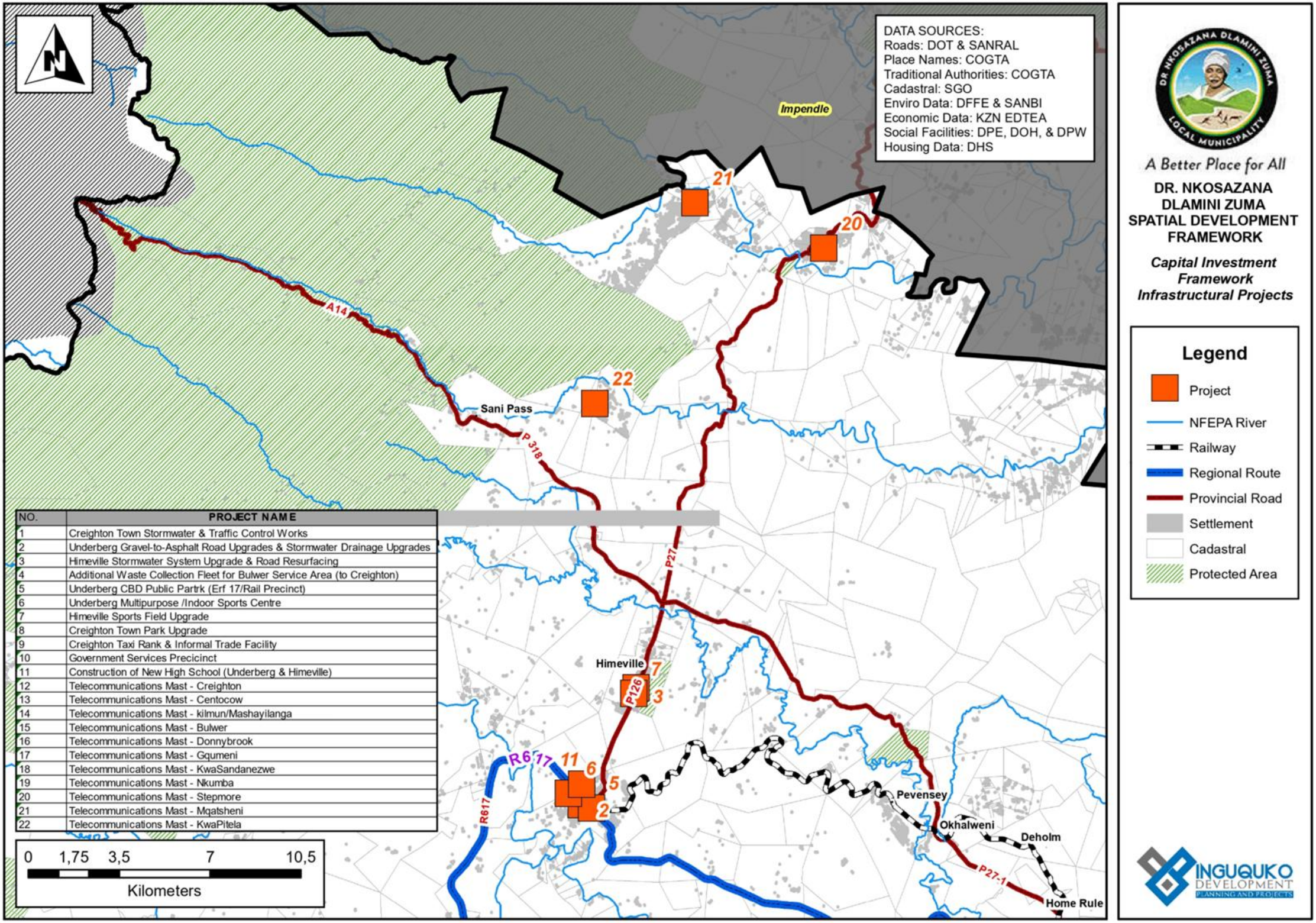
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Capital Investment Framework Infrastructural Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Creighton Town Stormwater & Traffic Control Works
2	Underberg Gravel-to-Asphalt Road Upgrades & Stormwater Drainage Upgrades
3	Himeville Stormwater System Upgrade & Road Resurfacing
4	Additional Waste Collection Fleet for Bulwer Service Area (to Creighton)
5	Underberg CBD Public Partrk (Erf 17/Rail Precinct)
6	Underberg Multipurpose /Indoor Sports Centre
7	Himeville Sports Field Upgrade
8	Creighton Town Park Upgrade
9	Creighton Taxi Rank & Informal Trade Facility
10	Government Services Precicinct
11	Construction of New High School (Underberg & Himeville)
12	Telecommunications Mast - Creighton
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15	Telecommunications Mast - Bulwer
16	Telecommunications Mast - Donnybrook
17	Telecommunications Mast - Gqumeni
18	Telecommunications Mast - KwaSandanezwe
19	Telecommunications Mast - Nkumba
20	Telecommunications Mast - Stepmore
21	Telecommunications Mast - Mqatsheni
22	Telecommunications Mast - KwaPitela

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Capital Investment Framework Infrastructural Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

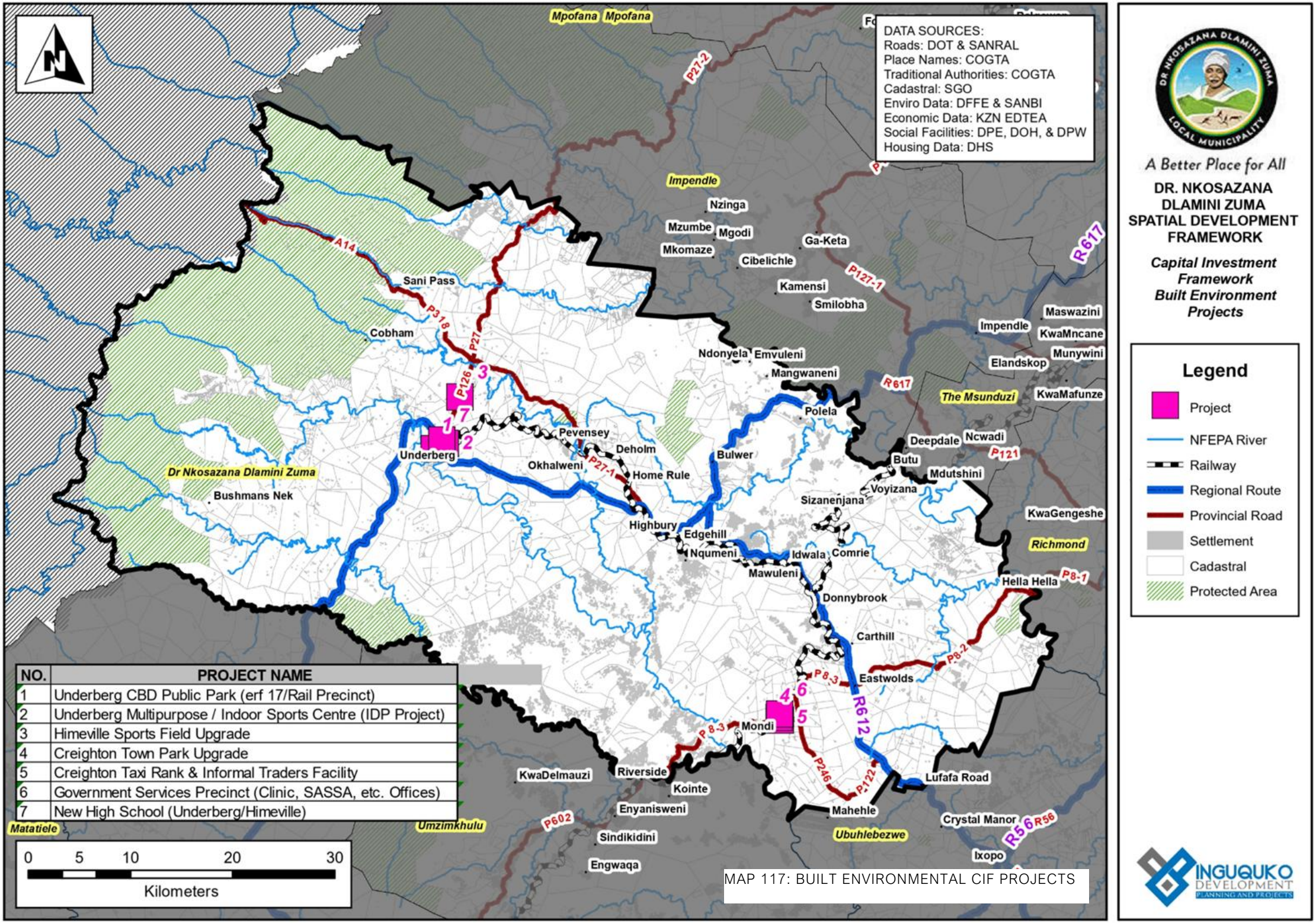
INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.5.5. BUILT ENVIRONMENT PROJECTS

TABLE 119: BUILT ENVIRONMENT PROJECTS

PROJECT NAME	PHASE	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION (PHYSICAL SCOPE ONLY)	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Underberg CBD Public Park (Erf 17 / rail precinct) incl. ablutions	**Medium (5–10 yrs)**	Underberg CBD (site at R617/P126 intersection; Ward TBC)	Develop a formal public park and visitor pause space, including ablution facilities, landscaping, seating, lighting and safe access.	R25,000,000.00	NDZ LM; Transnet (landowner); local business/tourism bodies	Municipal capex; DBSA; PPP/sponsorship	Precinct plan identifies a park on Transnet land with ablutions. Budget assumes full park build + services.
Underberg Multipurpose / Indoor Sports Centre (IDP Project No. 1)	**Short (0–5 yrs)**	Underberg (Ward TBC)	Construct an indoor multipurpose sports facility (hall/courts, changerooms, ablutions, parking, lighting).	R75,000,000.00	NDZ LM; DSR (Sport & Rec); local clubs	MIG (eligible components); DSR grants; municipal capex; PPP	Listed as municipal/IDP-linked focus project in precinct plan.
Himeville Sports Field Upgrade	**Short–Medium (0–10 yrs)**	Himeville (Ward TBC)	Upgrade sports field (surface, fencing, lighting, ablutions/changerooms, spectator facilities).	R20,000,000.00	NDZ LM; DSR; community sports bodies	DSR; municipal capex; EPWP (elements)	Identified as a key focus project.
Creighton Town Park Upgrade	**Medium (5–10 yrs)**	Creighton	Upgrade/rehabilitate town park (hard landscaping, lighting, furniture, safety, play elements).	R12,000,000.00	NDZ LM	Municipal capex; PPP/sponsorship	Listed as a social project need (park improvement).
Creighton Taxi Rank + Informal Trade Facility	**Medium (5–10 yrs)**	Creighton	Develop formal taxi rank and trader facility (hardstand, shelters, ablutions, lighting, demarcation, waste area).	R45,000,000.00	NDZ LM; taxi associations; informal trader groups	Municipal capex; DBSA; PPP	Explicitly identified as a social project requirement.
Government Services Precinct (Clinic, Home Affairs, SASSA and related offices)	**Medium (5–10 yrs)**	Creighton	Construct/enable a clustered government services precinct (buildings + internal access + basic services).	R250,000,000.00	NDZ LM; DoH; DHA; SASSA; DPW	Sector dept capex (DoH/DHA); DPW; municipal enabling works	Precinct plan lists “new social infrastructure including a clinic, home affairs, SASSA”. Budget depends on scope and departmental commitments.

PROJECT NAME	PHASE	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION (PHYSICAL SCOPE ONLY)	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Construction of 5 Crèches (Zwelisha, Khubeni, Siyathuthuka, Hlane, Ekupholeni)	**Short (0–5 yrs)**	Wards 2,3,5,6,11 (site-specific)	Construct ECD facilities (buildings, services connections, fencing).	R10,700,000.00	NDZ LM (PWBS)	Municipal capex; DoSD/ECD support (where applicable)	Budget is explicitly stated in the IDP implementation plan table.
Centocow Taxi Rank – Phase 3	**Short (0–5 yrs)**	Centocow (Ward 5 per IDP table context)	Construct/complete taxi rank phase (hardstand, shelters, ablutions, lighting, access).	R3,000,000.00	NDZ LM (PWBS); taxi associations	Municipal capex	Explicitly listed as a construction project with budget.
Maintenance / Refurbishment of Community Halls and Sportfields (Seaford, Mlideli, Okhetheni, Khethokuhle; Buyani Madlala Sportfield; Bethlehem Sportfield)	**Short (0–5 yrs)**	Multiple wards (as per IDP table)	Capital maintenance/rehabilitation of community facilities and sportfields (repairs, roof, ablutions, fencing, surfaces).	R20,000,000.00	NDZ LM (PWBS)	Municipal capex; EPWP (labour elements)	IDP lists maintenance of "community assets"; budget not visible in snippet → estimated range.
Proposed New High School	**Long (10–20 yrs)**	Underberg–Himeville area	Develop a new high school facility (buildings, sports, services, access).	R300,000,000.00	DoE; NDZ LM (enabling services/land)	Provincial DoE infrastructure budget; DBSA	Listed as a focus/intervention area; education infrastructure is primarily provincial competency.



NO.	PROJECT NAME
1	Underberg CBD Public Park (erf 17/Rail Precinct)
2	Underberg Multipurpose / Indoor Sports Centre (IDP Project)
3	Himeville Sports Field Upgrade
4	Creighton Town Park Upgrade
5	Creighton Taxi Rank & Informal Traders Facility
6	Government Services Precinct (Clinic, SASSA, etc. Offices)
7	New High School (Underberg/Himeville)

MAP 117: BUILT ENVIRONMENTAL CIF PROJECTS

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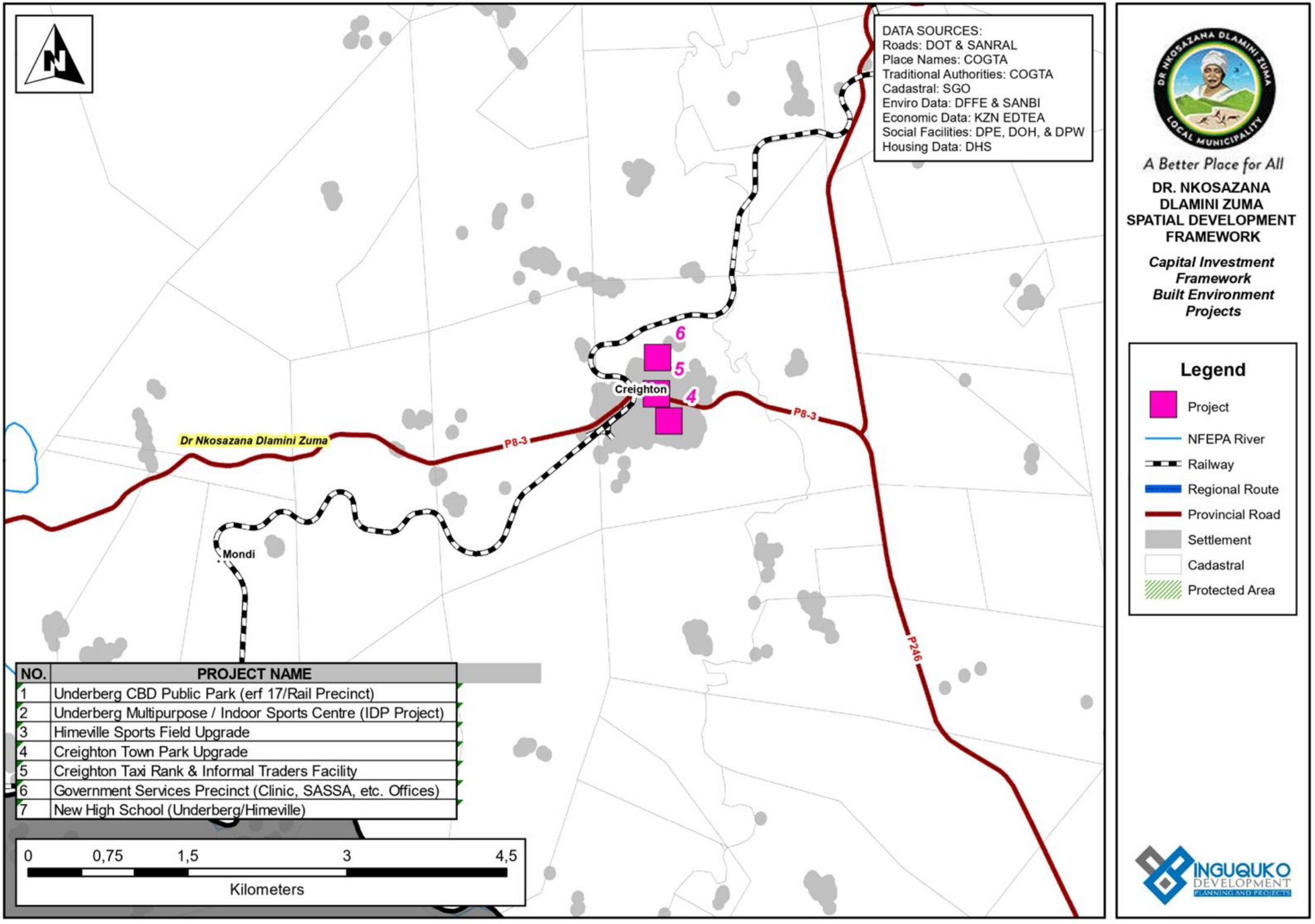
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Capital Investment Framework Built Environment Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Underberg CBD Public Park (erf 17/Rail Precinct)
2	Underberg Multipurpose / Indoor Sports Centre (IDP Project)
3	Himeville Sports Field Upgrade
4	Creighton Town Park Upgrade
5	Creighton Taxi Rank & Informal Traders Facility
6	Government Services Precinct (Clinic, SASSA, etc. Offices)
7	New High School (Underberg/Himeville)

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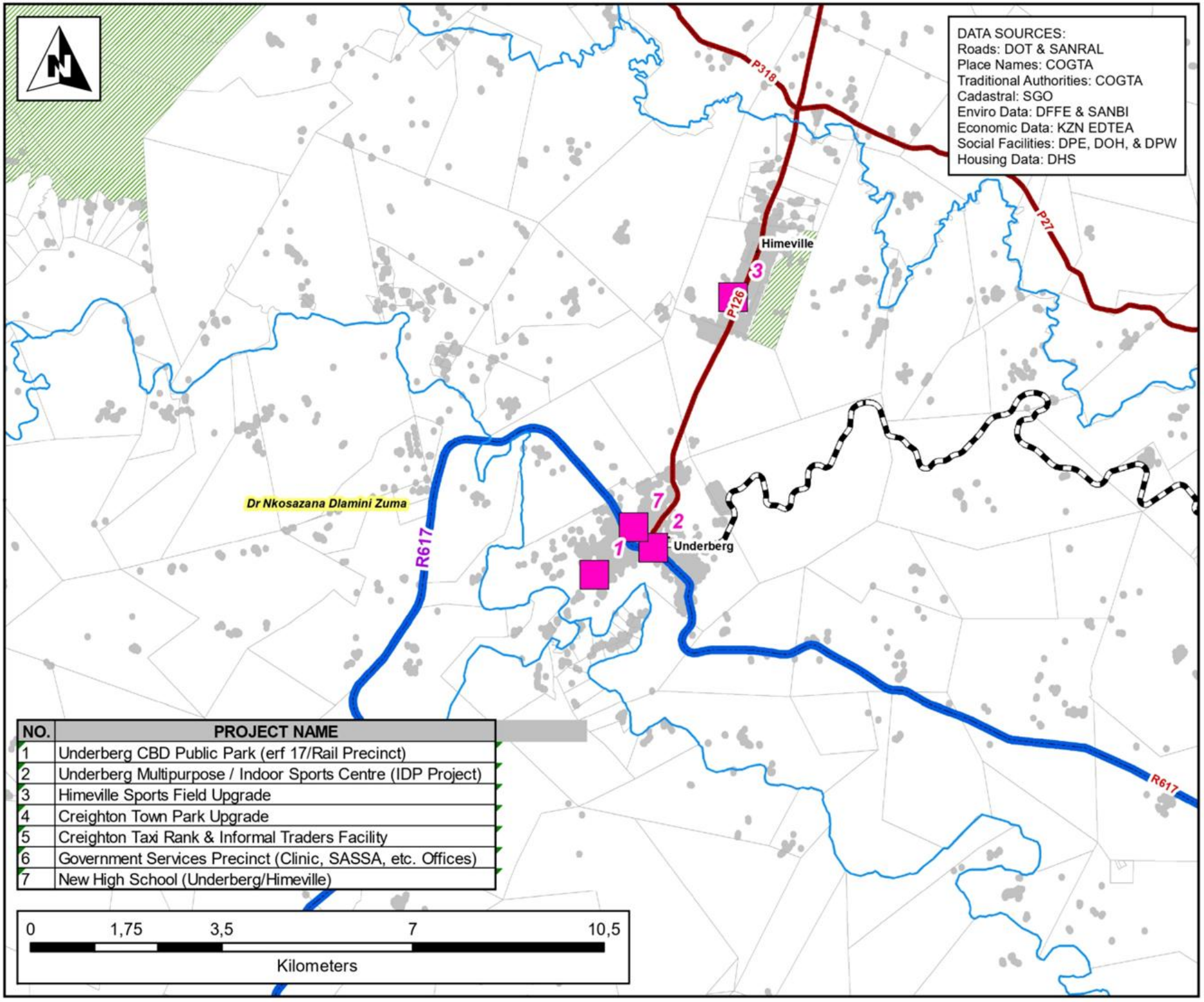
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Capital Investment Framework Built Environment Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Underberg CBD Public Park (erf 17/Rail Precinct)
2	Underberg Multipurpose / Indoor Sports Centre (IDP Project)
3	Himeville Sports Field Upgrade
4	Creighton Town Park Upgrade
5	Creighton Taxi Rank & Informal Traders Facility
6	Government Services Precinct (Clinic, SASSA, etc. Offices)
7	New High School (Underberg/Himeville)

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Capital Investment Framework Built Environment Projects

Legend

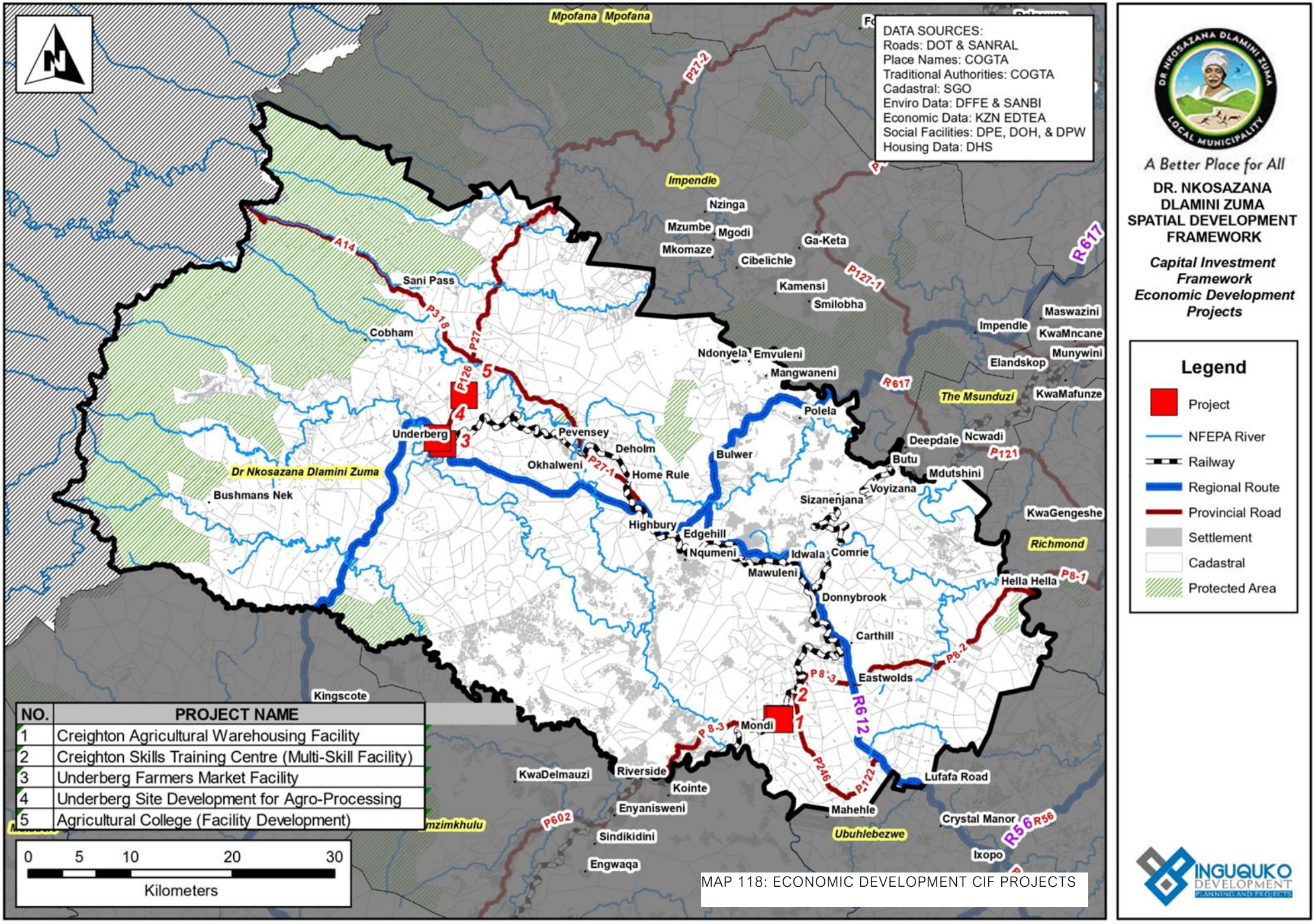
- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.5.6. ECONOMIC DEVELOPMENT PROJECTS

TABLE 120: ECONOMIC DEVELOPMENT PROJECTS

PROJECT NAME	PHASE	PLACE / SETTLEMENT / TOWN / WARD	PROJECT DESCRIPTION (PHYSICAL SCOPE ONLY)	INDICATIVE CAPITAL BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDERS	NOTES / ASSUMPTIONS
Creighton Agricultural Warehousing Facility	**Medium (5–10 yrs)**	Creighton expansion area	Develop warehousing/aggregation facility to support agricultural logistics and value chains.	R20–80m	NDZ LM; agri-coops; private agri sector	DARD; DEDTEA; PPP; DBSA	Listed as an economic project example (warehousing). Budget depends on scale/cold-chain inclusion.
Creighton Skills Training Centre (multi-skill facility)	**Medium (5–10 yrs)**	Creighton	Construct and equip a training centre building (skills programmes occur operationally, but the CIF captures the facility capex).	R25–100m	NDZ LM; TVET/Dept partners; local co-ops	Sector dept grants; municipal capex; PPP	Precinct plan proposes skills training centre (ABET, marketing, agritourism etc.). Budget assumes building + basic equipment fit-out.
Underberg Farmers Market Facility	**Short–Medium (0–10 yrs)**	Underberg	Develop a formal farmers market (covered stalls, storage, ablutions, waste facilities, parking).	R8–30m	NDZ LM; local farmers; trader groups	Municipal capex; DARD; PPP	Identified as a strategic focus area in precinct plan.
Underberg Site Development for Agro-Processing	**Medium (5–10 yrs)**	Underberg	Prepare and service a site for agro-processing (platforming, access, services connections, internal roads).	R30–150m	NDZ LM; DARD; private investors	DARD; DEDTEA; DBSA; PPP	Listed as a focus area ("proposed site for agro-processing"). Budget depends on servicing level and land readiness.
Agricultural College (facility development)	**Long (10–20 yrs)**	Underberg–Himeville area	Develop agricultural college campus/facilities (buildings, workshops, accommodation subject to scope).	R250m–R1bn	Provincial/National agriculture & education partners; NDZ LM	Sector dept capex; PPP; DBSA	Listed as a focus area; major capex and institutional commitment required.



NO.	PROJECT NAME
1	Creighton Agricultural Warehousing Facility
2	Creighton Skills Training Centre (Multi-Skill Facility)
3	Underberg Farmers Market Facility
4	Underberg Site Development for Agro-Processing
5	Agricultural College (Facility Development)

MAP 118: ECONOMIC DEVELOPMENT CIF PROJECTS

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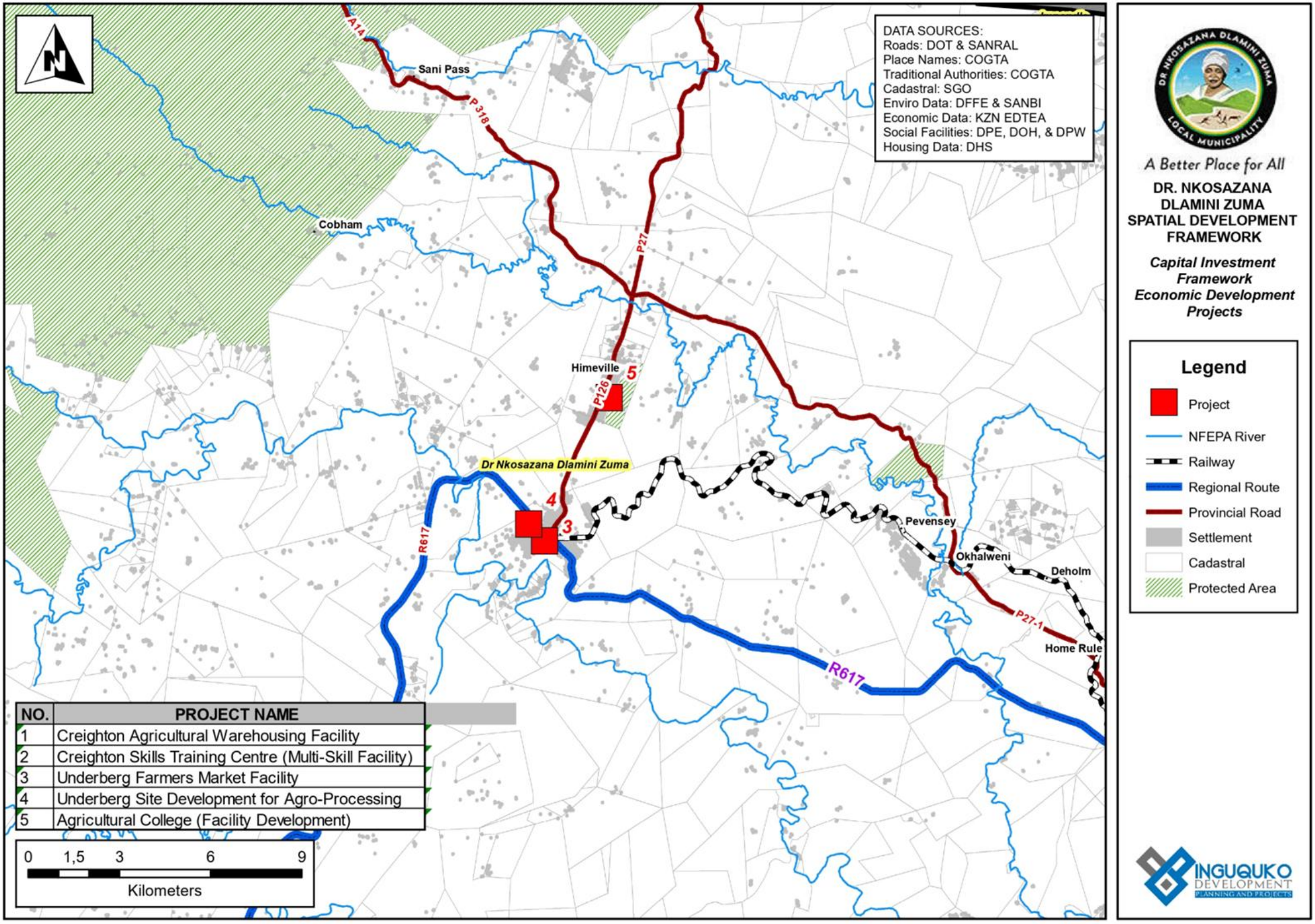
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

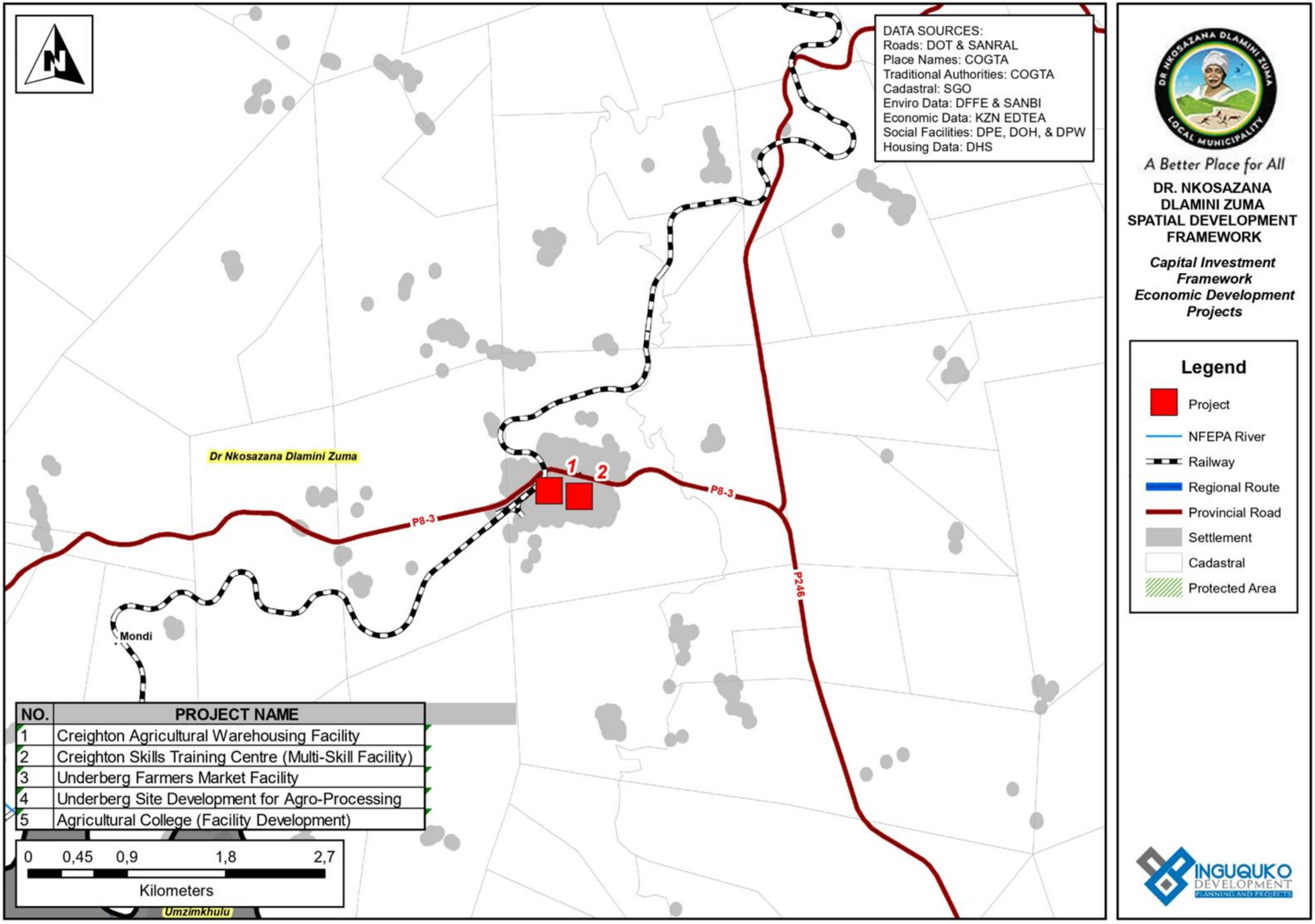
Capital Investment Framework Economic Development Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS


DATA SOURCES:
Roads: DOT & SANRAL
Place Names: COGTA
Traditional Authorities: COGTA
Cadastral: SGO
Enviro Data: DFFE & SANBI
Economic Data: KZN EDTEA
Social Facilities: DPE, DOH, & DPW
Housing Data: DHS
A14
Sani Pass
P318
Cobham
P27
Himeville
P126
5
Dr Nkosazana Dlamini Zuma
4
3
R617
Pevensey
Okhalweni
Deholm
P27-1
Home Rule
R617
NO.
PROJECT NAME
1
Creighton Agricultural Warehousing Facility
2
Creighton Skills Training Centre (Multi-Skill Facility)
3
Underberg Farmers Market Facility
4
Underberg Site Development for Agro-Processing
5
Agricultural College (Facility Development)
0
1,5
3
6
9
Kilometers
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Capital Investment Framework
Economic Development Projects
Legend
Project
NFEPA River
Railway
Regional Route
Provincial Road
Settlement
Cadastral
Protected Area
INGUQUKO DEVELOPMENT
PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Creighton Agricultural Warehousing Facility
2	Creighton Skills Training Centre (Multi-Skill Facility)
3	Underberg Farmers Market Facility
4	Underberg Site Development for Agro-Processing
5	Agricultural College (Facility Development)

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Capital Investment Framework Economic Development Projects

Legend

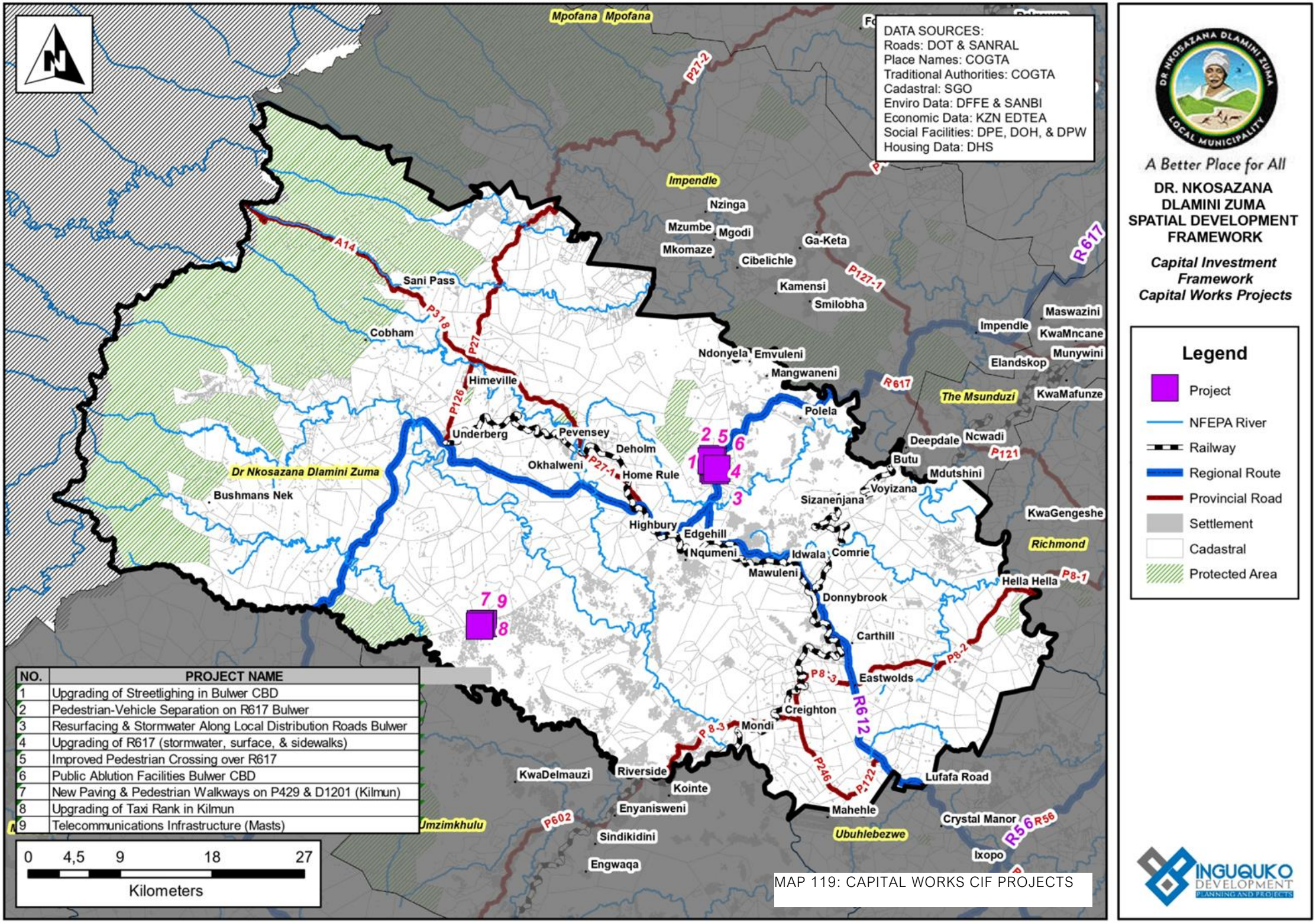
- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.5.7. CAPITIAL WORKS PROJECTS

TABLE 121: CAPITAL WORKS PROJECTS

PROJECT NAME	PLACE/SETTLEMENT	DESCRIPTION	PHASE	BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Upgrade street lighting (side streets)	Bulwer CBD	Install/upgrade public streetlights in CBD side streets	**Short-Term**	R2,500,000	NDZ LM; Eskom/utility; local business forum	MIG; INEP (if eligible); NDZ capital budget
Pedestrian–vehicle separation along R617	Bulwer CBD (R617)	Sidewalks/guardrails/kerbing & channelisation to separate pedestrians and vehicles	**Short-Term**	R1,000,000	NDZ LM; KZN DoT (route authority)	KZN DoT; MIG (municipal components)
Resurfacing + stormwater along local distribution roads	Bulwer CBD	Resurfacing and stormwater provision on local distributor streets	**Short-Term**	R5,000,000	NDZ LM; KZN DoT; contractors	MIG; KZN DoT (where applicable)
Upgrade R617 (stormwater, surface, sidewalks)	Bulwer CBD (R617)	Road surface, stormwater and sidewalks upgrade on R617 through Bulwer	**Medium-Term**	R4,000,000	KZN DoT; NDZ LM	KZN DoT; MIG (municipal elements)
Improved pedestrian crossing over R617	Bulwer CBD (R617)	Safer formal crossing (e.g., raised table/signalised crossing/refuge)	**Medium-Term**	R1,500,000	NDZ LM; KZN DoT	KZN DoT; MIG
Public ablution facilities (CBD)	Bulwer CBD	Build public ablution blocks in CBD	**Medium-Term**	R1,000,000	NDZ LM; local traders	MIG; NDZ capital budget
New paving + pedestrian walkways on P429 & D1201	Kilmun (P429/D1201)	Paving and proper pedestrian walkways on main roads	**Short (2021–2025 programme)**	R8,000,000	NDZ LM; KZN DoT; community structures	MIG; KZN DoT
Upgrade taxi rank	Kilmun node	Upgrade rank infrastructure (hardstand, shelters, lighting, ablutions, circulation)	**Short (2021–2025 programme)**	R1,000,000	NDZ LM; taxi associations; SAPS (safety)	MIG; NDZ capital budget; COGTA support
Telecommunications infrastructure (node enabling)	Kilmun	Telecommunications enabling infrastructure (scope not detailed)	**Short (2021–2025 programme)**	R2,000,000	Private telecoms; NDZ LM (wayleaves)	Private sector (operators); PPP



NO.	PROJECT NAME
1	Upgrading of Streetlighing in Bulwer CBD
2	Pedestrian-Vehicle Separation on R617 Bulwer
3	Resurfacing & Stormwater Along Local Distribution Roads Bulwer
4	Upgrading of R617 (stormwater, surface, & sidewalks)
5	Improved Pedestrian Crossing over R617
6	Public Ablution Facilities Bulwer CBD
7	New Paving & Pedestrian Walkways on P429 & D1201 (Kilmun)
8	Upgrading of Taxi Rank in Kilmun
9	Telecommunications Infrastructure (Masts)

MAP 119: CAPITAL WORKS CIF PROJECTS

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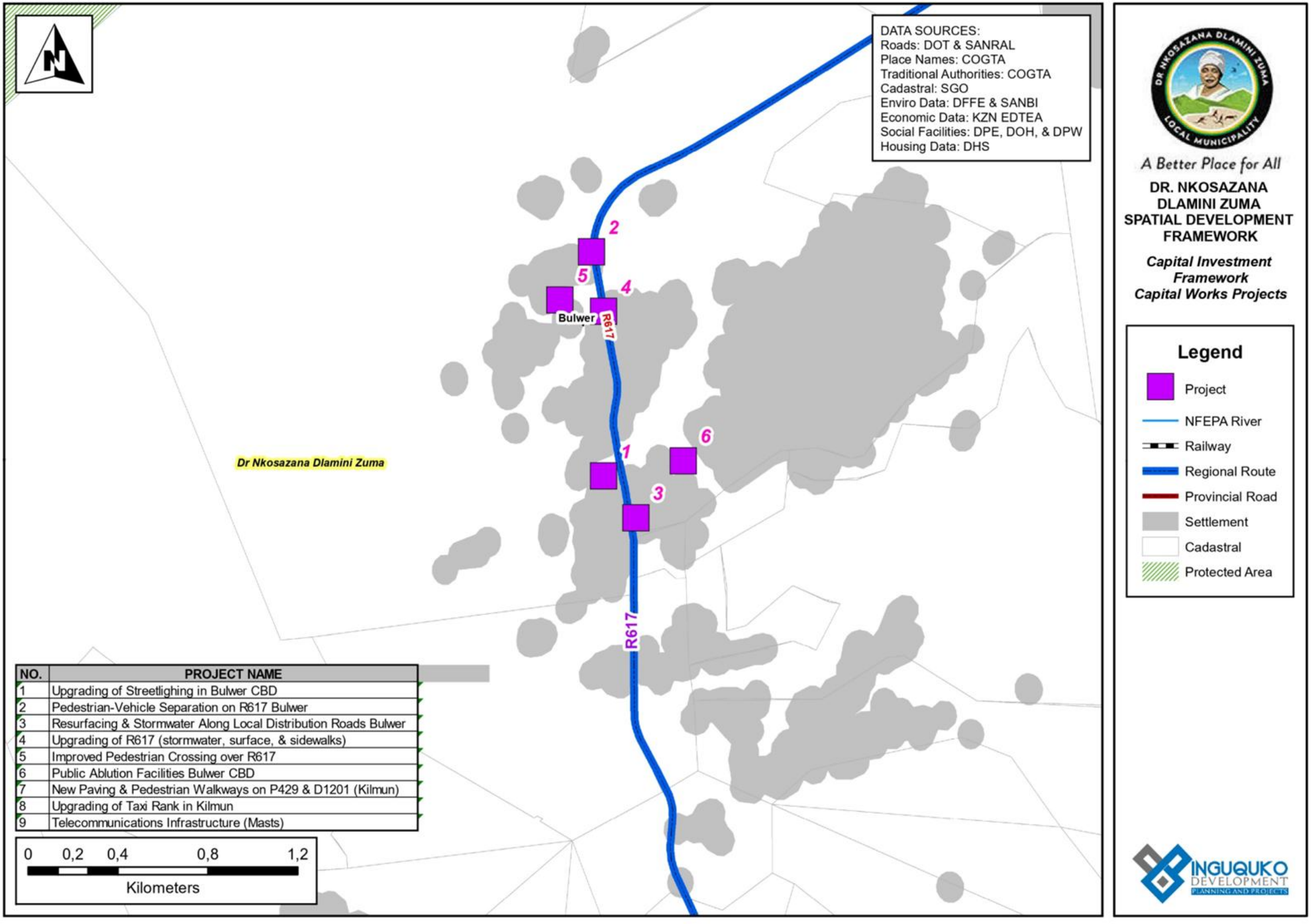
DR. NKOSAZANA DLAMINI ZUMA SPATIAL DEVELOPMENT FRAMEWORK

Capital Investment Framework
Capital Works Projects

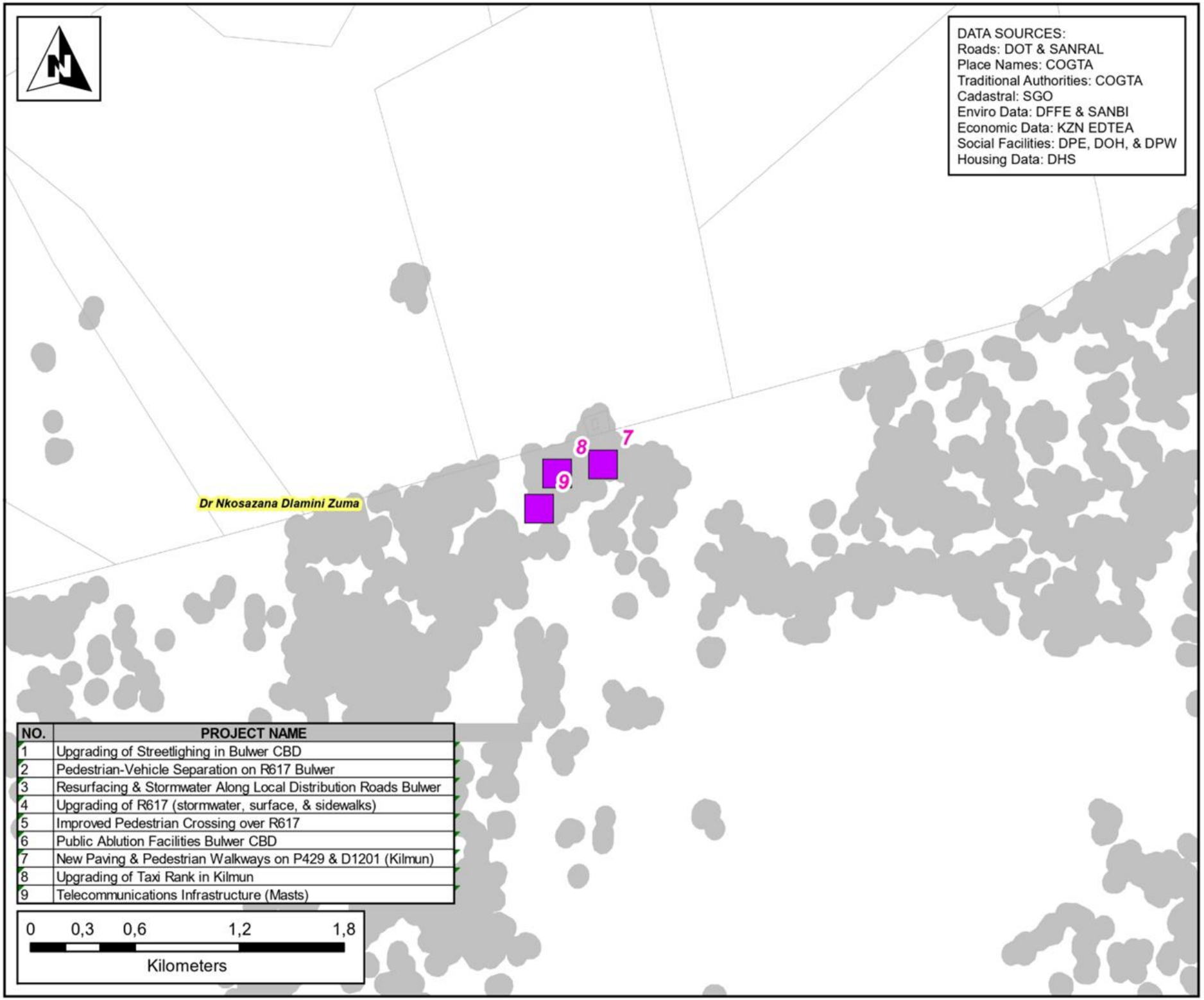
Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



NO.	PROJECT NAME
1	Upgrading of Streetlighing in Bulwer CBD
2	Pedestrian-Vehicle Separation on R617 Bulwer
3	Resurfacing & Stormwater Along Local Distribution Roads Bulwer
4	Upgrading of R617 (stormwater, surface, & sidewalks)
5	Improved Pedestrian Crossing over R617
6	Public Ablution Facilities Bulwer CBD
7	New Paving & Pedestrian Walkways on P429 & D1201 (Kilmun)
8	Upgrading of Taxi Rank in Kilmun
9	Telecommunications Infrastructure (Masts)



NO.	PROJECT NAME
1	Upgrading of Streetlighing in Bulwer CBD
2	Pedestrian-Vehicle Separation on R617 Bulwer
3	Resurfacing & Stormwater Along Local Distribution Roads Bulwer
4	Upgrading of R617 (stormwater, surface, & sidewalks)
5	Improved Pedestrian Crossing over R617
6	Public Ablution Facilities Bulwer CBD
7	New Paving & Pedestrian Walkways on P429 & D1201 (Kilmun)
8	Upgrading of Taxi Rank in Kilmun
9	Telecommunications Infrastructure (Masts)

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Capital Investment Framework
Capital Works Projects

Legend

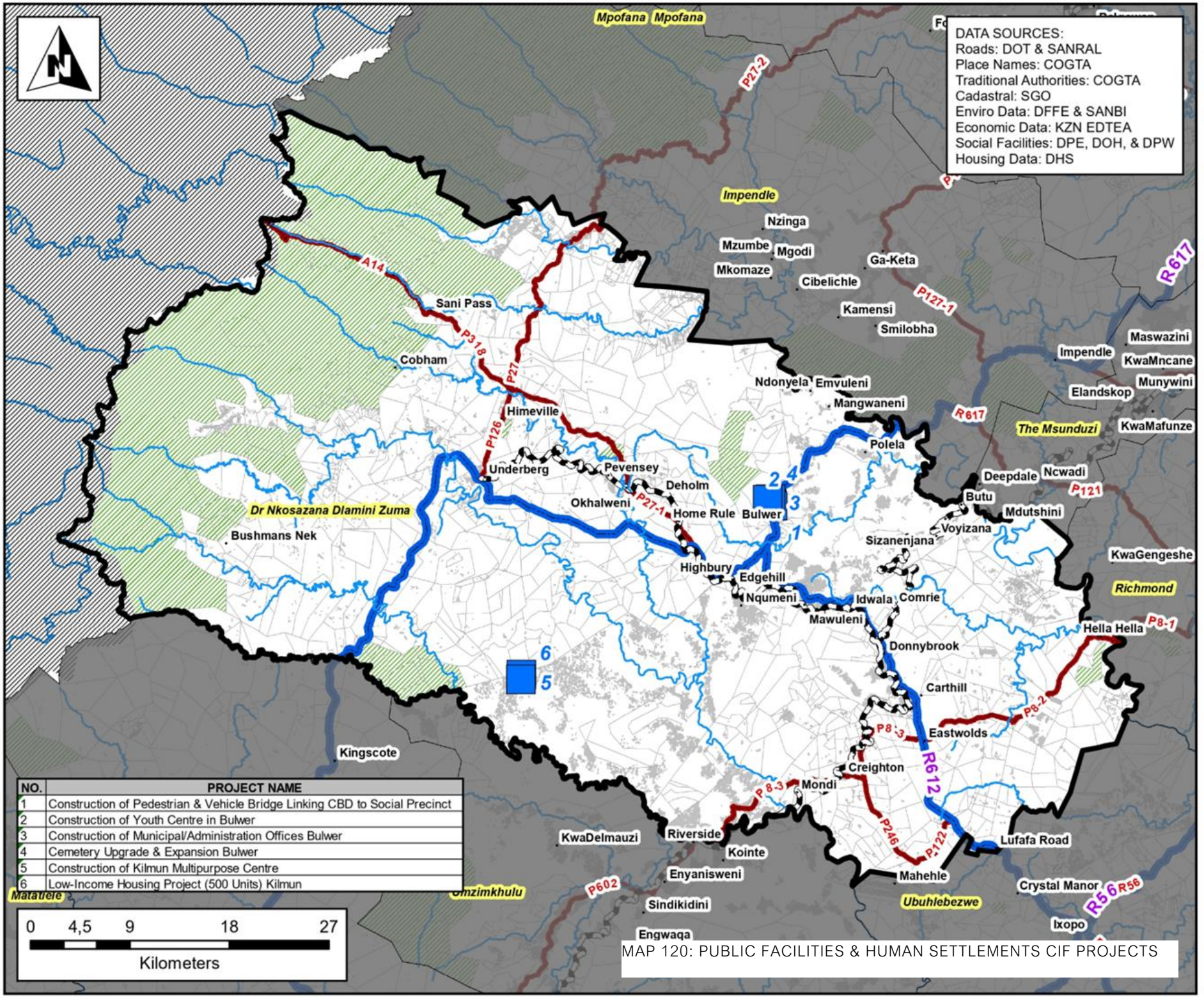
- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.5.8. PUBLIC FACILITIES AND CIVIC & SETTLEMENT CAPITAL PROJECTS

TABLE 122: PUBLIC FACILITIES AND CIVIC & SETTLEMENT CAPITAL PROJECTS

PROJECT NAME	PLACE/SETTLEMENT	DESCRIPTION	PHASE	BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Construct pedestrian & vehicle bridge linking CBD to social precinct	Bulwer	New bridge to connect CBD with social precinct (mobility + spatial integration)	**Short (A)**	R8,000,000	NDZ LM; KZN DoT (interfaces); community	MIG; KZN DoT; NDZ capital budget
Youth centre (new build)	Bulwer	Develop a youth centre facility	**Short (A)**	R3,000,000	NDZ LM; DSD; Youth structures	MIG; DSD; CSI/NGOs
Municipal / administration offices (new build)	Bulwer	Develop municipal/admin offices	**Short (A)**	R4,000,000	NDZ LM; COGTA	COGTA; NDZ capital budget; Municipal Infrastructure support
Cemetery upgrade & expansion	Bulwer	Upgrade and expand cemetery (incl. servicing and access)	**Short–Medium**	R6,000,000	NDZ LM	MIG; NDZ capital budget
Multi-purpose community centre (new build)	Kilmun	Build multi-purpose community centre	**Short (2021–2025 programme)**	R2,000,000	NDZ LM; sector departments; community	MIG; COGTA; sector dept co-funding
Low-income housing development (500 units)	Kilmun	New housing units (capital build)	**Short (2021–2025 programme)**	R55,000,000	KZN DHS; NDZ LM (planning/services); community	Human Settlements Development Grant (HSDG); DHS programmes



NO.	PROJECT NAME
1	Construction of Pedestrian & Vehicle Bridge Linking CBD to Social Precinct
2	Construction of Youth Centre in Bulwer
3	Construction of Municipal/Administration Offices Bulwer
4	Cemetery Upgrade & Expansion Bulwer
5	Construction of Kilmun Multipurpose Centre
6	Low-Income Housing Project (500 Units) Kilmun

MAP 120: PUBLIC FACILITIES & HUMAN SETTLEMENTS CIF PROJECTS

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Capital Investment Framework Public Facilities & Human Settlements Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
- Cadastral
- Protected Area

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.5.9. TRADITIONAL SETTLEMENT MASTER PLAN PROJECTS

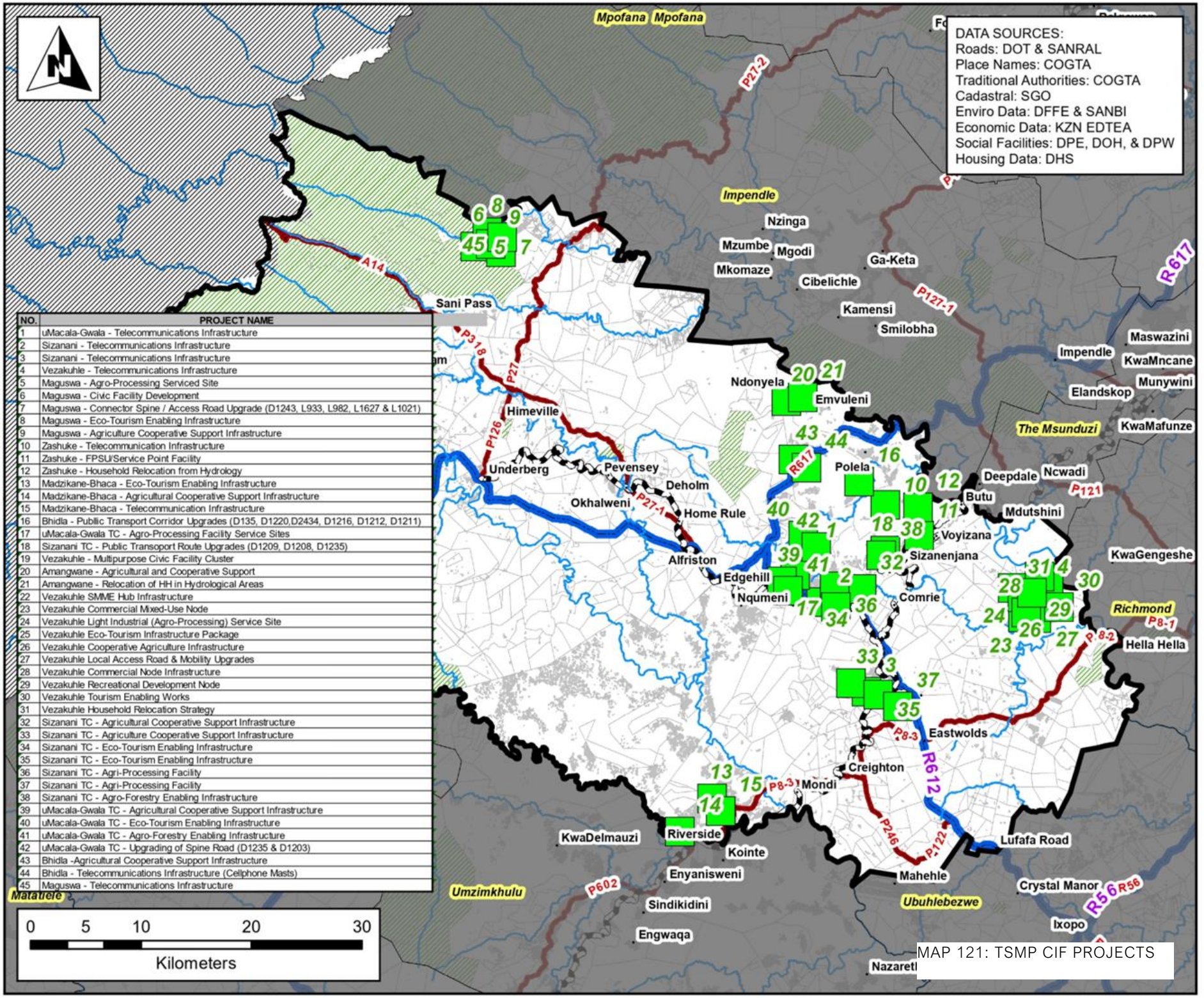
TABLE 123: TRADITIONAL SETTLEMENT MASTER PLAN PROJECTS

PROJECT NAME	SETTLEMENT / TRADITIONAL AUTHORITY	DESCRIPTION (CAPITAL/PHYSICAL INTERVENTION)	IMPLEMENTATION PHASE	ORDER-OF-MAGNITUDE BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Multi-purpose civic facility cluster (service hub)	Vezakuhle	Develop/upgrade a consolidated civic precinct (e.g., community hall / clinic / library / admin/service point) consistent with "Civic Facility (Consolidation of Civic Facilities)".	**Short**	R30,000,000.00	Dr NDZ LM; KZN COGTA; KZN DoH; KZN DoE (if co-located); Traditional Council & Amakhosi	MIG (municipal facilities); Provincial infrastructure budgets; EPWP (labour elements)
SMME hub infrastructure		Construct SMME hub (workshops/training spaces/market stalls) consistent with "SMME Hub".	**Short–Medium**	R40,000,000.00	Dr NDZ LM; KZN EDTEA; SEDA/SEFA; Traditional Council & Amakhosi	MIG (where eligible); EDTEA/SEDA programmes; DBSA (project prep/infra finance)
Commercial & mixed-use node servicing		Serviced site + internal access, stormwater, public lighting, basic trading infrastructure for "Commercial & Mixed Use".	**Short–Medium**	R25,000,000.00	Dr NDZ LM; KZN EDTEA; Traditional Council & Amakhosi	MIG; EPWP (public realm); Provincial EDTEA support
Light industry (agri-processing) serviced site		Establish serviced light-industrial/agri-processing site (platform, basic services, access) consistent with "Light Industries (Agri-Processing)".	**Medium**	R100,000,000.00	Dr NDZ LM; DALRRD; DARD; DTIC (where applicable); Traditional Council & Amakhosi	DTIC / agro-processing support; DBSA; Provincial agriculture/LED programmes
Eco-tourism infrastructure package		Eco-tourism enabling infrastructure (access, trails, ablutions, signage) consistent with "Eco-Tourism / Tourism & Eco-Cultural Precinct".	**Medium–Long**	R60,000,000.00	Dr NDZ LM; KZN Ezemvelo; Tourism KZN; Traditional Council & Amakhosi	Tourism incentive programmes; EPWP; Provincial tourism allocations
Cooperative agriculture		Shared agriculture infrastructure (fencing, small packhouse/storage, water points) consistent with	**Short–Medium**	R10,000,000.00	Dr NDZ LM; DALRRD; DARD; Traditional Council & Amakhosi	DALRRD/DARD programmes; LandCare; grant + co-op finance

PROJECT NAME	SETTLEMENT / TRADITIONAL AUTHORITY	DESCRIPTION (CAPITAL/PHYSICAL INTERVENTION)	IMPLEMENTATION PHASE	ORDER-OF-MAGNITUDE BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
enabling infrastructure		"Agriculture (Cooperative Development)".				
Local access & mobility upgrades (activity spine support)		Upgrade internal/local access routes and pedestrian/trading connectivity aligned to "Activity Spine".	**Short**	R60,000,000.00	Dr NDZ LM; KZN DoT; Traditional Council & Amakhosi	MIG; Provincial roads; EPWP
Commercial node infrastructure	Amakhuze	Serviced commercial node (trading space, public lighting, access/parking) consistent with "Commercial Node".	**Short–Medium**	R50,000,000.00	Dr NDZ LM; KZN EDTEA; Traditional Council & Amakhosi	MIG; EDTEA support; EPWP (public realm)
Recreational node development		Develop sport/recreation node (field/courts, ablutions, seating) consistent with "Recreational Node".	**Short**	R25,000,000.00	Dr NDZ LM; DSRA; Traditional Council & Amakhosi	MIG (community facilities); Provincial sport funding; EPWP
Development corridor road upgrade		Upgrade priority local/district road section(s) forming the "Development Corridor" (surfacing, drainage, culverts).	**Medium**	R200,000,000.00	Dr NDZ LM; KZN DoT; Traditional Council & Amakhosi	MIG; Provincial roads; DBSA (where packaged)
Tourism spine enabling works		Tourism spine enabling infrastructure (wayfinding, viewpoints, trailheads, minor access) consistent with "Tourism Spine".	**Medium–Long**	R25,000,000.00	Dr NDZ LM; Tourism KZN; Ezemvelo; Traditional Council & Amakhosi	Tourism programmes; EPWP
Household relocation from constrained areas (site & basic services)		Relocate "adversely located households" (serviced sites + basic access and services).	**Short**	R10,000,000.00	Dr NDZ LM; KZN DHS; HGDM (water); Traditional Council & Amakhosi	RHIG / human settlements funding; WSIG/WSIG-equivalent via WSA; MIG (internal services)
Public transport corridor / access upgrades	Sizanani (TSMP – map set)	Upgrade roads and stops along mapped "Public Transport Corridor" (surface, drainage, turning areas).	**Short–Medium**	R150,000,000.00	Dr NDZ LM; KZN DoT; Traditional Council & Amakhosi	MIG; Provincial roads; EPWP

PROJECT NAME	SETTLEMENT / TRADITIONAL AUTHORITY	DESCRIPTION (CAPITAL/PHYSICAL INTERVENTION)	IMPLEMENTATION PHASE	ORDER-OF-MAGNITUDE BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
Agricultural cooperative support infrastructure		Shared agriculture support infrastructure consistent with "Agri. Cooperative Support".	**Short–Medium**	R5,000,000.00	Dr NDZ LM; DALRRD; DARD; Traditional Council & Amakhosi	DALRRD/DARD grants; LandCare; co-op finance
Eco-tourism enabling infrastructure		Eco-tourism enabling infrastructure consistent with "Eco-Tourism".	**Medium–Long**	R5,000,000.00	Dr NDZ LM; Tourism KZN; Ezemvelo; Traditional Council & Amakhosi	Tourism programmes; EPWP
Agri-processing facility / serviced site	uMacala-Gwala	Serviced agri-processing development area consistent with "Agri-Processing".	**Medium**	R10,000,000.00	Dr NDZ LM; DALRRD/DARD; DTIC; Traditional Council & Amakhosi	DTIC; DBSA; agriculture/LED programmes
Agro-forestry enabling infrastructure		Shared agro-forestry infrastructure (nursery, access, small storage) consistent with "Agri-Forestry".	**Medium–Long**	R10,000,000.00	Dr NDZ LM; DARD; Forestry partners; Traditional Council & Amakhosi	DARD/forestry programmes; climate/landcare funds
Development spine road upgrade		Upgrade priority section(s) forming the mapped "Development Spine".	**Medium**	R200,000,000.00	Dr NDZ LM; KZN DoT; Traditional Council & Amakhosi	MIG; Provincial roads; DBSA
Eco-tourism enabling infrastructure		Eco-tourism enabling infrastructure consistent with "Eco-Tourism".	**Medium–Long**	R10,000,000.00	Dr NDZ LM; Tourism KZN; Ezemvelo; Traditional Council & Amakhosi	Tourism programmes; EPWP
Public transport / development corridor upgrades	Bhidla	Upgrade transport linkages along mapped corridors (drainage, culverts, surfacing).	**Medium**	R150,000,000.00	Dr NDZ LM; KZN DoT; Traditional Council & Amakhosi	MIG; Provincial roads; EPWP
Agricultural cooperative		Shared agriculture support infrastructure consistent with "Agri. Cooperative Support".	**Short–Medium**	R5,000,000.00	Dr NDZ LM; DALRRD; DARD; Traditional Council & Amakhosi	DALRRD/DARD; LandCare

PROJECT NAME	SETTLEMENT / TRADITIONAL AUTHORITY	DESCRIPTION (CAPITAL/PHYSICAL INTERVENTION)	IMPLEMENTATION PHASE	ORDER-OF-MAGNITUDE BUDGET (ZAR)	KEY STAKEHOLDERS	POTENTIAL FUNDER(S)
support infrastructure						
Eco-tourism enabling infrastructure	Madzikane-Bhaca	Eco-tourism enabling infrastructure consistent with "Eco-Tourism".	**Medium–Long**	R5,000,000.00	Dr NDZ LM; Tourism KZN; Ezemvelo; Traditional Council & Amakhosi	Tourism programmes; EPWP
Agricultural cooperative support infrastructure		Shared agriculture support infrastructure consistent with "Agri. Cooperative Support".	**Short–Medium**	R5,000,000.00	Dr NDZ LM; DALRRD; DARD; Traditional Council & Amakhosi	DALRRD/DARD; LandCare
FPSU / service point facility	Zashuke	Construct/upgrade FPSU facility (as mapped "FPSU") as a physical service point / community facility node.	**Short**	R10,000,000.00	Dr NDZ LM; COGTA; relevant sector depts; Traditional Council & Amakhosi	MIG (community facilities); Provincial allocations; EPWP
Household relocation (from constrained areas)		Relocation of households from risk/constraint areas ("Relocation of HH") including serviced sites and basic access/services.	**Short**	R10,000,000.00	Dr NDZ LM; KZN DHS; HGDM (water); Traditional Council & Amakhosi	RHIG / human settlements; WSIG (via WSA); MIG (internal services)
Civic facility development	Masguswa	Develop civic facility node (community facility/service point) consistent with "Civic Facility".	**Short**	R30,000,000.00	Dr NDZ LM; sector departments; Traditional Council & Amakhosi	MIG; Provincial allocations; EPWP
Agro-processing serviced site		Develop agro-processing site consistent with "Agro-Processing".	**Medium**	R10,000,000.00	Dr NDZ LM; DALRRD/DARD; DTIC; Traditional Council & Amakhosi	DTIC; DBSA; agriculture/LED programmes
Connector spine / access upgrades		Upgrade "Connector Spine / Residential Linkage" roads to improve access and serviceability.	**Short–Medium**	R150,000,000.00	Dr NDZ LM; KZN DoT; Traditional Council & Amakhosi	MIG; Provincial roads; EPWP



NO.	PROJECT NAME
1	uMacala-Gwala - Telecommunications Infrastructure
2	Sizanani - Telecommunications Infrastructure
3	Sizanani - Telecommunications Infrastructure
4	Vezakuhle - Telecommunications Infrastructure
5	Maguswa - Agro-Processing Serviced Site
6	Maguswa - Civic Facility Development
7	Maguswa - Connector Spine / Access Road Upgrade (D1243, L933, L982, L1627 & L1021)
8	Maguswa - Eco-Tourism Enabling Infrastructure
9	Maguswa - Agriculture Cooperative Support Infrastructure
10	Zashuke - Telecommunication Infrastructure
11	Zashuke - FPSU/Service Point Facility
12	Zashuke - Household Relocation from Hydrology
13	Madzikane-Bhaca - Eco-Tourism Enabling Infrastructure
14	Madzikane-Bhaca - Agricultural Cooperative Support Infrastructure
15	Madzikane-Bhaca - Telecommunication Infrastructure
16	Bhidla - Public Transport Corridor Upgrades (D135, D1220,D2434, D1216, D1212, D1211)
17	uMacala-Gwala TC - Agro-Processing Facility Service Sites
18	Sizanani TC - Public Transoport Route Upgrades (D1209, D1208, D1235)
19	Vezakuhle - Multipurpose Civic Facility Cluster
20	Amangwane - Agricultural and Cooperative Support
21	Amangwane - Relocation of HH in Hydrological Areas
22	Vezakuhle SMME Hub Infrastructure
23	Vezakuhle Commercial Mixed-Use Node
24	Vezakuhle Light Industrial (Agro-Processing) Service Site
25	Vezakuhle Eco-Tourism Infrastructure Package
26	Vezakuhle Cooperative Agriculture Infrastructure
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41	uMacala-Gwala TC - Agro-Forestry Enabling Infrastructure
42	uMacala-Gwala TC - Upgrading of Spine Road (D1235 & D1203)
43	Bhidla -Agricultural Cooperative Support Infrastructure
44	Bhidla - Telecommunications Infrastructure (Cellphone Masts)
45	Maguswa - Telecommunications Infrastructure

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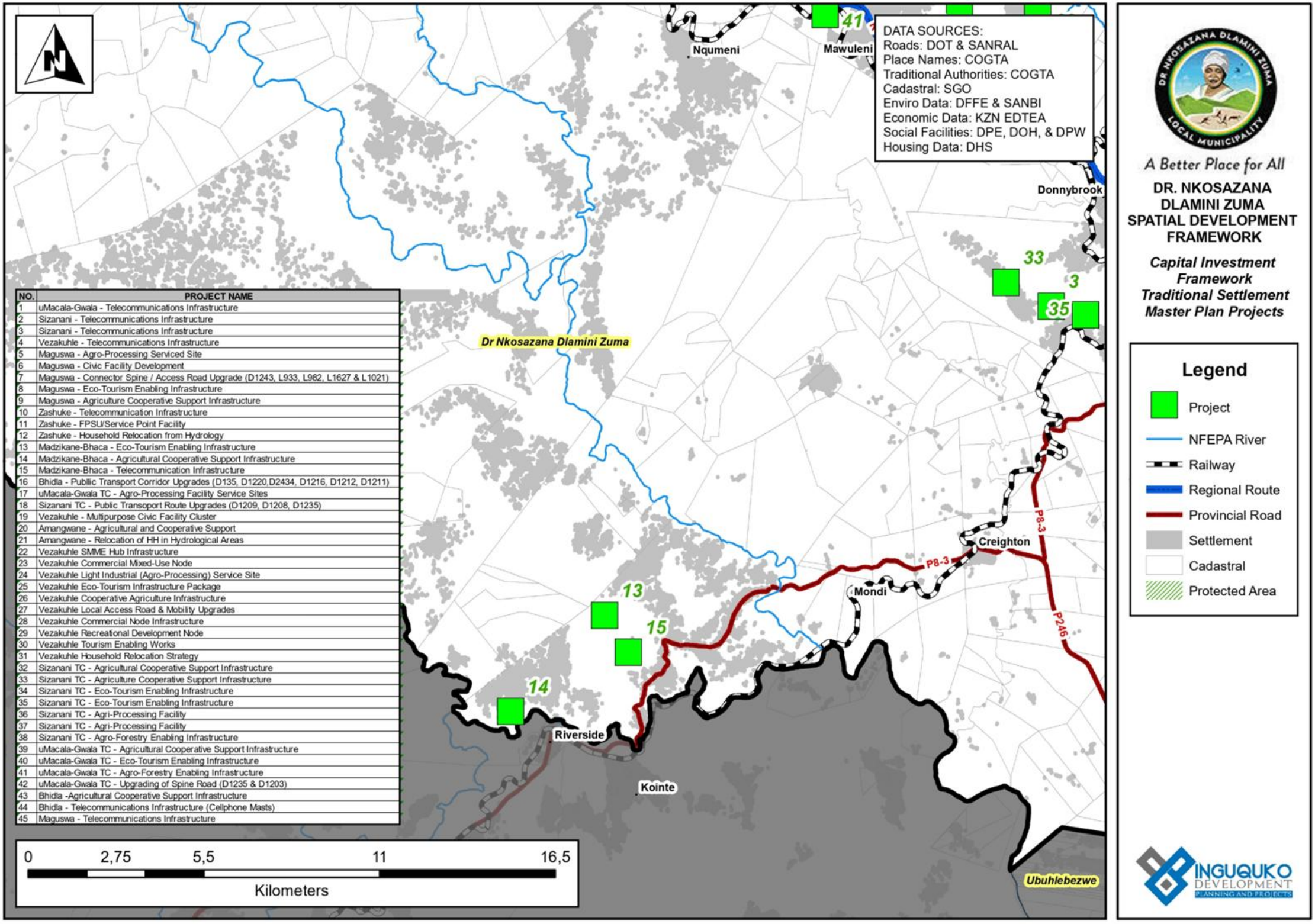
Capital Investment Framework Traditional Settlement Master Plan Projects

Legend

- Project
- NFEPA River
- Railway
- Regional Route
- Provincial Road
- Settlement
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- Protected Area

MAP 121: TSMP CIF PROJECTS

INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



NO.	PROJECT NAME
1	uMacala-Gwala - Telecommunications Infrastructure
2	Sizanani - Telecommunications Infrastructure
3	Sizanani - Telecommunications Infrastructure
4	Vezakuhle - Telecommunications Infrastructure
5	Maguswa - Agro-Processing Serviced Site
6	Maguswa - Civic Facility Development
7	Maguswa - Connector Spine / Access Road Upgrade (D1243, L933, L982, L1627 & L1021)
8	Maguswa - Eco-Tourism Enabling Infrastructure
9	Maguswa - Agriculture Cooperative Support Infrastructure
10	Zashuke - Telecommunication Infrastructure
11	Zashuke - FPSU/Service Point Facility
12	Zashuke - Household Relocation from Hydrology
13	Madzikane-Bhaca - Eco-Tourism Enabling Infrastructure
14	Madzikane-Bhaca - Agricultural Cooperative Support Infrastructure
15	Madzikane-Bhaca - Telecommunication Infrastructure
16	Bhidla - Public Transport Corridor Upgrades (D135, D1220,D2434, D1216, D1212, D1211)
17	uMacala-Gwala TC - Agro-Processing Facility Service Sites
18	Sizanani TC - Public Transoport Route Upgrades (D1209, D1208, D1235)
19	Vezakuhle - Multipurpose Civic Facility Cluster
20	Amangwane - Agricultural and Cooperative Support
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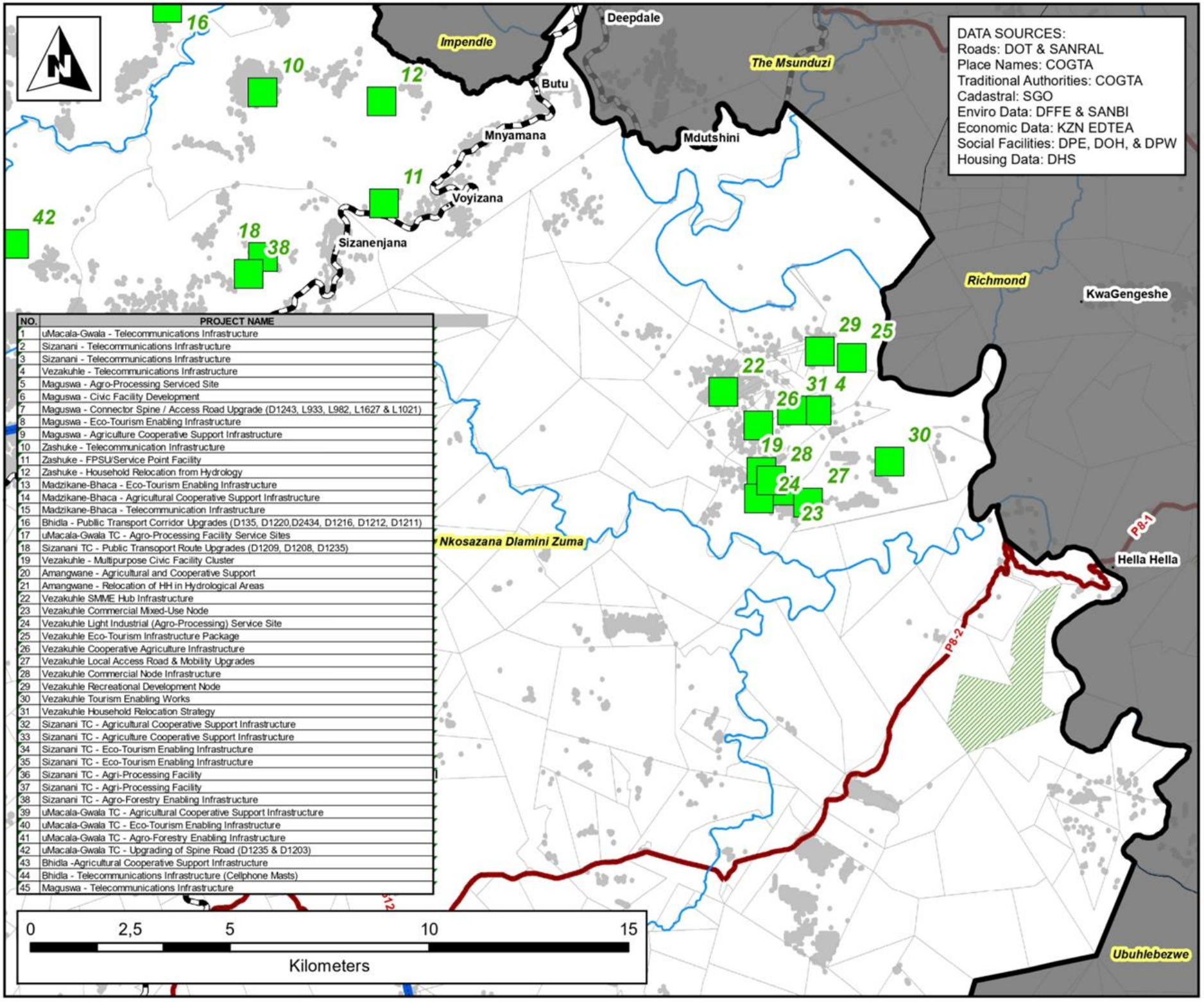
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Capital Investment Framework Traditional Settlement Master Plan Projects

Legend

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INGUQUKO DEVELOPMENT PLANNING AND PROJECTS



DATA SOURCES:
Roads: DOT & SANRAL
Place Names: COGTA
Traditional Authorities: COGTA
Cadastral: SGO
Enviro Data: DFFE & SANBI
Economic Data: KZN EDTEA
Social Facilities: DPE, DOH, & DPW
Housing Data: DHS

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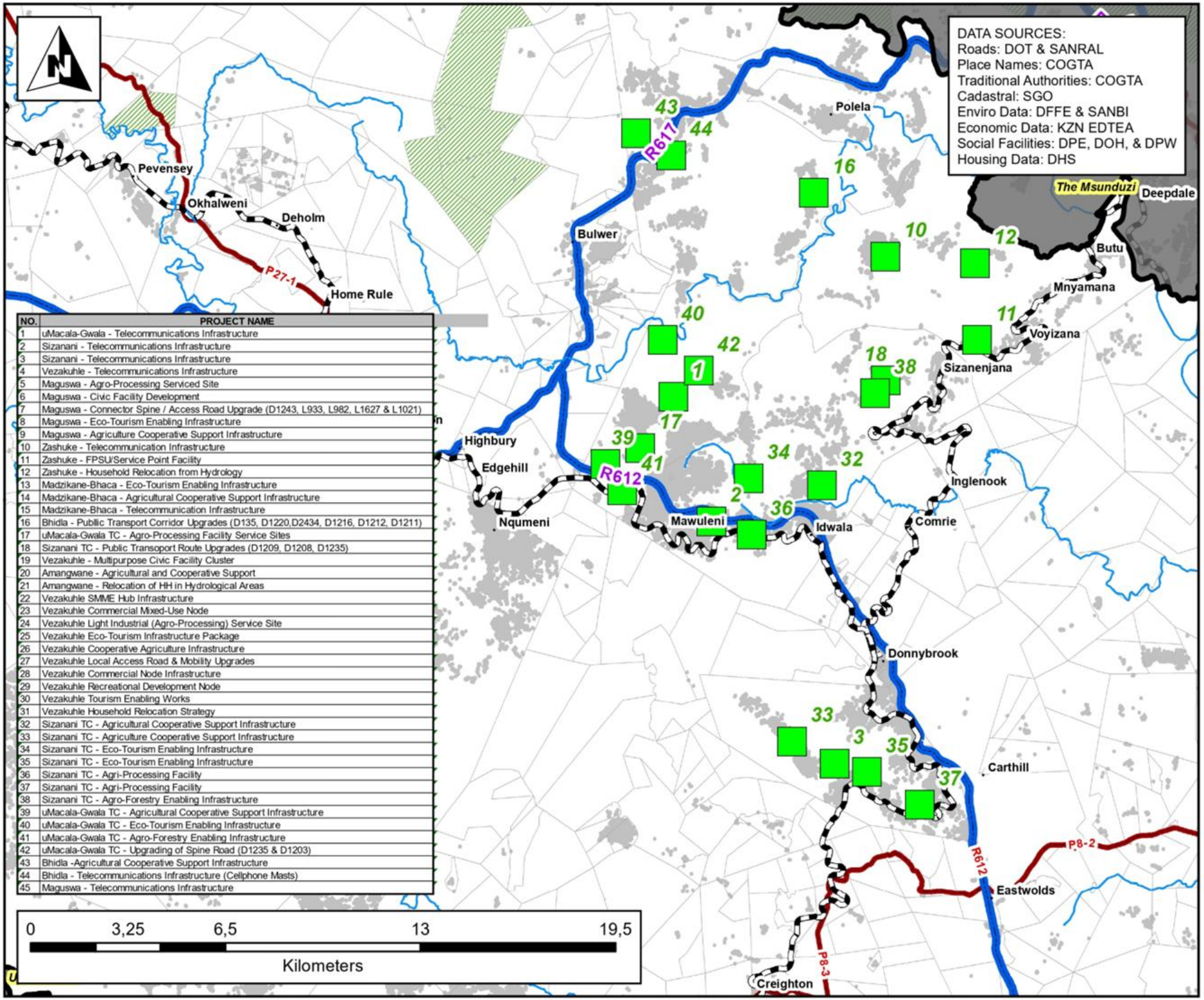
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Capital Investment Framework Traditional Settlement Master Plan Projects

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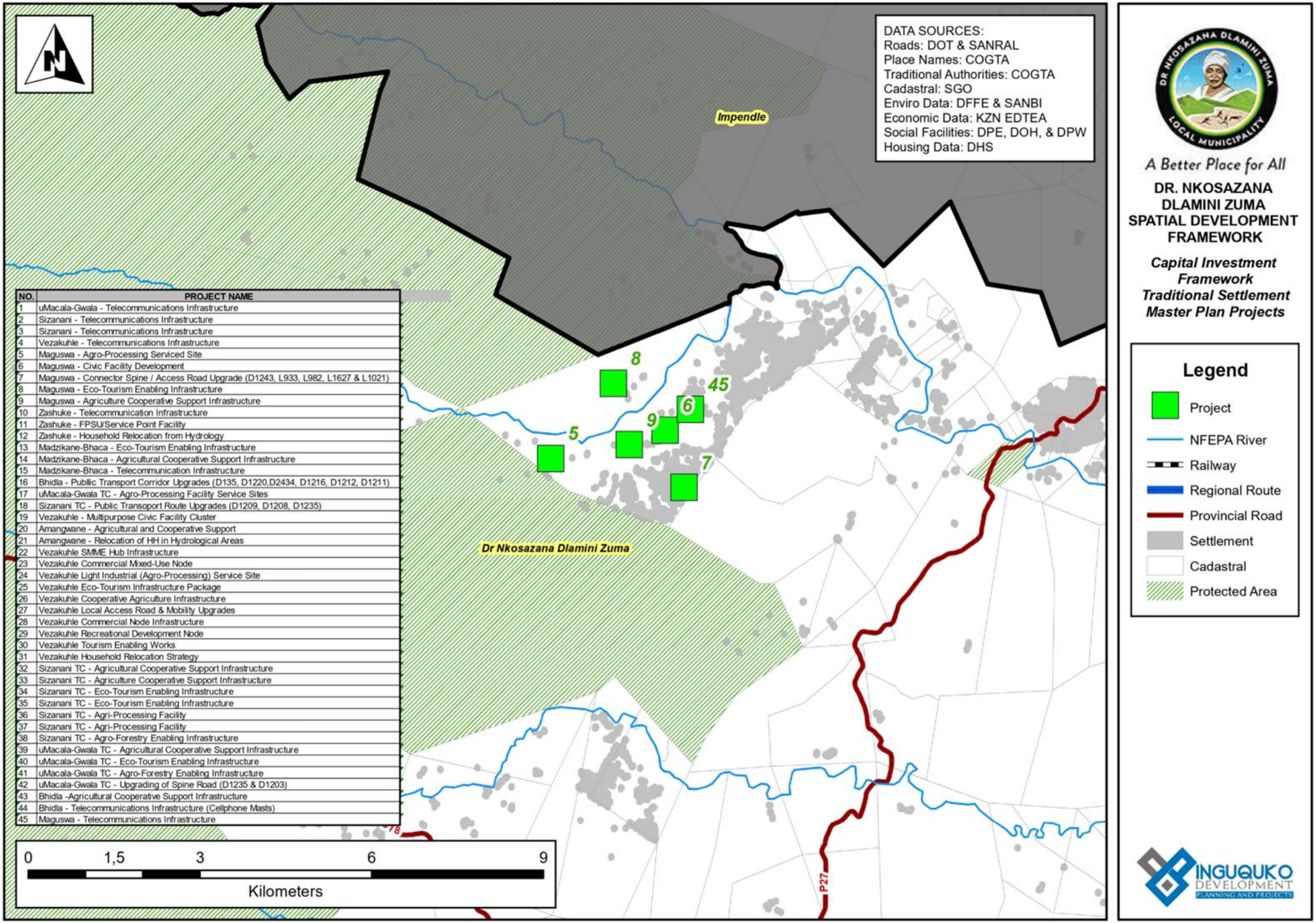
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Capital Investment Framework Traditional Settlement Master Plan Projects

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INGUQUKO DEVELOPMENT PLANNING AND PROJECTS

28.6. MONITORING AND EVALUATION FRAMEWORK

28.6.1. ACTIONS PLANS M&E

TABLE 124: MONOTIRING & EVALUATION FRAMEWORK

CIF THEME	PROJECT NAME	PHASE	KEY OUTPUT INDICATOR	OUTCOME INDICATOR	LEAD IMPLEMENTING AGENT	MONITORING FREQUENCY	DATA SOURCE	ESTIMATED JOB OPPORTUNITIES[1]
INFRASTRUCTURE	Town stormwater & road upgrades (Creighton, Underberg, Himeville, Bulwer)	Short–Medium	Km of roads/stormwater constructed or upgraded	Reduced flooding incidents; improved access & safety	NDZ LM (Tech Services)	Quarterly	SDBIP; PMU reports	120–300 (construction)
	Rural & tourism access road upgrades	Medium–Long	Km of access roads improved	Improved connectivity to economic & tourism nodes	NDZ LM / KZN DoT	Bi-annual	DoT & PMU reports	150–400 (construction)
	Waste fleet procurement & waste infrastructure upgrades	Short	Number of vehicles/facilities commissioned	Improved waste collection coverage & reliability	NDZ LM	Quarterly	Asset register; service stats	20–40
BUILT ENVIRONMENT	Taxi ranks & transport interchanges	Short–Medium	Facilities constructed/upgraded	Improved public transport efficiency & safety	NDZ LM	Quarterly	Project completion certificates	40–80
	Community halls, parks & public facilities	Short–Medium	Number of facilities built/upgraded	Improved community access to social infrastructure	NDZ LM	Quarterly	Infrastructure delivery reports	60–120

[1] *Job opportunities = estimated direct employment opportunities, predominantly construction-phase unless otherwise indicated*

CIF THEME	PROJECT NAME	PHASE	KEY OUTPUT INDICATOR	OUTCOME INDICATOR	LEAD IMPLEMENTING AGENT	MONITORING FREQUENCY	DATA SOURCE	ESTIMATED JOB OPPORTUNITIES[1]
	Sports facilities & multipurpose centres	Short–Medium	Facilities completed	Increased recreational & youth participation	NDZ LM / DSR	Bi-annual	Sector dept reports	50–100
	Government service precincts (clinics, admin, SASSA)	Medium	Facilities constructed	Improved access to government services	Sector departments (NDZ enabling)	Bi-annual	Sector infrastructure reports	200–500
	Housing developments (Kilmun & other nodes)	Short	Number of housing units completed	Reduced housing backlog	KZN DHS / NDZ LM	Quarterly	DHS reports	300–700
ENVIRONMENTAL	River rehabilitation & flood protection works	Short–Medium	Length of riverbanks rehabilitated	Reduced erosion & flood risk	NDZ LM / DWS	Bi-annual	Environmental project reports	80–200
	Green stormwater & nature-based solutions	Medium	Number of green infrastructure installations	Improved climate resilience	NDZ LM	Bi-annual	Environmental monitoring reports	60–150
	Ecological corridors & buffer zone infrastructure	Long	Corridors physically protected	Enhanced biodiversity protection	NDZ LM / EDTEA	Annual	Environmental audits	30–70
BIOPHYSICAL & ENVIRONMENTAL MANAGEMENT	Alien invasive plant clearing (Working for Water–type)	Short–Long	Hectares cleared	Improved catchment health & water yield	NDZ LM / DFFE	Quarterly	EPWP & env. reports	200–500
	Gully erosion & land rehabilitation works	Short–Medium	Number of erosion sites rehabilitated	Stabilised land & infrastructure protection	NDZ LM	Bi-annual	Technical reports	80–180
	Informal dump site closure & rehabilitation	Short–Medium	Sites rehabilitated	Reduced environmental health risks	NDZ LM	Bi-annual	Waste management reports	40–100

CIF THEME	PROJECT NAME	PHASE	KEY OUTPUT INDICATOR	OUTCOME INDICATOR	LEAD IMPLEMENTING AGENT	MONITORING FREQUENCY	DATA SOURCE	ESTIMATED JOB OPPORTUNITIES[1]
ECONOMIC DEVELOPMENT	Farmers markets & agri-logistics facilities	Short–Medium	Facilities constructed	Improved market access for producers	NDZ LM / DARD	Bi-annual	LED & PMU reports	50–150 (construction + ops)
	Warehousing & skills training centres	Medium	Centres completed	Enhanced local economic capacity	NDZ LM / partners	Bi-annual	LED reports	80–250
	Agro-processing sites & agricultural college	Long	Facilities operational	Value-chain development & skills upliftment	Sector-led (NDZ enabling)	Annual	Sector dept reports	300–800
TOURISM DEVELOPMENT	Sani Pass gateway & visitor facilities	Medium	Gateway facilities constructed	Increased tourist visitation & spend	NDZ LM / EDTEA	Bi-annual	Tourism stats	100–250
	Heritage routes, trails & visitor nodes	Short–Medium	Trails & nodes completed	Diversified tourism offerings	NDZ LM	Bi-annual	Tourism monitoring reports	80–200
	Tourism precinct public realm upgrades	Medium	Precinct upgrades completed	Enhanced tourism-led local economies	NDZ LM / PPPs	Bi-annual	Project reports	60–150
	Community-based tourism facilities	Medium	Facilities operational	Local income & enterprise creation	NDZ LM / communities	Annual	LED & tourism reports	50–120

28.6.2. TRADITIONAL SETTLEMENT MASTER PLANS M&E

TABLE 125: TRADITIONAL SETTLEMENT MASTER PLANS M&E

PROJECT NAME	SETTLEMENT / TRADITIONAL AUTHORITY	KEY OUTPUT INDICATOR (WHAT IS DELIVERED)	OUTCOME INDICATOR (WHAT CHANGES)	MEANS OF VERIFICATION	MONITORING RESPONSIBILITY	REPORTING FREQUENCY	ESTIMATED JOB OPPORTUNITIES
Multi-purpose civic facility cluster	Vezakuhle	Civic facility constructed/upgraded and operational	Improved access to public and social services	Practical completion certificate; facility register	Dr NDZ LM – Infrastructure & Community Services	Quarterly	80–150
SMME hub infrastructure		SMME hub constructed and serviced	Increased formalised local enterprise activity	Completion certificate; tenant allocation records	Dr NDZ LM – LED Unit	Quarterly	30–80
Commercial & mixed-use node servicing		Serviced commercial sites delivered	Increased formal trading and local investment	Engineering completion reports	Dr NDZ LM – Planning & Engineering	Quarterly	40–100
Light industry / agri-processing site		Serviced agri-processing platform established	Local value-addition capacity enabled	Site servicing certificates	Dr NDZ LM; DARD	Bi-annual	120–300
Eco-tourism infrastructure		Tourism access & support infrastructure delivered	Increased tourism readiness and visitation	Site inspection; tourism utilisation records	Dr NDZ LM; Tourism KZN	Annual	20–60
Cooperative agriculture infrastructure		Shared agricultural infrastructure constructed	Improved agricultural productivity	Completion reports; co-op usage logs	Dr NDZ LM; DALRRD	Bi-annual	15–40
Local access & mobility upgrades		Roads, walkways and trading spines upgraded	Improved settlement connectivity	Road completion certificates	Dr NDZ LM; KZN DoT	Quarterly	50–120
Commercial node infrastructure	Amakhuze	Commercial node infrastructure delivered	Improved access to goods and services	Completion certificate	Dr NDZ LM – Planning	Quarterly	30–70

PROJECT NAME	SETTLEMENT / TRADITIONAL AUTHORITY	KEY OUTPUT INDICATOR (WHAT IS DELIVERED)	OUTCOME INDICATOR (WHAT CHANGES)	MEANS OF VERIFICATION	MONITORING RESPONSIBILITY	REPORTING FREQUENCY	ESTIMATED JOB OPPORTUNITIES
Recreational node development		Sports/recreation facilities constructed	Improved community wellbeing	Facility handover records	Dr NDZ LM – Community Services	Quarterly	20–50
Development corridor road upgrade		Priority corridor upgraded	Improved mobility and economic linkage	Engineer sign-off reports	Dr NDZ LM; KZN DoT	Quarterly	150–300
Tourism spine enabling works		Tourism spine infrastructure delivered	Increased tourism accessibility	Site inspection; signage records	Dr NDZ LM; Tourism KZN	Annual	15–40
Household relocation (serviced sites)		Households relocated to serviced sites	Reduced risk and improved living conditions	Relocation registers; site handover	Dr NDZ LM; KZN DHS	Quarterly	40–120
Public transport corridor upgrades	Sizanani	Roads and stops upgraded	Improved public transport efficiency	Completion certificates	Dr NDZ LM; KZN DoT	Quarterly	120–250
Agricultural cooperative infrastructure		Shared agricultural infrastructure delivered	Enhanced cooperative productivity	Completion reports	Dr NDZ LM; DALRRD	Bi-annual	15–40
Eco-tourism infrastructure		Eco-tourism infrastructure delivered	Local tourism potential unlocked	Site inspection reports	Dr NDZ LM; Tourism KZN	Annual	20–60
Agri-processing facility / site	uMacala-Gwala	Agri-processing site established	Increased agro-industrial activity	Engineering & commissioning reports	Dr NDZ LM; DARD	Bi-annual	120–300
Agro-forestry infrastructure		Agro-forestry support infrastructure delivered	Improved land productivity	Completion & land-use records	Dr NDZ LM; DARD	Bi-annual	30–80
Development spine road upgrade		Spine road upgraded	Improved settlement accessibility	Road completion certificates	Dr NDZ LM; KZN DoT	Quarterly	120–250

PROJECT NAME	SETTLEMENT / TRADITIONAL AUTHORITY	KEY OUTPUT INDICATOR (WHAT IS DELIVERED)	OUTCOME INDICATOR (WHAT CHANGES)	MEANS OF VERIFICATION	MONITORING RESPONSIBILITY	REPORTING FREQUENCY	ESTIMATED JOB OPPORTUNITIES
Eco-tourism infrastructure		Tourism infrastructure delivered	Enhanced eco-tourism readiness	Site inspection	Dr NDZ LM; Tourism KZN	Annual	20–60
Transport / development corridor upgrades	Bhidla	Transport corridors upgraded	Improved regional connectivity	Completion certificates	Dr NDZ LM; KZN DoT	Quarterly	150–300
Agricultural cooperative infrastructure		Shared agricultural infrastructure delivered	Improved agricultural output	Completion & co-op records	Dr NDZ LM; DALRRD	Bi-annual	15–40
Eco-tourism infrastructure	Madzikane-Bhaca	Eco-tourism infrastructure delivered	Tourism readiness improved	Site inspection	Dr NDZ LM; Tourism KZN	Annual	20–60
Agricultural cooperative infrastructure		Agricultural support infrastructure delivered	Improved livelihoods	Completion reports	Dr NDZ LM; DALRRD	Bi-annual	15–40
FPSU / service point facility	Zashuke	FPSU facility constructed	Improved service access	Facility handover records	Dr NDZ LM; COGTA	Quarterly	30–80
Household relocation (serviced sites)		Households relocated	Reduced exposure to risk	Relocation registers	Dr NDZ LM; KZN DHS	Quarterly	40–120
Civic facility development	Masguswa	Civic facility constructed	Improved access to public services	Completion certificate	Dr NDZ LM – Infrastructure	Quarterly	60–120
Agro-processing serviced site		Agro-processing site delivered	Local agro-economy strengthened	Commissioning reports	Dr NDZ LM; DARD	Bi-annual	120–300
Connector spine / access upgrades		Connector roads upgraded	Improved internal accessibility	Road completion certificates	Dr NDZ LM; KZN DoT	Quarterly	80–200