



**City of
Ekurhuleni**

CITY OF EKURHULENI METROPOLITAN MUNICIPALITY

Regional Spatial Development Framework 2025

**EASTERN SERVICE
DELIVERY REGION**



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LIST OF ACRONYMS

AMD	Acid Mine Drainage
BEPP	Built Environment Performance Plan
BRT	Bus Rapid Transit
CBA	Critical Biodiversity Area
CBD	Central Business District
CCA	Customer Care Area
CCC	Customer Care Centres
CELUS	City of Ekurhuleni Land Use Scheme
CIF	Capital Investment Framework
CoE	City of Ekurhuleni
COGTA	Department of Cooperative Governance and Traditional Affairs
CRU	Community Residential Unit
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESA	Ecological Support Area
GDRT	Gauteng Department of Roads and Transport
GDS	Growth and Development Strategy
GEMF	Gauteng Environmental Management Framework
GGDA	Gauteng Growth and Development Agency
GMS	Growth Management Strategy
GSPU	Gauteng Strategic Partnership Unit

GTEDA	Gauteng Township Economic Development Act
HDA	Housing Development Agency
IDMS	Infrastructure Development Management Strategy
IDP	Integrated Development Plan
IPTN	Integrated Public Transport Network
IRDP	Integrated Residential Development Programme
IRM	Installation, Repair and Maintenance
IUDF	Integrated Urban Development Framework
LED	Local Economic Development
LM	Local Municipality
LSDF	Local Spatial Development Framework
LTFP	Long-Term Financial Plan
LUB	Land Use Budget
MSA	Municipal Systems Act
MSDF	Municipal Spatial Development Framework
MTREF	Medium Term Revenue Expenditure Framework
NDPG	Neighbourhood Development Partnership Grant
NEMA	National Environmental Management Act
NNR	No Natural Remaining
NSDF	National Spatial Development Framework
PAA	Protected Agricultural Area
PHSHDA	Priority Human Settlement Housing Development Area
PRASA	Passenger Rail Authority of South Africa

RSDF	Regional Spatial Development Framework
SDF	Spatial Development Framework
SEZ	Special Economic Zone
SH	Social Housing
SPLUMA	Spatial Planning and Land Use Management Act
TEDA	Township Economic Development Act
TEZ	Township Enterprise Zone
WWTP	Wastewater Treatment Plant
WWTW	Wastewater Treatment Works

1 INTRODUCTION

1.1 BACKGROUND

As provided for in Section 26(e) of the Municipal Systems Act (MSA) 32 of 2000, read with Section 20 of the Spatial Planning and Land Use Management Act of 2013 (SPLUMA), the City of Ekurhuleni (CoE) approved the 2015 Ekurhuleni Municipal Spatial Development Framework (MSDF) during the Council meeting of 29 October 2015.

The 2015 MSDF process also included the formulation and approval of the 2015 Regional Spatial Development Frameworks (RSDFs) for Regions B, C, D, E and F which were compiled as supportive plans to the Ekurhuleni MSDF. The Regional Spatial Development Framework for Region A was commissioned earlier due to pressures associated with the Aerotropolis which forms part of Region A, and it was approved during 2014.

Supplementary to the above, there were a number of more detailed Local Spatial Development Frameworks (LSDFs) that had been approved in Regions B, C, D, E and F since 2000, and which were still applicable. The LSDFs in Region A were completely rescinded as the contents of these LSDFs were incorporated into the Region A RSDF.

Furthermore, a total of eighteen Urban Design Precinct Plans had been formulated for various precincts in the CoE between 2014 and 2020 (as part of implementation of the 2015 MSDF).

1.2 PROBLEM STATEMENT

The implementation of the 2015 MSDF, the six RSDFs (2014 and 2015), as well as the various LSDFs and Precinct Plans had become a major challenge in the City for the following reasons:

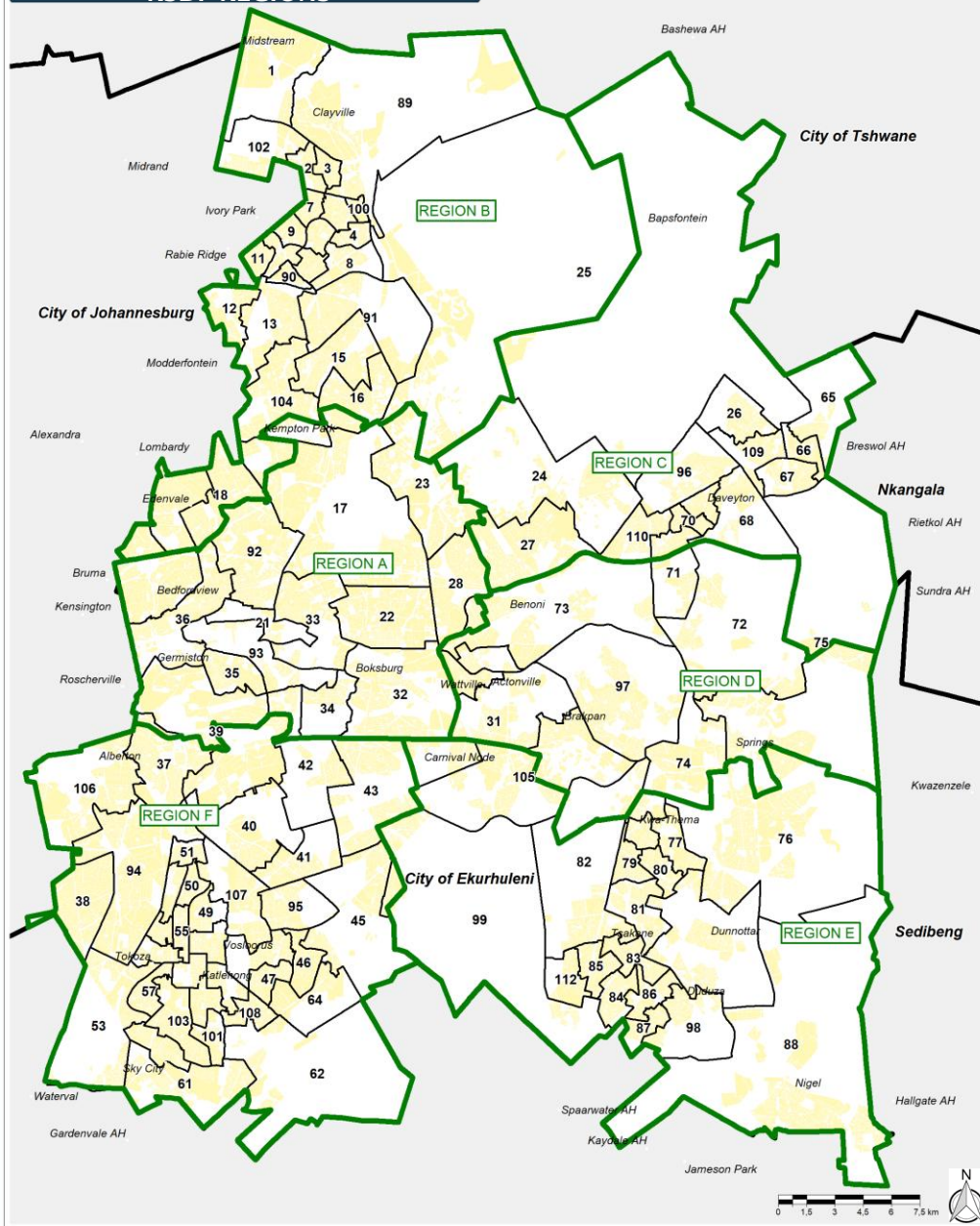
- ❖ Inconsistent/ incoherent and outdated LSDFs in various parts of the City;
- ❖ Changes over time in terms of spatial policies, planning approaches and planning concepts;
- ❖ Changing and/or emerging new development trends in different parts of the CoE; and
- ❖ Changing structuring/formgiving elements including availability of engineering services, rising transportation costs, deteriorating safety and security conditions and impact of Covid 19 on the commercial and home office markets.

1.3 POINTS OF DEPARTURE

In view of the above, the CoE commissioned the review of the 2015 MSDF and the RSDFs for Regions A, B, C, D, E and F (refer to **Figure 1.1**) during February 2023. The following directives served as points of departure to this review process:

- ❖ The review process should be in accordance with the provisions of the Municipal Systems Act 32 of 2000, as well as the Spatial Planning and Land Use Management Act of 2013, and the City of Ekurhuleni Land Use Management and Spatial Planning Bylaw of 2019.
- ❖ The intention is to review the historic MSDF and RSDF documents and not to develop new Spatial Development Frameworks. Hence, the historic MSDF and RSDF documents should serve as point of departure – although it might be necessary to restructure the format and amend the

URBAN MANAGEMENT / RSDF REGIONS



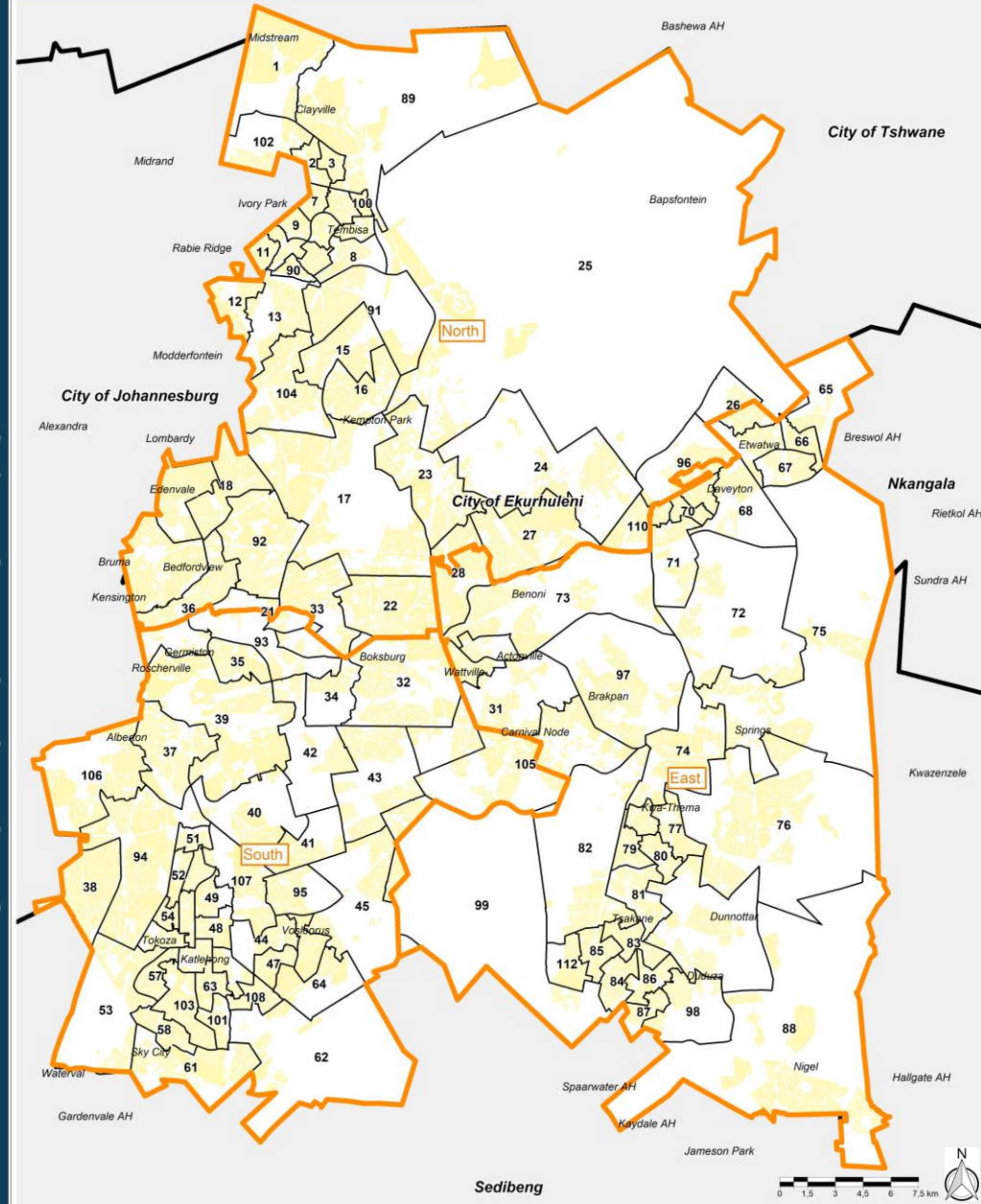
LEGEND

- Towns and Settlements
- 2021 Wards
- 2010 Regions
- District Municipalities



1.1

IDP SERVICE DELIVERY REGIONS



LEGEND

- Towns and Settlements
- 2021 Ward Boundaries
- SDR Regions
- District Municipalities



1.2

contents of the documents without impeding negatively on any existing development rights within the City.

- ❖ A key objective with the review of the RSDFs would be to establish a level of detail in the RSDFs which would allow for the historic third tier of land use frameworks (LSDFs and land use proposals in Precinct Plans) to be done away with.
- ❖ Furthermore, the functionality and alignment of the six RSDF Urban Management Regions (refer to Figure 1.1) had to be assessed against the backdrop of the three Service Delivery Regions used by the CoE Strategy Department (responsible for the CoE IDP and Capital Expenditure Framework – refer to **Figure 1.2**); as well as the twenty smaller Customer Care Areas (refer to **Figure 1.3**) which provide a range of municipal services (including land use management) from a number of localised Customer Care Centres (CCCs).

1.4 REGIONAL BOUNDARY ASSESSMENT

Following from the above directive, the Ekurhuleni regional boundary assessment was conducted as one of the first activities during the MSDF/RSDF Review process. This regional boundary assessment concluded as follow:

- ❖ There seems to be no common rationale within the CoE in terms of the purpose, number and demarcation of institutional/ functional areas or regions. (Compare Figures 1.1, 1.2 and 1.3).
- ❖ This creates problems during CoE IDP and Budget consultation processes (public meetings) when sections of two or more RSDF Plans need to be presented as Spatial Plan input for a specific Service Delivery Region.
- ❖ Similarly, several of the 20 Customer Care Areas fall within two or more Service Delivery Regions and/or RSDF regions.
- ❖ The six Urban Management Regions (RSDF areas) are not used as functional areas by any of the CoE Sector Departments (not even the land use management function within the respective Customer Care Centres).

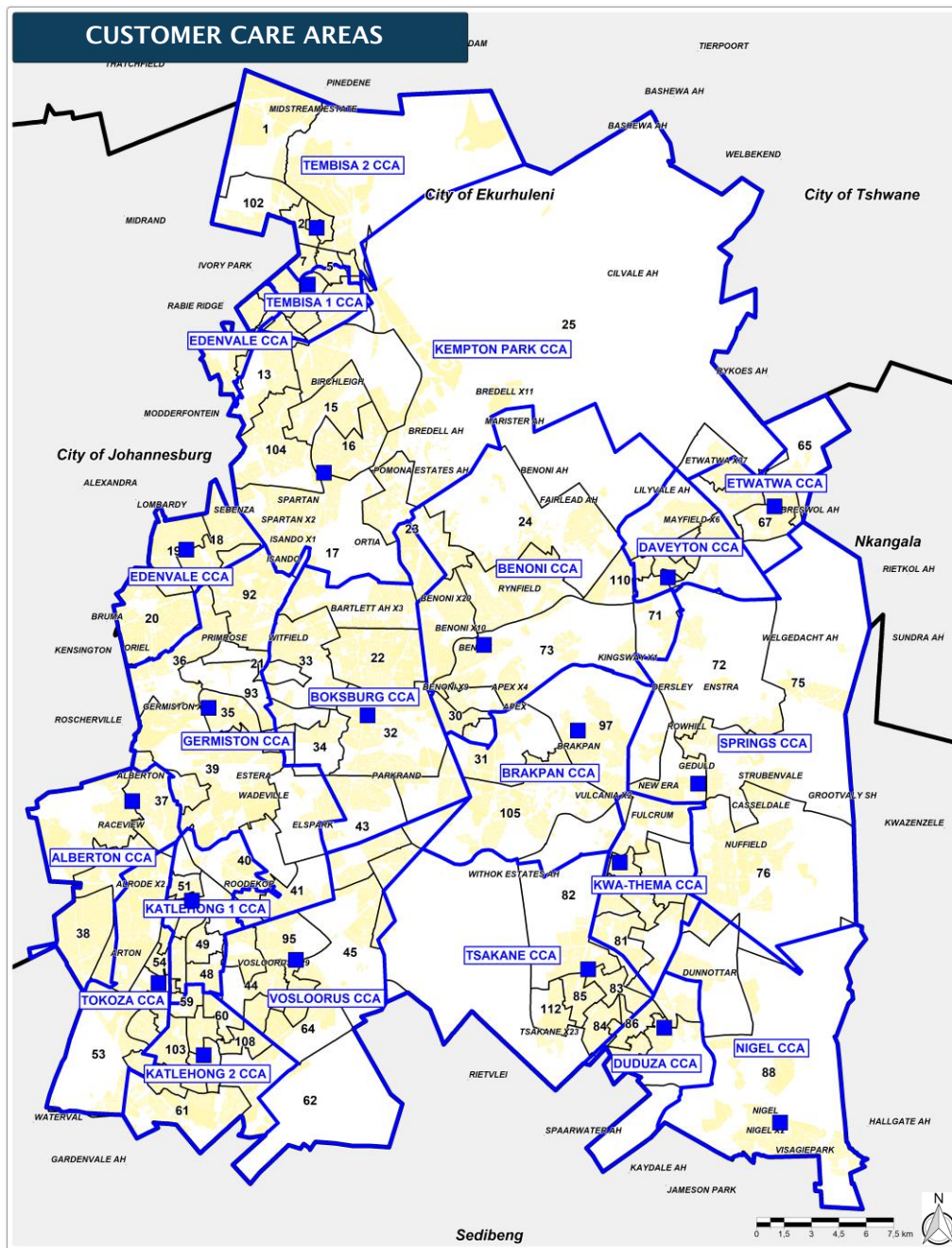
Hence, the Ekurhuleni regional assessment recommended as follow:

- ❖ The three Service Delivery Regions (used in the CoE IDP and Budget) should be used as basis for the Urban Management Regions/RSDFs in order to improve institutional alignment between the RSDF and the Ekurhuleni IDP.
- ❖ Further enhance alignment by slightly adjusting the existing three Service Delivery Regions to fit Customer Care Area boundaries as far as possible.
- ❖ Compile three RSDFs (instead of historic six RSDFs) based on the newly adjusted Service Delivery Region boundaries as reflected on **Figure 1.4**. This in order to better align the MSDF/ RSDFs with CoE IDP and Budget, and by implication with the 20 Customer Care Areas.

In line with the above, the functional relationship between the MSDF and the three RSDFs is graphically illustrated on **Diagram 1** with the following to be noted:

- ❖ The Municipal Spatial Development Framework represents the Consolidated Municipal Spatial Plan for the City of Ekurhuleni as contemplated in SPLUMA.
- ❖ Each RSDF comprises a Regional Spatial Plan, as well as more detailed Sub-Area Plans which include key elements from historic LSDFs and Precinct Plans.
- ❖ The final product comprises the Ekurhuleni Municipal Spatial Development Framework and three Regional Spatial Development Frameworks (Northern, Southern and Eastern), with all historic LSDFs and Precinct Plans being incorporated into the RSDFs and Sub Area Plans.

CITY OF EKURHULENI MSDF 2025



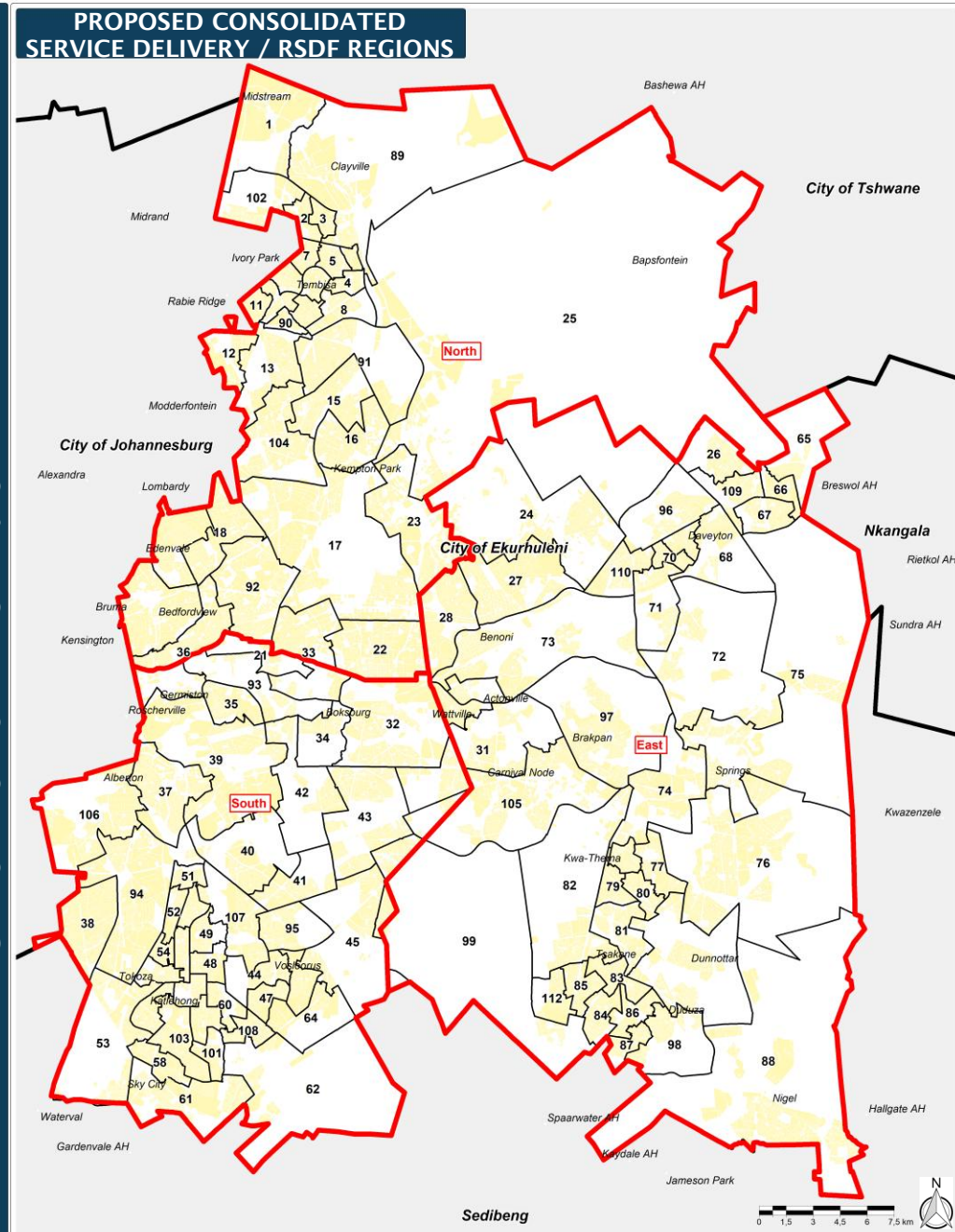
LEGEND

-  Towns and Settlements
-  2021 Wards
-  Customer Care Centres
-  Customer Care Regions
-  District Municipalities



1.3

PROPOSED CONSOLIDATED SERVICE DELIVERY / RSDF REGIONS



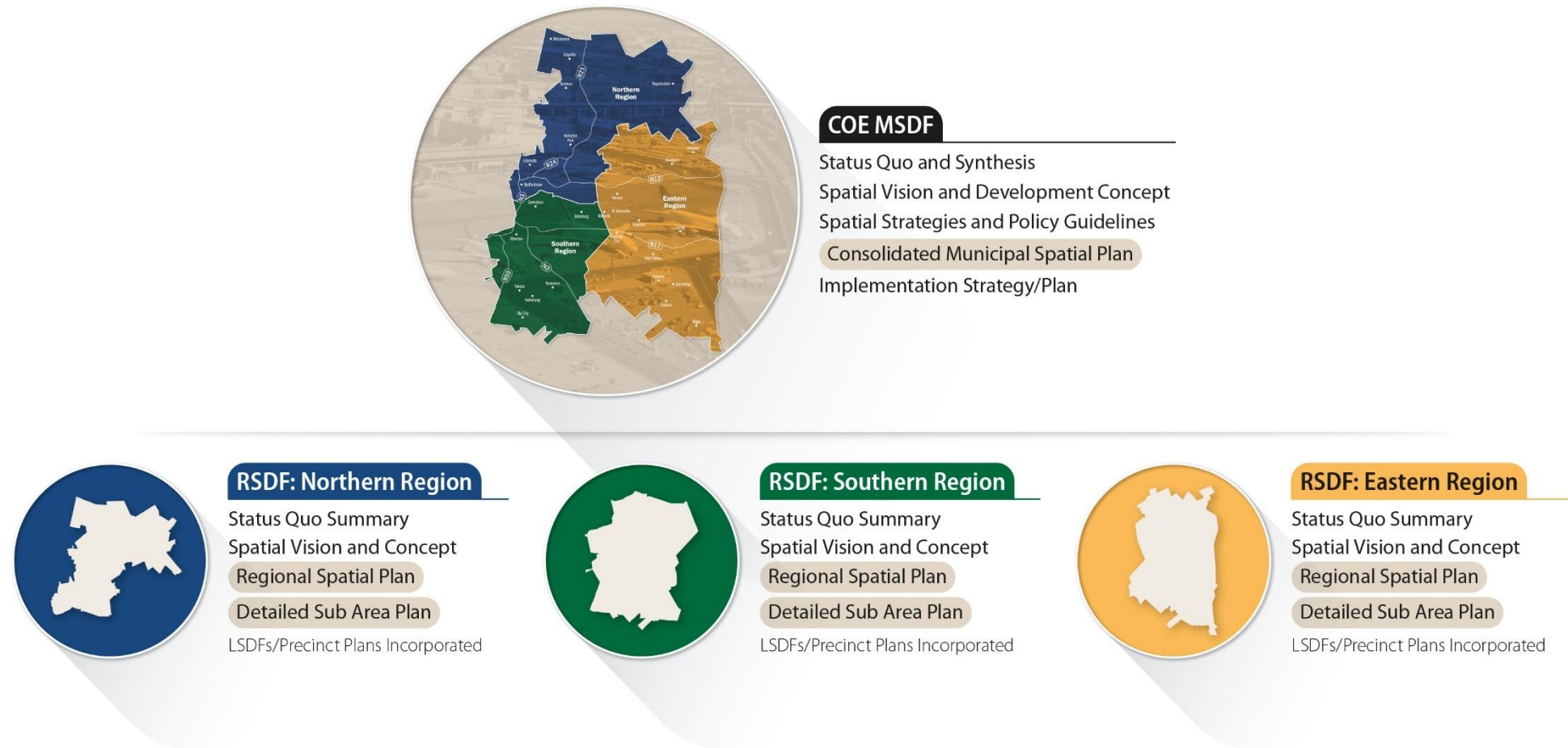
LEGEND

-  Towns and Settlements
 2021 Ward Boundaries
 SDR and RSDF Regions
 District Municipalities



1.4

Diagram 1: Conceptual Illustration: CoE MSDF and Three RSDFs with Sub Area Plans



- ❖ The Spatial Development Frameworks for the three Service Delivery Regions (Northern, Southern and Eastern) are legally part of the CoE Municipal Spatial Development Framework as defined in Chapter 4: Part E of the Spatial Planning and Land Use Management Act, 2013; and the Spatial Development Frameworks and Sub Area Plans for the three

Service Delivery Regions merely provide more detailed information using larger scale maps.

1.5 STUDY AREA AND OBJECTIVES

1.5.1 Study Area

This document represents the Regional Spatial Development Framework for the Eastern Service Delivery Region in the City of Ekurhuleni as spatially depicted on **Figure 2**.

1.5.2 Study Objectives

The primary objectives of this study are summarised as follow:

- ❖ To conduct and prepare a comprehensively reviewed Eastern Region Spatial Development Framework that complies with all the requirements of the Spatial Planning and Land Use Management Act (SPLUMA) and the City of Ekurhuleni Land Use Management and Spatial Planning Bylaw (SPLUM-Bylaw).
- ❖ Use the reviewed Ekurhuleni Municipal Spatial Development Framework as point of departure from which more detailed spatial proposals will be formulated for the Eastern Service Delivery Region.
- ❖ Provide for the integration and consolidation of the historic LSDFs and Precinct Plans applicable to the Eastern Service Delivery Region into the Eastern Region SDF.
- ❖ Ensure sustainable, integrated development and spatial planning, including alignment with the spatial development frameworks of the adjoining Southern and Northern Service Delivery Regions.

1.6 REPORT STRUCTURE

This report represents the Phase 1: Regional Spatial Assessment for the Eastern Region.

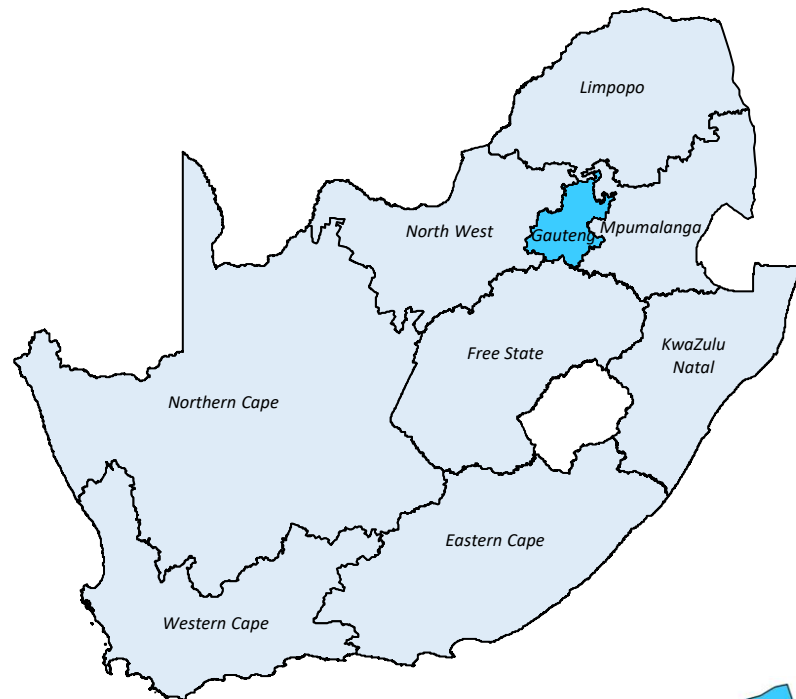
It commences with an assessment and summary of the national legislation (Section 2.1), as well as national and provincial policies (Section 2.2) that should be taken into consideration during the review of the Ekurhuleni MSDF and RSDFs.

Section 2.3 shows how the Future Vision for the CoE as defined in the Ekurhuleni Growth and Development Strategy: 2055; as well as the Strategic Objectives and Key Focus Areas (2022 to 2027) as defined in the Ekurhuleni Integrated Development Plan (2022-2027); are aligned to these national and provincial policy directives.

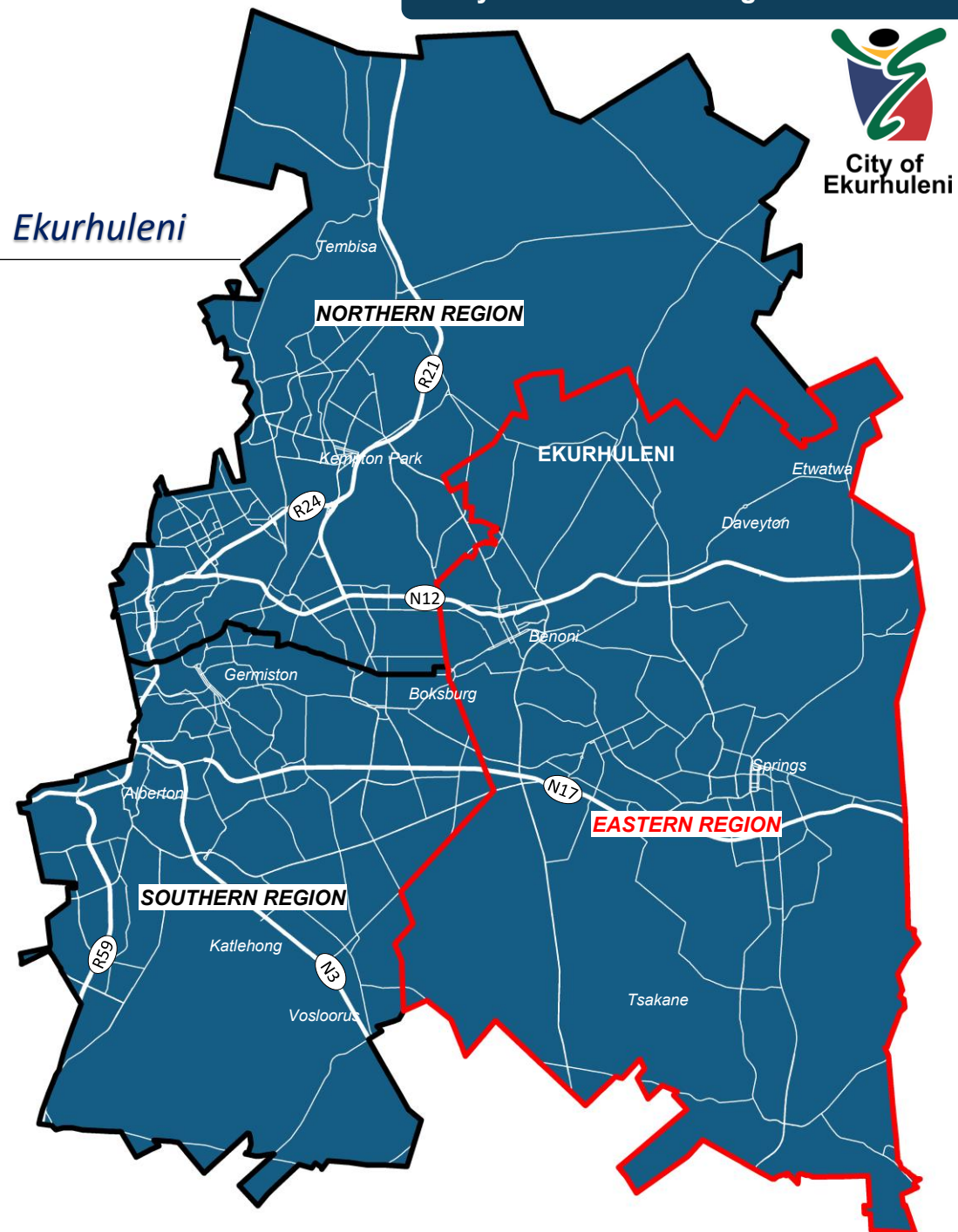
Section 3 commences with a multi-sectoral spatial status quo assessment for the Eastern Region.

Section 4 commences with the Spatial Vision (Section 4.1) and Development Concept (Section 4.2) for the Eastern Region. Following from this, Section 4.3 elaborates on the Spatial Development Strategy and resulting Spatial Plan for the Region.

National *South Africa*



Local *Ekurhuleni*



Provincial *Gauteng*



Figure 2

2 LEGISLATIVE AND POLICY CONTEXT

The Ekurhuleni MSDF document comprises a comprehensive analysis of the National and Provincial Legislative and Policy Framework relevant to the metropolitan area.

It was decided not to duplicate this comprehensive analysis in each of the three RSDFs, but to rather only include a short summary and synthesis of such in this section. If more detailed is required, the reader is referred to the CoE MSDF document.

2.1 LEGISLATIVE FRAMEWORK

2.1.1 Constitution of the Republic of South Africa 108 of 1996

The Constitution of South Africa in Act 108 of 1996 is the supreme law of South Africa. Amongst other things, it ascribes different functions to different tiers of government to ensure the equitable and functional distribution of roles, responsibilities and duties.

In terms of Section 156 of the Constitution, municipalities have executive authority in respect of the right to administer the functional area of “municipal planning” and more specifically to:

- a. structure and manage its administration, budgeting and planning processes to give priority to the basic needs of the community;
- b. promote the social and economic development of the community, and
- c. participate in national and provincial development programmes.

The Ekurhuleni Integrated Development Plan and associated Annual Budget, as well as the Ekurhuleni Spatial Development Framework are three of the most important tools at the disposal of the municipality to fulfil these legal obligations.

2.1.2 Municipal Systems Act 32 of 2000

The Act requires all municipalities to compile an Integrated Development Plan (IDP) designed to ensure the progressive realisation of the fundamental rights of its citizens. Under Section 26(e) the Act requires that an IDP must include a Spatial Development Framework (SDF) for the municipal area, and it stipulates that the IDP and SDF must inform the annual budgeting process of a municipality.

2.1.3 Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA)

The Spatial Planning and Land Use Management Act, Act 16 of 2013 (SPLUMA) provides the legislative foundation for all spatial planning and land use management activities in South Africa (including the Municipal Spatial Development Framework noted above).

The Act seeks to promote consistency and uniformity in procedures and decision-making relating to land use and development across all three spheres of government.

It also requires that a Municipal SDF should be in line with the sectoral policies of national and provincial government and should be aligned with the plans, policies and development strategies of adjoining municipalities.

❖ **SPLUMA Development Principles:**

As point of departure, SPLUMA defined the following five development principles which should inform all spatial planning, land development and land use management processes. (Refer to **Diagram 2**).

Diagram 2: SPLUMA Development Principles

SPLUMA DEVELOPMENT PRINCIPLES	
Spatial Justice	- Deal with spatial imbalances and include areas that were previously excluded - Redress access to land for the previously disadvantaged - Plan for incremental upgrading and secure tenure
Spatial Sustainability	- Promote land development that is within the fiscal, institutional and administrative means of the country - Protect prime agricultural land and environmental resources - Promote and stimulate the effective and equitable functioning of land markets - Carefully consider social and infrastructural costs of land development - Promote development in sustainable locations - Establish viable communities
Spatial Efficiency	- Optimise efficient use of resources and infrastructure - Minimise negative financial, social, economic and environmental impacts - Efficient and streamlined application procedure
Spatial Resilience	Flexibility in spatial plans, policies and land use management systems are accommodated to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks
Good Administration	- Integrated approach to land use and land development - Free-flow of information, plans and policies between and within tiers of government - Empowering citizens

❖ **SPLUMA: Functionality of Spatial Development Frameworks**

Section 12 of SPLUMA stipulates that the national and provincial spheres of government and each municipality must prepare spatial development frameworks that complies with the following functional requirements:

- interpret and represent the spatial development vision of the responsible sphere of government and competent authority;
- are informed by a long-term spatial development vision statement and plan;
- represent the integration and trade-off of all relevant sector policies and plans;
- guide planning and development decisions across all sectors of government;
- guide a provincial department or municipality in taking any decision or exercising any discretion in terms of this Act or any other law relating to spatial planning and land use management systems;
- contribute to a coherent, planned approach to spatial development in the national, provincial and municipal spheres;
- provide clear and accessible information to the public and private sector and provide direction for investment purposes;
- include previously disadvantaged areas, areas under traditional leadership, rural areas, informal settlements, slums and land holdings of state-owned enterprises and government agencies and address their inclusion and integration into the spatial, economic, social and environmental objectives of the relevant sphere;
- address historical spatial imbalances in development;
- identify the long-term risks of particular spatial patterns of growth and development and the policies and strategies necessary to mitigate those risks;
- provide direction for strategic developments, infrastructure investment, promote efficient, sustainable and planned investments by all sectors and indicate priority areas for investment in land development;

- promote a rational and predictable land development environment to create trust and stimulate investment;
- take cognisance of any environmental management instrument adopted by the relevant environmental management authority;
- give effect to national legislation and policies on mineral resources and sustainable utilisation and protection of agricultural resources, and
- consider and, where necessary, incorporate the outcomes of substantial public engagement, including direct participation in the process through public meetings, public exhibitions, public debates and discourses in the media and any other forum or mechanisms that promote such direct involvement.

Furthermore, SPLUMA Section 12(2) and (5) require that:

- The national government, a provincial government and a municipality must participate in the spatial planning and land use management processes that impact on each other to ensure that the plans and programmes are coordinated, consistent and in harmony with each other;
- A spatial development framework adopted in terms of this Act must guide and inform the exercise of any discretion or of any decision taken in terms of this Act or any other law relating to land use and development of land by that sphere of government; and
- A municipal spatial development framework must assist in integrating, coordinating, aligning and expressing development policies and plans emanating from the various sectors of the spheres of government as they apply within the municipal area.

❖ **SPLUMA: Content/Structure Requirements**

Diagram 3 graphically summarises the content requirements for a Municipal Spatial Development Framework as defined in Section 21 of SPLUMA. It is briefly summarized as follow:

- A **Spatial Development Vision** for the area which gives effect to the **SPLUMA Principles**.
- A **Spatial Concept** which indicates a desired spatial growth and development pattern for the next 10 to 20 years.
- **Projections/growth estimates** for future population and economic activity in the area – translated into a Land Use Budget.
- **Multi-Sectoral** inputs pertaining to the following:
 - **Natural Environment:** Including environmental pressures, sensitivities, opportunities, etc.;
 - **Spatial Form and Structuring Elements:** In both the urban and rural parts of the municipality (activity corridors, activity spines, priority housing areas, densities, etc.);
 - **Sustainable Human Settlement:** Profile of housing demand per income category and associated provision of community facilities and public transport services required to be sustainable;
 - **Economic Activity and Job Creation:** Analysing the local space economy and identifying existing and latent/ potential future development potential for all economic sectors relevant to the municipality;
 - **Infrastructure:** Identify, quantify and provide location requirements of engineering infrastructure to serve existing and future development needs;
- **Spatial Expression** pertaining coordination, alignment and integration of **Multi-Sectoral Policies/Strategies** which would collectively culminate into the **Composite Municipal SDF**. (5 Year Plan and 10-20 Year Perspective).

SPATIAL DEVELOPMENT VISION

SPLUMA Principles:

- Spatial Justice
- Spatial Sustainability
- Spatial Efficiency
- Spatial Resilience
- Good Administration



SPATIAL CONCEPT: 10-20 YEAR DEVELOPMENT PATTERN

Population Projections and Land Use Budget

Natural Environment	Spatial Form/Targeting	Sustainable Human Settlement	Economic Activity	Infrastructure
• Environmental Pressures • Opportunities • Sensitivities • Agricultural Potential	Urban:	• Housing Demand Per Income Category	• Economic Nodes • Economic Projections • Employment Trends • Economic Locations: -Business/Office -Industrial/Commercial -Mining -Agriculture -Tourism	• Location Requirements • Quantity Requirements: -Water -Sanitation -Electricity -Roads and Stormwater -Waste Management
	• Development Corridors • Activity Spines • Housing Location • Housing Density • Inclusionary Housing Location • Incremental Upgrading Areas	• Community Services Required: -Education -Health -Welfare -Safety and Security -Sports and Recreation		
	Rural:	• Public Transport		
	• Conservation • Economic Activity			

Spatial Expression: Coordination. Alignment and Integration of Sectoral Strategies and Policies

COMPOSITE MUNICIPAL SDF: 5 YEAR AND 10-20 YEAR



IMPLEMENTATION PLAN

Land Use Management

- Land Use Management Scheme Implications, Purpose, etc.
- Amendments to existing LUS.
- Priority Areas: Shortened Land Use Procedures.
- Priority Areas: More Detailed Local Plans.

Multi Sectoral Project Pipeline and Budgeting

- Sectoral Requirements: Budgets and Resources.
- Implementation Targets and Monitoring Indicators.
- Capital Expenditure Framework: Spatially Depicted (Spatial Targeting).
- Institutional Arrangements Required for Implementation (Three Spheres of Govt).
- Partnership Arrangements (Public: Private).

- **Implementation Plan** comprising:
 - Guidance in terms of **Land Use Management** instruments available to ensure that land use development can take place in accordance with the MSDF proposals;
 - Focus areas earmarked for more detailed spatial planning (Local Plans);
 - **Summary of Sectoral Requirements:** Projects, Budgets, Resources, Timeframes, etc.;
 - **Project Pipeline** consolidated into a **Capital Expenditure Framework** and spatially plotted on MSDF to assess alignment (Spatial Targeting);
 - **Institutional Arrangements:** Inter Governmental and Public: Private Partnerships.

2.2 NATIONAL AND PROVINCIAL POLICY DIRECTIVES

Table 1 shows the relevant directives for the CoE identified from key national and provincial policies as discussed in detail in the Ekurhuleni MSDF report.

These directives need to be incorporated into the MSDF/RSDF in line with the SPLUMA requirement to “provide spatial expression of the coordination, alignment and integration of sectoral policies of all municipal departments” in the MSDF/RSDF.

This will ensure that the golden thread of national and provincial policy priorities is successfully implemented at both metropolitan and regional scale in the City of Ekurhuleni.

Table 1: National and Provincial Policy Directives to be effective in Ekurhuleni MSDF

NATIONAL AND PROVINCIAL POLICY DIRECTIVES FOR THE CITY OF EKURHULENI SDF	
Environmental Sustainability and Resilience	
• Protect Critical Biodiversity Areas and Ecological Support Areas. - Demarcated urban and rural high control zones (GEMF); - CoE Bioregional Plan. • Protect Priority Agricultural Areas (PAAs). • Implement Climate Change Mitigation Measures. • Promote Green Economy and Pollution Control. • Rehabilitation of Mining Areas.	
Spatial Form/ Structure	
• Differentiate between Urban and Rural Areas. • Focus on Spatial Transformation and Growth Management. • Key elements of Spatial Transformation include housing, jobs and public transport (Urban Network) and arranged to promote compact, dense urban environment. • Promote Land Reform, Agrarian Transformation and targeted Rural Infrastructure provision (Spatial Targeting). • Rural Areas to be approached/planned as functional Rural Support Zone (Conservation, Agriculture, Tourism, Mining).	
Transport/ Movement Network	
• Promote Integrated Transport and Mobility: Road, Rail, Air. • Strengthen Key National Development Corridors / National Roads. • Promote Integrated Road, Freight and Public Transport System. • Rail is backbone to public transport, supplemented with BRT and NMT. • Integration Zones in Urban Network (Densification along public transport corridors). • Establish Freight Corridors and Intermodal Hubs.	

NATIONAL AND PROVINCIAL POLICY DIRECTIVES FOR THE CITY OF EKURHULENI SDF

Sustainable Human Settlements

- Establish Sustainable Human Settlements.
- Social Compact: Promote Community Ownership of Neighbourhood Areas/ Infrastructure.
- Provide Housing Diversity: Income, Typology and Tenure.
- Priority Housing Development Areas within existing urban footprint.
- Prioritise the development of community facilities to accelerate social transformation and cohesion.
- Focus on Education, Health, Welfare and Safety of communities.

Economy and Employment

- Ekurhuleni forms part of Gauteng Urban Spatial Transformation and Economic Transition Region with routes N3 and N17 being priority Transnational Corridors. (Focus on Logistics and Industrial Uses).
- Transform the local economy in line with structural changes in the province with dedicated focus on Township Economy. (Economic Empowerment).
- Develop within economic proximity, reinforce economic networks and create a productive hinterland.
- Promote the Eastern Corridor (Ekurhuleni) as hub of advanced industry, agro-processing, logistics and transport, including ORT Aerotropolis.
- Promote “Green” and Energy-Saving Industries.
- Agro-processing linked to food security and food pricing imperatives.
- Creative and cultural industries linked to tourism in the Province.
- Facilitate Resource Based Skills Development.

Infrastructure

- Strengthen integration and linkages within the Global City Region.
- Promote Integrated urban space and public transport (BEPP).
- Optimise the use of rail for public transport and freight use.
- Address water, sanitation and electricity backlog.
- Promote Green Transitions and Smart Technology Infrastructure.

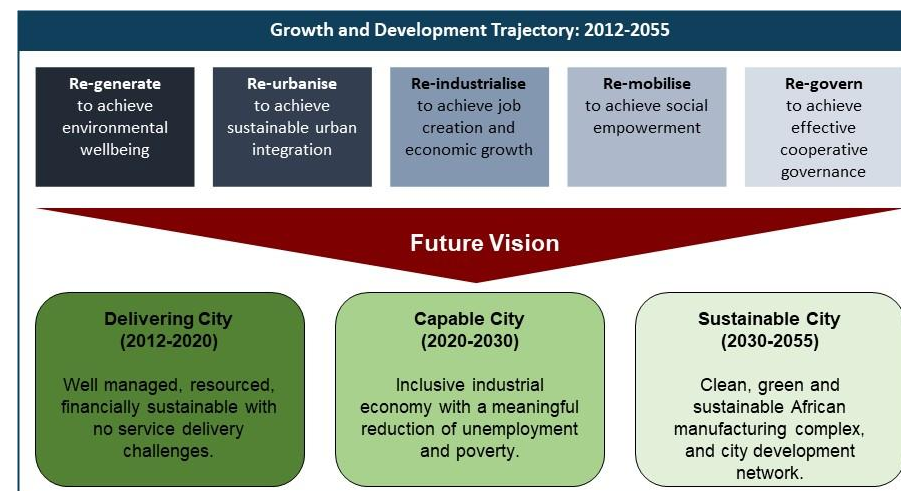
2.3 ALIGNMENT WITH COE STRATEGIC PLANNING AGENDA

The City of Ekurhuleni has a long-term development strategy referred to as the Ekurhuleni Growth and Development Strategy (GDS 2055). The strategy systematically analyses the Ekurhuleni history (9 former towns/municipalities) and its associated development challenges. It then outlines the desired future growth and development trajectory for the metropolitan area which is graphically depicted in **Diagram 4** and briefly discussed below.

i) CoE Future Vision:

Ekurhuleni transitions from being a fragmented City to a Delivering City from 2012 to 2020, a Capable City from 2020 to 2030 and lastly a Sustainable City from 2030 to 2055.

Diagram 4: CoE Growth and Development Trajectory: 2012 – 2055



ii) CoE Strategic Themes: Outcomes:

The GDS has identified five strategic themes to incrementally measure the success of the City with respect to the above. These are long-term outcomes that have been designed to incrementally measure the success of the City in achieving the objectives of the GDS 2055.

- ❖ Re-generate in order to achieve environmental well-being;
- ❖ Re-urbanise in order to achieve sustainable urban integration;
- ❖ Re-industrialise in order to achieve job creating economic growth;
- ❖ Re-mobilise in order to achieve social empowerment; and
- ❖ Re-govern in order to achieve effective cooperative governance.

These five strategic themes are interrelated and interconnected in order to achieve the desired outcome.

iii) CoE Strategic Objectives:

To implement these GDS themes during the current term of Council (2022-2027), the City has formulated five Strategic Objectives for the institutionalisation of the GDS and the development of the Integrated Development Plan (IDP) and service delivery measure. These strategic objectives are as follows:

- ❖ To protect the natural environment and promote resource sustainability.
- ❖ To deliver reliable, affordable and sustainable services and ensure increased spending on infrastructure maintenance.
- ❖ To create an enabling environment for doing business, investment attraction and job creation.
- ❖ To collaborate with local communities to provide healthy and safe living environment and services to socially empowered communities.
- ❖ To optimise the use of institutional resources and build a capable, professional and high performing administration.

iv) CoE Key Focus Areas:

As depicted in **Table 2** a number of Key Focus Areas have been identified per Strategic Objective. These Key Focus Areas will inform development priorities over the next few years and will be translated into projects to be included in the Ekurhuleni IDP and the associated Medium Term Revenue Expenditure Framework (MTREF), from where it will inform the annual Ekurhuleni Budgeting process.

The MSDF and RSDFs should as far as possible be aligned to these Strategic Outcomes and Strategic Objectives, providing spatial expression to these as and where applicable.

Table 2: CoE: Aligned Institutional Strategic Objectives

GDS 2055	STRATEGIC OBJECTIVES	2022-2027 KEY FOCUS AREAS
<u>Re-Generate:</u> To achieve environmental well-being	To protect the natural environment and promote resource sustainability	- Reclaim public spaces currently taken over by lawlessness, litter, and neglect so that they may be places for all residents to enjoy once again.
<u>Re-Urbanise:</u> To achieve urban integration	To deliver reliable, affordable and sustainable services and ensure improved infrastructure maintenance	- Ensure that every community has access to reliable, clean, running water, which is safe to drink and to prepare food. - Modernise water management and the detection of water leaks. - Prevent untreated wastewater contaminating the environment, homes, streets, and sidewalks within the municipality. - Give residents back their power by helping to reduce their vulnerability to Eskom load shedding. - Eradicate ESKOM supply areas. - Enhance access to reliable, affordable, and sustainable electricity. - Incentivise pre-paid electricity systems and private electricity generation. - Invest in safe, reliable, and affordable public transport. - Invest in well-maintained roads. - Work to eradicate irrational national taxes and tolls on roads affecting municipal areas. - Develop a holistic infrastructure strategy which combines the imperatives of an increased spend on PPE maintenance, infrastructure renewal and measures to safeguard infrastructure from vandalism and theft. - Collaborate for transparent sustainable housing by increasing the scale of housing delivered through private initiative, diversifying housing options, and ensuring more people own their homes and receive their valid title deeds.
<u>Re-Industrialise:</u> To achieve job creating economic growth	To create an enabling environment for inclusive growth and job creation	- Focus first on getting the basics right as the foundation to bringing in investment and jobs to the local economy. Beyond that the parties to this agreement are committed to improving the business environment by making it easier to do business within the municipality.
<u>Re-Mobilise:</u> To achieve social empowerment	To promote safer, healthy and socially empowered communities	- Be tough on crime and tougher on the causes of crime by investing in localised law enforcement and tackling the local conditions, which give rise to crime in the first place. - Adopt a holistic approach to keeping communities in good health by ensuring that all departments work together to minimise the risks which lead to poor health, to respond effectively to health emergencies, and to achieve overall positive health outcomes. - Ensuring the resilience of communities through effective disaster risk management. - Protect and enhance the heritage landscape.
<u>Re-Govern:</u>		- Govern in the interests of the people by eliminating corruption and adopting best practices in good governance. - Support devolution of power to the lowest effective level within the constitutional and legislative framework.

GDS 2055	STRATEGIC OBJECTIVES	2022-2027 KEY FOCUS AREAS
To achieve effective co-operative governance	To build a capable, and professional administration	- Ensure the effective functioning of ward committees by providing adequate administrative support.
		- Promote, where it is deemed appropriate by a competent feasibility study, the establishment of sub-Councils in Metropolitan local governments.
		- Audit and review the municipality's organogram and staff complement, including a review as envisioned by Section 4(3)a of the Regulations of the Municipal Structures Act, including remuneration levels.
		- Ensure the appointment of fit-for-purpose officials.
		- Review of salary scales before filling vacant posts, where this is indicated by the review.
		- Implement consequence management procedures for the transgression of laws and regulations, or non-performance.
		- As per legislation municipal services should be run in a cost reflective manner, where possible avoid above-inflation increases in tariffs, rates and taxes, where unavoidable, this shall be adequately explained to the public.
		- Be cognisant that illegal immigration and failures to document legal immigrants are issues that impact local governments and require this coalition government to develop a holistic strategy to respond to these challenges.
		- Any action in relation to illegal immigrants must adhere to the provisions of the South African Constitution, South African law, precepts of international law, the basic tenets of human compassion and decency, and avoid the promotion of xenophobia.
		- Promote multilingualism.
		- Render services in the languages of the said municipality (in accordance with Section 6(3)b of the South African Constitution).

3 SECTORAL AND SPATIAL STATUS QUO ASSESSMENT

3.1 INSTITUTIONAL

3.1.1 Cadastral Structure

The cadastral structure of the Eastern Region is spatially depicted on **Figure 3**, from which the following is notable:

- ❖ The Eastern Region comprises an area of approximately 84 606 ha of land which represents 43% of the total area of the CoE.
- ❖ The main areas which fall within the Eastern Region include Etwatwa and Daveyton in the north of the region; Benoni, Actonville, Wattville, Brakpan and Springs in the central parts; as well as Kwa-Thema, Tsakane, Duduza, Dunnottar and Nigel in the southern extents.
- ❖ There is a total of 272,756 erven in the region, which make up 10% of the total area in the CoE.
- ❖ Agricultural Holdings are prominent in the north-western extents of the region (north of Benoni) and to the south of Brakpan (Witpoort and Withok Estates).
- ❖ Smaller clusters of Agricultural Holdings are also found in the eastern extents of the region at Welgedacht and Grootvaly.
- ❖ The Agricultural Holdings in the region cover an area of about 7 205 ha of land, representing 4% of the total area in the CoE.
- ❖ An estimated 58 114 ha of land in the region comprises Farm Portions and Parent Farms, making up 29% of the total area of the CoE.

3.1.2 Wards

The current wards of the Eastern Region are spatially depicted on **Figure 4**, from which the following is notable:

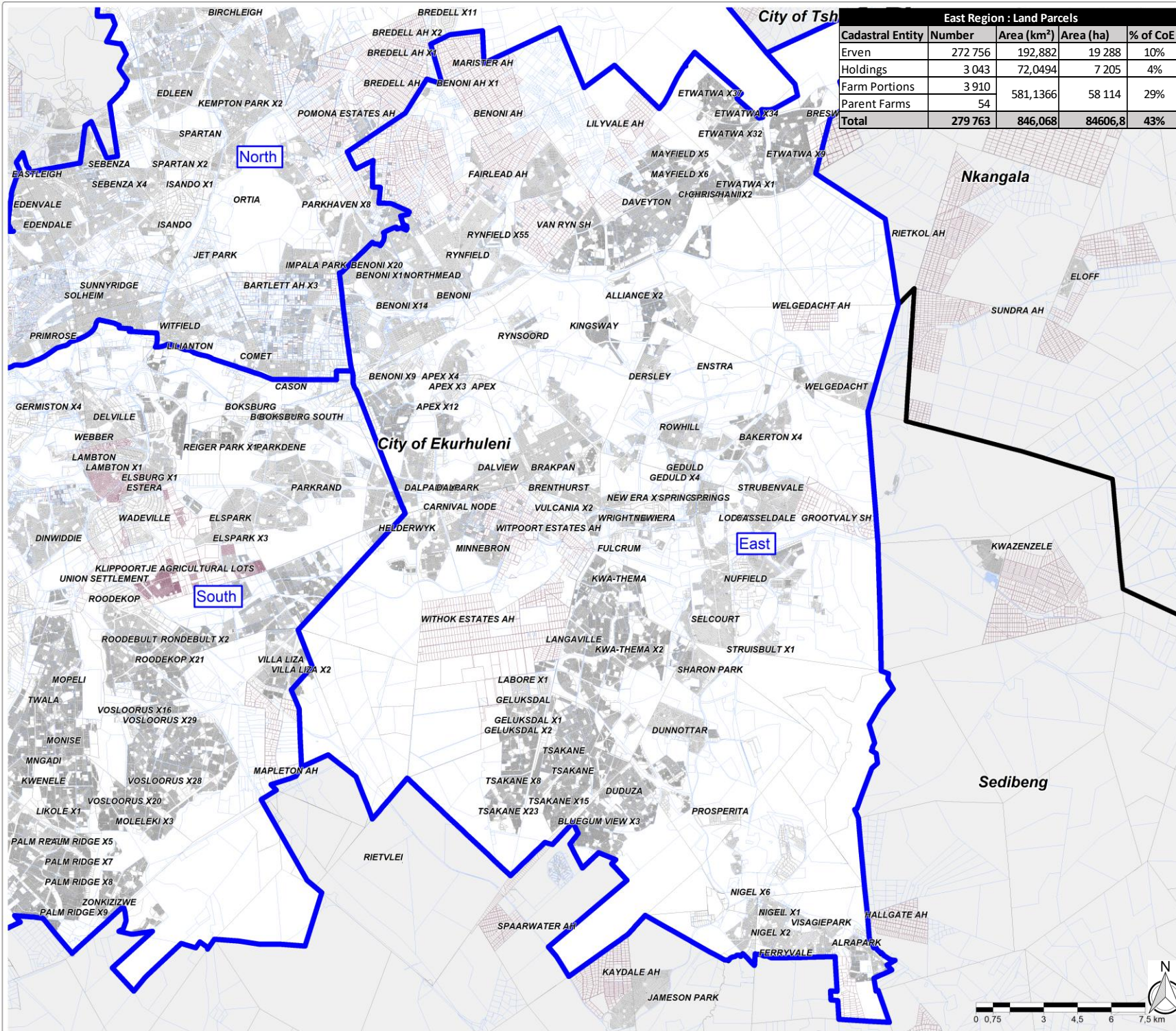
- ❖ The Eastern Region comprises 40 wards which include: wards 24 up to 31, wards 65 up to 88, wards 96 up to 99, ward 105 and wards 109 up to 112.
- ❖ The largest wards are found in the rural areas, including wards 75, 76, 88 and 99.

3.1.3 Customer Care Areas

The Customer Care Areas of the Eastern Region are depicted on **Figure 5**, from which the following is noted:

- ❖ The Eastern Region comprises 9 of the total 20 Customer Care Areas (CCAs) in the CoE.
- ❖ The CCAs in the Eastern Region include: Etwatwa, Daveyton, Benoni, Brakpan, Springs, Tsakane, Kwa-Thema, Duduza and Nigel CCA's.
- ❖ Customer Care Areas are intended to serve as functional areas of service delivery anchored around a municipal satellite office (Customer Care Centre).

As illustrated on Figure 5 there is a Customer Care Centre in each of the 9 CCAs in the Eastern Region.



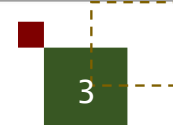
East Region : Land Parcels				
Cadastral Entity	Number	Area (km²)	Area (ha)	% of CoE
Erven	272 756	192,882	19 288	10%
Holdings	3 043	72,0494	7 205	4%
Farm Portions	3 910	581,1366	58 114	29%
Parent Farms	54			
Total	279 763	846,068	84606,8	43%

EASTERN REGION CADASTRAL STRUCTURE

LEGEND

- Erven (Towns and Settlements)
- Holdings
- Farm Portions
- Parent Farms
- CoE 2023 Region Boundary
- District Municipal Boundaries

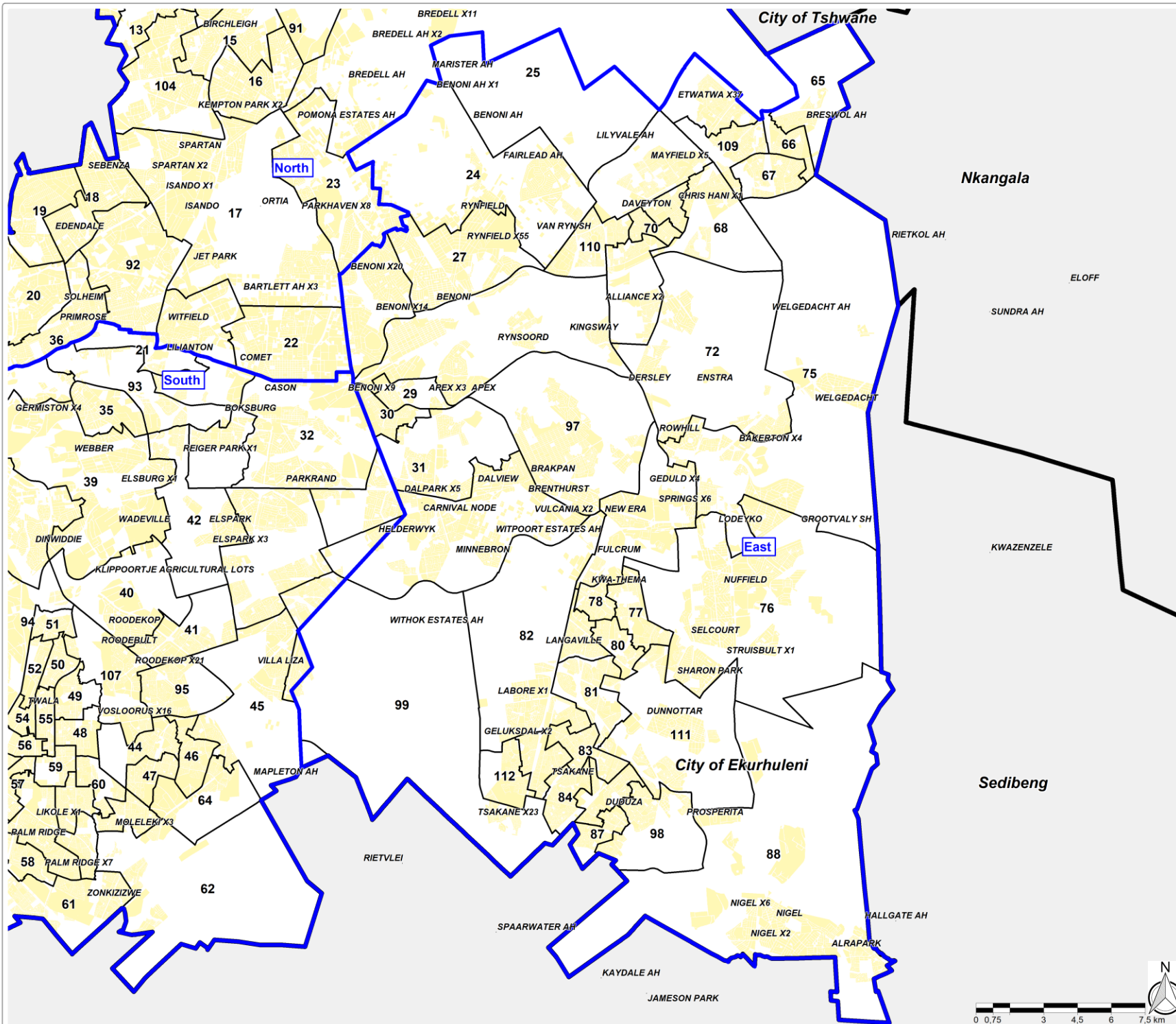
Source: SG Cadastral: Demarcation Board



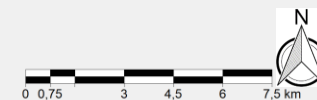
EASTERN REGION WARD BOUNDARIES

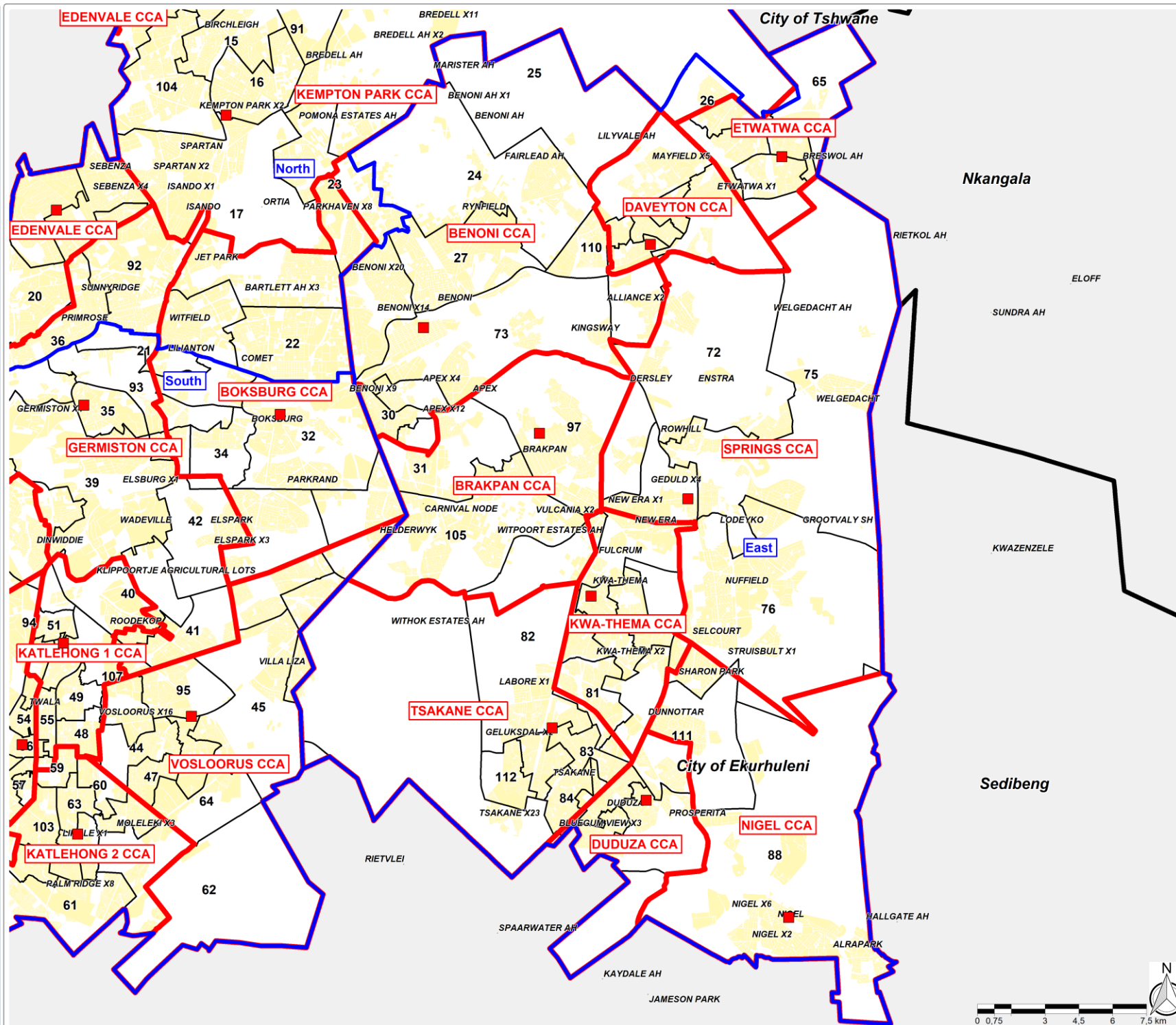
LEGEND

-  Towns and Settlements
 2021 Wards (Total = 40)
 CoE 2023 Region Boundary
 District Municipal Boundaries



Source: Demarcation Board



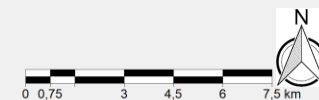


EASTERN REGION CUSTOMER CARE AREAS

LEGEND

- Towns and Settlements
- 2021 Wards
- Customer Care Areas (Total = 21)
- Customer Care Centre
- CoE 2023 Region Boundary
- District Municipal Boundaries

Source: EMM CCA's; Demarcation Board



3.2 DEMOGRAPHIC AND SOCIO-ECONOMIC ENVIRONMENT

This section of the document provides a brief overview of the demographic and socio-economic profile of the CoE which is summarized and graphically illustrated in a number of diagrams. These diagrams are based on the information generated as part of the CoE Growth Management Strategy, 2020 as well as the Ekurhuleni One Plan, 2022, and can unfortunately not be broken down per region.

NOTE: The Terms of Reference to the CoE MSDF Review made provision for the incorporation of Census 2022 information into the MSDF as soon as the comprehensive Census 2022 dataset was published. Due to the problems encountered with Census 2022 and concerns about the credibility thereof, the comprehensive dataset was never published. In view of the above, the MSDF Review relied on information contained in the CoE Growth Management Strategy, 2022.

3.2.1 Demographic Profile

Diagram 5.1 graphically illustrates the most salient features pertaining the population and number of households located in the CoE. It is briefly summarized as follow:

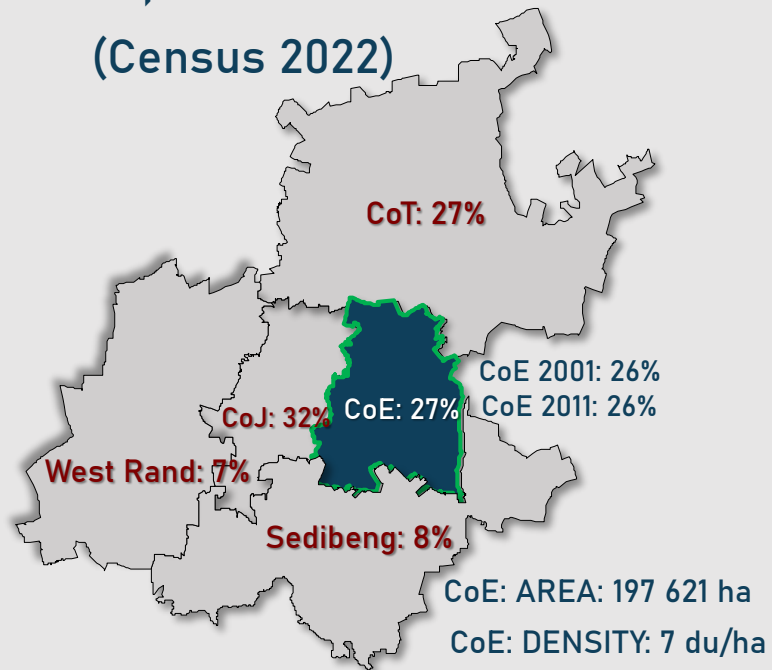
- ❖ The CoE currently (Census 2022) accommodates a population estimated at about 4 066 691 people.
- ❖ This represents approximately 27% of the population of Gauteng Province which is estimated at around 15,09 million people (Census 2022).
- ❖ The corresponding CoE percentage in 2001 was 26%, and 26% in 2016.
- ❖ The population size of the CoE (4 066 691 people) is very similar to that of the City of Tshwane (4 040 315 people), but significantly lower than that of the City of Joburg which is estimated at about 4 803 262 people (32% of Gauteng Population).

- ❖ The CoE population growth rate between 1996 and 2022 averaged around 2,7% per annum.
- ❖ The number of households in the CoE in 2022 is estimated at around 1 421 003 households compared to the 541 774 households recorded in 1996.
- ❖ This translates to an annual growth rate of approximately 3,8% (33 817 households per annum) over the past 26 years.
- ❖ Over the last eleven years (2011 – 2022) the annual increment in households was even higher at 36 874 per annum.
- ❖ Similarly, it should be noted that the average household size in the CoE has declined from 3,3 people per household in 2001 to 2,9 people per household in 2022.

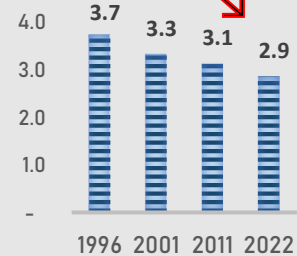
Diagram 5.2 depicts the demographic characteristics of the CoE population from which the following are the most notable:

- ❖ The male:female ratio is 51,1% to 48,9% which shows that the CoE attracts migrant labour (mostly males) in anticipation of finding a job in the metropolitan area.
- ❖ The majority of the CoE population (66%) fall within the economically active age bracket of 20 to 65 years old. This is higher than the average for Gauteng Province which is 65%.
- ❖ It is also interesting to note a slight increase in the older category (>65 years) in the CoE since 1996; while school-going age and pre-school categories both showed a slight decrease since 1996.
- ❖ Black people represent 85% of the CoE population, followed by 10% white people, 3% coloured people and 2% Indian.
- ❖ Since 2011 there has been a slight decline in the highest level of education attained in the higher education categories (Matric, Post Matric, Graduate and Postgraduate).
- ❖ Higher Education among the CoE population (14%) is lower than that of the City of Joburg (15%) and City of Tshwane (22%).

GAUTENG POPULATION:
15,099million
(Census 2022)

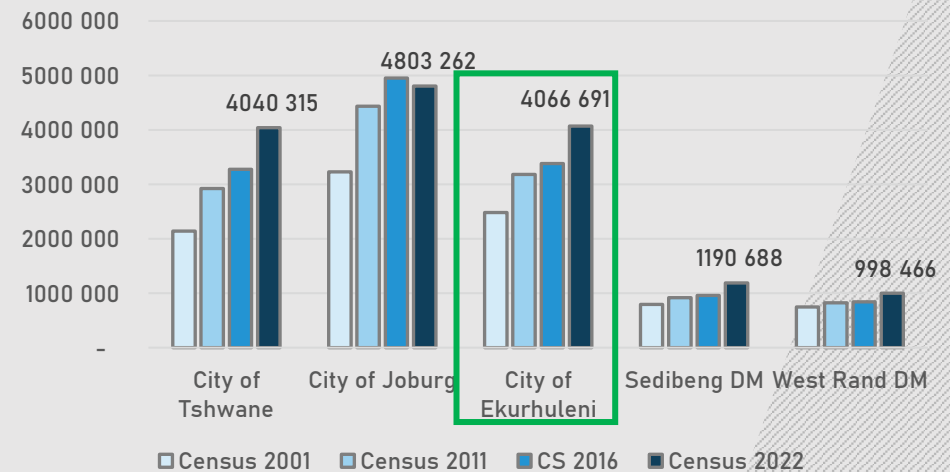


CoE Declining HH Size

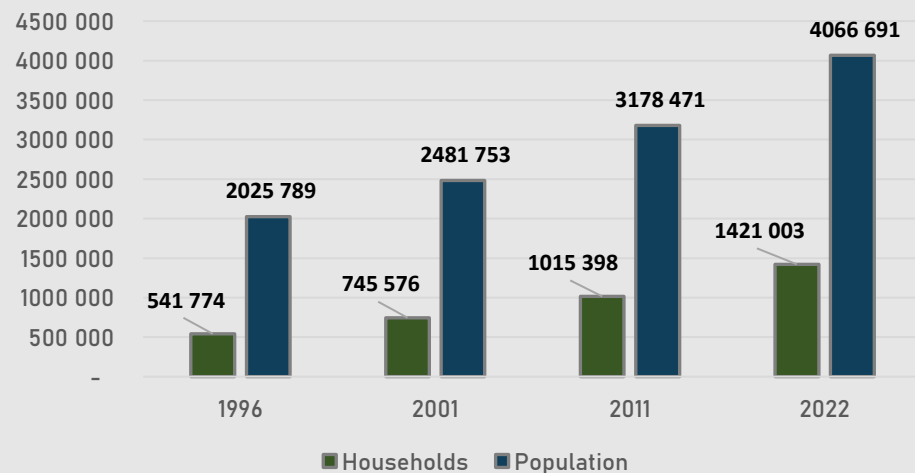


CoE: POPULATION: 4,067 million
(27%)(Census 2022)

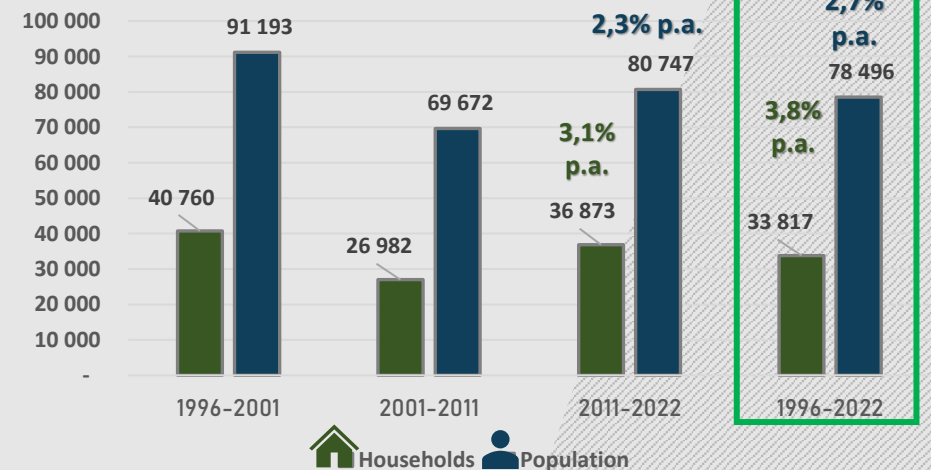
Gauteng Population, 2001-2022



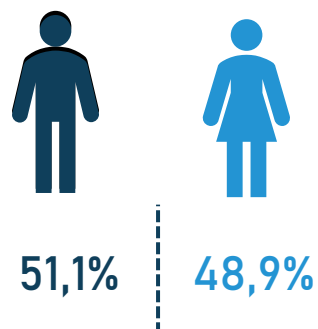
CoE Households and Population



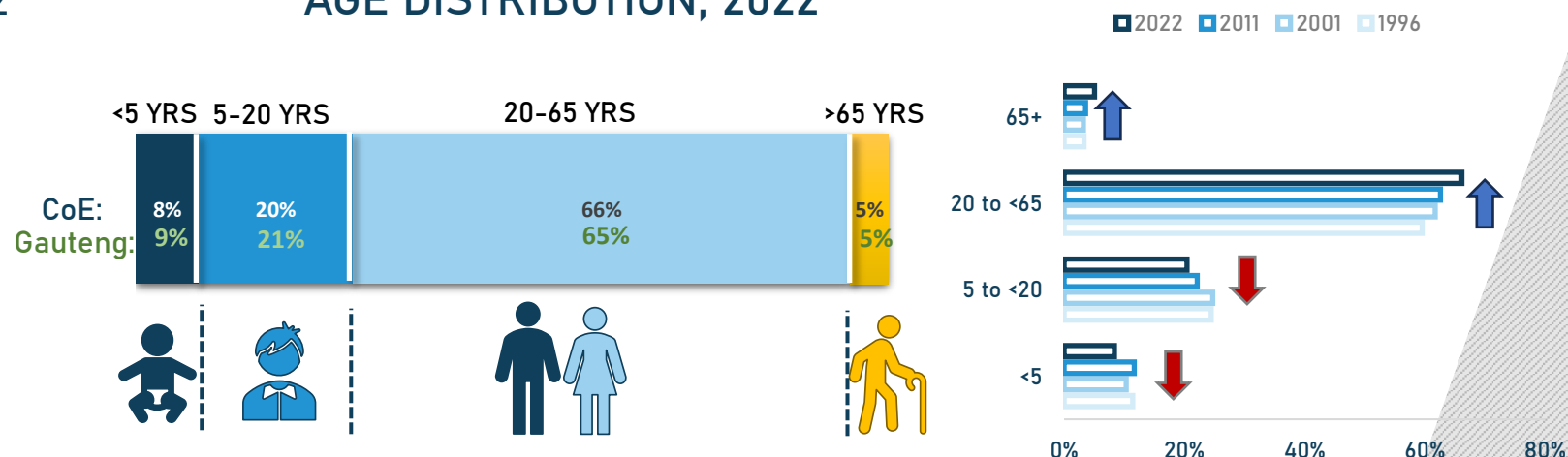
Increment p.a.



GENDER SPLIT, 2022

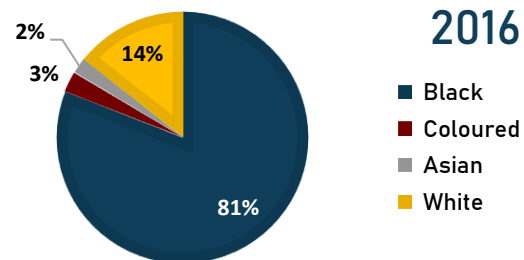


AGE DISTRIBUTION, 2022

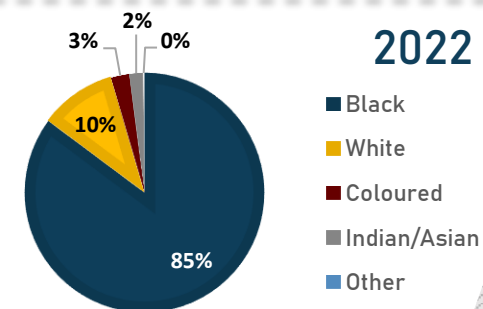


2016

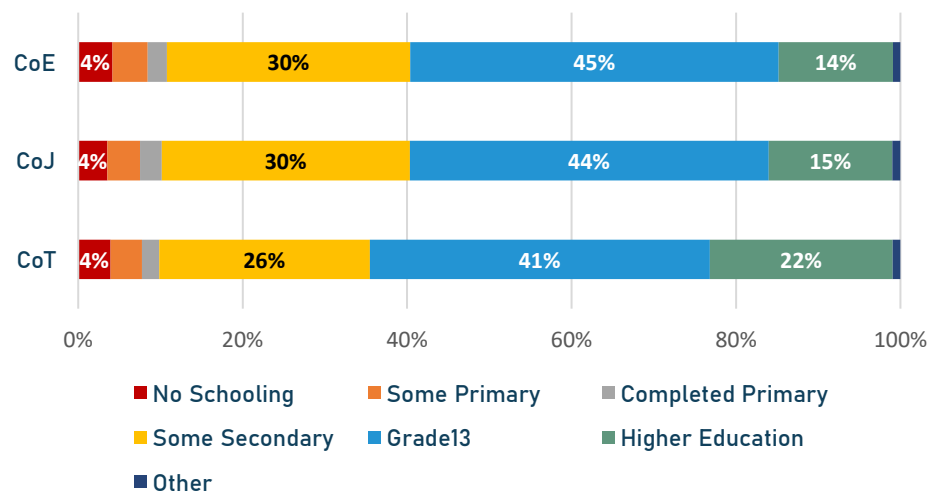
POPULATION GROUP



2022

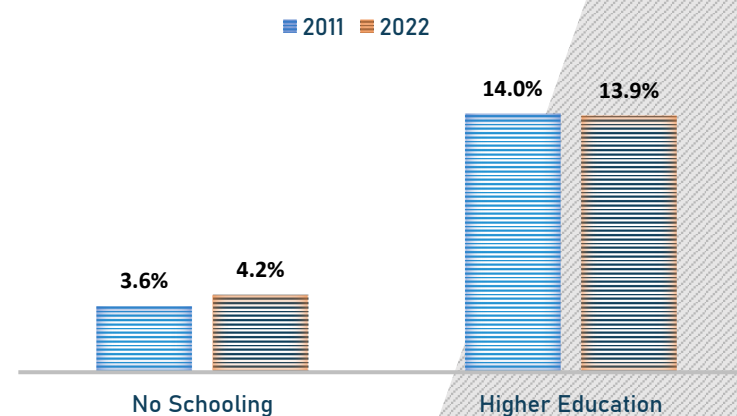


HIGHEST LEVEL OF EDUCATION (20+ year), 2022



CoE: People with No Schooling slightly increased, while people with higher education qualifications slightly decreased since 2011.

CoE: HIGHEST LEVEL OF EDUCATION (20+ year), 2011 vs 2022



3.2.2 Socio-Economic Profile

Diagram 6.1 illustrates the monthly income, Neighbourhood Living Index and employment levels of the population of the CoE from which the following is evident:

- ❖ The average monthly household income in the CoE (R 10,646) is significantly lower than that of the CoJ (R 15,228) and CoT (R 15,338), as well as the average for Gauteng Province (R 13,097).
- ❖ An estimated 55% of the population of the CoE fall in the “Poor/Very Poor” categories of the Neighbourhood Living Index (NLI 1 and 2), and about 25% in the two bottom categories of “Middle Income” (NLI 3 and 4) broadly representing the “GAP Market”.
- ❖ Furthermore, around 15% represent 15% the “Middle Income” (NLI 5, 6, 7 and 8); and 5% are classified as “Affluent” (NLI 9 and 10).
- ❖ The estimated unemployment (2018) in the CoE stood at 27%, representing a need for approximately 510,338 additional job opportunities.
- ❖ Unemployment in the CoE increased from 12% in 1993 to 25% in 2005 and 27% in 2018. The current (2023) unemployment rate is estimated at around 35%.

Diagram 6.2 graphically depicts some of the most salient economic features of the CoE from which the following is notable:

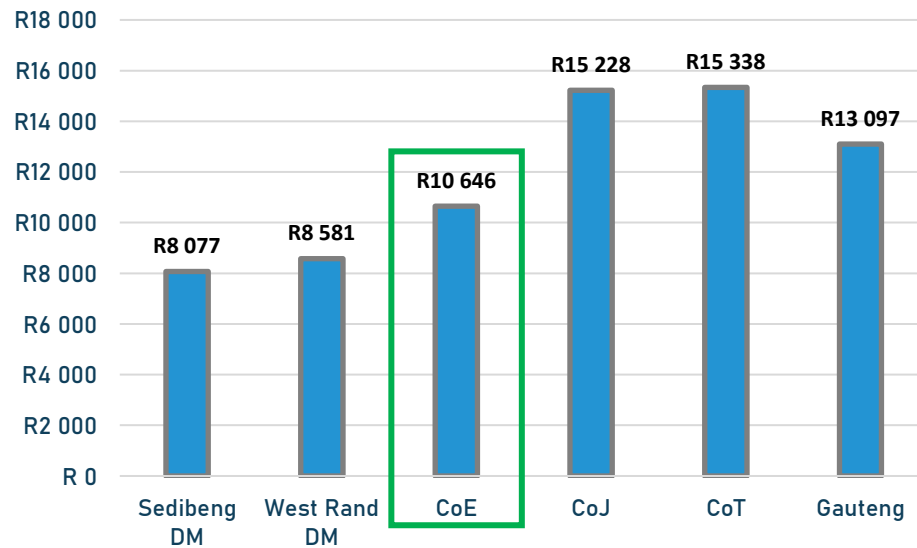
- ❖ Business Services (24%), Manufacturing (18%), Social Services (17%), Trade (15%) and Transport (12%) collectively contribute approximately 86% of the total annual GVA of the CoE.
- ❖ The contribution of Business Services (24%) increased significantly since 1993 when it only contributed about 15%, while the contribution of Manufacturing (18%) shows a strong decline from the 27% contribution it made in 1993.

- ❖ Trade, Transport, Government Services and Construction also increased their relative contribution to the CoE GVA since 1993, while Social Services, Utilities, Mining and Agriculture all show a decrease in relative contribution to the CoE GVA.
- ❖ In general, there has been a significant shift from the Primary and Secondary Sectors to the Tertiary Sector since 1993.
- ❖ As far as employment is concerned, the major contributors in the CoE are Trade (24%), Business Services (23%), Government Services (17%), Manufacturing (12%) and Social Services (10%) – collectively representing about 85% of all formal employment opportunities in the CoE.
- ❖ Transport (6%) and Construction (6%) also contribute fairly to employment opportunities, while Mining, Agriculture and Utilities collectively only represent about 2% of employment opportunities.
- ❖ Also notable is the fact that Manufacturing, Mining and Agriculture all recorded a 50% reduction in employment opportunities since 1993.
- ❖ In general, Business Services contribute significantly in terms of both employment and GVA, while Trade and Manufacturing also make fairly strong contributions in terms of both.

Diagram 6.3 provides more detail on job opportunities in the CoE from which the following can be noted:

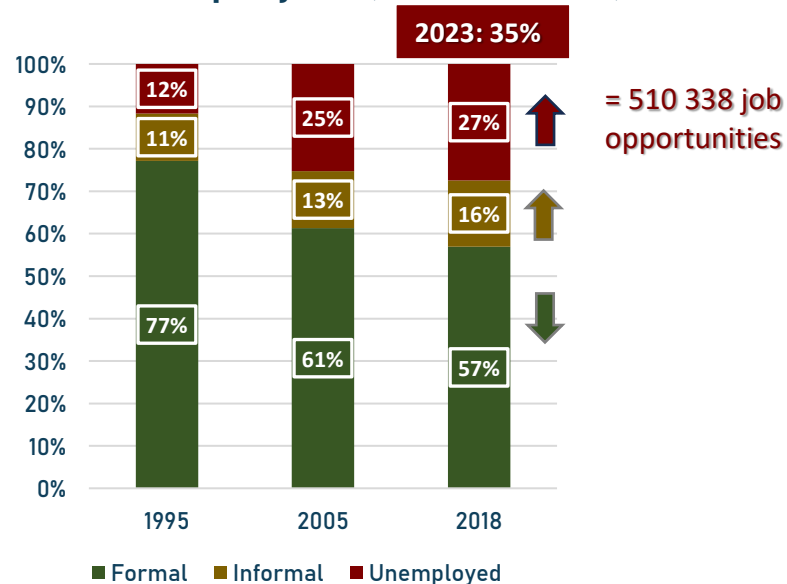
- ❖ There were an estimated 1,35 million job opportunities (formal and informal) in the CoE by 2018, of which about 1,15 million (85%) were held in five sectors.
- ❖ An estimated 1,060,185 (79%) of the 1,35 million job opportunities are formal, while informal jobs represent about 21% of jobs in the CoE.
- ❖ Around 28% of formal jobs are for skilled people, 47% for semi-skilled people, and 26% for unskilled people.

AVERAGE MONTHLY HH INCOME, 2011



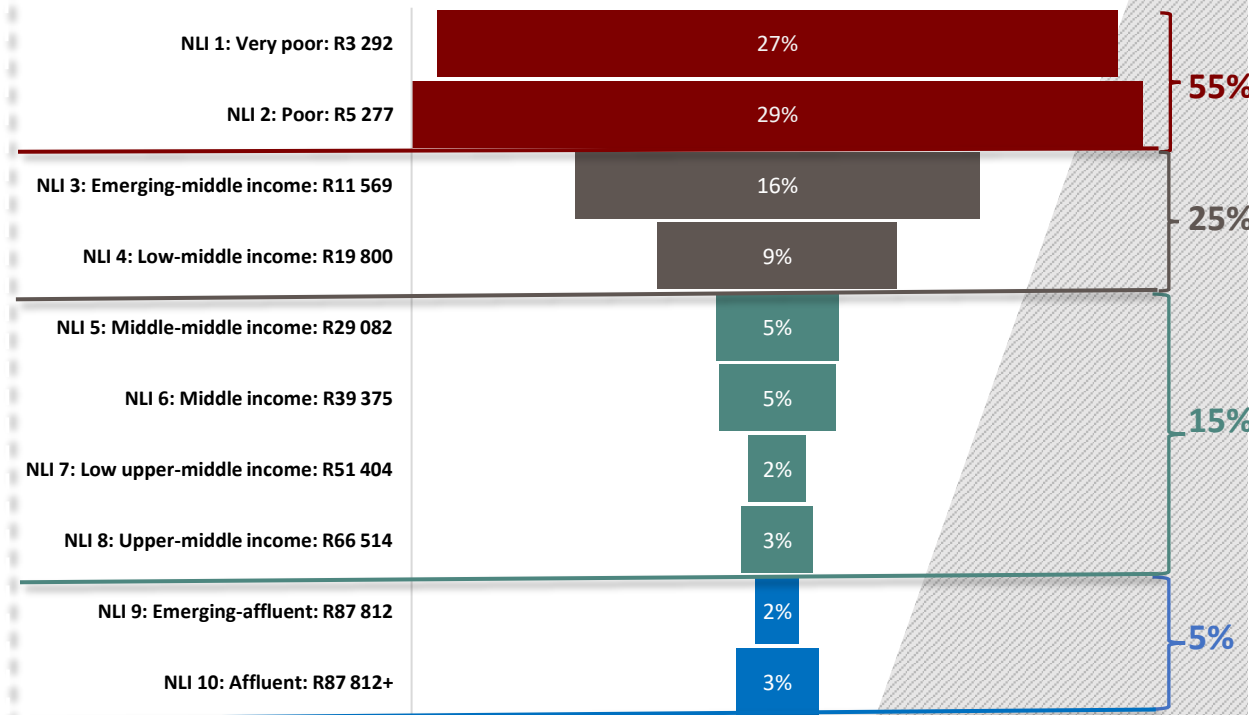
Source: Census 2011

% Unemployed (1993 - 2018)



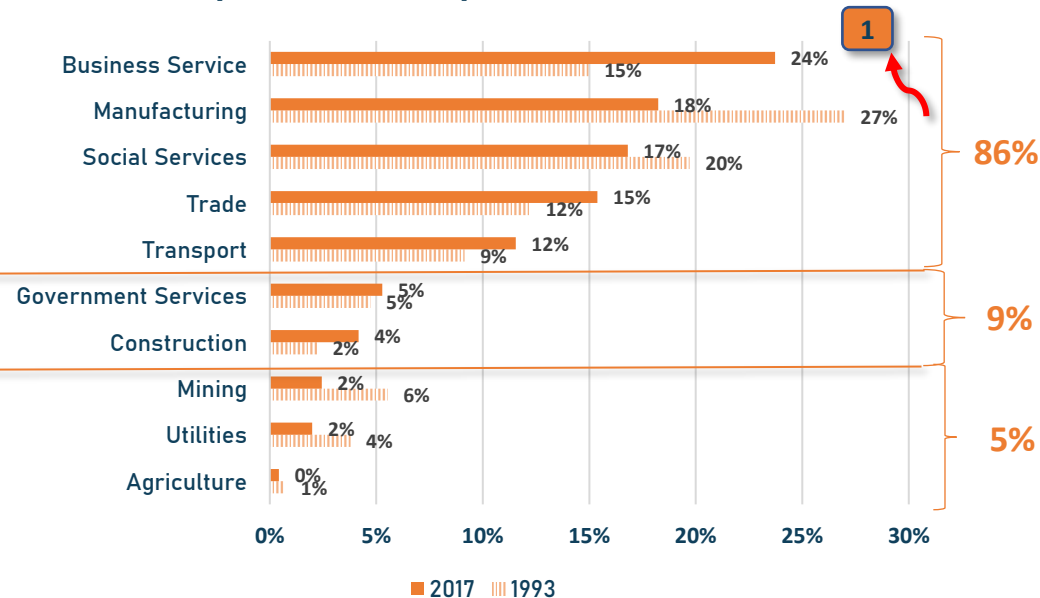
The NLI is an income-based indicator which segments households according to various lifestyle characteristics.

CoE NEIGHBOURHOOD LIVING INDEX

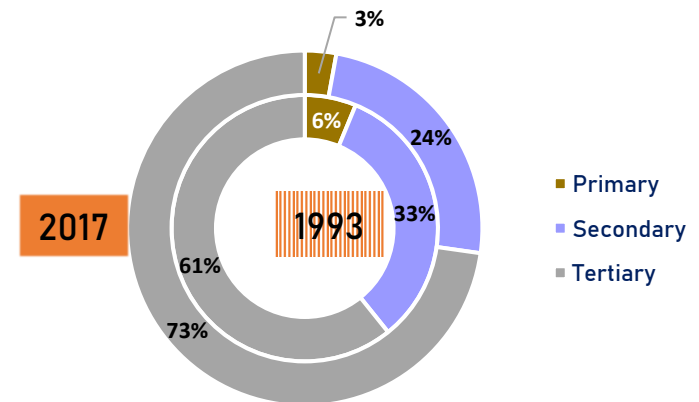


Source: City of Ekurhuleni Growth Management Strategy, Phase 2 Status Quo Assessment, Final Version, 24 April 2020

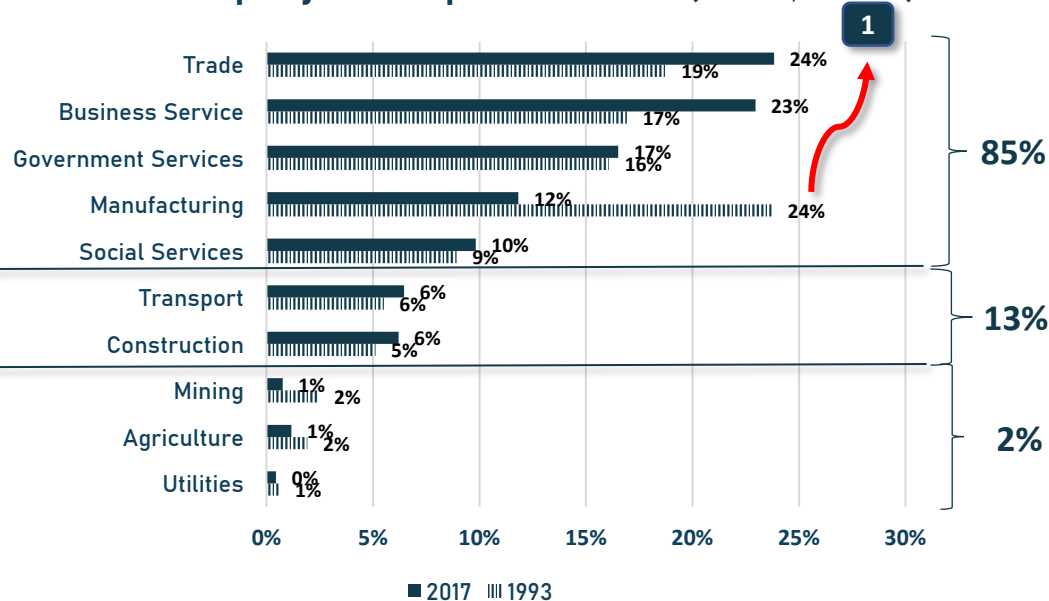
CoE GVA per annum per Sector (1993, 2017)



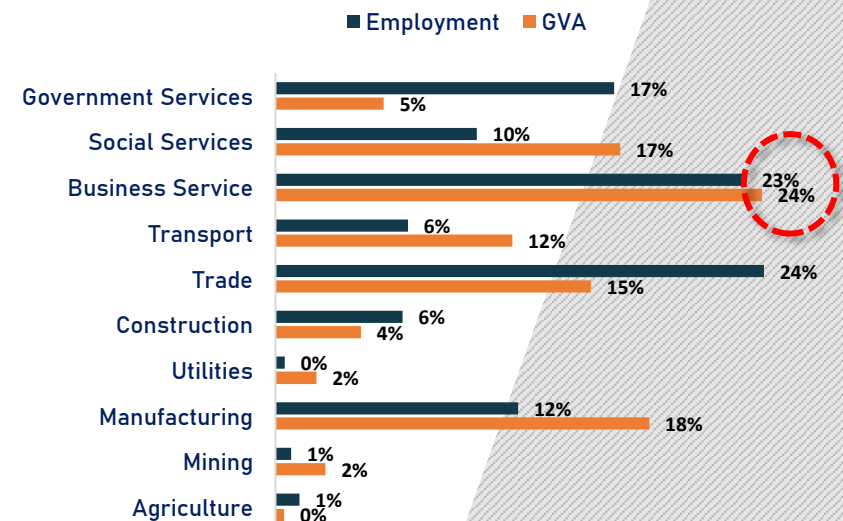
CoE: Sectoral change between 1993 and 2017



CoE Employment per Sector (1993, 2017)

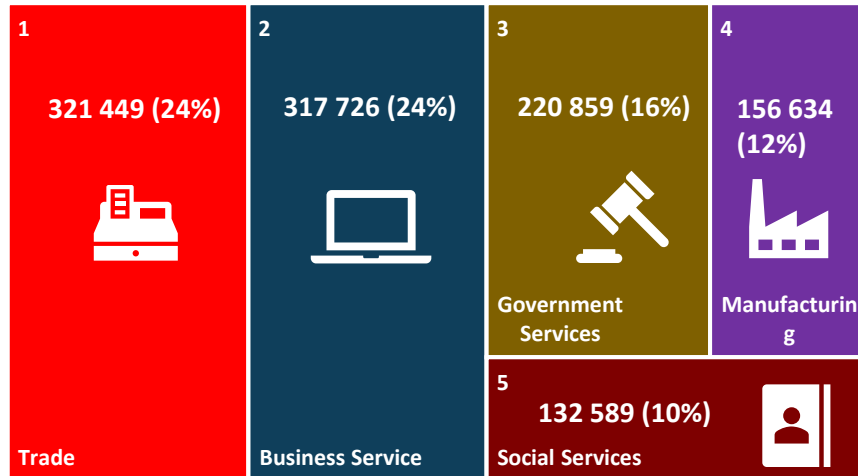


CoE GVA and Employment per Sector (2017)



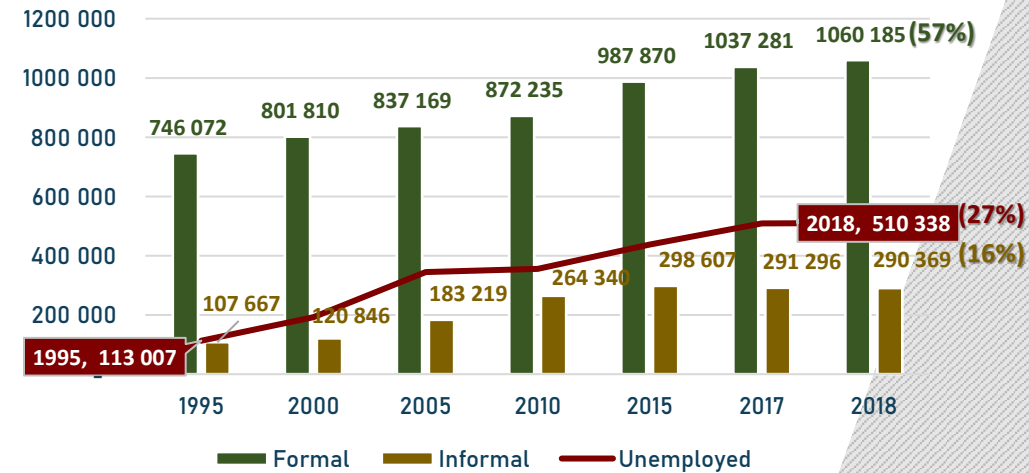
NUMBER OF JOBS (Formal & Informal), 2018: 1,35million

(TOP 5 SECTORS -1,15million: 85% all jobs)



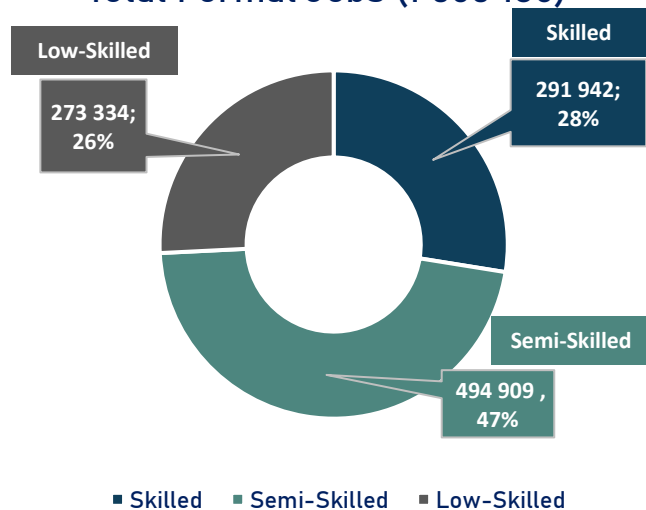
LABOUR FORCE (1993 - 2018)

Formal and Informal

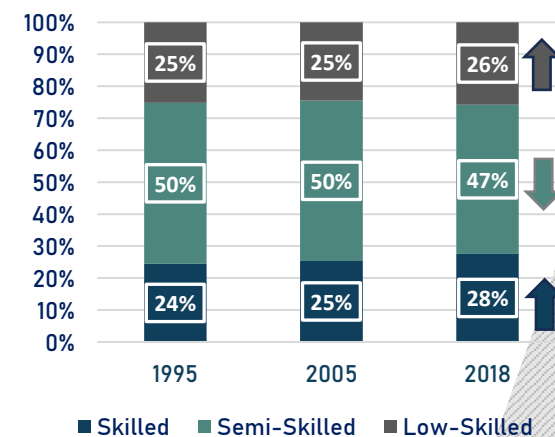


FORMAL JOBS, 2018

Total Formal Jobs (1 060 185)



% per Skill Level



Skills levels give an indication of the general well-being in the local economy

3.3 NATURAL ENVIRONMENT

3.3.1 Topography and Hydrology

Figure 6 depicts the topographic and hydrological features of the Eastern Region, from which the following is noted:

- ❖ The Eastern Region is fairly evenly sloped and forms part of four different catchment areas.
- ❖ Majority of the region falls within the Blesbokspruit Catchment which originates to the north of Benoni and Daveyton from where it flows southwards past Springs and Nigel into the Lesedi LM.
- ❖ The south-western extents of the Eastern Region (around Carnival Node) fall within the broader Klip River Catchment.
- ❖ It comprises the Rietspruit which flows in a south-westerly direction before linking into the Natalspruit which then links into the Klip River in the Midvaal LM.
- ❖ A small part of the north-western extents of the region falls within the Hennops River Catchment which flows northwards into the Rietvlei Dam in the City of Tshwane.
- ❖ A very small part of the north-eastern extents of the region falls within the Olifants River Catchment which comprises the Bronkhorstspuit and two tributaries (Os Spruit and Koffie Spruit) which flow in a north-easterly direction towards Bronkhorstspuit town.
- ❖ The 1:50-year and 1:100-year floodline areas around these rivers and streams are also depicted on Figure 6.
- ❖ Also notable from Figure 6 is the large number of pans located in various parts of the study area.

3.3.2 Geology and Mining

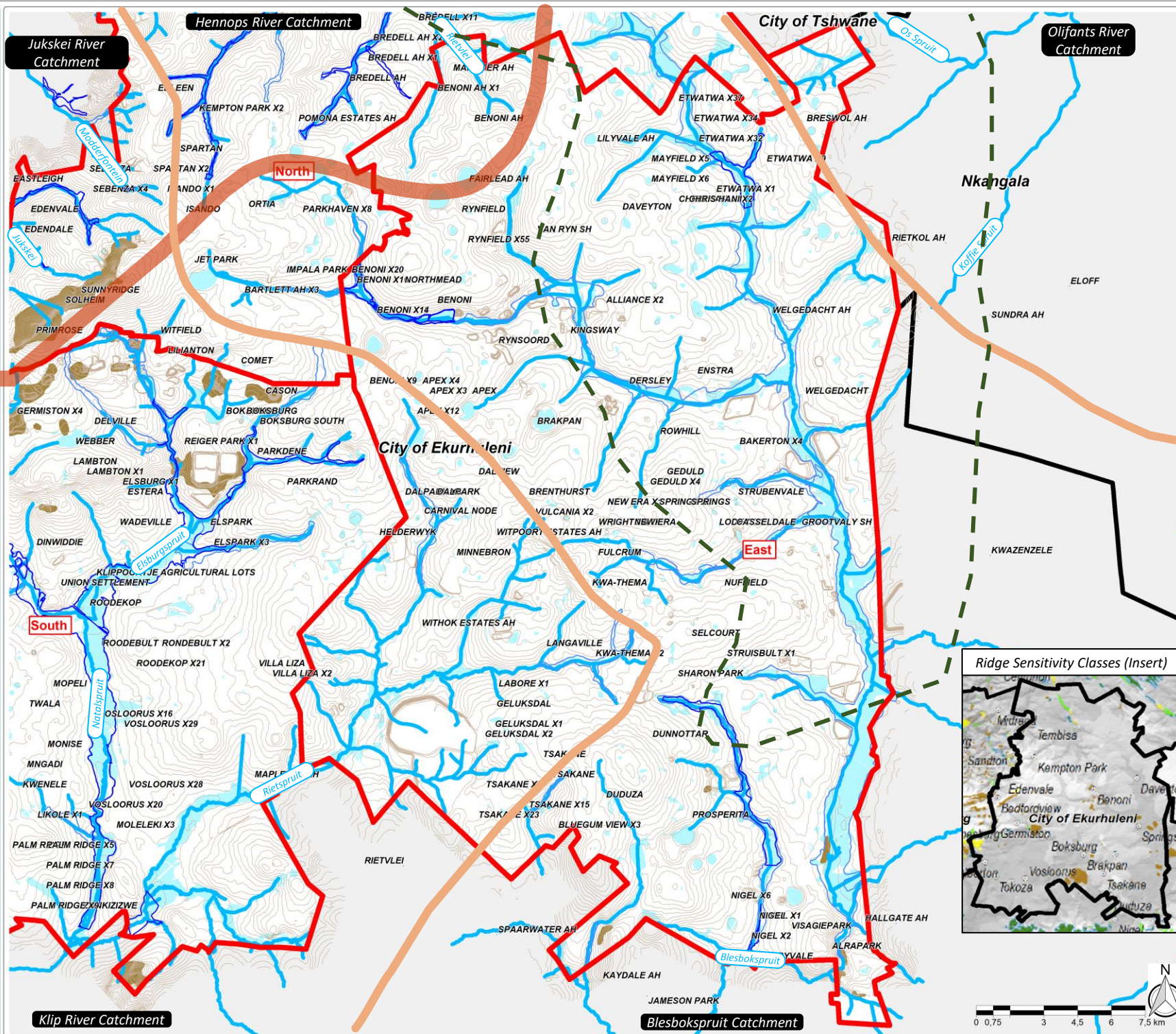
Figure 7 shows the geology and mining activity footprint in the Eastern Region from which the following is evident:

- ❖ Dolomite occurs to the north-east and east of the mining belt in the area to the north of Etwatwa and also southwards around Welgedacht and Grootvaly to the east of Springs.
- ❖ Dolomite as well as dolerite is further evident in the south-western extents of the region between Withok Estates and Villa Liza, with prominent dolerite also occurring at Kwa-Thema and to the south-west of Tsakane.
- ❖ Shallow undermining is evident throughout the central parts of the region along the historic mining belt. It extends from Dalpark towards Apex and Benoni and then towards Daveyton.
- ❖ There are a number of slime dams and mine dumps in the region with a mega slimes dam situated in the southern extents, which is the biggest slimes dam in the CoE.
- ❖ Extensive mine dump and slimes dam reclamation processes are underway which may result in these footprint areas becoming available for redevelopment in future.

3.3.3 Soil Potential

Figure 8 depicts the High Potential Agricultural Land and Protected Agricultural Land of the Eastern Region, as identified from the Gauteng Agricultural Potential Atlas: Version 5: 2019. The following is noted from this:

- ❖ A very small part of the far north-eastern extents of the Eastern Region is earmarked as Protected Agricultural Area. This forms part of a much larger cluster of Protected Agricultural Area which extends in the City of Tshwane.

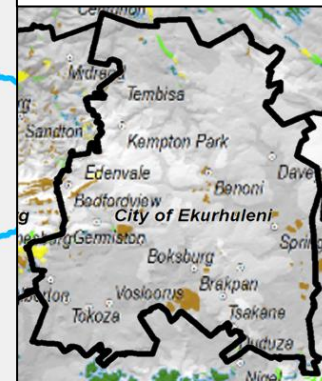


EASTERN REGION TOPOGRAPHY AND HYDROLOGY

LEGEND

- 5m Contours
- Rivers
- 50Year Floodline
- 100Year Floodline
- Pans / Wetlands / Lakes
- Ridges (C-Plan)
- Ridge Sensitivity Classes (See Insert)
 - Class 1 (0-5% Disturbed)
 - Class 2 (5-35% Disturbed)
 - Class 3 (35-65% Disturbed)
 - Class 4 (>65% Disturbed)
- Major Watershed
- Sub Catchment Areas
- Eastern Karst Belt (Ground Water) Strategic Water Recharge Area
- CoE 2023 Region Boundary
- District Municipal Boundaries

Ridge Sensitivity Classes (Insert)

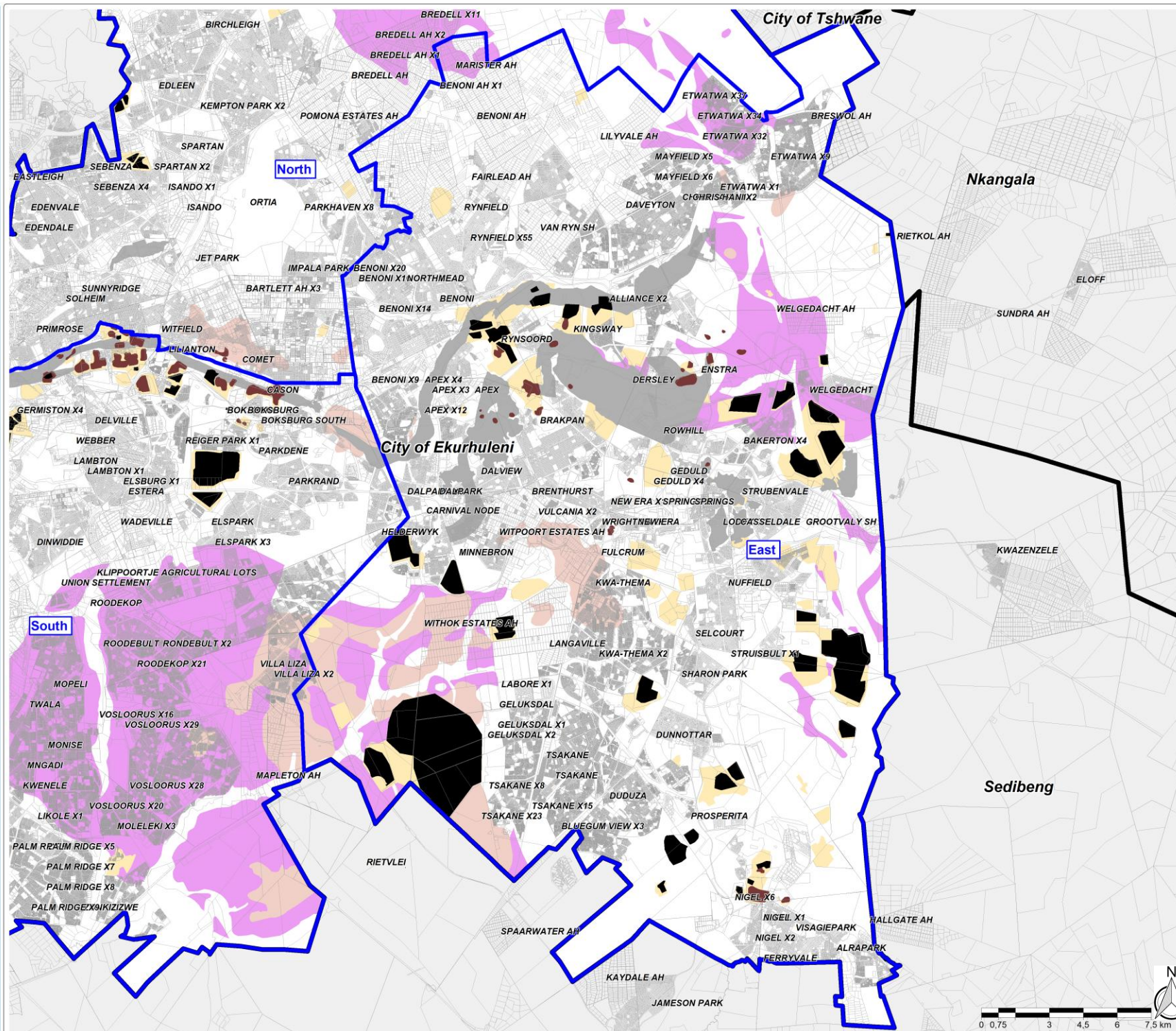


Source: CPlan 3.3; CoE

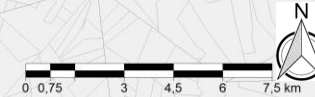
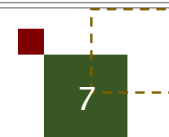
EASTERN REGION GEOLOGY AND MINING

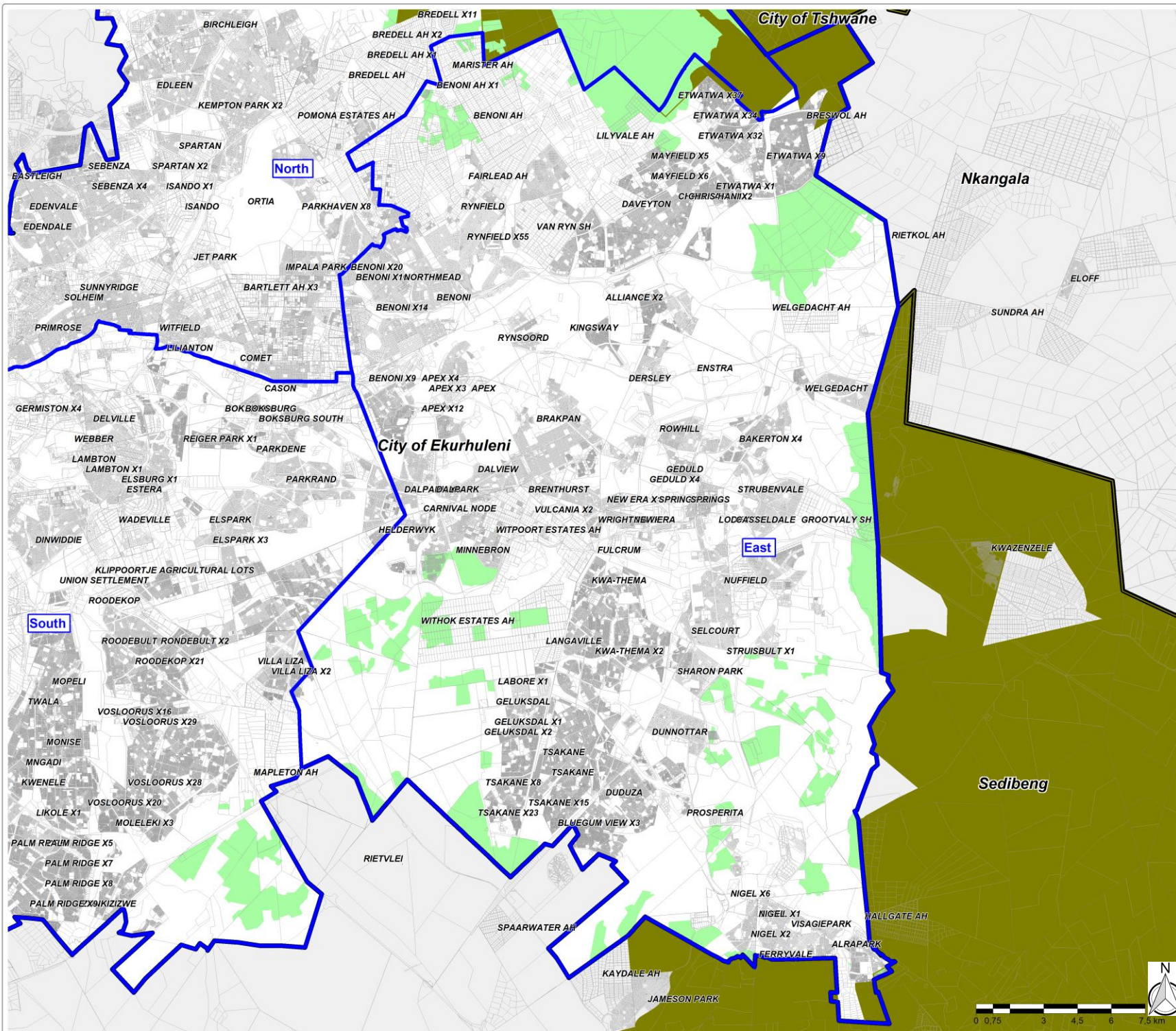
LEGEND

- Dolerite
- Dolomite
- Mining Areas
- Slimes Dam Footprint
- Mine Dump Footprint
- Shallow Undermining
- Cadastral
- CoE 2023 Region Boundary
- District Municipal Boundaries



Source: CoE GMS



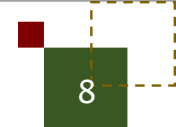


EASTERN REGION PROTECTED AGRICULTURAL AREA

LEGEND

- Protected Agricultural Area
- High Potential Agricultural Land
- Cadastral
- CoE 2023 Region Boundary
- District Municipal Boundaries

Source: GAP45; CoE MM



- ❖ Furthermore, several parcels of land identified as High Potential Agricultural Land is found throughout the region, predominantly in the undeveloped areas along the urban fringe.

3.3.4 Protected Areas

Figure 9 depicts the Protected Natural Areas found in the Eastern Region. There are 14 proclaimed Protected Areas in the CoE, of which 8 are found in the Eastern Region, including:

- ❖ The Victor Penning Bird Sanctuary⁽⁸⁾, which is owned by the CoE,
- ❖ The Kosman Bird Sanctuary⁽⁷⁾, which is owned by the CoE,
- ❖ The D Meyer Bird Sanctuary⁽⁹⁾, which is owned by the CoE,
- ❖ The Ian P Coetzer Private Nature Reserve⁽¹²⁾,
- ❖ The Andros Private Nature Reserve⁽¹³⁾,
- ❖ The Avalon Private Nature Reserve⁽¹⁴⁾,
- ❖ The Grootvaly RAMSAR site⁽³⁾, which is owned by the CoE, and
- ❖ The Marievale Nature Reserve⁽¹⁾, which is a Provincial Nature Reserve.

It should be noted that the bird sanctuaries owned by the CoE are not proclaimed but are important “islands” for bird species and are therefore considered *de facto* Protected Areas.

3.3.5 Biodiversity

The City of Ekurhuleni completed the CoE Bioregional Plan in 2021. It states that the CoE Bioregional Plan “is a tool that guides and informs **land use and resource-use planning and decision-making**” in order to preserve long-term functioning and health of national or regional priority areas known as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). It is therefore

the official reference for biodiversity priorities that need to be considered in all land-use planning and decision-making processes in the CoE.

The CoE Bioregional Plan provides a map of the priority terrestrial biodiversity areas and aquatic biodiversity areas in the metropolitan area.

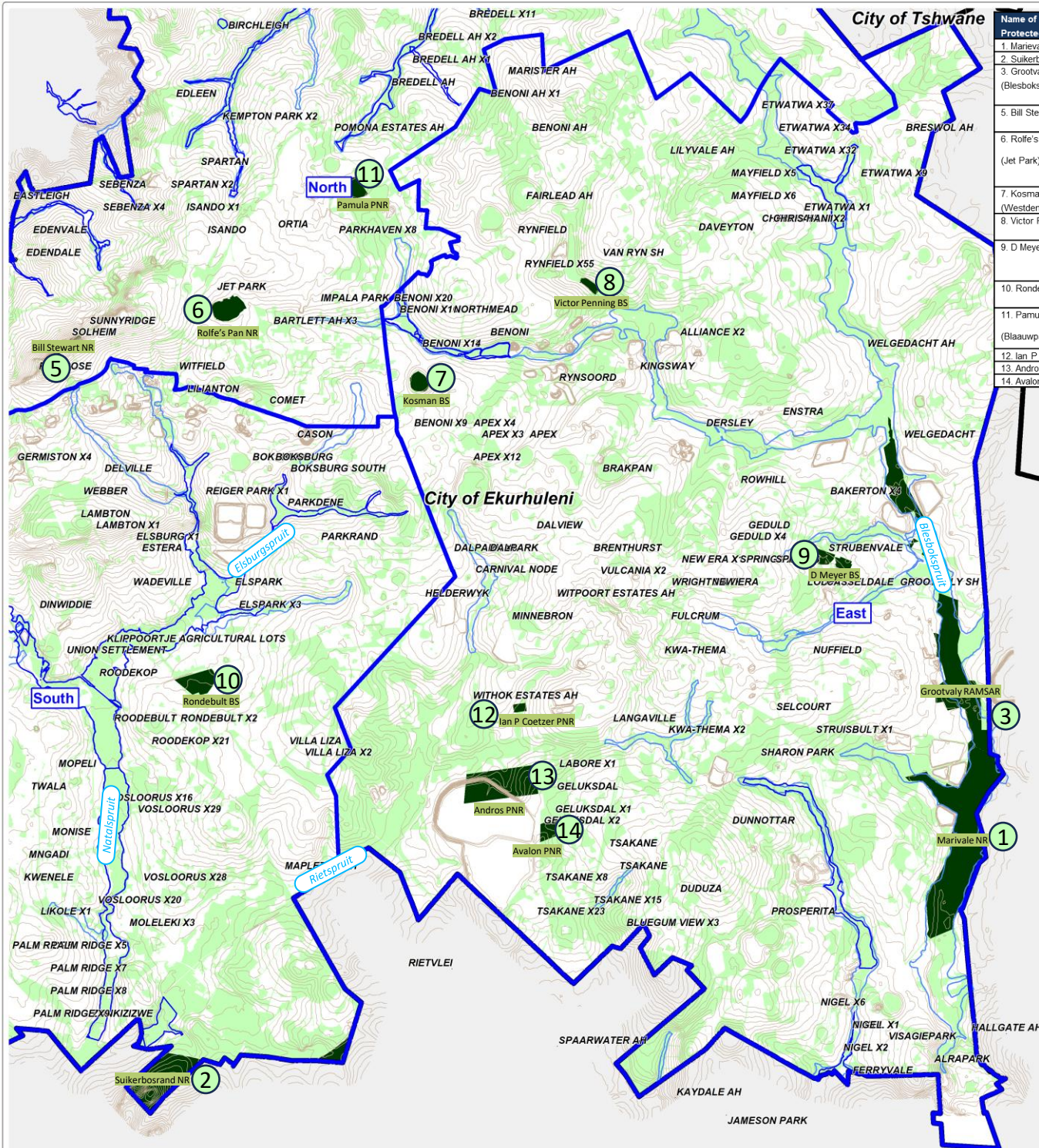
The following is notable regarding the Eastern Region:

- ❖ In terms of the terrestrial biodiversity (refer to **Figure 10.1**), it is evident that the Protected Areas, Critical Biodiversity Areas (CBA 1) as well as Ecological Support Areas (ESA 1 and ESA 2) are predominantly located along the eastern boundary of the region (associated with the Blesbokspruit) as well as the south-western parts along the Riet Spruit.
- ❖ In terms of the aquatic biodiversity of the region (refer to **Figure 10.2**), it is noted that the majority part of the Blesbokspruit area and sections of the Riet Spruit are identified as CBA 1 area, while the smaller tributaries in the region are generally identified as ESA 1 and ESA 2 areas.

The above represents the Primary Open Space System for the CoE and it also includes associated land use management guidelines to inform:

- ❖ Cross-sectoral spatial planning at all levels of government, relevant to sectors whose policies, actions and decisions impact on biodiversity,
- ❖ Environmental assessment and authorisations, and
- ❖ Natural resource management and protected area expansion programmes.

Further descriptions of each biodiversity category as depicted in the CoE Bioregional Plan are provided in **Table 3** below:



Name of Protected Area	Management/ Ownership	State of PA
1. Marivale	Provincial Nature Reserve	Mostly natural
2. Suikerbosrand	Provincial Nature Reserve	Natural
3. Grootvaly (Blesbokspruit)	Wetland reserve: Municipal, de facto	Natural wetland reserve making up Blesbokspruit RAMSAR
5. Bill Stewart	Municipal Reserve	Natural, but fragmented by road infrastructure
6. Rolfe's pan (Jet Park)	Municipal Reserve	Natural, completely surrounding by built-up, but steppingstone for mobile biodiversity
7. Kosman (Westdene Pan)	Bird Sanctuary: Municipal, de facto	Natural pan
8. Victor Penning	Bird Sanctuary: Municipal, de facto	Natural wetland/pan. Old WWTW adjacent to site
9. D Meyer	Bird Sanctuary: Municipal, de facto	Wetland and park. Walking paths through PAs
10. Rondebult	Bird Sanctuary: Municipal, de facto	Natural adjacent to WWTW
11. Pamula (Blaauwpan)	Private Nature Reserve	Terrestrial component all secondary, most of PA = natural pan
12. Ian P Coetzer	Private Nature Reserve	Two small holding plots
13. Andros	Private Nature Reserve	Transformed (old mine)
14. Avalon	Private Nature Reserve	Transformed (old mine)

EASTERN REGION PROTECTED NATURAL AREAS

LEGEND

- 5m Contours
- 50year Floodline
- 100year Floodline
- Hydrology
- Protected Areas (Conservation / Nature Reserves)
- Open Space System

Gauteng Protected Areas Expansion Strategy (GPAES) Categories (Insert 1)

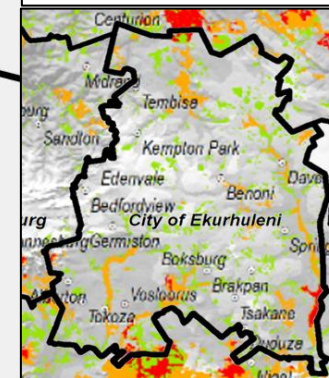
- 1
- 2
- 3

Threatened Eco-Systems (Insert 2)

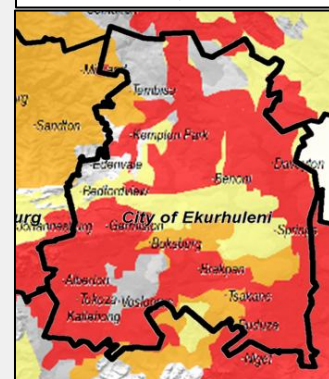
- CR - Critical
- EN - Endangered
- VU - Vulnerable

- CoE 2023 Region Boundary
- District Municipal Boundaries

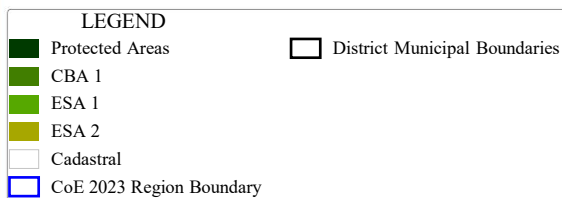
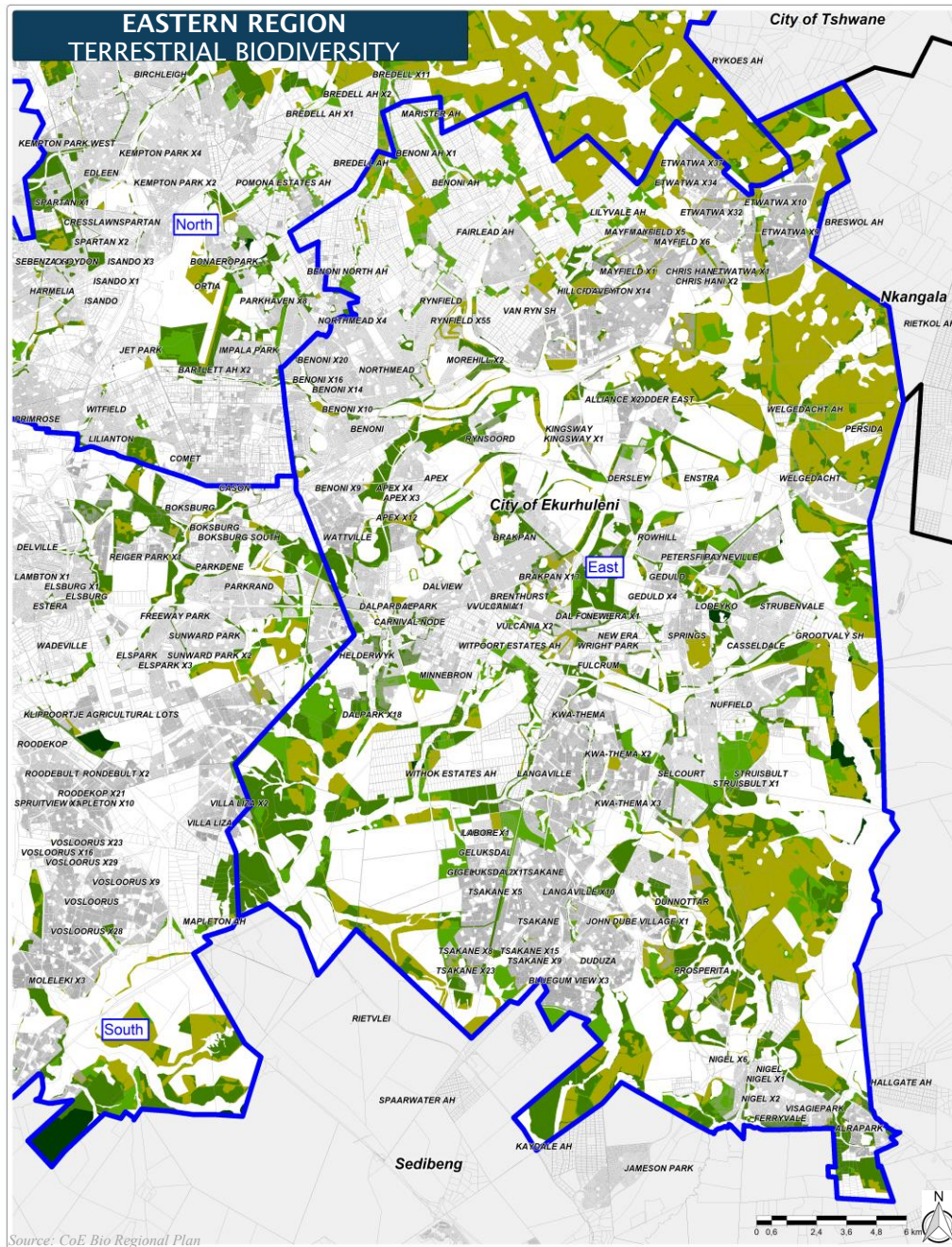
GPAES Categories (Insert 1)



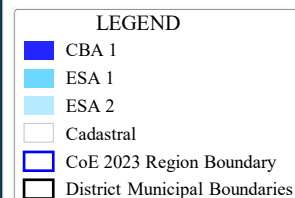
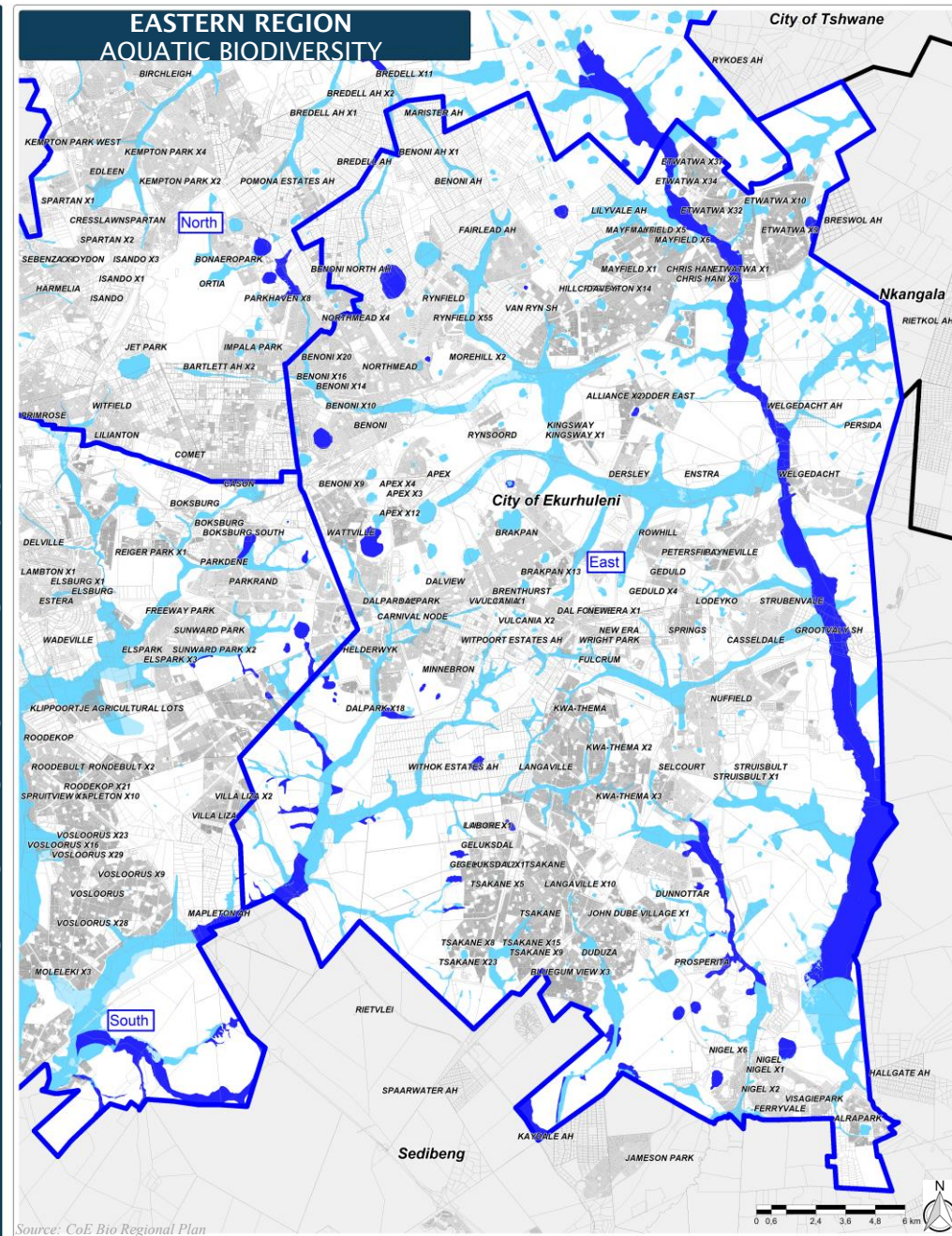
Threatened Eco Systems (Insert 2)



Source: CoE MM



10.1



10.2

Table 3: CoE Biodiversity Category Description

Protected Areas
<u>Protected Areas</u> are areas formally declared or recognised in terms of NEMPAA. This refers to “State owned” reserves, which includes National PAs managed by SANParks, Provincial PAs managed by GDARD, municipal reserves, Private Nature Reserves, and Protected Environments. A number of municipal reserves have not been formally proclaimed under any legislation but are zoned accordingly in relevant Spatial Development Frameworks and are recognised as de facto Protected Areas.
Critical Biodiversity Areas (CBA)
Terrestrial and Aquatic CBA areas are selected to meet biodiversity targets for species, ecosystems and ecological processes. These include: ❖ Critically Endangered and Endangered Ecosystems ❖ All natural areas required to meet biodiversity targets and to ensure future persistence of species, ecosystems and special habitats. CBAs are areas of high biodiversity importance and should therefore be maintained in a natural state, with no further loss of habitat and no deterioration in ecological condition.
Ecological Support Areas 1 (ESA 1)
Terrestrial and Aquatic ESAs are areas not essential for meeting biodiversity targets, but are essential for ensuring landscape connectivity between CBAs, strengthening climate change resilience, and proper function of ecosystem infrastructure for delivery of ecosystem services. ESAs may include riparian areas, powerline corridors, ridges, etc. In the urban fabric of the CoE, creative ways of maintaining these corridors need to be explored. ESAs need to be maintained in at least a semi-natural, if not natural, state. For Aquatic ESA1s, some have been identified as priorities for restoration.

Ecological Support Areas 2 (ESA 2)

As per Ecological Support Areas 1 (ESAs) above, but the site is intensively modified and are non-natural including cultivated land and small-holdings and are generally only included as critical linkages in the landscape.

For Aquatic ESA2s, some have been identified as priorities for restoration.

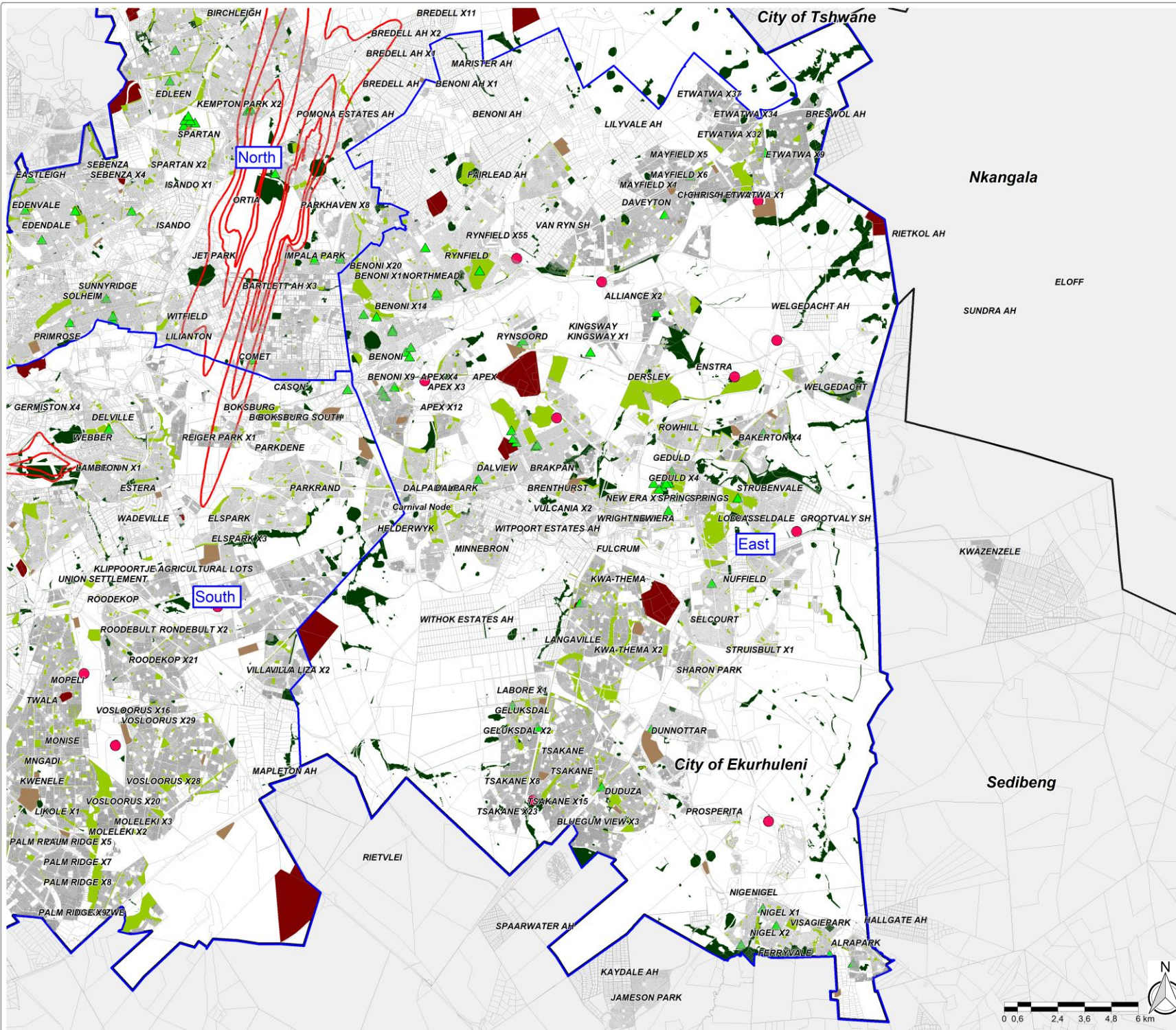
No Natural Habitat Remaining (NNR)

NNR areas that are intensively or permanently modified and are no longer considered natural or semi-natural. Although some biodiversity and ecological function may be retained, irreversible impacts on biodiversity mean that they cannot contribute towards targets.

Apart from the Bioregional Plan which represents the Primary Open Space system, the CoE also acknowledges a Secondary Open Space and Tertiary Open Space as depicted on **Figure 10.3** and which includes the elements listed in **Table 4** below.

Table 4: CoE Secondary and Tertiary Open Space Elements

Secondary Open Space	Tertiary Open Space
❖ Recreational Parks ❖ Sports fields and recreational facilities ❖ Mining related open space ❖ Agricultural areas ❖ Other Natural Open Space	❖ Landfill Sites ❖ Cemeteries ❖ Road and Rail Systems (Reserves) ❖ Stormwater Systems and Outlets ❖ Sewer Treatment Facilities ❖ Water Reservoirs and Infrastructure



EASTERN REGION

SECONDARY AND TERTIARY OPEN SPACE SYSTEM

LEGEND

-  Cadastral
 CoE 2023 Region Boundary
 District Municipal Boundaries
- Secondary Open Space
-  Other Natural Open Space (ONA)
 Recreational Parks
 Sports and Recreation
- Tertiary Open Space
-  Landfill Sites
 Sewer Works
 Cemeteries
-  Noise Contours

Source: CoE Bio Regional Plan



10.3

3.4 REGIONAL AND METROPOLITAN SPATIAL CONTEXT

Figure 11 depicts the regional and metropolitan context of the Eastern Region from which the following is notable:

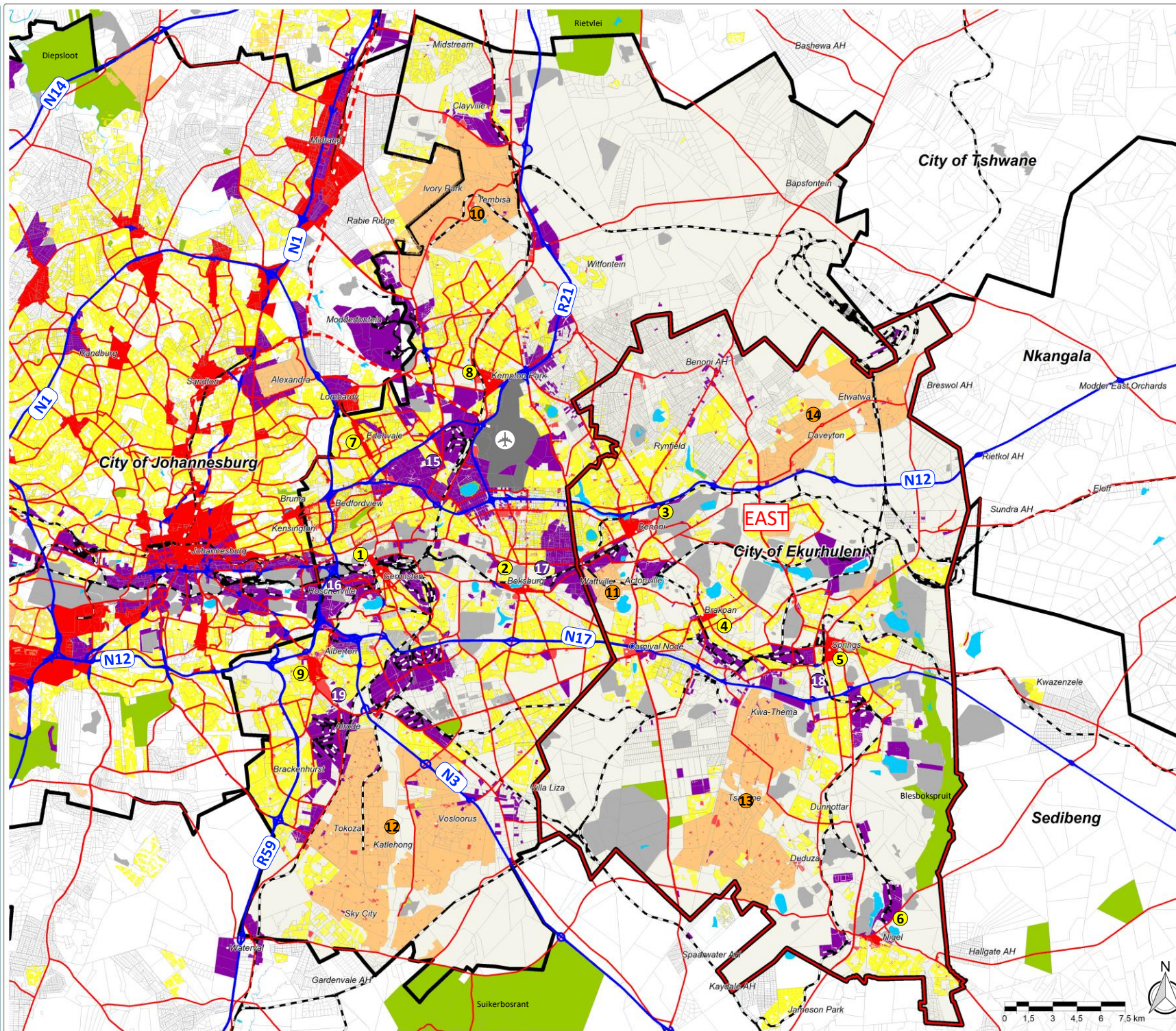
- ❖ The Eastern Region borders onto a predominantly rural environment to the north (Northern Region); the north-east (Victor Khanye Local Municipality); and to the south (Lesedi Local Municipality).
- ❖ To the west it borders onto the dense urban fabric of the Aerotropolis in the Northern Region; as well as the less dense urban fabric of Boksburg and the Villa Liza areas further to the south.
- ❖ The urban fabric of the Eastern Region is much more fragmented than that of the Northern and Southern Regions with large areas still being vacant.
- ❖ The Eastern Region comprises three clusters of former township areas: Daveyton-Etswatwa to the north; Wattville-Actonville in the central part; and the KwaThema, Tsakane and Duduza complex to the south.
- ❖ The historic mining footprint in the Eastern Region is fairly large.
- ❖ The northern extents of the study area experience significant development pressure (urban expansion in the smallholding areas to the north of Benoni) and in the Mayfield area to the north of Daveyton and Etswatwa.
- ❖ Both routes N12 and N17 traverse the Eastern Region in an east-west direction, but there is no significant linear development pressure along any of these two routes except for the development of the Carnival Node around route N17 in recent years.

3.5 MOVEMENT NETWORK

3.5.1 Road Network

Figure 12.1 depicts the Class 1, 2 and 3 road network in the study area. It is briefly summarized as follow:

- ❖ The freeway network in the Eastern Region comprises routes N12 and N17 which traverse the area in an east-west direction.
- ❖ Route N12 is the main link between the City of Joburg and Emalahleni from where route N12 links up with route N4 which extends further eastwards up to the Maputo Port in Mozambique.
- ❖ Route N17 extends eastwards towards the petrochemical cluster in Secunda and further eastwards towards the town of Ermelo from where it links up with route N2 which leads towards the Richards Bay Port in KwaZulu-Natal.
- ❖ Route N3 runs to the south of the Eastern Region from where it links up with the Durban-eThekweni Port in KwaZulu-Natal.
- ❖ Route R23 is an important north-south link between routes R21, N12, N17 and N3 in the western extents of the Eastern Region.
- ❖ Similarly, route R51 is a long-distance north-south link between Bapsfontein and Daveyton to the north; Springs in the central part; and Nigel and Heidelberg further to the south (linking up with routes N12, N17 and N3).
- ❖ In an east-west direction one of the most prominent routes in the Eastern Region include route R29 (Main Reef Road) which extends eastwards from Benoni towards Springs and from there further eastwards towards Secunda (parallel to route N17).
- ❖ Route R554 runs through the central parts of the study area linking the Carnival Node to Brakpan and Springs from where it extends northwards to link up with route R555 running parallel to route N12.
- ❖ To the far south route R550 links Palm Ridge to Tsakane and to Nigel from where it links up with route R42 towards Delmas.



REGIONAL SPATIAL STRUCTURE

LEGEND

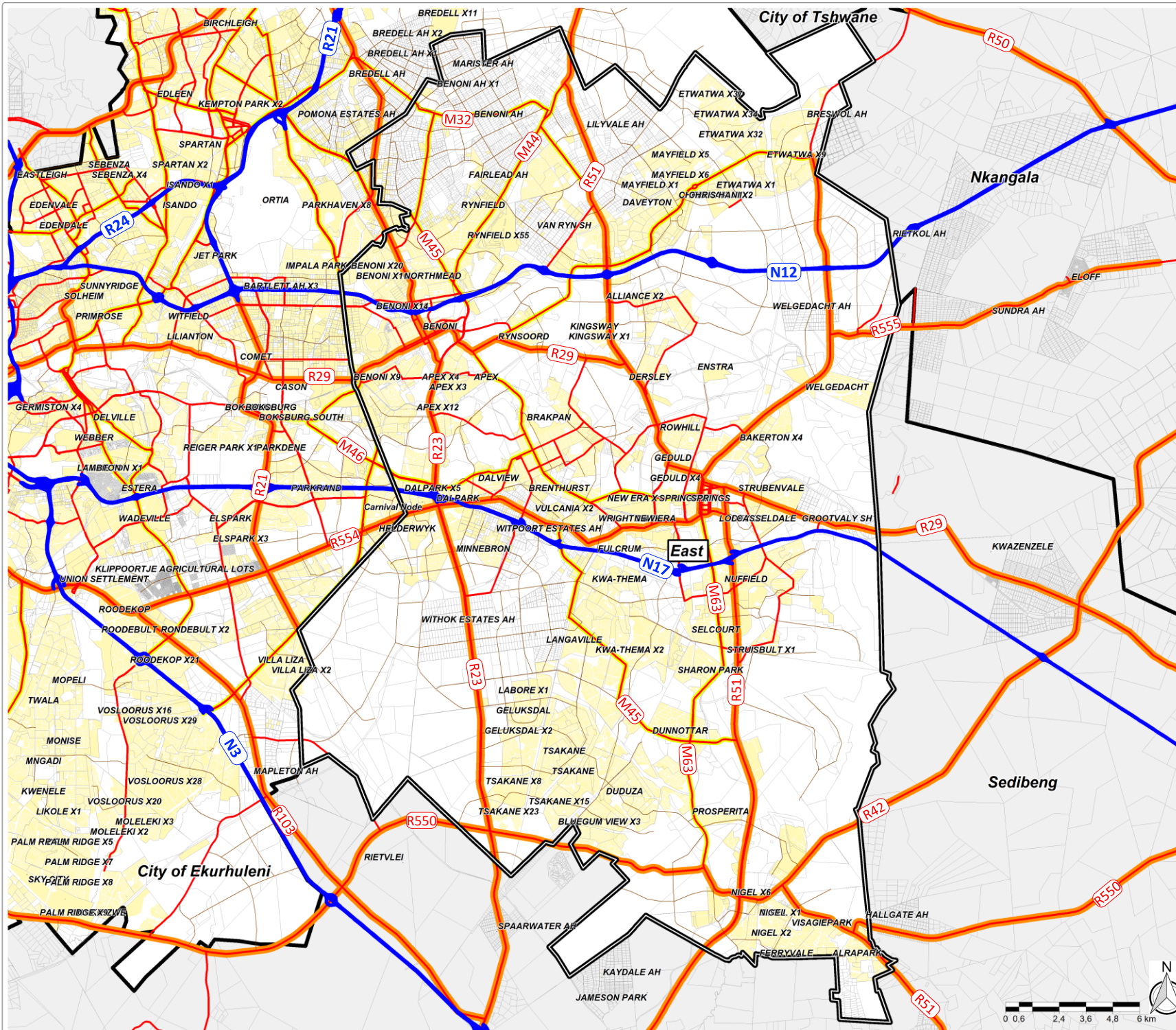
- Eastern Region Boundary
- Extensive Agriculture
- Residential Areas
- Marginalised Peripheral Townships
- Major Business Nodes
- Industrial / Commercial Areas
- Mining Belt
- Protected Areas
- Dams / Lakes
- Aerropolis
- District Municipal Boundaries
- National Roads
- Main Roads
- Railway
- Gautrain Railway
- 1 Former Nine Towns (1-9)
- 10 Former Township Areas (10-14)
- 15 Industrial Clusters (15-19)

Source: CoE BEPP; CoJ SDF

EASTERN REGION EXISTING ROAD NETWORK

LEGEND

-  East Region Boundary
-  Towns and Settlements
-  Cadastral (Farms / Holdings)
-  District Municipal Boundaries
-  Class 1 Roads
-  Class 2 Roads
-  Class 3 Roads



Source: CoE GMS; CoE EMF; CoE MM

- ❖ Other important lower order routes serving the Eastern Region include:
 - Routes M32, M44 and M45 serving the northern agricultural holding areas;
 - Modderbee Road which is the link between Benoni, Daveyton and Etwatwa;
 - Main Reef Road between Benoni CBD, Brakpan CBD and Springs CBD;
 - Route M45 serving KwaThema and Duduza and linking up with Dunnottar;
 - Route M63 running parallel to the west of the railway line from Springs up to Nigel; and
 - Route M46 which links Boksburg CBD to Brakpan CBD.

Figure 12.2 shows that most of the routes noted above are classified as Class 2 (K-Routes) in the Gauteng Strategic Road Network. This means that these routes are intended to act as mobility routes (Conventional Dual Carriageway) supporting the freeway network in the province. [It should be noted that a K-route is intended not to provide direct access to any land use (except a filling station) – hence land use management along these alignments is very strict].

Also important to note from Figure 12.2 is the proposed future freeway network in the Eastern Region which includes the following:

- ❖ PWV15 to the west which will broadly serve the movement desire line currently served by route R23 (refer to Figure 12.1) – providing a high order bypass route to the east of O.R. Tambo Airport, linking routes R21, N12, N17 and N3 to one another;
- ❖ PWV117 which is a strategic component of the Gauteng Province Freight Strategy (linking Tambo Springs Freight Hub to Sentrarrand and from there northwards towards City of Tshwane Pyramid Freight Hub);
- ❖ PWV3, PWV19, PWV16 and PWV18 are all very long-term options in the context of the Eastern Region.

3.5.2 Airports and Rail Network

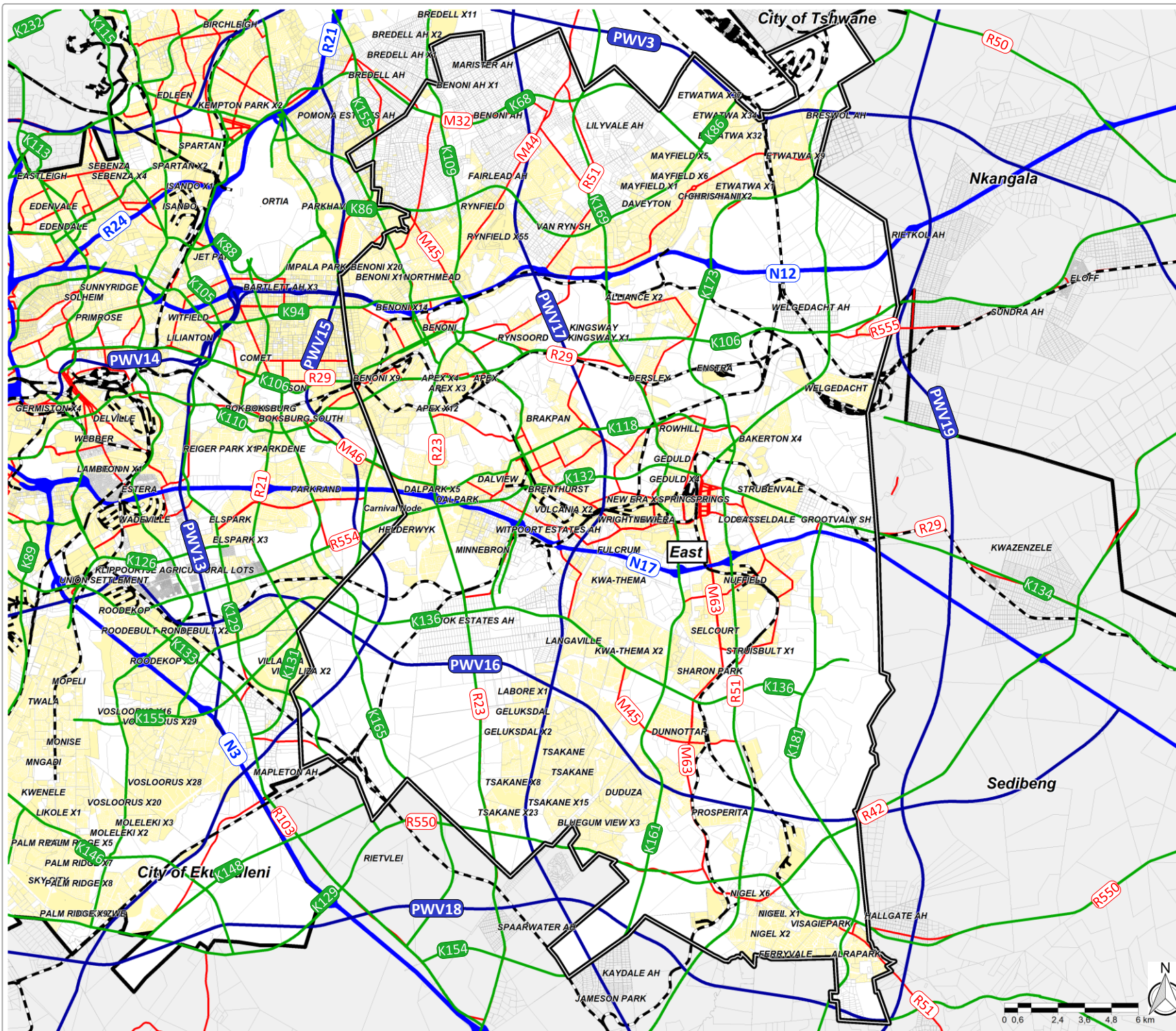
Figure 12.3 depicts the existing airports in the Eastern Region, as well as the rail network and railway stations. The most salient features in this regard are as follow:

3.5.2.1 Airports/Airfields

- ❖ There are two significant recreational airfields in the central parts of the study area: Brakpan and Springs. The Petite Airfield to the far north and the Fincham Airfield to the far south are significantly smaller.

3.5.2.2 Rail Network

- ❖ The extensive rail network in the Eastern Region serves a dual commuter and freight function.
- ❖ The main commuter lines include the Dunswart-Daveyton line to the north which includes stations like Northmead, Van Rhyn, Alliance and Daveyton; as well as the Benoni-Brakpan-Springs-Nigel line running through the central and southern parts of the study area and which include stations like Dunswart, Benoni, New Klipfontein, Anzak, Brakpan, Schapenrust, New Era, Springs, Dunnottar and Nigel (18 stations).
- ❖ There are proposals to expand both these commuter lines by way of:
 - an extension from Daveyton towards Etwatwa to the north; and
 - an extended network from Schapenrust southwards to serve the Kwatsaduza complex to the south (refer to Figure 12.3).
- ❖ The remaining rail network in the Eastern Region is predominantly freight orientated with the north-south line between the proposed Tambo Springs Freight Hub and the Sentrarrand Intermodal Terminal representing part of the Gauteng Rail Freight bypass route which links up with the Pyramid Freight Hub in the City of Tshwane to the north.
- ❖ Also notable is the Gibela Rail Factory located in the vicinity of Dunnottar.



EASTERN REGION PROPOSED FUTURE ROAD NETWORK

LEGEND

- Towns and Settlements
- Cadastral (Farms / Holdings)
- District Municipal Boundaries
- Class 1 Roads
- Proposed Class 1 Roads
- Class 2 Roads
- Proposed Class 2 Roads
- PRASA Railway Line

Source: CoE GMS; CoE EMF; CoE MM

EASTERN REGION AIRPORTS AND RAIL NETWORK

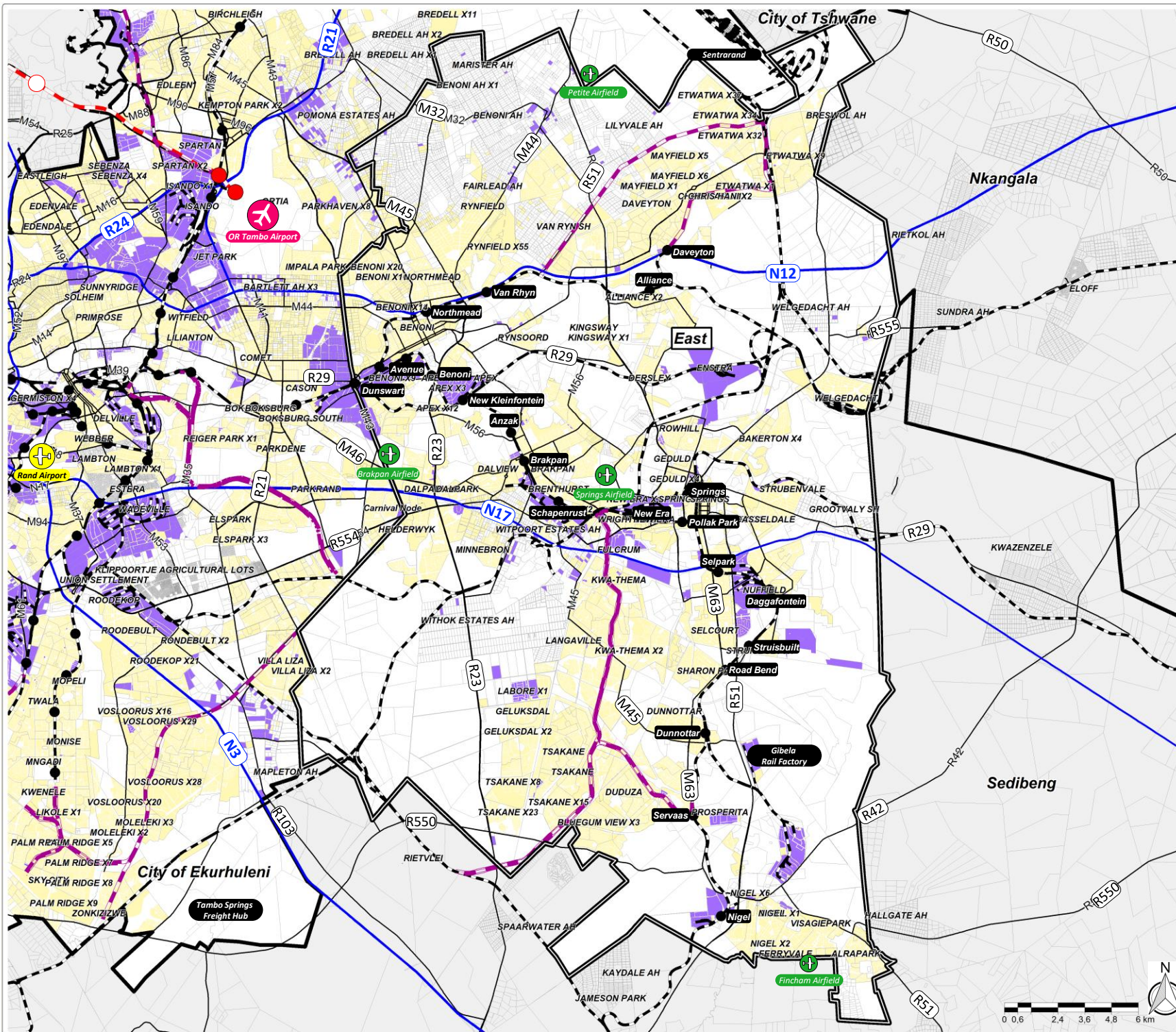
LEGEND

-  Towns and Settlements
-  Cadastral (Holdings / Farms)
-  District Municipal Boundaries
-  Class 1 Roads
-  Class 2 Roads
-  PRASA Railway Line
-  Railway Station
-  Gautrain Railway
-  Gautrain Stations
-  Planned Gautrain Station
-  Proposed Rail Network
-  Aerotropolis
-  Airport
-  Airfield
-  Tambo Springs Freight / Logistics Hub / Inland Port
-  Sentrarand
-  Industrial / Commercial

Source: CoE GMS; CoE EMF; CoE MM



12.3



3.5.3 Integrated Public Transport Network

Figure 12.4 illustrates the extent of the Integrated Public Transport Network (IPTN) for the Eastern Region. It comprises the following:

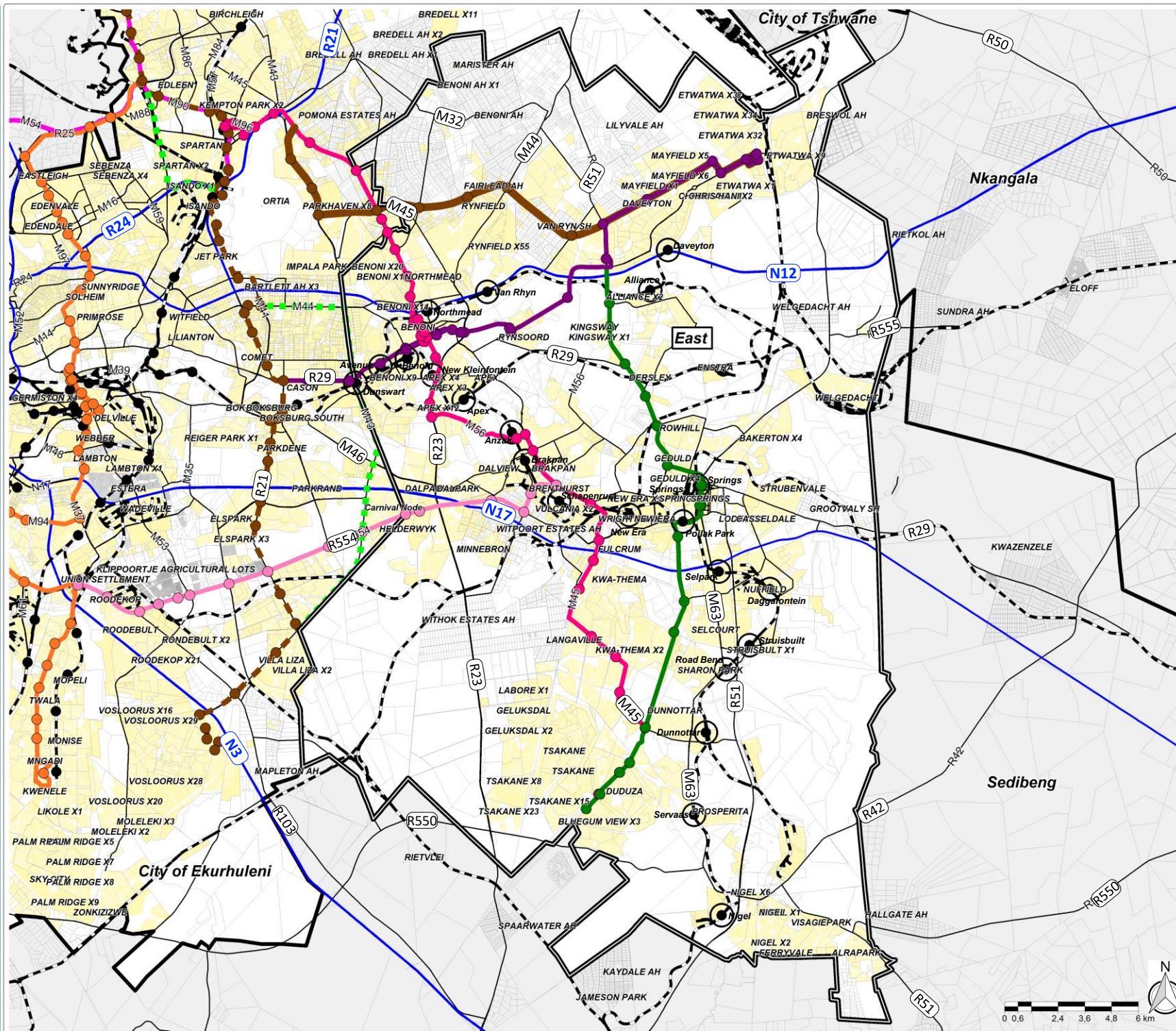
- ❖ BRT Route 3 which extends from Kempton Park towards Pomona, Benoni CBD and Apex, and further southwards towards Brakpan CBD and KwaThema where it links up with BRT Route 4.
- ❖ BRT Route 4 which runs southwards from Daveyton towards Springs CBD, and from there further southwards through KwaThema, Tsakane and up to Duduza in the far south.
- ❖ BRT Route 5 which extends westwards from BRT Route 3 at Brakpan CBD towards Carnival Node and further westwards towards Roodekop.
- ❖ BRT Route 6 which represents an east-west link between Daveyton-Etswatwa and the Aerotropolis at Atlas Road.
- ❖ BRT Route 7 which represents the main link between Dunswart, Benoni, Daveyton and Etswatwa.
- ❖ An extensive network of supporting feeder routes for bus and taxi services which functionally links up with the BRT stops and with railway stations.
- ❖ A total of about 21 railway stations along the commuter rail network around which Transit Oriented Development could be promoted.

3.6 REGIONAL LAND USE DISTRIBUTION

Figure 13.1 illustrates the consolidated spatial structure and land use distribution within the Eastern Region based on existing development rights. Each of the main land use categories is dealt with separately in the sections to follow.

Also important to note at this stage is the historic development trends in the Eastern Region and surrounds based on the dating of existing General Plans in the area as illustrated on **Figure 13.2**. The following is notable in this regard:

- ❖ All General Plans that existed by 1970 are depicted in light yellow. From this it is clear that most of the Agricultural Holdings as well as residential areas around Benoni, Brakpan, Springs, Dunnottar and Nigel existed at the time. (Approximately 1 828 ha).
- ❖ All General Plans dated between 1971 and the year 2000 are illustrated in bright yellow. Most notable in this regard is the inclusion of Daveyton, Etswatwa, KwaThema, Tsakane and Duduza during this period. It comprises about 13 687 ha of land which translates to around 456 ha/annum during these three decades.
- ❖ All General Plans approved since 2001 are shown in orange. From this it is evident that there is significant activity around Daveyton and Etswatwa to the north; around the Carnival Node to the south-west of Brakpan; and around Tsakane and Duduza to the south (5 921 ha at a rate of about 282 ha/annum).



EASTERN REGION INTEGRATED PUBLIC TRANSPORT NETWORK

LEGEND

- Towns and Settlements
- Cadastral (Holdings / Farms)
- District Municipal Boundaries
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Railway Stations
- Railway Station 500m Buffer

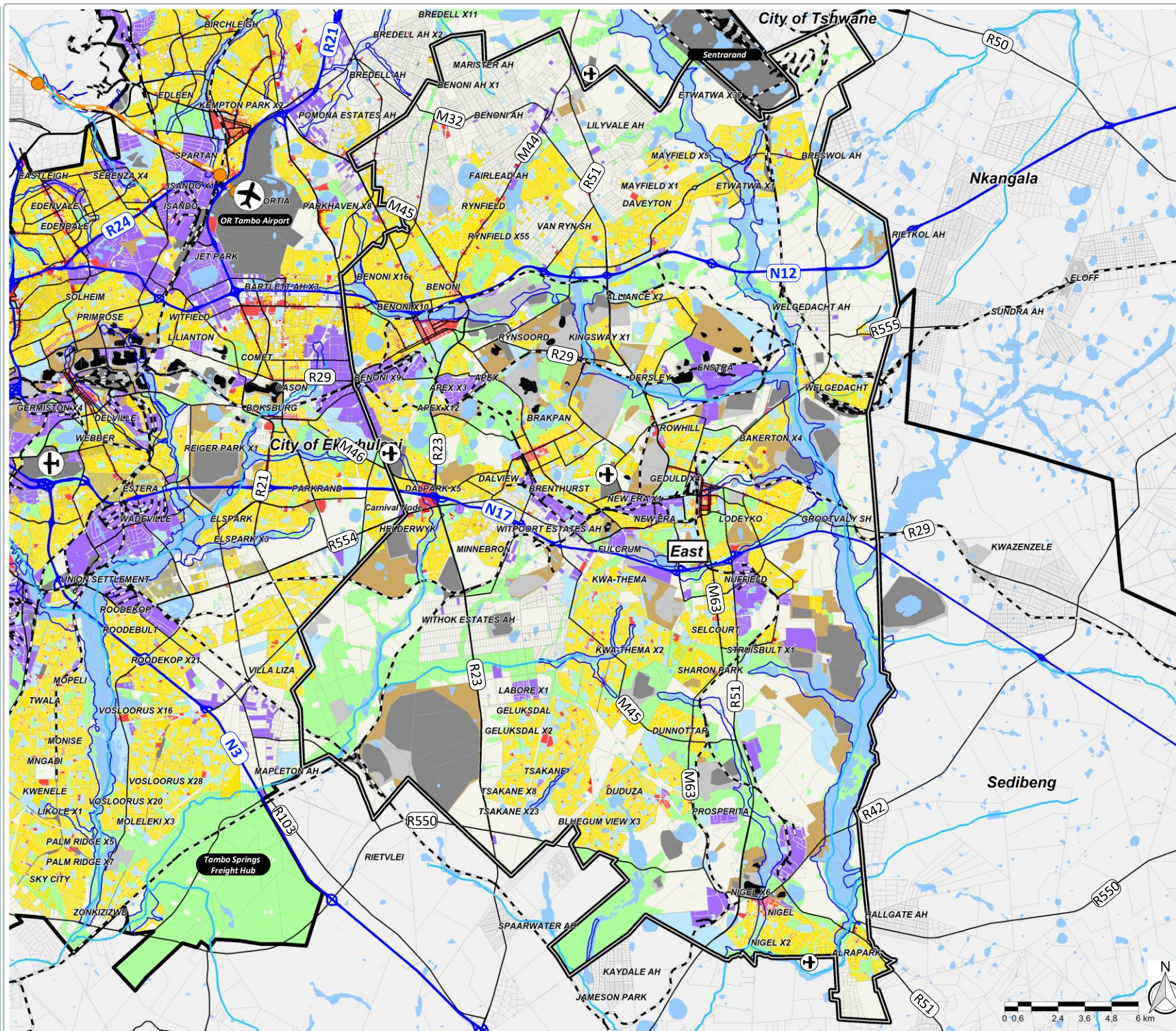
CoE BRT Routes

- Route 1
- Route 1 Stops
- Route 2
- Route 2 Stops
- Route 3
- Route 3 Stops
- Route 4
- Route 4 Stops
- Route 5
- Route 5 Stops
- Route 6
- Route 6 Stops
- Route 7
- Route 7 Stops
- Complimentary Routes (1A/1B)
- Feeder Routes

CoJ BRT Routes

- Randburg – OR Tambo Corridor

Source: CoE GMS; CoE EMF; CoE MM

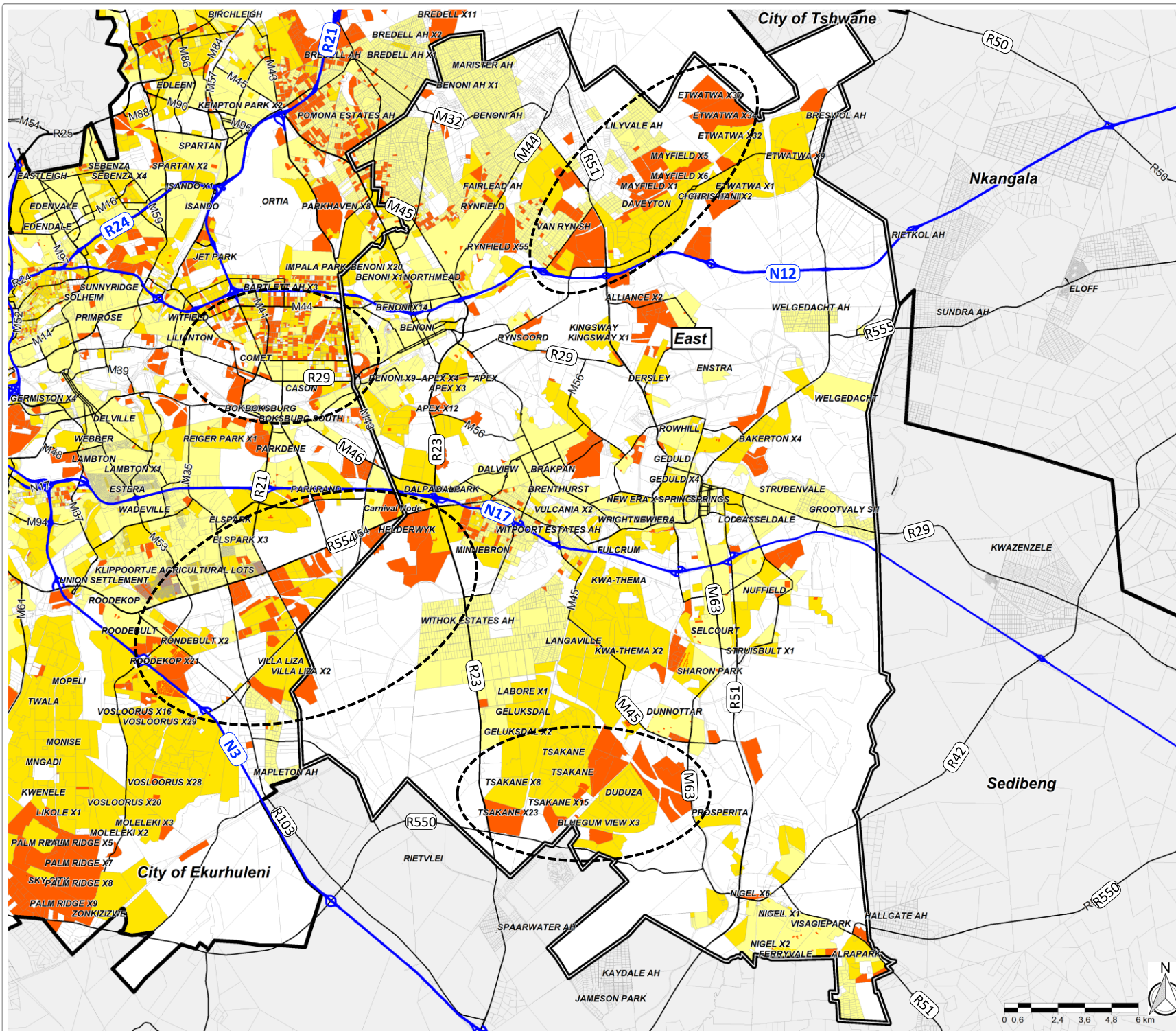


EASTERN REGION

CoE LAND USE COMPOSITION

LEGEND

- Cadastral (Holdings / Farms)
- Eastern Region Boundary
- District Municipal Boundaries
- Business
- Industrial
- Mining Areas
- Slimes Dams Footprint
- Mine Dumps Footprint
- Residential
- Community Facility / Services
- Open Space / Recreation
- EMF Wetlands
- 100y Floodline
- Major Transport (Rail, Air etc.)
- Extensive Agriculture
- National Roads
- Main Roads
- Other Roads
- Rail Network
- Gautrain Network
- Gautrain Stations
- Aerotropolis
- Airport
- Airfield



EASTERN REGION URBAN FOOTPRINT EXPANSION TRENDS

LEGEND

Age of General Plan

1890 – 1970 (18 028ha)

1971 – 2000 (13 687ha) 456ha/a

2001 – 2022 (5 921ha) 282ha/a

Eastern Region Boundary

District Municipalities

National Roads

Provincial Roads

0 0.6 2.4 3.6 4.8 6 km



3.6.1 Economic Activity

3.6.1.1 Business

Figure 13.3.1 shows the distribution and spatial extent of Business activity in and around the Eastern Region from which the following should be noted:

- ❖ The four historic Central Business Districts in the Eastern Region includes Benoni⁽¹⁾, Brakpan⁽²⁾, Springs⁽³⁾ and Nigel⁽⁴⁾.
- ❖ Apart from the four CBDs noted above, the Carnival Node⁽⁵⁾ represents a significant cluster of business use which developed over the past decade.
- ❖ In the Daveyton-Etswatwa area several areas (see numbers 6, 7, 8 and 9) have been identified as Township Regeneration Areas eligible for funding from the Neighbourhood Development Partnership Fund to promote local economic development and service delivery around modal transfer facilities.
- ❖ Similarly, the entire Wattville-Actonville area⁽¹⁰⁾ has been earmarked as a Township Regeneration Area.
- ❖ To the south three Township Regeneration Areas have been identified at: KwaThema CBD⁽¹¹⁾, the Tsakane Node⁽¹²⁾ and Duduza Node⁽¹³⁾ respectively.
- ❖ Also notable is the scattered nature of business use in both the Kwatsaduza and the Daveyton-Etswatwa areas.
- ❖ Significant trends of linear business development in the study area are evident along route M45 (O'Reilly Merry Street)⁽¹⁴⁾, as well as Pretoria Road⁽¹⁵⁾ in Rynfield; along Lakefield Road⁽¹⁶⁾ to the west of Benoni CBD, and along Main Reef Road⁽¹⁷⁾ to the north of Springs CBD at Rowhill.

Supplementary to the above, **Figure 13.3.2** shows the extent and distribution of shopping centres in the Eastern Region. The Region comprises a total of 54 shopping centres collectively representing about 643 175 m² of business floor space as depicted on **Table 5**.

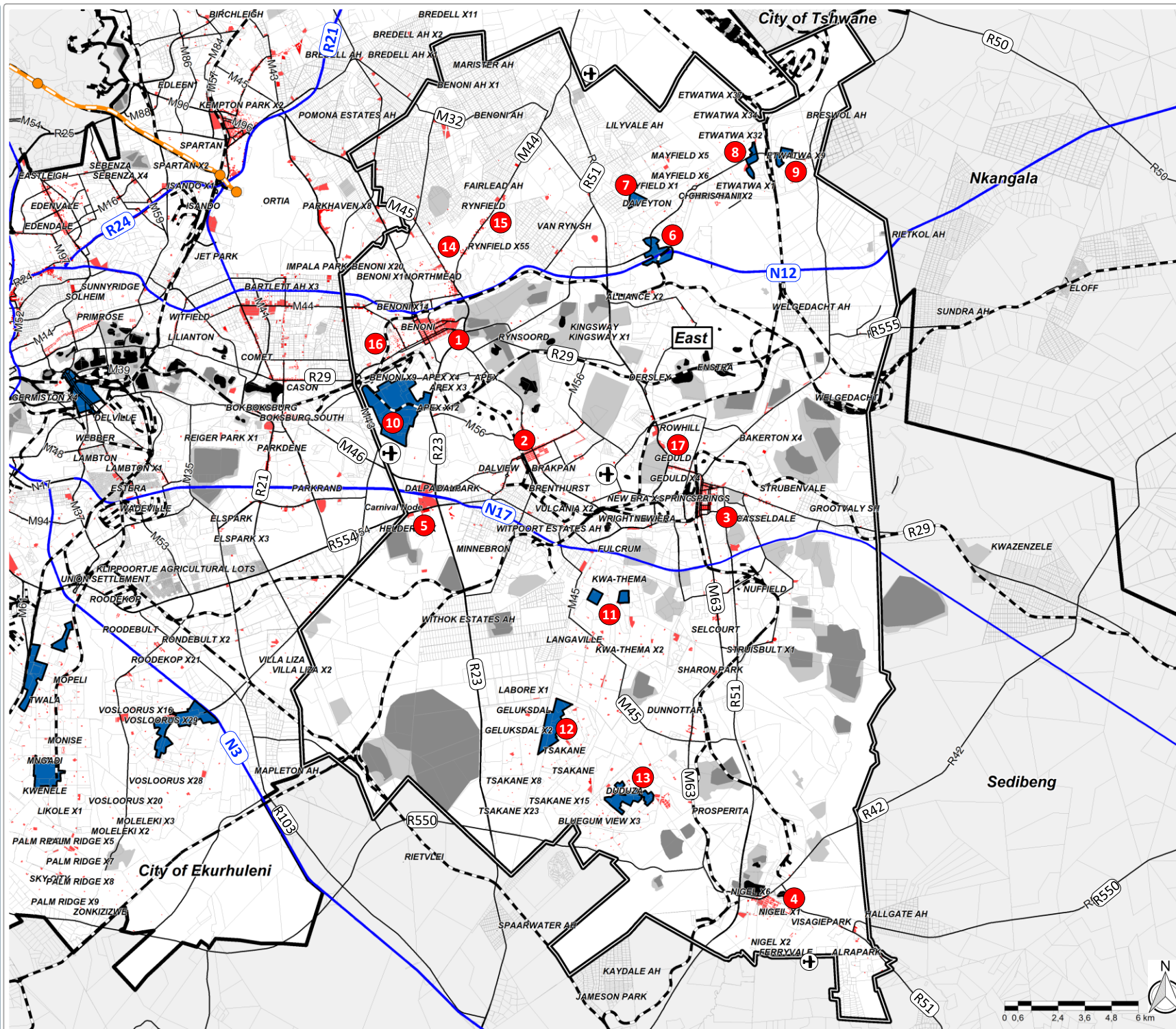
These include 16 neighbourhood centres, 5 community centres and 1 small regional centre and 3 regional centres.

Furthermore, there are 5 centres classified as CBD Centres and 11 Focus/Niche Centres.

Table 5: Eastern Region Retail Floor Area (m²) within Shopping Centres, 2022

Number of Centres	CoE Type of Centre	Size of Centre (m ²)	Floor Area Size (m ²)	Average Size (m ²)
Core Classification				
13	Small Free Standing and Convenience	500-5 000	35,495	2,730
16	Neighbourhood Centre	5 000-12 000	119,627	7,477
5	Community Centre	12 000-25 000	92,203	18,441
1	Large Community Centre/Small Regional	25 000-50 000	39,356	39,356
3	Regional Centre	50 000-100 000	214,597	71,532
	Super Regional Centre	100 000+		
38	Subtotal		501,278	13,192
CBD				
5	CBD/ Town Centre	10 000-300 000	65,956	13,191
5	Subtotal		65,956	13,191
Focus/Niche Classification				
4	Motor Showrooms	500-5 000	9,658	2,415
4	Big Box Retailers	2 000-15 000	13,773	3,443
	Specialty Centre	2 000-30 000		
	Lifestyle Centre	15 000-50 000		
1	Hyper Centre	15 000-35 000	17,093	17,093
1	Value Centre	10 000-50 000	11,125	11,125
1	Entertainment /Casino	10 000-50 000	24,292	24,292
	Airport Retail	1 000-20 000		
11	Subtotal		75,941	6,904
54	Total		643,175	11,911

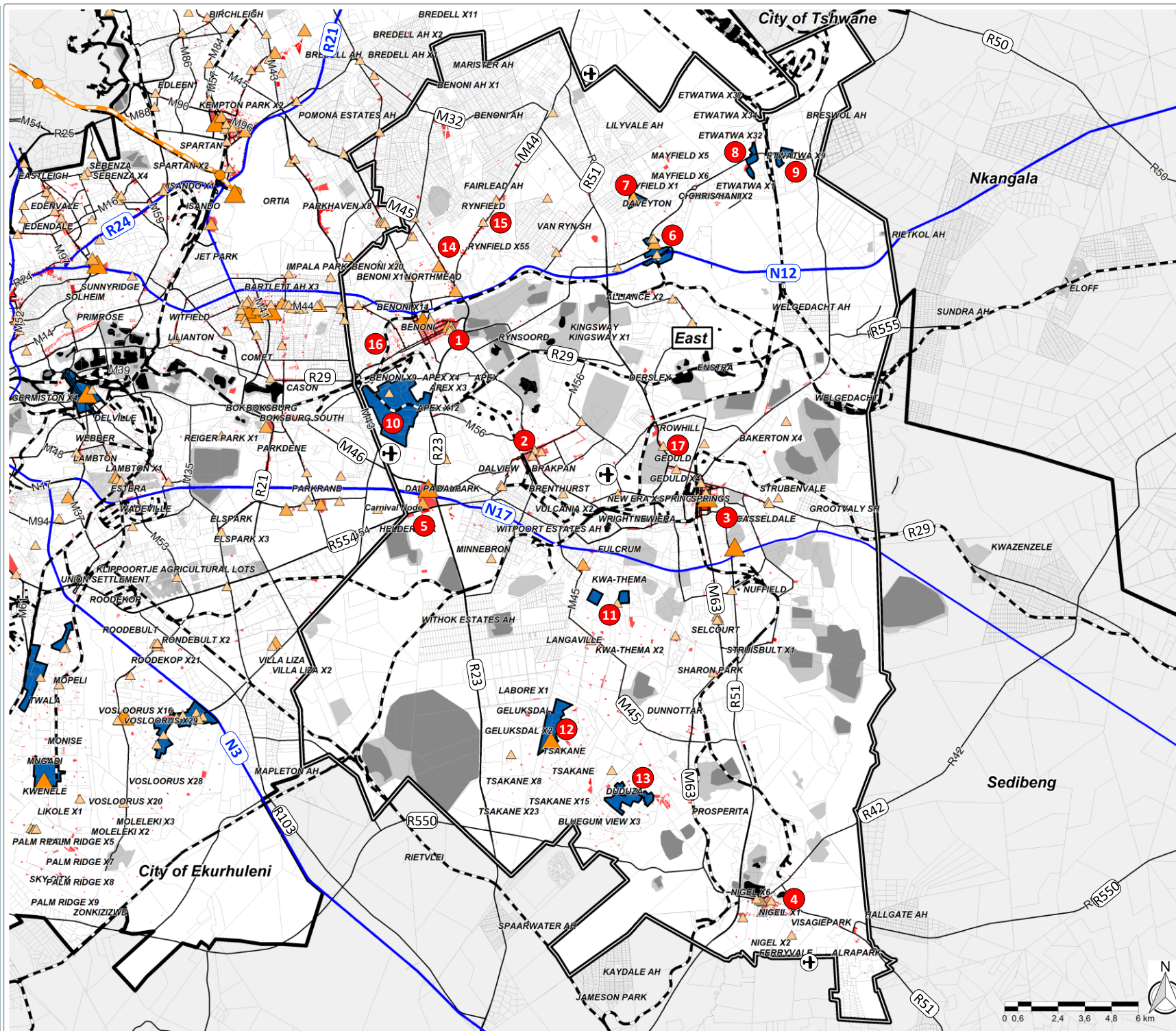
Source: Shopping Centre Directory, 2022. South African Council of Shopping Centres
 Measuring Footprints of Buildings, Plan Associates, February 2024
 Major Retail Types, Classification and the Hierarchy of Retail Facilities in South Africa,
 September 2016, Dr Dirk Prinsloo, Urban Studies



EASTERN REGION BUSINESS ACTIVITY

LEGEND

- Cadastral (Holdings / Farms)
- Eastern Region Boundary
- District Municipal Boundaries
- Business
- Mine Dump Footprint
- Slimes Dams Footprint
- Mining Areas
- National Roads
- Main Roads
- Rail Network
- Gautrain Network
- Gautrain Stations
- Aerotropolis
- Airport
- Airfield
- Major Business Nodes
- Township Regeneration Areas



EASTERN REGION SHOPPING CENTERS

LEGEND

- Cadastral (Holdings / Farms)
- Eastern Region Boundary
- District Municipal Boundaries
- Business
- Mine Dump Footprint
- Slimes Dams Footprint
- Mining Areas
- National Roads
- Main Roads
- Rail Network
- Gautrain Network
- Gautrain Stations
- Aerotropolis
- Airport
- Airfield
- Major Business Nodes
- Township Regeneration Areas

Shopping Centers (GLA m²)

- <12 000m²
- 12000 – 25 000m²
- >25 000m²

3.6.1.2 Industrial

Industrial activity in the Eastern Region is fairly fragmented as shown on **Figure 13.4**. It comprises the following:

- ❖ The Benoni South⁽¹⁾ and Apex⁽²⁾ industrial areas which functionally form part of the larger Anderbolt-Dunswart-Boksburg East industrial cluster⁽²⁾;
- ❖ The Vulcania-New Era-Fulcrum industrial complex⁽³⁾ between Brakpan and Springs which also extends across the N17 freeway to Vulcania South;
- ❖ The Nuffield industrial area⁽⁴⁾ further to the east along route N17;
- ❖ The small industrial complex around Nigel to the south⁽⁵⁾ which comprises Gibela Rail, Prosperita, Vorsterkroon and Pretoriusstad;
- ❖ The very small Labore industrial area⁽⁶⁾ just to the north of Tsakane;
- ❖ The Enstra industrial area⁽⁷⁾ to the north of Springs which also includes Impala Platinum Refineries to the south thereof;
- ❖ Also notable is the emerging cluster of industrial activity⁽⁸⁾ in the smallholdings area to the north around the intersection of routes M32, M44 and R51;
- ❖ Also important to note is the Springs Fresh Produce Market which is centrally located within the Regio.

3.6.1.3 Mining

As illustrated on **Figure 13.4** mining holds a significant footprint in the Eastern Region. This footprint comprises mining areas as well as the footprints of mine dumps and/or slimes dams.

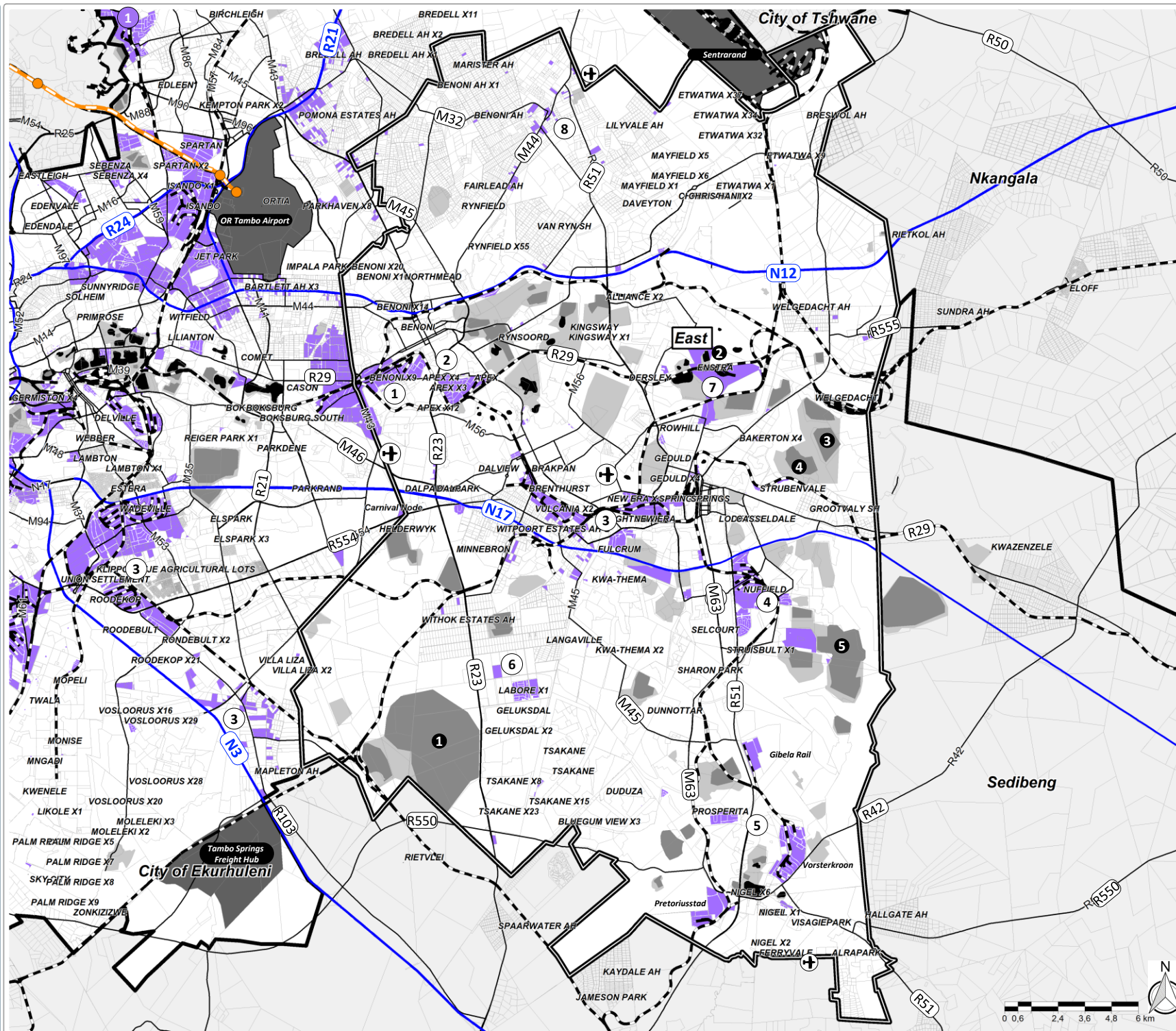
Through reclamation processes most of these mine dumps and slimes dams are being worked away following which the land is rehabilitated. As a result, many of these mining areas will become available for redevelopment in the future.

Active mining still occurs at the Gold One Mine just to the north of the Enstra Industrial Area, while the status of Largo, Grootvlei and Daggafontein to the east still needs to be confirmed.

3.6.1.4 Agriculture

Figure 13.5 illustrates the distribution and spatial extent of agricultural activity in the Eastern Region which include the following.

- ❖ To the north-east at Etwatwa there are some incidences of subsistence farming on the rail reserve area of Sentrarrand and from there southwards towards route N12 ($\pm$ 780 ha).
- ❖ The area around the Welgedacht Small Holdings is also fairly intensively utilized for agriculture, including a number of chicken broilers.
- ❖ Similarly, some irrigated agriculture occurs around the Grootval Agricultural Holdings along the floodplain of the Blesbokspruit.
- ❖ Further to the south some agricultural activity also occurs in the Marievale area east of Dunnottar.
- ❖ The area to the south of route R550 near Tsakane is also fairly intensively utilised for agricultural purposes with some ad hoc activity also noticeable around the Withok Agricultural Holdings further to the north.



EASTERN REGION INDUSTRIAL ACTIVITY

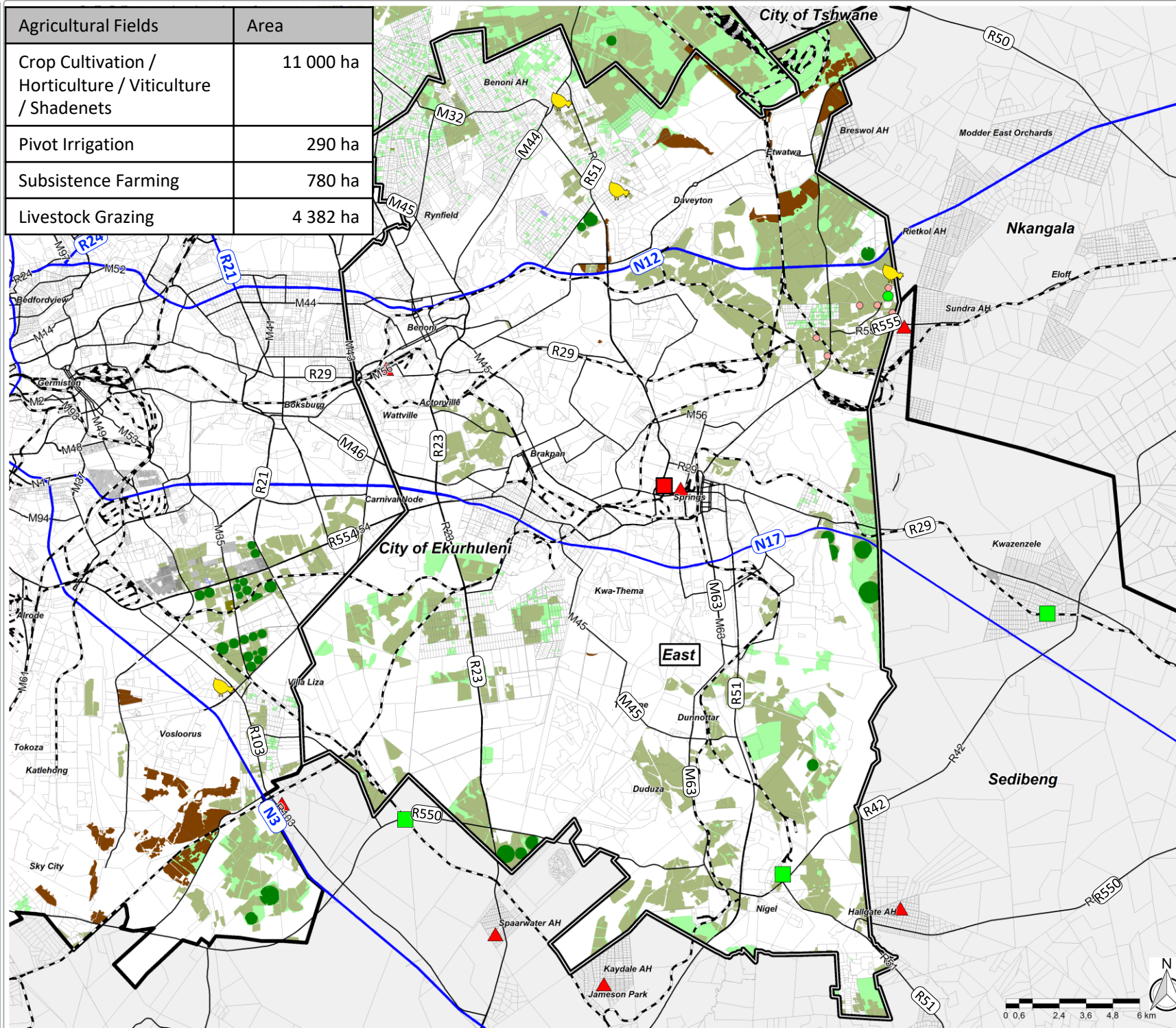
LEGEND

- Cadastral (Holdings / Farms)
- Eastern Region Boundary
- District Municipal Boundaries
- Industrial
- Mine Dump Footprint
- Slimes Dams Footprint
- Mining Areas
- National Roads
- Main Roads
- Rail Network
- Gautrain Network
- Gautrain Stations
- Aerotropolis
- Airport
- Airfield
- Major Transport (Rail, Air etc.)

Industrial Corridors (Area 10 400 ha)

- ① Benoni East
- ② Apex
- ③ Vulcania-New Era – Fulcrum
- ④ Nuffield
- ⑤ Vorsterkroon – Prosperitas - Pretoriusstad
- ⑥ Laborie
- ⑦ Enstra
- ⑧ Ergo Slimes Dump
- ⑨ Gold One Mine
- ⑩ Largo
- ⑪ Grootvlei
- ⑫ Daggafontein

Agricultural Fields	Area
Crop Cultivation / Horticulture / Viticulture / Shadenets	11 000 ha
Pivot Irrigation	290 ha
Subsistence Farming	780 ha
Livestock Grazing	4 382 ha



EASTERN REGION AGRICULTURAL ACTIVITY

LEGEND

- Livestock Grazing
- Crop Cultivation
- Horticulture/Viticulture/Shadenet
- Pivot Irrigation
- Subsistence Farming
- 🐔 Poultry
- 🐷 Piggy
- 🐮 Cattle
- Mushroom Farming
- ▲ Abattoirs
- Silos
- Fresh Produce Markets
- Eastern Region Boundary
- District Municipal Boundaries
- National Roads
- Main Roads
- Railways

3.6.2 Housing

3.6.2.1 *Formal Housing*

Figure 14.1 depicts the spatial distribution of formal housing in the Eastern Region. It comprises the following four Residential Use Zones:

Residential 1: Single dwelling house up to 2 storeys as primary right. May increase to 3 storeys by means of Written Consent. Limited range of ancillary uses may be applied for by way of Special Consent or Written Consent.

Residential 2: Single dwelling house up to 2 storeys as primary right. May increase to 3 storeys by means of Written Consent. More extensive range of ancillary uses may be applied for than under Residential 1 – including Tavern, Spaza Shop and maximum of three Boarding Rooms.

Residential 3: Primary right includes dwelling house, dwelling units, residential buildings and retirement villages up to 2 storeys high and to a maximum of 85 dwelling units per hectare.

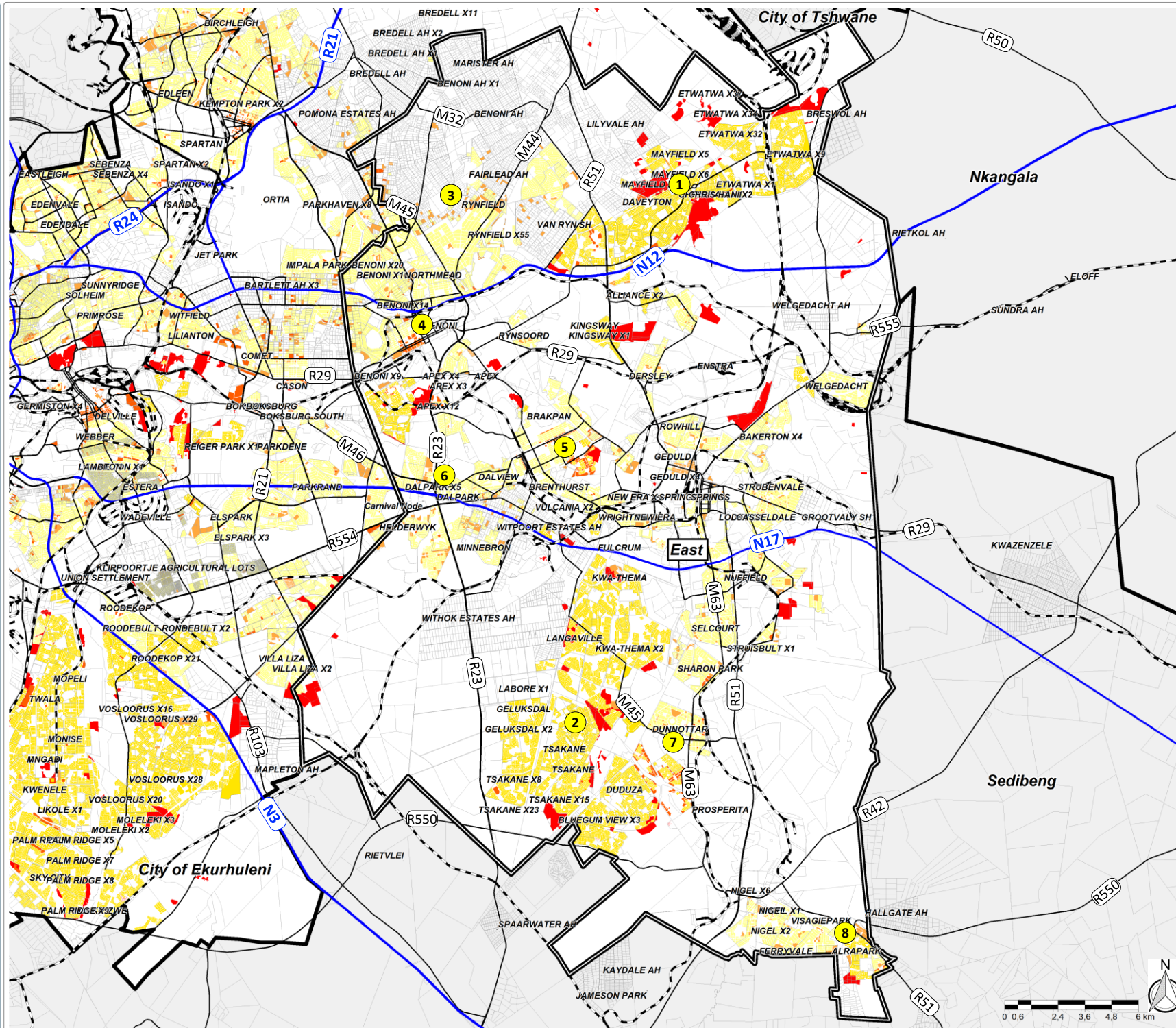
Residential 4: Primary right is same range of uses as Residential 3, but up to 3 storeys. Maximum height can be increased by Written Consent (according to policy), with 90% coverage and maximum density greater than 60 dwelling units per hectare.

In essence, Residential 1 and Residential 2 represent low density single residential development with Residential 2 allowing ancillary uses such as spaza shops, taverns and boarding rooms which are not allowed under Residential 1.

Residential 3 caters for multiple residential units (2 to 3 storey walk-ups) to a maximum of 85 units per hectare, while Residential 4 provides for multi-storey (more than 3 storeys) residential units (flats) at more than 60 dwelling units per hectare.

The following is evident from Figure 14.1:

- ❖ The Daveyton-Etwatwa cluster to the north⁽¹⁾ and Kwatsaduza cluster⁽²⁾ to the south are predominantly zoned Residential 2.
- ❖ The remaining bulk of residential areas are all zoned Residential 1.
- ❖ Significant clusters of medium and higher density residential development are notable at the following locations:
 - Rynfield to the north⁽³⁾ of the N12 freeway;
 - Benoni CBD and surrounds⁽⁴⁾;
 - Brakpan Weltevreden⁽⁵⁾;
 - Carnival Node⁽⁶⁾ north and south of N17 freeway;
 - Duduza (John Dube)⁽⁷⁾; and
 - Alphapark Nigel⁽⁸⁾ to the far south.



EASTERN REGION RESIDENTIAL ZONING

LEGEND

- Eastern Region Boundary
- District Municipal Boundaries
- National Roads
- Main Roads
- Railway Network

Zoning:

- Residential 1
- Residential 2
- Residential 3
- Residential 4
- Informal Settlements

3.6.2.2 Informal Settlement

There are a significant number of incidences of informal settlement within the Eastern Region as illustrated on **Figure 14.2**. An audit conducted in 2016 recorded 71 056 households in informal settlements in this Region, as well as 71 937 backyard units. It comprised as follow:

- ❖ Daveyton-Etswatwa: 30 537 Informal and 27 863 Backyard
- ❖ Central Mining Belt: 15 187 Informal and 4 380 Backyard
- ❖ Kwatsaduza and South: 25 332 Informal and 39 691 Backyard

Figure 14.3 shows the Categorization status of the informal settlements located in the Eastern Region. The informal settlements indicated in yellow are intended to be formalized in-situ, while the green settlements represent existing upgrading projects (already underway). The settlements indicated in red are intended to be relocated to alternative locations.

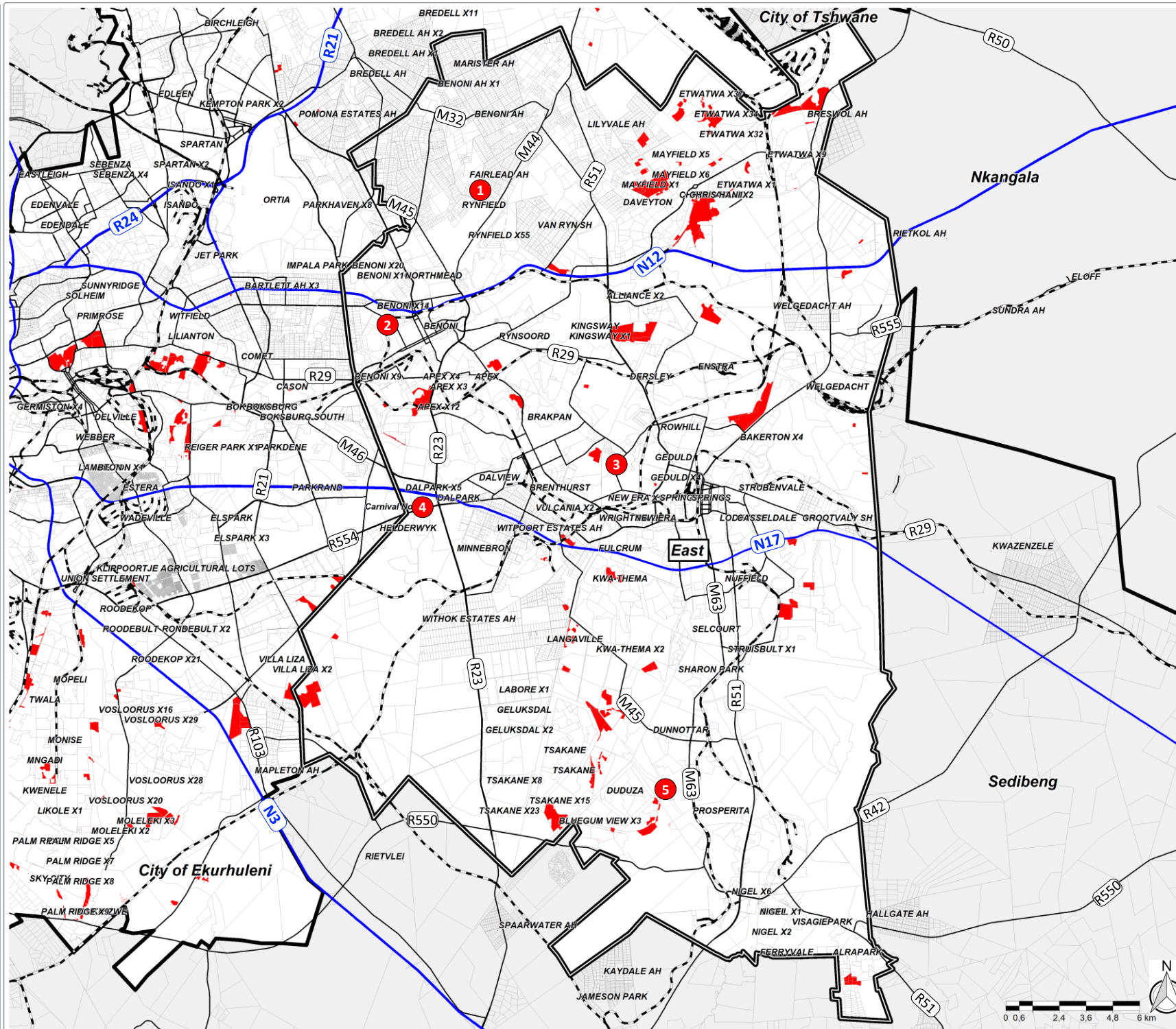
3.6.2.3 Eastern Region Human Settlement Business Plan

Table 6 provides a summary of housing projects for the Eastern Region included in the CoE Human Settlement Business Plan (2023/24). It comprises the following:

- ❖ A total of ten projects earmarked to provide serviced stands and spatially depicted in orange (numbers 1-10) on **Figure 14.4**.
- ❖ Six projects intended to deliver 5 454 BNG Walk-Up units (including hostels upgrading) as illustrated in grey (numbers 11-16) on Figure 14.4.
- ❖ Six Mega Housing Projects (see pink numbers 17 up to 22 on Figure 14.4) catering for an estimated 20 930 residential units.
- ❖ Three Urban Renewal Projects mostly focusing on the provision of Non-Motorized Transport facilities (Pedestrian / Cyclist path and/or layout of Public Open Space) in Tsakane and Duduza (number 23); Daveyton (number 24); and Wattville (number 25).

Table 6: Eastern Region Housing Project Pipeline

PROGRAMME: SERVICED STANDS & BULK SERVICES						
No.	Project Name	Source of Funding	Number of Stands			
			Res 1	Res 2	Res 3	Res 4
1.	Dalpark Ext 25	USDG		1,180		22
2.	Mayfield Ext 46	USDG		575		
3.	Van Eck Park 2	USDG	3,900			
4.	Alliance Extension 9 (Daveyton)	ISUPG	645			
5.	Daveyton Extension 14 (Daveyton)	ISUPG				
6.	Holgatfontein/McKenzieville Ext 2	ISUPG				
7.	Langaville Ext 12	ISUPG		782		1
8.	Leachville Ext 2	ISUPG				12
9.	Mayfield Ext 45	ISUPG	632			
10.	Payneville Ext 1	ISUPG				
PROGRAMME: IMPLEMENTATION PROJECTS: BNG WALK-UPS						
No.	Project Name	Source of Funding	Number of Units			
11.	Daveyton Hostel	ISUPG	1,500			
12.	Kwa-Themba Hostel: Bulk and Link Infrastructure	USDG	1,500			
13.	Wattville Hostel: Bulk and Link Infrastructure	USDG	1,500			



EASTERN REGION FORMAL / INFORMAL AREAS

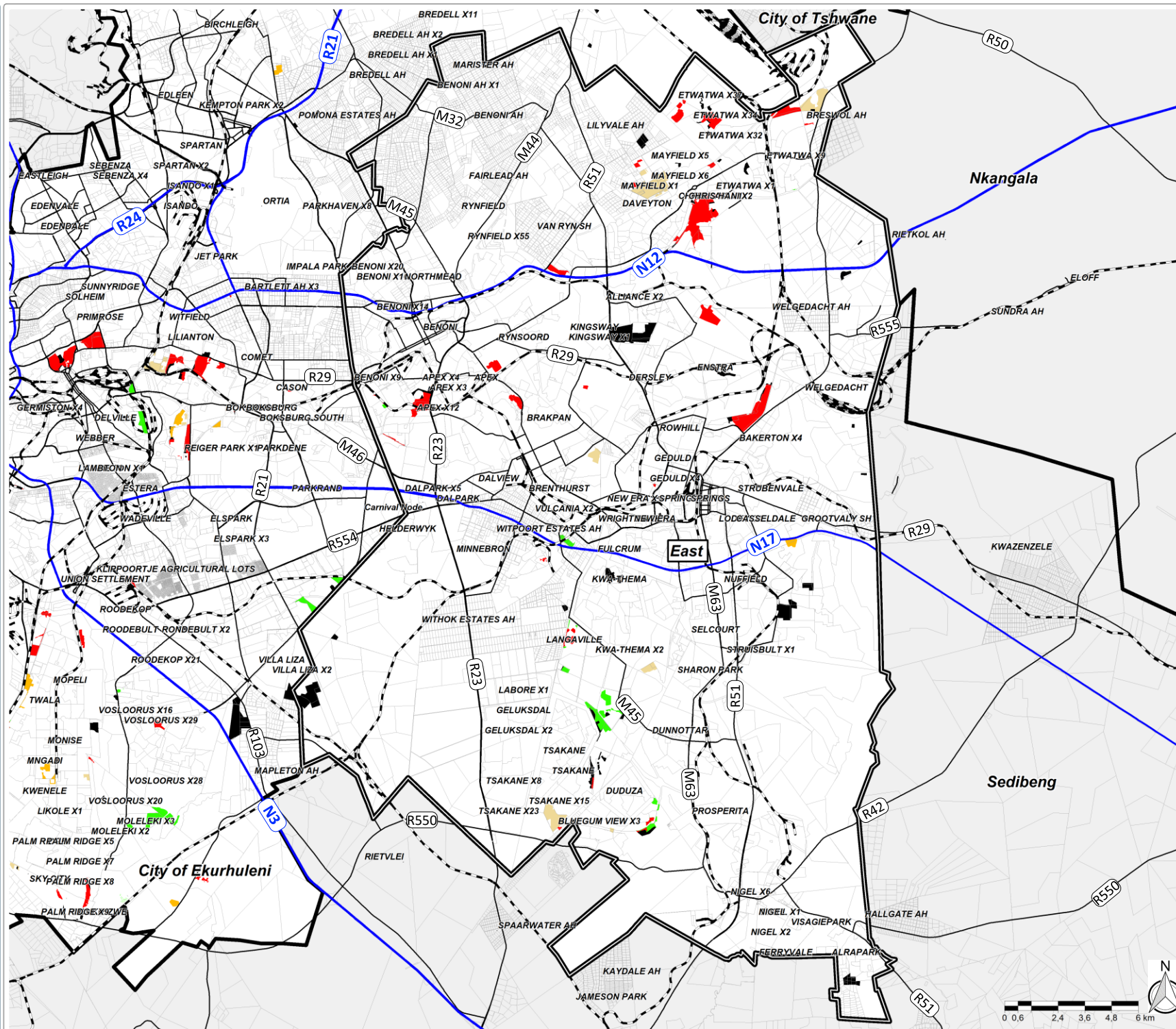
LEGEND

- Informal Settlements
(exaggerated for mapping purposes)
- Erven
- Farm Portions
- Parent Farms
- District Municipal Boundaries
- National Roads
- Main Roads
- Railway Network

Daveyton / Etwatwa
30 537 Informal Units
27 863 Backyard Units

Central Mining Belt
15 187 Informal Units
4 380 Backyard Units

Kwatsaduza and South
25 332 Informal Units
39 691 Backyard Units



EASTERN REGION INFORMAL SETTLEMENT UPGRADING

LEGEND

- Eastern Region Boundary
- District Municipal Boundaries
- National Roads
- Main Roads
- Railway Network

Informal Settlements NUSP Category

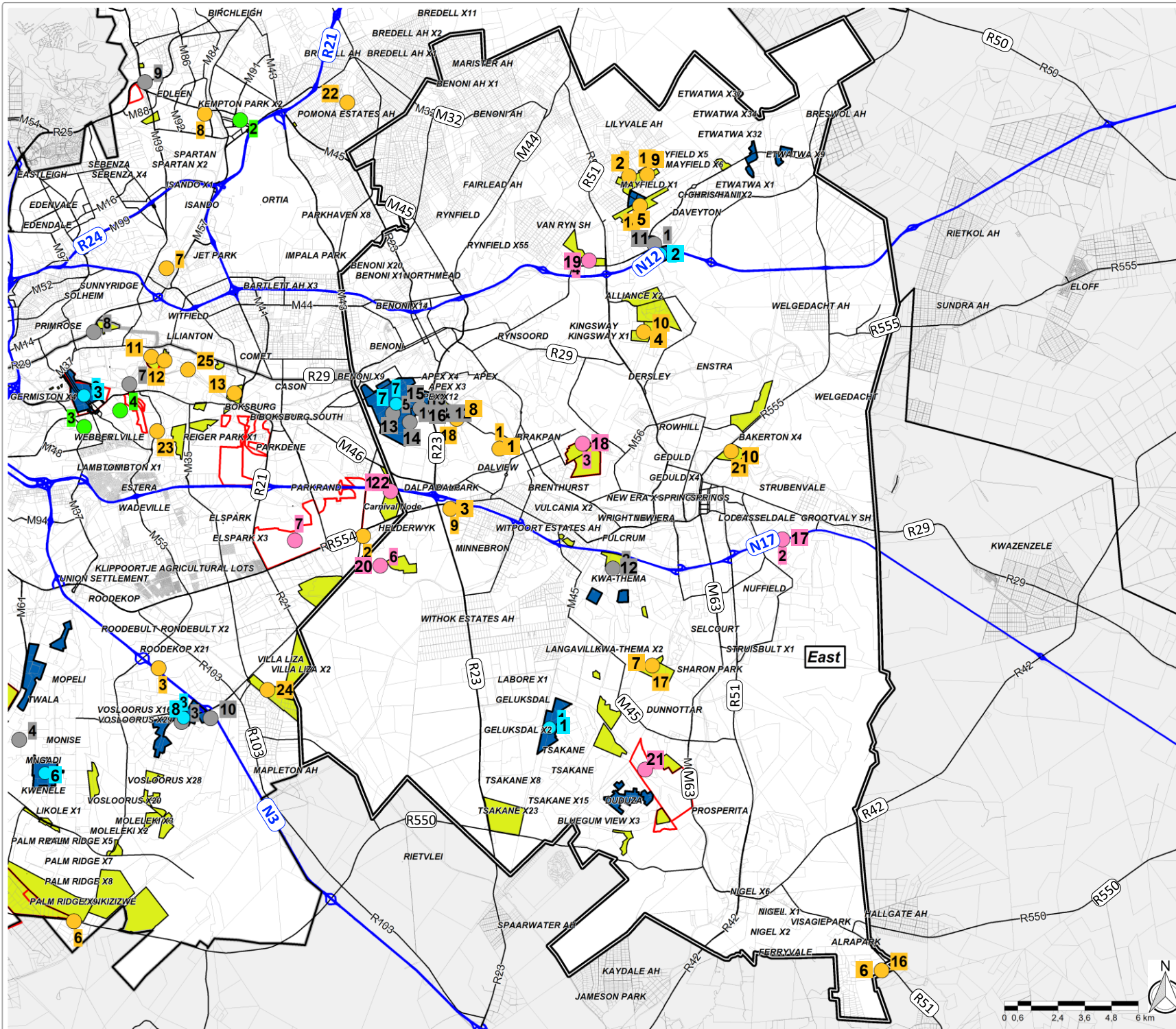
- A (Existing Project)
- B1 (Upgrade I-Situ)
- B2 and C (Relocate)
- D
- Not Categorized / New

EASTERN REGION

CURRENT HUMAN SETTLEMENT PROJECTS

LEGEND

- Serviced Stands and Bulk Services
- Hostels and BNG Walkups
- Social Housing
- Mega Housing Projects
- Urban Renewal Projects
- HS Mega Project Areas
- HS Other Project Areas
- Township Regeneration Area
- District Municipalities
- National Roads
- Provincial Roads



0 0.6 2.4 3.6 4.8 6 km



14.	Apex Ext 12 (Benoni)	ISUPG			
15.	Urban Renewal: Wattville Erf 3130 Watville	USDG		704	
16.	Erf 3110 Wattville: Bulk and Link Infrastructure	USDG		250	
PROGRAMME: MEGA HOUSING PROJECTS					
No.	Project Name	Source of Funding	Capacity	Units	Sites
17.	Daggafontein	ISUPG		2,500	
18.	Brakpan Old Location	ISUPG	7,547	3,774	
19.	Chief Albert Luthuli Ext 4 (Benoni)	ISUPG		2,047	
20.	Helderwyk	USDG		9,270	
21.	John Dube 2	ISUPG			89
22.	Van Dyk Park	ISUPG	7,547	2,800	
PROGRAMME: URBAN RENEWAL					
23.	Tsakane Duduza NMT	NDPG	5 km		
24.	Daveyton NMT	NDPG	18 km		
25.	Wattville Urban Renewal	USDG	7 km		

3.6.2.4 Priority Human Settlement Areas

With the above as background, it is important to look at the areas earmarked and prioritized for the development of housing, and more specifically government subsidized housing within the Eastern Region. In this regard there are three types of housing areas as depicted on **Figure 14.5** and briefly discussed below:

(i) **Priority Human Settlement Housing Development Areas (PHSHDAs):**

The Priority Human Settlements and Housing Development Areas (PHSHDAs) Programme is a national spatial transformation approach to build new, integrated, functional, and inclusive settlements. It is underpinned by the principles of the National Development Plan (NDP) and associated objectives on the National Spatial Development Framework (NSDF) and the Integrated Urban Development Framework (IUDF). Furthermore, it draws on cooperative and collaborative public sector investments intending to leverage private investment against defined objectives within a designated geographical area.

The programme aims to use the delivery of housing for a broad range of housing typologies within integrated mixed-use developments in the declared PHSHDAs to address the following circumstances of priority:

- ❖ Areas of urgent housing need where there are an established high demand and low supply of housing opportunities.
- ❖ Areas requiring upgrading and/or redevelopment for purposes of delivering housing choices, including subsidized housing;
- ❖ Areas requiring improved access to infrastructure, amenities and services; and
- ❖ Areas that support the integration of different housing typologies, land uses and economic development.

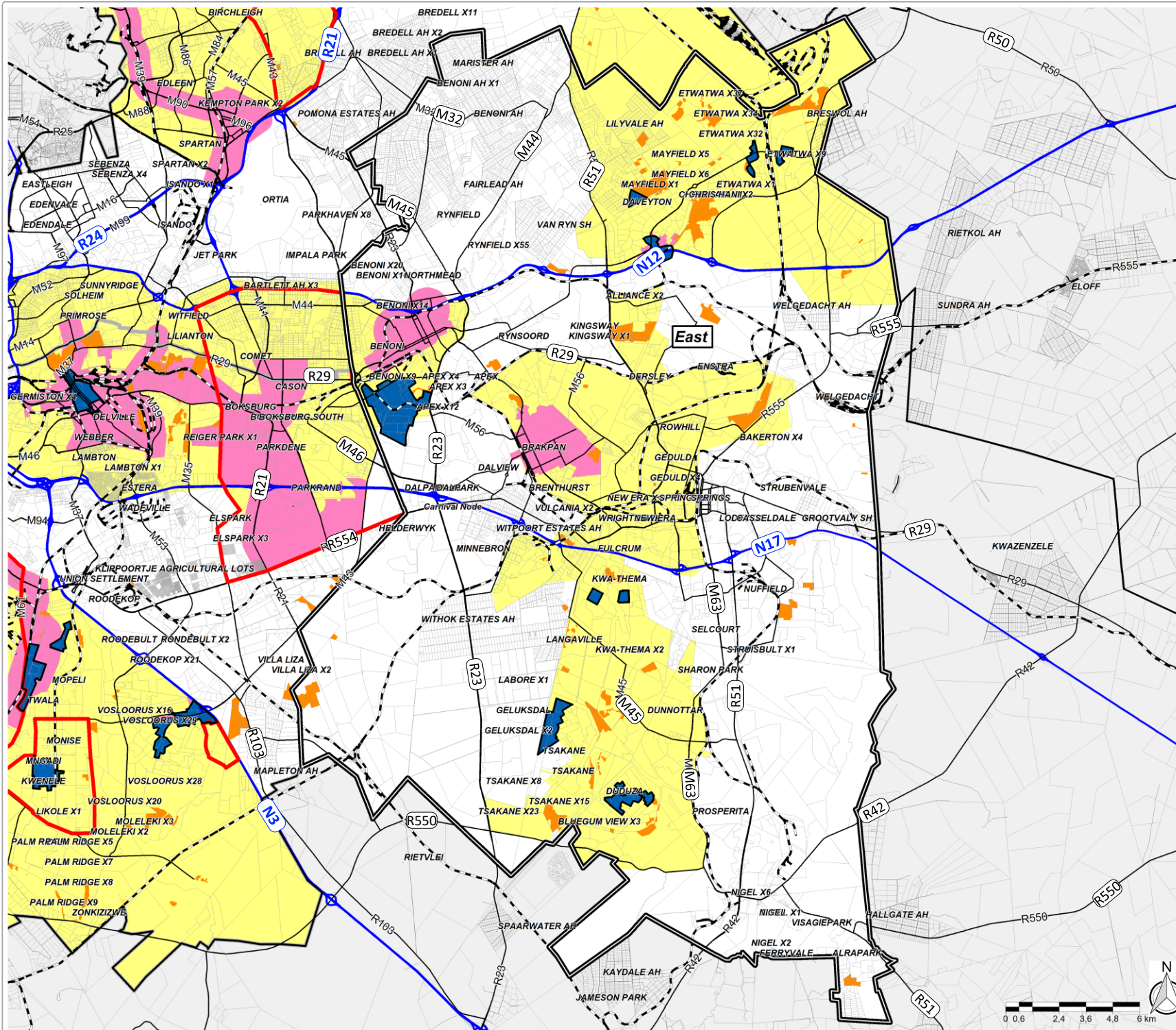
It is furthermore required that a Development Plan be compiled for each of these PHSHDA areas. The prescribed contents/scope of work for a PHSHDA Development Plan as defined in the Housing Development Agency Regulations, No. R610: August 2014 are briefly summarised in **Info Box 1** (overleaf).

EASTERN REGION

PRIORITY HUMAN SETTLEMENT HOUSING DEVELOPMENT AREAS

LEGEND

- Gauteng PHSHDAs
- CoE PHDAs
- Informal Settlements
- Restructuring Zones (pre 2016)
(Township Regeneration Areas)
- Restructuring Zones (2016)
- District Municipal Boundaries
- National Roads
- Provincial Roads
- Railway Network



0 0.6 2.4 3.6 4.8 6 km



**INFO BOX 1: HOUSING DEVELOPMENT AGENCY REGULATIONS
NO. R610: AUGUST 2014**

Summary of Prescribed Content of PHDA Development Plan

- ❖ The objectives and the prioritisation criteria of the PSHDA;
- ❖ A motivation with regard to declaring the land as a PSHDA;
- ❖ The name, delineated location, municipal and provincial domicile of the PSHDA;
- ❖ The nature of the land use and the land ownership;
- ❖ Evidence of alignment with the relevant spatial planning and development frameworks, national development priorities, and integrated development plans and land use schemes;
- ❖ The type of development to be implemented within the PSHDA;
- ❖ Roles and responsibilities of the required participants;
- ❖ Details of the community to be affected by the declaration of the PSHDA;
- ❖ All technical and feasibility studies that have been carried out on the land, or results to be obtained relevant to the implementation process and procedures of the PSHDA;
- ❖ A description of how existing projects in the area will be integrated into the development plan for the area;
- ❖ Budget allocations from all spheres of government and other relevant participants over the Medium Term Indicative Expenditure Framework;
- ❖ An indication of the intended implementing agent; governance and oversight structures; and risk mitigation provisions;
- ❖ The approvals and related arrangements regarding the implementation and finalisation of the priority housing development area.

Ultimately, the impact must be spatial transformation of undesirable settlement patterns emanating from past practices and creation of new human settlements. This is to be achieved through the transformation of sustainable entrenched spatial patterns which have historically exacerbated social

inequality and economic inefficiency; to revitalize, renew and redevelop these areas; and to achieve a balance between spatial equity, economic competitiveness and environmental sustainability.

The PSHDA areas for the Eastern Region as depicted on Figure 14.5 have been declared in terms of Section 3 of the Housing Act (No. 107 of 1997) and published in Government Gazette No. 42464, 17 May 2019.

It is evident that the declared PSHDA areas in the Eastern Region (indicated in yellow) broadly comprise the broader Benoni-Brakpan-Springs area as well as Daveyton-Etswatwa to the north and the Kwatsaduza complex to the south.

(ii) Priority Housing Development Areas (PHDAs):

The Priority Housing Development Areas as reflected in pink on Figure 14.5 represent the priority areas for human settlement as defined by the CoE. It is evident that these areas are significantly smaller than the PSHDA areas and only includes the Benoni and Brakpan CBD areas. In the other regions these are strongly aligned to the Urban Network of the CoE as defined in the CoE Built Environment Performance Plan (BEPP) – refer back to Figure 13.6 in this report.

(iii) Urban Restructuring Zones:

Urban Restructuring Zones are legislated geographic areas earmarked for the development of Social Housing as defined in the Social Housing Act:

Social Housing is funded via the Social Housing Programme and comprises the development of medium density, multi-unit complexes requiring institutional management by a Social Housing Institution (SHI).

The CoE Restructuring Zones include the Township Regeneration Areas (blue on Figure 14.5) which were determined around 2010, as well as the areas demarcated in red on Figure 14.5 which were approved as Restructuring Zones by Council during June 2016. (None within Eastern Region).

(iv) Mining Belt Strategic Land Parcels

An extensive land suitability study was conducted for 76 strategically located land parcels within the CoE mining belt.

Collectively these land parcels represent about 4177,4 ha of land of which 2220,7 ha was found to be undevelopable (53%).

The remaining 47% of the land was categorized as Developable (307,6 ha) and Conditionally Developable (1649,2 ha).

The land was furthermore rated in terms of suitability for residential development (Good, Fair or Not Suitable) and this information is reflected on **Figure 14.6**. The land areas indicated as “Not Suitable” on Figure 14.6 are generally earmarked for industrial and/or commercial uses.

3.6.3 Community Facilities

Table 7 provides a summary of community facilities located within the Eastern Region compared to the total number of facilities provided in the City of Ekurhuleni.

Table 7: CoE Community Facilities – Eastern Region

Facility	Eastern Region	CoE Total
Municipal Satellite Offices / Customer Care Centres		
Customer Care Offices	9	20
Safety and Security		
Police Station	17	44
Fire Station	12	33
Health		
District Hospitals	0	1
Public Regional Hospital	2	7
Private Regional Hospital	7	16
Community Health Facility	3	7
Clinic	51	150
Mobile Clinic	8	46
Education		
Tertiary	3	6
College	10	22
Combined School	11	44
Secondary School	76	186
Intermediate School	0	2
Primary School	152	365
Special Needs Education	15	36
Sports, Recreation, Arts and Culture		
SRAC Depots	1	
SRAC Dams and Lakes		
Community Halls	24	51
Libraries	16	44
Cemeteries	25	58
Arts & Culture Heritage	6	58

The spatial distribution of these facilities is illustrated on **Figure 15.1** from which the following is evident:

- ❖ There is a notable clustering of community facilities around the Benoni CBD, Brakpan CBD, Springs CBD and Nigel CBD to the far south.
- ❖ Similarly, there is evidence of some clustering of facilities around the three Customer Care Centres located in the Kwatsaduzwa complex and two in Daveyton-Etawatwa; as well as two weaker secondary clusters around Actonville-Wattville and Mckenzieville in Nigel respectively.

EASTERN REGION

MINING AREA DEVELOPMENT POTENTIAL

LEGEND

1. Mining Belt Areas

1.1 Residential Suitability:

Good

 Fair

 Not Suitable

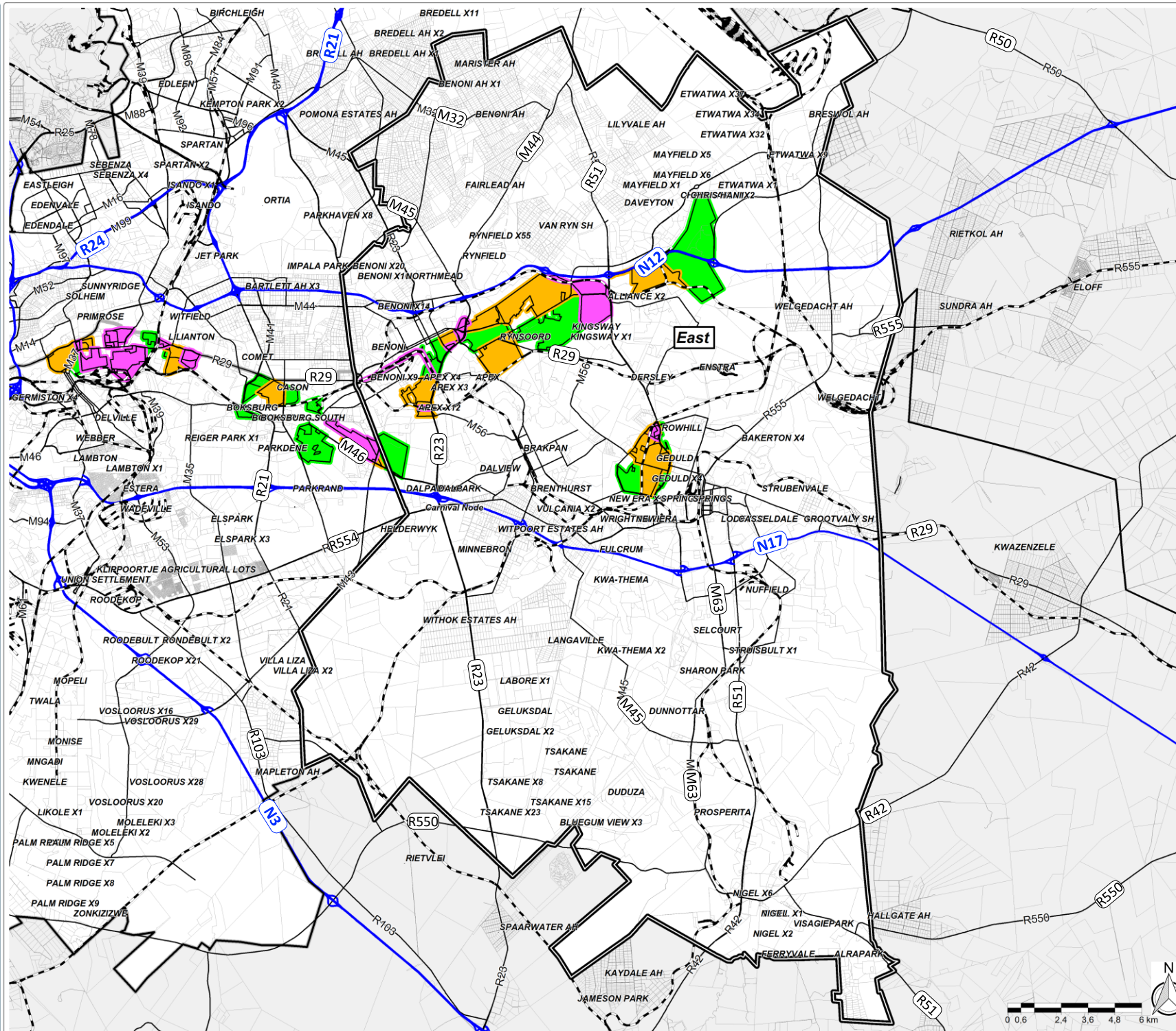
1.2 Development Potential:

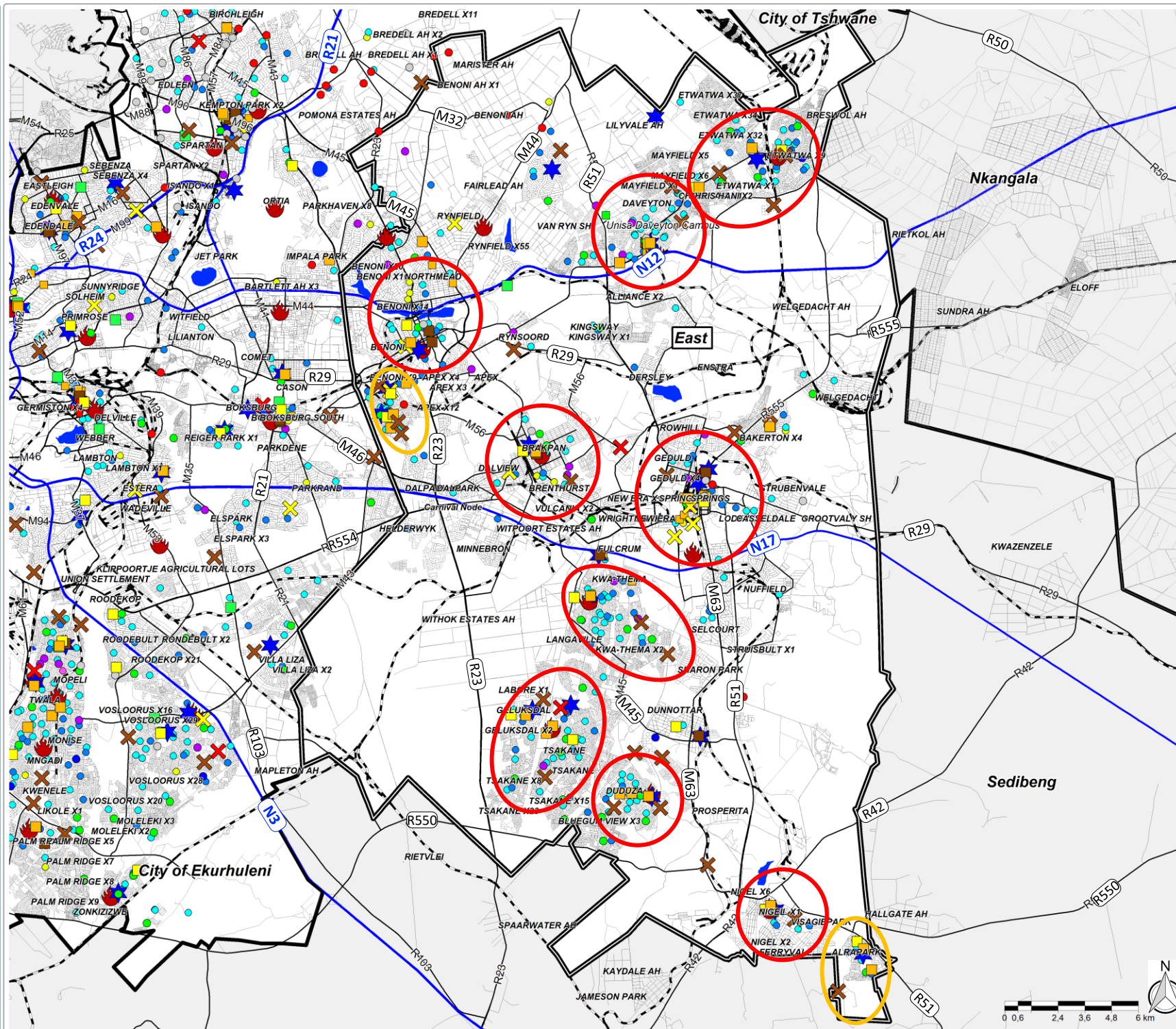
2220,6 ha Undevelopable

1956,8 ha Developable

4177,4 ha Total

-  District Municipalities
 National Roads
 Provincial Roads
 Rail Network





EASTERN REGION COMMUNITY FACILITIES

LEGEND

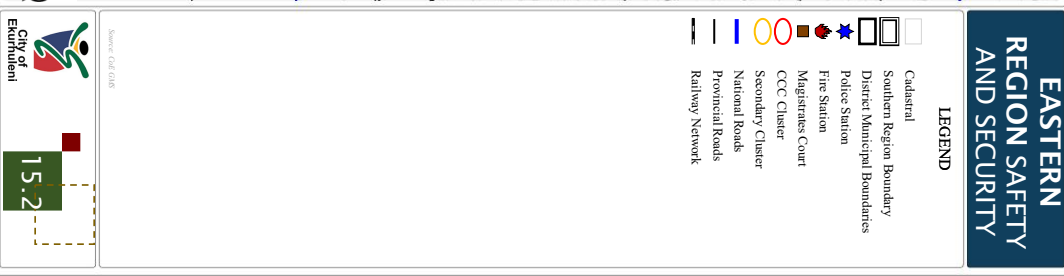
- Cadastral
- Northern Region Boundary
- District Municipal Boundaries
- Primary School
- Intermediate School
- Secondary School
- Combined School
- College
- Tertiary Institution
- Special Needs Education
- District Hospital
- Private Regional Hospital
- Public Regional Hospital
- Clinic
- Mobile Clinic
- Community Health Facility
- Police Station
- Fire Station
- Magistrates Court
- SRAC Depots
- SRAC Dams and Lakes
- Arts Culture Heritage
- Cemeteries
- Libraries
- Community Halls
- Customer Care Centres
- CCC Cluster
- Secondary Cluster
- National Roads
- Provincial Roads
- Railway Network

Source: CoE GMS

CITY OF EKURHULENI MSDF 2025



CITY OF EKURHULENI MSDF 2025



3.6.3.1 Safety and Security (Refer to **Figure 15.2**)

- ❖ There is a total of 17 police stations and 12 fire stations in the Eastern Region.
- ❖ Most of these facilities are located within a functional area of the nine Customer Care Centres, while the northern smallholdings area also comprising a police station and fire station.

3.6.3.2 Health (Refer to **Figure 15.3**)

- ❖ There is no District Hospital located in the Eastern Region, while Public Regional Hospitals exist in Brakpan North (Far East Hospital) and in Tsakane.
- ❖ The seven Private Regional Hospitals are located in Springs (3), Actonville (1), Benoni (1), Brakpan (1) and Rynfield (1).
- ❖ A total of 51 clinics are widely distributed throughout the Region, while mobile clinic services are provided in all parts of the Region.

3.6.3.3 Education (Refer to **Figure 15.4**)

- ❖ There are three Tertiary institutions, and ten Colleges located in the Eastern Region (mainly clustered around Benoni, Brakpan and Springs).
- ❖ The 76 secondary schools, 152 primary schools as well as 11 combined schools are widely distributed across the urban landscape in the region.

3.6.3.4 Sports, Recreation, Arts and Culture (Refer to **Figure 15.5**)

- ❖ There is only one SRAC depot located within the Region (between Benoni and Daveyton).

- ❖ Also notable is the significant concentration of community halls in the Daveyton-Etzwatwa area and in Actonville-Wadeville, as well as Tsakane to the south.
- ❖ There is a total of 25 cemeteries in the Eastern Region of which eight are located in the Kwatsaduza complex and five in Daveyton-Etzwatwa.

3.7 ENGINEERING SERVICES AND INFRASTRUCTURE

The following section provides an overview of the engineering services delivered and associated infrastructure available within the Eastern Region.

3.7.1 Water

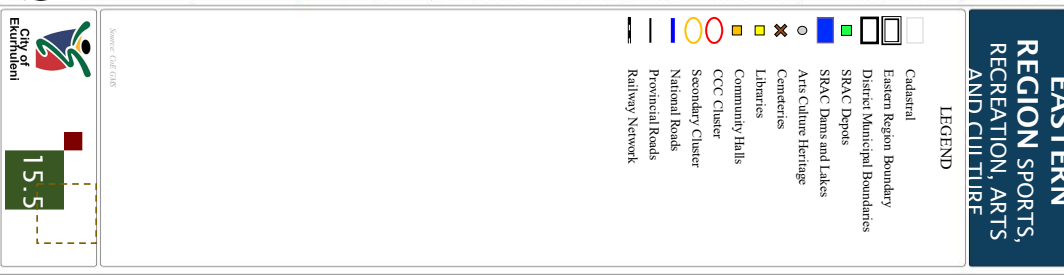
3.7.1.1 Water Source

The City of Ekurhuleni purchases all its bulk water from Rand Water (RW) – either directly from Rand Water or indirectly from Joburg Water via a cross-boundary supply agreement. The extent of the Rand Water bulk supply system covering the Eastern Region is shown on **Figure 16.1**. The Eastern Region is served by the Benoni-Daveyton-Etzwatwa, Brakpan-Springs-KwaThema and Nigel-Tsakane-Duduza Water Service Delivery Regions. From the Rand Water bulk supply system, water is supplied either into CoE-owned reservoirs, CoE-owned towers or directly to consumers.

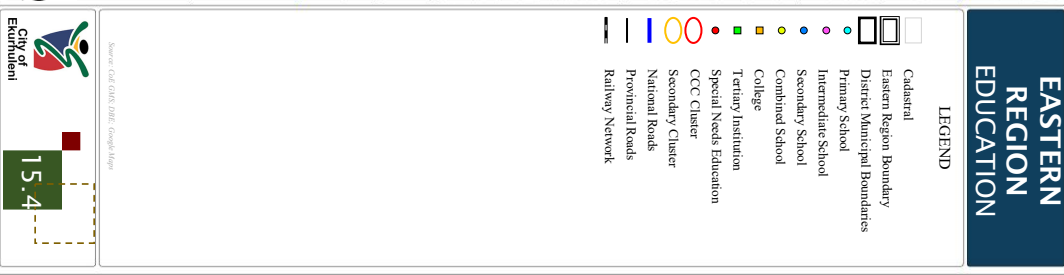
3.7.1.2 Reservoirs and Towers

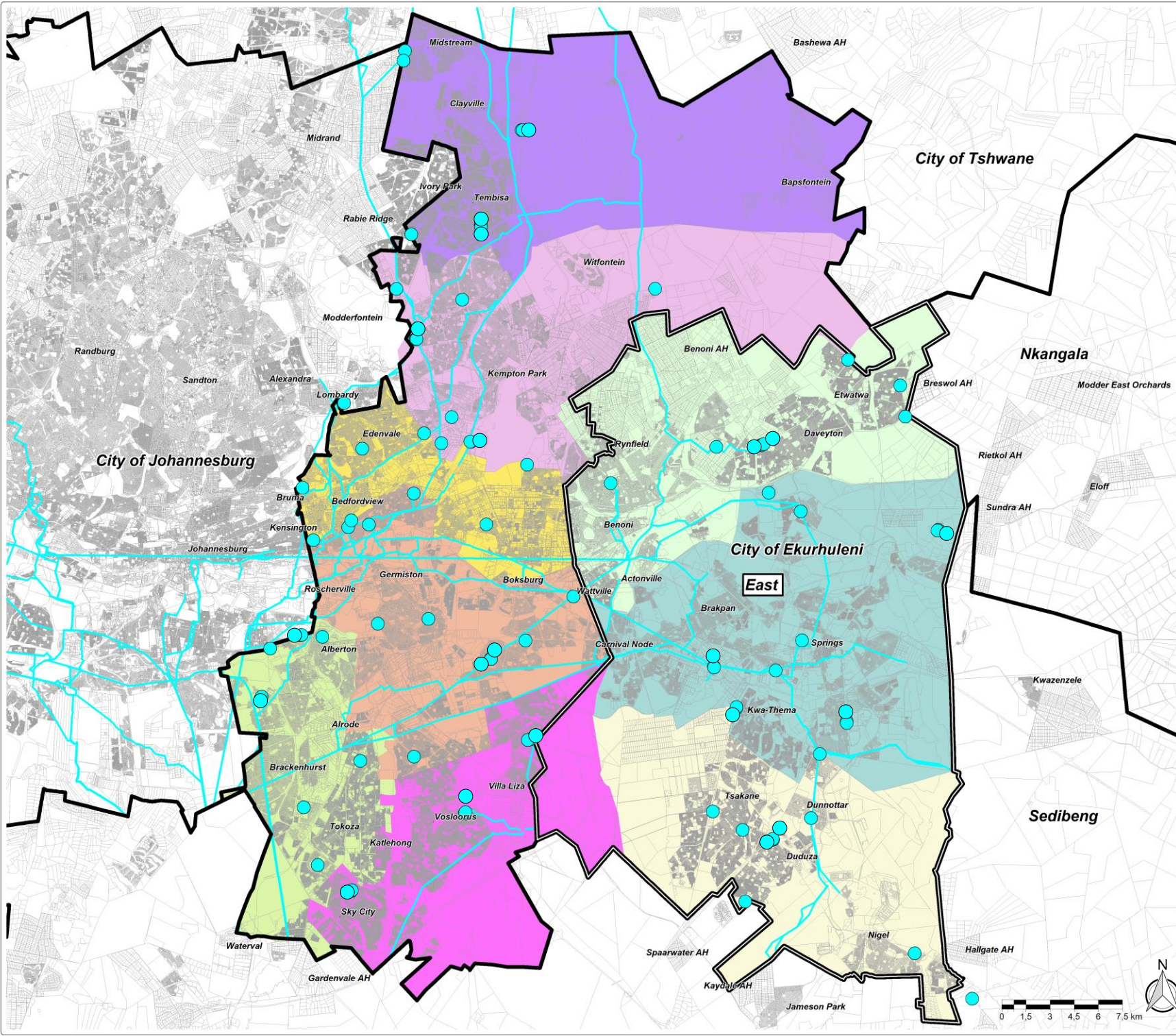
The Eastern Region comprises a total of 30 reservoirs and 17 water towers. A summary of these reservoirs and towers per Water Service Delivery Area is included in **Table 8** below and spatially indicated on Figure 16.1.

CITY OF EKURHULENI MSDF 2025



CITY OF EKURHULENI MSDF 2025





WATER SERVICE DELIVERY AREAS

LEGEND

-  Cadastral
 Eastern Region Boundary
 District Municipal Boundaries
 Rand Water Bulk Line
 Reservoirs

Service Delivery Areas

- Alberton Tokoza Katlehong
- Benoni Daveyton Etwatwa
- Brakpan Springs KwaThema
- Edenvale
- Germiston Boksburg
- Kempton Park
- Nigel Tsakane Duduza
- Tembisa
- Vosloorus

Table 8: Eastern Region: Water Service Delivery Areas

SERVICE DELIVERY AREA	NO.
Benoni Daveyton Etwatwa	12
TOWER	4
RESERVOIR	8
Brakpan Springs Kwa Thema	19
TOWER	7
RESERVOIR	12
Nigel Tsakane Duduza	16
TOWER	6
RESERVOIR	10
TOWERS	17
RESERVOIRS	30

3.7.1.3 Water Distribution Zones and Zone Capacity

Figure 16.2 shows the various water distribution zones within the Eastern Region, as well as the location of the various reservoirs relative to these.

Note that there are many water distribution zones that are not supplied via CoE owned reservoirs. These include, for example, areas that are supplied directly from the Rand Water bulk supply system.

Many reservoirs are operated in combination with each other. A specific reservoir site might have multiple reservoirs with additional reservoirs being constructed over time as the need arises. Where reservoirs are operated in combination with each other their respective capacities (total storage volume in kl) are added together as if they are operated as one larger reservoir.

Figure 16.3 depicts the capacity status of the existing reservoirs and respective water distribution zones in the Eastern Region.

Given the current design criteria (referred to as the 36-hour rule), all reservoirs with sufficient spare capacity available with their respective supply zones have been marked in green on Figure 16.3.

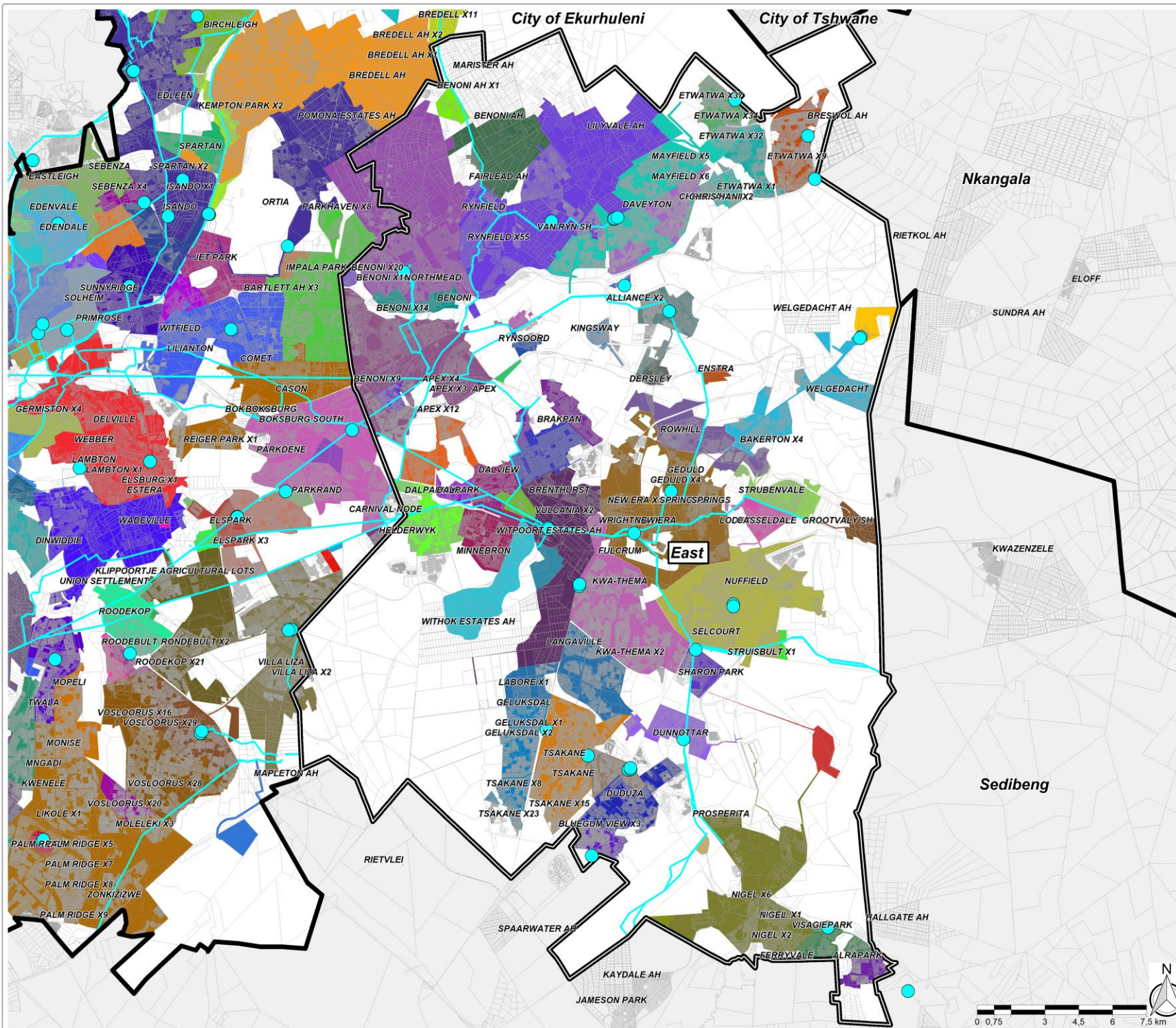
Reservoirs that do not currently have spare capacity available according to the 36h rule, but still has more than 24h of storage time available have been marked in orange. The affected areas include Alliance, Dersley, Bakerton and Welgedacht to the north, and Bluegum View to the south.

Reservoirs that have less than 24h of storage time available have been marked in red. These include the majority part of the northern small holding areas, the northern suburbs of Benoni and parts of Daveyton-Etwatwa, as well as KwaThema, Selcourt and Nuffield in the central parts, and parts of Tsakane and Mckenzie Park to the south.

Therefore, strictly speaking, all reservoirs indicated in orange and red on Figure 16.3 do not have sufficient spare capacity available under the current reservoir sizing criterion. (The pink areas on Figure 16.3 are served directly from Rand Water lines).

NOTE: According to the Red Book the latest design criterion for reservoir sizing is a required storage time of 48 hours which is 12 hours more than the current 26h used by the CoE. It is anticipated that the CoE might, in the short- to mid-term future, adjust their design guidelines to align with the Red Book which would imply that more reservoirs might be classified as having insufficient spare capacity.

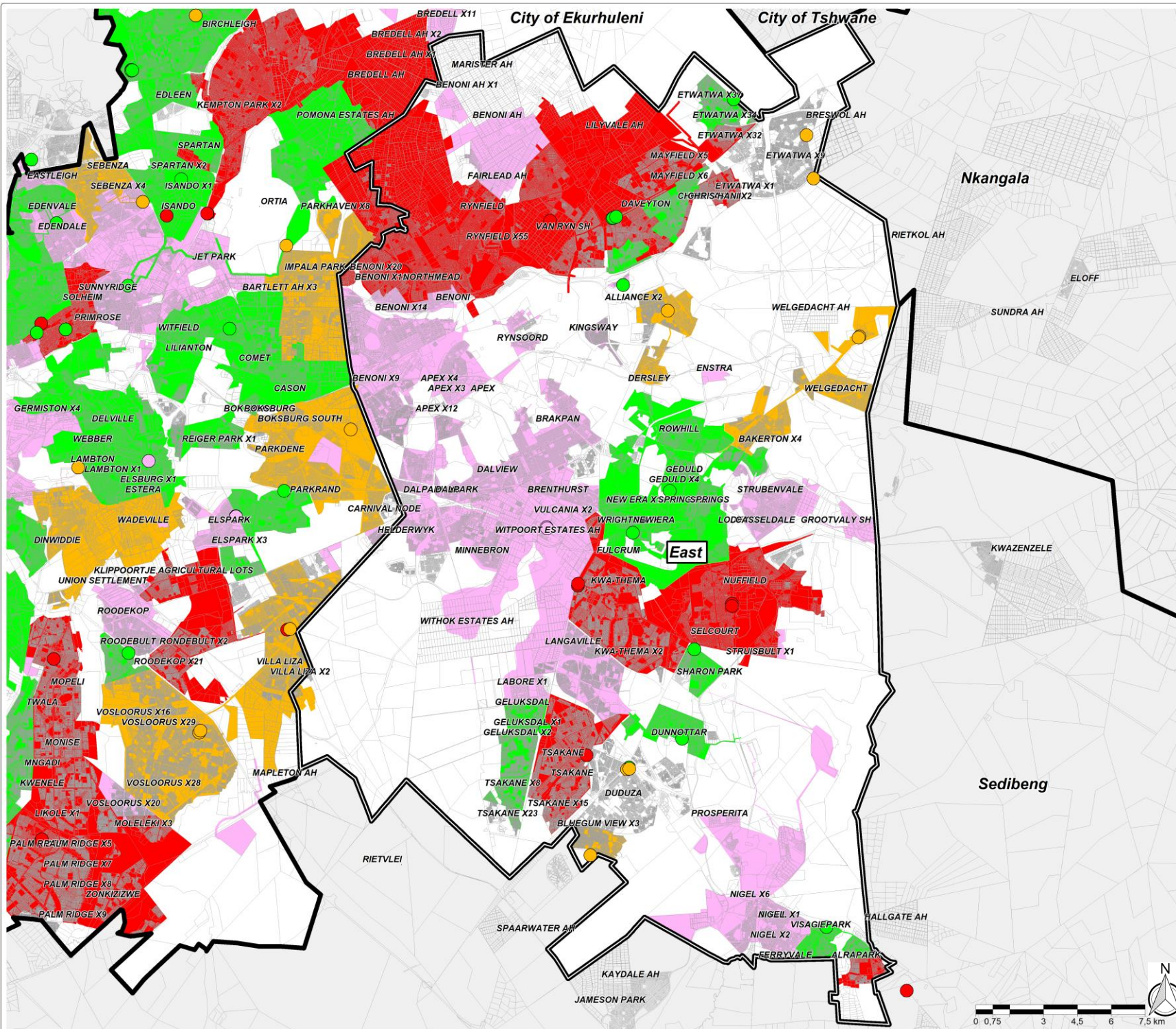
In order to comply with the current design criterion of 36h storage time, additional reservoir capacity is planned for all reservoir supply areas shown in red and orange on Figure 16.3. Before the new design capacity of a specific reservoir is finalised however, the total water demand of the reservoir's ultimate future supply zones is calculated.



EASTERN REGION WATER DISTRIBUTION ZONES

LEGEND

- Cadastral
- Eastern Region Boundary
- District Municipal Boundaries
- Rand Water Bulk Line
- Reservoirs
- Water Distribution Zones



EASTERN REGION WATER SPARE CAPACITIES

LEGEND

-  Cadastral
 Eastern Region Boundary
 District Municipal Boundaries
Water Distribution Zones / Reservoirs

Water Distribution Zones / Reservoirs

- Not from reservoir
- <24h
- 24-35h
- >36h

Note that in the current master plan, the total water demand for the ultimate future scenario was based on the scenario where all existing proclaimed stands are occupied, all future planned densification has been completed, all planned formalising of informal areas has been completed and all future development areas extracted from the previous approved CoE Spatial Development Framework have been incorporated.

3.7.1.4 Water Network Capacity

A water supply system's capacity is often expressed in terms of the system's ability to deliver sufficient operating pressure under peak demand conditions to its consumers. In the CoE the criteria for the design of water distribution systems are as follows: A minimum residual pressure of 24 m head is required at the most critical node within a water distribution zone under peak demand conditions.

A hydraulic analysis of the entire CoE water distribution system was done with the system modelled under peak demand conditions. The resulting residual pressures for the Eastern Region are indicated graphically on **Figure 16.4**. From this it is evident that the water distribution system has no spare capacity available in the areas as depicted in red on Figure 16.4.

Most notable in this regard is the large areas around Daveyton and Etwatwa to the north, some of the small holding areas north of Benoni; large parts of Benoni South and Brakpan as well as Bakerton, Welgedacht and Strubenvale to the east, and parts of Nuffield, Selcourt, KwaThema, Tsakane, Duduza and Nigel to the south where there is insufficient system pressure available.

3.7.2 Sanitation

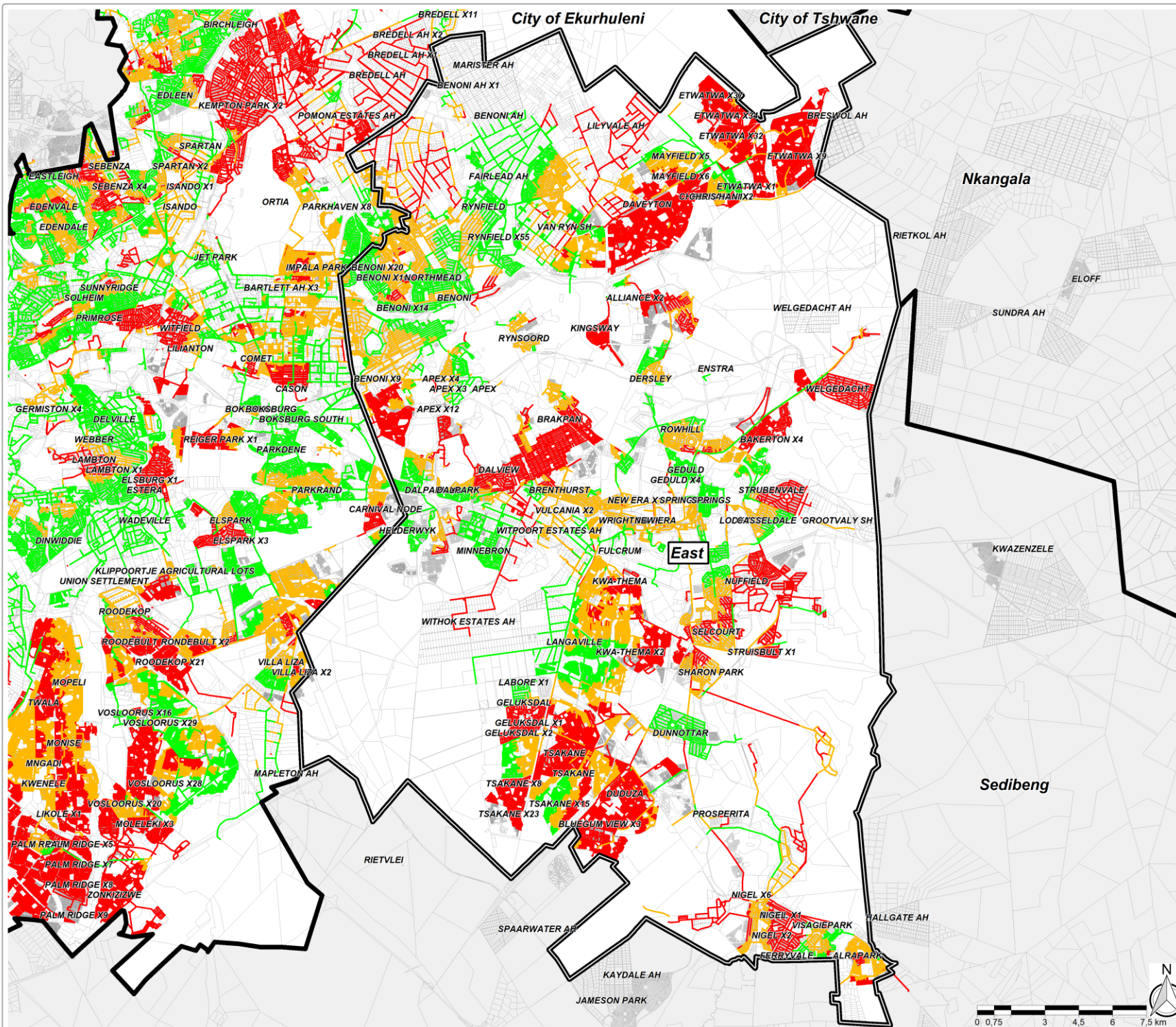
All formal and urban areas within the Eastern Region are served with waterborne sanitation, i.e. flush toilets connected to either a gravity sewer system or septic/conservancy tanks. There are, however, multiple informal settlements scattered all over the region which are not served with waterborne sanitation.

In the sewer master plan allowance was made for the systematic addressing of all informal settlements by either formalising these areas and constructing new waterborne sanitation (only applicable to informal areas located within areas that are suitable for development) or by the relocation of inhabitants to new formal housing development sites where waterborne sanitation systems are being constructed.

3.7.2.1 Wastewater Treatment Plants

Sewage flow generated from all formal urban areas drain to conventional wastewater treatment plants (WWTP) either directly under gravity (where topography allows gravity draining) or via sewage pump stations (where topography prevents draining under gravity). The network of sewer pipes and sewage pump stations (also known as the sewage conveyance system) is owned, operated and maintained by the CoE. All WWTPs, however, are owned, operated and maintained by ERWAT.

The bulk of the sewage flow generated within the CoE drains to 17 WWTPs located within or just outside the borders of the city. A portion of flow generated within the CoE also drains across the border into the Johannesburg sewer system while there are also sections of flow that drain from Johannesburg into the CoE sewer system.



EASTERN REGION WATER SYSTEM CAPACITY

LEGEND

- Cadastral
- Eastern Region Boundary
- District Municipal Boundaries
- $\leq 24\text{m}$ head pressure
- $24\text{--}40\text{m}$ head pressure
- $\geq 40\text{m}$ head pressure

(10 700km of pipeline)

The location of the Eastern Region WWTPs as well as the layouts of their respective drainage areas are indicated on **Figure 16.5**. From this it is evident that the Eastern Region is served by the following drainage areas:

- ❖ JP Marais-Welgedacht to the north-west around Benoni CBD;
- ❖ Rynfield and JP Marais which feed into the Rynfield and JP Marais Wastewater Treatment Works (WWTWs) respectively;
- ❖ Daveyton Water Drainage Area which feeds into Daveyton WWTW;
- ❖ All four the systems noted above also feed into the larger Welgedacht drainage area served by the Welgedacht WWTW;
- ❖ The Benoni drainage area is served by the Benoni WWTW and the Brakpan drainage area by the Jan Smuts WWTW;
- ❖ The majority part of Springs forms part of the Anchor drainage area which is served by the Anchor WWTW;
- ❖ The south-western parts of the Eastern Region (parts of Benoni, Dalpark, Helderwyk, Minnebron, Langaville, parts of KwaThema and Geluksdal are located in the Vlakplaats drainage area which flows south-westwards along the Riet Spruit towards Vosloorus where the Vlakplaats WWTW is located;
- ❖ Tsakane is served by the Tsakane WWTW while Sharon Park, Dunnottar and Prosperita are served by the CE Grundling WWTW;
- ❖ Most parts of Duduza and Nigel are served by the Bickley WWTW located to the far-south;
- ❖ Also notable is the fact that there is no Wastewater Treatment Plant serving the Withok area.

According to the latest information as received by ERWAT, the design capacity, operating capacity and plant capacity status of all the CoE WWTPs are as indicated in **Table 9** and spatially depicted on **Figure 16.6**:

Table 9: WWTP Capacity and Status

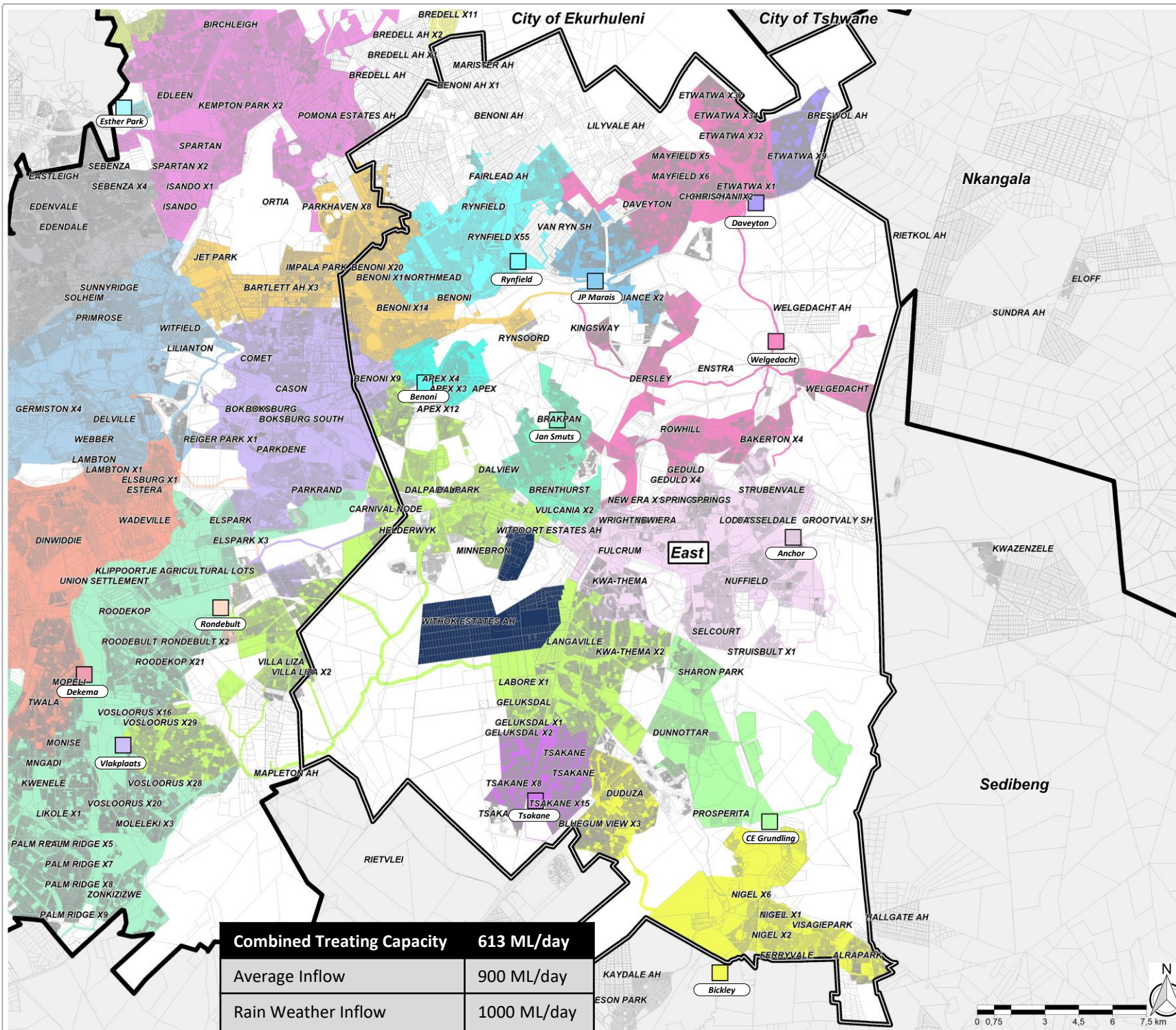
Number	Plant Name	Design/ Regraded Capacity (ML/d)	Operating Capacity – AAF* (ML/d)	Available Capacity (ML/d)	Plant Capacity Status
1	Daveyton	19	9.5	9.51	50%
2	Rondebult	20	10.8	9.2	54%
3	Esther Park	1.4	0.8	0.6	57%
4	Dekema	31	21.32	9.68	69%
5	Benoni	7.5	5.38	2.12	72%
6	JP Marais	15	11.88	3.12	79%
7	Tsakane	20	16.27	3.73	81%
8	Carl Grundlingh	5.2	4.29	0.91	82%
9	Hartebeestfontein	63	55.41	7.59	88%
10	Welgedacht	95	94.4	0.6	99%
11	Rynfield	10	12.13	-2.13	121%
12	Herbert Bickley	15.1	20.13	-5.03	133%
13	Olifantsfontein	65	105.11	-40.11	162%
14	Jan Smuts	6	9.43	-3.43	157%
15	Vlakplaats	55	109.19	-54.19	199%
16	Ancor	15	34.3	-19.3	229%
17	Waterval	170	402.63	-232.63	237%
Total		613.2	922.97	-309.76	150%

* AAF - 12-month average flow (2021-11 - 2022-10)

Legend	Plant Operating at < 80% of Design Capacity	Plant Operating at 80 - 100% of Design Capacity	Plant Operating at >100% of Design Capacity
--------	--	--	---

From the above, the following can be concluded:

- ❖ Only Apex, parts of Daveyton, Alliance and far-eastern extents of Etwatwa areas operate at less than 80% of capacity.
- ❖ The Welgedacht, Tsakane and CE Grundling WWTW are all operating at between 80% and 100% of design capacity.



EASTERN REGION WWTP DRAINAGE AREAS

LEGEND

- Cadastral
- Eastern Region Boundary
- District Municipal Boundaries

Drainage Areas / WWTP

- Anchor
- Benoni
- Bickley
- CE Grundling
- Daveyton
- Dekema
- Dunblane Package Plant
- Esther Park
- JHB North
- JP Marais
- JP Marais Welgedacht
- Jan Smuts
- Rondebult
- Rynfield
- Tsakane
- Vlakplaats
- Vlakplaats Rondebult
- Vlakplaats Waterval
- Waterval Rondebult
- Waterval
- Welgedacht
- No WWTP

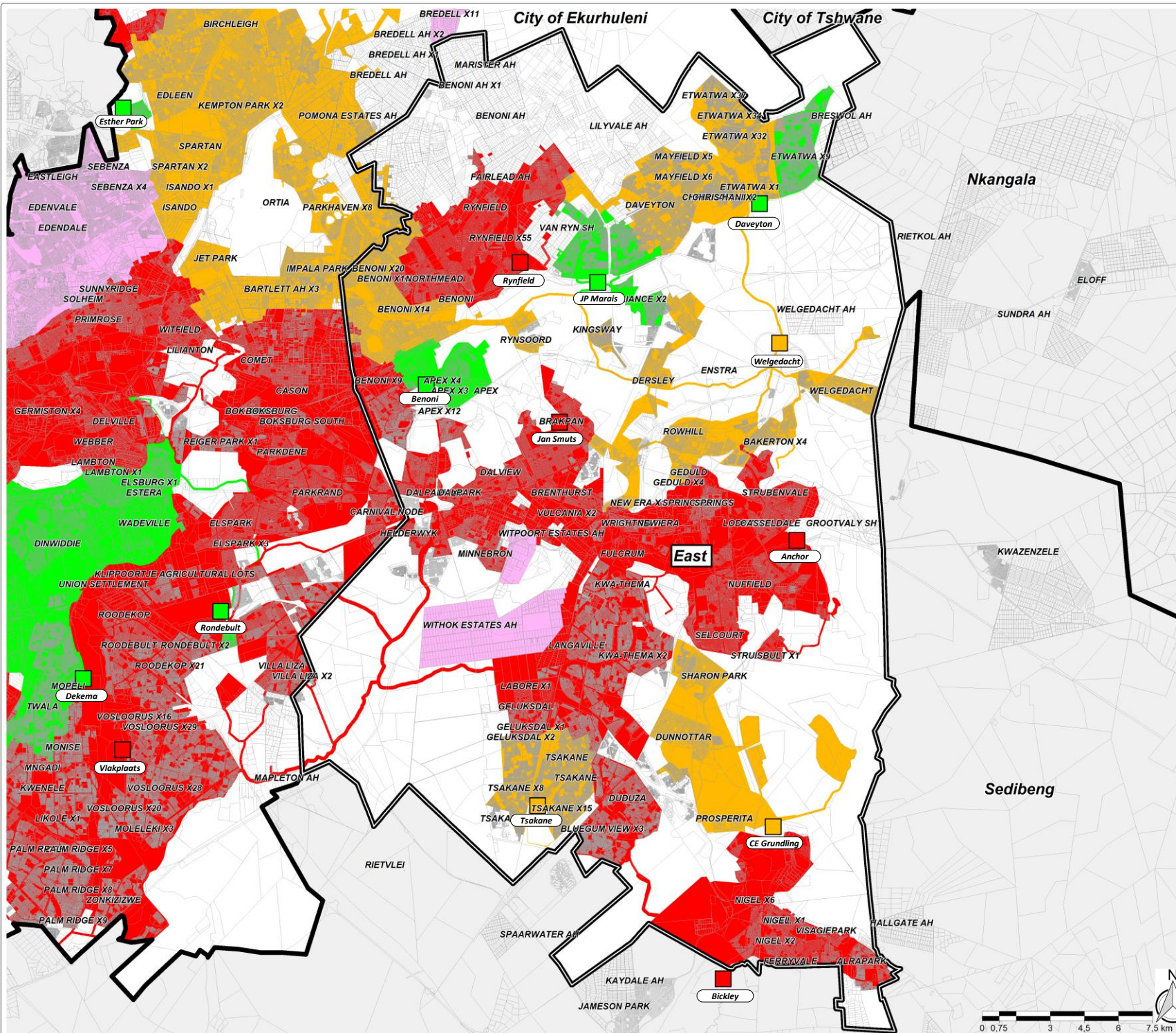
EASTERN REGION WWTP CAPACITY STATUS

LEGEND

-  Cadastral
 Eastern Region Boundary
 District Municipal Boundaries

Drainage Areas / WWTP

- Not draining to CoE WWTP
- Operating at <80%
- Operating at between 80% – 100%
- Operating >100%



- ❖ The Rynfield WWTW operates at 121%, Jan Smuts WWTW at 157% and Anchor WWTW to the east at an alarming 229% of design capacity.
- ❖ The Bickley WWTW to the south operates at 133% of its capacity and Vlakplaats WWTW to the west (in Vosloorus) at 199% of operating capacity.

To address the capacity insufficiency concerns highlighted above, ERWAT recently compiled a 50-year regionalisation master plan. The philosophy behind the regionalisation master plan was that it will be more economical to operate fewer, but larger plants on a regional scale than to operate a higher number of smaller plants.

The findings/proposals of the regionalization master plan are graphically illustrated on **Figure 16.7** and recommendations are summarized as follow:

- ❖ That six of the 17 existing CoE plants are to be classified as regional WWTPs earmarked for major upgrading. These include Olifantsfontein, Hartbeestfontein and Waterval, as well as Welgedacht, Anchor and Brickley WWTW which are located in the Eastern Region.
- ❖ Three plants are identified to be kept in operation but capped and bypassed (JP Marais, Rondebult and Vlakplaats); and
- ❖ The remaining eight plants are to be abandoned completely with their flow bypassed to a downstream regional plant (Daveyton, Benoni, Rynfield, Jan Smuts, CE Grundling and Tsakane in the Eastern Region).

3.7.2.2 Sewer Gravity Bulk and Network Pipes

The total Eastern Region sanitation system is depicted on **Figure 16.8**.

A hydraulic analysis of the Eastern Region sanitation system yielded the relative spare capacity results as indicated on **Figure 16.8**, with all pipes indicated in red having a relative spare capacity of less than 30%. Although a

significant number of pipes show insufficient capacity after the existing system status quo hydraulic analysis, not all of these pipes will necessarily require upgrading. During the future system analysis, i.e. where the future flow is simulated by adding additional flow from future developments and densification, the planned upgrading to pipes with insufficient spare capacity always takes cognisance of fully utilising the spare capacity in nearby parallel pipes or alternative pipe routes first before upgrading to any sewers are planned. Therefore, upstream flow diversion into sewers with excess capacity are always considered first before upgrading to existing sewers are planned.

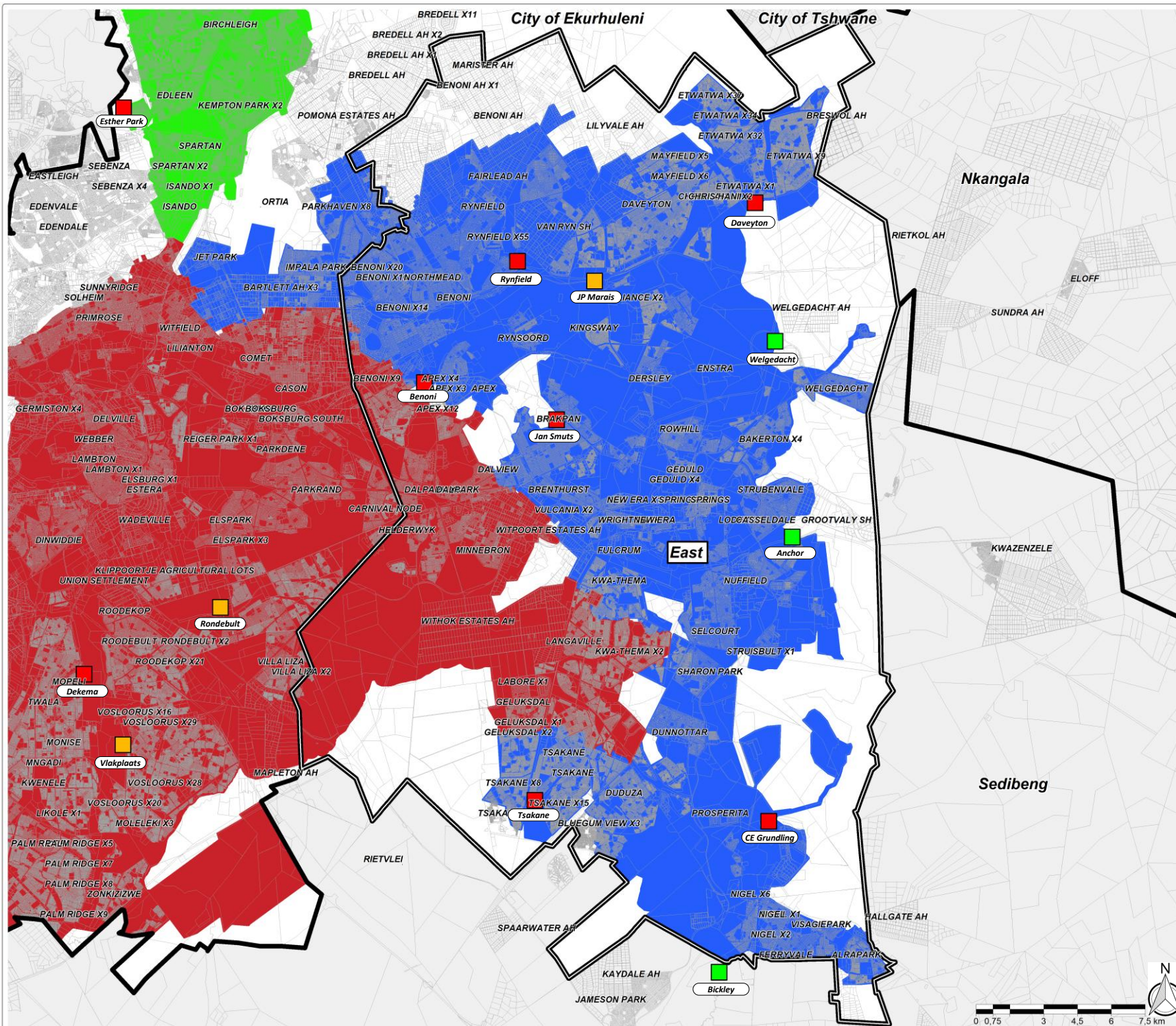
3.7.3 Electricity

Electrical supply and distribution within the mandate of the City of Ekurhuleni is divided into nine service delivery areas of which the following are located in the Eastern Region (refer to **Figure 16.9**):

- ❖ Benoni
- ❖ Brakpan
- ❖ Springs-Nigel

Also important to note is the fact that Eskom supplies electricity to the Daveyton-Etswatwa area to the north and to Tsakane and Duduza to the south.

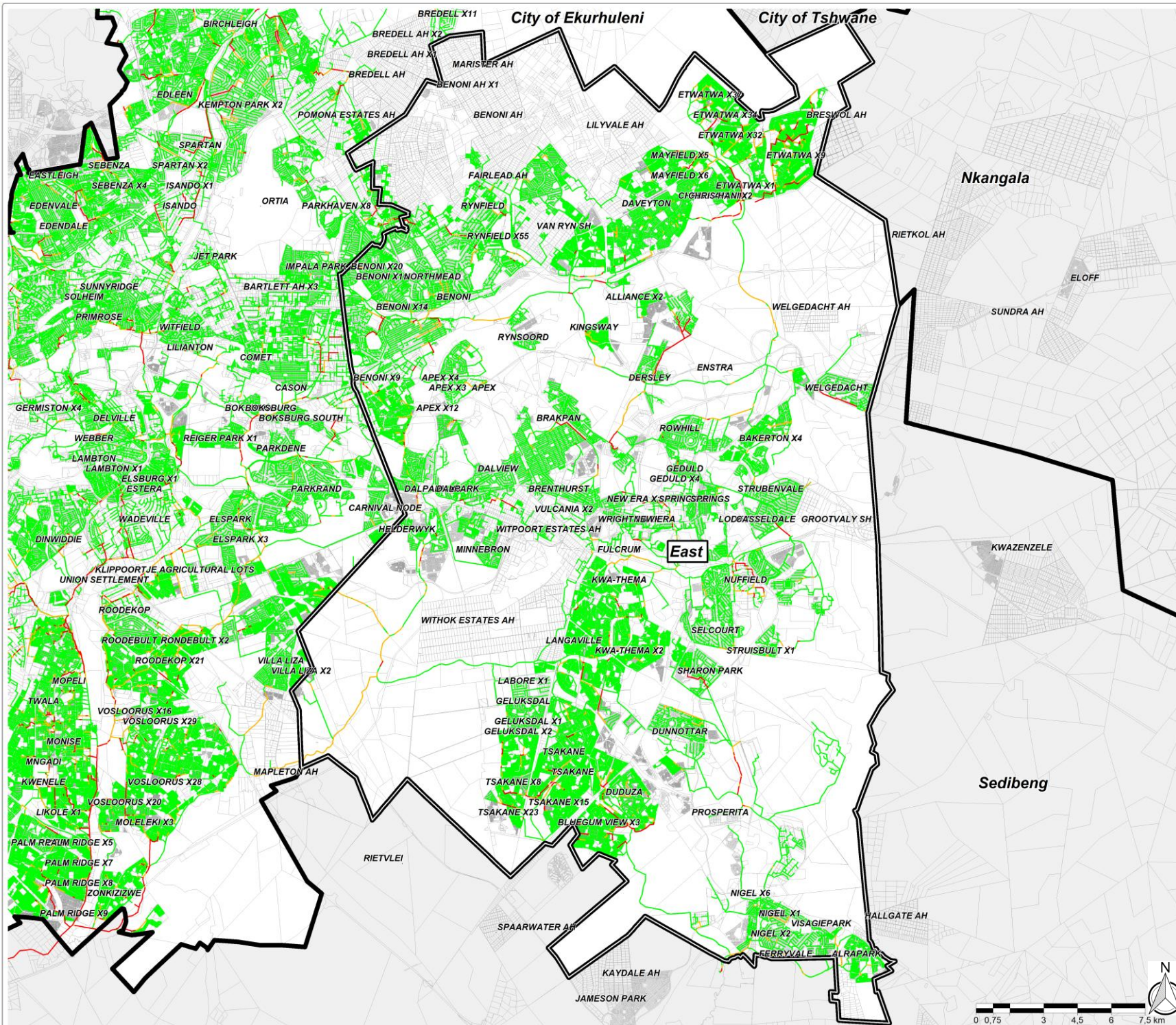
As per the most recent monthly management report received from Ekurhuleni, the total Notified Maximum Demand (NMD) with Eskom is 2 619.74 MVA across all 9 service delivery areas, with the regional breakdown of NMD and Installed Capacity as noted in **Table 10**.



EASTERN REGION WWTP PLANNING

LEGEND

- Cadastral
- Eastern Region Boundary
- District Municipal Boundaries
- Plant to be abandoned
- Plant to be capped and bypassed
- Plant to be upgraded
- DD3
- DD5
- DD6

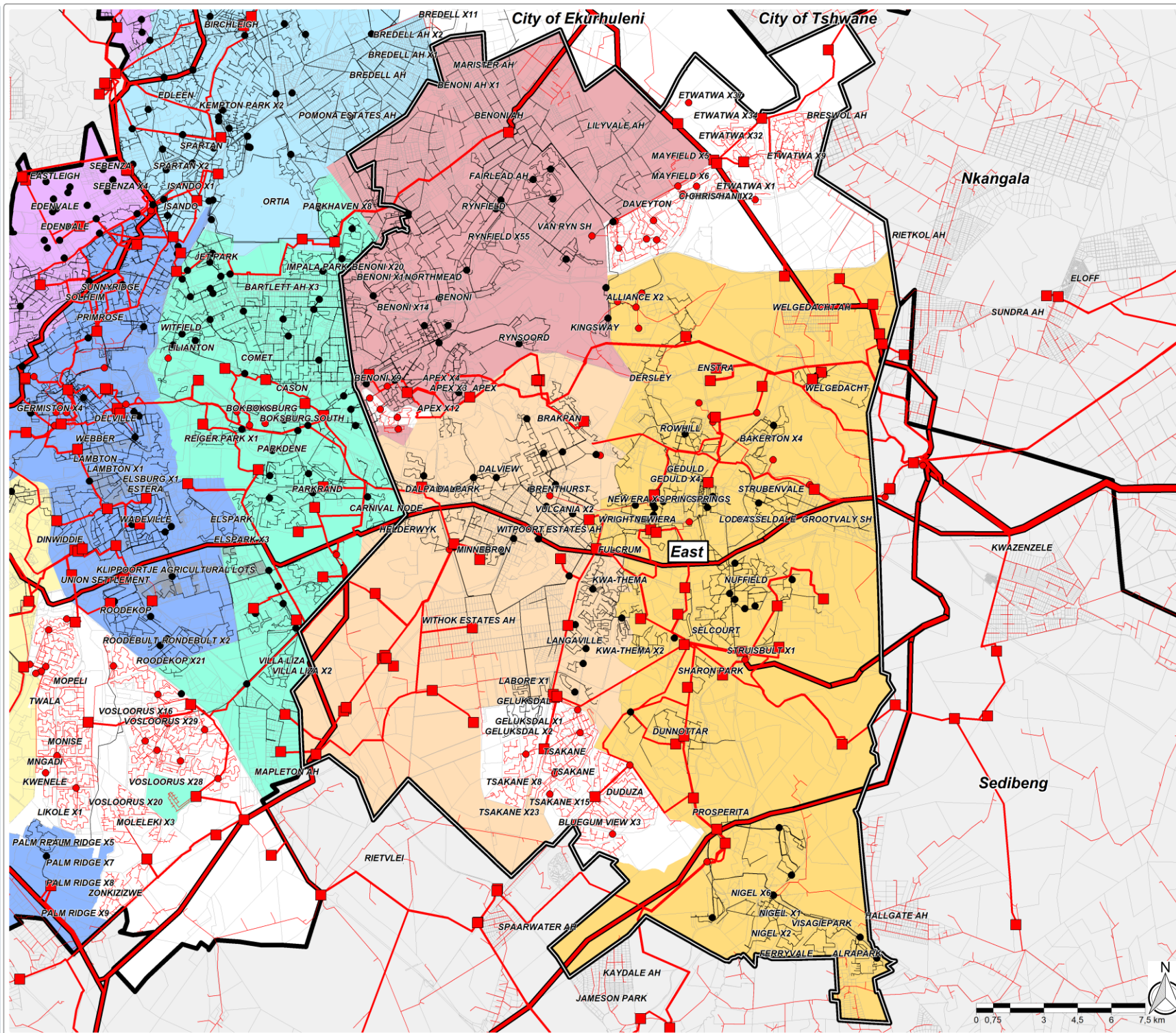


EASTERN REGION SEWER SYSTEM CAPACITY

LEGEND

- Cadastral
- Eastern Region Boundary
- District Municipal Boundaries
- Insufficient (≤ 29)
- Marginal (30-59)
- Sufficient (≥ 60)

(9700km of pipeline)



EASTERN REGION ELECTRICITY NETWORK

LEGEND

- Cadastral
- Eastern Region Boundary
- District Municipal Boundaries

Service Delivery Areas

- Albertyon
- Benoni
- Boksburg
- Brakpan
- Edenvale
- Germiston
- Kempton Park
- Springs / Nigel
- Eskom

Infrastructure

- HV Substations
- Eskom Substations
- Switching Stations
- HV Powerlines
- SA Main Transmission Lines
- CoE Distribution Network
- Eskom Distribution Network

Table 10: Ekurhuleni Regional Electricity Distribution

EKURHULENI REGIONAL ELECTRICITY DISTRIBUTION		
REGIONS	NMD (See Note 2)	INSTALLED CAPACITY (See Note 3)
Alberton	296.00 MVA	460.00 MVA
Benoni	235.00 MVA	235.00 MVA (See Note 4)
Boksburg	363.30 MVA	260.00 MVA (See Note 4)
Brakpan	143.00 MVA	230.00 MVA
Edenvale	69.00 MVA	90.00 MVA (See Note 4)
Germiston	621.00 MVA	730.00 MVA (See Note 4)
Kempton Park	409.00 MVA	300.00 MVA (See Note 4)
Springs/Nigel	268.44 MVA	113.10 MVA (See Note 4)
Tembisa	215.00 MVA	270.00 MVA (See Note 4)

Notes:

1) 1 MVA = 1 000kVA

2) NMD (Notified Maximum Demand): the capacity in kVA/MVA, measured over a integrated 30-minute period, which Eskom agree to make contractually available to Ekurhuleni at all time periods.

3) The sum of all installed transmission level transformer (in kVA or MVA) for the region.

4) Installed Capacity relate to installed transformer capacities and exclude Bulk Supply Capacities at 132kV where transformer capacities are not available - refer addendum for detailed breakdown

3.7.4 Waste Disposal/ Management

Figure 16.10 depicts the distribution of public and private waste disposal/ landfill sites in the Eastern Region.

The most important sites include Weltevreden and Rietfontein in the central parts of the Region, as well as Rooikraal in the south-eastern extents of the Region next to Villa Liza.

Four solid waste depots are located at Benoni, Vulcania, Springs and Prosperita, with an additional ten solid waste disposal sites located throughout the urban fabric of the Region in order to accommodate the need of residents at a convenient distance.

Projects aimed at the development and/or upgrading of the Weltevreden, Rooikraal and Platkop landfill sites are included in the CoE IDP.

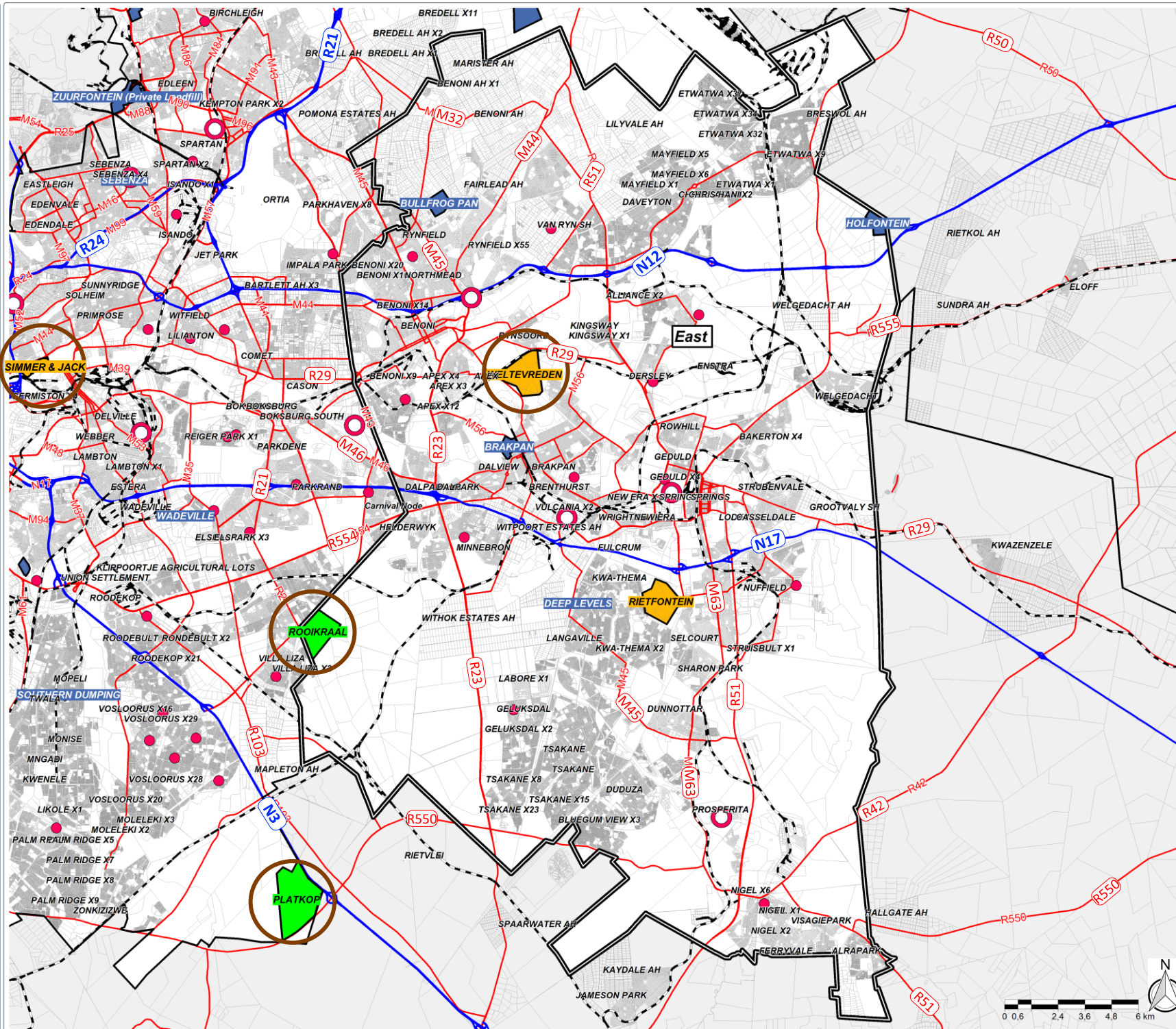
EASTERN REGION WASTE DISPOSAL

LEGEND

- Solid Waste Disposal
 - Solid Waste Depots
- Landfill Airspace Capacity
- >10 years airspace capacity
 - <10 years airspace capacity
 - Non Operational / Privately Owned / Closed / No Information
 - Earmarked for Upgrading

-  Cadastral
 Eastern Region Boundary
 District Municipal Boundaries

- National Roads
 Provincial Roads
 Railway Network



4 SPATIAL PROPOSALS

The main purpose of the City of Ekurhuleni Municipal Spatial Development Framework (and the more detailed Regional Spatial Development Frameworks) is to define a spatial rationale / spatial logic for the future development of the city and the respective regions. This spatial rationale is based on a number of multi-sectoral development concepts and supporting policies and guidelines that will be used by the CoE to achieve sustainable spatial development and spatial transformation in a consistent/coherent manner across its area of jurisdiction.

Diagram 7.1 graphically illustrates the structure and sequence of the main components representing the CoE MSDF (and RSDFs). It is briefly summarised as follow:

- ❖ The **Spatial Vision** for the CoE area is aligned to the five SPLUMA Principles and translated into a number of Outcomes to be achieved through strategic planning. (Outcomes Led Planning).
- ❖ A more detailed **Spatial Concept** and a **Municipal Land Use Budget** quantifying the land area required to accommodate the projected future growth of the City.
- ❖ A total of six multi-sectoral **Spatial Development Objectives and Strategies** each of which comprises a number of **Actions** to be implemented. These Spatial Objectives and Strategies are strongly aligned to a range of national, provincial and metropolitan policies and guidelines. The supplementary policies and guidelines are included in **Annexure B** of this document – see **Diagram 7.2**. (The same guidelines are also included in Annexure B of the MSDF to ensure consistency between the MSDF and RSDFs).
- ❖ Collectively, these six multi-sectoral **Spatial Development Objectives** and associated **Spatial Strategies** culminate into the **Composite CoE Municipal SDF** with a 2030 and 2040 development perspective.
- ❖ The three **Regional Spatial Development Frameworks** with **Sub-Area Spatial Plans** are firstly to align to the MSDF Spatial Vision, Spatial Concept, Spatial Objectives and Spatial Strategies; but the main purpose of these is to provide more spatial detail to guide future development and land use management in the respective regions. **Annexure A** in this document comprises a copy of the CoE MSDF Composite Map, as well as the Sub-Area Plans for the metropolitan area. Each Sub Area Plan comprises three maps:
 - 1) Proposed Land Use
 - 2) Proposed Densities
 - 3) Proposed Gautrans Road Reserves (where available)
- ❖ The **Implementation Framework** as illustrated on Diagram 7.1 as only included in the MSDF. It highlights the implications of the MSDF for CELUS; the sectoral implications of the CoE MSDF; provide the framework for linking to the existing CoE Growth Management Strategy; and align with the CoE Budgeting Process (and associated Geographic Focus Areas) which includes the CoE Capital Expenditure Framework, as well as the longer term CoE Infrastructure Development Management Strategy (IDMS) and Long-Term Financial Plan (LTFP).
- ❖ The CoE MSDF/RSDF Spatial Strategies inform the CoE Budgeting process (**Strategy Led Budgeting**) as it provides a spatial prioritization rationale to guide, align and coordinate municipal capital investment across all sectors and to achieve spatially targeted investment in support of the Spatial Strategies as set out in the MSDF and RSDFs.

Section 4.1 below confirms the MSDF Spatial Development Vision and Outcomes which also apply to the Eastern RSDF.

SPATIAL VISION											
5 SPLUMA Principles Alignment —————▶ OUTCOMES LED PLANNING: Well Governed City, Sustainable City, Efficient/Resilient City, Inclusive City											
SPATIAL CONCEPT											
Strategic Development Principles						Municipal Land Use Budget					
SPATIAL OBJECTIVES											
Objective 1: Environmental Management	Objective 2: Spatial Targeting and Transformation	Objective 3: Movement Network	Objective 4: Economic Development and Job Creation					Objective 5: Sustainable Human Settlements	Objective 6: Infrastructure Alignment		
SPATIAL STRATEGIES											
• Primary Open Space ◦ Biodiversity Areas • Secondary Open Space ◦ EBOSS • Dolomite Management • Mining Rehabilitation • Pollution Control • Stormwater (SuDS) • Climate Change Response Strategy • Green City • Smart City	• Spatial Targeting ◦ Urban Edge - Urban Development Guidelines - Rural Development Guidelines ◦ Activity Node Hierarchy - Primary - Secondary - Tertiary • Spatial Transformation Agenda	• Road Network ◦ Mobility ◦ Accessibility ◦ Access • Airports • Rail Network ◦ Freight Rail and Freight Hubs ◦ Commuter Rail • Integrated Public Transport Network • Activity Corridors • Activity Spines • Activity Streets	Business	Industrial	Mining	Tourism	Agriculture	• Smart Growth Principles • Density Guidelines • Housing ◦ Priority Housing Development Areas ◦ Housing Typologies ◦ Housing Programmes • Community Facilities ◦ Hierarchy ◦ Standards ◦ Distribution ◦ Thusong Centre	• Movement Network • Bulk / Reticulation: ◦ Water ◦ Sanitation ◦ Electricity ◦ Stormwater ◦ Waste ◦ ICT: Smart City • IDMS/IIMP: ◦ Backlog Eradication ◦ Maintenance ◦ Expansion		
			• Scale ◦ Regional ◦ Community ◦ Neighbourhood ◦ Convenience/Corner Shop • Retail Hierarchy	• Functional Clusters/Corridors • Functions: ◦ Manufacturing ◦ Logistics ◦ Agri ◦ Green	• Functional Mining Areas • Reclamation • Rehabilitation	• Functional Areas / Routes ◦ Eco Tourism ◦ Agri Tourism ◦ Adventure Tourism ◦ Cultural Tourism ◦ Event Tourism	• Agri Hub • Commodities • Value Chains				
			Township Economy Support Programme (GTEDA)				Agrarian Transformation				
							• Informal Trade Upscaling • SMME Development • Mentorship Programme		• FPSU: Emerging Farmers • Land Reform		
			Tertiary Education and Resource Based Skills Development								
						Urban Network (TOD): ◦ Core (Aerotropolis) ◦ Hubs (Township Regeneration Areas) ◦ Integration Zone (IPTN)					
COMPOSITE MUNICIPAL SDF:					Long Term: 20 Years / Short Term: 5 Years						
REGIONAL SPATIAL DEVELOPMENT FRAMEWORKS											
Northern Region RSDF and Sub Area Plans				Southern Region RSDF and Sub Area Plans				Eastern Region RSDF and Sub Area Plans			
IMPLEMENTATION FRAMEWORK											
• CELUS Implications/Alignment • Sectoral Implications/Alignment • Growth Management Strategy Model			STRATEGY LED BUDGETING: • Capital Expenditure Framework (5 Year): IDP, MTREF, SDBIP, Annual Budget (Long Term): IDMS, LTFF								
ANNEXURE A			ANNEXURE B								
• MSDF Composite • Sub Area Plans			B1: Environmental Management		B2: Spatial Targeting and Transformation		B3: Transportation				
			B4: Economic Development		B5: Sustainable Human Settlement		B6: Engineering Services				
			B7: Annual Capital Expenditure Framework								

B1: Environmental Management		B2: Spatial Targeting and Transformation		B3: Transportation	
B1.1:	GEMF Guidelines	B2.1:	CoE Nodal Hierarchy	B3.1:	Class 3 Road Access Management Guidelines
B1.1.1:	Environmental Management Zones: Intention and Conditions	B2.2:	CoE MSDF: CELUS Linkage Table (Comprehensive)	B3.2:	Transit Oriented Development Guidelines
B1.1.2:	Environmental Management Zones: Compatible/Incompatible Uses	B2.3:	Compatibility Guidelines	B3.3:	Typical Activity Spine/Street Cross Section
B1.1.3:	General Guidelines for Environmental Management Zones	B2.4:	Evaluating Proposals for Rooms to Let		
B1.2:	CoE Bioregional Plan Guidelines: CELUS	B2.5:	CoE Urban Development Boundary Policy		
B1.3:	Open Space Development Guidelines	B2.6:	Growth Management Tools (Prioritized)		
B1.4:	Agricultural Land Guidelines	B2.7:	Urban Management Guidelines		
B1.4.1:	Agricultural Land Preservation Guidelines	B2.8:	CoE Capital Prioritization Model and Weighting Matrix		
B1.4.2:	Status of Agricultural Land Parcels around UDB in relation to SALA	B2.9:	Catalytic Land Development Programme		
B1.5:	Mining Land Development Guidelines				
B1.6:	CoE Green City Action Plan				
B1.7:	Smart City Concept				
B1.8:	Renewable Energy Guidelines				
B4: Economic Development		B5: Sustainable Human Settlement		B6: Engineering Services	
B4.1:	Township Economy Job Opportunities	B5.1:	Residential Typologies and Densities	B6.1:	Water and Sanitation Master Plan Projects
B4.2:	Township Regeneration Node Concept	B5.1.1:	Residential Density Diagram	B6.2:	GMS Assessment of CoE IIMP (2019)
B4.3:	Township Economic Upscaling	B5.1.2-3:	Residential Typologies (Examples)		
B4.3.1:	Business/Service Industry Upscaling Concept	B5.2:	Multi-Purpose Government Precinct/Thusong Center		
B4.3.2-5:	Upscaling Examples	B5.2.1:	Government Precinct Concept		
B4.4:	CoE Shopping Center Hierarchy	B5.2.2-3:	Thusong Center Example		
B4.4.1:	Shopping Center Distribution in CoE (Map)	B5.3:	Incremental Residential Capacity (2040)		
B4.4.2:	Shopping Center Floor Area	B5.3.1:	Incremental Units/Population per Functional Area		
B4.4.3:	CoE Retail Facility Core Classification and Hierarchy	B5.3.2:	Incremental Retail/Office Floor Space per Functional Area		
B4.4.4:	CoE Focus/Niche Classification	B5.3.3:	Future Residential Functional Clusters Map		
B4.5:	Subsistence Agriculture and Precision Farming	B5.3.4:	Total Units and Population per Functional Area Cluster		
B4.5.1:	Subsistence Agriculture Value Chain Diagram	B5.3.5:	Phasing of Development per Functional Area		
B4.5.2-3:	Precision Farming Examples	B5.4:	Informal Settlement		
B4.6:	Incremental Floor Space and Workers (Job Opportunities)	B5.4.1:	Transitional Informal Settlements (In-Situ Upgrading)		
B4.6.1:	Incremental Workers/Floor Space Residential Related	B5.4.2:	Informal Settlement Relocation Strategy		
B4.6.2:	Incremental Workers/Floor Space Industrial Related	B5.5:	Community Facilities		
		B5.5.1:	Incremental Lower Order Community Facilities (2040)		
		B5.5.2:	Incremental Higher Order Community Facilities (2040)		
		B5.5.3:	Total Incremental Community Facilities (2040)		
		B5.5.4:	CSIR Norms and Standards for Community Facilities		
		B5.5.5:	Community Facility Location Guidelines		
		B5.5.6:	Guidelines for Cemetery Planning		
		B5.6:	CoE Urban Design Guidelines		

Section 4.2 deals with the MSDF Spatial Concept and Land Use Budget with a summary of the relevance thereof to the Eastern RSDF.

With the above as points of departure, the Eastern RSDF Spatial Development Objectives and associated Spatial Strategies are presented in Section 4.3 of this document.

INFO BOX 2: LEGAL STATUS OF COE SERVICE DELIVERY REGION SPATIAL DEVELOPMENT FRAMEWORKS (RSDFS)	
❖	It is important to note that the Spatial Development Frameworks for the three Service Delivery Regions of the City of Ekurhuleni are not Regional Spatial Development Frameworks as contemplated in Chapter 3: Part D of SPLUMA, 2013.
❖	The Spatial Development Frameworks for the three Service Delivery Regions (Northern, Southern and Eastern) are legally part of the CoE Municipal Spatial Development Framework as defined in Chapter 4: Part E of the Spatial Planning and Land Use Management Act, 2013; and the Spatial Development Frameworks for the three Service Delivery Regions merely provide more detailed information than the MSDF, using larger scale maps.

4.1 COE MSDF SPATIAL DEVELOPMENT VISION AND OUTCOMES

Diagram 8 confirms the CoE MSDF Spatial Vision and associated Outcomes Directives which are also applicable to the Eastern Region RSDF.

From Diagram 8 it is clear that the intended Outcomes of the CoE Spatial Vision (to be a Well-Governed City, Sustainable City, Productive City and Inclusive City) are aligned to the CoE Strategic Objectives as defined in the CoE Growth and Development Strategy (GDS 2055) (Re-Govern, Re-Generate, Re-Industrialize, Re-Urbanise, and Re-Mobilise).

Furthermore, these Outcomes are also aligned to the Land Development Principles defined in the Spatial Planning and Land Use Management Act (Co-Operative Governance, Spatial Sustainability, Spatial Efficiency, Spatial Resilience and Spatial Justice).

DIAGRAM 8: COE MSDF SPATIAL VISION AND OUTCOMES DIRECTIVES	
COE SPATIAL VISION	
<i>A well-governed City which is environmentally sustainable and economically productive, and which is spatially transformed in order for all communities to have equal opportunity to participate in all aspects of life.</i>	
OUTCOME: WELL GOVERNED CITY RE-GOVERN	OUTCOME: SUSTAINABLE CITY RE-GENERATE
SPLUMA PRINCIPLE: Co-Operative Governance	SPLUMA PRINCIPLE: Spatial Sustainability
❖ Visionary Leadership ❖ Multi Sectoral Planning ❖ Delivery Capacity and Mechanisms ❖ Institutional Alignment ➢ Planning ➢ Budgeting ➢ Implementation ➢ Management	❖ Ecosystem Integrity ❖ Climate Change Resilience ❖ Economic Cycle Resilience ❖ Sustainable Resource Utilisation ❖ Innovative Application of Smart/Green Technology
OUTCOME: PRODUCTIVE CITY RE-INDUSTRIALIZE	OUTCOME: INCLUSIVE CITY RE-URBANISE / RE-MOBILISE
SPLUMA PRINCIPLE: Spatial Efficiency & Spatial Resilience	SPLUMA PRINCIPLE: Spatial Justice
❖ Diverse Economy with Extended Value Chains ❖ Efficient Space Economy ❖ Economic Empowerment ❖ Highly Skilled Workforce ❖ Integrated Movement Network ❖ Well Maintained and Comprehensive Infrastructure Network ❖ Innovative Application of Smart/Green Technology	❖ Spatial Transformation ❖ Access to Land ❖ Access to Diverse Settlement and Housing Typology Options ❖ Access to Public Transport ❖ Access to Community Facilities ❖ Access to Economic Opportunities and Resources

4.2 COE MSDF SPATIAL CONCEPT AND LAND USE BUDGET

4.2.1 CoE MSDF Spatial Concept and Strategic Development Principles

The CoE Spatial Concept as reflected on **Figure 17** is based on the following ten Strategic Development Principles for the metropolitan area:

- ❖ **Strategic Development Principle 1: Create a single, uniform identity for the City of Ekurhuleni within the Metropolitan Core centered around the Aerotropolis.**

(The Eastern Region represents only a small part of the Metropolitan Core but this eastern section of the Metropolitan Core is characterized by significant/rapid development pressure – see Info **Box 3** for more detail on the Aerotropolis Concept).

- ❖ **Strategic Development Principle 2: Channel the bulk of economic activity into a number of Development Corridors (anchored around the Freeway Network) and multiple higher order Primary Activity Nodes within the Core Support Zone, with due consideration to functional extensions of the Core Support Zone into the neighbouring City of Joburg, City of Tshwane and Sedibeng District.**

(The Core Support Zone in the Eastern Region comprise short sections of two freeways (N12 and N17), but the Core Support Zone follows the historic mining belt and associated economic activity extending from Benoni to Brakpan, Springs and further southwards towards Nigel. There is no distinct Development Corridor in the Eastern Region).

- ❖ **Strategic Development Principle 3: Prioritize the development of the identified Township Regeneration Nodes in the Marginalized Areas of the CoE in order to support the Township Economy and to promote Economic Empowerment.**

(Marginalized Areas in the Eastern Region include the Daveyton-Etawatwa cluster to the north-east; Actonville-Wattville in the central part; and the KwaThema, Tsakane and Duduza cluster towards the south. A total of seven Township Regeneration Nodes have been identified in these Marginalized Areas).

- ❖ **Strategic Development Principle 4: Establish an Integrated Public Transport Network (IPTN) which links marginalized communities to all the major nodes of economic activity within the CoE.**

(There is an extensive road and rail-based commuter network (IPTN) in the Eastern Region broadly following two desire lines: north-east towards Daveyton-Etawatwa; and south-east towards KwaThema-Tsakane-Duduza and the bordering areas of Brakpan, Springs and Nigel).

- ❖ **Strategic Development Principle 5: Promote higher density residential infill development and mixed use along this Integrated Public Transport Network and within the Activity Nodes in order to:**

- enhance the economic viability of the public transport system, and
- contribute towards Spatial Transformation in the metropolitan area (Integration Zone).

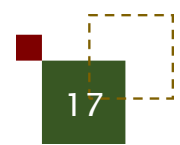
(There is significant potential for densification and infill development along this network of public transport corridors as well as in the activity nodes identified in the Eastern Region).

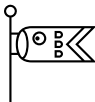
- ❖ **Strategic Development Principle 6: Consolidate residential development in the Urban Consolidation Zone, supported by a number of lower order Activity Nodes intended to serve the local social and economic needs of communities efficiently, and to secure the residential character and quality of neighbourhoods.**

CoE
SPATIAL CONCEPT

-  Metropolitan Core (Aerotropolis)
-  Core Support Zone
-  Urban Consolidation Zone
-  Marginalized Areas
-  Rural Support Zone
-  Primary Activity Nodes
-  Township Regeneration Nodes
-  Rural Service Centre
-  IPTN (Integration Zone)

30 000 ha



INFO BOX 2: EKURHULENI AEROTROPOLIS CONCEPT			
❖ The Ekurhuleni Aerotropolis is an urban development concept in which the region's layout, infrastructure and economy has an airport at its core linking it to global markets. ❖ The Ekurhuleni Aerotropolis will leverage the potential of the O.R. Tambo International Airport as an economic engine. It will offer sustainable economic growth in Ekurhuleni with significant benefits for the economy and its people. ❖ The Ekurhuleni Aerotropolis will stimulate the region by generating an environment conducive to growing existing development and investment, as well as creating numerous new opportunities for a wide range of investors as outlined below:			
Professional Services & Public Administration		Agri-Business & Food Processing	
	Regional business growth will generate increased demand for professional services and associated office space in the Ekurhuleni Aerotropolis.		Land availability for high value, low weight agricultural production with increased opportunity for cold chain space as well as domestic and international agricultural commodity trade.
Retail		Natural Resources & Energy	
	Strategically located and high visibility sites available for retail development.		- The concentration of mining houses complements the Ekurhuleni Aerotropolis' transportation networks, warehousing, manufacturing and specialised technical contractor work - Opportunities for plasma gasification plants, renewable energy pilot projects and transport of heavy equipment parts.
Aerospace Manufacturing & Aviation		Tourism & Culture	
	Existing skills base and advanced manufacturing operations provide the nucleus for potential expansion into the growing commercial aerospace industry.		Regional focus on business tourism and cultural event-based travel creates opportunities for accommodation, as well as convention and exhibition hosting facilities.
Logistics & Distribution		Health & Life Sciences	
	Investors have the immediate benefit of mature logistics and distribution systems with excellent air, road and rail connectivity.		Effective healthcare procedures sample testing services, as well as the manufacturing and export of medical devices and pharmaceuticals.
Manufacturing & High Tech		Education & Skills Training	
	Commitment by national, provincial and municipal government to support the revitalisation of the manufacturing sector where excellent opportunities exist for high value, low weight goods production and exports.		The opportunity exists for an innovative multi-institutional university campus catering for the needs of the target industries and organisations.

(The bulk of the CoE Urban Consolidation Zone is located in the Eastern Region with two distinct clusters to the north and to the south respectively).

- ❖ **Strategic Development Principle 7: Contain urban sprawl and generally promote a more compact and sustainable urban environment through efficient application of an Urban Development Boundary Policy for the metropolitan area.**

(There is very limited capacity for urban expansion in the Eastern Region as natural features such as the Blesbokspruit and the Rietspruit currently act as natural boundaries in the Region).

- ❖ **Strategic Development Principle 8: Develop the rural environment as a functional Rural Support Zone to the urban area with conservation, tourism and agriculture being the main focus.**

(There is very little land area designated as “rural” in the Eastern Region, and most of this land is earmarked for conservation).

- ❖ **Strategic Development Principle 9: Protect sensitive natural and cultural heritage environments and incorporate these into a functional open space system serving the urban and rural parts of the CoE.**

(The Blesbokspruit to the east and Rietspruit to the south represent the two most significant sensitive environments in the Eastern Region).

- ❖ **Strategic Development Principle 10: Actively manage development and measure the impact of growth and development in the urban and rural parts of the CoE by way of a comprehensive CoE Growth Management Strategy which informs the CoE budgeting process.**

(This institutional principle is applicable to all parts of the Eastern Region).

4.2.2 Population Projections and Land Use Budget

Diagram 9 and **Diagram 10** depict the historic and future population and household projections for the CoE for the years 2030 and 2040.

This information represents the “Preferred Scenario” as defined in the CoE Growth Management Strategy (April 2020). This “Preferred Scenario” is also confirmed in the Ekurhuleni Overview Report dated 9 November 2023 which was compiled by Spatial Data Services NPC and published by Gauteng Department of Co-Operative Governance and Traditional Affairs.

The following should be noted from Diagram 9 and Diagram 10:

- ❖ The CoE population is estimated at 4 066 691 people by 2022.
- ❖ This population is projected to increase by 702 373 people by 2030 (4 769 064 people total); and by an additional 668 866 people by 2040, bringing the total estimated CoE population by 2040 to about 5 437 930 people.
- ❖ This represents an average population growth rate of 1,6% per annum which translates to an increment of about 76 180 people per annum from 2022 to 2040.
- ❖ Similarly, the household numbers in the CoE are expected to increase from the current estimate of 1 421 003 households (2022) to 1 965 514 households by 2030 (Increment = 544 511 households).
- ❖ Furthermore, it will increase to 2 327 542 households by 2040 (Increment = 362 028 households).
- ❖ The above translates to an average increment of 50 363 households per annum in the CoE (2,8% per annum) for the period 2022 up to 2040.

CoE: POPULATION PROJECTION: 5,437 million (2040)

CoE: Population Projection: S-curve (7 million peak value)

	Historic		Current		Projection	Increment			
Sources	Census 2001	Census 2011	Census 2022	2030	2040	2001-2011	2011-2022	2022-2030	2030-2040
Population	2,481,753	3,178,471	4,066,691	4,769,064	5,437,930	696,718	888,220	702,373	668,866
Households	745,576	1,015,398	1,421,003	1,965,514	2,327,542	269,822	405,605	544,511	362,028
HH Size	3.3	3.1	2.9	2.4	2.3				

Source: City of Ekurhuleni Growth Management Strategy, Phase 2 Status Quo Assessment, Final Version, 24 April 2020, Municipal Overview, Sept 2023

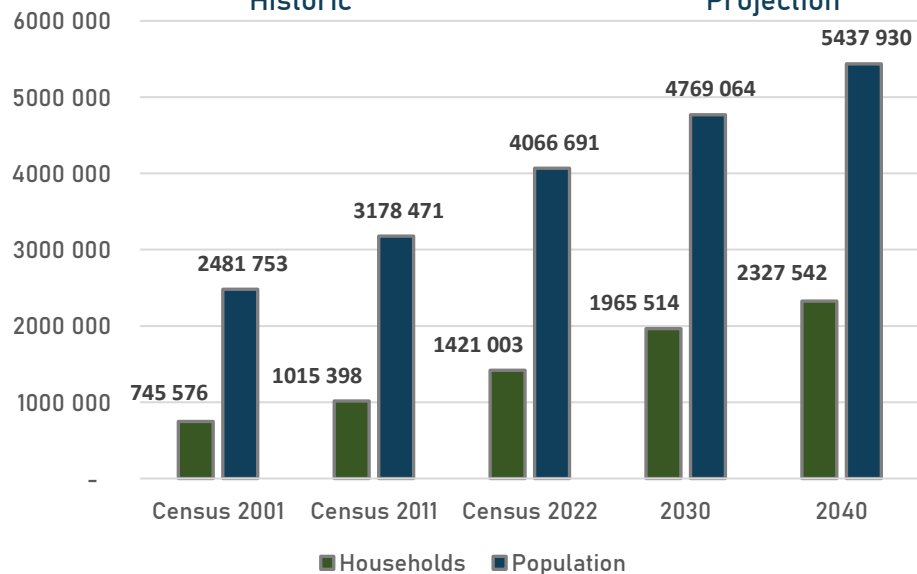
Source: StatsSA Website, April 2024

	Increment p.a.				Growth rate p.a.			
Sources	2001-2011	2011-2022	2022-2030	2030-2040	2001-2011	2011-2022	2022-2030	2030-2040
Population	69 672	80 747	87 797	66 887	2,5%	2,3%	2,0%	1,3%
Households	26 982	36 873	68 064	36 203	3,1%	3,1%	4,1%	1,7%

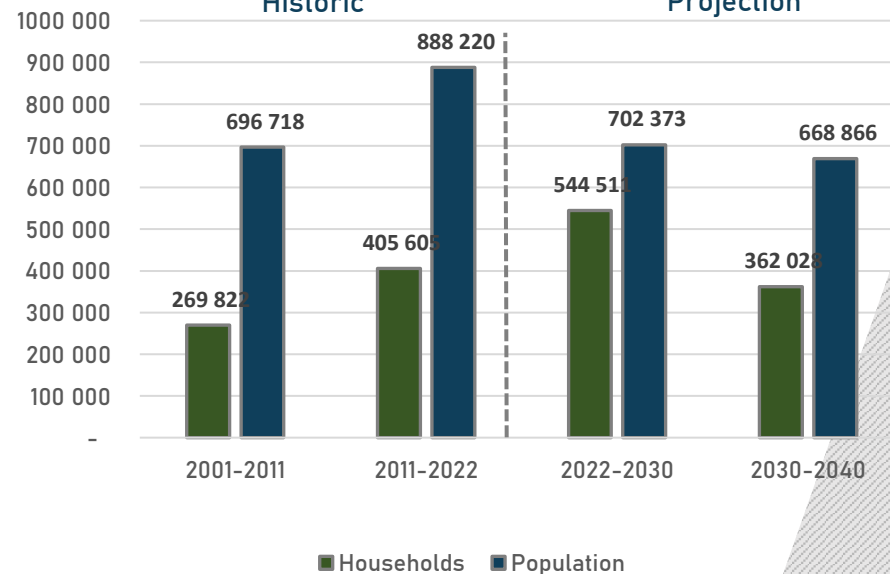
76 180 more people per annum (2022-2040)

50 363 more households per annum (2022-2040)

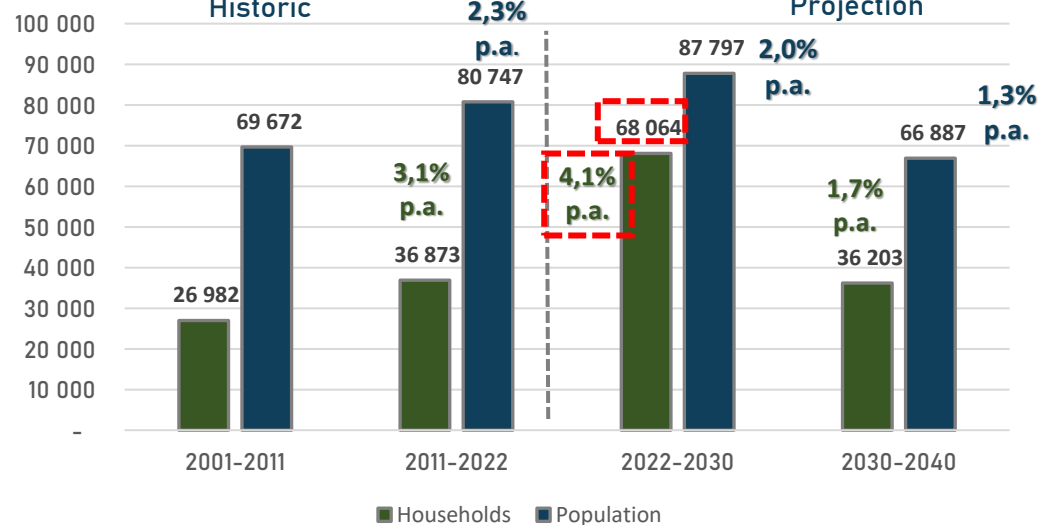
CoE: Households and Population 2001 to 2040



CoE: Households and Population Increment



CoE Households and Population: Increment p.a.



CoE HH Size

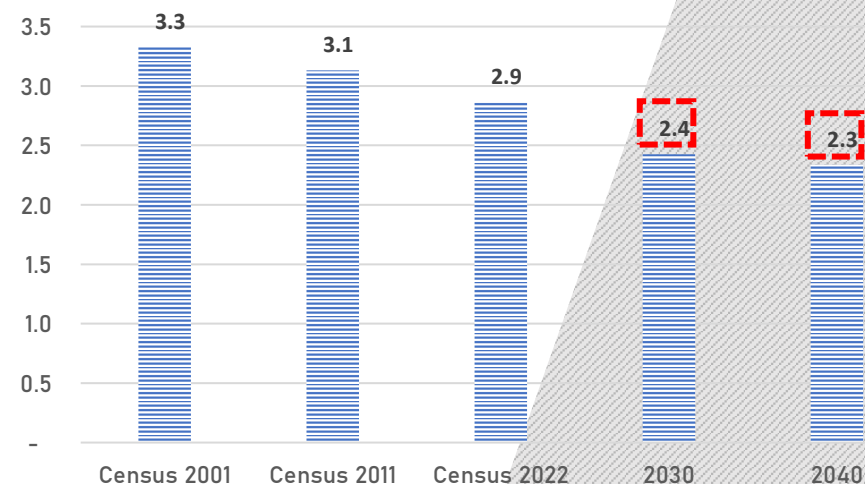


Table 11 comprises a summary of the CoE Land Use Budget (2021-2040) as defined in the CoE Growth Management Strategy (April 2020).

From this it is evident that an estimated 30 000 ha of land will be required to accommodate the incremental population of the CoE up to the year 2040.

The size of 30 000 ha of land is graphically illustrated (at scale) on **Figure 17** and interesting to note is the fact that the CoE Growth Management Strategy concluded that there is sufficient vacant developable land within the existing CoE Urban Edge (MSDF, 2015) to accommodate this growth without need to expand the urban edge.

Table 11: Land Use Demand (2021-2040)

Land Uses	No of Units	% of the Total Land	No of Stand Required	The Area Required
Residential	*488 963	48.59%	334 189	14 526 ha
Business		5.47%	4 194	1 640 ha
Industrial		17.15%	11 960	5 125 ha
Public Spaces Recreation		2.17%	1 081	792 ha
Community Facilities: Municipal		7.32%	2 181	2 185 ha
Community Facilities: Other		4.82%	1 383	1 398 ha
Roads Totals		14.48%	0	4 330 ha
TOTAL	488 963	100.00%	354 988	29 999 ha

* Exclude backyard dwellings, hostel / units and farm worker units

** Total Household Increment (2022-2040) = 906 538 households

4.3 REGIONAL SPATIAL DEVELOPMENT STRATEGY AND PLAN

The following section defines the Spatial Development Strategy for the Eastern Region which incrementally culminates into the Composite Eastern Region Spatial Development Framework.

4.3.1 Environmental Management

Action 1.1: Manage urban and rural land use development in line with the Gauteng Environmental Management Framework (GEMF: 2021) and the CoE Bioregional Plan.

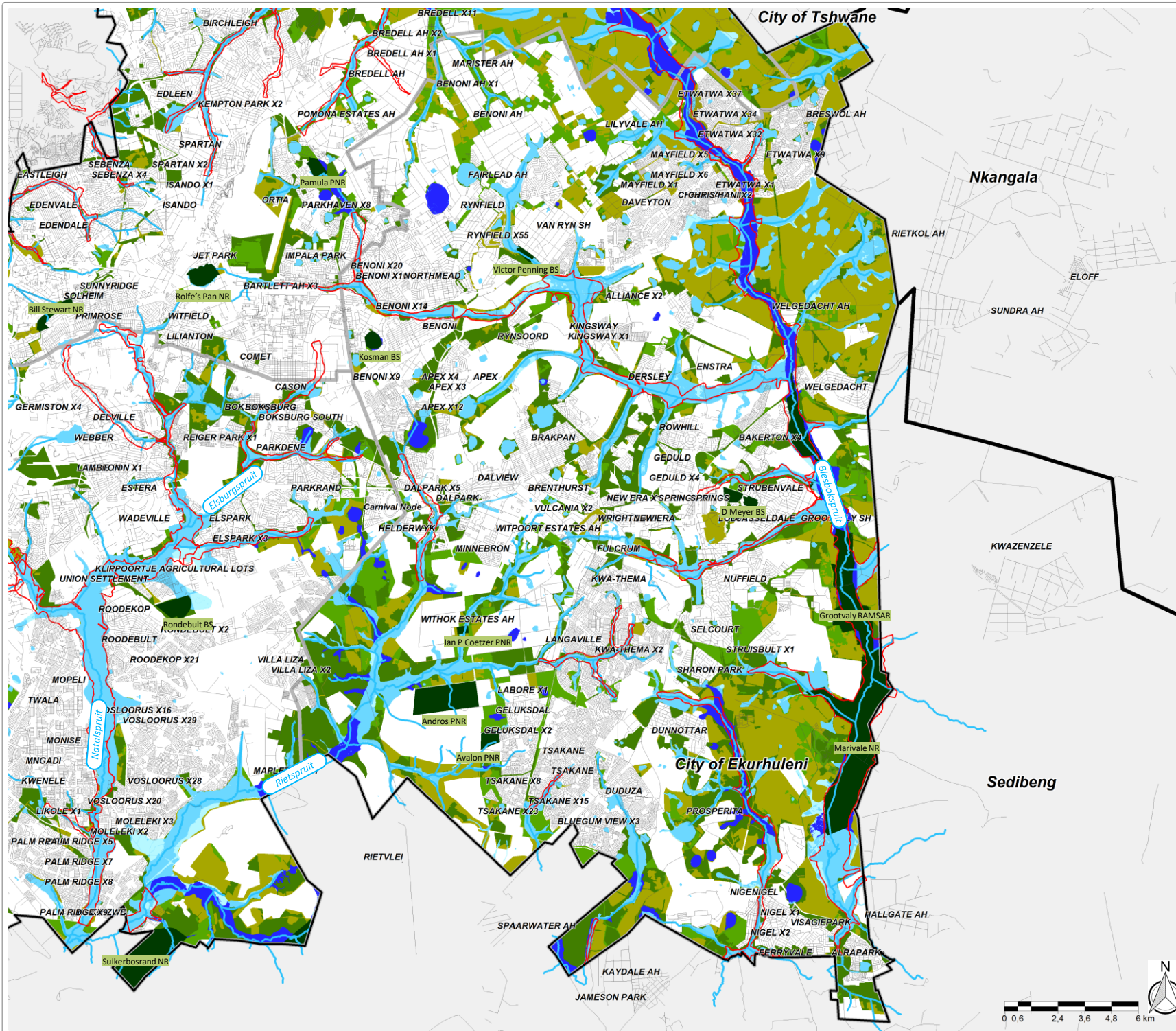
(i) Gauteng Environmental Management Framework (2021):

As point of departure the CoE acknowledges the conceptual spatial distribution and extent of the five Environmental Management Zones in the CoE as defined in the GEMF (refer to **Annexure B1.1, Figure B.1**).

The CoE also confirms the associated Intention and Conditions pertaining each of these Environmental Management Zones as reflected in **Annexure B1.1.1**. This information, as well as the more detailed guidelines as summarized in **Annexure B1.1.2** (Compatible, Conditionally Compatible and Undesirable Land Uses per Environmental Management Zone) and **Annexure B1.1.3** (General Guidelines for Environmental Management Zones), will be used as general points of departure to environmental management in the Region.

(ii) CoE Bioregional Plan (2021):

Figure 18.1.1 depicts the nature and spatial extent of the Terrestrial and Aquatic Biodiversity features in the Eastern Region which represents the Primary Open Space System in the Region as defined in the CoE Bioregional Plan (2021).



EASTERN REGION BIOREGIONAL PLAN

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary

Terrestrial Biodiversity

- Protected Areas
- CBA 1
- ESA 1
- ESA 2

Aquatic Biodiversity

- CBA 1
- ESA 1
- ESA 2
- Rivers
- 100y Floodline

Source: CoE Bio Regional Plan



0 0,6 2,4 3,6 4,8 6 km



18.1.1

The CoE Bioregional Plan (2021) is the official local reference for biodiversity priorities that need to be considered in all land use planning and decision-making processes in the Eastern Region.

(Refer back to Table 3 in Section 3.3 in this document for more detail on the definition of each of the Biodiversity Categories and the associated criteria used to develop the Biodiversity Map).

This Primary Open Space System is mainly anchored around the aquatic biodiversity area (drainage system) which is a significant structuring element in the Eastern Region.

This Aquatic Biodiversity Area includes both the Blesbokspruit to the east (very prominent), as well as the upper parts of the Rietspruit to the south-west from where it feeds into the Natalpruit in the Southern Region.

The Aquatic Biodiversity Area is supplemented by the Terrestrial Biodiversity Area which include a significant cluster to the north-east between Welgedacht and Daveyton-Etswatwa; the south-eastern extents of the Region around Dunnottar and up to Nigel and Duduza; as well as the areas surrounding the Rietspruit in the vicinity of Villa Liza to the south-west.

This Eastern Region Terrestrial Biodiversity Area also includes two Protected Areas: The Grootvaly RAMSAR and Marivale Nature Reserve along the Blesbokspruit to the east; and three smaller Private Nature Reserves towards the west.

The high potential aquatic and terrestrial biodiversity areas represents the Primary Open Space System for the Eastern Region. It should be protected in accordance with the Land Management Objectives as defined in **Table 12** (Terrestrial) and Water Management Objectives as defined in **Table 13** (Freshwater) respectively and should inform:

- ❖ Cross-sectoral spatial planning in the Region at all three spheres of government;
- ❖ Environmental assessment and authorizations; and

- ❖ Natural resource management and protected areas expansion programmes.

Supplementary to the above Land Management Objectives per Bioregional Category (refer to Table 12 and Table 13), a summary of the Use Zones defined in the CoE Land Use Scheme and the compatibility per Use Zone to the respective Bioregional Plan Categories (CBA1, ESA1, ESA2) are included in **Annexure B1.2 (Table B1.2.1)**.

In general, urban development should be excluded from Protected Areas, Critical Biodiversity Areas, and Ecological Support Areas in order to maintain the functional integrity of the Primary Open Space System. (May attract a Biodiversity Offset).

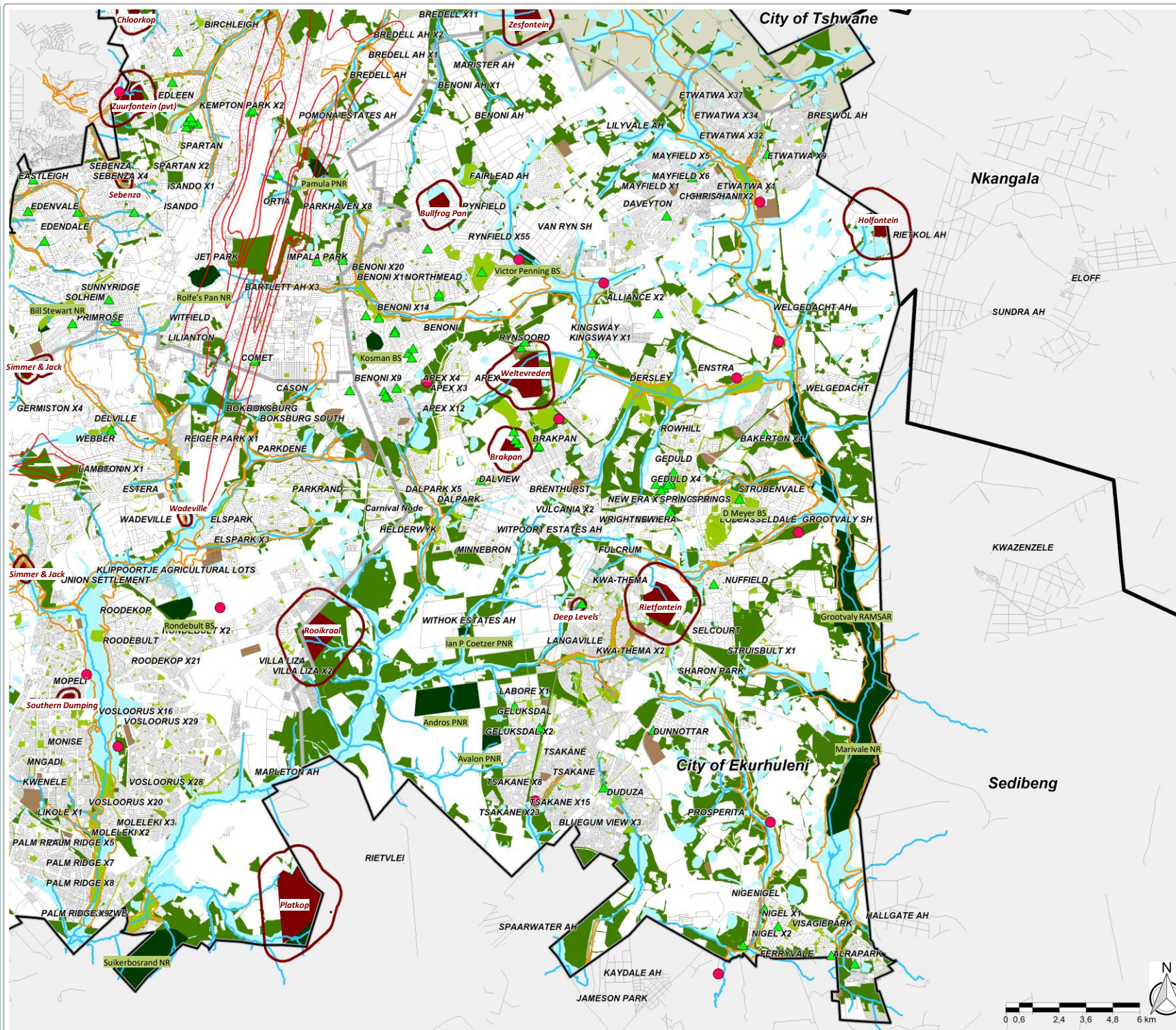
It is also important to note that the CoE Bioregional Plan cannot be used to the exclusion of other environmental or biodiversity objectives; and neither can it replace on-site surveys and assessments for land use or development applications in terms of NEMA EIA Regulations.

Table 12: CoE Bioregional Plan: Land Management Objectives

	CBA Map Category	Desired State	Land Management Objective
Terrestrial Map Categories	Protected Areas	Natural	Protected Areas are managed through Protected Area Management Plans
	Critical Biodiversity Areas	Natural	Maintain in natural or near-natural state that secures the retention of biodiversity pattern and ecological processes: For terrestrial areas classified as CBA1, the following applies: - Ecosystem and species habitats are to remain intact and undisturbed. - Since these areas demonstrate high irreplaceability, if disturbed, biodiversity targets will not be met. - Critically Endangered and Endangered species and ecosystems: these biodiversity features are at, or beyond, their limits of acceptable change. If intensive land use activities that impact on ecological condition are unavoidable in these areas, the feasibility of a Biodiversity Offset must be assessed, and if deemed appropriate, it should be designed and implemented as a legally binding condition of development.
	Ecological Support Area 1	At least semi-natural	Maintain ecological function within the localised and broader landscape. A functional state in this context means that the area must be maintained in at least a semi-natural state such that ecological function and ecosystem services are maintained. For areas classified as ESA1, the following applies: - These areas are not required to meet biodiversity targets, but they perform essential roles in terms of landscape connectivity, ecosystem service delivery and climate change resilience. - These systems may vary in condition and maintaining function is the main objective, therefore: - Ecosystems still in natural or near-natural state should preferably be maintained as such; - Ecosystems that are moderately disturbed/degraded should not be further modified or disturbed. - If activities that impact on ecological condition are unavoidable in these areas, a wetland offset will be required to address significant residual impacts.
	Ecological Support Area 2	No further intensification of land use	Maintain current land use with no intensification. For areas classified as ESA2, the following considerations apply: - These areas have already been subjected to varying degrees of intensive modification and are no longer considered natural. - These areas are not required to meet biodiversity targets, but they may still perform an important function with respect to connectivity, ecosystem service delivery and climate change resilience. - Objective is to maintain remaining as much ecological function as possible, therefore: - Areas should not undergo any further deterioration in ecological function (i.e. conversion of cultivation agriculture to livestock grazing agriculture) are desirable in ESA2 areas.
	No Natural Remaining (NNR)	Production	No desired state or management objective is provided for NNR.

Table 13: CoE Bioregional Plan: Water Management Objectives

	CBA Map Category	Desired State	Water Management Objective
	Since aquatic features are not only impacted by activities within the water course/wetlands but also impacted by activities in the catchment, development planning and proposals must also consider the water management objectives of the receiving aquatic ecosystems.		
Aquatic Mapping	CBA	Natural	Maintain in natural or near-natural state that secures the retention of biodiversity pattern and ecological processes: For aquatic features classified as CBA1, the following applies: - Ecosystem and species habitats are to remain intact and undisturbed. - Critically Endangered wetlands and rivers: these ecosystem types are at, or beyond, their limits of acceptable change. If activities that impact on ecological condition are unavoidable in CBAs, the feasibility of a Biodiversity Offset must be assessed. If deemed appropriate, it should be designed and implemented as a legally binding condition of development.
	ESA 1	At least semi-natural	Maintain ecological function within the localised and broader landscape. A functional state in this context means that the area must be maintained in at least a semi-natural state, so that ecological function and ecosystem services are maintained. For aquatic areas classified as ESA1, the following applies: - These areas are not in a pristine natural state, but they perform essential roles in terms of landscape connectivity, ecosystem service delivery and climate change resilience. - These systems may vary in condition and maintaining function is the main objective, therefore: - Ecosystems still in natural or near-natural state should preferably be maintained as such; - Ecosystems that are moderately disturbed/degraded should not be further modified or disturbed. If activities that impact on ecological condition are unavoidable in these areas, a wetland offset will be required to address significant residual impacts.
	ESA 1 Priority for restoration	At least semi-natural – Prioritise for restoration	The objective for ESA1 “Priority for restoration” is to improve the WET-Health classification to increase the ecological function and ecological service delivery within the localised and broader landscape. For aquatic areas classified as ESA1 “Priority for restoration”, the following applies: - These areas are not in a pristine natural state, but they perform essential roles in terms of landscape and aquatic connectivity, ecosystem service delivery and climate change resilience. - These systems may vary in condition and improving function is the main objective, therefore: - Ecosystems still in natural or near-natural state should preferably be maintained as such; - Ecosystems that are moderately disturbed/degraded should be prioritised for restoration. If activities that impact on ecological condition are unavoidable in these areas, a wetland offset will be required to address significant residual impacts.
	ESA 2	No further intensification of land use	Maintain current land use with no intensification. For areas classified as ESA2, the following considerations apply: - These areas have already been subjected to varying degrees of intensive modification and are no longer considered natural. - These areas still perform an important function with respect to connectivity, ecosystem service delivery and climate change resilience. - Objective is to maintain as much remaining ecological function as possible, therefore areas should not undergo any further deterioration in ecological function. Opportunities to change land use practices to improve ecological function (i.e. conversion of cultivation agriculture to livestock grazing agriculture) are desirable in ESA2 areas.
	ESA 2 Priority for restoration	No further intensification of land use – where possible, prioritise for improved function	Restore some function and ecological service delivery within the localised and broader landscape. For areas classified as ESA2 Priority for restoration, the following considerations apply: - These areas have already been subjected to varying degrees of intensive modification and are no longer considered natural. - These areas still perform an important function with respect to connectivity, ecosystem service delivery and climate change resilience. - Objective is to restore as much ecological function and should be prioritised for restoration where appropriate.
	No Natural Remaining (NNR)	Production	No desired state or management objective is provided for NNR.



EASTERN REGION SECONDARY/TERTIARY OPEN SPACE SYSTEMS

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary

Primary Open Space

- Protected Areas
- Terrestrial (CBA1, ESA1)
- Aquatic (CBA1, ESA1)
- Dams / Rivers
- 100y Floodline

Secondary and Tertiary Open Space

- Recreational Parks
- Sports and Recreation
- Sewer Works
- Cemeteries
- Landfill Sites
- Proposed Protected Agriculture

- Landfill Buffers
- Noise Zones

Source: CoE Bio Regional Plan; CoE GMS



Action 1.2: Functionally link the Secondary and Tertiary Open Space System into the Primary Open Space System.

Supplementary to the Primary Open Space System as noted above, the CoE also acknowledges a Secondary and Tertiary Open Space as illustrated on **Figure 18.1.2** and which includes the elements as listed in **Table 14** below.

The Eastern Region Primary Open Space System is functionally linked to the Secondary and Tertiary Open Space network in order to facilitate a range of recreational opportunities and to enhance continuity of ecological corridors within the Region.

Although care has been taken to reflect accurately the open system in this RSDF, the scale and level of planning are such that the open space system as shown in this RSDF should be considered a guide and any decisions or applications made should be informed by more detailed information to be obtained through the EIA process on a case-by-case basis. (Also refer to **Annexure B1.3: Open Space Development Guidelines**).

NOTE: For legibility reasons only the Protected Areas (PAs), Critical Biodiversity Areas (CBAs) and Ecological Support Areas 1 (ESA1) are reflected on the Composite MSDF as unpacked in the following sections 4.3.1 up to 4.3.7, but all the environmental features of the Primary, Secondary and Tertiary Open Space System as noted above are legally part of the Regional SDF.

Table 14: CoE Secondary and Tertiary Open Space

CoE SECONDARY AND TERTIARY OPEN SPACE	
Secondary Open Space	Tertiary Open Space
❖ Recreational Parks ❖ Sports fields and recreational facilities ❖ Mining related open space ❖ Agricultural areas	❖ Landfill Sites ❖ Cemeteries ❖ Road and Rail Systems (Reserves) ❖ Stormwater Systems and Outlets ❖ Sewer Treatment Facilities ❖ Water Reservoirs and Infrastructure
❖ Airport Noise Zones	❖ Landfill Buffer Zones
Intended Functionality of Consolidated Open Space System	
❖ Ecosystem services: • Climatic amelioration/regulation • Water supply regulation as well as water and air purification • Erosion and sediment control • Waste treatment and noise screening • Stormwater management and hazard mitigation • Provision of habitats for indigenous plants and animals	❖ Social functions: • Provision of public open space for leisure and recreation • Allowing access to nature and providing space for community (food) gardens • Reduction of social inequality and enhancing human health and well-being through social contact and communication
❖ Structural and symbolic functions: • Articulating, dividing and linking functional areas of the urban fabric and providing identity, meaning and values • Establishing a sense of place and improving the legibility of the urban landscape	

Action 1.3: Monitor Dolomite Risk and Apply Dolomite Risk Management Measures.

As illustrated on **Figure 18.1.3** several parts of the Eastern Region are underlain by dolomite which generally act as groundwater aquifers storing vast amounts of water.

These areas are prone to sinkhole formation and human habitation can accelerate the development of sinkholes resulting from pumping of water from such subterranean aquifers, while groundwater pollution potential in dolomite areas is also regarded as high.

Furthermore, underlying dolomites restrict development and requires detailed geological studies prior to any development commencing. The following guidelines are applicable in this regard:

- ❖ Land use planning and development applications in these dolomitic areas should be undertaken according to current best practice as stipulated in SANS 10400 and SANS 1936 of the Council for Geoscience.
- ❖ All infrastructure and construction must comply with the most current Guidelines for Appropriate Development of Infrastructure on Dolomite.
- ❖ Water abstraction from Karst aquifers occurring in dolomite should be prohibited except in places where it forms part of the management of Acid Mine Drainage (AMD) as authorised by the Department of Water and Sanitation (DWS).
- ❖ Stormwater retention measures and structures in dolomitic areas should be approved by the South African Council for Geosciences.

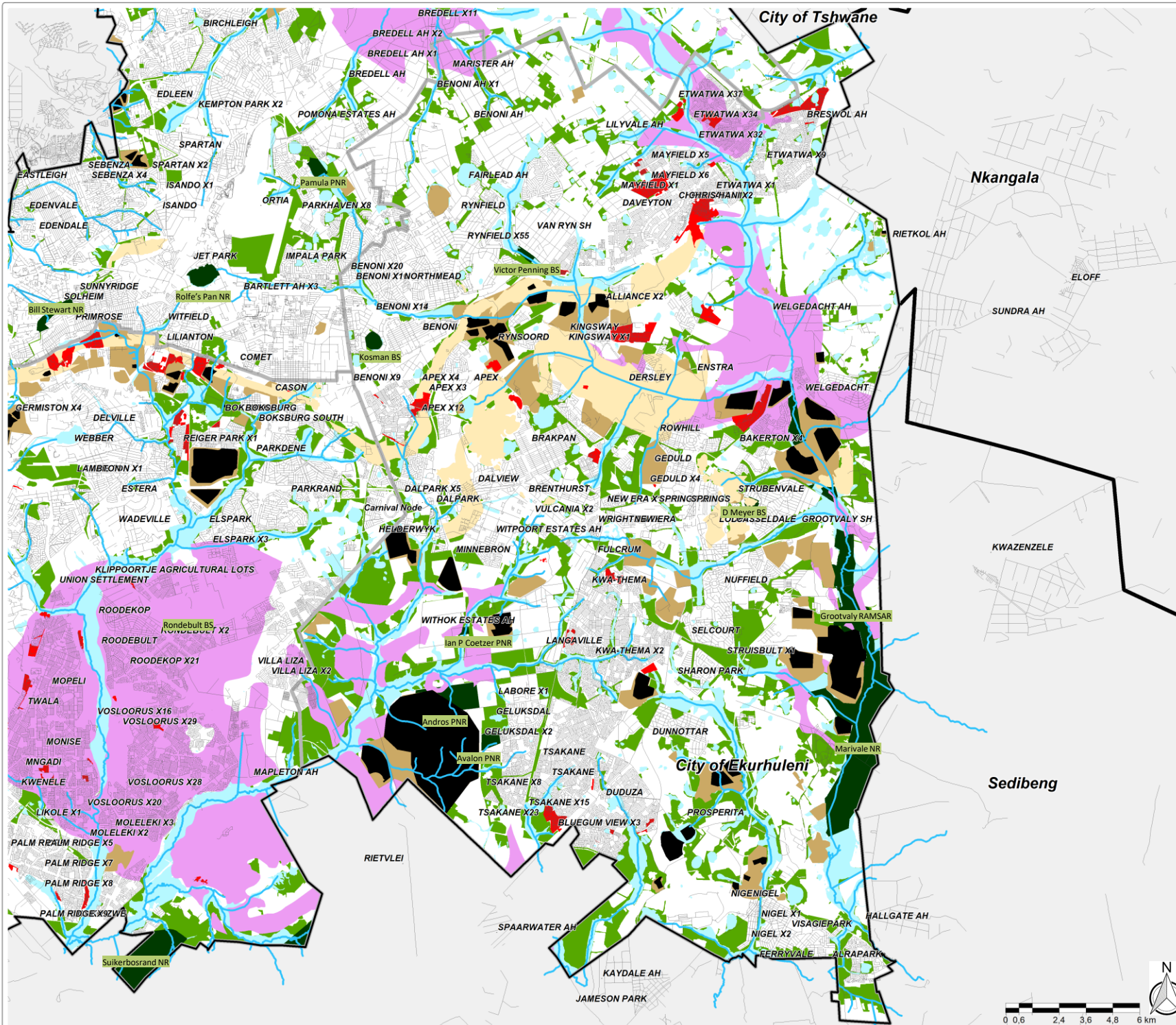
Action 1.4: Continuously Monitor Mining and Mine Dump Reclamation and Rehabilitation Processes.

Due to the potential risks and environmental impacts of mining and quarry operations, there are strictly enforced management and control requirements as noted below:

- ❖ Mining and quarry operations are undertaken in terms of an approved Environmental Management Plan (EMP) required in terms of Section 39 of the Mineral and Petroleum Resources Development Act (Act 50 of 1991).
- ❖ The implementation of the approved EMP is monitored and assessed by the Minister and the Department of Mineral Resources in terms of the Act and its Regulations.
- ❖ In terms of the approved EMP, certain environmental impacts, with mitigation and management measures regarding development, are identified. These include exclusion and safety zones that are defined in terms of the relative proximity of the mining and quarry operations and surrounding current and future development.
- ❖ The construction of any buildings, roads, railways or any structure within a horizontal distance of 100 metres from the workings of a mine or quarry must comply with all the requirements and obligations of the Mine Health and Safety Act (Act 29 of 1996) and the associated Mine Health and Safety Regulations.

Existing and proposed development adjacent to the boundaries of the mining and quarrying operations are obliged to take into account the associated exclusion and safety zones as noted above, and the risks associated with the operations.

Focus should also be placed on protecting un-mined areas to protect the possible future mining and quarrying operations against development that may restrict and inhibit such operations, and on the rehabilitation of mines and quarries after the closure of the operations.



EASTERN REGION MINING CONSIDERATIONS

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary

Primary Open Space

- Protected Areas
- Terrestrial (CBA1, ESA1)
- Aquatic (CBA1, ESA1)
- Dams / Rivers

Dolomite / Mining

- Dolomite
- Mining Areas
- Shallow Undermining
- Slimes Dam / Footprint

- Informal Settlements
(NUSP Category B, C, D and Not Categorized)

Source: CoE Bio Regional Plan

As far as the existing operational mines in the Eastern Region are concerned, it is essential that the CoE ensures that these mines comply with their Mining License conditions pertaining the operational activities, as well as the rehabilitation plans/programmes for the mines.

Risk Assessment prior to Development of Mining Land: Land use planning for beyond the end of life of mine is done long before a closure application for a mine is initiated. Mine permit holders must develop a comprehensive land use plan as part of an Environmental Management Plan in terms of all applicable legislation and in consultation with the relevant departments and authorities. This should include the CoE and should be considered in terms of the Municipal and Regional Spatial Development Framework.

Once the mine tailings are removed, a risk assessment is required to determine the development suitability of the mining land, prior to detailed planning or development. The risk assessment should address, as a minimum, the following aspects:

(i) The presence of radon or sulphates post rehabilitation:

A survey report by a radiation specialist is required. Specialists will assess the areas deemed developable (and specify the type of land use/uses that can be considered) and ensure compliance with established standards. The report needs to be submitted to the National Nuclear Regulator (NNR). The NNR will verify the survey and issue a Certificate of Exception.

(ii) Geotechnical conditions, especially where shallow undermining occurred:

A geotechnical survey is mandatory for all development projects. Within mining belt areas, there is a heightened focus on evaluating underground workings and the proposed top structures. The geotechnical engineer will include these considerations in their report to ensure the safety and viability of the proposed land uses in the development.

The outcomes of the risk assessment as noted above will determine the type of land use/uses that may be permitted on any specific mining land area.

In the event of potential radon contamination or hazardous geotechnical conditions, the land may only be suitable for industrial use with a large building footprint, subject to precautions. Where there are less constraints, the use of land for residential or retail uses may be considered, subject to precautions.

It is imperative that the precautions forthcoming from the risk assessment are carried forward into the conditions of establishment of a township as well as into the title deeds and zoning certificate. This to ensure that the ultimate user of the land is aware of these risks. The municipality is responsible to oversee this.

Section 53 of the Minerals and Petroleum Resources Development Act (Act 28 of 2002) requires that the permission of the Minister of Minerals and Energy is obtained to use mining land for any other purpose than mining or agriculture.

An application for land use rights (usually township establishment) must be circulated to this Department and permission must be given, prior to the approval of the land use rights. The findings of the risk assessment usually form part of the application for land use rights and information circulated to the Department for consideration.

(The above guidelines are also included in **Annexure B1.5** in this document for easy reference).

NOTE: The MSDF document comprises four more Environmental Actions. These are related to Pollution Control, Sustainable Urban Drainage Systems, the CoE Green City Action Plan and the CoE Climate Change Adaptation Strategy. (Also refer to Annexure B1.6, B1.7 and B1.8 for more detail).

4.3.2 Spatial Targeting and Growth Management

Action 2.1: Define an Urban Development Boundary to contain urban sprawl and to establish a sustainable urban and rural environment.

As far as spatial targeting is concerned, the first major distinction is made between the urban and rural environment in the Eastern Region as depicted on **Figure 18.2.1**.

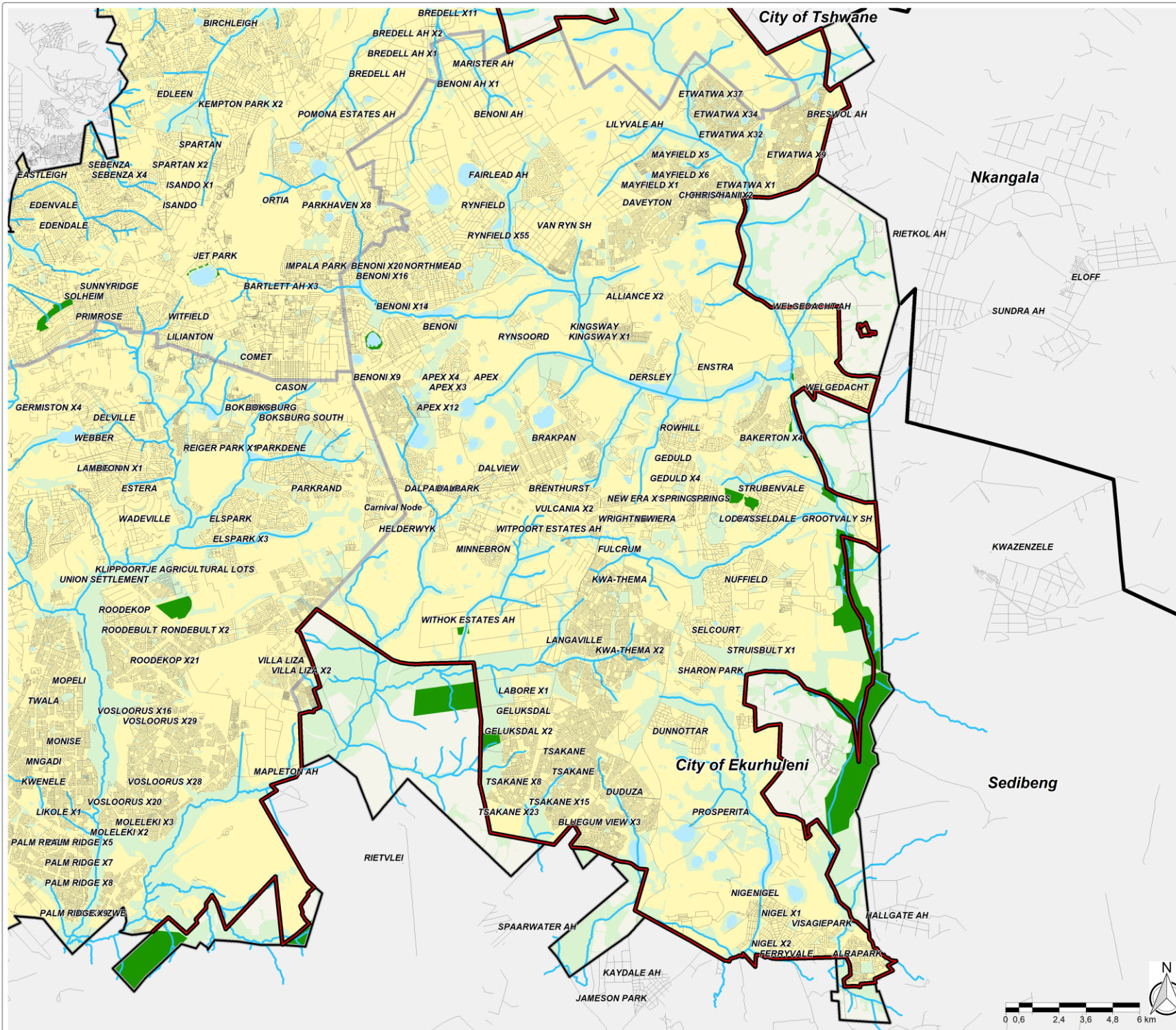
The mechanism used to achieve the above is the Urban Development Boundary which is one of a number of growth management tools identified in the CoE Growth Management Strategy (refer to **Info Box 4**).

INFO BOX 4: GROWTH MANAGEMENT STRATEGY	
Growth Management Definition	
❖	The application/ utilisation of a number of growth management tools in combination within a specific area, with a view to achieve the desired spatial outcome for that area as reflected in the Spatial Development Framework.
Growth Management Outcomes	
❖	Preventing development in sensitive environments;
❖	Discouraging development in peripheral locations by way of an Urban Development Boundary;
❖	Encouraging development primarily in identified priority development areas, and
❖	Facilitating densification along public transport corridors and intensification of a range of mixed land uses within identified activity nodes and corridors.
Growth Management Measures	
❖	Urban Development Boundary: Contain urban sprawl, promote densification and infill development, and protect rural areas for agriculture, conservation and tourism.
❖	Development Rights: Limit new development rights in infrastructure problem areas within the municipality until backlogs have been addressed.
❖	Incentives: Apply a package of incentives to promote and facilitate development in priority areas (especially around public transport corridors).
❖	Priority Investment Areas: Identify priority investment areas (e.g.: Priority Housing Development Areas) for public and private sector development; specifically in respect of municipal infrastructure and allocation of future development rights.
❖	Capital Investment: Re-direct the respective capital investment programmes of the sector departments to address the short-term problem areas, and to develop strategic priority areas.

The details of the CoE Urban Development Boundary Policy are contained in **Annexure B2.5**.

Action 2.2: Manage Growth and Development in line with the Urban and Rural Spatial Development Guidelines as defined in the National Development Plan.

The urban and rural environment of the Eastern Region as demarcated on Figure 18.2.1 should be protected and managed in accordance with the Urban and Rural Spatial Development Guidelines as defined in the National Development Plan and which are summarized in **Table 15** and **Table 16** respectively.



EASTERN REGION URBAN AND RURAL ENVIRONMENT

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Urban Environment
- Rural Environment
- Dams / Rivers

Table 15: Urban Spatial Development Guidelines

NDP URBAN SPATIAL DEVELOPMENT GUIDELINES	
❖	Urban sprawl should be contained, and urban fabric should be densified in order to be more efficient in terms of land usage, infrastructure cost and environmental protection.
❖	Ensure that the municipality has an explicit spatial restructuring strategy (including priority precincts for spatial restructuring) that is linked to land use management instruments for implementation.
❖	New urban development and infrastructure investments should be focused around public transport corridors and around existing and emerging economic nodes, applying principles of transit-oriented development as a key element to spatial transformation.
❖	Economic hubs supporting a variety of economic activities should be developed within former township areas in order to integrate townships into the wider regional economy (Economic Empowerment).
❖	Prioritise housing development in inner cities and in other areas of economic opportunity such as around transport hubs and corridors (avoid poorly located areas).
❖	Ensure diversity in housing types and finance options that would allow for more household choice in terms of tenure, cost, typology and location.
❖	Well-located informal settlements should be upgraded where they are currently located (in situ) with minimum disruption to existing communities and providing the poor affordable access to land and shelter.
❖	Government investment should be focussed on the public environment (roads, reserves, sidewalks, parks, public open space, etc.) and linked to improved social infrastructure (community facilities).
❖	Strengthen the link between public transportation and land-use management with the introduction of incentives and regulations to support compact, mixed-use development within walking distance of public transport stops; and high-density, mixed use developments along public transport corridors.

Table 16: Rural Spatial Development Guidelines

NDP RURAL SPATIAL DEVELOPMENT GUIDELINES	
❖	Rural areas that have an established or potential economic base and are well located in relation to urban markets and transport corridors should be prioritized for investment in more comprehensive economic infrastructure.
❖	Focus on the potential developmental role of small towns or rural nodes as service delivery and job creation centres.
❖	Direct funding for services, infrastructure and settlement development into these designated rural development hubs/nodes with prioritised attention to efficient clustering of services, including health, education, transport, welfare and security; and connective infrastructure (e.g. Information and Communication Technology: internet, telephone, etc.) that strengthens the links between the urban and the rural areas;
❖	In remote rural areas with low densities and marginal economies, the focus should mainly be on the provision of basic services and improving connectivity.
❖	Prioritised attention to agriculture and rural enterprise development in areas of high market access, especially within peri-urban zones and along major mobility corridors.
❖	Also focus on the development of infrastructure for supporting non-farm activities such as tourism and mining in areas with proven potential.
❖	Develop green economies in rural areas, especially in relation to producing renewable energy, and sustainable tourism, farming and water usage.
❖	Targeted investment in agrarian transformation (farming skills, infrastructure, etc.) to support increased food production which also builds local rural economies and job creation.
❖	The land reform programme should be spatially targeted to establish emerging farmers in areas that are most viable in terms of agricultural potential and access to markets.

Action 2.3: Establish a hierarchy of Multi-Functional Activity Nodes.

Activity nodes represent the major “destinations” within the Region and are generally targeted for the establishment of a cluster of mixed land use, including a range of economic activities, institutional functions, community facilities, and housing opportunities.

The size, function and associated range of land uses/ activities provided in activity nodes would differ based on factors such as historic development, location, economic potential and environmental constraints.

The Eastern Region RSDF distinguishes between Primary Activity Nodes, Secondary Activity Nodes and Tertiary Activity Nodes based on application of the following key features/ general criteria as depicted in **Table 17** below.

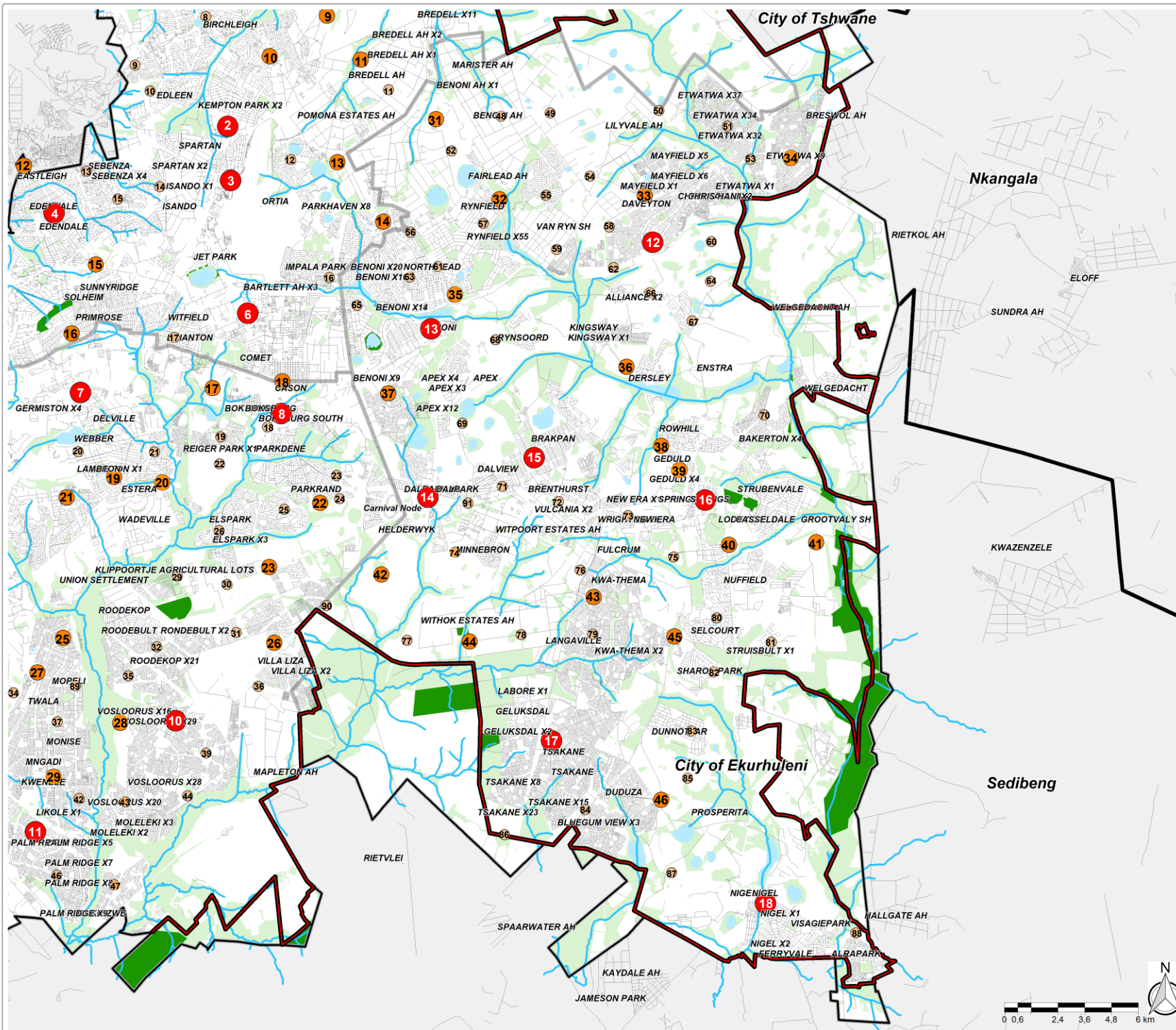
Table 17: CoE Activity Node Hierarchy: Key Features/ General Criteria

Name	Service Area/ Scale	Administrative Function	Community Facilities	Nodal GLA (m²)	Road Network
Primary Activity Node					
Former CBD	Regional	Municipal Office Customer Care Centre	High Order	>25 000m²	Class 1 Class 2 Class 3
Former Township CBD/ Urban Hub	Regional	Municipal Office Customer Care Centre	High Order	>5000m²	Class 2 Class 3
Metropolitan Scale Economic Node	Regional	Not Compulsory	High Order (not compulsory)	>25 000m²	Class 1 Class 2 Class 3
Secondary Activity Node					
Area around a Shopping Centre(s)/Strategic Intersection	Community	Not Compulsory	High Order (not compulsory)	>12 000m²	Class 2 Class 3
Tertiary Activity Node					
Area around a Shopping Centre(s)/Local Intersection	Neighbourhood	None	Lower Order (not compulsory)	>5 000m²	Class 2 Class 3 Class 4

Following from the above, a total of 7 Primary Activity Nodes, 16 Secondary Activity Nodes and 43 Tertiary Activity Nodes have been identified in the Eastern Region. (Refer to **Figure 18.2.2** and **Table 18**).

NOTE: The size of the activity node symbols on Figure 18.2.2 (and any other map in the MSDF/RSDF documents) are merely notional, illustrating the concept of a hierarchy of activity nodes. These nodes/symbols do not represent the spatial/geographic extent of activity nodes in any way.

Annexure B2.1 indicates in more detail to what extent each of the identified nodes comply with the criteria as defined in Table 17.



EASTERN REGION PRIORITY ACTIVITY NODES

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Tertiary Nodes

Table 18: Summary of Eastern Region Nodal Hierarchy

Region	Primary Nodes		Secondary Nodes		Tertiary Nodes	
	#	Name	#	Name	#	Name
East	P12	Daveyton CBD	S31	Valkhoogte (K109/K68)	T48	Benoni AH (K68/Mun (3))
	P13	Benoni CBD	S32	Rynfield Terrace Shopping Centre Node	T49	Petit (M32/M44) (East of PWV17)
	P14	Carnival City Node	S33	K86/Lurie Street Node	T50	Lilyvale AH (K68/Mun (3))
	P15	Brakpan CBD	S34	Etwatwa CBD	T51	Etwatwa - North Node
	P16	Springs CBD	S35	Northmead Mall Node	T52	Valkhoogte (K109/Mun (3))
	P17	Tsakane Community Centre	S36	Dersley (K161)	T53	Etwatwa - West Node
	P18	Nigel CBD	S37	Actonville/Wattville CBD	T54	Putfontein AH (K169/Mun (3))
			S38	Springsgate Shopping Centre	T55	Rynfield AH (K86/Mun (3))
			S39	Geduld Strip (K132)	T56	Oakfields Shopping Centre Node
			S40	Springs Mall Node	T57	Rynfield Drapers & Outfitters Node
			S41	Daggafontein (K181)	T58	Daveyton x2
			S42	Witpoortjie (PWV 17/PWV 16)	T59	Cloverdene x16
			S43	KwaThema CBD	T60	Chris Hani (K173) (North of N-12)
			S44	Withok Estates AH Node (K109/K136)	T61	Northmead Square
			S45	Shoprite KwaThema	T62	Daveyton Shoprite Node
			S46	Duduza CBD	T63	The Falls/Farramere Shopping Centre Node
					T64	K173/Cloverfield Rd (South of N-12)
					T65	The Conservatory @ Lakefield Node
					T66	Enstra (K173/Railway)
					T67	Modder East (K173/K106)
					T68	New Modder (K106/Mun (3))
					T69	Leachville (Mun (3)/Mun (3))
					T70	Bakerton (K175)
					T71	Dalview Spar Node
					T72	Vulcania Station
					T73	New Era Station
					T74	Dalpark/Minnebron (K109)
					T75	South of Pollak Park (K161)
					T76	KwaThema Square Node
					T77	South of Dalpark (Mans Str)
					T78	Withok Estates AH (K136)
					T79	Ekhaya Shopping Centre
					T80	Selcourt Towers Node
					T81	Struisbult (Vogelstruisbult Rd)
					T82	Sharon Park Shopping Centre Node
					T83	Langaville/Dunottar Node
					T84	Tsakane Ext 19/Duduza Ext 3 (Nala Str)
					T85	John Dube Village
					T86	Withok Estates AH (R23)
					T87	North West of Pretoriustad (K150)
					T88	Alra Park x5/Laversburg (R51)
					T90	Helderwyk x11 (K155/K136)
					T91	Dalpark (Springs Rd/Afrikaner St)

The **Primary Activity Nodes** are generally characterized by the following features:

- ❖ Performs a regional function (large service area);
- ❖ Serve an institutional function by way of a Customer Care Centre / Municipal Office;
- ❖ Consists of a number of higher order community facilities;
- ❖ Comprises / have potential to comprise more than 25 000 m² GLA;
- ❖ Served by higher order road network (Class 1, Class 2 or Class 3 Roads).

The 7 Primary Activity Nodes identified in the Eastern Region include the following:

- ❖ The CBDs of the old towns of Benoni, Brakpan, Springs and Nigel;
- ❖ The designated CBD of Daveyton;
- ❖ The Tsakane Community Centre Node; and
- ❖ The Carnival City Node (emerging).

Secondary Nodes: The major difference between a Primary Activity Node and a Secondary Activity Node is the fact that a Secondary Activity Node generally has a smaller service area (Community Scale); and it is generally smaller in size (> 12 000 m² GLA) than a Primary Activity Node.

It could accommodate high order and lower order community facilities and serve an institutional function (Customer Care Centre), but it is not compulsory.

A total of 16 Secondary Activity Nodes have been identified. These are fairly evenly distributed throughout the urban fabric of the Eastern Region as illustrated on Figure 18.2.2.

Tertiary Nodes: Tertiary Nodes are generally located along/around the lower order network (Class 3 / Class 4) and they serve at the Neighbourhood Scale.

Tertiary Nodes could comprise between 5 000 m² and 25 000 m² GLA and lower order community facilities could form part of such a node.

A total of 41 Tertiary Activity Nodes were identified in the Eastern Region as shown on Figure 18.2.2.

4.3.3 Movement Network

Action 3.1: Optimise the functionality of the Road, Rail and Airfield Infrastructure in the Region.

The primary aim is to establish and maintain a comprehensive multi-modal movement network serving the urban and rural parts of the Eastern Region. As illustrated on **Figure 18.3.1** the road-based movement network links all the identified activity nodes within the Region to one another; and it functionally links the Eastern Region to the surrounding municipalities and other major national and regional corridors and/or destinations to the south and east.

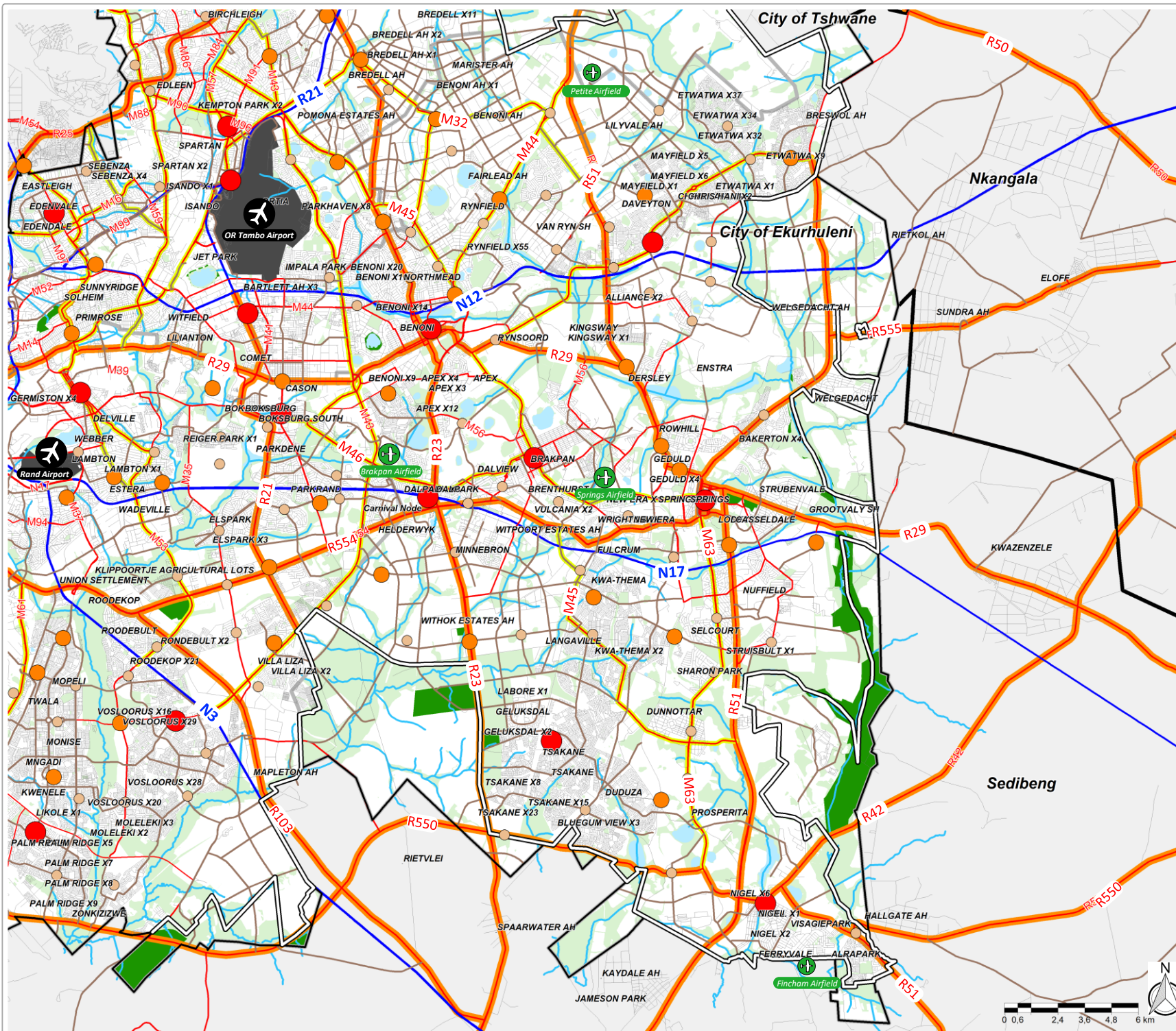
4.3.3.1 Road Network

The regional road hierarchy consists of **mobility** routes (Class 1 and Class 2) and routes providing **mobility and accessibility** at varying ratios (Class 3, Class 4 and Class 5).

(i) Class 1 Roads: Freeway Network

The following Class 1 routes as depicted on Figure 18.3.1 will play an important role towards unlocking the development potential of the Eastern Region in future:

- ❖ **Route N12** which runs from east to west through the northern extents of the Region; and
- ❖ **Route N17** which runs from east to west through the central parts of the Eastern Region.



EASTERN REGION MOVEMENT NETWORK CLASS 1 AND 2 ROADS

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Tertiary Nodes
- Class 1 Roads
- Class 2 Roads
- Class 3 Roads
- Airport
- Airport Footprint
- Airfield

Figure 18.3.2 also shows the proposed Gauteng Strategic Road Network in the context of the Eastern Region. Most important to note are the following:

- ❖ The alignment of future road **PWV15** which will link route R21 to routes N12, N17 and N3 to the south, and which will open up extensive opportunities for economic activity to the east of ORTIA and further southwards towards route N3.
- ❖ **Routes K86, K68, K109 and K169** which will support urban expansion in the northern extents of the Eastern Region.
- ❖ **Route K136** which could unlock the development potential of the Withok Estates precinct to the south of Carnival City.
- ❖ **Routes K173/K118** which could support/strengthen the proposed Springs SEZ.

(ii) Class 2 Roads: Second order road network

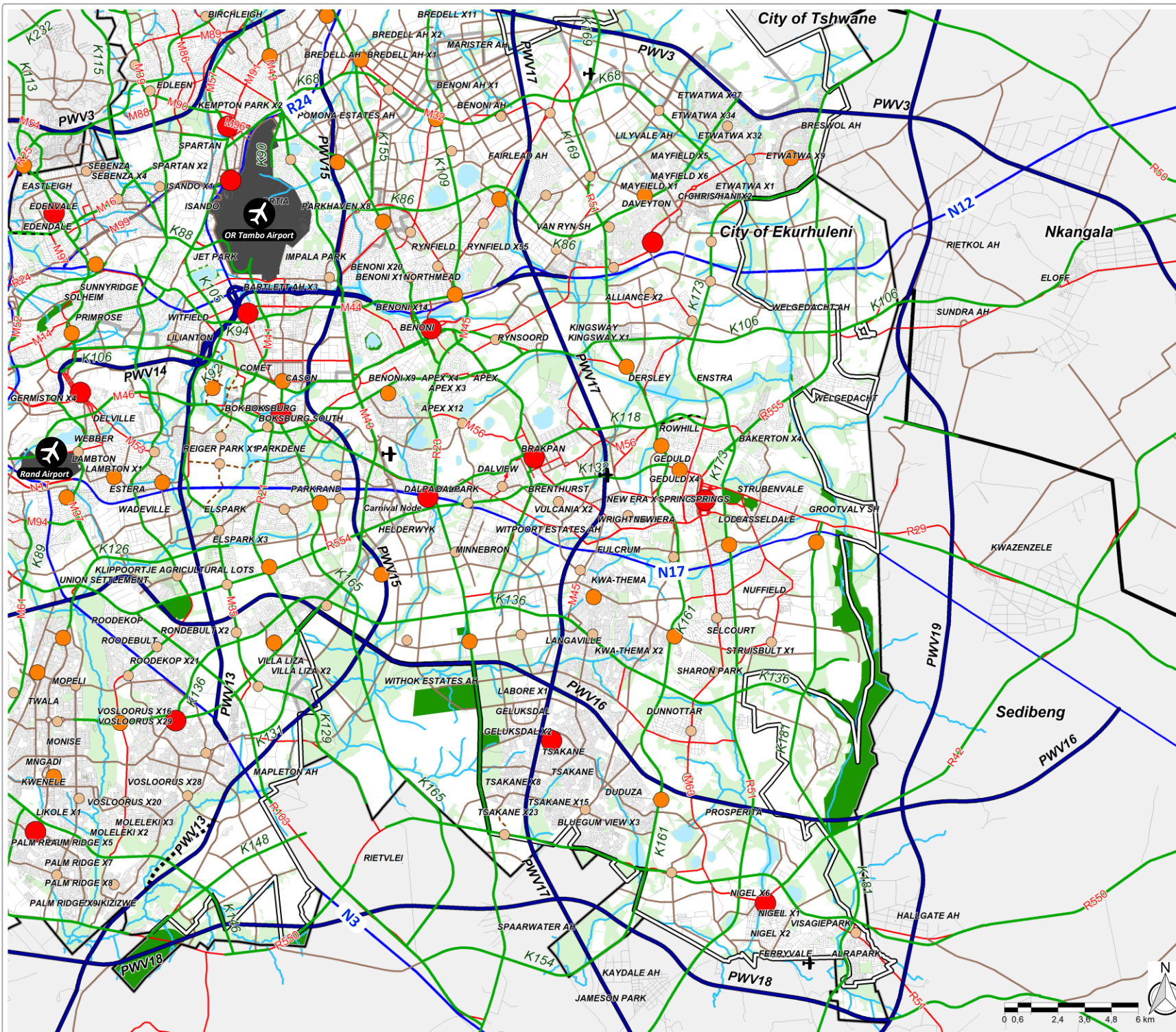
The main objective of the second order road network as depicted on Figure 18.3.1 is to serve the region in north-south and east-west directions of movement. More specifically, it serves to link residential areas to one another and to the core areas of economic activity; and to link the higher order activity nodes to one another.

Within the urban fabric of the Eastern Region the most prominent secondary roads include the following:

- ❖ **Route M43** (Atlas Road) which represents the western boundary of the Region from where it crosses route R554 before extending southwards past Villa Liza and up to route N3 in the Southern Region.
- ❖ **Route R23** (Great North Road) which runs parallel to the east of M43 from Bredell towards the Benoni CBD and then southwards past Carnival City, Withok Estates and Tsakane up to where it links up with route N3 in the Lesedi Local Municipality.

- ❖ **Route R51** to the east which extends southwards from Bapsfontein towards Petit and from there further south through Mayfield, past Daveyton towards Springs, and from there southwards to Nigel.
- ❖ **Route M44** from Petit southwards towards Northmead where it links up with route M45 before crossing route N12 and linking up with route R23 to the east of Benoni CBD.
- ❖ **Route R29** which extends eastwards from Benoni CBD towards the Springs CBD from where it runs further eastwards parallel to the north of route N17 into the Lesedi Local Municipality.
- ❖ **Route M46** which links the Boksburg CBD to Brakpan CBD.
- ❖ **Route M45** further to the south which links routes R23 and R51 in an east-west direction via Dunnottar.
- ❖ **Route R544** which links the Carnival Node to Springs CBD and which broadly runs parallel to route N17.
- ❖ **Route R550** to the far south which links route R23 to Tsakane and up to route M63 further to the east in the vicinity of Nigel.

Furthermore, some of these routes are prioritized for the provision of public transport. The development of mixed use and medium to high density residential development is generally promoted along these public transport routes, but subject to relatively high road access management standards in order not to negatively impede on the mobility function of this network.



EASTERN REGION CLASS 1 AND 2 ROADS FUTURE ROAD NETWORK

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Tertiary Nodes
- Class 1 Roads
- Proposed Class 1 Roads
- Alternative Proposed Class 1 Road
- Class 2 Roads
- Proposed Class 2 Roads
- Alternative Proposed Class 2 Road
- Class 3 Roads
- Proposed Class 3 Road
- Airport
- Airport Footprint
- Airfield

NOTE: Land use conversions proposed along provincial K-routes (existing or proposed), as identified in the Ekurhuleni MSDF, may be permitted subject to the following:

1. Road Access Management Strategy: The proposed access must comply with the local and provincial design standards to ensure the correct position thereof to allow safe and efficient access and traffic flow.
2. Section 7 Report: A Section 7 report, as required by the Gauteng Department of Roads and Transport (GDRT), must be submitted and approved, addressing the location of surrounding provincial routes, proposed access to the site, and the expected impact of the land use conversions proposed change on the planning and implementation of the surrounding provincial road network.
3. Road Reserve Width Determination: The exact road reserve width for the existing or future provincial road shall be determined through formal engagement with the GDRT and Ekurhuleni Metropolitan Municipality, ensuring alignment with provincial and municipal road planning and infrastructure requirements.
4. Compliance with Road Authority Conditions: Any additional conditions, requirements, or standards imposed by the GDRT or other relevant road authority must be adhered to, including but not limited to traffic impact assessments, road upgrades and access restrictions, to ensure alignment with local and provincial road network objectives and safety requirements.

All proposed developments along provincial routes (existing or proposed) shall be subject to these requirements to ensure sustainable and integrated land use planning while prioritizing road safety, functionality, and appropriate road planning.

(iii) Class 3 Roads: Third order road network

The function of municipal Class 3 roads is to provide a balance between mobility and accessibility. The guiding principle for land development along these routes is that of limited direct vehicular access to individual properties. However, where existing developments along Class 3 roads do not meet this requirement, the main objective should be to reinstate the mobility function of

such roads through Road Access Management measures (retrofit) as and when these areas redevelop. (Refer to **Annexure B3.1** for more detailed guidelines regarding Road Access Management along Class 3 roads in the CoE).

4.3.3.2 Brakpan and Springs Airfields

The long-term objective is for Brakpan and Springs Airfields to function as small local airfields mainly serving local private needs in the Region.

INFO BOX 5: AIRPORT/AIRFIELD STATUS

1. Brakpan Airfield (Local Airfield)

- ❖ Brakpan Airfield is owned by the CoE and is leased to the Brakpan Flying Club on a nine-year renewable lease basis.
- ❖ The airfield is home to some 70 aircraft at present and the only restriction on expanding this is the lack of security of tenure for the many applicants for hangar space.
- ❖ There is convenient though indirect access from the N17 and local main road network for the relatively small volumes of traffic involved.

2. Springs Airfield (Local Airfield)

- ❖ Springs Airfield is owned By the CoE which leases the land to the East Rand Flying Club on a 20-year lease basis, which period may be extended.
- ❖ The airfield accommodates about 50 landings per day, and it has hangars for 37 users at present. Land has been laid out to expand this.
- ❖ Road access is either from the N17 or the N12, both of which are conveniently reached using the local main road system comprising essentially Route R51.
- ❖ The airfield is located outside the ORTIA controlled airspace which means that aircraft operations are less restricted in terms of height compared to Rand Airport and Brakpan Airfield.

4.3.3.3 Rail Network

The commuter railway line in the Eastern Region comprises two main lines:

- ❖ The Benoni-Daveyton line to the north which runs through the old mining belt; and
- ❖ The Benoni-Brakpan-Springs-Dunnottar-Nigel line to the south which could accommodate some Transit Oriented Development around railway stations.

Action 3.2: Provide for road and rail-based freight movement to support industrial, commercial, mining and agricultural activity in the region.

Figure 18.3.3 depicts the existing and proposed freight rail network for the Eastern Region from which the following is notable:

- ❖ There is an extensive rail-based freight network serving the industrial areas of the Eastern Region.
- ❖ Part of this network also represents the Gauteng City Region “Rail Freight Bypass” route which links the Tambo-Springs Freight Hub to the Sentraraand Freight Hub to the north; from where it extends further northwards to link up with the Pyramid Freight Hub in the City of Tshwane.
- ❖ Routes N3, N17 and N12 are currently the dominant road-based freight routes serving the Eastern Region; but future route PWV15 will act as the road-based freight bypass route for the Gauteng City Region.

Action 3.3: Promote Provision of Road and Rail Based Public Transport in support of all residential areas.

Figure 18.3.4 shows the rail based public transport network for the Eastern Region. It comprises a total of about 21 existing railway stations which could be considered to accommodate Transit Oriented Development in future. (Refer to **Annexure B3.2** for more detail on Transit Oriented Development).

Also important to note from Figure 18.3.4 is the proposed future expansion of the commuter railway network including:

- ❖ The Etwatwa-Mayfield link in the northern extents of Daveyton;
- ❖ The KwaThema, Tsakane and Duduza rail link southwards and which is intended to link up with the Nigel-Springs line to the east and the Heidelberg-Joburg line to the west.

Figure 18.3.5 shows the Integrated Public Transport Network for the Eastern Region. It comprises the following:

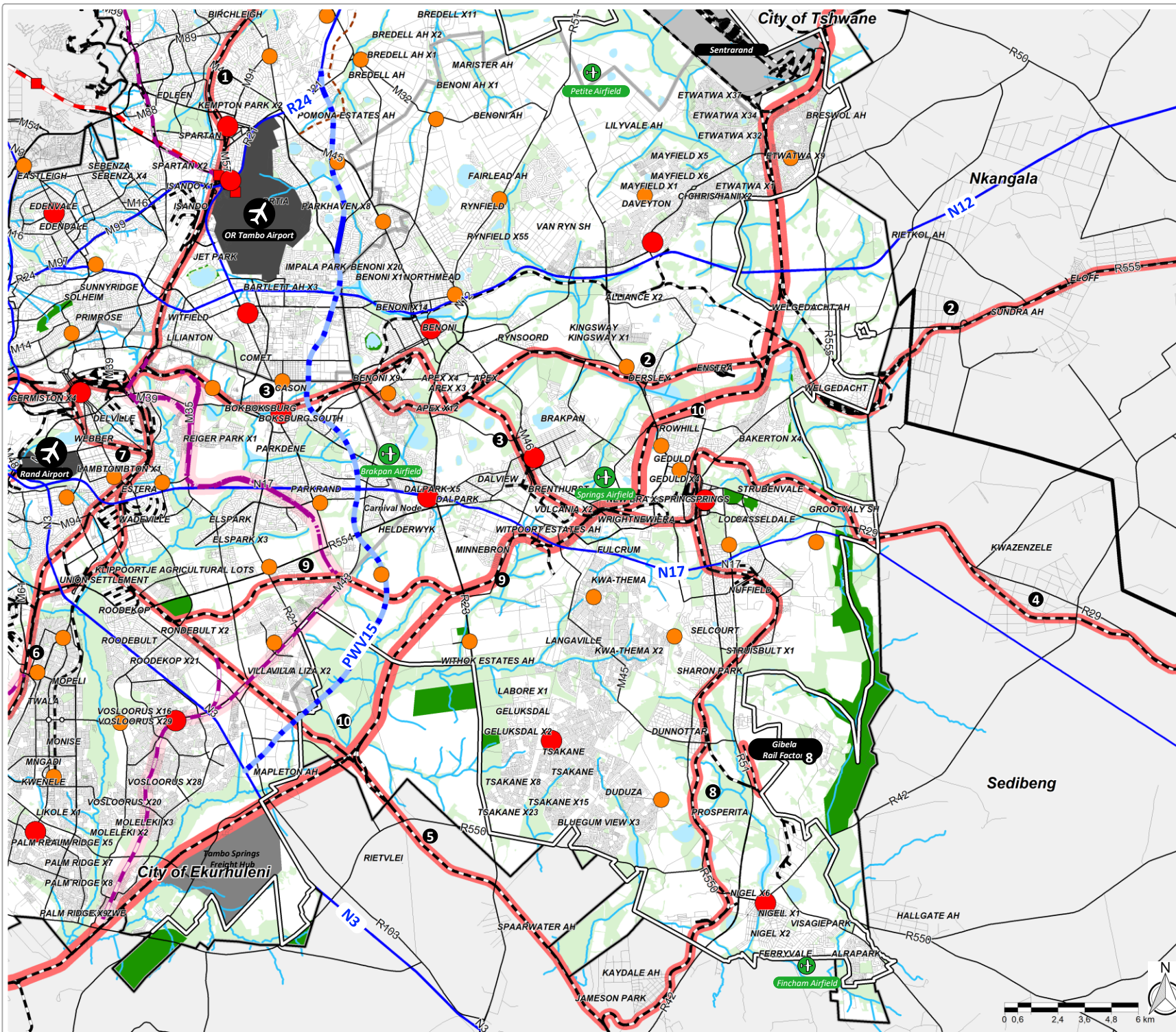
- ❖ The existing commuter railway network as highlighted above;
- ❖ The CoE BRT network as it extends into the Eastern Region; and
- ❖ The Feeder Network which supplements the BRT network as well as the commuter rail network.

This Integrated Public Transport Network is a key component to Spatial Transformation in the Eastern Region as discussed in under Action 5.11 in section 4.3.5 in this report.

Action 3.4: Facilitate the development of Activity Corridors, Activity Spines and Activity Streets where such potential exists.

The movement network in the Eastern Region not only serves the movement of people, goods and services from one point to the other. It is often also a very prominent structuring element within an urban environment, making a significant contribution towards economic development and job creation.

This happens when parts of the movement network also act as catalyst to the development/establishment of activity corridors, activity spines and/or activity streets. (Refer to **Info Box 6** (overleaf) as well as **Annexure B3.3** for more detail in this regard).

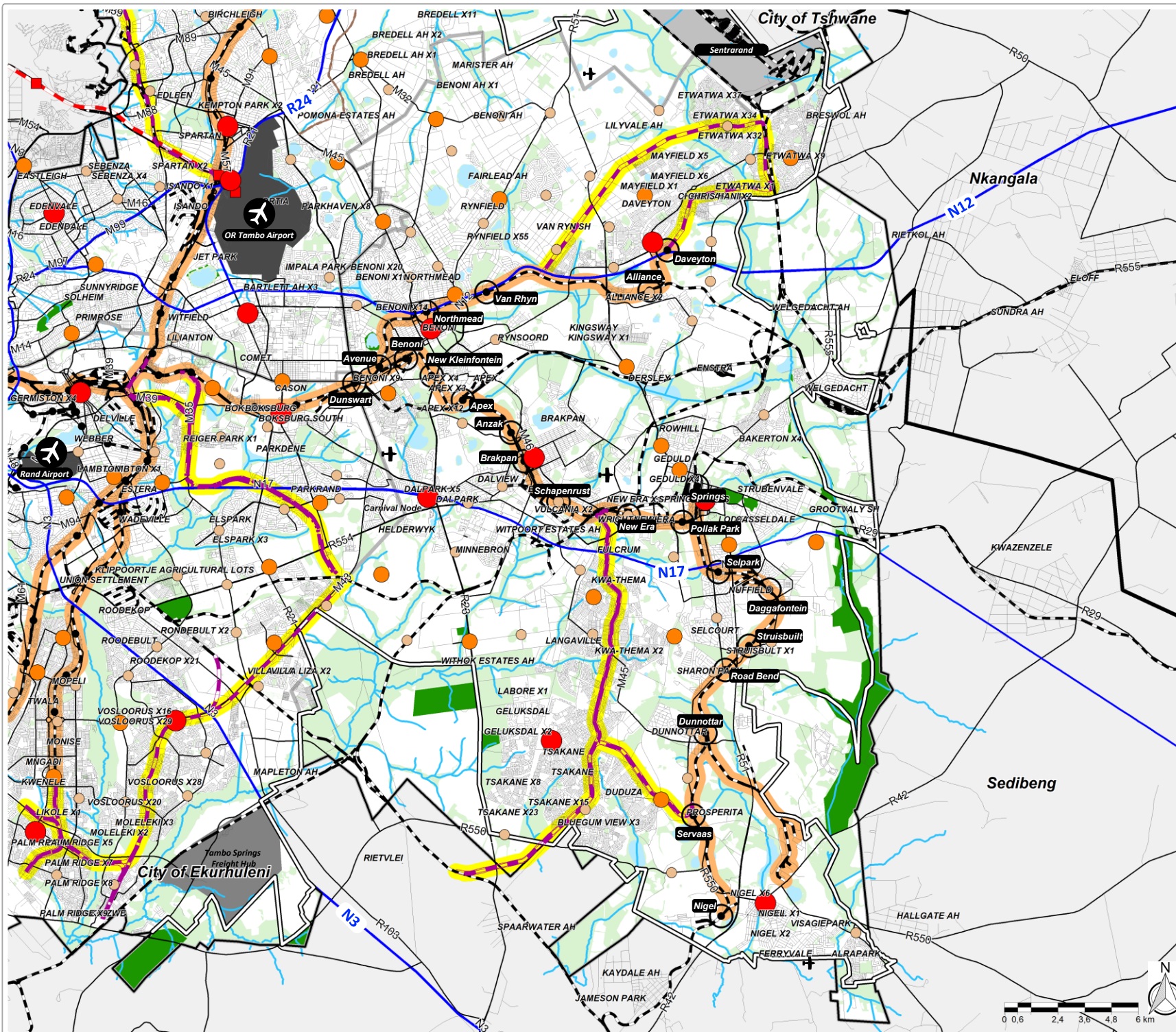


EASTERN REGION FREIGHT RAIL NETWORK

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Class 1 Roads
- PWV 15 Freight Link
- Class 2 Roads
- Railway Network
- Proposed Rail Network
- Gauteng Rail Freight Outer Ring
- Freight Rail Services
- Proposed Freight Extensions
- Sentrarrand Intermodal Terminal
- Tambo Springs Freight / Logistics Hub / Inland Port
- Airport
- Airport Footprint
- Airfield

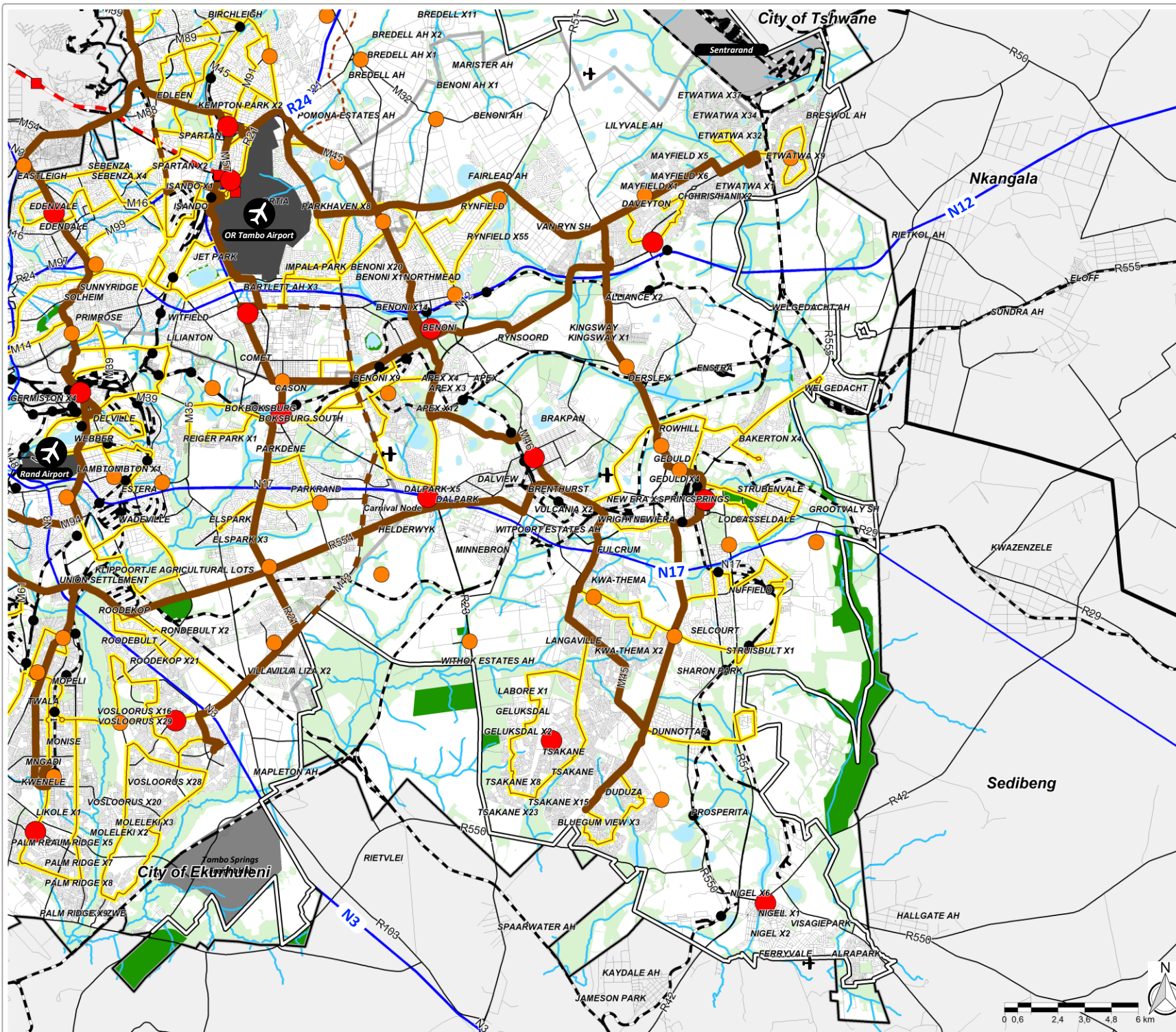
- Germiston – Beit Bridge
- Apex – Witbank
- Krugersdorp – Springs
- Spring – Secunda / Richards Bay
- Germiston – Durban
- Union – Cape Town
- Rand Minerals / City Deep
- Spring – Kaydale
- Spring – Rooiokop
- GCR Rail Freight Outer Ring



EASTERN REGION COMMUTER RAIL NETWORK

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Tertiary Nodes
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations (Transit Orientated Development)
- PRASA Railway Stations 500m
- Gautrain Railway
- Gautrain Stations
- Proposed Rail Extensions
- Commuter Rail Services
- Proposed Commuter Extensions
- Airport
- Airport Footprint
- Airfield
- Sentrara Intermodal Terminal
- Tambo Springs Freight / Logistics Hub / Inland Port



EASTERN REGION INTEGRATED PUBLIC TRANSPORT NETWORK

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations (Transit Orientated Development)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrand Intermodal Terminal
- Tambo Springs Freight / Logistics Hub / Inland Port
- BRT Routes 1 – 7
- BRT Supplementary Route
- Feeder Routes (Bus//Taxi)

INFO BOX 6: ACTIVITY CORRIDORS, ACTIVITY SPINES AND ACTIVITY STREETS

❖ **Transportation corridor:** A transportation corridor constitutes a strip of land generally with more than one transport facility in reasonably close proximity intended to support each other, and move vehicles, people and goods from one place to another. The emphasis is on providing mobility rather than accessibility. Access points or interchanges in the case of roads are positioned at well-spaced intervals to provide access to adjoining transportation systems.

❖ **Activity corridor:** An activity corridor is defined as a linear strip of land or area; connecting activity nodes; comprising a major transport facility or facilities (multi-modal); providing an appropriate regional level of mobility and accessibility to adjacent areas; and accommodating a high concentration of population and mixed land-uses (job opportunities).

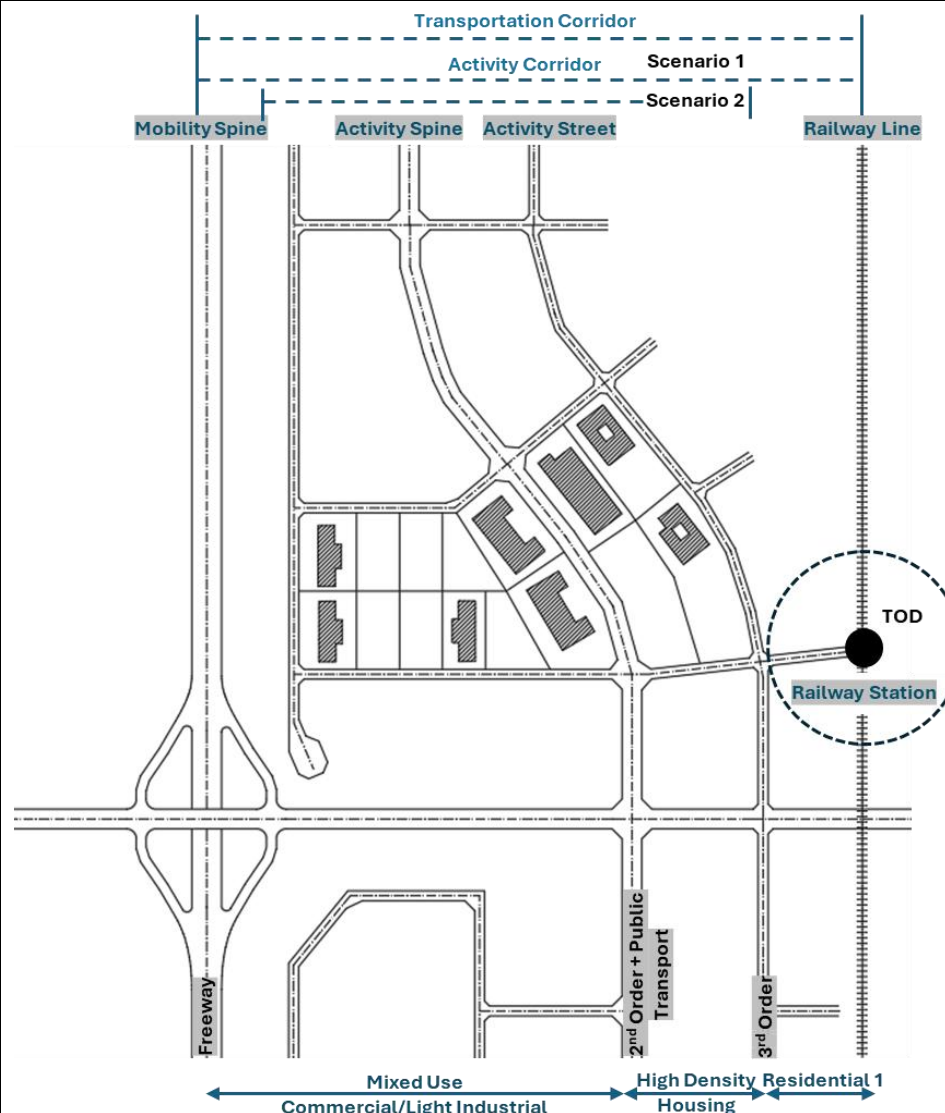
Activity corridors normally incorporate activity spines and activity streets to accommodate the accessibility need for land use development. This without sacrificing the mobility and regional accessibility function of the higher order transportation facilities in the corridor (mobility spine). The promotion of public transport services and facilities within an activity corridor is also essential.

❖ **Activity spine:** An activity spine refers to a major road (or roads) or railway line accommodating mixed land-uses and high-density development immediately adjacent to this facility; and it is usually connected to one or more activity nodes. Public transport is a key element of an activity spine. Activity spines should exhibit satisfactory sub-regional mobility and accessibility and do not necessarily form part of activity corridors.

❖ **Activity street:** Activity streets are of a lower order than, but similar to activity spines where the same principles of linearity and high-density mixed land-use apply. The term also refers to a local road that allows for a high degree of accessibility along its length. Activity streets are of a smaller scale than activity spines and often supports the activity spine by providing access to land uses within an activity corridor.

Public transport could occur on activity streets but is not essential. Activity streets may develop spontaneously within urban areas and do not necessarily form part of an activity corridor. The nature and design of the activity street promotes accessibility and pedestrian movement.

❖ **Modal transfer points:** The development of nodes around modal transfer points, particularly in disadvantaged areas, is promoted. Informal trade is currently naturally occurring in these areas and through the provision of infrastructure the level of economic activities could be raised.



There are two prominent multi-modal activity corridors impacting on the Eastern Region as illustrated on **Figure 18.3.6**. These include the following:

- ❖ The Albertina Sisulu corridor to the north of OR Tambo International Airport and which comprises the R21 freeway, the Germiston-Pretoria railway line, and route M57 (old Pretoria-Kempton Park Road) which acts as an Activity Spine between the R21 freeway and the railway line. A second Activity Spine is in the process of development to the east of the R21 freeway which will unlock the development potential of this land as well.
- ❖ The N3 corridor to the south-east which extends from Alberton towards the proposed Tambo Springs Freight Hub. It comprises the N3 freeway, the Joburg-Durban railway line and route R103 (the old Joburg-Durban Road) which acts as an activity spine between the freeway and the railway line.

There are also several lower order routes/route sections within the urban fabric of the Eastern Region along which there is pressure for mixed use development and/or densification. These routes typically act as Activity Spines or Activity Streets in the context of the Region and are highlighted in orange on Figure 18.3.6. The nature of the mixed uses along these routes will be discussed in greater detail in Section 4.3.4 of this document.

NOTE: All land use development along these roads (activity spines/streets) is subject to the Road Access Management Guidelines for the different road classes in the CoE as summarised in Annexure B3.1 in this report.

4.3.4 Economic Activity and Job Creation

Action 4.1: Implement a “Township Economy Support Programme” to promote Economic Empowerment of Emerging Entrepreneurs in line with provisions of the Gauteng Township Economic Development Act (TEDA).

On 15 March 2022, the Gauteng Provincial Legislature adopted the Gauteng Township Economic Development Bill (the “Act”) which is intended to enable the transition of township economic activity that is largely informal in nature, to formal economy pathways.

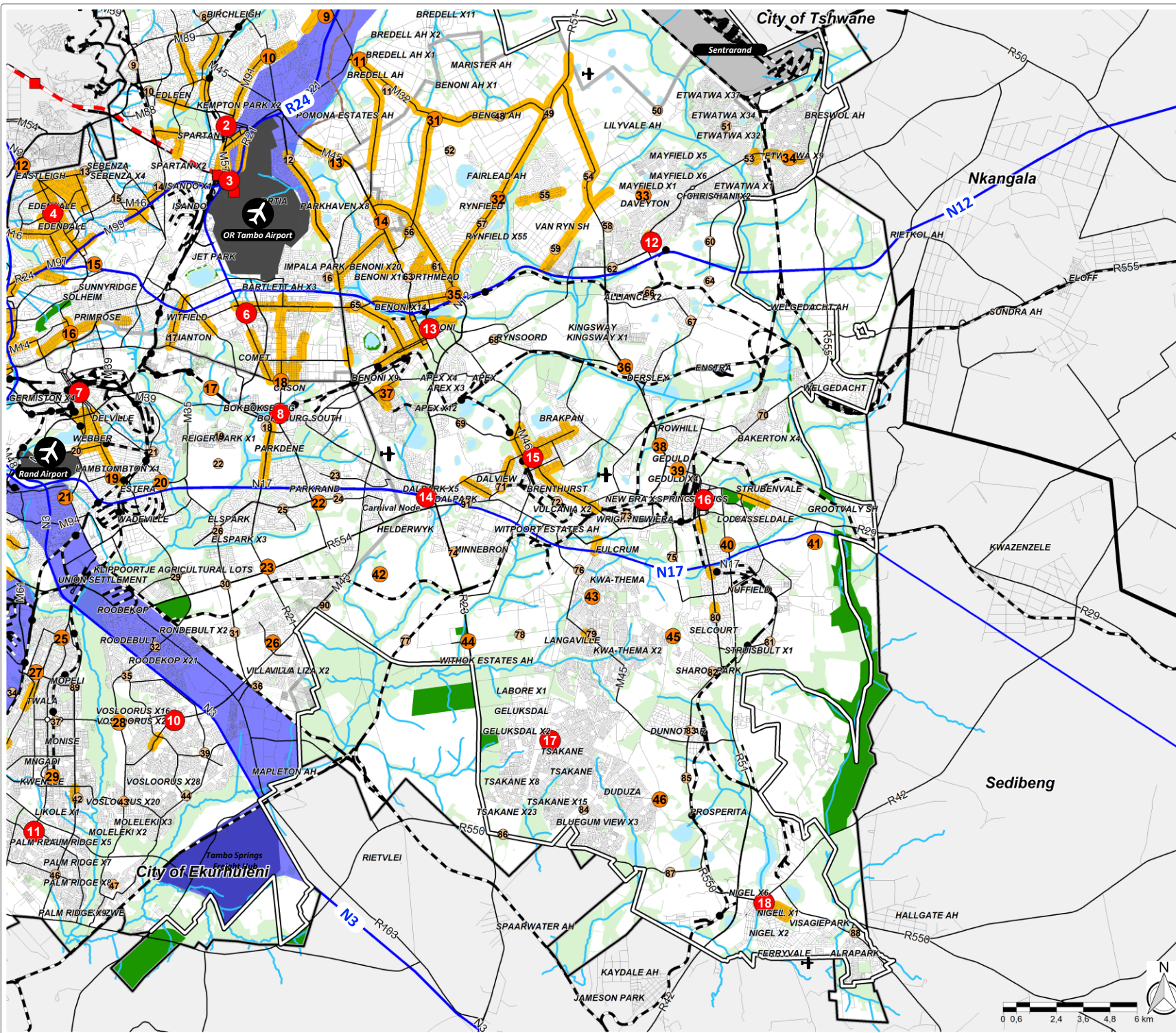
Info Box 7 briefly summarizes some of the main features of the Gauteng Township Economic Development Act (GTEDA).

The intended township transition is to be achieved through structured enterprise and supplier development programmes across key focus areas in order to facilitate, stimulate and co-create job opportunities.

These job opportunities are framed within the township context through accelerated enterprise supplier development and product-led development, as well as those created through the following interventions:

- ❖ infill residential and commercial development;
- ❖ township-based Installation, Repair and Maintenance (IRM) contractors gaining market access, and providing work experience for IRM technicians;
- ❖ the Township Retail Programme;
- ❖ township fibre roll-out;
- ❖ sector interventions;
- ❖ infrastructure interventions; and

the taxi economy.



EASTERN REGION ACTIVITY CORRIDORS / SPINES

LEGEND

-  Cadastral
-  District Municipal Boundaries
-  CoE Regional Boundary
-  Urban Development Boundary
-  Protected Areas
-  Primary Open Space
-  Dams / Rivers
-  Primary Nodes
-  Secondary Nodes
-  Tertiary Nodes
-  Class 1 Roads
-  Class 2 Roads
-  Class 3 Roads
-  PRASA Railway Line
-  Railway Station
-  Airport
-  Airport Footprint
-  Airfield
-  Sentrarand Intermodal Terminal
-  Tambo Springs Freight / Logistics Hub / Inland Port
-  Activity Corridor
-  Activity Spine / Street



18.3.6

INFO BOX 7: GAUTENG TOWNSHIP ECONOMIC DEVELOPMENT ACT, 2022	
1. Definitions	
❖	“ Township-based enterprise ” means an enterprise which conducts an economic activity in a township that has been designed in terms of section 6.”
❖	“ Township Economy ” means economic activities that are located within a township.
❖	“ Township Enterprise Precinct ” means a smaller geographic area in a township that is located within a Township Enterprise Zone and is designated as such in terms of section 6(6)(b)(ii).
❖	“ Township Enterprise Zone ” means the whole, or a portion, of a township that is designated as such.
2. Objects of the Act	
❖	Promote economic transformation in order to enable the meaningful participation of African, Coloured and Indian people in the local township economy.
❖	Introduce an enabling framework which allows provincial organs of state and municipalities in the Province to – ○ Provide targeted programmes that are aimed at supporting and developing township-based enterprises focusing on Township Enterprise Zones and Township Enterprise Precincts; and ○ Where it performs the function of a licensing authority, identify challenges experienced by township-based enterprises, and develop and implement streamlined approval processes and less restrictive operating conditions.
❖	Establish specific procurement rules and programmatic support that allows provincial organs of state and their contractors to support township-based enterprises located in Township Enterprise Zones and Township Enterprise Precincts.
❖	Promote and support the development of representative associations of township-based enterprises and non-profit organisations that have an interest in the economic development of townships.
3. Designation of Township Enterprise Zone/ Precinct (Effective for 5 Years)	
❖	An area may be designated as a Township Enterprise Zone or a Township Enterprise Precinct for one or more of the following purposes: ○ To encourage industrial and economic activity in townships; ○ To enable government to direct support and programmes that target deprived populations in townships; and
❖	To facilitate spatial transformation that takes cognizance of fluctuating economic and social conditions in the Province.
4. Township Enterprise Zone – Types of Economic Activities	
❖	Retail centres including production, distribution and storage;
❖	Digital and computing services;
❖	Property management for commercial and accommodation establishments;
❖	Public transport facilities with commercial and automotive services;
❖	Manufacturing and industrial facilities;
❖	Artisanal services, construction and building maintenance;
❖	Waste processing and recycling centres; and Creative services.

It is assumed that the Daveyton-Etawatwa, Wattville-Actonville and Kwatsaduza township clusters would represent the Eastern Region Township Enterprise Zones as contemplated in GTEDA. These three Township Enterprise Zones (TEZs) are conceptually demarcated on **Figure 18.4.1**.

NOTE: Township Area means an urban, peri-urban or rural living area which-

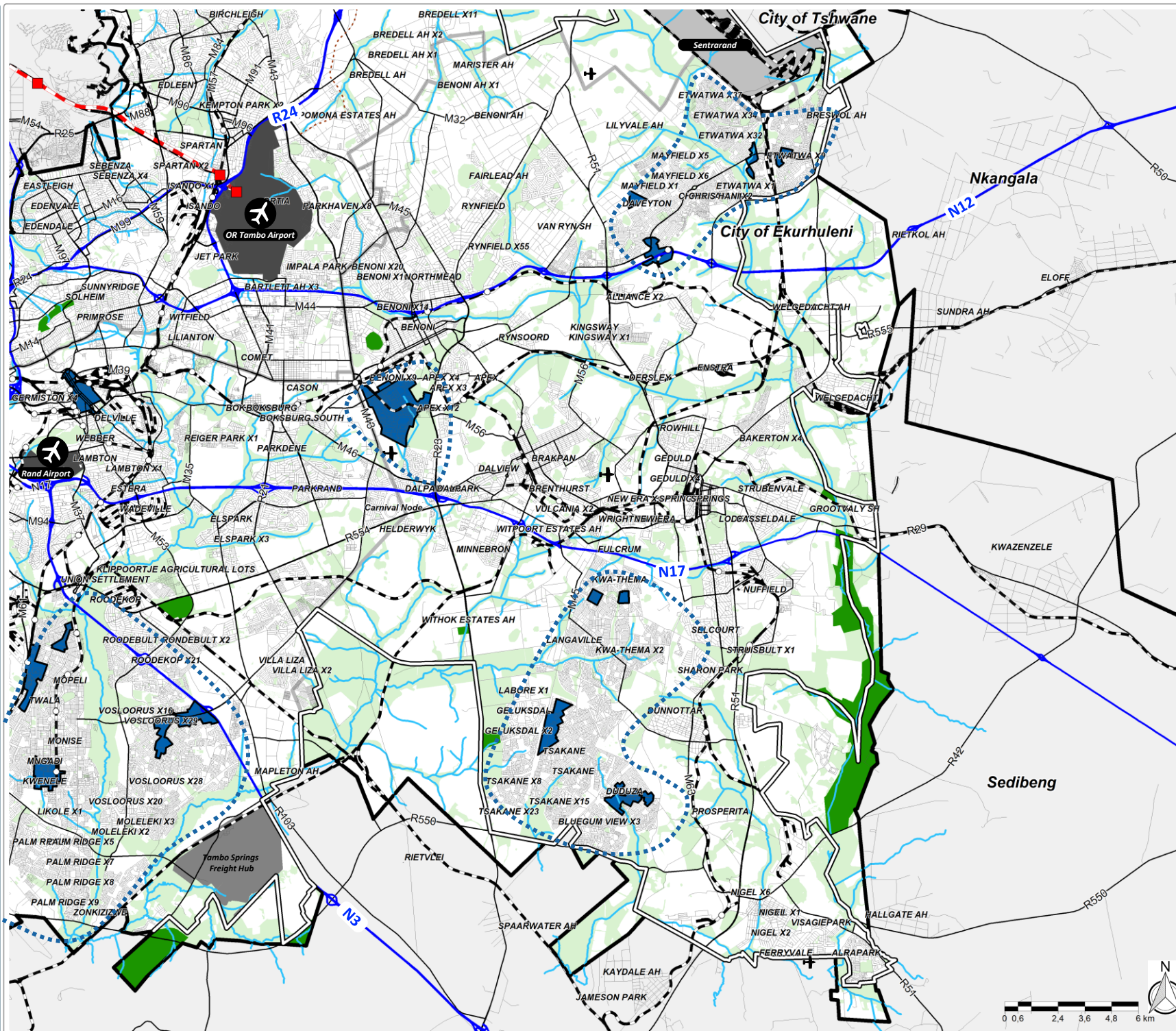
- (a) at any time from the late 19th century until 27 April 1994, was reserved for Black, Coloured or Indian people; or
- (b) has been developed for historically disadvantaged persons after 27 April 1994; or
- (c) has become predominantly occupied by historically disadvantaged people, and
- (d) is currently an economically deprived/marginalized area.

Furthermore, it is assumed that the “Township Regeneration Areas” identified in the Eastern Region some fifteen years ago for upgrading through the Neighbourhood Development Partnership Grant (NDPG) Programme, would represent the “Township Enterprise Precincts” as contemplated in the Gauteng Township Economic Development Act. The location of these precincts is also indicated in blue on Figure 18.4.1.

There is a wide variety of economic activities/job opportunities that can be pursued as part of the “Township Economy” in these Township Enterprise Zones/Precincts. (**Annexure B4.1** in this report provides a summary of such economic opportunities).

Annexure B4.2 provides an overview of the typical transport infrastructure, land uses and development concepts to be applied in the planning of such Township Regeneration Node/Enterprise Precinct.

Annexure B4.3 provides more detail pertaining to informal trade empowerment and upscaling, illustrating various ‘levels’ of informal trade upscaling that can be catered for. It ranges from traders operating without formalised informal



EASTERN REGION TOWNSHIP ENTERPRISE ZONES AND PRECINCTS

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations (Transit Orientated Development)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrara Intermodal Terminal
- Tambo Springs Freight / Logistics Hub / Inland Port
- Township Enterprise Precinct (Township Regeneration Areas)
- Township Enterprise Zone (TEZ)

trading structures at 'level 1' and up to 'level 4' where traders are incorporated into the formal economy within the retail and manufacturing/ service industry sectors.

Informal trading, skills training of informal traders, and proper management and regulation of designated informal trade areas should be dealt with as a consolidated programme in the CoE.

Furthermore, it is imperative that the City of Ekurhuleni optimally utilizes all the training and funding programmes offered by the Gauteng Department of Economic Development which is mandated to:

- ❖ promote, attract and retain trade and investment;
- ❖ grow and enhance the competitive advantage of key sectors in the GP economy; and
- ❖ create jobs in various development corridors through economic development projects.

This mandate is delivered through the Gauteng Growth and Development Agency (GGDA) and by the Gauteng Strategic Partnership Unit (GSPU). The GDED is in the process of finalising an MoU with the City of Ekurhuleni, which seeks cooperation on the Implementation of TEDA, SEZ's and Industrial Parks, among other priorities.

The intension is to promote manufacturing skills development and other productive activities within the identified high growth sectors with the purpose of establishing linkages with Township Economic Zones (TEZ) and Spatial Economic Zones (SEZ).

Following in **Table 19** is a summary of SMME Support Initiatives available within the City of Ekurhuleni. (Sourced from IDP Comments: May 2024).

Table 19: Summary of SMME Support Initiatives Available to CoE

SUMMARY OF SMME SUPPORT INITIATIVES	
1.	❖ The GDED's Kasi Umnotho Fund (in partnership with ABSA and the IDC) could be leveraged as an additional business funding mechanism. Funding opportunities for: ○ Township retail; ○ Point-of-sale training; ○ Informal trading structure support; ○ Bakery Support Programme; ○ Township Distribution Centres, etc.
2.	❖ GDED: Construction Input Programme to develop technical construction skills of township SMMEs.
3.	❖ GDED: Installation, Repair and Maintenance Programme which seeks to upskill enterprises in areas of Manufacturing, Plumbing, Electrical, etc.
4.	❖ GDED: Infrastructure Development Programme (SEZ and Industrial Parks).
5.	❖ GDED Sector and Industry Development Programmes which include, but is not limited to: ○ Mining Incubation Programme which focuses on SMME development. ○ Cultural and Creatives Hub project to incubate SMMEs in the Creative Industry. ○ Furniture Manufacturing programme. ○ E-commerce Hub pilot study to assess the need of e-commerce hubs within various localities. ○ Automotive Skills Development for SMMEs, to increase their competitiveness and to unlock opportunities in the sector. ○ Construction Inputs programme aimed at skills development for SMMEs to access opportunities within the sector. ○ Transport and Logistics (Last Mile Delivery Project), etc.
6.	❖ GDED: Financial and non-financial support provided to entrepreneurs who meet the application criteria of various entrepreneurship opportunities provided by the Gauteng Enterprise Propeller (GEP) and Inclusive Township Economy (Family Tree Holdings).
7.	❖ GDED: Implementation of targeted regional outreach initiatives in collaboration with the City to promote financial and non-financial support opportunities (Enterprise Supplier Development) led by the Gauteng Enterprise Propeller and Inclusive Township Economy.
8.	❖ eKasi Labs to provide support in municipal programmes for business incubation to small business who are innovative and have high potential to grow.
9.	❖ The CoE Vukuphile Programme is an EPWP Contractor Learnership Programme for emerging contractors.
10.	❖ CoE: Community Enterprise Development Fund has been established.
11.	❖ CoE Township Economy Strategy is in place, including SMME mentorship, business support services and access to funding.

Action 4.2: Promote Business Uses within strategically located mixed use business nodes and/or activity spines/streets.

Figure 18.4.2 illustrates in red the spatial extent and distribution of business uses within the Eastern Region. The largest clusters of business use are located in the four CBD areas which include Benoni, Brakpan, Springs and Nigel.

In addition to the above, there are also prominent clusters of business use in the Carnival Node, and around routes M44 and M45 to the north.

In the marginalized areas significant nodes of business use exist in Tsakane, Duduza and KwaThema to the south, as well as Daveyton and Etwatwa to the north. (Also note that several of these areas (see blue areas) have been classified as Township Regeneration Areas eligible for NDPG funding).

Most of the clusters of business use depicted on Figure 18.4.2 are located in either a Primary Activity Node, Secondary Activity Node or Tertiary Activity Node.

However, there is also extensive business use which does not fall within any of these activity nodes. This could either represent low order retail facilities

INFO BOX 8: COE SHOPPING CENTER HIERARCHY

- ❖ A large percentage of the business use as depicted on Figure 18.4.2 form part of a Shopping Center as discussed in Section 3.6.1.1 in this report.
- ❖ **Annexure B4.4** provides a brief summary of the nature and extent of shopping centers in the CoE and the Retail Facility Hierarchy for the CoE. It comprises the following:
 - Map indicating distribution of existing shopping centers (**Annexure B4.4.1**)
 - Table summary of floor size of existing shopping centers (**Annexure B4.4.2**)
 - CoE Retail Facility Core Classification (**Annexure B4.4.3**)
 - CoE Focus/Niche Classification (**Annexure B4.4.4**)

Note: For the development of larger retail centers and shopping malls, such proposals would need to be accompanied by a market demand study prepared by a professional economist.

(corner shops/spazas) in neighbourhoods, or in some cases these represent linear strips of development (Activity Spines or Activity Streets).

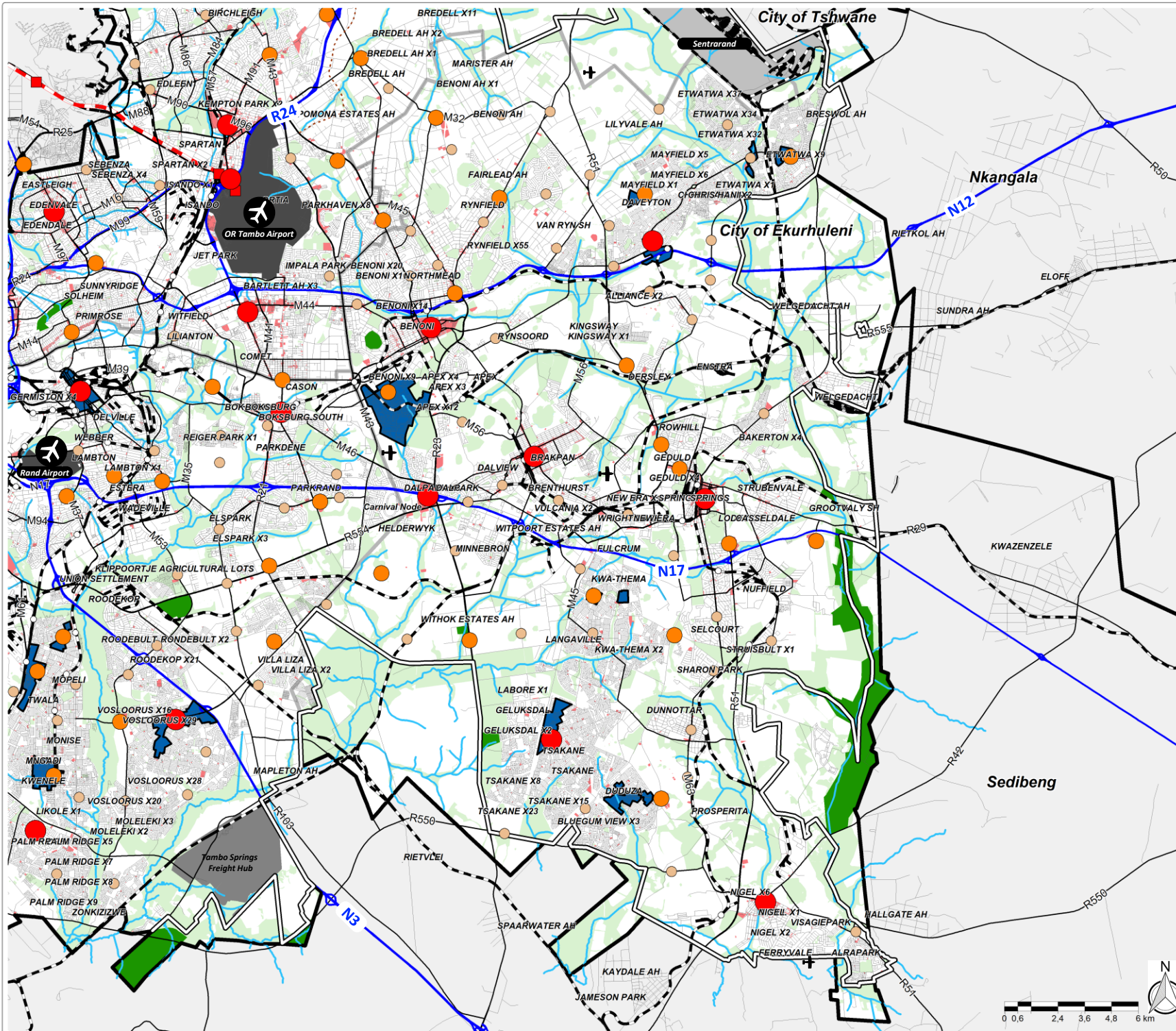
These linear strips as reflected on Figure 18.4.2 often do not only comprise Business 1-3, but rather a more comprehensive range of mixed land uses.

In view of the above it was decided to define a number of mixed use categories for the CoE MSDF/RSDFs in order to provide clearer guidance with regards to the range of land uses to be allowed/considered in each of these existing/emerging mixed use areas/strips in the CoE. This was done with due consideration to the following:

- ❖ The existing range of mixed land uses that occurs within the various mixed use areas along the existing strips, and
- ❖ The proposed range of land uses per Mixed Use category as defined in the 2015 MSDF/RSDFs; and/or existing Local Spatial Development Frameworks and/or existing Precinct Plans within the CoE.

As a result, a total of five Mixed Use Categories were defined. Furthermore, instead of presenting these Mixed Use Categories in terms of random lists of land uses, it was decided to rather define these in terms of various combinations of Use Zones from the City of Ekurhuleni Land Use Scheme (CELUS 2021: Version 815/24). The range of land uses that could be considered in any of the five Mixed Use Categories is then derived from the following:

- (i) The CELUS Use Zones allocated to the specific Mixed Use Category; and
- (ii) The CELUS Table B for each Use Zone allocated, and which includes:
 - Primary Rights : Column 3;
 - Special Consent : Column 4, and/or
 - Written Consent : Column 5.

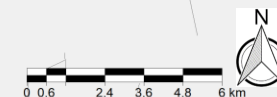


EASTERN REGION BUSINESS USE AND ACTIVITY NODES

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- Primary Nodes
- Secondary Nodes
- Tertiary Nodes
- PRASA Railway Line
- PRASA Railway Stations (Transit Orientated Development)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrarrand Intermodal Terminal
- Tambo Springs Freight / Logistics Hub / Inland Port
- Business
- Township Enterprise Precinct (Township Regeneration Areas)

Note: Business exaggerated for mapping purposes



This approach has the following advantages:

- ❖ It complies with the legal requirement of aligning the Municipal Spatial Development Framework with the Municipal Land Use Scheme; and
- ❖ CELUS already provides for the range of land uses, densities and conditions to be applied under each of the Use Zones.

The five Mixed Land Use categories are listed in **Table 20** below and spatially illustrated on **Figure 18.4.3**.

Table 20: CoE Linkage Table Concept: MSDF SDF Mixed Land Use Categories and Associated CELUS Use Zones

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land.)																		
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining
Mixed Land Use Developable Area (Overlays)																				
Mixed Use: B1	Highest order of Business Land Use Mix and Intensity.	•	•	•	•	•	•	•	x	•	•	•	•	•	•	•	•	•	x	x
Mixed Use: B2	Business/Offices in combination with Multiple Residential Development.	•	•	•	•	x	•	•	x	x	•	x	•	•	•	•	•	•	x	x
Mixed Use: B2 (TEZ) Township Enterprise Zone	Mixed Use: Business, Residential, Light Industrial, Commercial on a small scale to be compatible with the surrounding environment	•	•	•	•	x	•	•	x	•	•	x	•	•	•	•	•	•	x	x
Mixed Use: R&O	Redevelopment of area into Multiple Residential and/or Offices	•	•	•	•	x	x	•	x	x	•	x	•	•	•	•	•	•	x	x
Mixed Use: BLC	Mixed Use: Business, Residential, Light Industrial, Commercial	•	•	•	•	x	•	•	x	•	•	•	•	•	•	•	•	•	•	x

NOTE: The above is, however, subject to a more comprehensive list of provisions/requirements and/or exclusions as noted in the Comprehensive MSDF: CELUS Linkage Table included in **Annexure B2.2**.

Mixed Use B1: This mixed use category represents the highest order of Business Land Use in the CoE, normally associated with Central Business Districts (CBDs). It includes the following Use Zones as defined in CELUS: Residential 1-4; Business 1-3; Industrial 2 and a number of other ancillary Use Zones like Public Garage, Transportation, Community Facility, etc. More importantly, it excludes Industrial 1 as well as Agriculture and Mining.

Mixed Use B1 applies to all the formal Central Business District areas in the Region as demarcated in the MSDF. Furthermore, a number of precincts around Carnival City, and the Tsakane and Daveyton activity nodes are also earmarked for Mixed Use B1.

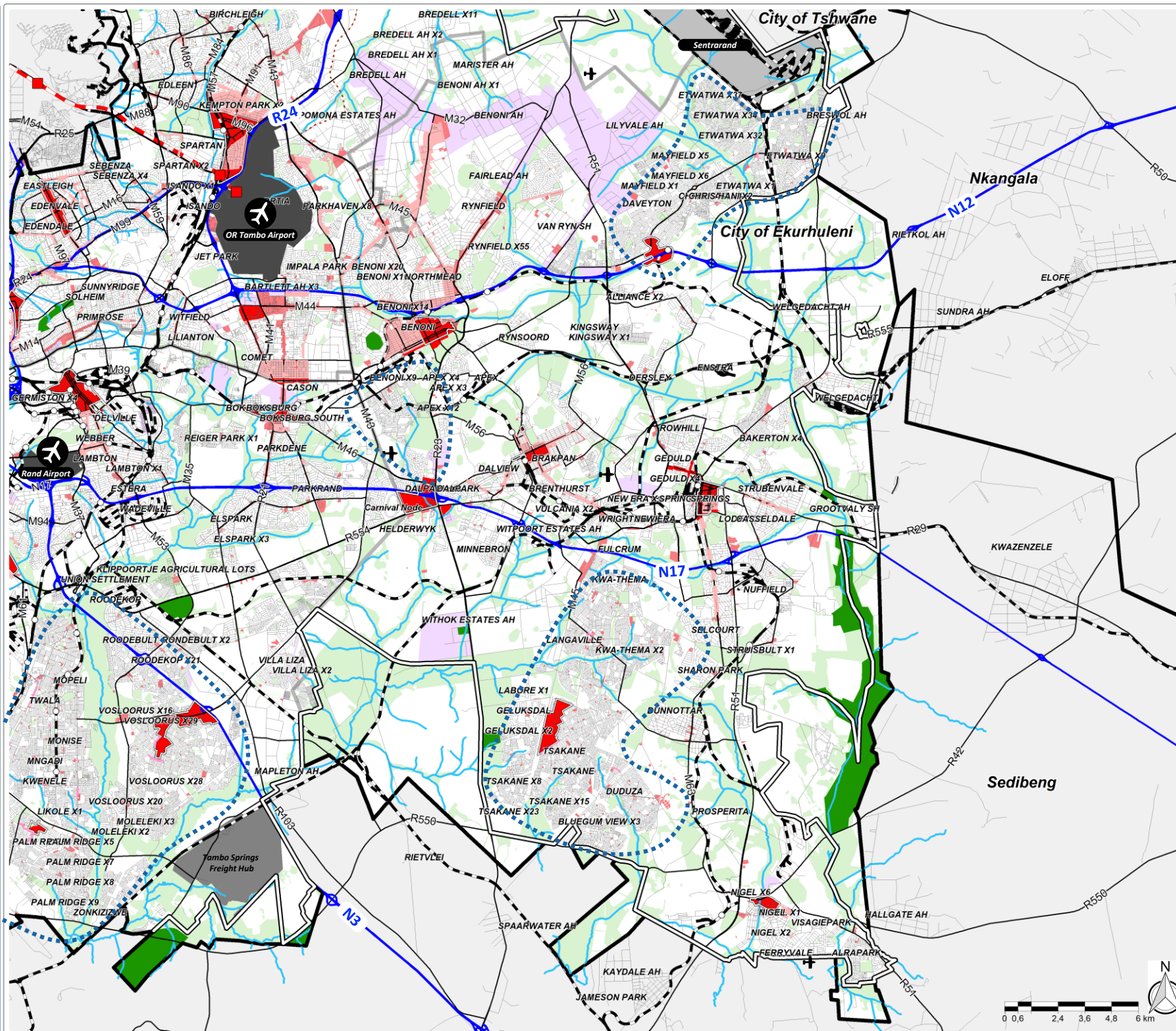
Mixed Use B2: This category represents a lower order than Mixed Use B1 noted above. It includes Residential 1-4, Business 2 and 3 and a range of other Use Zones (similar to Mixed Use B1), but it excludes Business 1, Industrial 2 and Transportation which are included under Mixed Use B1.

Mixed Use B2 applies to activity areas or strips like Pretoria Road in Rynfield and Bredell and at the intersection of route M32 (Elm Road) and Benoni (Glen Gory) Road.

Mixed Use B2 TEZ: This category is only applicable in the Township Enterprise Zones (TEZ) as demarcated on Figure 18.4.1. Essentially, it is Mixed Use B2 as noted above, but it also allows for Industrial 2 and Agriculture because there are many formal and informal light industrial enterprises and urban agriculture activities within the Township Enterprise Zones.

It is intended to act as an incentive to promote SMME development in the former township areas and more specifically in the Township Enterprise Precincts identified in these areas.

Mixed Use R&O: This category of mixed use is intended to promote the redevelopment of some decaying residential areas (mainly around Primary Activity Nodes/CBDs) by earmarking these for the development of Residential



EASTERN REGION BUSINESS AND MIXED USE

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations
(Transit Orientated Development)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrarand Intermodal Terminal
- Tambo Springs Freight / Logistics
Hub / Inland Port
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Township Enterprise Zone (TEZ)

1, 2, 3 and 4; and /or the development of offices (Business 3), e.g. the precinct adjacent to the west of Benoni CBD.

Mixed Use BLIC: This category of mixed use seeks to promote a fairly wide range of land uses including Residential 1-4, Business 2 and 3, Industrial 2 and Transportation. It is often associated with areas in transition.

Mixed Use BLIC is, amongst other, proposed along Pretoria Road in Benoni to the far north; within some precincts in the mining belt between Brakpan and Springs; and part of the Withok Estates area to the west of Heidelberg Road.

NOTE: Mixed use strips (corridors) include the erven directly fronting the road that forms the corridor. As a principle where an abutting erf is consolidated with the erf along the corridor it shall be regarded as also being part of the corridor even if it is not specifically indicated on the spatial development framework maps. This will allow for the expansion of an existing development. The principle is strictly subject to the consolidation of the erven (or where notarially tied if a consolidation is not possible due to different townships), and there must be no physical separation or gap between the erven.

Action 4.3: Facilitate development of Industrial and Commercial Uses at designated strategic locations.

The existing and proposed industrial use in the Eastern Region as reflected on **Figure 18.4.4** comprises the following:

- ❖ a significant cluster around Apex/Benoni South to the west;
- ❖ a second cluster to the east around Enstra (which also includes the identified Springs/Implats SEZ (see **Info Box 9**); and
- ❖ the linear strip (Far East) extending from Vulcania and New Era towards Nuffield, and from there further southwards towards Gibela and Pretorius Park in Nigel.

The proposed future expansion of industrial and light industrial use mostly represents a number of smaller infill developments/ expansion of existing footprints proposed in various parts of the Region.

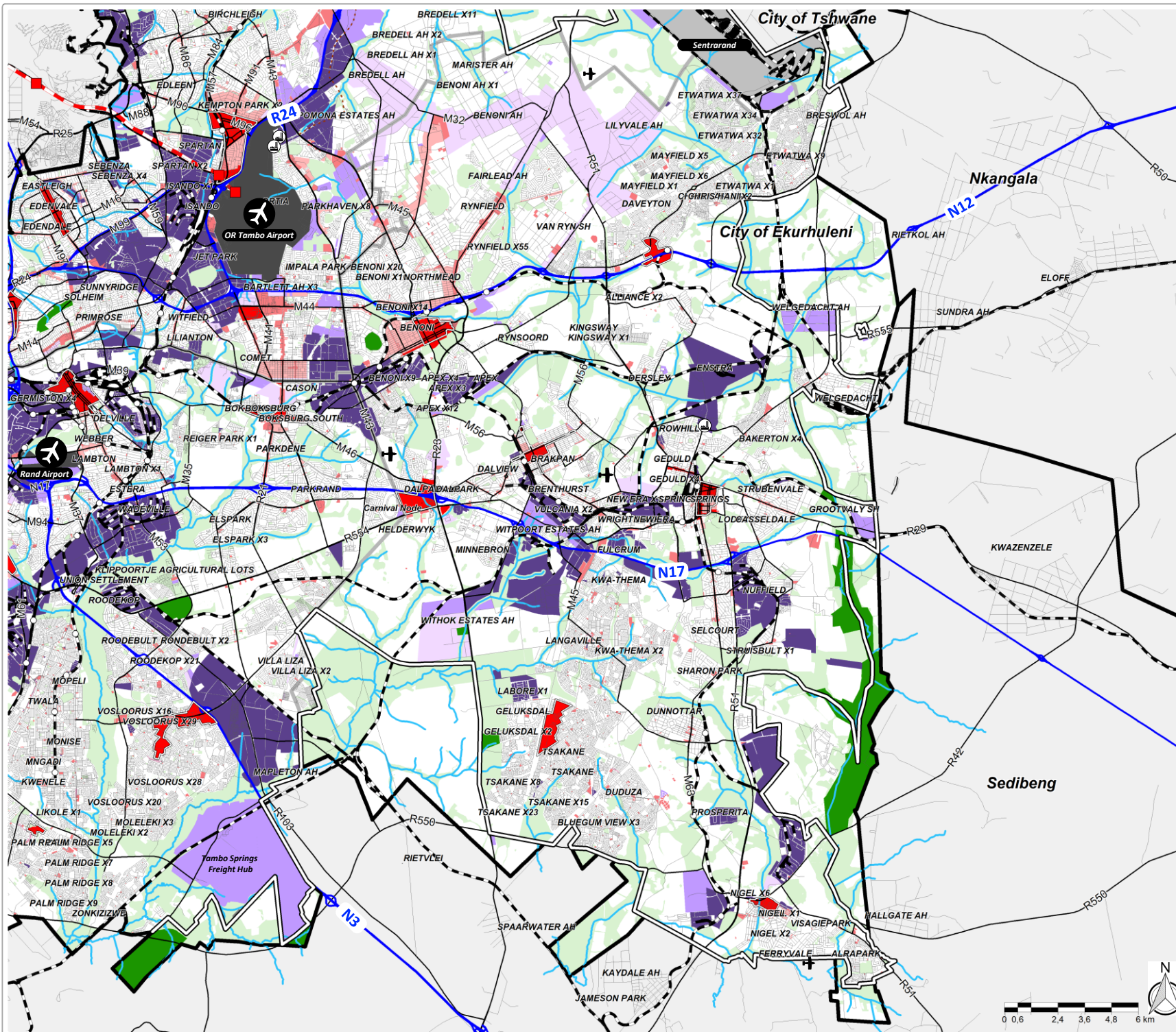
INFO BOX 9: EASTERN REGION SPECIAL ECONOMIC ZONES
SPRINGS (IMPALA PLATINUM) PRECINCT 3
Size: 13.9 ha
Land Ownership Arrangement
Finalisation of Notarial lease in progress with Impala Platinum
Focus Sectors
Metals: PGM beneficiation and advanced manufacturing ; capital equipment
Status
EIA and Township Establishment process underway

Refer to the Comprehensive MSDF:CELUS Linkage Table in Annexure B2.2 to determine the difference between Industrial and Light Industrial/Commercial as used in the MSDF/RSDF.

Diagram 11 (overleaf) provides a profile of industrial activities in this Eastern Activity Belt.

Diagram 11: CoE: Standard Industrial Classification per Industrial Area (Eastern Region)

#	Industrial Township	Central Activity Belt				Far East Industries									
		Benoni South	Apex	Morehill	Pudfontein	Vulcania	Witpoort	Fulcrum	Labare	New Era	Enstra	Nuffield	Vosterkroon	Pretoriusstad	Prosperita
	1. AGRICULTURE, HUNTING, FORESTRY AND FISHING														
1.1	Agriculture, hunting and related services				x										
	2. MINING AND QUARRYING														
2.3	Mining of gold and uranium ore			x		x									
2.5	Other mining and quarrying		x	x		x									
2.6	Services activities incidental to mining of minerals	x				x	x		x				x	x	
	3. MANUFACTURING														
3.4	Manufacturing of coke, refined petroleum products and nuclear fuel; manufacturing of chemical-, rubber-, plastic products	x	x			x							x	x	
3.6	Manufacturing of basic metals, fabricated metal products, machinery and equipment (office, accounting, computing)	x	x	x		x			x				x	x	
3.1	Manufacturing of food products, beverages, tobacco products	x	x	x				x		x		x	x	x	x
3.2	Manufacturing of clothing, textiles and leather goods	x	x							x		x	x		
3.3	Manufacturing of wood and products of wood and cork (except furniture)	x	x	x			x		x			x	x		
3.5	Manufacturing of other non-metallic mineral products	x	x					x	x	x	x	x	x		
3.7	Manufacturing of other electrical equipment n.e.c.	x	x	x		x					x				
3.8	Manufacturing of radio, television and communication equipment, medical, precision and optical instruments, watches and clocks	x	x								x		x		
3.9	Manufacturing of transport equipment	x					x		x		x		x	x	
3.10	Manufacturing of furniture, manufacturing n.e.c., Recycling	x	x	x				x	x	x	x	x	x	x	
	4. ELECTRICITY, GAS AND WATER SUPPLY														
4.1	Electricity, gas, steam and hot water supply							x							
4.2	Collection, purification, distribution of water														
	5. CONSTRUCTION														
5.1	Construction				x	x	x		x				x	x	
	6. WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES etc.														
6.1	Wholesale and commission trade, except of motor vehicles and motor cycles	x	x					x		x	x	x	x	x	
6.2	Retail trade, except of motor vehicles and motor cycles; repair of household goods	x	x		x			x		x	x	x	x		
6.3	Sale, maintenance and repair of motor vehicles and motor cycles; retail trade in automotive fuel	x	x		x	x		x	x				x		
6.4	Hotels and restaurants	x	x		x										
	7. TRANSPORT, STORAGE AND COMMUNICATION														
7.1	Land transport; transport via pipelines (Logistics)			x	x	x	x			x			x	x	x
7.3	Air transport														
7.4	Supporting and auxiliary transport activities; travel agencies					x	x								
7.5	Post and telecommunications	x	x												
	8. FINANCIAL INTERMEDIATION AND BUSINESS SERVICES														
8.4	Real estate activities														
8.5	Renting of machinery and equipment, without operator, and of personal and household goods	x	x	x	x		x			x			x		
8.6	Computer and related activities	x	x	x	x										
8.7	Research and development														
8.8	Other business activities													x	
	9. COMMUNITY, SOCIAL AND PERSONAL SERVICES														
9.1	Public administration and defence activities													x	
9.2	Education				x										
9.3	Health and social work														
9.4	Other community, social and personal service activities														
9.6	Recreational, cultural and sporting activities														
9.7	Other service activities														



EASTERN REGION INDUSTRIAL AND MIXED USE

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations (Transit Orientated Development)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrarand Intermodal Terminal
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- SEZ/IDZ

Action 4.4: Facilitate Mining Activity where it still exists but focus specifically on Mine Dump Reclamation and Rehabilitation of old mining land.

Mining activities, which include underground and surface operations as well as mine dump reclamation, are important for releasing the mineral resources and contributing to local economic growth and development in the Region.

As illustrated on **Figure 18.4.5** there are still a few active mines (gold and coal), mostly located in the far eastern extents of the Eastern Region around Springs and Nigel.

Furthermore, quarrying and brickmaking also occur extensively in the eastern mining belt.

The quarry and aggregate operations are important as an essential source of high-quality building and construction material that is mined, extracted and processed as a contribution to the economic growth and development of the metropolitan area and of employment opportunities. These operations are also an important contribution to the reclamation and rehabilitation of mining land for future development, with the residue from these reclamation processes being consolidated in the mega tailings dam to the south of Withok.

The land parcels in process/scheduled for reclamation and/or rehabilitation processes are indicated within a “Reclamation” symbol on Figure 18.4.5 and may become available for redevelopment in future.

These include a number of sites located between Benoni, Brakpan and Springs to the east. The redevelopment of these sites after reclamation/rehabilitation will be subject to the findings and recommendations of the Radon and Geotechnical Reports for each specific site. (Refer to **Annexure B1.5** for more detail).

Preliminary investigations show that most of these sites will be suitable for redevelopment, and the RSDF will indicate the “most appropriate” use (vision) for each of these land parcels from a spatial planning point of view. However,

the findings from the Radon and Geotechnical Reports will finally dictate the land uses to be developed on these sites.

The development of rehabilitated mining land has moved on and there are advances in technology and interventions to address any problems. In addition, different types of land uses are also used to address particular issues.

Of particular importance in this regard is the fact that, in line with the CoE Green City Action Plan, it is recommended that marginal mining land (e.g. shallow undermined) be prioritised to be utilized for development of solar farms in future. (Refer to **Annexure B1.8** for more guidelines in this regard).

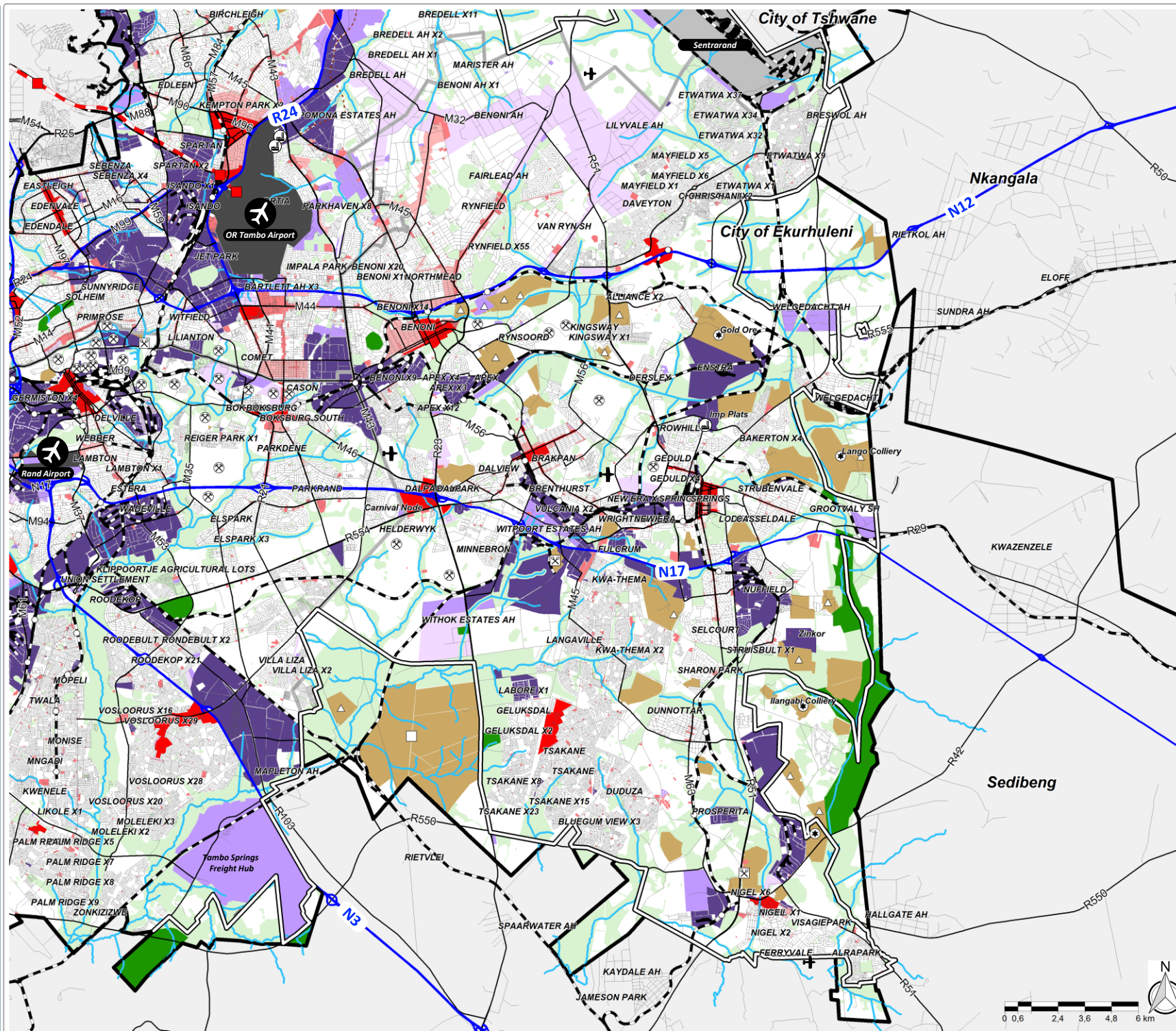
It should also be noted that several mine dumps/mining areas indicated on Figure 18.4.5 have no symbol assigned to it, which means that these are likely to remain a “mining” feature in the urban fabric of the Eastern Region in the foreseeable future.

Action 4.5: Facilitate establishment of a range of Tourism Activities based on the key characteristics of the potential functional tourism areas within the Region.

In areas surrounding the Eastern Region there are a number of renowned tourism attractions like the Vaal Dam, Suikerbosrand Nature Reserve and Heidelberg Town (Cultural Historic) to the south.

There are, however, no distinct tourism destinations located within the Region, but there is potential to be exploited in the following regard:

- ❖ **Eco Tourism** around Blesbokspruit RAMSAR site to the east;
- ❖ **Cultural Tourism** (Struggle Related) in the various former township areas which can also make a significant contribution to the Township Economy in Daveyton-Etwatwa, Actonville-Wattville and Kwatsuduzwa;
- ❖ **Mining Tourism** around old mining villages/ shafts/ workshops;



EASTERN REGION MINING

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations (Transit Orientated Development)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrarrand Intermodal Terminal
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- Mining Areas
- Active Mining
- Quarry / Brickworks
- Reclamation Plant
- Reclamation (Potential Future Redevelopment)
- Mega Tailings Dam
- SEZ/IDZ

- ❖ Event Tourism, e.g. annual expos or sports events like cycle races, marathons, etc.; and
- ❖ Adventure Tourism, e.g. cycling/ hiking routes in former mining areas and/or within the Regional Open Space System.

Action 4.6: Utilise Precision Farming to minimise the impact of agriculture on natural resources and to improve Urban Agriculture/Food Security.

In the north-eastern (Welgedacht) and southern extents of the Eastern Region there are several smaller land parcels still being utilized for agricultural purposes, including some incidences of subsistence farming (refer to Figure 18.4.6).

There is no reason why small-scale agricultural activity/subsistence farming cannot continue to exist within the urban fabric of the Eastern Region as it often serves as the only means of income/food security to a family, and it can make a contribution to the broader Township Economy (refer to **Annexure B4.5: Diagram B4.5.1**).

Through processes of Precision Farming small scale farmers and subsistence farmers can significantly increase their yield to make farming more financially viable and sustainable on a relatively small piece of land. (Refer to **Annexure B4.5: Diagram B4.5.2 and Diagram B4.5.3**).

This could be addressed as part of the more comprehensive Local Economic Development (LED) Strategy of the CoE and these subsistence/small scale farming precincts could be earmarked as Farmer Production Support Units to be incorporated into the Agri Park initiative of the Department of Agriculture.

NOTE: There are several areas comprising high potential agricultural land and/or Protected Agricultural Land located within the CoE Urban Development Boundary, and which is earmarked for future urban development. These cases need to be dealt with individually between the CoE and National Department of Agriculture in future. (Refer to Annexure B1.4.2 for more detail in this regard).

4.3.5 Sustainable Human Settlement

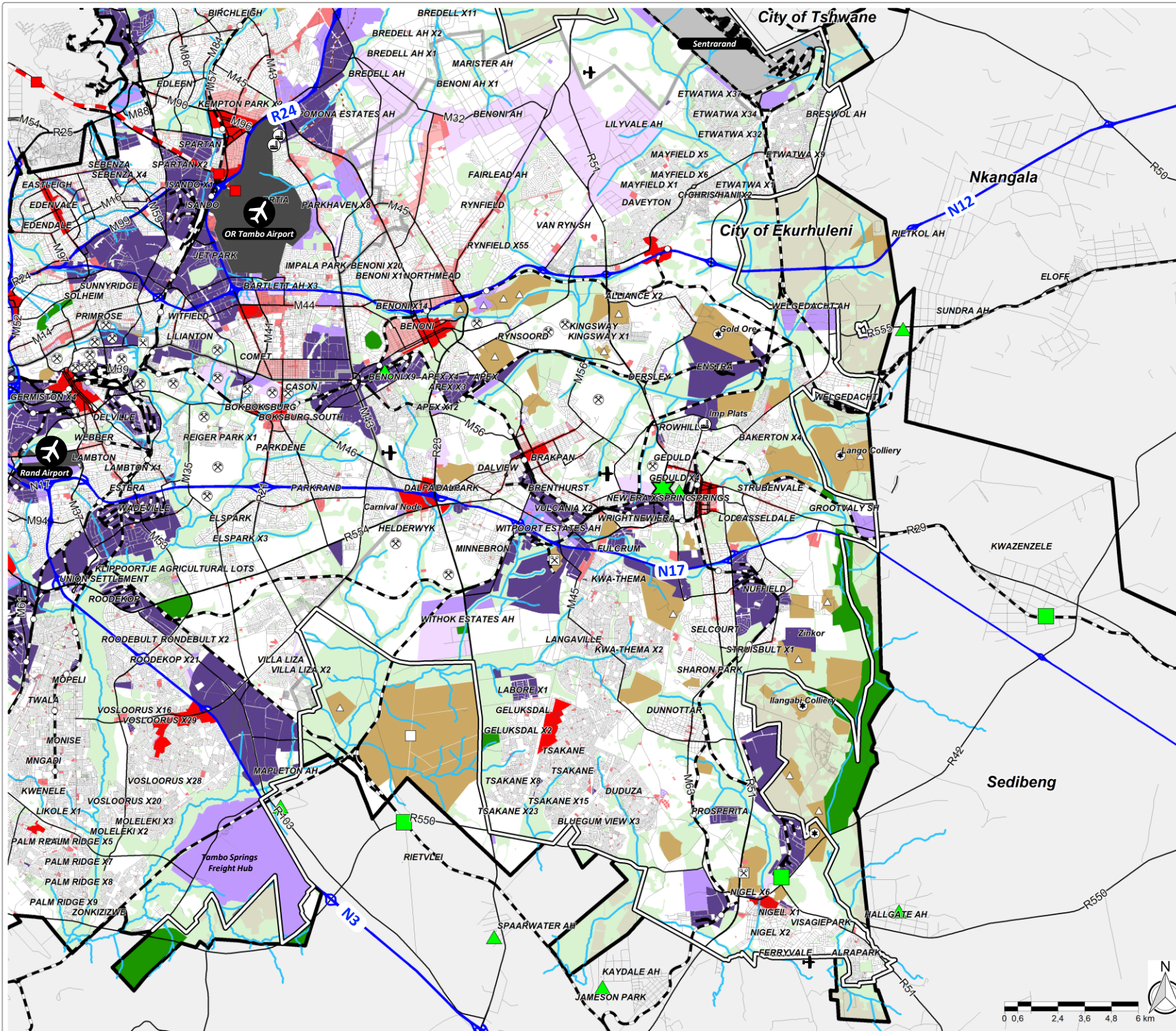
Action 5.1: Actively promote development aligned to Smart Growth Principles in all residential neighbourhoods.

Figure 18.5.1 indicates in yellow all areas earmarked for human settlement purposes in the Eastern Region. These include existing residential areas (yellow, with cadastral backdrop); and the remaining vacant land within the urban fabric and up to the urban development boundary which has been earmarked for future residential development (see yellow with no cadastral backdrop on Figure 18.5.1).

As a point of departure, the following Smart Growth Principles should be applied in all residential areas/ neighbourhoods within the Region (refer to **Info Box 10**):

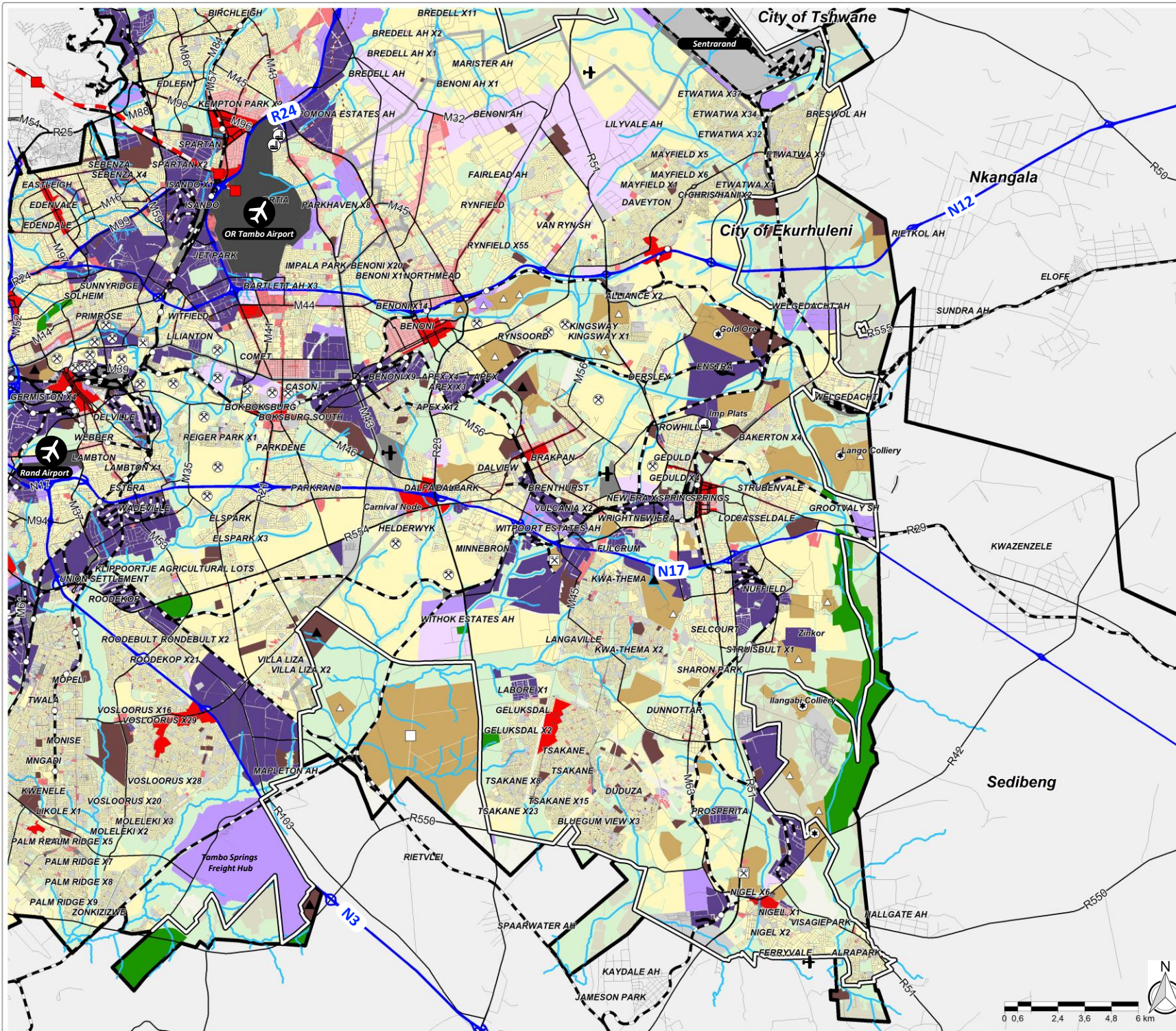
INFO BOX 10: Smart Growth Principles for Residential Neighbourhoods

- ❖ Create well-designed, compact neighbourhoods where the different activities are in close proximity to each other.
- ❖ Provide a variety of transportation choices, including private, public and non-motorised transport opportunities that are safe.
- ❖ Create a variety of housing opportunities, i.e., in terms of typology, density, tenure and affordability.
- ❖ Provide a comprehensive range of community facilities/ amenities at strategic locations and combine it with lower order convenience shopping/retail within the neighbourhood.

EASTERN REGION
AGRICULTURE

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations (TOD)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrarand Intermodal Terminal
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- Mining Areas
- Active Mining
- Quarry / Brickworks
- Reclamation Plant
- Reclamation
- Mega Tailings Dam
- SEZ/IDZ
- Agriculture
- Abattoirs
- Silos
- Fresh Produce Markets



EASTERN REGION HUMAN SETTLEMENT

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations (TOD)
- Gautrain Railway
- Gautrain Stations
- Airport
- Airport Footprint
- Airfield
- Sentrand Intermodal Terminal
- Landfill Site
- Residential
- Community Facility/Social Service
- Public Service/Landfill/Cemetery
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- Agriculture
- Mining Areas
- Active Mining
- Quarry / Brickworks
- Reclamation Plant
- Reclamation
- Mega Tailings Dam
- SEZ/IDZ

INFO BOX 10: Smart Growth Principles for Residential Neighbourhoods

- ❖ Consolidate the higher order business uses and higher order community facilities at strategically located Primary or Secondary Activity Nodes serving the broader community /region (various neighbourhoods combined).
- ❖ Encourage continuous growth in existing communities/neighbourhoods through infrastructure upgrade, urban renewal and densification.
- ❖ Utilise smarter and cheaper infrastructure and green buildings and promote renewable and sustainable technologies.
- ❖ Preserve natural beauty and environmentally sensitive areas and devise ways to utilize these as active public spaces with walking/cycling routes, picnic spots, park runs, etc. (rather than passive open space which usually become neglected).
- ❖ Protect and enhance small agricultural land parcels and secure these as a productive land base for food security, employment, etc. (urban agriculture).
- ❖ Foster a unique neighbourhood identity, building on the diverse characteristics of each community.
- ❖ Engage citizens to participate in community life and decision-making and to take ownership of their respective neighbourhoods.

Generally, the focus should be on maintaining the quality of life and the residential character of the residential areas as best as possible. With the system of activity nodes and activity spines in place, there should be no reason to allow illegal land uses that normally have a detrimental effect on a residential surrounding.

Peripheral development of low density, low income housing should be avoided. In this regard integrated housing development should be pursued as should opportunities afforded in previously considered derelict land such as the mining belt (refer to yellow (Residential) areas on Figure 18.5.1 with “Reclamation” symbol superimposed).

In **low income areas**, new housing projects should be located on land that is accessible and in contact with economic and social facilities. Focus should be on the following:

- ❖ Activity nodes within the low income areas must be carefully planned in order to optimize the formal and informal township economy.
- ❖ Provision of social and municipal infrastructure and community facilities, and the aesthetic upgrading and development of parks and public spaces.
- ❖ Informal settlements are to be upgraded, formalised, or relocated as per the plans and strategies of the CoE Human Settlement Department.
- ❖ Residential densities should be directed to support secondary and tertiary activity nodes and public transport corridors, without over-utilising existing service infrastructure.

In **medium and high income areas**, focus should be on the following:

- ❖ Maintenance of the existing infrastructure and public facilities.
- ❖ Residential densities should be directed to support secondary and tertiary activity nodes and corridors without over-utilising existing service infrastructure.

Action 5.2: Ensure that areas earmarked as Residential are developed with supporting land uses based on the Land Use Budget Concept.

The “Residential” areas illustrated on Figure 18.5.1 are all primarily earmarked for residential use (houses). However, these areas should be developed to also include the supporting land-uses required for sustainable human settlement development (i.e. limited retail and office development, a range of community facilities, roads and other public services, etc.).

This is based on the “Land Use Budget Concept” as illustrated in **Table 21** with the following to be noted:

- ❖ For any specific area earmarked for residential use there is an estimated number of residential units to be provided at a specific nett residential density.

- ❖ These residential units will accommodate an estimated population (based on an estimated average household size). This population will also represent a specific income profile comprising different income categories (high, middle and/or low).
- ❖ From this estimated population number and income profile an amount of floor area for retail and office use should be provided to serve the population locally.
- ❖ Part of this required retail and office space is to be catered for in the surrounding primary and secondary nodes serving the broader region/community, while the remaining retail and office space is to be provided in local third order nodes and/or in convenience node(s)/corner shop(s) located within the specific residential area.
- ❖ Similarly, this population (residents) need to be served with a range of higher and lower order community facilities, based on certain population ratios per facility as depicted in Table 21.
- ❖ The higher order community facilities are normally/ideally allocated to the nearest higher order activity nodes (Primary and Secondary Nodes) in surrounding areas, while lower order community facilities are generally provided in/around the lower order activity nodes (Tertiary Nodes) or within the residential fabric, e.g. children's playgrounds, primary schools, creches, etc.
- ❖ In addition to the above, provision also needs to be made for open space, recreational parks and streets within the residential area.
- ❖ The total development comprising the residential use, economic activity, as well as community facilities, open space and streets represent a "sustainable human settlement".

Table 21: Residential Land Use Budget Concept

Facilities	CSIR GUIDELINES for Metropolitan Cities/Regions (1 000 000+)		
	AVERAGE THRESHOLD	AREA PER FACILITY	PROVISION CRITERIA
Number of Units			
Nett residential Density			
Population (High-, Middle- and Low Income)			
Business (m²)			
Small Free standing & Local retail centre (floor area in m ²)			Total Retail/Office space (m ² /income group) calculated per type of Centre
Contribution to Neighbourhood retail centre (floor area in m ²)			
Contribution to Community retail centre (floor area in m ²)			
Contribution to retail Town Centre (floor area in m ²)			
Offices (floor area in m²)			
Education			
Small Crèche	1/2 400 population	200m ²	Compulsory
ECD Hub and Care Centre	1/20 000 population	1000m ²	Compulsory
Primary (including Grade R)	1/7000 population	2.8ha	Compulsory
Secondary	1/12 500 population	4.8 ha	Compulsory
Special Education	*1/400 000 population	4.8 ha	Recommended
Tertiary/ Skills Training	*1/400 000 population	1ha	Compulsory
University/Technology	*1/1 000 000 population	8ha	Discretionary
Health Services			
Primary Health Clinic	1/24 000 population	2 000 m ²	Compulsory
Community Health Centre	*1/100 000 population	1.5ha	Compulsory
District Hospital L1	*1/300 000 population	Up to 5ha	Compulsory
Regional Hospital L2	*1/1 770 000 population	Up to 7ha	Compulsory
Safety and Security			
Police	*1/60 000 population	1 000 m ² to 1 ha	Compulsory
Fire Station	*1/60 000 population	3 000 m ²	Compulsory
Cultural/Civic/Social			
Local Library	1/20 000 population	500m ²	Compulsory
Regional Library	*1/200 000 population	2ha	Compulsory
Regional Library - Reference	*1/450 000 population	3ha	Compulsory
Thusong Centre	*1/400 000 population	2 000 m ² - 1ha for full range of facilities	Compulsory
Municipal Office	*1/400 000 population	2 000 m ² - 1ha for full range of facilities	Compulsory
Major Public Event Venue	*1/1 000 000 population	2 to 4ha	Compulsory
Worship Centre	1/3 000 population	1 500 m ²	Compulsory
Post Office/ICT Access Point	1/10 000 population	300m ² (+ add 200m ² for ICT)	Compulsory
Community Hall (medium/small)	1/10 000 population	2 000 m ² - 5000m ²	Discretionary
Community Hall (large)	*1/60 000 population	2 000 m ² - 5000m ²	Compulsory
Cemetery (large)	**1/100 000 population	17,2ha	Compulsory
Crematorium	**1/200 000 population	2 000 m ²	Compulsory
Sports and Recreation			
Sports Stadiums/Halls/Complex	*0.3ha/1 000 population		Compulsory
Sports Facilities	0.5ha/1 000 population		Compulsory
Parks	0.5ha/1 000 population		Compulsory
Streets			
TOTAL			
Gross Density			

* Higher Order Facilities to be considered at nearby/closest Primary-, or Secondary Nodes.

** Planned at Metropolitan scale

Hence, all areas earmarked as "Residential" on Figure 18.5.1 should, by implication, comprise a range of land uses and facilities as depicted in Table 21. This in support of the objective to establish sustainable human settlements in the CoE as referred to in Strategic Objective 5 above.

Action 5.3: Identify sufficient land to accommodate the projected need for residential development in the CoE up to the year 2040.

(i) Land Demand:

As noted in Table 11 in this report the CoE Growth Management Strategy (GMS) estimated that approximately 29 999 ha of vacant land would be required to accommodate the projected incremental land use demand in the CoE up to the year 2040.

It allocated about 5 125 ha of this land for industrial development and the remaining 24 806 ha for residential development (including business use, public spaces, community facilities and roads, etc.).

It also concluded that there was sufficient developable, vacant land available within the CoE Urban Development Boundary (2015) to accommodate the above.

(ii) Land Supply:

Figure 18.5.2 shows all the vacant land identified within the CoE Urban Development Boundary (including the Eastern Region) that could be considered for future residential development.

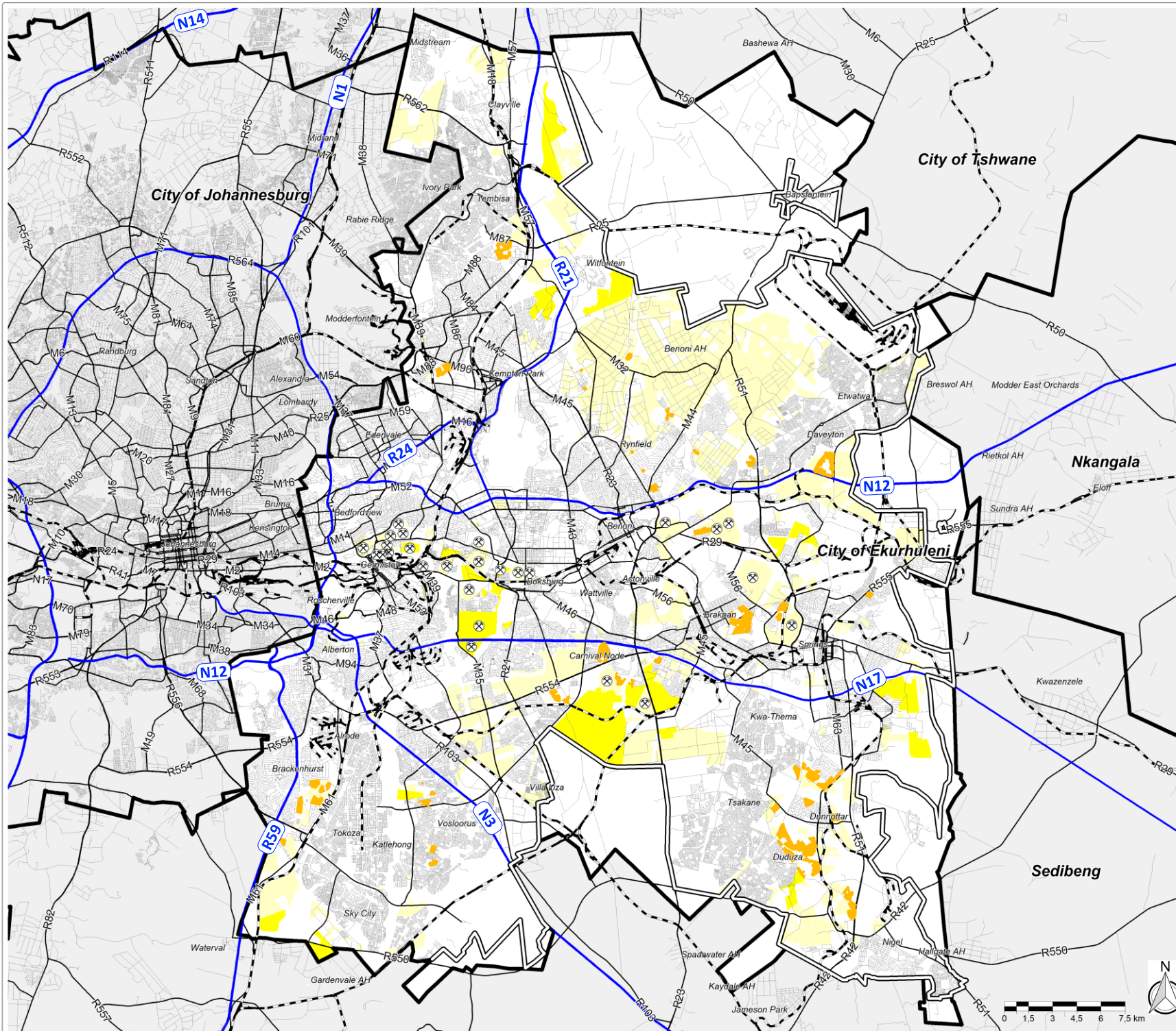
Table 22 highlights the development potential of the identified land based on two density scenarios. It is briefly summarized as follow:

- ❖ There is a total of about 28 879 ha of vacant land within the Urban Development Boundary which is to the same order as the 29 999 ha identified in the GMS.
- ❖ Furthermore, about 24 662 ha of the 28 879 ha is deemed to be suitable for residential development (excluding regional open space areas, higher order road reserves, etc.), compared to 24 806 ha identified in the Growth Management Strategy.

Table 22: Development Potential of the Land Identified for Residential Use (2022-2040)

SDF 2025: Projected Household Increment (2022-2040): 906 539 units						
Categories of Available Land	Households	%	Residential Area (ha)	Nett Residential Density (du/ha)	Total Developable Area (ha)	Total Land Identified (ha)
Development Scenario 1 (at 55du/ha)						
Vacant Erven in Existing Townships	41,279	6%	725	57	983	983
Townships in Process	105,969	15%	1,915	55	4,036	4,036
Vacant Developable Land (at 55du/ha)	562,526	79%	10,238	55	19,643	23,860
Total SDF expected Increment	709,775	100%	12,878	55	24,662	28,879
% of expected increment	78%					
Development Scenario 2 (at 85du/ha)						
Vacant Erven in Existing Townships	41,279	5%	725	57	983	983
Townships in Process	105,969	12%	1,915	55	4,036	4,036
Vacant Developable Land (at 85du/ha)	745,413	84%	8,770	85	19,643	23,860
Total SDF expected Increment	892,662	100%	11,410	78	24,662	28,879
% of expected increment	98%					
GMS Modelling Scenario	488,963		14,527	34	24,806	29,999
% of expected increment	54%					

- ❖ When the land use budget model is applied to the 24 662 ha of developable vacant land, it shows that about 12 878 ha of this land would be available for housing units (Scenario 1). It would comprise the following:
 - About 725 ha of vacant land within existing approved townships (see orange on Figure 18.5.2);
 - About 1 915 ha of land included in new townships for which planning is currently in progress (see bright yellow on Figure 18.5.2); and
 - About 10 238 ha of land located in proposed future residential areas (no planning yet) identified in various parts of the city (see light yellow on Figure 18.5.2).
- ❖ The estimated residential capacity of each of the three vacant land categories noted above (Scenario 1) is as follow:
 - The vacant erven within existing townships (725 ha) holds capacity to accommodate an estimated 41 279 residential units at an average density of 57 units per hectare;



COE MSDF RESIDENTIAL DEVELOPMENT AREAS

LEGEND

- District Municipal Boundaries
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Vacant Erven (Existing Approved Townships)
- Township Layouts (In Process)
- Vacant Land (Future Residential)
- Reclamation

- The townships in process (1 915 ha) collectively comprise a total of 105 969 residential units (actual) at an average density of 55 units per hectare; and
- If the same density (55 units/ha) is applied to the 10 238 ha of vacant developable land it translates to about 562 526 residential units.
- ❖ Scenario 1 shows that, at an average density of 55 units/ha the 24 662 ha of vacant developable land can yield about 709 775 residential units compared to the projected demand of 906 539 units by the year 2040. (Around 78% of demand).
- ❖ Scenario 2 on Table 22 shows that an average density of about 85 units/ha on the vacant, developable land would yield about 892 662 units which represents about 98% of the estimated demand of 906 539 units up to the year 2040.

NOTE: From the above it can be concluded that the vacant, developable land identified for residential use within the urban development boundary (refer to Figure 18.5.2) should be sufficient to accommodate the projected incremental population/households for the CoE up to the year 2040.

This is, however, subject to significant densification and infill development being promoted in the CoE. (Compare Scenario 1 and Scenario 2 as noted above).

(iv) Residential Capacity per Functional Area:

The areas identified for residential development as reflected on Figure 18.5.2 were divided into 24 smaller “functional areas” of which those located in the Eastern Region are illustrated on **Figure 18.5.3**. This in order to analyse and compare in greater detail the additional residential capacity/potential in different parts of the metropolitan area. The potential residential yield (Scenario 1) for each of these 24 functional areas is also depicted on

Figure 18.5.3 from which the following is notable in the context of the Eastern Region.

- ❖ Functional Areas 7, 8, 9 and 10 collectively represent a significant future residential area with a combined capacity of about 146 646 units.
- ❖ Area 12 is a strategic infill area between Daveyton and Springs with an estimated capacity of about 54 313 units.
- ❖ Areas 13 and 14 broadly represent the mining land areas between Benoni, Brakpan and Springs with collective capacity of around 62 858 units.
- ❖ Area 15 is a very important precinct which includes the Helderwyk extensions and Withok Agricultural Holdings with capacity for about 79 670 units, while the Daggafontein precinct to the east (Area 16) holds potential for an estimated 28 718 units.
- ❖ Further to the south between Duduza, Dunnotar and Nigel (Areas 17 and 18) there is potential for around 61 778 units.

(**Annexure B5.3.1** comprises a more comprehensive table reflecting the number of units as well as the estimated population to be accommodated in each of the 24 areas, while **Annexure B5.3.2** also indicates the estimated retail and office floor space to be provided in each of these areas (based on the estimated population)).

(v) Land Supply per Phasing:

Figure 18.5.4 gives a broad indication of the potential phasing of development of the various areas earmarked for future residential development in the Eastern Region. **Table 23** quantifies this information for the short- to medium-term (2025-2035) and for the medium- to longer term (2030-2040) from which the following should be noted:

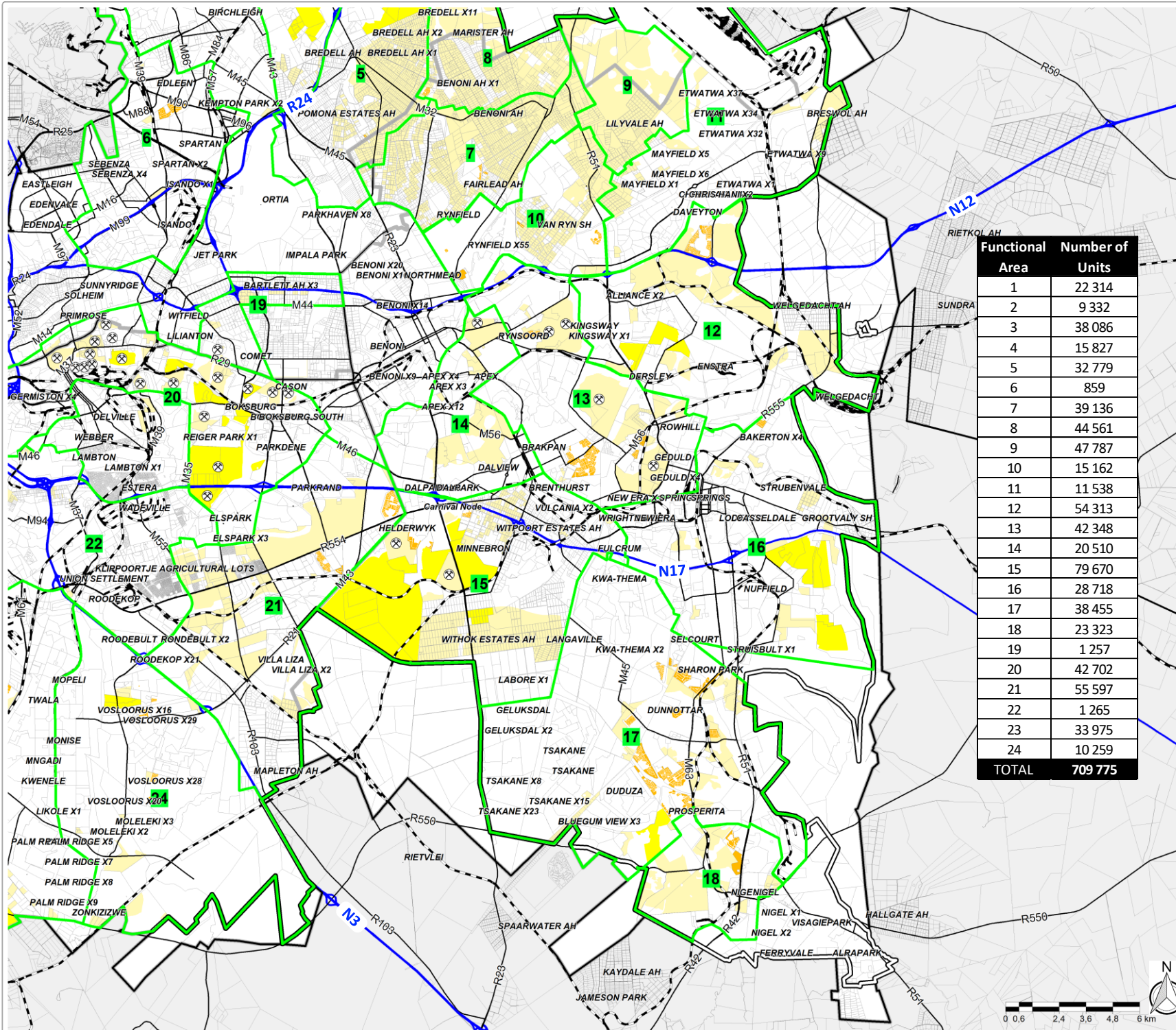
- ❖ There is an estimated 15,338 ha of developable land in the Eastern Region which could yield an estimated 439,905 residential units.

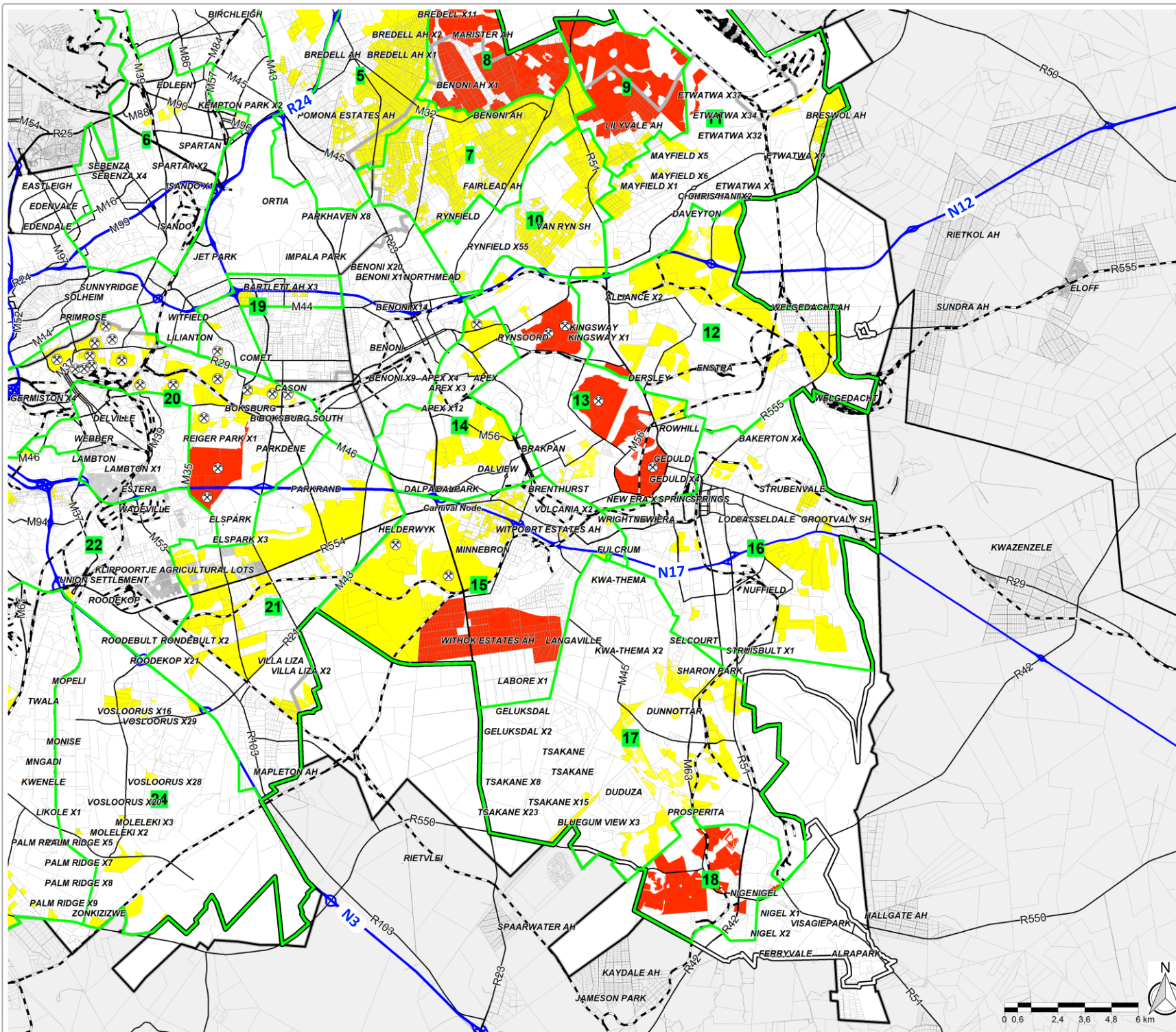
EASTERN REGION RESIDENTIAL DEVELOPMENT CAPACITY

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Vacant Erven (Existing Approved Townships)
- Township Layouts (In Process)
- Vacant Land (Future Residential)
- Functional Areas
- Reclamation

Functional Area	Number of Units
1	22 314
2	9 332
3	38 086
4	15 827
5	32 779
6	859
7	39 136
8	44 561
9	47 787
10	15 162
11	11 538
12	54 313
13	42 348
14	20 510
15	79 670
16	28 718
17	38 455
18	23 323
19	1 257
20	42 702
21	55 597
22	1 265
23	33 975
24	10 259
TOTAL	709 775





EASTERN REGION RESIDENTIAL PRIORITY (TIMEFRAME)

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Vacant Erven (Existing Approved Townships)
- Township Layouts (In Process)
- Vacant Land (Future Residential)
- Functional Areas
- Reclamation

- ❖ For the short- to medium-term (2025-2035) all the vacant erven in existing approved townships and most of the township layouts in process (as depicted in orange and bright yellow on Figure 18.5.2), are included.
- ❖ Collectively, these areas represent about 277,385 residential units (63% of total regional capacity).

Table 23: Eastern Region Priority Development Areas: Expected Incremental Number of Units and Developable Land

	Number of Units	%	Residential Area (ha)	Total Developable Area (ha)
Short to Medium Term Priority (2025-2035)	277,385	63%	5,058	9,620
Medium to Long Term Priority (2030-2040)	162,520	37%	2,998	5,718
Total Eastern Region	439,905	100%	8,056	15,338

- ❖ The land earmarked for development in the medium- to long-term (2030-2040) (see red areas on Figure 18.5.4) is more constrained in one or more of the following ways:
 - Located on the outer perimeter of the urban footprint closest to the urban development boundary;
 - Still subject to longer term mining reclamation and rehabilitation processes; and/or
 - Surrounding areas are further advanced in terms of planning/township establishment processes.
- ❖ The land scheduled for development in the medium- to long-term (2030-2040) comprise capacity for an estimated 162,520 residential units representing about 37% of the total residential development potential within the urban development boundary of the Eastern Region. (Also refer to **Annexure B5.3.5** for more comprehensive information in this regard).

Action 5.4: Apply CoE Densification Guidelines to promote residential densification at appropriate locations within the Eastern Region urban fabric.

As point of departure it should be noted that the CoE Densification Guidelines as defined in this section are aligned to the following objectives as stipulated in the National Development Plan:

- ❖ Urban sprawl should be contained;
- ❖ The urban environment should be densified in order to be more efficient in terms of land usage, infrastructure cost and environmental protection; and
- ❖ New urban development and infrastructure investment should be focused around public transport corridors and around existing and emerging nodes applying principles of transit-oriented development.

The CoE Density Guidelines as applied to the Eastern Region are spatially illustrated on **Figure 18.5.5** and summarised in **Table 24** and **Table 25** (overleaf).

NOTE: The density footprint illustrated on Figure 18.5.5 is merely a conceptual spatial illustration of the application of the density parameters as contained in Table 24 and Table 25. It only applies to areas earmarked for residential use within this density footprint, e.g. it does not apply where the density footprint runs across, for example an industrial area, open space area, road reserve, etc.

The CoE Density Guidelines distinguish between three broad environments in the Region: the Primary Densification Area, the Secondary Densification Area and “Other” areas (refer to Table 24).

EASTERN REGION CoE DENSIFICATION POLICY

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Railway Station

Density Nodes

- Minimum ≥ 60 du/ha
- Up to 120 du/ha
- Up to 85 du/ha
- Up to 60 du/ha
- Subject to motivation

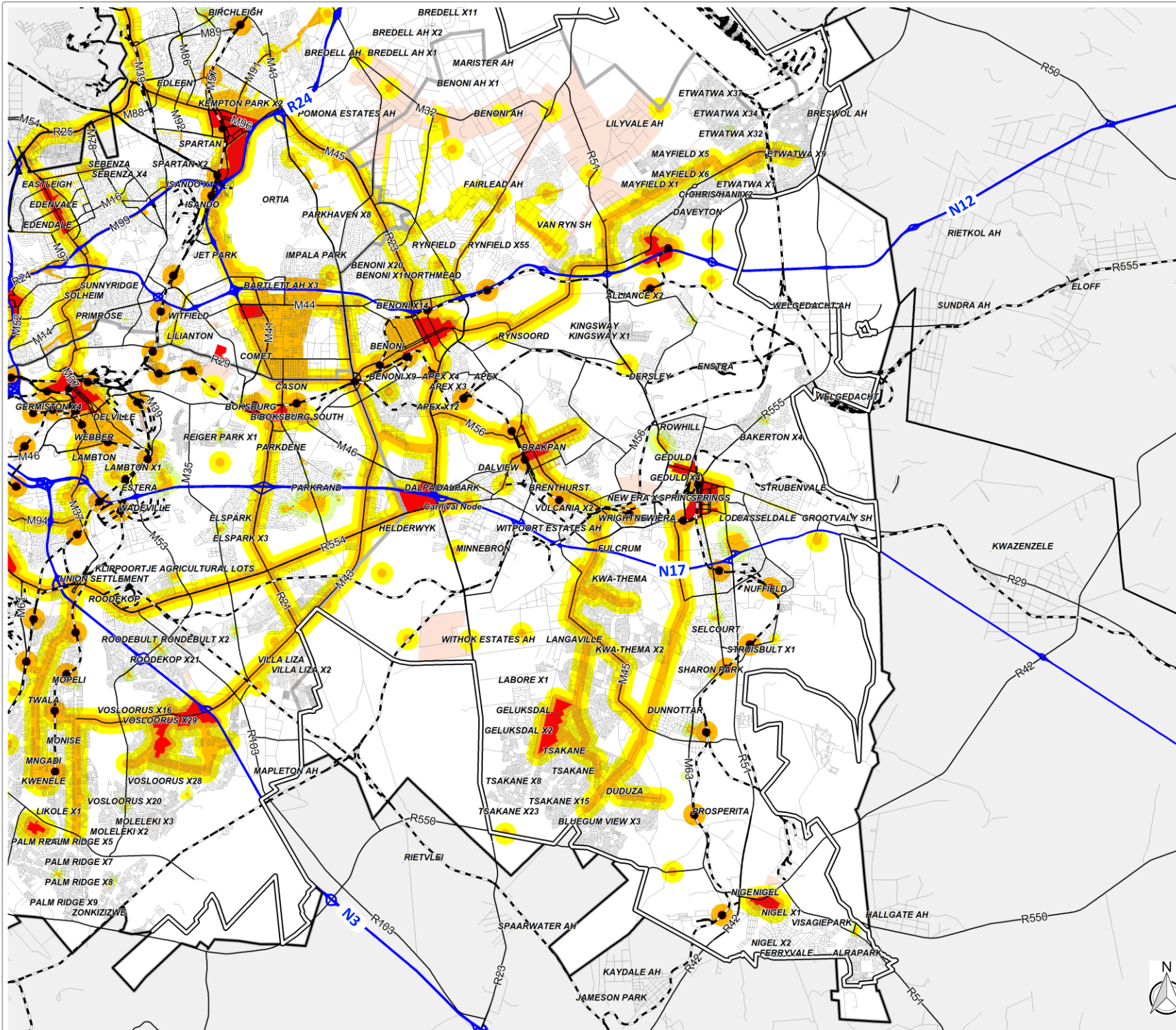


Table 24: CoE Residential Density Guidelines

	Type	Threshold Distance	Density(du/ha) (subject to CELUS max. densities per Use Zone)	Colour Notation on Map
A. Primary Densification Area (Spatial Transformation Agenda)	Primary Node	Within Demarcated Boundary	minimum 60	
	Areas around Primary Node (only applicable where no other higher density is applicable)	0 - 200m*	up to 120	
		200 - 500m*	up to 85	
	Commuter Rail Station	0 - 200m	minimum 60	
		200 - 500m	up to 120	
	Formal Taxi Rank	0 - 200m	up to 120	not indicated
		200 - 500m	up to 85	not indicated
	IPTN Corridors (Road Based)	0 - 200m	up to 120	
		200 - 500m	up to 85	
	Structured IPTN Station	0 - 200m	minimum 60	not indicated
B. Secondary Densification Areas	Mixed Use Strips and Areas (MU B1)	Within Demarcated Overlay	minimum 60	
	Mixed Use Strips and Areas (MU B2),(B2 TEZ)	Within Demarcated Overlay	up to 120	
		Adjoining Properties (outside IPTN corridors)	up to 85	
	Mixed Use Strips and Areas (R&O)	Within Demarcated Overlay	minimum 60	
			up to 120	
			up to 85	
			up to 60	
	Mixed Use Strips and Areas (BLIC)	Within Demarcated Overlay	Subject to site specific motivation	
	Secondary Node (linked to part of Mixed Use Strip)	0 - 200m	up to 120	
		200 - 500m	up to 85	
	Tertiary Node (linked to part of Mixed Use Strip)	0 - 200m	up to 120	
		200 - 500m	up to 85	
	Strategic Densification Areas (SDA)	Linked to Mixed Use Strip or Activity Area/CBD, historic LSDF Proposals	minimum 60	
			up to 120	
C. Other	Secondary Node (Isolated from Mixed Use Strip Areas)	Within Demarcated Overlay	various densities	see overlay
		Within Demarcated Node	up to 120	
		Adjoining Properties	up to 120	
		Up to 200m*	up to 85	
	Tertiary Node (Isolated from Mixed Use Strip Areas)	200m - 500m*	up to 60	
		Within Demarcated Node	up to 120	
		Adjoining Properties	up to 85	
		Up to 200m*	up to 60	
		Subject to Low Density Qualification Criteria (Refer to Table 25)	up to 60	not indicated

General Notes:

All applications subject to CELUS and SPLUM By-Law conditions, e.g. erf sizes with specific reference to Second Dwellings, Subdivisions and Related Approved Policies.

Application of threshold distances to be subject to provisions / exclusions relating to enclosed areas, barriers / buffers that separate an area from structuring element (e.g. node), accessibility to structuring element, etc.

Specific Notes:

* Measured from outer boundary of demarcated nodal area, or in the event that the node has grown beyond the outer boundary demarcated on the map, then measured from the outer boundary of non-residential uses that functionally comprise part of the node (whichever is greater).

Other Notes:

Density provisions are only applicable where the SDF land use proposals or zoning rights allow for residential development.

If historic densities within a demarcated area is higher than newly proposed densities, a motivation for similar densities could be considered.

Table 25: Low Density Residential Zones (outside Table 24 Densification Areas)

• Up to 60 du/ha within 200m radius of a local convenience business node (other than primary-, secondary-, or tertiary node).
• Along higher order mobility routes (outside the threshold distances specified for TOD's, primary-, secondary-, or tertiary nodes), residential densification can be considered on merit, with due regard for considerations such as accessibility, access management, potential impact on transport mobility and potential impact on and interface with other surrounding developments.
• Up to 60 du/ha within 200m radius of a community or social facilities, or functional public park, that serve the general public - application of this guideline must take into account the size/extent of the facility, as well as the extent to which the social facility serves the general public (as opposed to serving just a select group of people, such as a private club, or a place of worship for a specific religious denomination). (Note: Reference in the SDF to a functional public park shall mean an open space, with appropriate dimensions, planned and intended to function legally, practically and safely as a park for use by the general public and that is practically accessible to the general public, from the area under consideration. It does not include "space left over after planning" [SLOAP], or open space emanating from or intended for purposes other than a public park, unless the applicant is able to convincingly and to the satisfaction of the municipality illustrate that an adequate extent [with appropriate dimensions] of such "SLOAP" is practically accessible to the general public [from the area under consideration] and can legally, practically and safely function as a park for use by the general public).
• Up to 60 du/ha directly along an interface where a low-density residential area abuts a significantly higher residential area (applied in a manner that will create a gradual density transition).
• Up to 60 du/ha directly along an interface where a low-density residential area abuts a non - residential area.
• Anywhere else in an existing low density residential area, no portion created by the subdivision of a property for residential purposes may be smaller than 40% of the prevailing size of the surrounding low density residential erven, as determined by the municipality. (This guideline aligns to a similar provision in CELUS and translates to a density increase equal to 2,5 times the ruling net density of the surrounding low density residential areas. In the event that larger sectional title / group housing residential complexes are interspersed with single dwelling house properties, this latter density ratio of 2,5 the ruling net density can be used in applying this densification provision.) Alternatively, a standard base density ratio of 20 dwelling units per hectare (equating to erf sizes of 500m²) can be applied, in which case, the higher density resulting from the above-mentioned two scenarios can be considered favourably.
• In the application of these guidelines, the compatibility and interface with developments on surrounding properties must be taken into account and provisions of CELUS shall apply to height, coverage, FAR, parking and building lines.

i) Primary Densification Area:

- ❖ The Primary Densification Area as depicted on Figure 18.5.5 firstly comprises the footprint of all the Primary Nodes identified in the Region.
- ❖ Furthermore, the Primary Densification Area also includes all the commuter railway stations in the Region (also refer back to Figure 18.3.4), as well as the formal taxi ranks located in the area.
- ❖ It also includes the main IPTN corridors in the Region (refer back to BRT Routes on Figure 18.3.5) as well as Structured IPTN stations along/around which residential densification is to be promoted.
- ❖ Finally, the Primary Densification Area also includes all the Secondary and Tertiary Nodes located along the IPTN corridor network.
- ❖ In all the demarcated Primary Nodes and within 200 meters around commuter railway stations and structured IPTN stations densities of 60 units/ha and higher are applicable. This represents the highest density category in the Region.
- ❖ Along the IPTN corridors and around the Secondary and Tertiary Nodes two density categories apply as illustrated on Table 24 (up to 120 units/ha and up to 85 units/ha).

ii) Secondary Densification Area:

- ❖ The Secondary Densification Areas include all the Mixed Use Strips identified (refer to Figure 18.4.3); the Secondary and Tertiary Nodes linked to the Mixed Use Strips noted above; as well as other prominent Strategic Densification Areas linked to Mixed Use Strips or Activity Areas like CBDs; or identified from historic LSDF proposals which are in process of implementation; as well as “Other Density Specific Areas” as and where these may occur in the metropolitan area, e.g. New Redruth.

iii) Other Densification Areas:

- ❖ The third category (Other) firstly relates to isolated Secondary and Tertiary Activity Nodes (not forming part of the IPTN) and/ or a Mixed Use Strip;

- ❖ Furthermore, it caters for limited densification in low density residential zones within suburbs where the criteria as stipulated in Table 24 would apply.

The principle applied to densification and mixed land uses should be that the quality of residential areas and public and private investment should be protected – also refer to **Annexure B2.4: Evaluating Proposals for Rooms to Let**. In order to maintain and protect the existing quality and amenity in areas earmarked for densification, the maintenance and/or upgrading of engineering services and public facilities (parks, sidewalks, etc.) would be essential.

Action 5.5: Promote the development of a diverse range of Housing Typologies offering multiple choices in terms of affordability, density and tenure options to residents.

In line with the CoE Density Strategy as noted in Action 5.4 above, the Eastern Region should actively pursue strategies to promote medium and higher density residential development for all income groups. This in order to achieve an average density of not lower than 25 units/ha (as a benchmark) in new developments throughout the municipality.

It is important to note that it is possible to develop low-, medium- and high-density housing typologies for low income, middle income and high-income communities as graphically illustrated in **Annexure B5.1**.

In the case of low income, the subsidy scheme only makes provision for single residential full title BNG Units which normally result in low densities (around 20 units/ha). The only medium to higher density subsidised typologies is Community Residential Units (CRU) and Social Housing, both of which only cater for the rental market.

The same principle would apply to middle- and high-income development where medium to high density typologies should be actively promoted, especially around the business nodes and along major public transport routes in the Region as illustrated on Figure 18.5.5).

Action 5.6: Direct government subsidised housing programmes towards designated Priority Human Settlement Housing Development Areas and Restructuring Zones (Statutory Priority Areas).

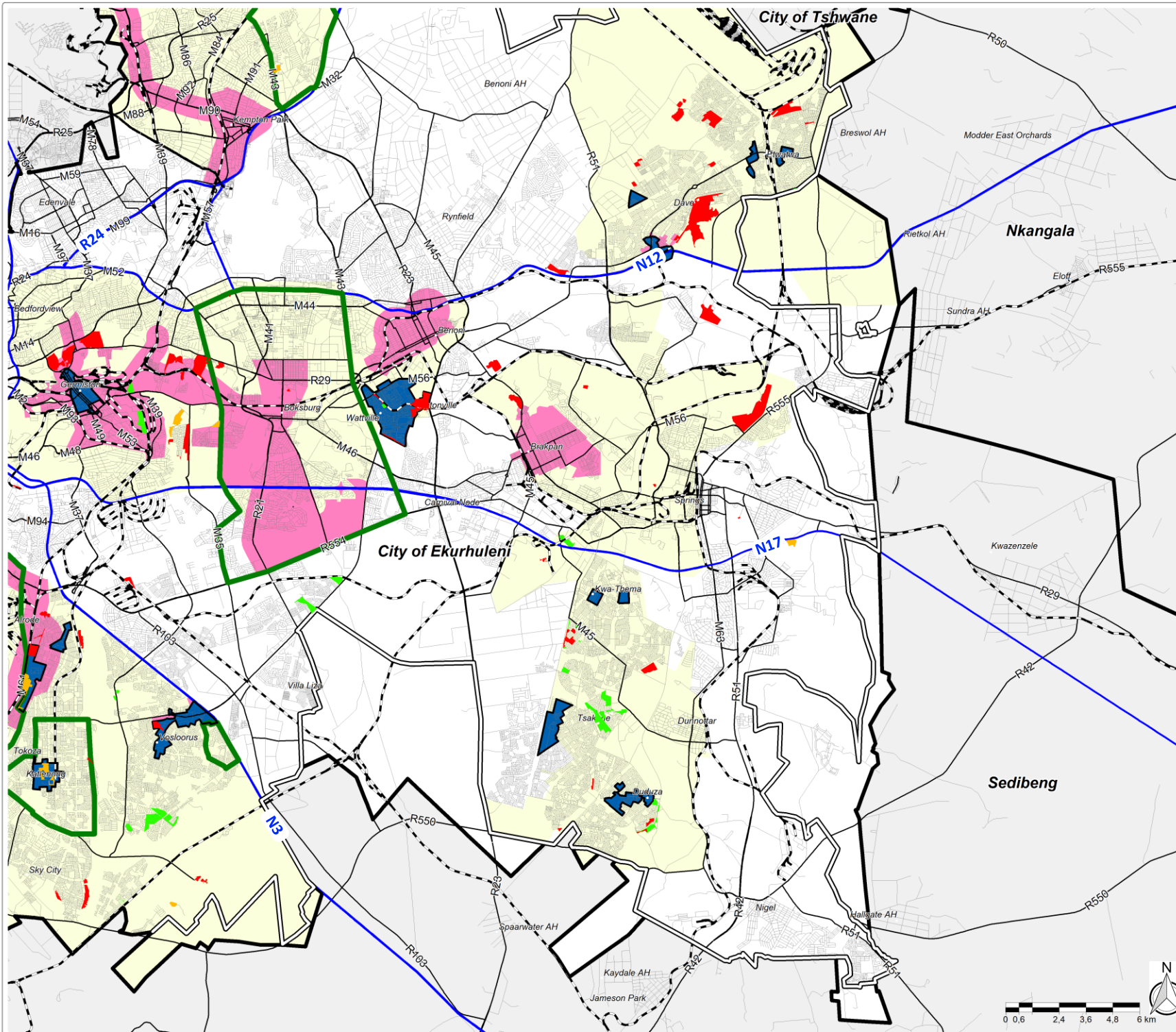
As a principle, the bulk of subsidized housing should be developed within the areas identified in the Eastern Region where opportunities for sustainable livelihoods are significantly enhanced.

These include the following areas as illustrated on **Figure 18.5.6**:

- ❖ Priority Human Settlement Housing Development Areas (PHSHDAs) identified and Gazetted by Gauteng Department of Human Settlements and the Housing Development Agency (HDA) (see yellow precincts).
- ❖ Priority Housing Development Areas (PHDAs) which represent priority areas identified by the CoE Department of Human Settlement (see pink areas on Figure 18.5.6).
- ❖ Restructuring Zones (2016) approved by Council for prioritization of Social Housing (see green lines on Figure 18.5.6).
- ❖ Township Regeneration Areas identified for funding from the Neighbourhood Development Partnership Grant (NDPG) and which are also considered to be Restructuring Zones as contemplated in the Social Housing Act (see blue areas on Figure 18.5.6).
- ❖ The existing Township Regeneration Areas could also be prioritized to be declared as Township Enterprise Precincts as provided for in the Gauteng Township Economy Development Act.
- ❖ Also notable from Figure 18.5.6 is the fact that several prominent human settlement project areas as illustrated on **Figure 18.5.7** do not form part of the Statutory Priority Areas, e.g. Helderwyk extensions, Daggafontein, broader Dersley-Alliance area, etc. This may require an amendment to the boundaries of the Priority Housing Development Areas in future. (This matter is addressed in the MSDF Implementation Plan).

The following housing programmes should be favoured in the Priority Housing Development Areas located in the Eastern Region.

- ❖ **Land Acquisition** with a focus on acquiring land located within Priority Housing Development Areas;
- ❖ **Integrated Human Settlement (IRDP)** projects on land suitable for mixed income development, including GAP market housing and rental stock.
- ❖ **Upgrading of Informal Settlements (UISP)** (in-situ) in areas where the location of an existing informal settlement complies with the principles of spatial justice, sustainability and efficiency and/or these settlements are located within the existing urban footprint or an identified Priority Housing Development Area.
- ❖ **Social Housing (SH) and Community Residential Units (CRU)** close to economic activity areas like Public Transport Corridors (Integration Zones); Township Regeneration Areas/Hubs in line with the Neighbourhood Development Partnership Grant (NDPG); within Central Business Districts, and in areas earmarked for urban renewal (Restructuring Zones for Social Housing Grant).
- ❖ **Inclusionary Housing** projects driven by the private sector, and which comprise both bonded and subsidised housing, and which caters for full ownership and rental stock.
- ❖ **Small Scale Rental** providing support for backyard rental development.
- ❖ **Transitional Emergency Housing** providing for interim shelter following natural disaster, e.g. flooding or settlement on shallow undermining/sinkholes, etc.



EASTERN REGION STATUTORY PRIORITY AREAS

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Gauteng PSHDAs
- CoE PHDAs
- Restructuring Zones (pre 2016)
(Township Regeneration Areas)
- Restructuring Zones (2016)

Informal Settlement Category

- A; A&C
- B1; B1&C; B1/C
- B2; C

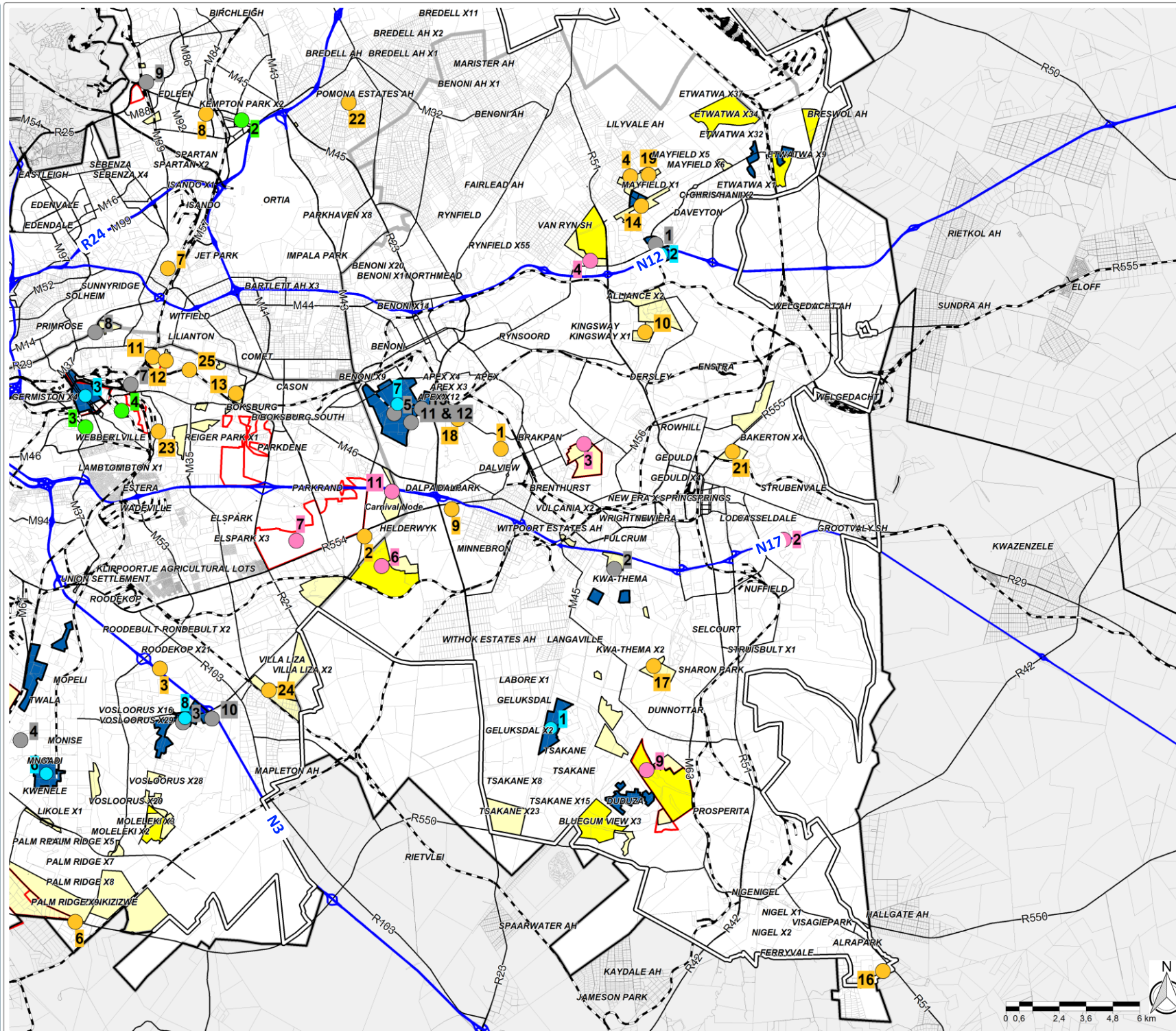
0 0,6 2,4 3,6 4,8 6 km



EASTERN REGION CURRENT HUMAN SETTLEMENT PROJECTS

LEGEND

- District Municipalities
- Urban Development Boundary
- National Roads
- Provincial Roads
- Railway Network
- Township Regeneration Area
- Served Stands and Bulk Services
- Hostels and BNG Walkups
- Social Housing
- Mega Housing Projects
- Urban Renewal Projects
- HS Mega Project Areas
- HS Other Project Areas
- GDOHS Priority Areas
- Mega Housing Projects (Conceptual)
- Daggafontein ±15 511 units
- John Dube ±10 265 units



Action 5.7: Actively work towards formalizing informal settlements in situ where feasible) and put measures in place to address informal settlements located in hazardous areas.

Figure 18.5.6 also shows the location and status of informal settlements located in the Eastern Region.

(i) In-Situ Formalization:

There are a number of informal settlements (Transitional Settlements) earmarked for in-situ formalization in the Region. (Refer to **Annexure B5.4.1** for a more comprehensive summary of the status of these).

These informal settlements are indicated in green and orange on Figure 18.5.6 and are earmarked for in-situ formalization which entails the following process (also refer to **Diagram 12**).

Phase 1 comprises an Assessment of the informal settlement from which it is Categorized. If it is categorized as a Category B1 informal settlement it means that it can be formalized in-situ. Hence, an Upgrading Plan is then completed for the settlement.

Phase 2 entails the provision of Interim Basic Services for the settlement.

Phase 3 includes a formal Township Establishment (based on the blueprint of the Phase 1 Upgrading Plan), as well as the associated provision of Engineering Services (serviced stands).

Phase 4 relates to the construction of Top Structures and finally Tenure Upgrading (transfer of property in owner's name).

Important to note from the above is that if an informal settlement has been classified to be upgraded in-situ, then the intention is to eventually establish and proclaim a formal township and to provide full services to such area (see Level 3 on Diagram 12).

Hence, this settlement will become a permanent feature of the local urban environment and needs to be included in planning for bulk engineering services and community facilities.

(ii) Relocation Strategy:

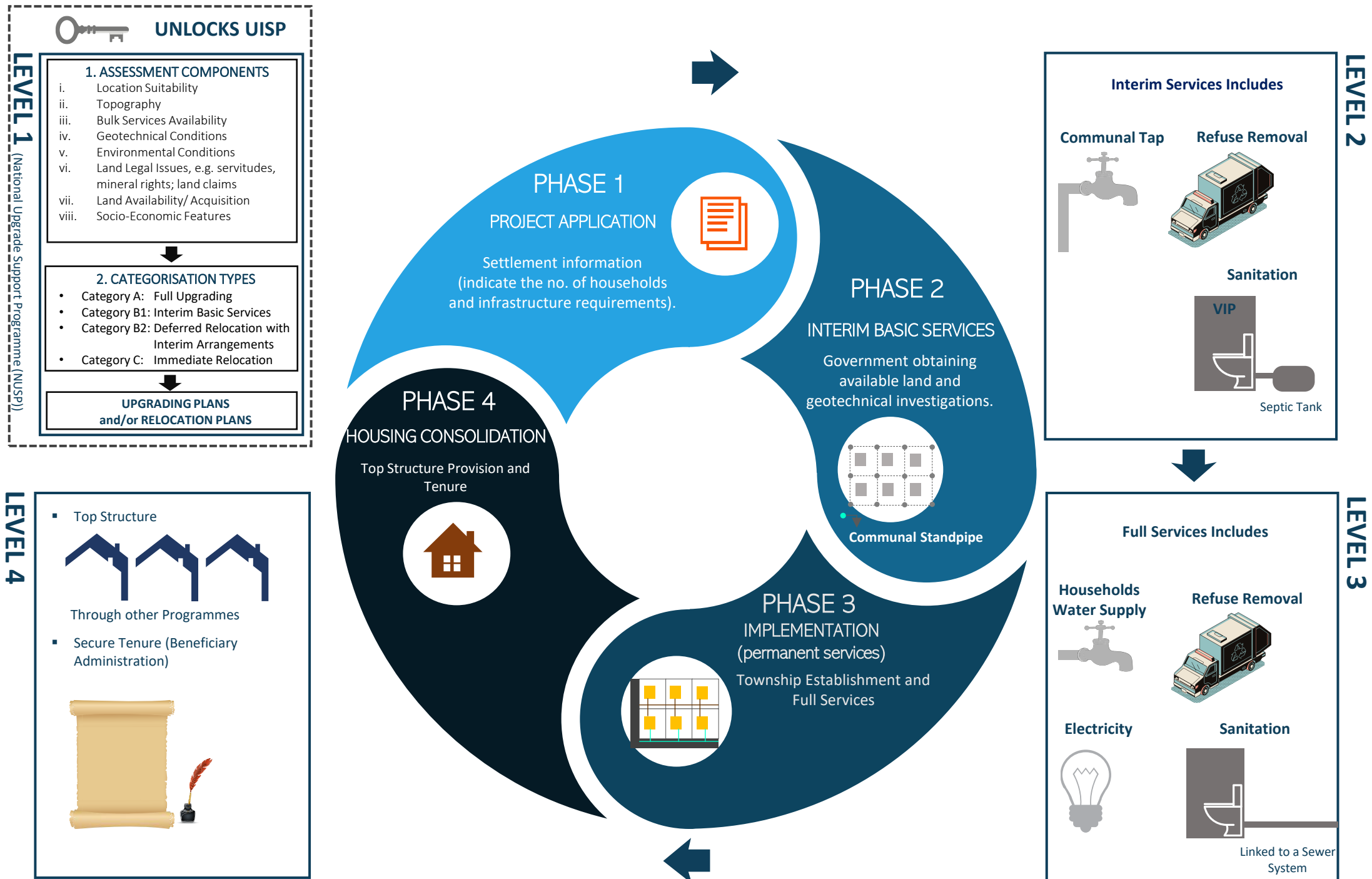
A matter of concern is the informal settlements earmarked for relocation (indicated in red on Figure 18.5.6). In many instances these settlements are located on shallow undermined/dolomitic land, or below the floodlines of rivers/streams. All these settlements are intended to be accommodated in existing housing projects in accordance with the latest CoE Informal Settlement Relocation/Formalization Strategy as included in **Annexure B5.4.2**. (Refer to Section 3.6.2.3 in this report for more detail on the location and magnitude of the housing projects listed in the Relocation Strategy referred to above).

Action 5.8: Continuously facilitate and monitor the provision of the full range of community facilities in all parts of the Eastern Region and prioritize provision of middle and higher order Community Facilities in strategically located Multi-Functional Activity Nodes.

Table 26 indicates that the CoE has a significant backlog in almost all types of community facilities based on the standards provided by the CSIR Guidelines for Metropolitan Cities/Regions. (This Surplus/Deficit for the 2022 Population was discussed as part of the Situational Analysis in Section 3.6.3 in this document).

Table 27 shows the additional community facilities required to serve the incremental population/households projected for the Eastern Region for the period 2022-2040.

(More detailed information for the CoE as a whole is included in **Annexure B5.5.1** which indicates the lower order (Local) Community facilities required to serve the incremental population per functional residential expansion area by



2040; as well as Annexure **B5.5.2** which shows the higher order (Regional) Community facilities required for these areas).

Given the fiscal limitations at municipal and provincial level it is highly unlikely that these deficits will ever be eradicated.

With this in mind it is proposed that the following approach/guidelines be followed in terms of the provision of community facilities in the Eastern Region:

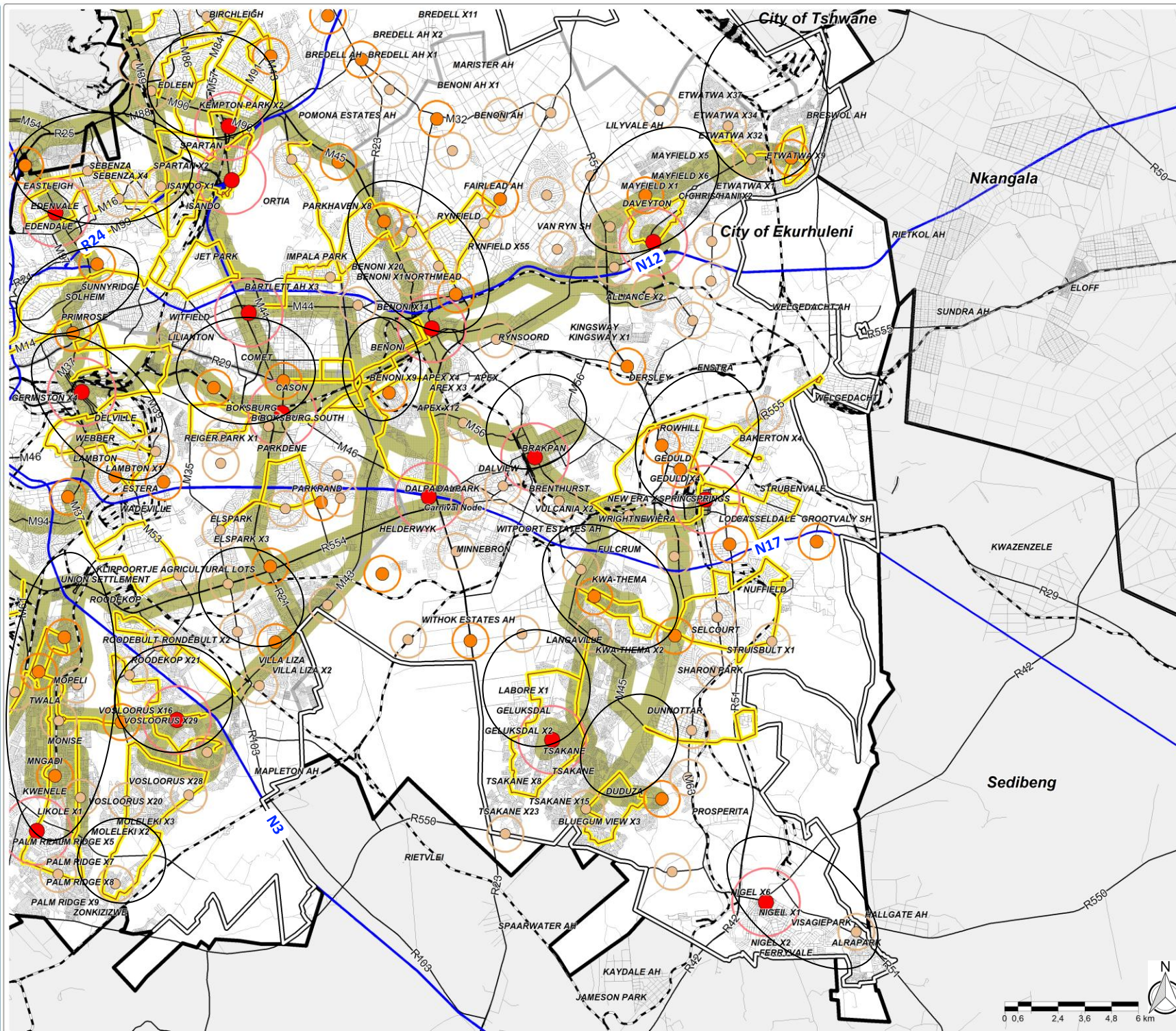
- ❖ **Maintain:** Properly maintain the existing facilities available; and ensure that the services provided in these community facilities are comprehensive and efficient.
- ❖ **Cluster:** Community facilities should be clustered as far as possible. This has the advantages of:
 - Convenience, as many services can be accessed in one trip.
 - Reduction of costs, through the sharing of land, resources and equipment;
 - Encouragement of use, as facilities are more likely to be used when clustered than when isolated; and
 - Greater safety, as facilities are likely to be used over a longer period during the course of a day (day time and night time).

Clustering can also take the form of multi-purpose facility clusters, with a range of services and activities under one roof, or functional clusters, grouping together facilities that are related, such as education, whereby different schools can share sports and library facilities, for instance. (Also refer to **Annexures B5.2.1** and **B5.2.2** for a graphic illustration and examples of these concepts).

Figure 18.5.8 conceptually illustrates the location of existing clusters of community facilities identified in the Eastern Region. (These are derived from Figure 15.1 in this report).

- ❖ **Integrate:** When appropriate, social facilities should be integrated with other land uses, such as business, commercial, etc. within mixed use nodes as it also adds to the “critical mass” required to maintain/enhance business activities in these areas (especially in Township Regeneration Nodes).
- ❖ **Hierarchy:** Consolidate higher order community facilities within/around the identified Primary Activity Nodes in the Eastern Region as these nodes are accessible to the majority of the Regional population via the Integrated Public Transport Network as reflected on Figure 18.5.8. (**Table 28** overleaf shows that these Primary Activity Nodes are generally well served in terms of higher order facilities (and some lower order facilities)).

Supplementary to the above, the secondary and tertiary nodes in the Eastern Region as depicted on Figure 18.5.8 should also be targeted for the provision of community facilities. The secondary and tertiary nodes in the Region are generally served by lower order community facilities although some of these also comprise higher order facilities. (Refer to Table 28).



EASTERN REGION COMMUNITY FACILITIES

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Railway Station
- Primary Node
- Secondary Node
- Tertiary Node
- IPTN (Integration Zone)
- Feeder Routes (Bus/Taxi)
- Existing Clusters of Community Facilities (Refer fig 12.7)

Table 26: CoE: LUB 2022 (comparison of Community Facilities required vs. provided)

Facilities	2022 Population			Population Increment 2022-2040	Total Surplus/Deficit	CSIR GUIDELINES for Metropolitan Cities/Regions (1 000 000+)		
	Requirement	CF Provided	Surplus/Deficit	Additional Requirement		AVERAGE THRESHHOLD	AREA PER FACILITY	PROVISION CRITERIA
	number	number	number	number				
Number of Units	1,421,003			709,775				
Population	4,066,691			2,031,265				
Education		662						
Primary (including Grade R)	581	367	(214)	270	(484)	1/7000 population	2.8ha	Compulsory
Secondary	325	231	(94)	143	(237)	1/12 500 population	4.8 ha	Compulsory
Special Education	10	36	26	4	22	1/400 000 population	4.8 ha	Recommended
Tertiary/ Skills Training	10	22	12	4	8	1/400 000 population	4.8 ha	Compulsory
University/Technology	4	6	2	2	0	1/1 000 000 population	8ha	Discretionary
Health Services		175						
Primary Health Clinic	169	144	(25)	77	(102)	1/24 000 population	2 000 m ²	Compulsory
Community Health Centre	68	7	(61)	16	(77)	1/60 000 population	1.5ha	Compulsory
District Hospital L1	14	1	(13)	5	(18)	1/300 000 population	Up to 5ha	Compulsory
Regional Hospital L2	2	23	21	1	20	1/1 770 000 population	Up to 7ha	Compulsory
Safety and Security		77						
Police	68	44	(24)	28	(52)	1/60 000 population	1 000 m ² to 1 ha	Compulsory
Fire Station	68	33	(35)	28	(63)	1/60 000 population	3 000 m ²	Compulsory
Cultural/Civic/Social		173						
Local Library	203	44	(159)	91	(250)	1/20 000 population	500m ²	Compulsory
Regional Library	20		(20)	8	(28)	1/200 000 population	2ha	Compulsory
Regional Library - Reference	9		(9)	4	(13)	1/450 000 population	3ha	Compulsory
Thusong Centre*	10		(10)	6	(16)	1/400 000 population	2 000 m ² - 1ha for full range of facilities	Compulsory
Municipal Office	10	20	10	4	6	1/400 000 population	2 000 m ² - 1ha for full range of facilities	Compulsory
Cemetery (large)	41	58	17	16	1	1/100 000 population	17,2ha	Compulsory

*Thusong Centre includes Home Affairs Office (Social Grants), Labour Office and functions as a community based "one stop" Development centre

Table 27: CoE: Northern Region LUB: Required Incremental Community Facilities (2022-2040, based on Townships in Process' Community Facilities as well as CSIR Standards applied on Vacant Residential Land

Facilities	Total Increment 2022-2040	CSIR GUIDELINES for Metropolitan Cities/Regions (1 000 000+)		
	Additional Requirement	AVERAGE THRESHHOLD	AREA PER FACILITY	PROVISION CRITERIA
	number			
Number of Units	439,905			
Population	1,258,940			
Education				
Small Crèche	436	1/2 400 population	200m ²	Compulsory
ECD Hub and Care Centre	50	1/20 000 population	1000m ²	Compulsory
Primary (including Grade R)	169	1/7000 population	2.8ha	Compulsory
Secondary	90	1/12 500 population	4.8 ha	Compulsory
Special Education	2	1/400 000 population	4.8 ha	Recommended
Tertiary/ Skills Training	2	1/400 000 population	4.8 ha	Compulsory
University/Technology	1	1/1 000 000 population	8ha	Discretionary
Health Services				
Primary Health Clinic	50	1/24 000 population	2 000 m ²	Compulsory
Community Health Centre	10	1/60 000 population	1.5ha	Compulsory
District Hospital L1	3	1/300 000 population	Up to 5ha	Compulsory
Regional Hospital L2	0.6	1/1 770 000 population	Up to 7ha	Compulsory
Safety and Security				
Police	18	1/60 000 population	1 000 m ² to 1 ha	Compulsory
Fire Station	18	1/60 000 population	3 000 m ²	Compulsory
Cultural/Civic/Social				
Local Library	59	1/20 000 population	500m ²	Compulsory
Regional Library	5	1/200 000 population	2ha	Compulsory
Regional Library - Reference	2	1/450 000 population	3ha	Compulsory
Thusong Centre*	3	1/400 000 population	2 000 m ² - 1ha for full range of facilities	Compulsory
Municipal Office	2	1/400 000 population	2 000 m ² - 1ha for full range of facilities	Compulsory
Major Public Event Venue	1	1/1 000 000 population	3ha	Compulsory
Worship Centre	351	1/3 000 population	1 500 m ²	Compulsory
Post Office/ICT Access Point	107	1/10 000 population	300m ² (+ add 200m ² for ICT)	Compulsory
Community Hall (large)	20	1/60 000 population	2 000 m ² - 5000m ²	Compulsory
Cemetery (large)	10	1/100 000 population	17,2ha	Compulsory
Crematorium	5	1/200 000 population	2 000 m ²	Compulsory

*Thusong Centre includes Home Affairs Office (Social Grants), Labour Office and functions as a community based "one stop" Development centre

Table 28: Eastern Region Nodal Hierarchy Community Facility Matrix

Classification		Status	Administrative Function (Regional)	High Order Community Facilities (Regional)							Lower Order Community Facilities (Local)			
MSDF Node Number	Name	Existing / Future	Civic/Municipal/ CCC	Magistrate Court	Fire Station	Police	Hospital	Regional Government Departments	Tertiary Education	Regional Sport Complex/ Stadium	Library	Clinic	Community Hall	Community Sport Facilities
P12	Daveyton CBD	Existing	•	•	•	•			•	•	•	•	•	•
P13	Benoni CBD	Existing	•	•	•	•	•	•	•	•	•	•	•	•
P14	Carnival City Node	Existing												
P15	Brakpan CBD	Existing	•	•	•	•	•	•	•	•	•	•	•	•
P16	Springs CBD	Existing	•	•	•	•	•	•	•	•	•	•	•	•
P17	Tsakane Community Centre	Existing	•	•	•	•	•			•	•	•	•	
P18	Nigel CBD	Existing	•	•	•	•		•	•	•	•	•	•	
S31	Valkhoogte (K109/K68)	Future												
S32	Rynfield Terrace Shopping Centre Node	Existing										•		
S33	K86/Lurie Street Node	Future										•		
S34	Etwatwa CBD	Existing			•						•	•	•	
S35	Northmead Mall Node	Existing												•
S36	Dersley (K161)	Future												
S37	Actonville/Wattville CBD	Existing				•	•				•	•	•	•
S38	Springgate Shopping Centre	Existing									•			
S39	Geduld Strip (K132)	Existing								•				•
S40	Springs Mall Node	Existing												•
S41	Daggafontein (K181)	Future												
S42	Witpoortjie (PWV 17/PWV 16)	Future												
S43	KwaThema CBD	Existing	•		•					•	•	•	•	
S44	Withok Estates AH Node (K109/K136)	Future												
S45	Shoprite KwaThema	Existing						•						
S46	Duduza CBD	Existing	•		•	•		•		•	•	•	•	
T48	Benoni AH (K68/Mun (3))	Future										•		
T49	Petit (M32/M44) (East of PWV17)	Existing										•		
T50	Lilyvale AH (K68/Mun (3))	Future												
T51	Etwatwa - North Node	Existing										•		
T52	Valkhoogte (K109/Mun (3))	Future												
T53	Etwatwa - West Node	Existing				•						•		•
T54	Putfontein AH (K169/Mun (3))	Future												
T55	Rynfield AH (K86/Mun (3))	Future											•	•
T56	Oakfields Shopping Centre	Existing												
T57	Rynfield Drapers & Outfitters Node	Existing			•									
T58	Daveyton x2	Existing												
T59	Cloverdene Shopping Centre	Existing												
T60	Chris Hani (K173) (North of N-12)	Future												
T61	Northmead Square Node	Existing												•
T62	Daveyton Shoprite Node	Existing											•	•
T63	The Falls/Farramere Shopping Centre Node	Existing							•			•		•
T64	K173/Cloverfield Rd (South of N-12)	Future												
T65	The Conservatory @ Lakefield Node	Existing												•
T66	Enstra (K173/Railway)	Future												
T67	Modder East (K173/K106)	Future												
T68	New Modder (K106/Mun (3))	Future												
T69	Leachville (Mun (3)/Mun (3))	Future												
T70	Bakerton (K175)	Existing											•	•
T71	Dalview Spar Node	Existing												•
T72	Vulcania Station	Existing												
T73	New Era Station	Existing												
T74	Dalpark/Minnebron (K109)	Future												
T75	South of Pollak Park (K161)	Future												
T76	KwaThema Square Node	Existing							•					
T77	South of Dalpark (Mans Str)	Future												
T78	Withok Estates AH (K136)	Future												
T79	Ekhaya Shopping Centre Node	Existing												•
T80	Selcourt Towers Node	Existing												
T81	Struisbult (Vogelstruisbult Rd)	Existing						•						
T82	Sharon Park Shopping Centre Node	Existing												
T83	Langaville/Dunottar Node	Future										•		
T84	Bluegum View (Madiba St/Sam Smith Rd)	Existing												
T85	John Dube Village	Future												
T86	Withok Estates AH (R23)	Future												
T87	North West of Pretoriustad (K150)	Future												
T88	Alra Park x5/Laversburg (R51)	Future												
T90	Helderwyk x11 (K155/K136)	Future												
T91	Dalpark (Springs Rd/Afrikaner St)	Future												

❖ **Location Criteria:** Location of different facilities should consider generic locational criteria, such as:

- Emergency Services should be located on higher-order multifunctional routes that intersect with regional and primary distributors.
- Public facilities that need to be visible and accessible to the greatest number of people, but located in a safe, quiet environment, such as clinics, hospitals and libraries, require easy access to public transport stops and interchanges, but should be located a block or two back from intense activity routes.
- Public facilities that need to be accessible to pedestrians and that need safe and quiet surroundings, such as primary schools, should be located within the residential area within walking distance of the residents' homes.
- Public facilities that need to be as visible and as accessible to pedestrians as possible, such as post offices, should be located within walking distance of the user household on busier road intersections.

Annexure B5.5.4 comprises some supplementary Norms and Standards for different types of community facilities in the CoE/Eastern Region.

Action 5.9: Apply a Vision-Led Urban Design Approach in the metropolitan area and at region level.

A **Vision-Led Approach** is proposed for urban design at a metropolitan and regional level within the City of Ekurhuleni. At the heart of this approach is the central aim of creating places of beauty and distinct identity by drawing together the many strands of 'place-making' – environmental responsibility; social equity; economic viability. The urban design vision should address the social needs of people living and working in the area now and in the future, and create opportunities to contribute to the establishment of sustainable communities.

Of particular concern in relation to the focus areas is the issue of socio-spatial transformation. The urban design approach will need to adequately address in particular the current distorted spatial patterns that exist across the nine historic towns and their outlying dormitory townships, characterized by the following:

- ❖ Spatial separation of rich and poor.
- ❖ Poorly articulated, car dominated public realm.
- ❖ Impermeable interfaces between private and public spaces.
- ❖ Bland, sprawling and internalised built form.
- ❖ Segregation of land uses.
- ❖ Lack of public transport infrastructure.

The following guiding principles (see **Table 29**) are proposed as points of departure to the CoE Urban Design Vision.

Table 29: Guiding Principles of CoE Urban Design Vision

COE URBAN DESIGN VISION	
Accessibility & Legibility	❖ Urban design and architecture should facilitate ease of movement by foot, public transport or private car, and convenient access to a diverse range of amenities. ❖ Pedestrian movement should be prioritised over vehicular movement. Landmarks and the creation of “visual thoroughfares” will aid orientation and make it easy for residents and visitors to find their way around the area. Connections should be made across and between precincts. The historical grid of the city should be reinforced and emphasised.
A Mix of Uses and Forms	❖ A mix of uses and forms will offer an array of choices to suit different needs and lifestyles within a visually engaging environment, creating architectural character. ❖ The location of housing around commercial, transport, entertainment and community amenities will ensure that residents have easy access to the services and opportunities they need to sustain their livelihoods. ❖ Mixing uses also helps to ensure a 24-hour human presence in the area.
A Vibrant and Engaging Public Realm	❖ The public realm should be prioritised as focus and catalyst for development. It is the public realm that holds the key to the alleviation of poverty through the provision of opportunities for exchange of trade, information and social interaction. It is the public realm through which an environment can be built and shaped around the needs of human interaction, bringing people together to share our common humanity, offering a variety of opportunities and choices.
Security by Design	❖ Safety and security should be achieved by design rather than by remedial measure. A 24-hour human presence and the creation of “live street edges”, achieved through careful planning of land use, will create an environment in which residents and occupants can watch over one another.
Synergy with Existing Environment	❖ New development should seek to enhance the existing environment rather than to erase and replace it. Existing natural features such as mature trees should be incorporated into the design of the new environment to aid legibility and diversity of

COE URBAN DESIGN VISION	
	experience. Existing structures and places of heritage significance should be retained and adaptively reused wherever possible.
Heritage as a Progressive Force	❖ Heritage, typically considered a constraint on development, should be considered a progressive force for change, whereby the significance of the past and present can provide cues for the shape of the future. ❖ Development should seek to enhance and develop cultural and historical significance rather than to impact negatively upon it. Sites of historical importance should be incorporated sensitively into the urban design framework.
Tight Street Edges and Short Street Frontages	❖ Tight street edges will define an edge to the public realm and maximise the amount of usable external space created at the rear of buildings. ❖ Short street frontages concentrate human presence along street edges, facilitating a safer public realm.
Robust and Flexible Architecture	❖ Building typologies that will accommodate future changes in use, lifestyle or economic circumstances are imperative. The architecture must be designed to change and grow along with the changing needs of the people that live in, work in or use it.
Integration with Context	❖ Land-use should be planned in such a way that multiple projects complement one another, and precincts are well integrated with one another and with the surrounding city context.
Management of the Investment	❖ For projects to be developable and well cared for they must be economically viable, well managed and maintained. This means understanding the market considerations of developers and investors, ensuring long-term commitment from the community and the local authority, defining appropriate delivery mechanisms and seeing this as part of the design process.

These guiding principles served as points of departure to the formulation of the CoE Urban Design Guidelines as included in **Annexure B5.6** in this report.

Action 5.10 Optimise the job creation potential associated with the proposed residential, industrial and mixed use areas in the Eastern Region.

Table 30 shows the potential number of job opportunities to be derived from the future residential and industrial development in the CoE, and more specifically for the Eastern Region as spatially depicted on **Figure 18.5.9**.

- ❖ In essence, it is estimated that approximately 98 271 job opportunities will be derived from the incremental residential development as depicted in yellow on Figure 18.5.9.
- ❖ This includes 37 515 retail related job opportunities/workers, 4 974 office related opportunities, and 55 782 community workers/job opportunities.
- ❖ **Annexure Table B4.6.1** also indicates in more detail the retail and office floor space associated with the job opportunities noted above.
- ❖ Similarly, the potential increment related to mixed use/industrial development in the Eastern Region as illustrated in different shades of purple on Figure 18.5.9 totals around 165 771 workers/job opportunities.
- ❖ From the above the Mixed Use areas can accommodate around 72 889 workers/job opportunities.
- ❖ The land earmarked for Light Industrial/Commercial translates to an estimated 40 168 job opportunities, while the land earmarked for Industrial could yield about 52 713 workers/job opportunities.
- ❖ **Annexure Table B4.6.2** provides more detail on the estimated incremental industrial and commercial floor space associated with the job opportunities noted above.
- ❖ In conclusion, the total incremental job opportunities (Residential related and Industrial related) derived from the land identified for development in the Eastern Region (Figure 18.5.9) totals around 264 042 job opportunities.

Action 5.11: Confirm the CoE Spatial Transformation Agenda: Urban Network in the Eastern Region.

It is hereby confirmed that the CoE Spatial Transformation Agenda as contemplated in the National Development Plan is incorporated into the Eastern RSDF as illustrated on **Figure 18.5.10**.

It represents the “blueprint” for Spatial Transformation in the CoE in line with the intended Outcome as stipulated in the Integrated Urban Development Framework (IUDF).

In the context of the Eastern Region the CoE Spatial Transformation Agenda applies as follows (refer to Figure 18.5.10).

- ❖ The Integrated Public Transport Network (IPTN) comprises a road and rail network which provides access to all the major areas of economic activity and **job opportunities** in the Region.
- ❖ Furthermore, it serves all the marginalized communities (Township Enterprise Zones) in the Region (Daveyton-Etswatwa, Actonville-Wattville and Kwatsaduza), giving these communities a safe and reliable means of **transport** to the majority of economic activity/job opportunities in the metropolitan area.
- ❖ Where this public transport network extends into the Enterprise Zones, it could act as catalyst to promote **Local Economic Development/ Empowerment** especially around modal transfer facilities like bus/taxi ranks and railway stations which form part of Township Enterprise Precincts (Restructuring Zones).
- ❖ Along these public transport corridors, the CoE seeks to promote **mixed use development** in and around activity nodes, with specific focus on **residential infill development and densification** catering for all income groups (**housing**) along the remaining parts of the network (between nodes).

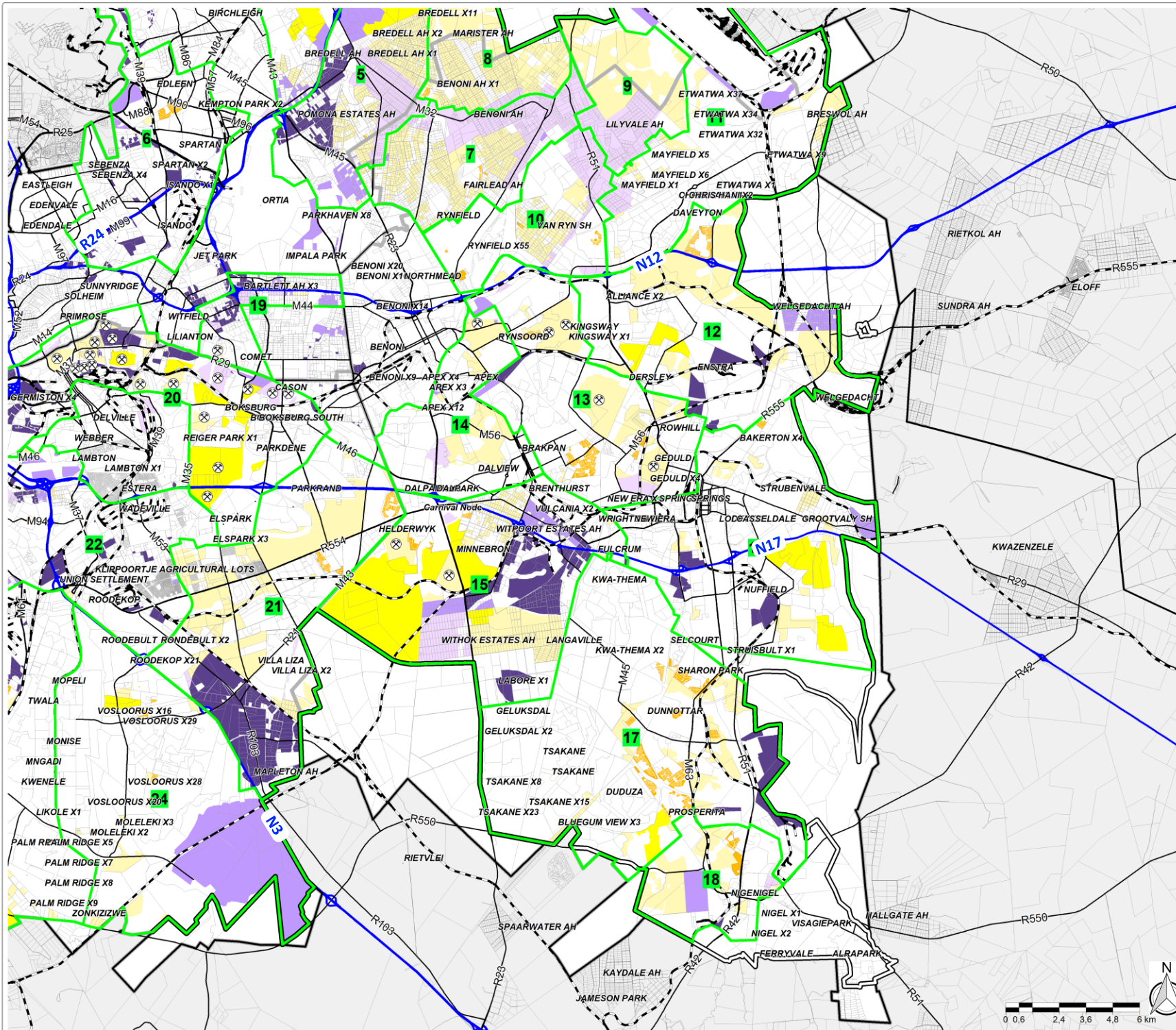
Table 30: Expected Number of Incremental Workers: Residential Related and Industrial Related

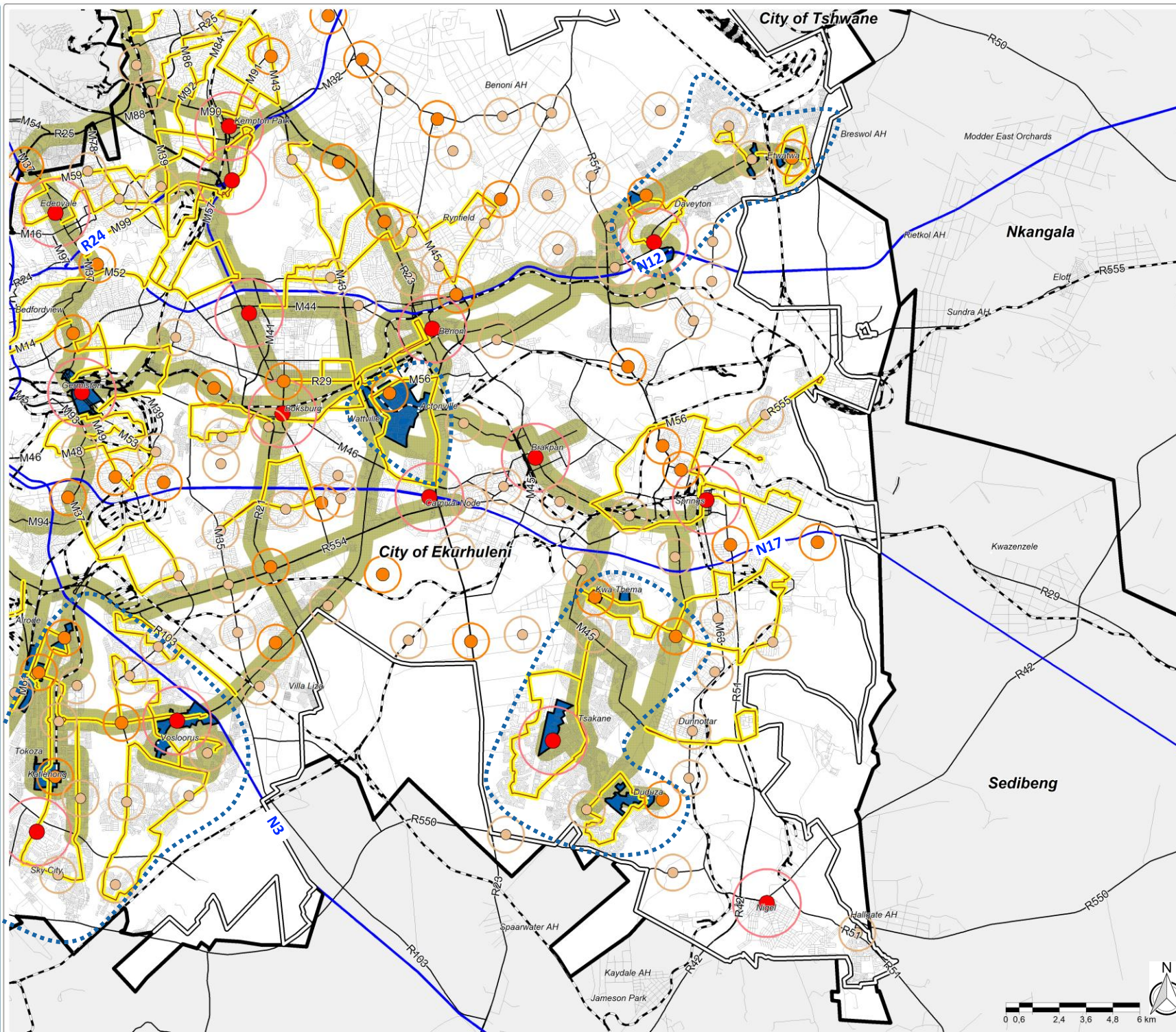
Categories / Region	Inc. Residential related Workers				Inc. Industrial related Workers				Total Inc. Workers
	Retail Workers	Office Workers	Community Workers	Total Workers associated with Incremental Residential Area	Mixed Use (B2&LI&Com) Workers	Industrial 2 (Logistics) Workers	Industrial 1 Workers	Total Inc. Industrial Workers	Total Workers
Subtotal North	12,386	1,753	17,787	31,926	14,200	33,506	60,260	107,965	139,892
Subtotal East	37,515	4,974	55,782	98,271	72,889	40,168	52,713	165,771	264,042
Subtotal South	11,816	1,321	15,507	28,645	13,499	27,191	23,220	63,911	92,555
Total	61,717	8,049	89,075	158,842	100,588	100,866	136,193	337,647	496,489
1 Subtotal: Tembisa North	2,017	319	3,174	5,510	-	304	2,898	3,203	8,713
2 Subtotal: Midstream	843	134	1,327	2,304	-	-	-	-	2,304
3 Subtotal: R -21 East	3,442	545	5,418	9,405	-	17,271	41,286	58,557	67,962
4 Subtotal: R -21 West	1,342	212	2,112	3,666	-	4,148	-	4,148	7,813
5 Subtotal: R -21 South	3,988	406	4,394	8,788	18,300	5,876	8,238	32,414	41,202
6 Subtotal: Kempton Park North	46	7	73	126	-	4,261	7,838	12,099	12,225
7 Subtotal: Benoni North	4,301	559	5,555	10,414	28,855	-	-	28,855	39,270
8 Subtotal: Benoni Far North	4,015	636	6,320	10,971	-	-	-	-	10,971
9 Subtotal: Daveyton North	4,319	684	6,798	11,800	-	-	-	-	11,800
10 Subtotal: Daveyton West	1,788	207	2,193	4,188	12,605	-	-	12,605	16,792
11 Subtotal: Daveyton	1,134	165	1,641	2,940	3,393	3,097	-	6,491	9,431
12 Subtotal: Daveyton South/Dersley	4,898	710	7,324	12,932	-	6,995	5,821	12,816	25,748
13 Subtotal: Benoni-Springs Mining Belt	3,155	486	4,830	8,471	3,236	3,468	644	7,349	15,819
14 Subtotal: Benoni/Carnival	1,916	293	2,918	5,127	2,324	-	-	2,324	7,451
15 Subtotal: Helderwyk/Withok	6,304	554	9,560	16,419	16,071	25,436	10,274	51,781	68,199
16 Subtotal: Daggafontein	1,935	165	2,726	4,827	-	2,190	11,174	13,364	18,191
17 Subtotal: Kwatsaduza North	2,009	266	3,305	5,580	-	-	24,800	24,800	30,380
18 Subtotal: Kwatsaduza South	2,078	329	3,411	5,818	-	-	-	-	5,818
19 Subtotal: East Rand Mall	161	18	179	358	1,760	628	-	2,388	2,746
20 Subtotal: Germiston-Boksburg Mining Belt	3,873	137	3,315	7,324	10,090	428	22,962	33,480	40,804
21 Subtotal: Leeupoort/Villa Liza	4,698	744	7,394	12,836	-	6,515	258	6,774	19,609
22 Subtotal: Alberton/Rand Airport	133	18	179	330	692	1,849	-	2,541	2,871
23 Subtotal: Katorus West	2,427	358	3,865	6,650	3,252	1,478	-	4,729	11,379
24 Subtotal: Katorus East	898	96	1,065	2,059	10	16,921	-	16,932	18,991
Total	61,717	8,049	89,075	158,842	100,588	100,866	136,193	337,647	496,489

EASTERN REGION EXPANSION AREAS : JOB CREATION POTENTIAL

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Vacant Erven (Existing Approved Townships)
- Township Layouts (In Process)
- Vacant Land (Future Residential)
- Reclamation
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- Functional Area





EASTERN REGION

SPATIAL TRANSFORMATION AGENDA : URBAN NETWORK

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Primary Node
- Secondary Node
- Tertiary Node
- Class 1 Roads
- Class 2 Roads
- Railway Network
- Railway Station
- IPTN (Integration Zone)
- Feeder Routes (Bus/Taxi)
- Township Enterprise Precinct
- Township Enterprise Zone (TEZ)

- ❖ In this way economic development and job creation is promoted and the **physical, social and economic integration** of the total population of the CoE is enhanced.

This “blueprint” for Spatial Transformation is referred to as the CoE Urban Network as defined in the CoE Built Environment Performance Plan (BEPP), and **Figure 8.5.11** superimposed this urban network over the Eastern RSDF.

4.3.6 Engineering Infrastructure

Strategic Objective 6: Align Municipal Infrastructure Maintenance and Construction Programmes with spatial development initiatives in order to facilitate the establishment of Sustainable Human Settlements and to promote Economic Development and Job Creation.

Action 6.1: Align CoE Infrastructure Master Plans, Implementation and Upgrading Programmes with the CoE Land Use Development Programmes.

Engineering services are critical towards the establishment of sustainable human settlements and facilitating economic development and job creation. Hence, infrastructure investment within the Eastern Region should be primarily directed towards serving the identified activity nodes and activity corridors within the region, as well as the areas earmarked for residential densification and residential expansion.

A more comprehensive summary of the implications of the land use proposals contained in the RSDF on Engineering Services, has been formulated as part of the Implementation Strategy of the MSDF. Following is a brief summary of some issues in this regard:

(i) Movement Network:

It is important to note that the following route in the Eastern Region as depicted on **Figure 18.6.1** have been prioritized for design/construction by Gautrans (input to CoE IDP 2024/25):

- ❖ Route PWV15⁽¹⁾ from route R21 up to route N3 at the Tambo Springs Freight Hub.

(ii) Stormwater Management:

The CoE Stormwater Management Guidelines (updated from time to time) outlines the stormwater management principles requirements and responsibilities. This is with specific reference to new developments but also addresses the redevelopment or repurposing of brownfield and grey field sites.

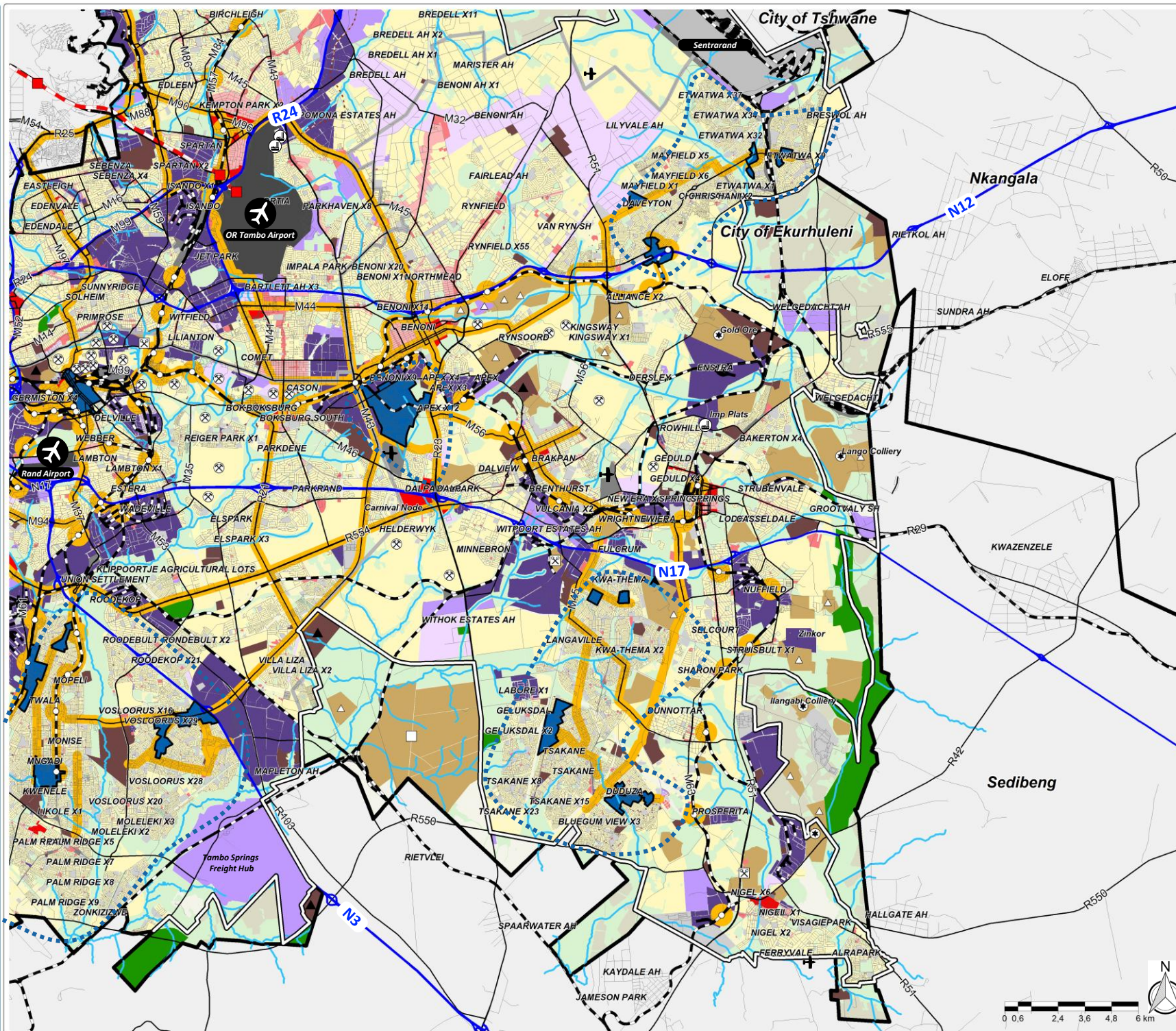
In general, stormwater management in the CoE is based on the following principles:

- ❖ The need to protect the health, welfare and safety of the public, and to protect property from flood hazards by safely routing and discharging stormwater from developments;
- ❖ The quest to improve the quality of life of affected communities;
- ❖ The opportunity to conserve water and make it available to the public for beneficial uses;
- ❖ The responsibility to preserve the natural environment; and
- ❖ The need to strive for a sustainable environment while pursuing economic development.

(iii) Water and Sanitation:

From **Figures 18.6.2** and **18.6.3** the following salient features should be noted with regards to future provision of water and sanitation in the Eastern Region:

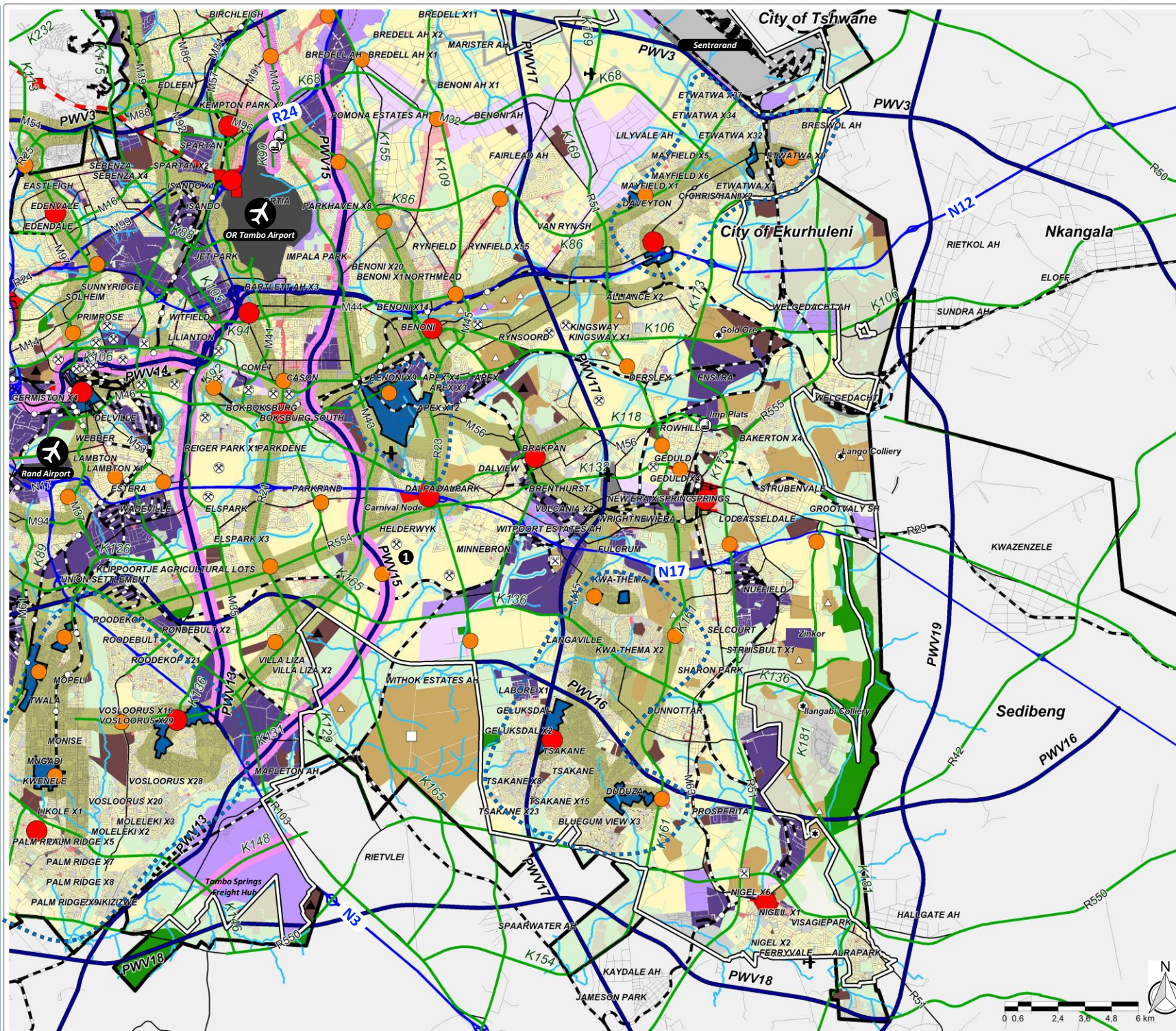
- ❖ The Bredell-Pomona-Benoni North expansion area⁽¹⁾ (south of route M32 where significant development pressure is expected in the short- to



EASTERN REGION SPATIAL TRANSFORMATION AGENDA

LEGEND

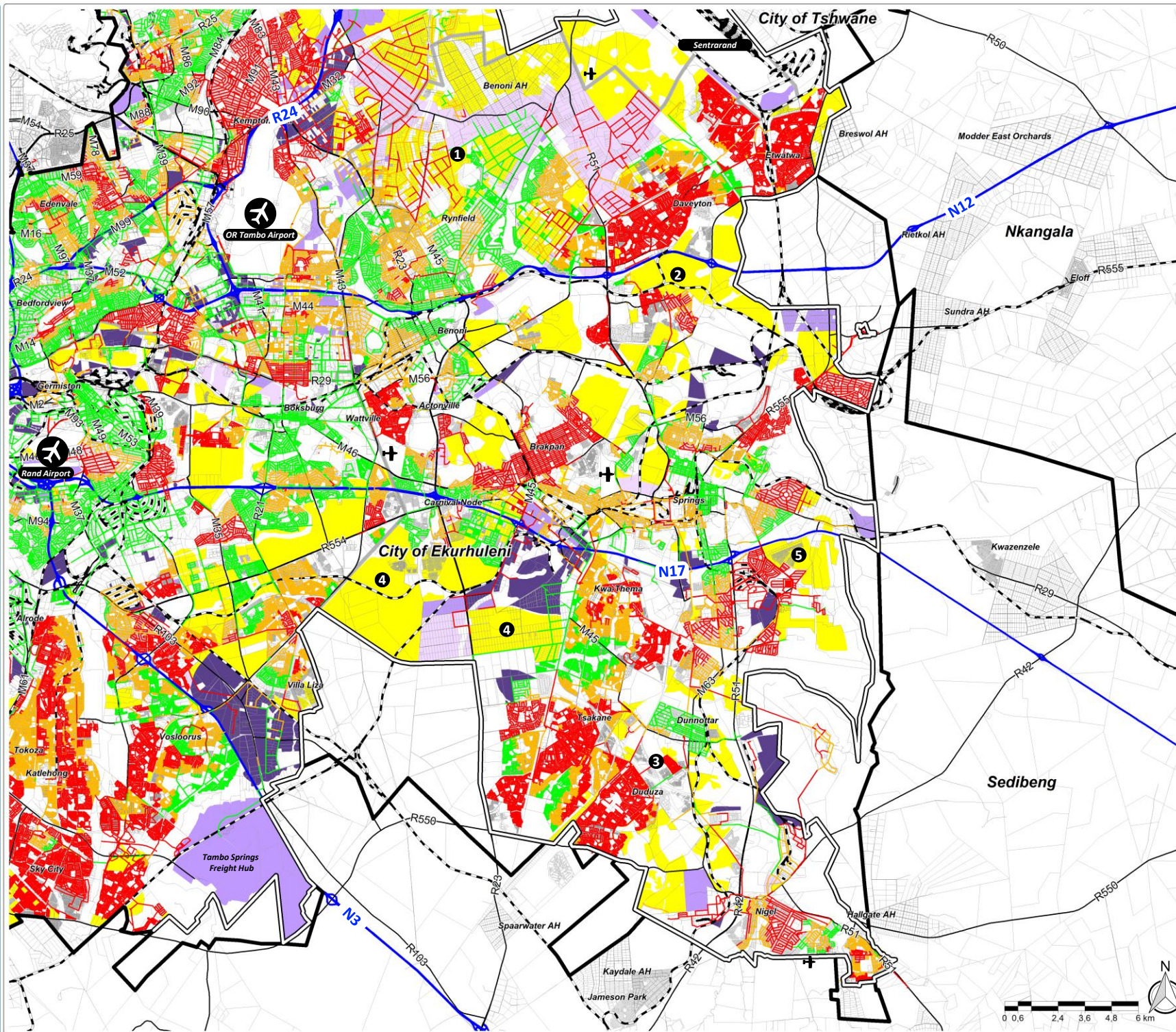
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations
- Gautrain Railway/Station
- Airport
- Airfield
- Airport Footprint
- Sentrarrand Intermodal Terminal
- Landfill Site
- Residential
- Community Facility/Social Service
- Public Service/Landfill/Cemetery
- Township Enterprise Precinct
- Township Enterprise Zone (TEZ)
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- Agriculture
- Mining Areas
- Active Mining
- Quarry / Brickworks
- Reclamation Plant
- Reclamation
- Mega Tailings Dam
- SEZ/IDZ
- IPTN (Integration Zone)
- Transit Orientated Development



EASTERN REGION MOVEMENT NETWORK PRIORITY LINKS

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Class 1 Roads
- Class 2 Roads
- Proposed Class 1 Roads
- Alternative Proposed Class 1 Road
- Proposed Class 2 Roads
- Alternative Proposed Class 2 Road
- PRASA Railway Line/Station
- Gautrain Railway/Station
- Airport
- Airfield
- Airport Footprint
- Sentrara Intermodal Terminal
- Landfill Site
- Residential
- Community Facility/Social Service
- Public Service/Landfill/Cemetery
- Township Enterprise Precinct
- Township Enterprise Zone (TEZ)
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- Agriculture
- Mining Areas
- Active Mining
- Reclamation
- Quarry / Brickworks
- Reclamation Plant
- Mega Tailings Dam
- SEZ/IDZ
- Priority Links
- IPTN (Integration Zone)



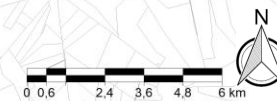
EASTERN REGION WATER SYSTEM CAPACITY

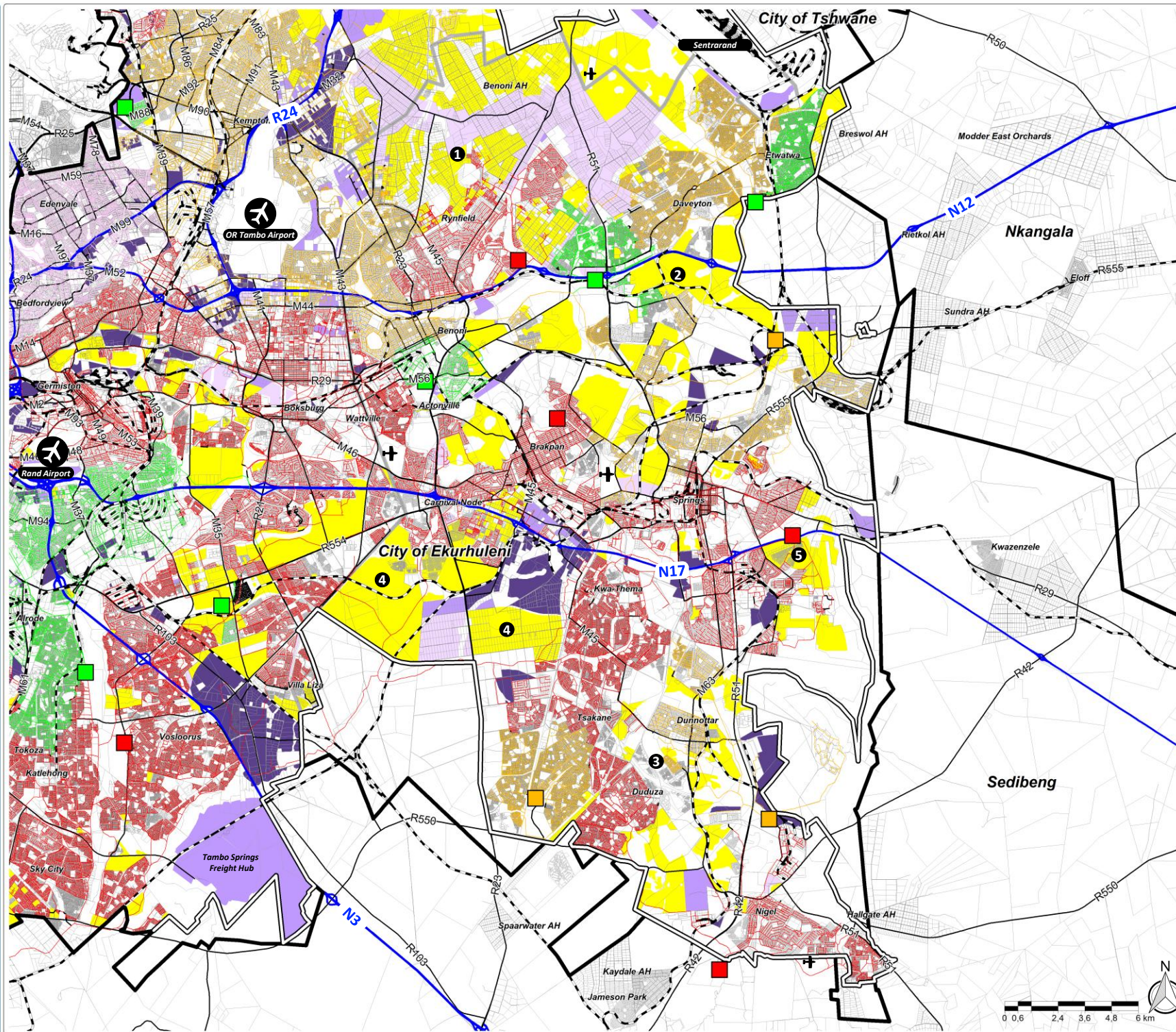
LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- Airport
- Airfield
- Residential
- Mixed Use BLIC
- Industrial

Water System Capacity

- ≤24m head pressure
- 24-40m head pressure
- ≥40m head pressure





EASTERN REGION SEWER SYSTEM CAPACITY

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- Airport
- Airfield
- Residential
- Mixed Use BLIC
- Industrial

Sewer and WWTW System Capacity

- Not Draining to CoE WWTP
- Operating at 80%
- Operating between 80 and 100%
- Operating at $\geq 100\%$

medium-term). The existing capacity of the water network in this area is very limited and varies between red, orange and green status. The existing sanitation network in this area has “orange” status to the west and “red” status to the east.

(It is also important to note that there is virtually no bulk water and/or sanitation infrastructure in the expansion areas to the north of route M32).

- ❖ The Dersley-Daveyton functional area⁽²⁾ is a strategic “infill” area between Daveyton and Springs but the status of the water network in surrounding areas is generally “red”, while the sewer network status is “orange”.
- ❖ Further to the south the Duduza-Dunnottar functional area⁽³⁾ is bordered by a “red” water and sanitation network in Duduza, and “orange” network in Dunnottar.
- ❖ The broader Helderwyk-Leeuwpoort area⁽⁴⁾ is a significant strategic development area in the context of the CoE. In terms of the water network the surrounding areas mainly comprise “green” and “orange” networks; but the sewer network for the broader area has “red” status in all directions.
- ❖ The Daggafontein area⁽⁵⁾ to the far east where the existing water and sanitation networks have “red” status.

In terms of the existing two main sewer catchment areas as shown on **Figure 18.6.4**, the following should be noted:

- ❖ Areas 1, 2, 3 and 5 will feed into the existing DD5 catchment system; and
- ❖ Area 4 is part of the DD6 catchment system which will require significant expansion of the network as well as capacity added to the treatment plants.

(iv) Electricity:

The City of Ekurhuleni Network Masterplan Update report dated 01 November 2019 defined a “Least Cost Electricity Network Strengthening and Expansion Plan” for the CoE based on a demand forecast for the period 2019-2039.

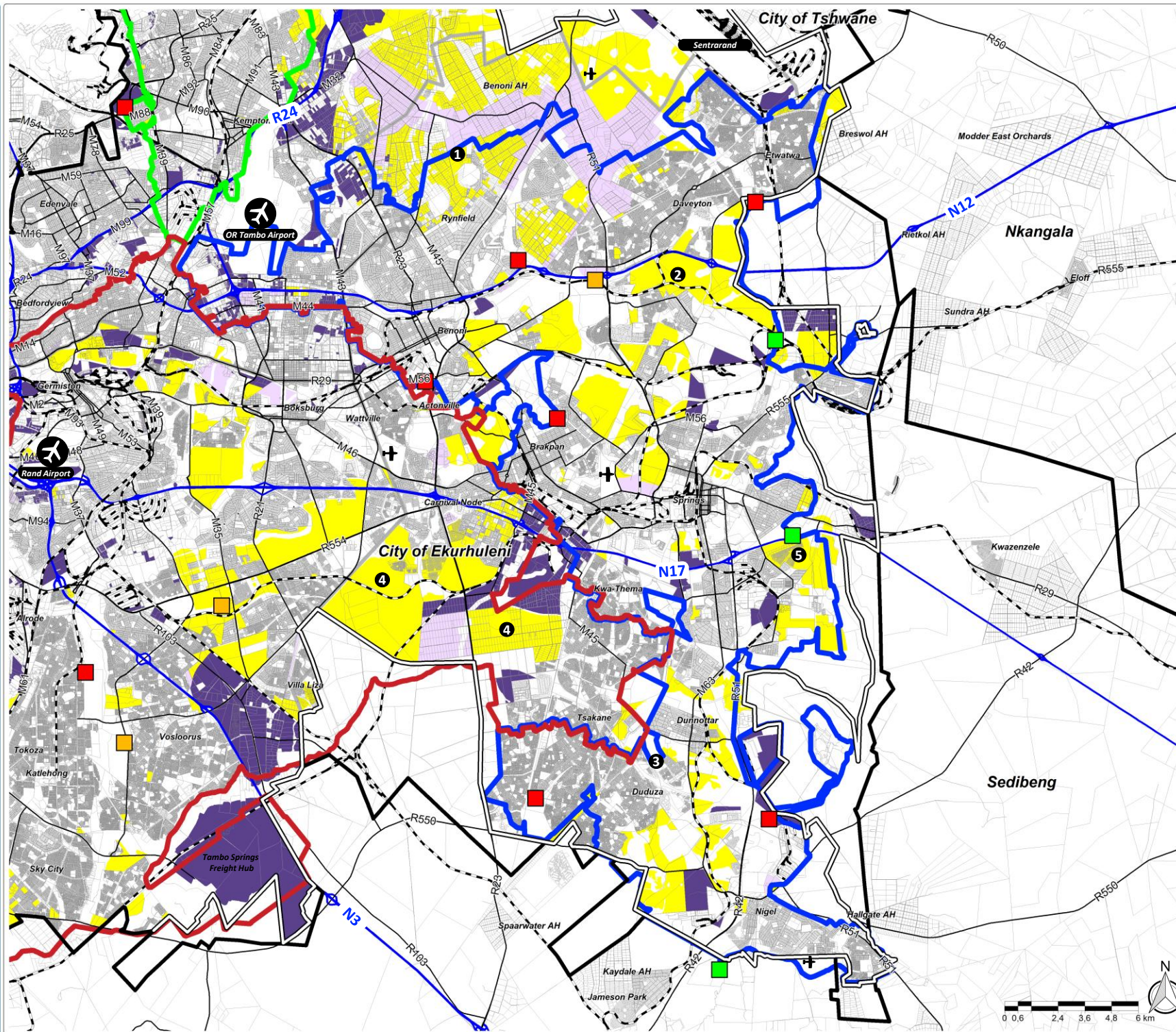
Assuming masterplan upgrades followed the capacity augmentation timelines as indicated in the report, an additional 980 MVA of capacity should still be added over the next 15 years through the upgrade of various existing substations and a number of new builds. (Refer to Master Plan Scope column in **Table 31** overleaf).

Following is a brief interpretation of this information against the backdrop of development proposed in various Electricity Service Delivery Areas in the Eastern Region. (Refer to **Figure 18.6.5**).

- ❖ The Benoni Service Delivery Area is earmarked for extensive development to the north and south-east (see number 4 on Figure 18.6.5). The area is scheduled to add approximately 120 MVA through various upgrades.
- ❖ The Springs Service Delivery Area also comprises a number of areas earmarked for future development including:
 - The Dersley-Daveyton area (number 5) to the north which it shares with Eskom;
 - The Daggafontein Mega Housing Project to the south-east of Springs; and
 - The Duduza-Dunnottar-Nigel area (number 6) to the south which it shares with Eskom.

This Service Delivery Area is scheduled for an additional 60 MVA through various upgrades as shown on Table 49.

- ❖ The Brakpan Service Delivery Area is earmarked for extensive development in/around the old mining belt to the north and the Helderwyk-Withok extensions to the south. Accordingly, it is scheduled for an additional 120 MVA through various upgrades.



EASTERN REGION SEWER SYSTEM AND WWTW CAPACITY

LEGEND

- Cadastral
- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- Airport
- Airfield
- Residential
- Mixed Use BLIC
- Industrial

Sewer and WWTW System Capacity

- Plant to be abandoned
- Plant to be capped and bypassed
- Plant to be upgraded
- DD3 Catchment
- DD5 Catchment
- DD6 Catchment

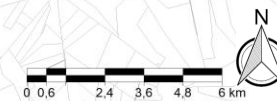
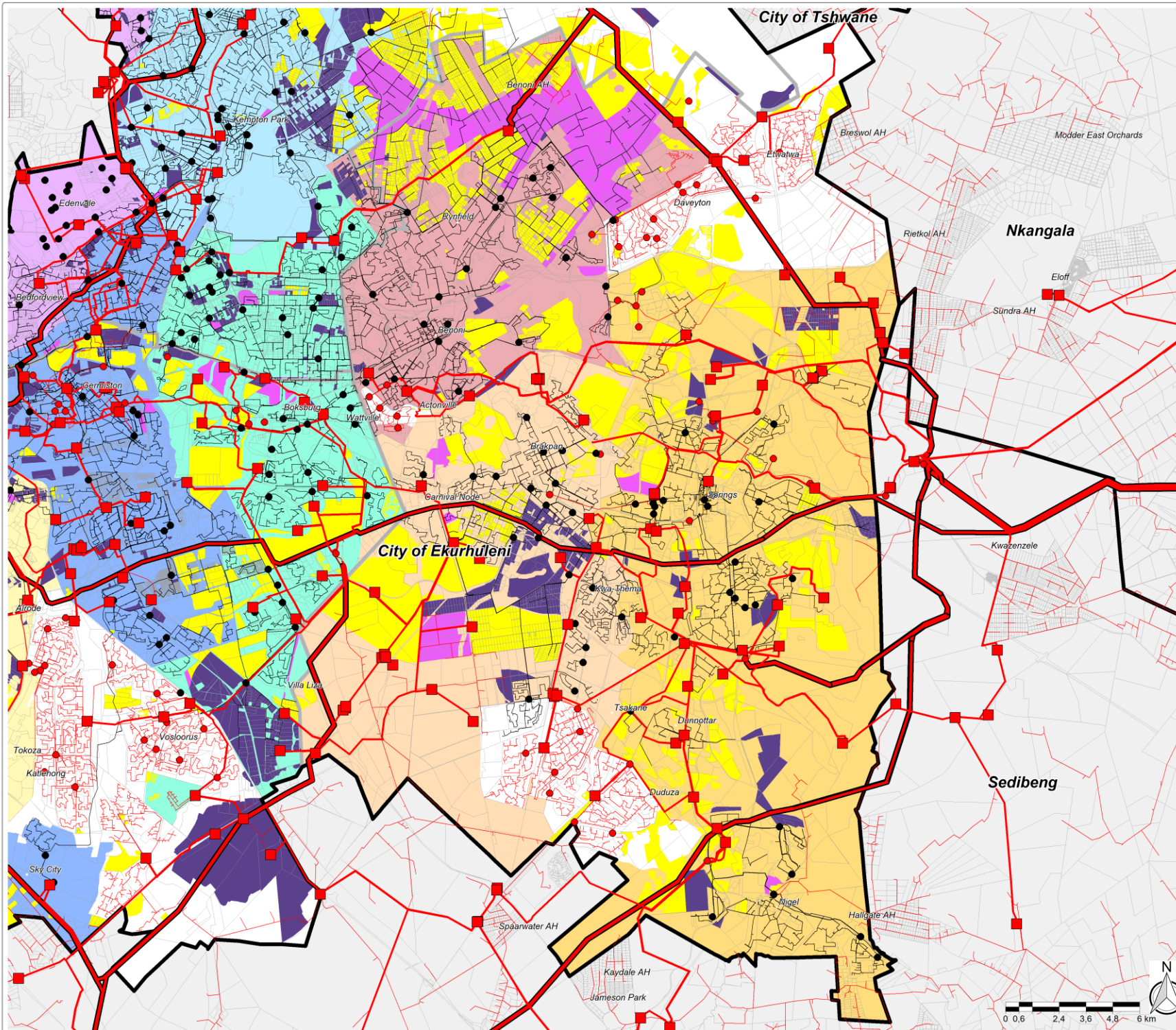


Table 31: Ekurhuleni Regional Electricity Distribution

EKURHULENI REGIONAL ELECTRICITY DISTRIBUTION			
REGIONS	NMD (See Note 2)	Installed Capacity (see Note 3)	Masterplan Scope
Alberton	296,00 MVA	460,00 MVA	Add 60MVA through various upgrades.
Benoni	235,00 MVA	180,00 MVA (see Note 4)	Add 120MVA through various upgrades & new builds and installing ±14km transmission cable.
Boksburg	363,30 MVA	260,00 MVA (see Note 4)	Add 320MVA through various upgrades & new builds and installing transmission cable.
Brakpan	143,00 MVA	230,00 MVA	Add 120MVA through various upgrades and installing transmission cable.
Edenvale	69,00 MVA	90,00 MVA (see Note 4)	Add 30MVA through various upgrades & new builds and installing ±15km transmission cable.
Germiston	621,00 MVA	730,00 MVA (see Note 4)	Add 220MVA(est.) through various upgrades & new builds and installing 3.2km transmission cable.
Kempton Park	409,00 MVA	300,00 MVA (see Note 4)	Add 50MVA(est.) through upgrades, installing transmission cable and reconfiguring Substation supply zones to redistribute load between substations.
Springs/Nigel	268,44 MVA	113,10 MVA (see Note 4)	Add 60MVA(est.) through various upgrades & new builds.
Tembisa/Olifantsfontein	215,00 MVA	270,00 MVA (see Note 4)	No Upgrades Scheduled

Notes:

- 1). 1 MVA = 1 000kVA
- 2). NMD (Notified Maximum Demand): the capacity in kVA/MVA, measured over a integrated 30-minute period, which Eskom agree to make contractually available to Ekurhuleni at all time periods.
- 3). The sum of all installed transmission level transformer (in kVA or MVA) for the region.
- 4). Installed Capacity relate to installed transformer capacities and exclude Bulk Supply Capacities at 132kV where transformer capacities are not available.



EASTERN REGION ELECTRICITY NETWORK

LEGEND

- Cadastral
- District Municipal Boundaries
- Residential
- Mixed Use BLIC
- Industrial

Service Delivery Areas

- Albertyn
- Benoni
- Boksburg
- Brakpan
- Edenvale
- Germiston
- Kempton Park
- Springs / Nigel
- Tembisa/Olifantsfontein
- Eskom

Infrastructure

- HV Substations
- Eskom Substations
- Switching Stations
- HV Powerlines
- SA Main Transmission Lines
- CoE Distribution Network
- Eskom Distribution Network

Action 6.2: Consolidate Infrastructure Implementation and Upgrading Programmes into the CoE Infrastructure Development Management Strategy (IDMS).

Furthermore, all Infrastructure Master Plans (Water Services Development Plan, Electricity Master Plan, Roads and Stormwater Master Plan and Waste Management Plan) should be aligned to the 2030 and 2040 growth projections and designated Priority Housing Development Areas as defined in the Eastern Region Spatial Development Framework.

This should then inform the long-term Infrastructure Development Management Strategy (IDMS) and Long-Term Financial Plan (LTFP) of the CoE as recommended by National Treasury/COGTA.

In general, the CoE should be committed to provide bulk and reticulation services under the following conditions:

- ❖ Where existing township development exists within the Urban Development Boundary;
- ❖ Extensions of existing urban development where development is contiguous (i.e. abutting) to existing municipal infrastructure services, or within designated Priority Development Areas within the Urban Development Boundary, and
- ❖ Tourism resorts and resource based industrial developments (e.g. mining and agriculture) outside of the Urban Development Boundary where, by prior arrangement, service provision can be feasibly provided.
- ❖ Developments in all other areas should be responsible for providing capital, operating and management costs, their own bulk (treatment plants), as well as link and individual services to the standards required by the municipality.

4.4 COMPOSITE COE EASTERN REGION SDF

Figure 19 depicts the Composite Eastern Region Spatial Development Framework in the City of Ekurhuleni, with the most detailed representation thereof being captured in the relevant Sub Area Plans as included in **Annexure A**. This image merely represents an “executive summary” highlighting some of the most salient features of the comprehensive Multi-sectoral Spatial Strategy which forms the basis of the plan.

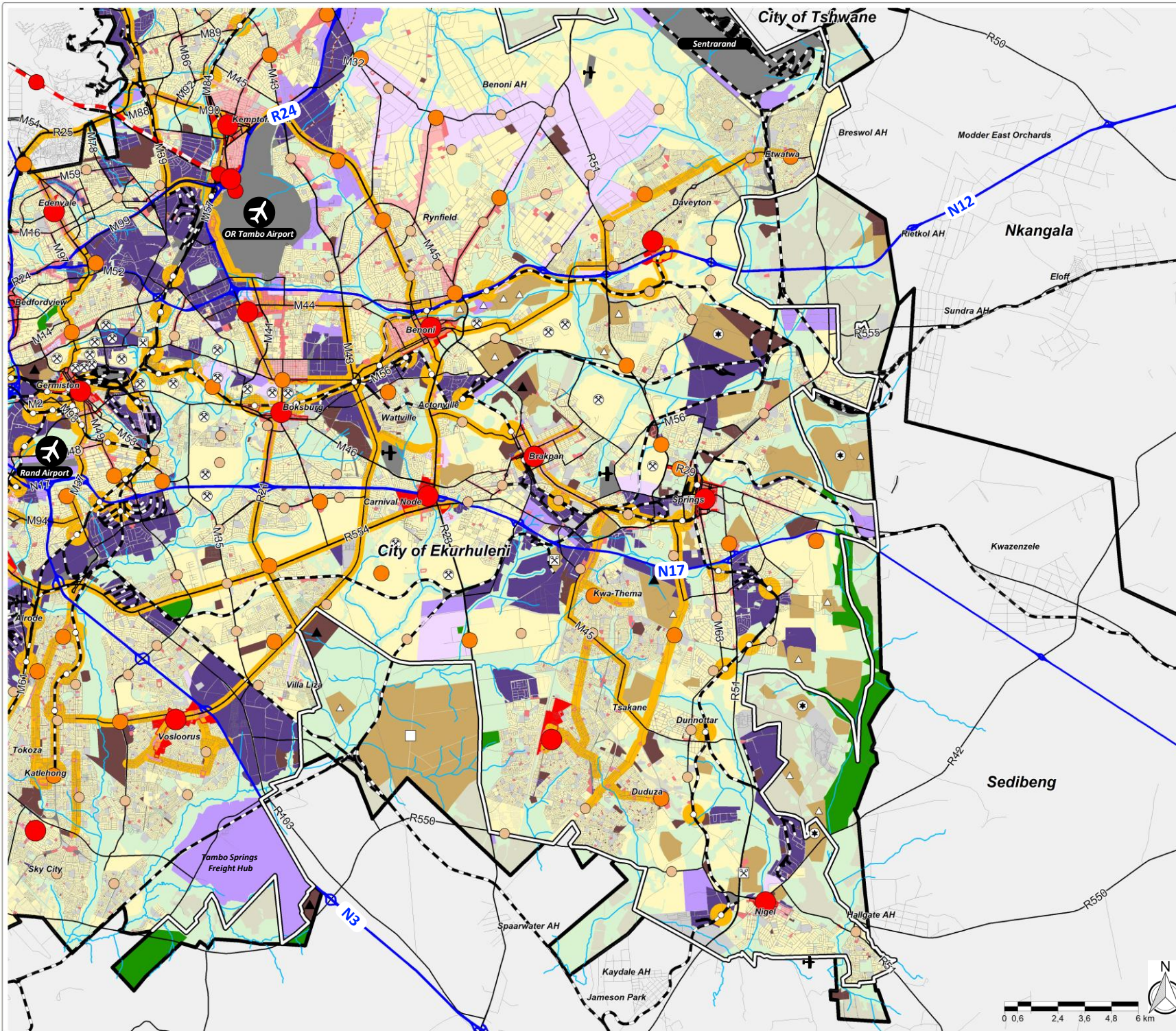
As noted in the introductory section, all information presented in the Figure 18 series of maps in sections 4.3.1 up to 4.3.6 are deemed to form part of the Eastern Region Spatial Development Framework.

Table 32 represents the linkage table between the Section A: Spatial Planning Categories defined on the RSDF (refer to the legend of Figure 19) and the Section B: Land Use Schemes Use Zones defined in CELUS. (The comprehensive Linkage Table is included in **Annexure B2.2** in this report). The MSDF:CELUS Linkage Table indicates the following for each of the MSDF/RSDF Land Use Categories/Spatial Planning Categories:

- ❖ The interpretation of annotations used in the Linkage Table.
- ❖ The specific provisions/requirements in respect of the particular land uses and/or MSDF land use categories; and
- ❖ Exclusions (specific land uses excluded from the particular MSDF/RSDF land use category).

Note: All land use applications must also comply to the following:

- Address need, reasonableness, desirability, public interest and sustainability in terms of the SPLUM By-Law Section 6(1), (2) and (3);
- The General Compatibility Guidelines as defined in **Annexure B2.3** of the MSDF; and
- In the case of Residential Use, the density applicable as determined from the Density Tables (Tables 24 and 25 in this report).



EASTERN REGION COMPOSITE SDF

LEGEND

- District Municipal Boundaries
- CoE Regional Boundary
- Urban Development Boundary
- Protected Areas
- Primary Open Space
- Dams / Rivers
- Primary Nodes
- Secondary Nodes
- Tertiary Nodes
- Class 1 Roads
- Class 2 Roads
- PRASA Railway Line
- PRASA Railway Stations
- Gautrain Railway/Station
- Airport
- Airfield
- Transportation
- Landfill Site
- Residential
- Community Facility/Social Service
- Public Service/Landfill/Cemetery
- Business
- Mixed Use B1 (CBD)
- Mixed Use B2
- Mixed Use B2 (TEZ)
- Mixed Use R&O
- Mixed Use BLIC
- Industrial
- Light Industrial / Commercial
- Agriculture
- Mining Areas
- Active Mining
- Quarry / Brickworks
- Reclamation Plant
- Reclamation in Process
- Mega Tailings Dam
- IPTN (Integration Zone)
- Transit Orientated Development

0 0.6 2.4 3.6 4.8 6 km



Table 32: CoE Linkage Table between MSDF Land Use Categories and CELUS Use Zones

Notation	Section A: Municipal Spatial Development Framework (MSDF) Land Use Categories	Section B: LAND USE SCHEME USE ZONES that serve as basis for purposes of linking each particular MSDF land use category to specific CELUS land uses for consideration under the particular MSDF land use category. (Applicable to future usage of land)																			Specific provisions / requirements in respect of particular land uses and / or MSDF land use categories.	Exclusions (Specific land uses excluded from the particular MSDF land use category).
		1. Residential 1	2. Residential 2	3. Residential 3	4. Residential 4	5. Business 1	6. Business 2	7. Business 3	8. Industrial 1	9. Industrial 2	11. Public Garage	21. Transportation	16. Community Facility	18. Social Services	17. Public Services	13. Recreation	14. Private Open Space	15. Public Open Space	12. Agriculture	10. Mining		
Standard/Base Land Use																					The Table must be read in conjunction with the full Spatial Development Framework and its Annexures; it is not intended to be used in isolation, as all applicable provisions, policies, and requirements related to various land uses are detailed elsewhere in the document and must be taken into consideration (See Annexure B2.2)	The Table must be read in conjunction with the full Spatial Development Framework and its Annexures; it is not intended to be used in isolation, as all applicable provisions, policies, and requirements related to various land uses are detailed elsewhere in the document and must be taken into consideration (See Annexure B2.2)
	Protected Areas	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Regional Open Space	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Parks, Sports & Recreation Facilities	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Public Services	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Transportation	x	x	x	x	x	●	●	x	●	●	●	x	x	●	●	●	●	x	x		
	Mining Areas	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Agriculture	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Residential Areas	●	●	●	●	x	●	●	x	x	●	x	●	●	●	x	●	●	x	x		
	Community Facilities and Social Services	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Business Areas	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	Industrial	x	x	x	x	x	●	●	●	●	●	●	●	●	●	x	●	●	●	●		
	Light Industrial/Commercial	x	x	x	x	x	●	●	x	●	●	●	●	●	●	x	●	●	●	x		
Mixed Land Use Developable Area (Overlays)																						
Mixed Use: B1	Highest order of Business Land Use Mix and Intensity.	●	●	●	●	●	●	●	x	●	●	●	●	●	●	●	●	●	x	x		
Mixed Use: B2	Business/Offices in combination with Multiple Residential Development.	●	●	●	●	x	●	●	x	x	●	x	●	●	●	●	●	●	x	x		
Mixed Use: B2 (TEZ) Township Enterprise Zone	Mixed Use: Business, Residential, Light Industrial, Commercial on a small scale to be compatible with the surrounding environment.	●	●	●	●	x	●	●	x	●	●	x	●	●	●	●	●	●	x	x		
Mixed Use: R&O	Redevelopment of area into Multiple Residential and/or Offices.	●	●	●	●	x	x	●	x	x	●	x	●	●	●	●	●	●	x	x		
Mixed Use: B1/C	Mixed Use: Business, Residential, Light Industrial, Commercial.	●	●	●	●	x	●	●	x	●	●	●	●	●	●	●	●	●	●	x		

Interpretation of annotations in Linkage Table:

•	CELUS zonings indicated with the symbol • for a particular SDF land use category can be considered favourably for purposes of linking the particular SDF land use category to specific CELUS land uses for consideration under the particular SDF land use category, subject to specific provisions, requirements and exclusions stated in respect of particular land uses and / or the particular SDF land use category, as well as applicable notes for interpretation.
Δ	In respect of CELUS zonings indicated with the symbol Δ for a particular SDF land use category, a determination of land uses that can be considered favourably (for purposes of being regarded to be consistent with the land use provisions of the SDF, as well as further evaluation of proposals for land uses represented under CELUS zonings indicated with the symbol Δ) shall be subject to the provisions applicable to the dominant SDF land use category that prevails for the area within which the subject land parcel is located, or the dominant SDF land use category that prevails in the area directly adjacent or directly around the subject land parcel. (Examples: If the subject land parcel is located within an area earmarked for "Residential" purposes, or if the area directly adjacent or directly around the subject land parcel is earmarked for "Residential" purposes, then the provisions applicable to the "Residential" land use category in the SDF shall serve as basis for assessing the land use proposal under consideration in relation to the SDF. Similarly, if the subject land parcel is located within an area earmarked for "Industrial" purposes, or if the area directly adjacent or directly around the subject land parcel is earmarked for "Industrial" purposes, then the provisions applicable to the "Industrial" land use category in the SDF shall serve as basis for assessing the land use proposal under consideration in relation to the SDF.) In the event that the subject land parcel is located on the interface between two dominant SDF land use categories, then the above determination shall be based on the SDF land use category applicable to the geographic area to which the subject land parcel relates functionally (for which purpose factors such as the roads network configuration and orientation of access to the property will be important considerations).
x	CELUS zonings indicated with the symbol x for a particular SDF land use category shall not be considered for purposes of linking the particular SDF land use category to specific CELUS land uses for consideration under the particular SDF land use category.
*	A determination of noxious uses / activities shall be based on the CELUS definition for "Noxious Industry".

The above Table represents the linkage table between the Section A: Spatial Planning Categories defined in the MSDF and Section B: Land Use Scheme Use Zones defined in CELUS. The comprehensive Linkage Table is included in Annexure B2.2.