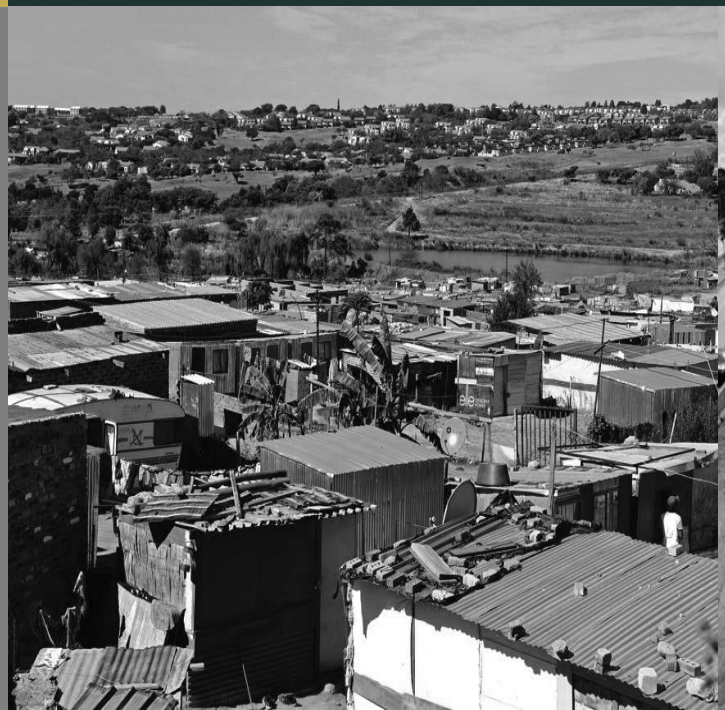
ZANDSPRUIT
Urban Development Framework

FINAL UDF

June 2024



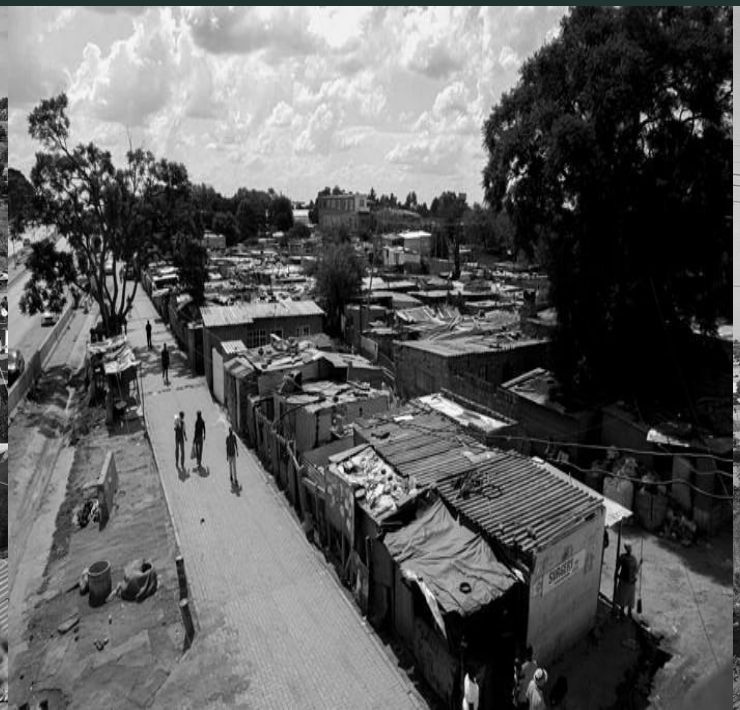




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LIST OF ABBREVIATIONS:

BRT	Bus Rapid Transit
CBA	Critical Biodiversity Area
CBD	Central Business District
CoJ	City of Johannesburg
DED	Department of Economic Development
DHS	Department of Human Settlements
DID	Department of Infrastructure Development
DoE	Department of Education
Du/ha	Dwelling Units Per Hectare
EIA	Environmental Impact Assessment
ESA	Environmental Support Area
GCR	Gauteng City Region
GDS	Growth and Development Strategy
GLMP	Greater Lanseria Master Plan
GMS	Growth Management Strategy
GSDF	Gauteng Spatial Development Framework
ICT	Information and Communication Technology
JDA	Joburg Development Agency
JW	Joburg Water
JPC	Joburg Property Company
JRA	Joburg Roads Agency
IUDF	Integrated Urban Development Framework
IPAP	Industrial Policy Action Plan
IPTN	Integrated Public Transport Network
LED	Local Economic Development
LM	Local Municipality
MPCC	Multi-Purpose Community Centre
NARYSEC	National Rural Youth Service Corps
NDP	National Development Plan
NIPF	National Industrial Policy Framework
NMT	Non-Motorised Transport
NSDF	National Spatial Development Framework
MCLM	Mogale City Local Municipality
PDA	Priority Development Area
PSC	Project Steering Committee
PT	Public Transport
PUTCO	Public Utility Transport Corporation
SDF	Spatial Development Framework
SMME	Small Medium Macro Enterprise
SPLUMA	Spatial Planning and Land Use Management Act
TMR	Transformation, Modernisation and Re-industrialisation
TMP	Transport Master Plan
UDB	Urban Development Boundary
UDF	Urban Development Framework

WWTP	Wastewater Treatment Plant
WWTW	Wastewater Treatment Works
YES	Youth Employment Service

CHAPTER 1: INTRODUCTION

Chapter 1 gives a brief Background on the project and confirms the Study Area.

The Project Methodology and Report Structure is then briefly outlined.



1.1 BACKGROUND TO THE ZANDSPRUIT UDF

Plan Associates was appointed by the Johannesburg Development Agency (JDA), in partnership with the City of Johannesburg (CoJ), for the compilation of a new Urban Development Framework for the Zandspruit study area, which is situated on the north-western boundary of the City of Johannesburg Metropolitan Municipality as depicted on **Figure 1.**

An Urban Design Framework (UDF) was previously developed for the Zandspruit study area in 2008 but was since rescinded in 2020.

The CoJ's Development Planning Department: City Transformation subsequently conducted an internal study of the 2008 UDF in order to identify the pitfalls of the document and it was concluded that a new UDF needed to be conducted with a greater level of detail. The internal study further recommended that the study area be dealt with as three functional areas, which are outlined in *Section 1.2*.

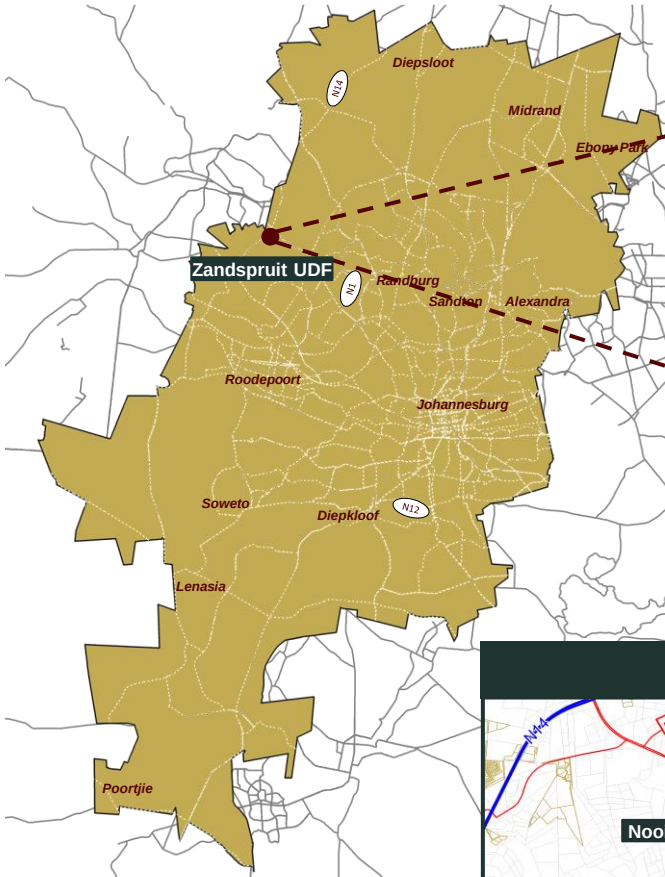
In its Spatial Vision, the City of Johannesburg's Spatial Development Framework 2040 (adopted in 2016) outlines its transformation agenda as one that addresses inequalities of the past and drives future growth towards creating "a spatially inclusive world class African city".

The Spatial Development Framework (SDF) has identified the Zandspruit informal settlement as a Category 2 Deprivation Area based on the fact that it displays a fragmented suburban structure, variable degrees of connectivity at a local and regional scale and is located a significant distance from economic centres but within range to reasonably access opportunities on a daily basis.

The SDF also earmarks a significant portion of the study area for potential infill development and makes recommendations on how this infill development should be carried out.

Zandspruit UDF – Metro Context

Metro City of Johannesburg





ZANDSPRUIT UDF: LOCAL CONTEXT

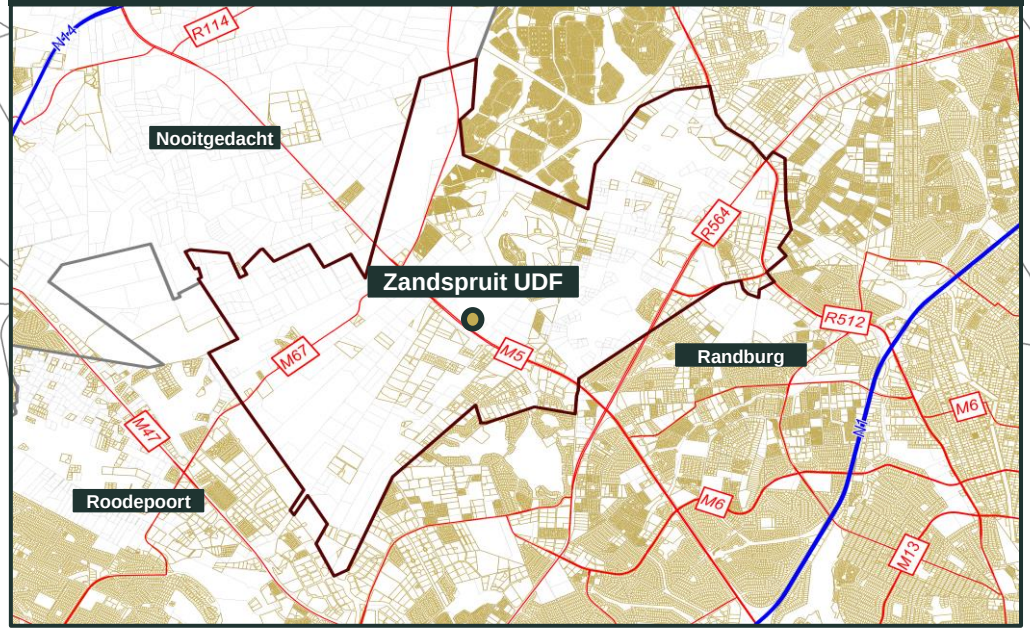


Figure 1

1.2 STUDY AREA AND OBJECTIVE

1.2.1 STUDY AREA

The Zandspruit Study Area is located within Administrative Region C of the CoJ Metropolitan Municipality. The study area is situated on the north-western boundary of the City, to the immediate north of Roodepoort and south of Cosmo City.

The study area includes the areas of Northgate, Northriding Agricultural Holdings, Jackal Creek, Zandspruit, Laser Park, Sonnendal Agricultural Holdings, Tres Jolie Agricultural Holdings, Ruimsig Agricultural Holdings, Alsef Agricultural Holdings and Kimbult Agricultural Holdings.

There are several nodes in and around the study area which lend the potential for the study area to thrive in support of the spatial vision of the SDF. These are the Northgate Regional Node and the Laser Park Industrial Node which are within the study area as well as the Kya Sands Industrial Node which lies adjacent to the north-eastern boundary of the study area.

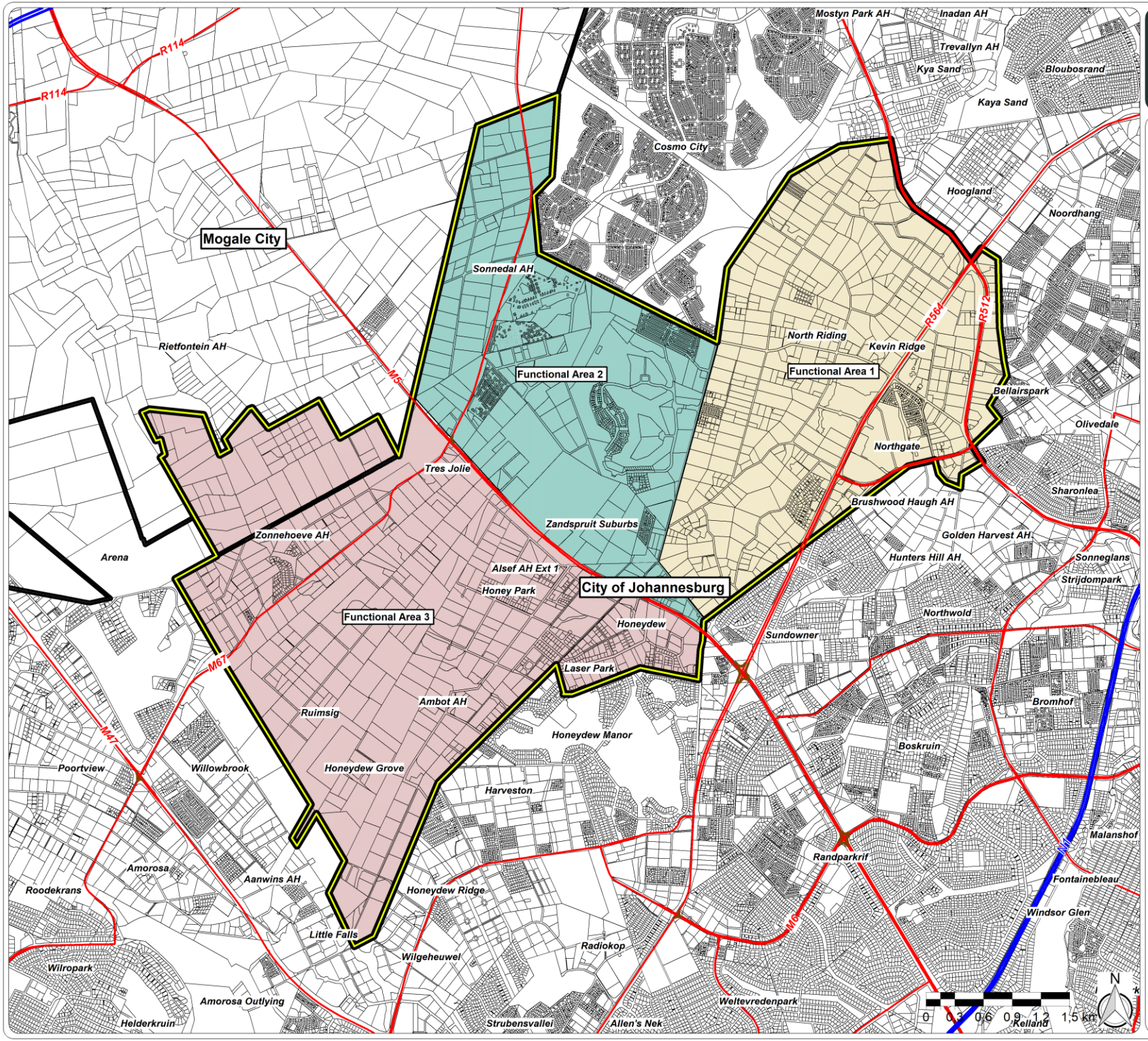
The CoJ has recommended that the study area be dealt with as three functional areas due to the fact that the different areas that make up the study area are all very different in nature.

The Study Area with the delineation of the three Functional Areas is depicted on **Figure 2.** The functional areas are summarised as follows:

- **Functional Area 1 (East):** This is dubbed the Northriding Functional Area, and it is comprised of the Northriding Agricultural Holdings and the Northgate Regional Node. A significant portion of the Northriding Agricultural Holdings is identified by the SDF for potential infill development and recommends the creation of strong linkages between the rest of the study area and the Northgate Regional Node. The Northgate Regional Node acts as a magnet or economic hub for the study area and surroundings but is not operating at its full potential.
- **Functional Area 2 (West):** This is dubbed the Zandspruit Functional Area and comprises of the Zandspruit Informal Settlement, the Jackal Creek Residential Estate and surroundings, Sonnendal Agricultural Holdings as well as the agricultural holdings that are beyond the Urban Development Boundary (UDB) but within the municipal boundaries of the City of Johannesburg. The area beyond the UDB in this functional area should be investigated for development under specific conditions.
- **Functional Area 3 (South):** This is dubbed the UDB Support Functional Area, and it stretches south and east of Beyers Naude Drive and includes various residential and mixed-use areas close to and beyond the UDB.

1.2.2 STUDY OBJECTIVE

The project objective is to produce a new Urban Development Framework for the Greater Zandspruit Area, which is consistent with current development plans and policies and integrates current and planned engineering infrastructure to development in the area.



STUDY AREA LOCAL CONTEXT

Legend

- Study Area
- Functional Area 1
- Functional Area 2
- Functional Area 3
- Cadastral
- A Suburbs
- Municipalities

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 2

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

1.3 PROJECT METHODOLOGY AND REPORT STRUCTURE

Diagram 1 depicts the **Project Methodology & Report Structure**, as summarised below:

Phase 1: Project Initiation comprises an introductory meeting with the Project Steering Committee (PSC) and the submission of the Inception Reports which confirms how the project will be rolled-out.

Phase 2: Situational Analysis consists of three sections in the report as outlined below.

- *Chapter 2.1* comprises the Policy and Legislative Overview (including National, Provincial and Local Policy) of the study area.
- *Chapter 2.2* comprises the Spatial Analysis to determine the most prominent structuring elements of the area.
- *Chapter 2.3* comprises the overview of the Engineering Services in the study area.
- *Chapter 2.4* comprises the Socio-Economic features of the study area and surrounds.
- *Chapter 2.5* comprises a brief overview of the Stakeholder Engagements that were held for the project.
- *Chapter 2.6* comprises the Synthesis of the most prominent features that emanated from the Situational Analysis.

Phase 3: Synthesis & Stakeholder Engagements comprised of engagements with the relevant stakeholders to formulate the Draft Vision for the study area.

Phase 4.1: **Spatial Concept, Development Objectives and Strategies** is dealt with under Chapter 3 of the document which is based on a number of Development Objectives (*Chapter 3.3*) which are translated into Development Strategies (*Chapter 3.4*).

Phase 4.2 comprises the compilation of a number of **Urban Design Guidelines** which could be applied to the area, based on the various strategies. The Urban Design Guidelines are briefly discussed in *Chapter 3.6* of the document, with further detail attached as an Annexure (*Annexure E*).

Phase 4.3: Implementation Framework is dealt with in Chapter 4 of the document and is supplemented with a Figure which spatially references the projects listed in the Implementation Framework.

Phase 5: Stakeholder Engagement and Project Close-Out comprised the handover of the Final UDF for adoption by council and a Close-Out report to finalise the project.

Zandspruit UDF Project Methodology & Report Structure

Diagram 1

STAKEHOLDER ENGAGEMENT

Phase 1: Project Initiation

Inception Report

Phase 2: Research and Contextual Analysis

Report Chapter 2

Policy Analysis	Spatial Analysis	Engineering Services	Socio-Economic Overview
❑ SPLUMA, NDP, NSDF, National Infrastructure Development Plan, IUDF, Industrial Policy Action Plan ❑ GSDF, Gauteng Transformation & Modernisation Strategy ❑ MSDF & RSDF, CoJ Nodal Review Policy, CoJ Inclusionary Housing Policy, CoJ Growth and Development Strategy, Greater Lanseria Master Plan	❑ Main Movement Network ❑ Regional Context ❑ Institutional and Cadastral Structure ❑ Environmental Features ❑ Land Ownership and Zoning ❑ Land Use ❑ Community Facilities	❑ Movement Infrastructure ❑ Water Infrastructure ❑ Sewer Infrastructure ❑ Electricity Infrastructure	❑ Economic Size and Structure ❑ Crime Statistics ❑ Demographic Size & Composition ❑ Density and Growth ❑ Labour Force Profile ❑ Household Profile

Phase 3: Synthesis & Stakeholder Engagements (Draft Vision)

Phase 4.1: Spatial Concept, Development Objectives and Strategies

Report Chapter 3

Objective 1: Natural Environment	Objective 2: Movement Network	Objective 3: Residential Development	Objective 4: Community Facilities	Objective 5: Infrastructure	Objective 6: Economic Activity
❑ Natural Open Space ❑ Parks (Active/Passive) ❑ Climate Change Impact	❑ Movement Network ○ Motorised ○ Non-Motorised ❑ Public Transport Network ❑ Modal Transfer	❑ Priority Housing Development Areas ❑ Typology Alternatives ❑ Tenure Alternatives	❑ Education ❑ Health ❑ Welfare ❑ Safety and Security ❑ Sports and Recreation	❑ Water ❑ Sanitation ❑ Electricity ❑ Roads ❑ Stormwater	❑ Business ❑ Commercial ❑ Industrial ❑ Tourism / Heritage ❑ Formal/Informal ❑ Skills Development

Phase 4.2: Urban Design Guidelines

Report Annexures

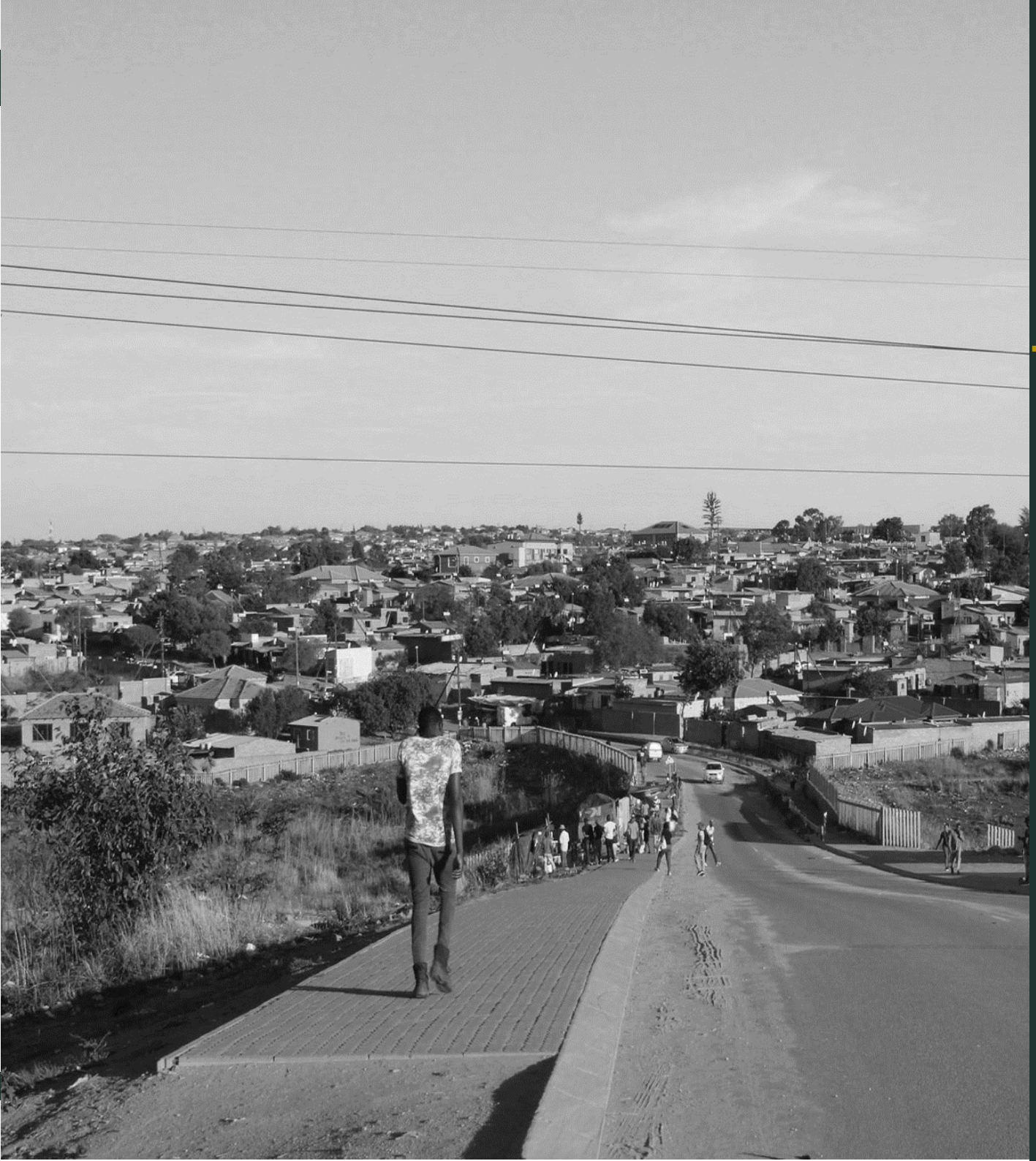
Phase 4.3: Implementation Framework

Report Chapter 4

Natural Environment	Movement Network	Economic Activity	Community Facilities	Residential	Infrastructure

Phase 5: Stakeholder Engagement & Project Close-Out

Close-Out Report



CHAPTER 2:

SITUATIONAL ANALYSIS

Chapter 2 comprises the Policy and Legislative Overview of the study area (*2.1*); the Spatial Analysis (*2.2*), an overview of the Engineering Services (*2.3*), the Socio-Economic Overview (*2.4*), as well as the Stakeholder Engagement Process that was followed (*2.5*).

Chapter 2 is concluded with a Synthesis (*2.6*) outlining the most prominent features that emanated from the Situational Analysis.

2.1 POLICY AND LEGISLATIVE OVERVIEW

2.1.1 SPATIAL PLANNING AND LAND USE MANAGEMENT ACT (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 Zandspruit UDF).

SPLUMA provides a host of development principles which should form the basis of all spatial planning, land development and land use management processes and mechanisms which are shown on **Diagram 2**.

The Act clearly states that all spatial plans within municipalities should be in line with the policies of National and Provincial Government and should be aligned with the plans, policies and development strategies of adjoining municipalities.

Diagram 2: SPLUMA Development Principles



2.1.2 NATIONAL DEVELOPMENT PLAN (NDP) AND THE INTEGRATED URBAN DEVELOPMENT FRAMEWORK (IUDF)

The National Development Plan, 2030 – *Our future – make it work* – is a plan for the country to eliminate poverty and reduce inequality by 2030 through uniting South Africans, unleashing the energies of its citizens, growing an inclusive economy, building capabilities, enhancing the capacity of the state and leaders working together to solve complex problems.

The NDP reports that migration into urban areas, especially by the young and poor, increases pressure on services and transport, which is complicated by the apartheid-fragmented geography. Economic growth has been slower than the demand for employment. In particular, accommodation faces challenges, including financing for lower-end housing and its incorporation into the market, and slow progress on rental accommodation (Community Residential Unit – CRU and Social Housing) and upgrading of informal settlements.

Therefore, the **key NDP recommendations** in urban areas (and applicable to the study area), include:

- Upgrade all informal settlements on suitable, well-located land by 2030;
- Reform the current planning system for improved coordination;
- Develop a strategy to densify cities, promote better located housing and settlements;
- Ensure safe, reliable and affordable public transport;
- Improve the balance between location of jobs and people;
- Review of the grant and subsidy regime for housing;
- Provide incentives for citizen participation for local planning and development of spatial compacts, and
- Introduce mechanisms that would make land markets work more effectively for the poor and support rural and urban livelihoods.

Further to the NDP, the **Integrated Urban Development Framework (IUDF)** supports the principles of the NDP and the premise of the IUDF is that jobs, housing and transport should be used to promote urban restructuring by:

- Reducing travel costs and distances;
- Preventing further development of housing in marginal places;
- Increasing urban densities to reduce sprawl;
- Improving public transport and the coordination between transport modes, and
- Shifting jobs and investment towards dense peripheral townships.

To achieve the above will require better alignment of transport, land-use (including economic development), human settlements and resource-efficient, integrated infrastructure.

2.1.3 NATIONAL SPATIAL DEVELOPMENT FRAMEWORK (NSDF)

The foundation for the National SDF consists of the following five frames which emanate from the NDP 2030 priorities, the National Spatial Development Vision and Logic as well as development issues identified through the analysis process:

- **Frame One:** Urban Regions, Clusters and Development Corridors as the engines of national transformation and economic growth
- **Frame Two:** Productive Rural Regions and Regional Development Anchors as the foundation of national transformation
- **Frame Three:** National Ecological Infrastructure System as enabler for a shared and sustainable resource foundation
- **Frame Four:** National Connectivity and Economic Infrastructure Networks as enabler for a shared, sustainable and inclusive economy
- **Frame Five:** National Social Service and Settlement Infrastructure Network in support of national well-being

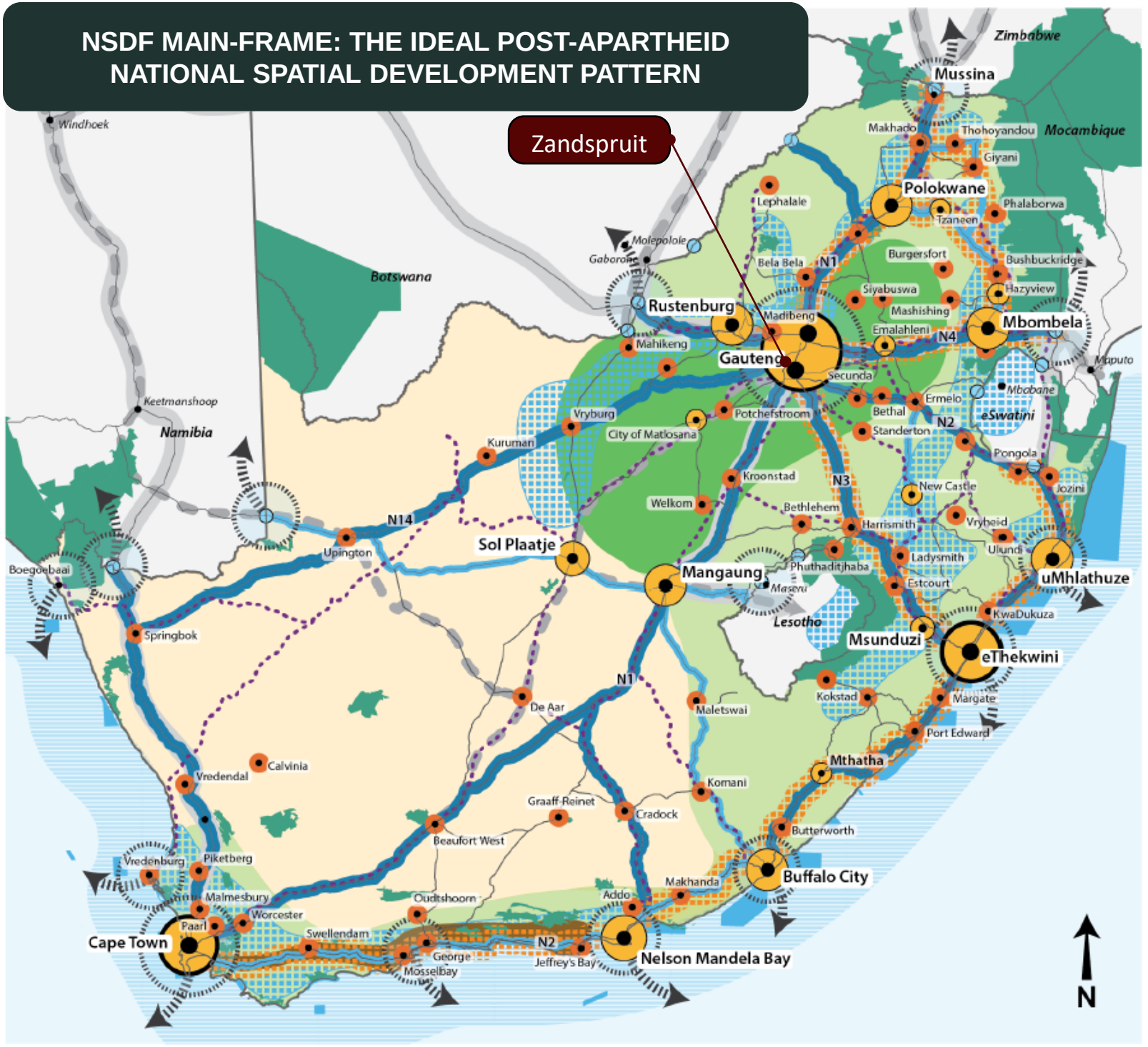
The five frames formed the basis for the formulation of the National Spatial Development Framework as depicted on **Figure 3**.

The study area is strategically located within the largest National Urban Region (Gauteng City Region) and in close proximity of the point of convergence of the N1, N3 and N17/N2 Key National Development Corridors.

Proposals for **National Urban Regions** include:

- Consolidate urbanisation in compact, productive, sustainable, inclusive and well-governed urban core regions;
- Prioritise infrastructure maintenance to (1) mitigate against the expected impact of natural and climate change-related hazards on the inhabitants of these regions, especially the poor and most vulnerable members of society, and (2) avoid repetitive infrastructure repair costs;
- Manage demand and maintain, expand and refocus the infrastructure network to enable and sustain bulk water supply and energy distribution to and within urban regions;
- Effectively utilise, protect and manage high-value agricultural land, ecological infrastructure and national manmade and natural environmental assets, and mitigate downstream impacts on water bodies, water catchments and other natural resources;
- Actively support national and international programmes aimed at climate change mitigation of CO_2 emissions, and introduce local policies and measures to assist such programmes;
- Pursue, create and support innovation, enterprise development and job creation opportunities in (1) agro-eco-industries, (2) tertiary and service sectors, (3) tourism, (4) knowledge-creation, and (5) cultural and entertainment industries;
- Maintain and upgrade road and rail routes in urban regions, prioritise rail for bulk freight, and improve the affordability of intercity public passenger transport.

NSDF MAIN-FRAME: THE IDEAL POST-APARTHEID NATIONAL SPATIAL DEVELOPMENT PATTERN



NATIONAL SPATIAL DEVELOPMENT PRIORITIES

- National Urban Regions
- National Urban Nodes
- Regional Development Anchors
- National Coastal Corridor
- Key National Development Corridors
- Import/Export Nodes
- Key National Roads
- Key Regional Roads
- Key Rail Routes
- Inter-regional Road Corridors
- Inter-regional Rail Corridors
- Border Posts
- Agri-Enterprise and Small-scale Farming Resource Region
- National Resource Production Heartland
- Arid-Agri Region
- Ocean & Aqua Culture Production Region
- Eco-Resource Production Region
- National Protected Parks and World Heritage Sites
- Marine Protection Area

Figure 3

2.1.4 GAUTENG SPATIAL DEVELOPMENT FRAMEWORK, 2022

The Gauteng Spatial Development Framework (GSDF) envisages Gauteng in 2030 as **an integrated, connected space that provides for the needs of all its residents** (refer to **Figure 4**). It builds on the concept of the Gauteng City Region (GCR) and aspires to establish a balanced, polycentric spatial network, with strong and resilient nodes enabling mutually beneficial exchanges of goods and services, and movement of people.

To support the establishment of this polycentric form, **four spatial development strategies** are to be followed:

1. **Capitalising on proximity**, by directing higher densities closer to economic nodes and public transport networks, and improving conditions in areas closer to economic opportunities, to ensure even greater benefit for the people and economy of these areas.
2. **Managing new settlement development**, to prioritise infill development and densification, rather than expanding residential development outwards, so new settlements are functional and integrated units of the polycentric provincial network and based not only on the availability of land.
3. **Building an economic network**, through a system of high-order nodes and activity corridors, developing economic clusters that benefit from synergies and unlock the advantages of agglomeration.
4. **Creating a viable and productive hinterland**, by protecting valuable resources and high potential agricultural land from harmful development and managing water resources fugally and effectively.

Zandspruit lies within an **Area of Focus for Economic Consolidation** in terms of the Gauteng SDF, which are areas that are spatially distinct from the core Gauteng City Region and retain highly productive economies but have often lost their economic robustness and should be prioritised. These areas are delineated based on spatial analyses of non-residential property development and economic growth trends over the last two decades, as well as their contributions to the provincial economy, and relative accessibility and connectivity to the rest of the province. Although relatively marginal to the provincial core, these areas retain highly productive economies and developable land is more readily available where the State owns significant tracts of land; and land prices are lower relative to the urban core areas.

Proposals for Areas of Focus for Economic Consolidation include:

- **Land Use and Economy:**
  - Support the development of nodes and linkages in the desired network with the necessary transport infrastructure, suitable housing, land identification, land-banking as well as safety and security;
  - Augment urban growth nodes such as Lanseria;
  - Address the most critical barriers to investment first (i.e. water, electricity, poor road networks);
  - Revitalise the Central Business Districts (CBDs) ;
  - Identify suitable land; carry out nodal master planning; plan transit-oriented development; provide and upgrade long-term bulk infrastructure planning: and manage progressive land use and innovative urban design;
  - Municipalities must ensure that the private sector is intimately involved in the economic consolidation of these areas, providing a broad mix of compatible land-uses, high-density residential developments and creating opportunities for a broader mix of people of various income and social groups.

ZANDSPRUIT UDF : GAUTENG SDF

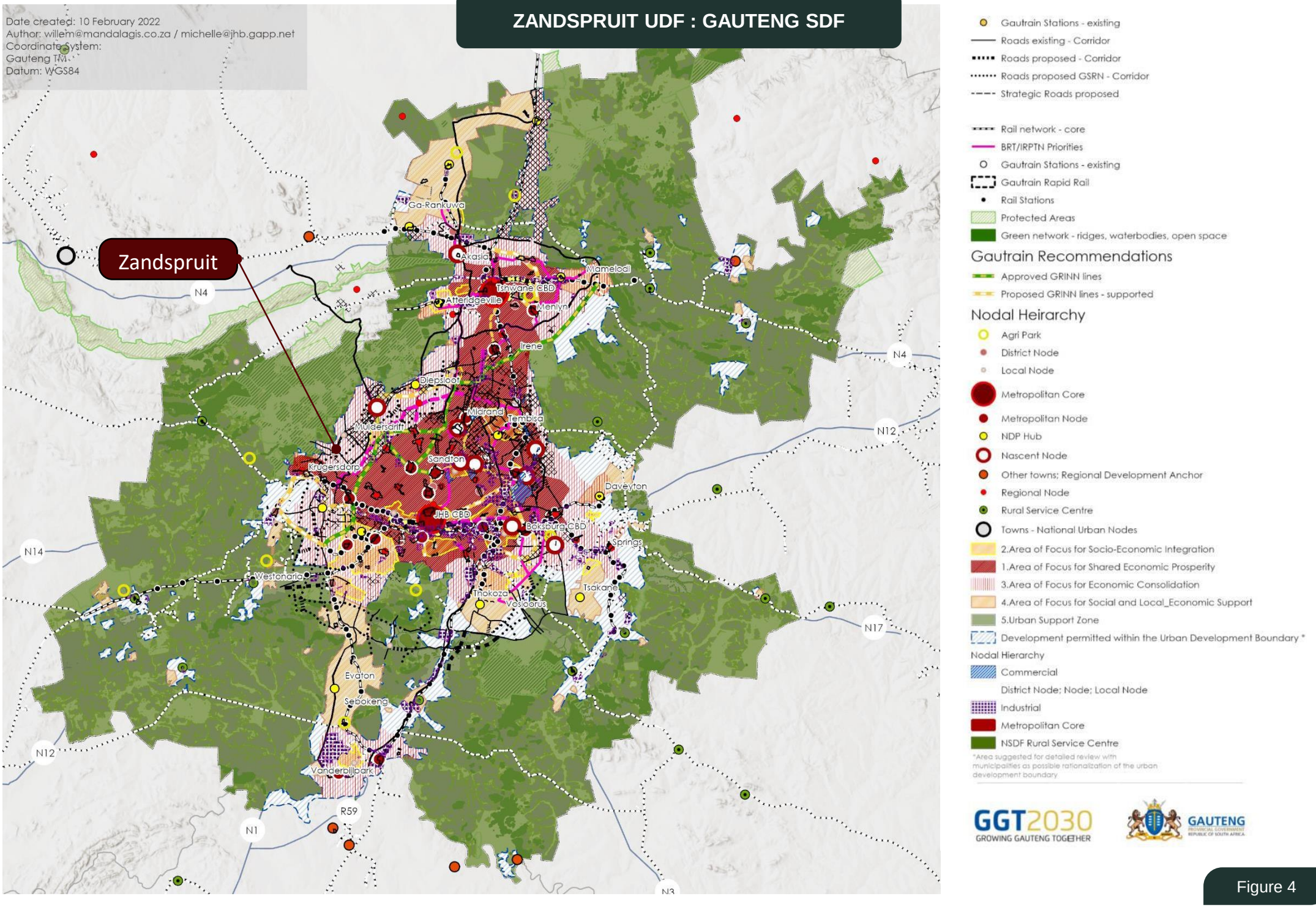


Figure 4

- **Environment:**
  - Protect the fine balance between development and the environment (important to consolidate development, making wetlands and open spaces integrators of communities rather than barriers of connectivity);
  - Identification of public open space and the value of pocket parks;
  - Urban agriculture supported in identified open spaces;
  - Investment in the public environment so that it becomes a springboard for economic opportunity (public spaces for markets and quality environments for the private sector to respond to)
- **Infrastructure:**
  - Prioritise long-term bulk planning and maintenance for these areas;
  - Transport infrastructure must be maintained, and public transport and strategic road infrastructure be extended to these areas
- **Mobility and Access:**
  - Rail and BRT routes should become connectors rather than dividers.

2.1.5 PRIORITY DEVELOPMENT AREAS

Figure 5 depicts the Priority Human Settlements and Housing Development Areas, commonly referred to as Priority Development Areas or PDAs, for the Gauteng Province.

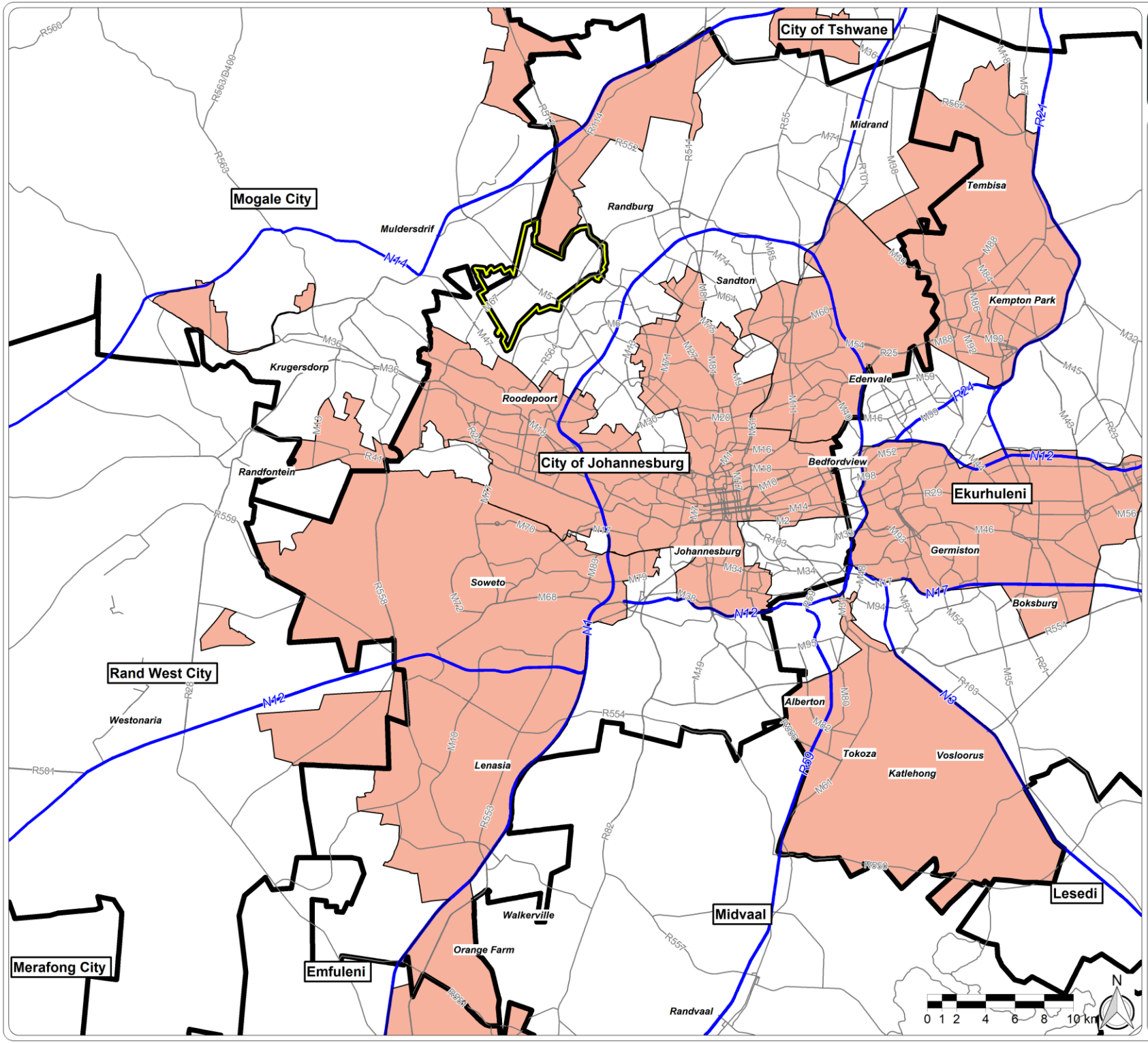
The Priority Human Settlements and Housing Development Areas Programme is a national spatial transformation approach to build new, integrated, functional, and inclusive settlements. It draws on cooperative and collaborative public sector investments intending to leverage private investment against defined 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.

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 PHSHDAs have been declared in terms of Section 3 of the Housing Act (No. 107 of 1997) read in conjunction with Sector 7(3) of the Housing Development Agency Act, 2008 (No 23 of 2008), the Spatial Planning and Land Use Management Act (SPLUMA) (No. 16 of 2013), and the Infrastructure Development Act (No. 23 of 2014).

It is noted from Figure 5 that the Zandspruit Study Area does not fall within a Priority Development Area, despite very large areas of Gauteng being earmarked as such.



PRIORITY DEVELOPMENT AREAS

Legend

- Study Area
- A Suburbs
- Municipal Boundaries
- PDA's

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 5

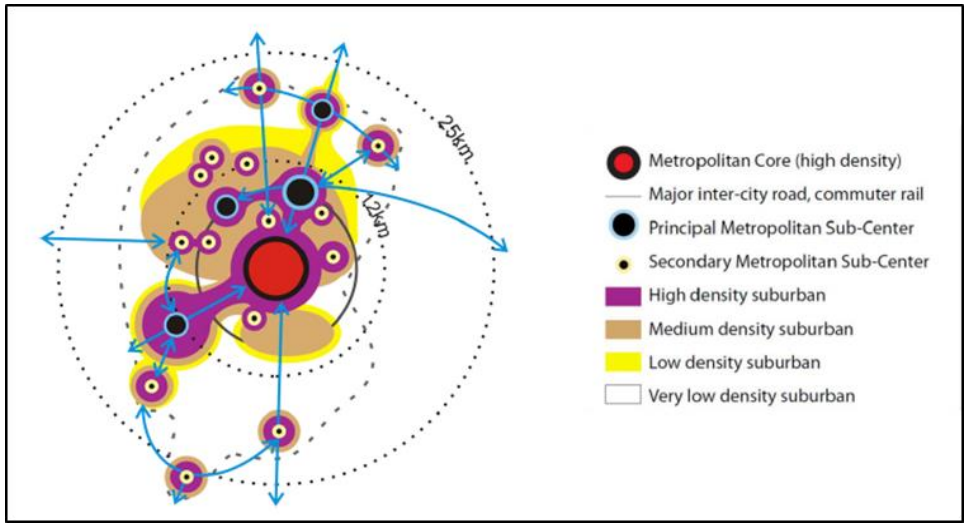
ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

2.1.6 COJ METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK, 2040

The SDF for Johannesburg 2040 is a city-wide spatial policy document premised on spatial transformation, defined through the principles of equity, justice, resilience, sustainability and urban efficiency which it seeks to translate into a development policy.

The spatial vision of the SDF 2040 (as graphically illustrated on **Diagram 3**) is a compact polycentric city. The Inner City represents the strong urban core linked by efficient public transport to dense, mixed-use (residential and commercial) sub-centres, and situated within a protected and integrated natural environment.

Diagram 3: CoJ Future City Model: Compact Polycentric Urban Form



At the heart of this future compact polycentric Johannesburg lies a strong metropolitan core, the CBD or inner City as depicted on **Figure 6**. This Metropolitan Core should offer high quality, sustainable services; support vibrant economic activity; and provide a welcoming place for all residents, commuters, workers, traders, investors and tourists.

Although the compact polycentric development strategy proposes that the bulk of future development for urbanisation should be directed towards the Transformation Zone in support of a more compact urban form, there are substantial parts of the Consolidation Zone that require remedial action.

Many marginalised areas are located on or beyond the fringe of the urban system and are dislocated from services and qualities that should be associated with urban living.

Some marginalised areas fall within the Transformation Zones and would therefore be integrated and redeveloped as part of those development programmes.

However, Zandspruit is one of the marginalised areas that fall outside the focus of the Transformation Zones and although these areas are too remote and disconnected to form an integral part of the proposed urban core, their location and surrounding suburban configuration offer some opportunities for growth that will improve connectivity and functionality at a local scale.

Investment in the Consolidation Zone should therefore be aimed at **addressing inequalities in the marginalised areas** and to **create a compact logic at a local scale**. The marginalised areas fall in three distinct categories, each with its own spatial context, opportunities and potential for development:

Zandspruit is identified as a **Category 2** marginalised area which areas are mostly situated on the western suburban fringe and are to a certain extent disconnected from the urban continuum.

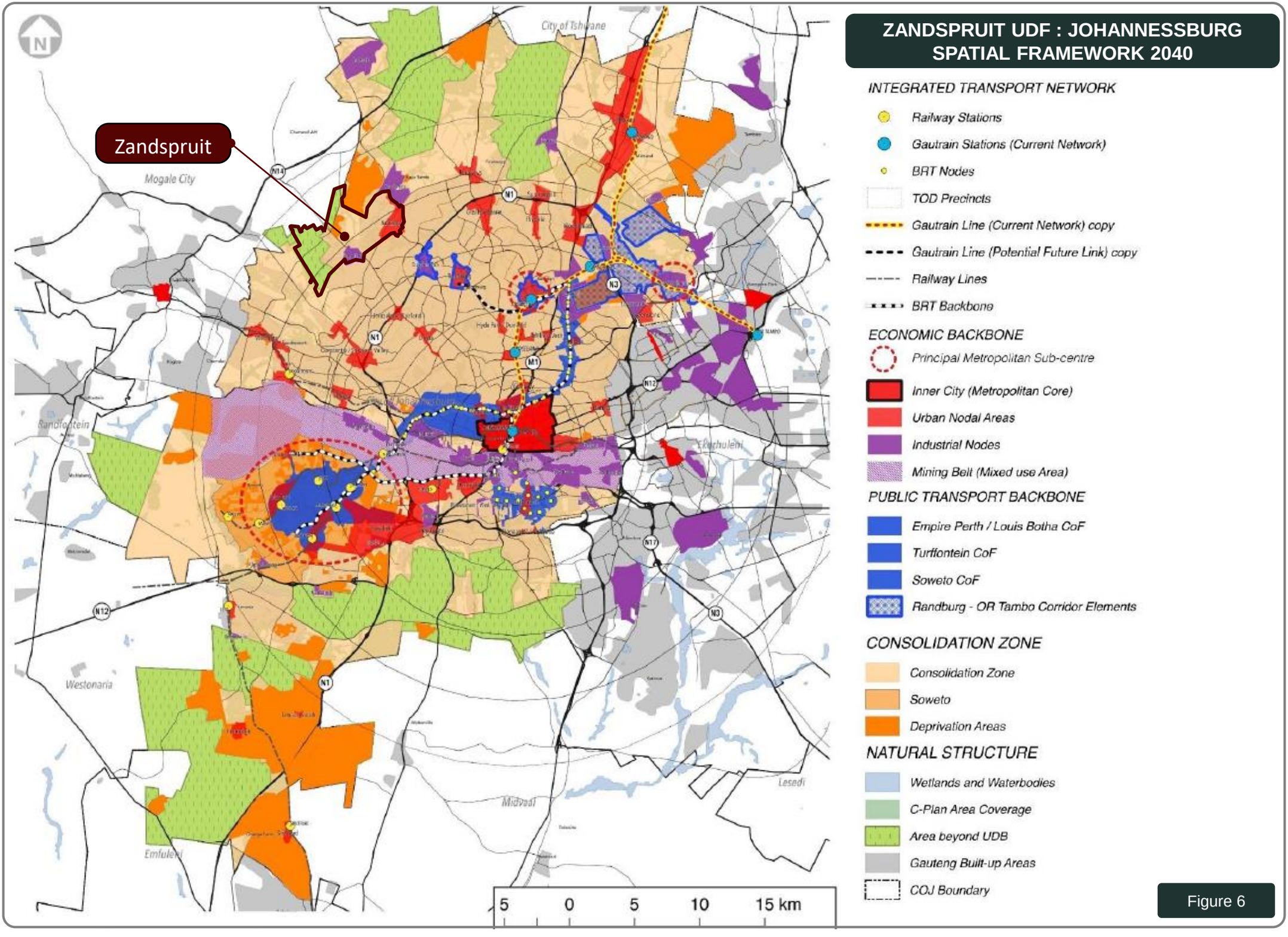

Zandspruit
City of Tshwane
Mogale City
Randfontein
Westonaria
Emfuleni
Midvaal
Lesedi
N14
N1
N12
N3
M1
N17
5 0 5 10 15 km
ZANDSPRUIT UDF : JOHANNESSBURG SPATIAL FRAMEWORK 2040
INTEGRATED TRANSPORT NETWORK
Railway Stations
Gautrain Stations (Current Network)
BRT Nodes
TOD Precincts
Gautrain Line (Current Network) copy
Gautrain Line (Potential Future Link) copy
Railway Lines
BRT Backbone
ECONOMIC BACKBONE
Principal Metropolitan Sub-centre
Inner City (Metropolitan Core)
Urban Nodal Areas
Industrial Nodes
Mining Belt (Mixed use Area)
PUBLIC TRANSPORT BACKBONE
Empire Perth / Louis Botha CoF
Turffontein CoF
Soweto CoF
Randburg - OR Tambo Corridor Elements
CONSOLIDATION ZONE
Consolidation Zone
Soweto
Deprivation Areas
NATURAL STRUCTURE
Wetlands and Waterbodies
C-Plan Area Coverage
Area beyond UDB
Gauteng Built-up Areas
COJ Boundary

Figure 6

This category displays the following characteristics:

- Fragmented suburban structure.
- Variable degrees of connectivity at local and regional scale.
- Some distance from economic centres but within range to reasonably access opportunities on a daily basis.

The general current built form and development patterns surrounding these areas are typical of urban sprawl (car based, low intensity, mono-functional suburban areas) and thus present very limited options for any integrated and sustainable development. There are no secondary metropolitan sub-centres in the area to link new urban development to, with the closest secondary metropolitan sub-centres being Randburg and Midrand which are between 15 and 20 kilometres away from Zandspruit. Even at a local scale there are no mixed-use local centres that provide the basis for structuring intensification and compaction around them.

The only significant job opportunities in the area are associated with the industrial nodes at Laser Park and Kya Sand which are the most logical connection point and link into the broader urban area. The industrial areas of Kya Sand and Laser Park will be a focus for economic development in terms of the Johannesburg economic strategy and provide the best opportunity for integrated and compact development around them and as economic catalyst areas the redevelopment of Zandspruit informal settlement.

There is further potential for the provision of job opportunities around the Lanseria Airport, should the Lanseria New City Master Plan 2020 be implemented. The CoJ adopted the Greater Lanseria Master Plan (GLMP) as a council policy vide a council resolution. The intention of the GLMP is not to allow individual, isolated developments to take place, but rather to provide a vision for a collection of developments, that rely on one another for viability. The GLMP becomes part of the SDF, being subject to all land use requirements (heritage, environment, etc), and the requirements of SPLUMA as with all land use policies considered as part of the SDF.

In terms of the SDF development strategy, the intended outcome is to resolve the problems associated with marginalised areas and at the same time create patterns of development that support compact city principles (at a local scale), create improved connectivity, improve quality of life and provide the building blocks for economic growth.

The focus of the strategy is to address developmental issues within the local context that will ultimately allow for seamless integration in the long term.

The strategy implies that connections from marginalised areas to local and regional centres of employment should be strengthened and that new development required to alleviate the housing need in the area is focussed within walking distance from employment centres and public transport stations. The nature of these developments should be higher density typologies with associated public and social facilities and a structural logic that supports walkability and access.

2.1.7 COJ NODAL REVIEW POLICY (2019/20)

Following from the approval of the CoJ SDF during 2016, it was recommended that the SDF process will be followed by a Nodal Review process, in which nodal boundary changes and additions will be considered – based on urban potential modelling exercises, and public participation inputs.

The Nodal Review came up with a new "transact" or "node and development zone" approach indicating the development guidelines that should be applied in each of the nodes/ development zones in the city.

The CoJ SDF 2040 remains the overarching land use policy for the City, with the Nodal Review Policy forming part of the SDF 2040 as an annexure.

Figure 7 depicts the Nodes and Development Zones identified in the City of Joburg from the Nodal Review Policy, while **Figure 8** depicts the associated density parameters. The notable points of the study area in the context of the CoJ Nodal Review Policy are discussed below.

A **Regional Node** is identified in the north-eastern parts of the study area at Northgate, east of the R564. Regional Nodes are the tertiary mixed-use/ commercial nodes of the city which are characterised by a high intensity and mixed land use pattern. These areas should be highly accessible with intersection spacings between 100 and 200 m intervals and intersection densities of up to 80 intersections per km².

These nodes are situated around transit stations where the highest residential densities (100+ du/ha) and an intense mix of land uses (retail, commercial, residential, community services, etc) are promoted and encouraged.

An **LED Zone** is identified at the Sonnedal AH, situated towards the north-western boundary of the study area. In the LED Zones there is a focus on promoting economic land uses (diversifying high density, single use, residential areas).

The spatial structure should be accessible and permeable with intersection spacings at 150 m-200 m intervals and intersection densities of up to 80 intersections per km². A mix of land uses is allowed throughout the neighbourhood, but focussed on high streets (mixed-use, active pedestrian streets), neighbourhood nodes and around public transport stations/shops.

Compatible land uses in LED Zones include light commercial, residential, offices, retail, public open space, recreation, community services, etc). A minimum density of 60 du/ha should be applied to residential uses.

An **Industrial Development Zone** is identified along the south-eastern boundary of the study area which includes Laser Park and Honeydew.

Industrial areas in close proximity to marginalised areas will be important focus points for economic investment and growth. Access to industrial areas like Kya Sands and Laser Park has to be improved with the diversification of the economy and job creation promoted. Investment will be focused on creating small and medium business opportunities, training and skills development and reliable service delivery.

Parts of the study area are **Beyond the Urban Development Boundary (UDB)** which include the western extents of the study area at Ambot AH, Ruimsig, Tres Jolie, Zonnehoeve AH and further north along the western boundary to Sonnedal AH.

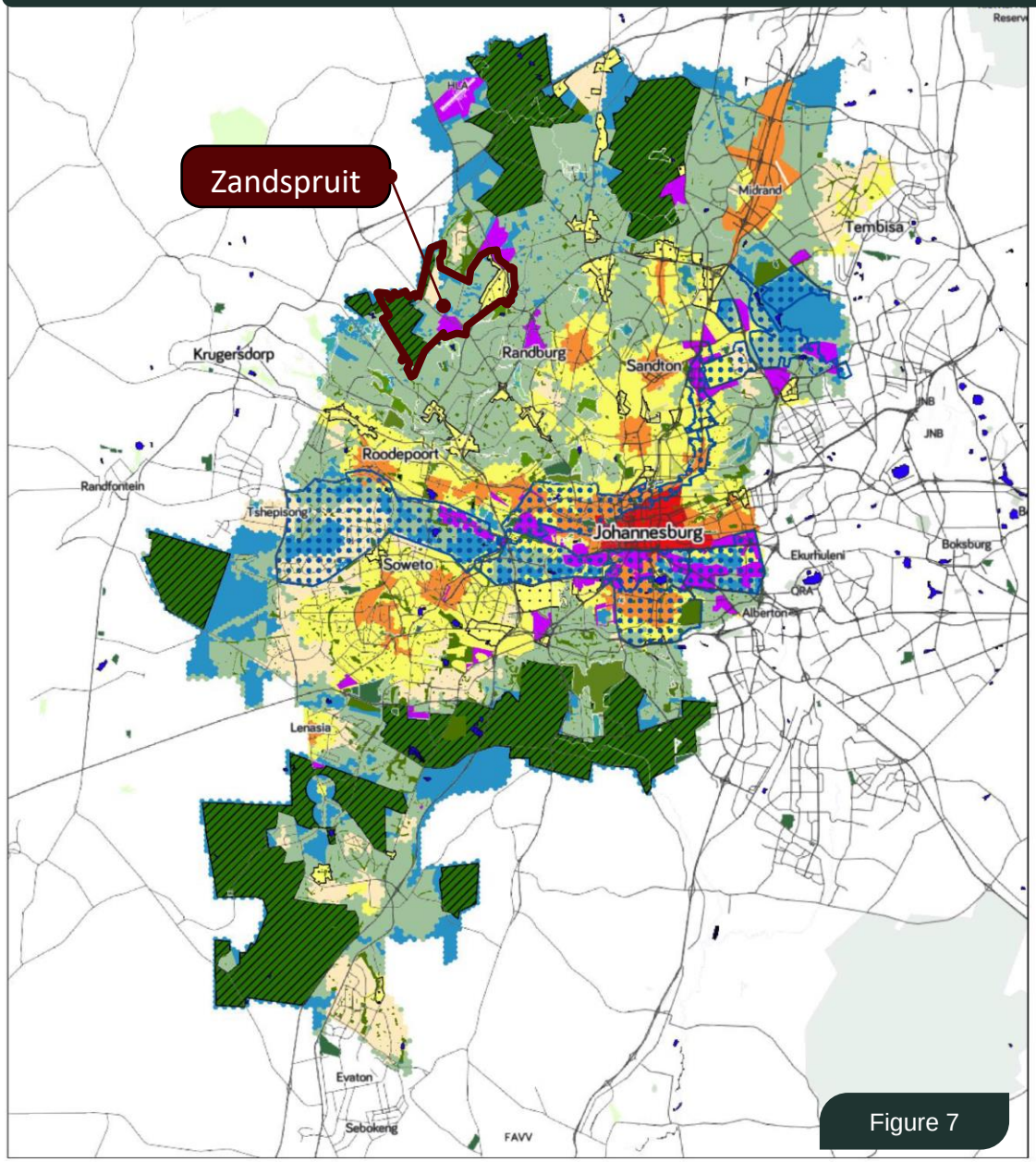


Figure 7

Nodes and Development Zones

0 3.75 7.5 15 km

NORTH

Legend

- City Parks/Open Space
- Empire Perth SAF
- Louis Botha SAF
- Mining Belt SAF's
- Randburg-OR Thambo Corridor
- Turffontein SAF
- Zandspruit Study Area

Node/Devt. Zone

- Inner City Node
- Metropolitan Node
- Regional Node
- General Urban Zone
- LED Zone
- Sub-Urban Zone
- Peri-Urban Zone
- Beyond Urban Development Boundary
- Industrial

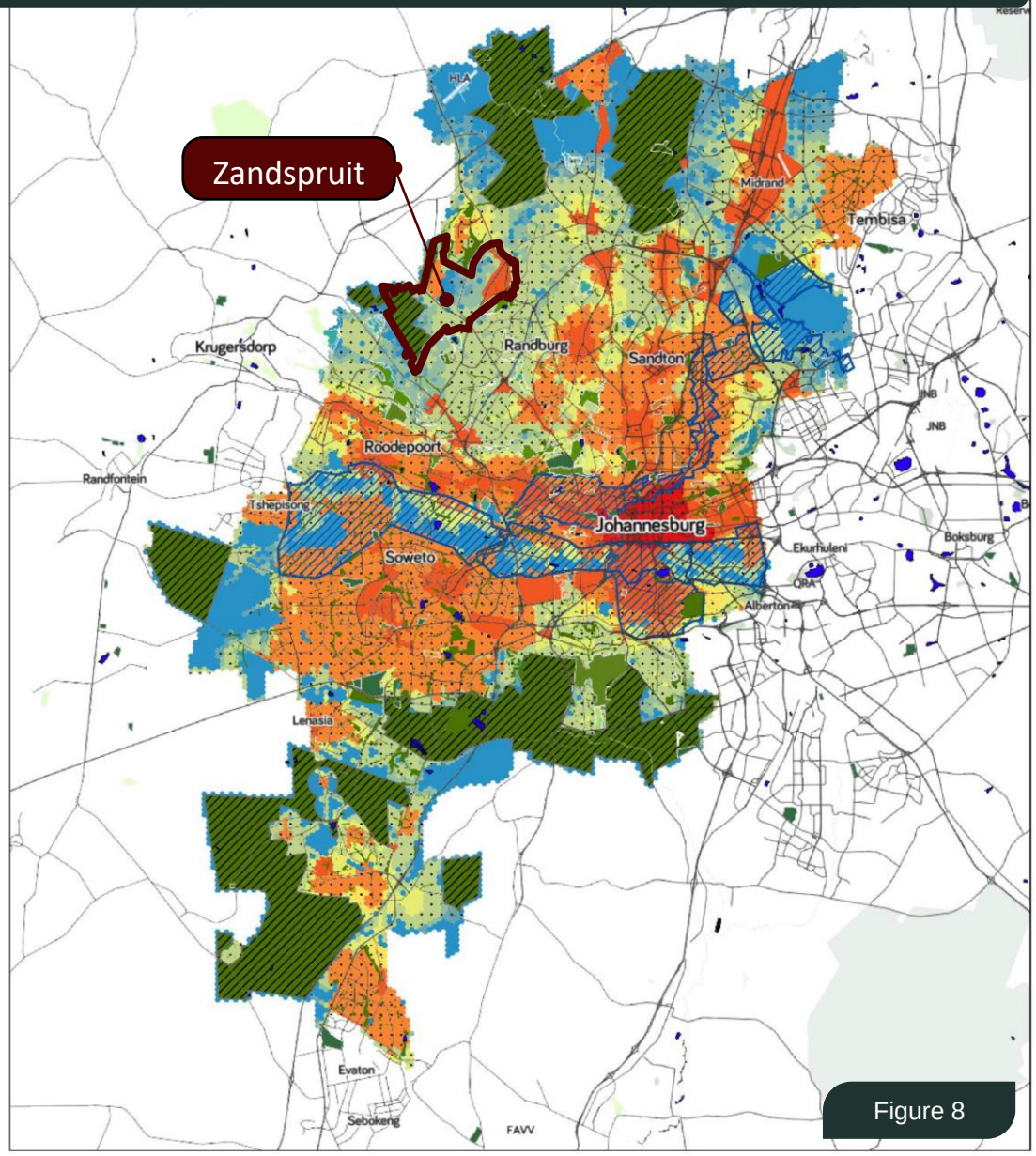


Figure 8

Dwelling Units Per Hectare

0 3.75 7.5 15 km

NORTH

Legend

- Zandspruit Study Area
- City Parks/Open Space
- Empire Perth SAF
- Louis Botha SAF
- Mining Belt SAF's
- Randburg-OR Thambo Corridor
- Turffontein SAF
- N/A
- 5 to 10
- 10 to 15
- 15 to 20
- 20 to 30
- 30 to 40
- 40 to 50
- 50 to 60
- Min 60
- Min 80
- Min 100

The UDB was established to manage the expansion of the city's footprint, limit sprawl related infrastructure costs (capital and operational) and protect the City's ecological resources. Land located beyond the City's UDB is predominantly rural and agricultural in nature and high proportions of the City's Critical Biodiversity (CBA's) and Environmental Support Areas (ESA's) are found outside of the boundary. As such, areas falling outside of the existing Urban Development Boundary are viewed as a focus of ecological resource protection and management, food production, low intensity social services and amenities, agricultural related investment, leisure and tourism, and green energy initiatives.

The city will, therefore, limit development and infrastructure investment that is not related to such initiatives.

The remainder of the study area is a **Sub-Urban Zone** with dispersed parts of the **Peri-Urban Zone**. These areas are characterised by low-density and low-intensity residential or agricultural uses. A mixing of land uses can be allowed as per the Scheme, but a low-intensity residential/agricultural environment must be maintained.

2.1.8 GREATER LANSERIA MASTER PLAN (GLMP), 2020

Figure 9 depicts the Greater Lanseria Master Plan, which is briefly outlined below.

Parts of the study area fall within the Greater Lanseria Master Plan area, and it is noted that the Urban Development Boundary of the CoJ was amended to include the said plan.

The Greater Lanseria emerging node is located on the N14 Highway, linking to Krugersdorp and Ventersdorp, through to Tshwane. This corridor is seen as a far less mature route than other corridors within the region and additional investment into the Greater Lanseria Growth node will further enhance this corridor.

The existing development energy is along Malibongwe Drive, where a number of existing residential enclaves and marginalised communities exist, located in Cosmo City, Zandspruit, North Riding. There is a need to integrate and stitch these settlements into the urban fabric through primary and local road connections.

The plan notes that it is important that the activity spines of Malibongwe Drive, William Nicol Drive and Beyers Naude Drive are established to support the N14 development corridor. Investment into these direct road connections remain a priority, as the roads come from somewhere important (such as an economic node) and go to somewhere important (such as another economic or industrial node). It is fundamental that the existing approach to the road network needs to be reconsidered from a stringent road hierarchy of limited access to a more integrated approach of a fine-grained grid pattern road network, where streets become the lifeblood of the city.

ZANDSPRUIT UDF : DRAFT GREATER LANSERIA MASTERPLAN, 2020

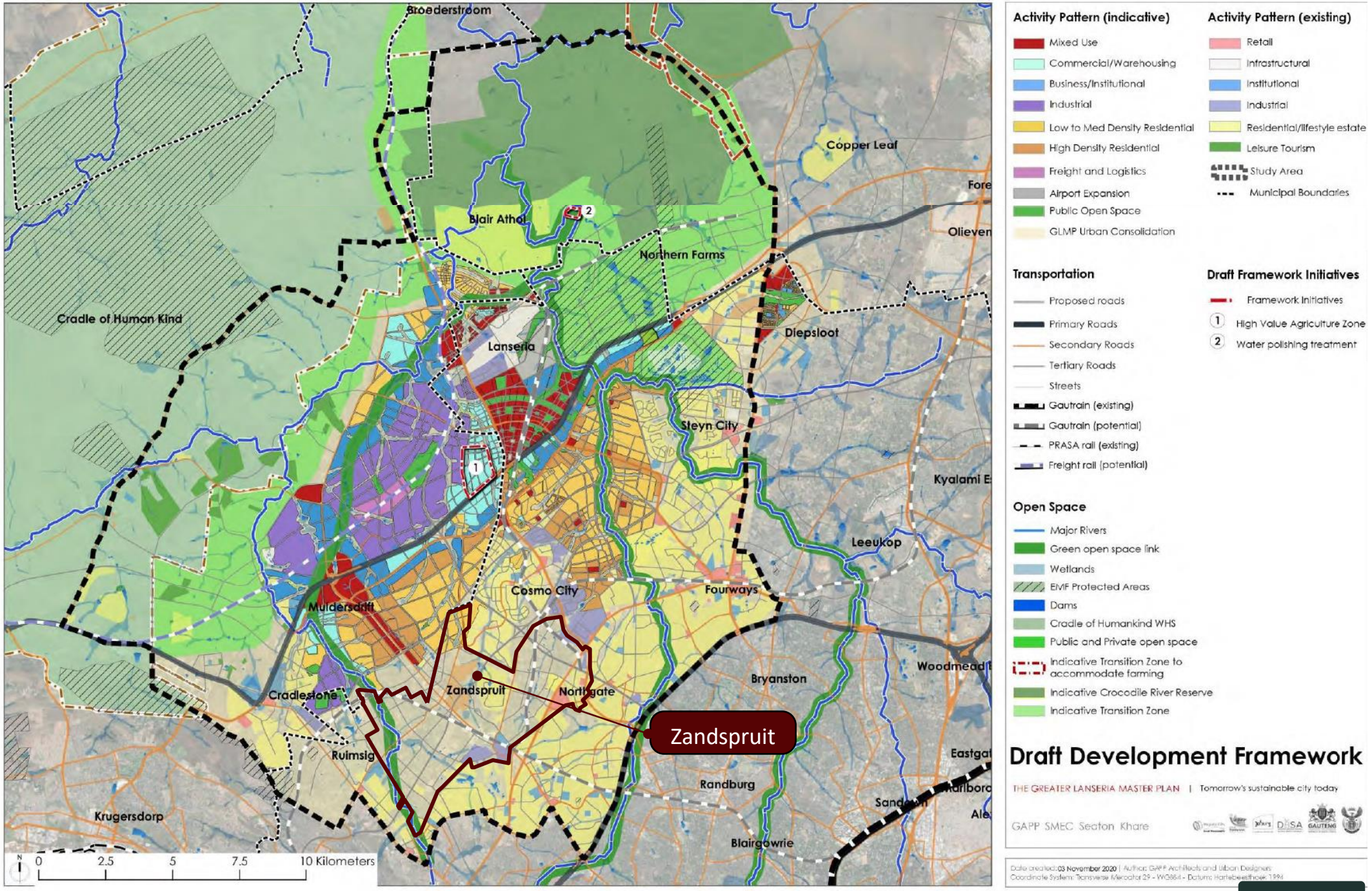


Figure 9

2.1.9 COJ INCLUSIONARY HOUSING POLICY

While the CoJ was developing this Nodal Review Policy, the Inclusionary Housing Incentives, Regulations and Mechanisms were being formulated. The Nodal Review (and all spatial policies in the city) should be read in conjunction with the Inclusionary Housing Incentives, Regulations and Mechanisms. The Nodal Review (and other relevant spatial policies) determine the allowable development controls and land use on a site, and then inclusionary housing bonuses (where relevant) are applied over and above those controls.

The Inclusionary Housing Policy is defined as a housing programme that, through conditions attached to land use rights approvals, requires private developers to dedicate a certain percentage of new housing developments to low-income and middle-income households, or to households that may not otherwise afford to live in those developments.

Inclusionary housing is mandatory for any development application under the jurisdiction of the City of Joburg that includes 20 dwelling units or more. Different options (and associated incentives) are given for inclusionary housing that developers may choose from. In each option, a minimum of 30% of the total units must be for inclusionary housing. Inclusionary housing requirements are triggered by land development applications. As such, the Framework does not affect existing, approved land use rights. **Table 1** depicts the various inclusionary housing options available to developers.

Table 1: Inclusionary Housing Options

Option	Description	Details	Incentives Summary
1	30% of Dwelling Units are:	• Social Housing • FLISP Housing • Housing with a rental Cap: R2100 per month (2018 prices).	Increase in FAR equal to the total % of inclusionary housing (max 50% increase). Increase in density (in du/ha) to accommodate the extra units. Parking reduction for inclusionary units.
2	10% of the total residential floor area is made up of small units. At least 30% of the total units in the development must be inclusionary housing.	Minimum: 18m² Maximum: 30m² Average: 24m²	Increase in FAR to accommodate the 10% floor area for AH. Increase in density (in du/ha) to accommodate the extra units. Parking reduction for inclusionary units.
3	20% of the total residential floor area is made up of units that are 50% of the average market unit size. At least 30% of the total units in the development must be inclusionary housing.	Maximum: 150 m² Minimum 18 m²	Increase in FAR to accommodate the 20% floor area for AH. Increase in density (in du/ha) to accommodate the extra units.
4	To the satisfaction (in writing) of City Transformation and Spatial Planning, City of Johannesburg		

2.1.10 COJ GROWTH AND DEVELOPMENT STRATEGY, 2040

The CoJ Growth and Development Strategy (GDS 2040) is intended to enable the transition of the city to a more sustainable and inclusive urban centre. The GDS is rooted in the core principles of resilience, sustainability and livability, and is based on the following **strategic components:**

- **A compact built form:** An urban form that is compact and improves livability is also one with greater resilience and sustainability. A shift towards a compact city urban model will combine density and proximity in order to re-establish an urban hierarchy.
- **Sustainability and resilience:** To achieve sustainability and resilience, focus is needed on upgrading informal settlements converting these into economically vibrant neighbourhoods that are diverse and distinct in urban form, structure, density and cultural identity. The quality of housing and the design of neighbourhoods are critical.
- **Managing resource scarcity:** Focus must be placed on resource sustainability, e.g., land, water, energy and waste. To do this, the City needs to encourage the development of its 'green economy' – innovating and leading in adopting new technologies, systems and municipal regulations for generating, distributing and consuming energy.
- **Infrastructure as a building block for resilience and sustainability:** The ability to develop new infrastructure and extend services to new growth areas is an important aspect of building resilience and to deal with increased infrastructure pressures resulting from urbanization.
- **Mass public transport:** An efficient mass public transportation system creates significant carbon emission savings, while resulting in a city that is less dependent on private vehicles for mobility. Scaling up and investing in mass public transport is one of the surest ways in which to also address and manage the city's spatial form, by connecting people and places, and giving those who still remain in disadvantaged communities access to new opportunities. Linked to the provision of mass transport is the principle of promoting development around public transport points in the form of Transit Orientated Development.
- **Change behaviour:** Johannesburg's environmental and resource resilience is fundamentally dependent on the City's ability to lead and drive institutional, organizational, business and citizen change towards a more environmentally sustainable, resilient and livable future.

To focus the City's programmes and institutional arrangements for the first decade of the implementation of GDS, the following **10 Priority Implementation Plans form the basis of the City's Integrated Development Plan:**

1. Financial sustainability and resilience.
2. Agriculture and food security.
3. Sustainable human settlements.
4. SMME and entrepreneurial support.
5. Engaged active citizenry.
6. Resource sustainability.
7. Smart City.
8. Investment attraction, retention and expansion.
9. Green economy, and
10. Safer cities.

2.1.11 COJ NON-MOTORISED TRANSPORT POLICY

Non- Motorised Transport has been identified as a priority area at National, Provincial and Local Government levels and has the potential to become a feasible and sustainable transport mode in the City.

The CoJ Non-Motorised Transport Policy provides a planning framework and gives policy direction for the implementation of a Non-Motorised Transport network in the CoJ.

Several of the City's primary arterial routes have been targeted for major upgrading by Gautrans and JRA. These include: Beyers Naude (northern extent near Zandspruit) and Malibongwe (northern extent near Lanseria). If the engineering designs for these upgraded roads could include formal pedestrian and cycling lanes, this would eliminate the need for future retrofitting of major arterials in the future. There is an opportunity to include NMT as a standard requirement for all major road upgrades.

The CoJ NMT Policy identified 10 Priority Areas, of which *Zandspruit/Cosmo City Route to Northgate* comprises Priority Area 6.

A route is proposed in the policy which aims to increase access to amenities and economic opportunity for a population predominantly reliant on walking great distances as Zandspruit and Cosmo City do not benefit from good linkages or formal public transport into economic or mixed-use nodes.

The route proposed seeks to support NMT modes connecting Zandspruit and Cosmo to the Northgate node from which a greater variety of public transport and access is available.

2.1.12 COJ INFORMAL TRADING POLICY, 2022

The CoJ Informal Trading Policy notes that informal economic activity is increasingly recognised as an important component of Johannesburg's overall economy and that informal economic activity is not a separate economy but is linked to the mainstream economy in various ways. One key component of the informal economy is informal trade which is not only a form of self-employment but is further a creator of jobs and collectively, the contribution of the informal traders to the Johannesburg economy is substantial. Public space is an invaluable resource for the provision of goods and services through informal trade, particularly streets with intense pedestrian traffic which are linked to public transport routes. For pedestrians, street trade provides the convenience of an on-street purchase, small volumes and low prices.

The CoJ accordingly compiled an Informal Trading Policy which aims to support informal trade to realise its productive potential.

In terms of the policy, any person wishing to carry on business as an Infromal Trader within the CoJ has to apply for and be registered as an Informal Trader with the City, which is to be renewed annually.

In order to **qualify for an informal trading permit**, an applicant must:

- Be a South African Citizen,
- Be or intend to become an Informal Trader,
- Be or become and remain registered as an Informal Trader for the duration of said trading permit,
- Not hold a valid trading permit, or surrender same,
- At all times act lawfully,
- Apply for a trading permit to trade in a suitable demarcated space and for a suitable business, and

- Show willingness to pay rent as determined by the City.

The following **considerations apply to the approval** of Informal Trading Permits:

- The availability of trading space in the area applied for,
- The applicant's ability to meet the trading hours for the relevant trading area,
- The suitability of the trading space applied for considering the nature of the business the applicant intents to conduct,
- All other authorisations relevant to the Informal Traders Business are in place (business license, sale of foodstuffs, etc).

General Conditions applicable to registered Informal Traders in the CoJ:

- First-time applicants need to attend an information session,
- The agreements between the City and Traders is considered binding on both parties,
- Traders are protected by the Consumer Protection Act,
- In high-demand zones, alternative allocation models may be piloted,
- There must be sufficient product diversity within an area,
- No permanent/semi-permanent structures may be erected by the trader of the stall,
- Trader is liable for Municipal Services payable to their individual stall, no rates are charged,
- Trader may not sublet a stall.
- Trader may only trade in designated space as allocated,
- Drugs, alcohol and fake products may not be sold,
- The City shall have 24 hour's unrestricted access to stalls.

2.1.13 ZANDSPRUIT AND SURROUNDING AREAS TRANSPORT MASTER PLAN (TMP), 2022

The JDA commissioned the development of the Zandspruit Transport Master Plan (TMP) for Zandspruit and the surrounding areas. The following five (5) building blocks form the basis for developing this Draft TMP:

- Infrastructure considerations – development of road infrastructure, public transport infrastructure, and non-motorised transport infrastructure to connect people to economic opportunities and support economic growth.
- Governance considerations – issues related to policy frameworks and the regulation thereof.
- Sustainable transport services – development of a sustainable transport network that supports the provision of sustainable transport services.
- Land use integration – alignment of land use development with policy guidelines and the transport system.
- Integrated projects – identification of integrated projects that address efficiencies, infrastructure provision and maintenance, and environmental sustainability.

To address pertinent **Land Use Issues** in the study area, the TMP recommended the following:

- Review of policy framework to address densification and demand for higher densities.
- Management of increasing backyard dwellings and their associated impacts to transport infrastructure and services.
- Development of a housing strategy to manage settlement growth and accommodate more sustainable forms of housing as well as facilitate the improvement of living conditions within the informal settlement areas.

To address **Informal Trading Activity** in the area the following is recommended:

- The provision of trader facilities on key movement spines.
- The provision of facilities for traders at all taxi ranks and other public transport facilities.
- The provision of trader facilities at key public spaces, community facilities and retail nodes.

The primary **Public Transport (PT)** routes need to have the following PT facilities and NMT provision along Class 2 and 3 routes:

- Access to multi-modal public transport transfer facilities.
- Sheltered bus & taxi lay-bys at intervals that align with intersection spacing but not more than 1 m intervals, i.e., max 500 m walking distance to a bus / taxi stops.
- Exclusive public transport lanes (buses and taxis).
- Surfaced sidewalks considering universal access design principles on both sides. Where possible, the sidewalks need to be detached from the roadway.

The following **NMT Interventions** are proposed on strategic transport links within the study area in accordance with the CoJ Complete Streets Design Guideline:

- Separated sidewalks should be a minimum 1,5 m wide (all classifications).
- Sidewalks should be provided on both sides of all street classifications (including most residential and industrial areas)
- Wider (≥2,0 m) sidewalks should be provided along public transport routes and connections to public transport hubs.
- Wider (≥2,0 m) sidewalks should be provided for connections to schools, within activity centres and near major pedestrian generators (e.g., stadiums).
- Sidewalks should be wider (>2,0 m) to provide separation from traffic when: Truck volumes are > 10% of total volume.
- Design speed is >60 km/h.
- Traffic volume is >20 000 vehicles per day (note: does not apply to industrial streets).
- Sidewalk width should be chosen based on surrounding land uses.

It should be noted that the Zandspruit TMP was used as the point of departure in assessing the current Movement Network for the area in the Engineering Services Analysis of this document (*Section 2.3.1*) and furthermore, the proposals made in the Zandspruit TMP were translated into Strategies for the area (*Section 3.5.2*). These proposals were not discussed in this section as to avoid duplication.

2.2 SPATIAL ANALYSIS

2.2.1 REGIONAL CONTEXT

Figure 10 illustrates the Regional Context and is discussed below:

- The study area's northern boundary is created by the demarcation between CoJ and the Mogale City Local Municipality.
- Mogale City and Krugersdorp are located west of the study area in the Mogale City LM with Factoria and Chamdor being the largest Industrial Complexes.
- The Muldersdrift area is situated north of the study area consisting of a combination of mining, business, industrial and prominent tourist activities such as wedding venues, restaurants and holiday resorts.
- Lanseria Airport is situated further north of the study area with a combination of light industrial uses surrounding the airport.
- The main industrial uses in and around the study area consist of Kya Sand, Hoogland, Laser Park and Strijdom Park and the **Info Box** outlines the most salient economic features of each.
- The Randburg CBD is situated north of the area and Monte Casino is located to the east of the study area.
- The study area, as well as the areas lying to the north, predominantly around the N14 and the R512 are impacted by a large number of informal settlements.
- Aerial Images of the informal settlements (numbered 1-15 on Figure 10) are illustrated in **Diagrams 4, 5** and **6** which outline the extent of the various informal settlements. The names, as per the CoJ database of some of the informal settlements was available, while some are unknown.
- ***Number 14*** depicts the Aerial Image of the Zandspruit Informal Settlement and provides context of the large extent of the informal settlement, while ***Number 15*** shows the emergence of informal settlement on the opposite side of Beyers Naude Drive.

Info Box: Industrial Nodes Summary

KYA SANDS, KYA SANDS EAST AND KYA SANDS WEST INDUSTRIAL NODES
Adjacent to the Northriding industrial node are the Kya Sands, Kya Sands East and Kya Sands West industrial nodes, located within the Kya Sands area. Businesses in these industrial nodes include: ❖ Kya Sands Business Park ❖ House of DEMO/LG & Samsung Demo Goods Factory Shop – Electronic store ❖ John's Auto and Industrial Paints – Paint store ❖ Universal Paints Factory – Paint store ❖ ECU Express Randburg – Auto electrical services ❖ Kya Sands Industrial Village – Business centre ❖ Diamond Trailers – Trailer dealer ❖ Design Packaging and Tapes – Packaging company ❖ Becket Brothers Steel and Tube – Pipe suppliers ❖ Elite Autobody – Auto parts store Mostly supply companies are located within the Kya Sands industrial nodes.
NORTHRIDING INDUSTRIAL NODE
The Northriding industrial node is located within the Hoogland area, with various businesses in the area. Some of these businesses include: ❖ Nemtek – Electric Fencing Products ❖ CTM – Hardware store ❖ Northlands Corner Shopping Centre – Neighbourhood Centre ❖ Decofurn Furniture – Furniture Store ❖ Northlands Retail Park – Furniture Store ❖ Northlands Production Park – Business Park ❖ Get More Car Dealership ❖ Build It Northriding – Hardware Store

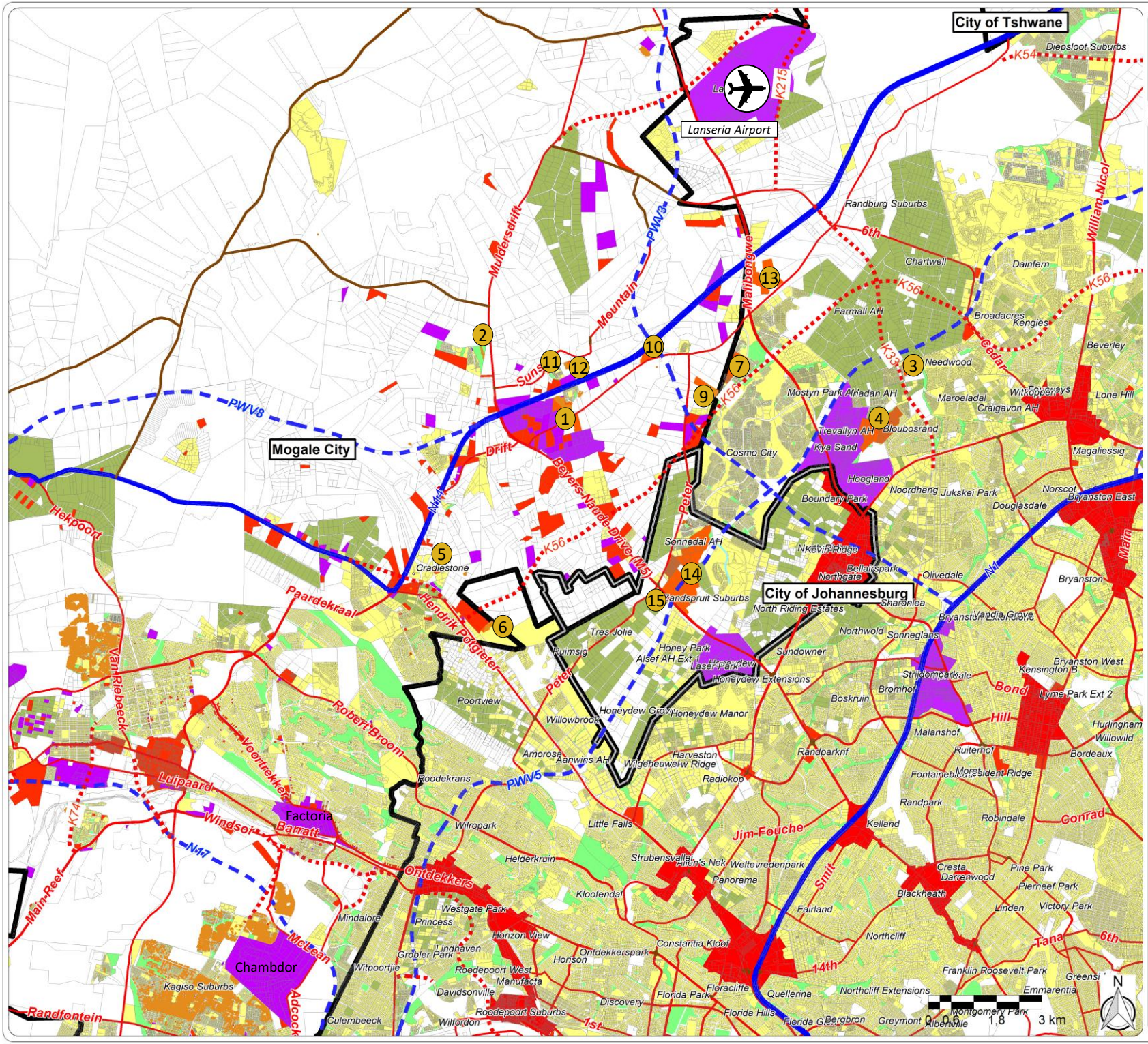
STRIJDOM PARK INDUSTRIAL NODE
The Strijdom Park Industrial Node is located within Strijdom Park and includes factories and warehouses. Some prominent businesses in the area include: ❖ Kia Randburg ❖ ACDC Express Strijdom Park – Electrical supply store ❖ Regal Distributors SA – Security services ❖ We Fix Cars Panelbeaters and Spraying – Auto repair shop ❖ Dent Tech Panelbeaters – Auto body shop ❖ Chamberlain Randburg – Hardware store ❖ Universal Storage Systems – Warehouse ❖ Mine Africa Solutions – Safety equipment suppliers ❖ Waterhouse Pumps – Water pump suppliers ❖ POP Warehouse – Distribution services ❖ Microtronix SA – Electronics manufacturers ❖ NONOS Motorsport, BMW Specialist Repairs and Performance Upgrades – Auto repair shop

2.2.2 INSTITUTIONAL STRUCTURE

2.2.2.1 CADASTRAL STRUCTURE & WARD BOUNDARIES

Figure 11 outlines the Cadastral Structure and Ward Boundaries of the study area, from which the following is evident:

- In terms of the institutional structure, the study area falls within 3 CoJ wards, namely Ward 97, which cover the south-western part of the study area, Ward 114 which covers the north-western part of the study area as well as Ward 134 which comprises the north-eastern part of the study area.
- It is very important to note that part of the study area falls within Ward 23 of the Mogale City LM. It has been confirmed that said part is considered part of the study area and is included.
- In terms of the cadastral structure of the study area, there is a combination of formal townships (erven) farm portions and agricultural holdings (A.H.).
- The A.H. areas were established in terms of the Agricultural Holdings Act and the title deeds would contain a number of restrictive conditions.
- The formal townships are located around the southern boundary adjacent to existing formal township areas. The affluent Jackal Creek Estate is located in the central area, adjacent to the Cosmo City extensions.
- The Zandspruit informal settlement is situated on farm portions, however, planning is being undertaken to create formal townships (erven).



REGIONAL SPATIAL STRUCTURE

Legend

- Study Area
- A Suburbs
- Municipal Boundaries
- Towns and Settlements
- Agricultural Holdings
- Business Nodes
- Industrial Nodes
- 1 Informal Settlements
- Open Space
- National Roads
- Proposed National Roads
- Provincial Roads
- Proposed Provincial Roads
- Other Roads
- Lanseria Airport

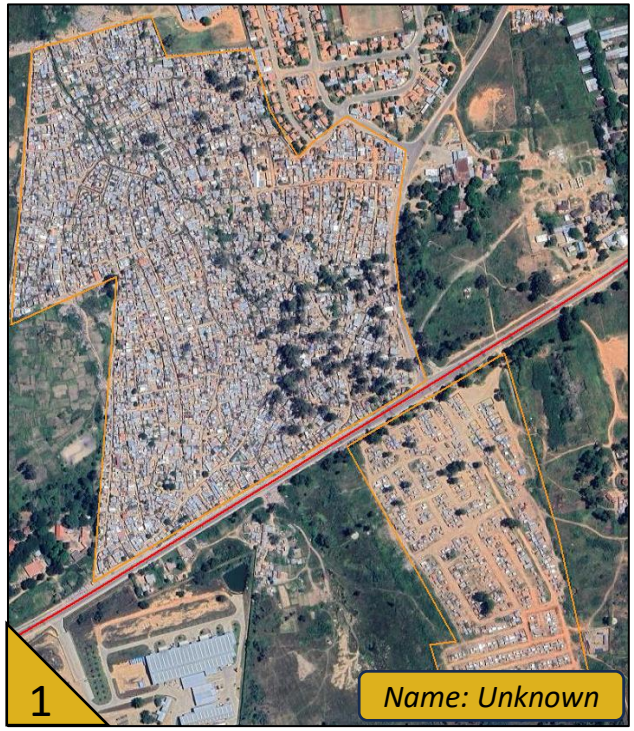
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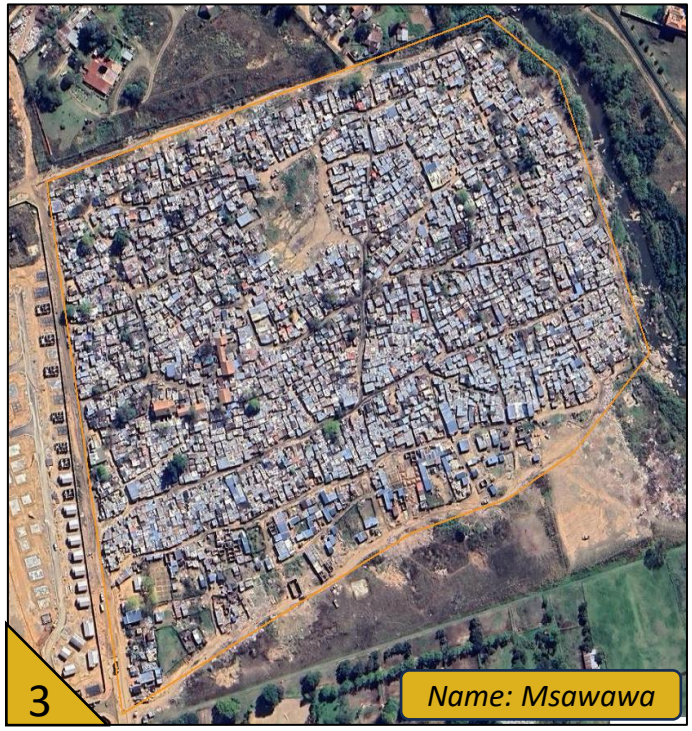
Figure 10

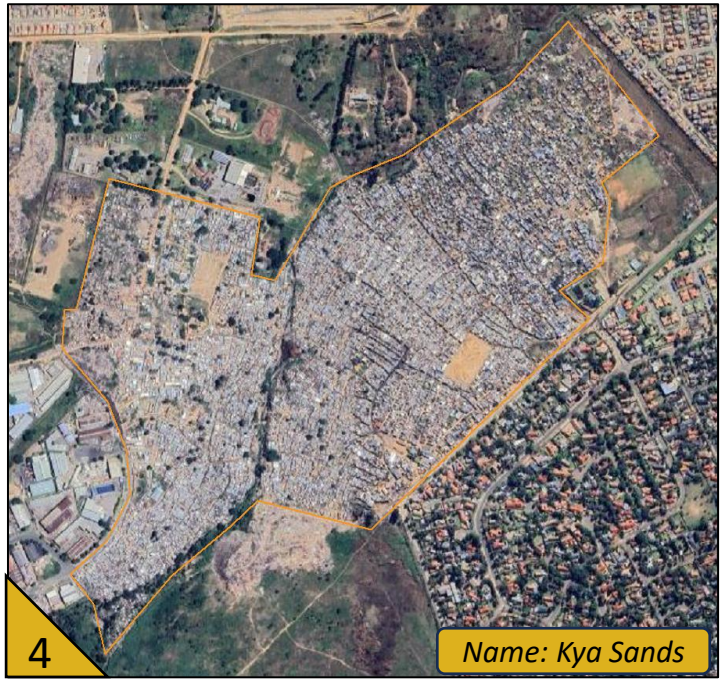
ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

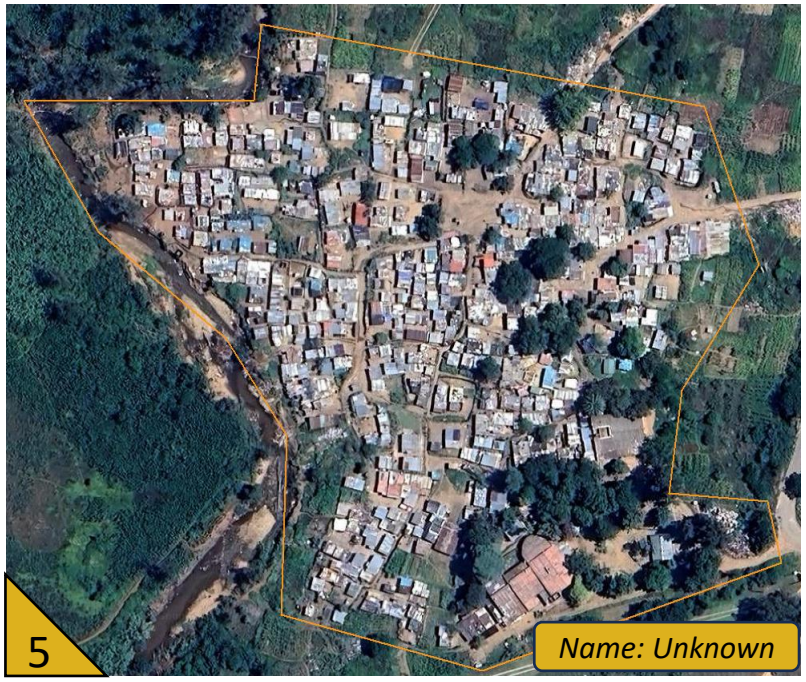
Informal Settlements







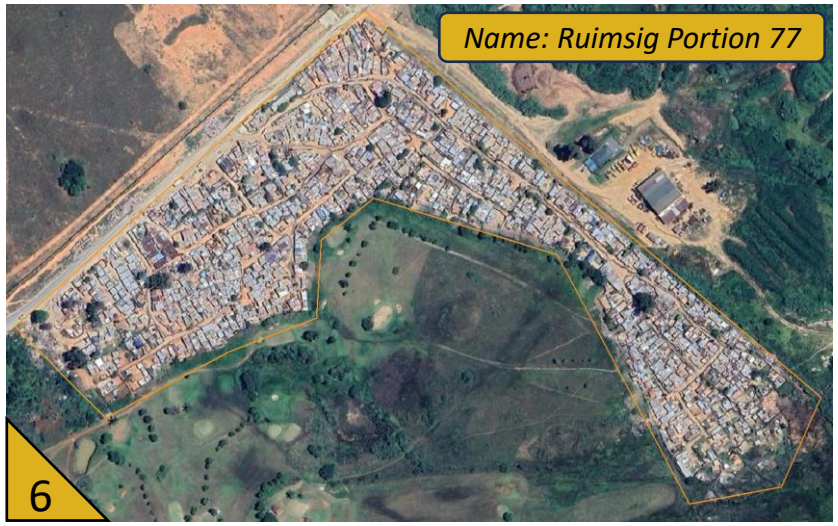




ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

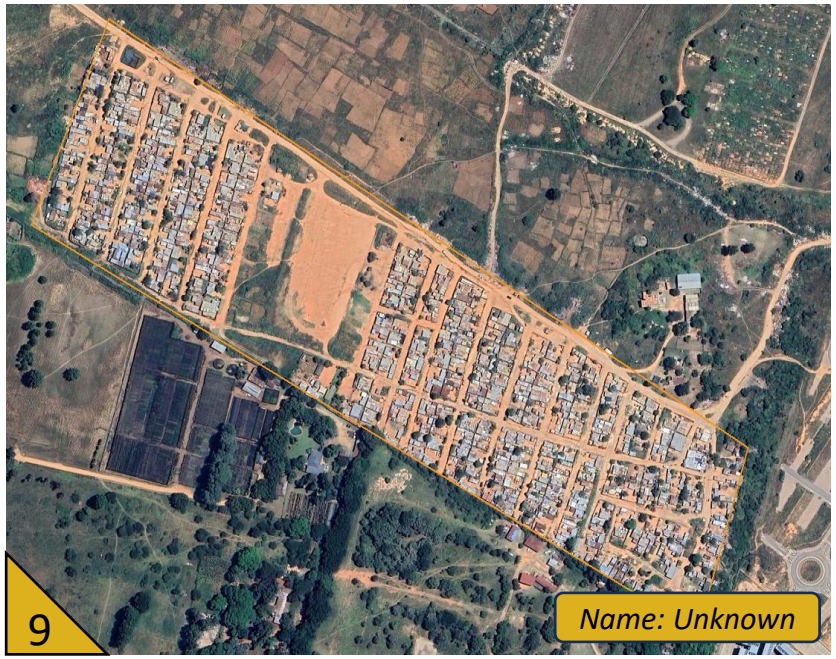
Diagram 4

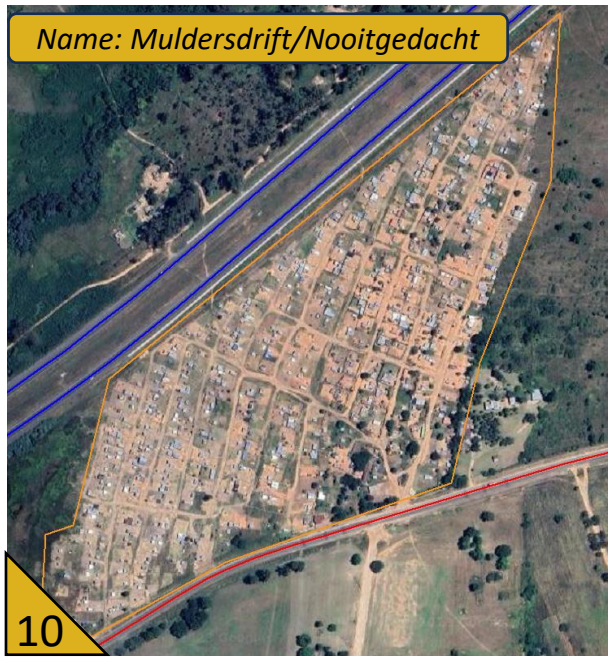
Informal Settlements













ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

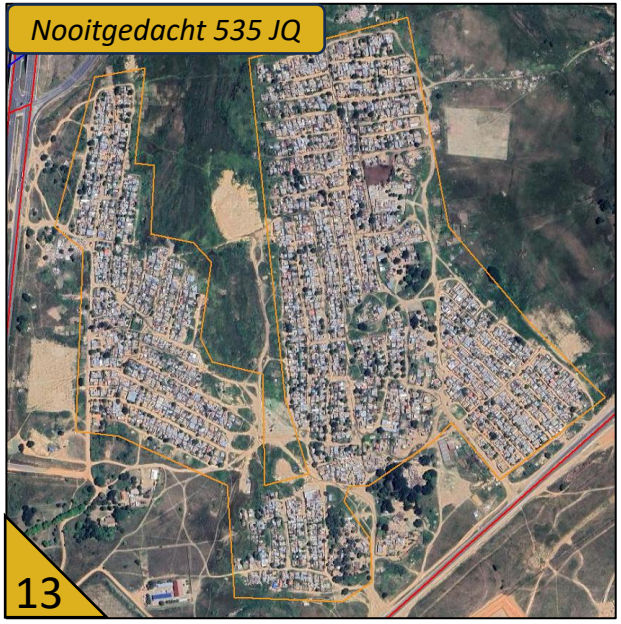
Diagram 5

Informal Settlements



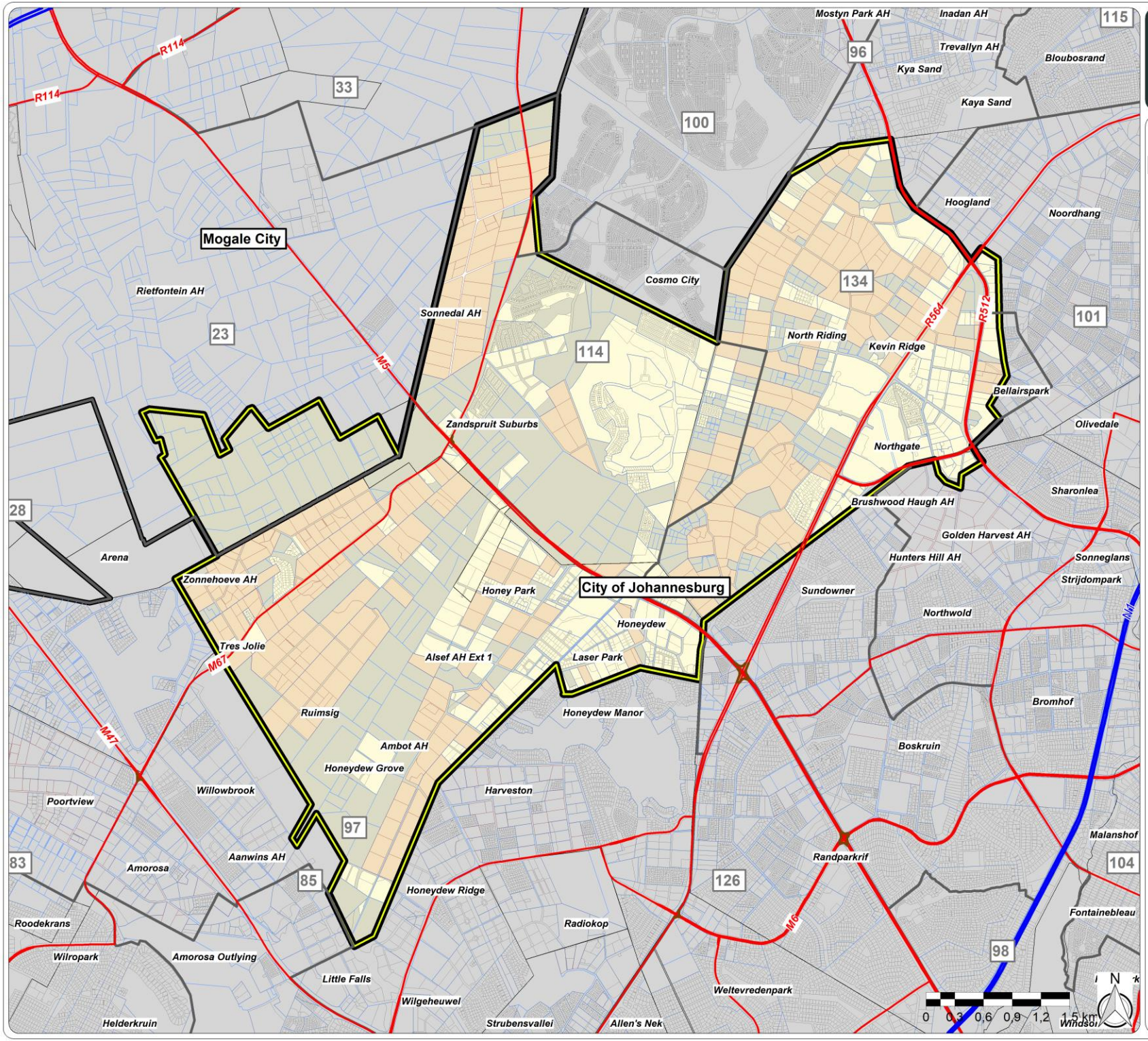






ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

Diagram 6



CADASTRAL STRUCTURE AND WARD BOUNDARIES

Legend

- Study Area
- Erven (Formal Townships)
- Agricultural Holdings
- Farm Portions
- A Suburbs
- 1 2021 Ward Boundaries
- Municipal Boundaries

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

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Figure 11

2.2.2.2 LAND OWNERSHIP

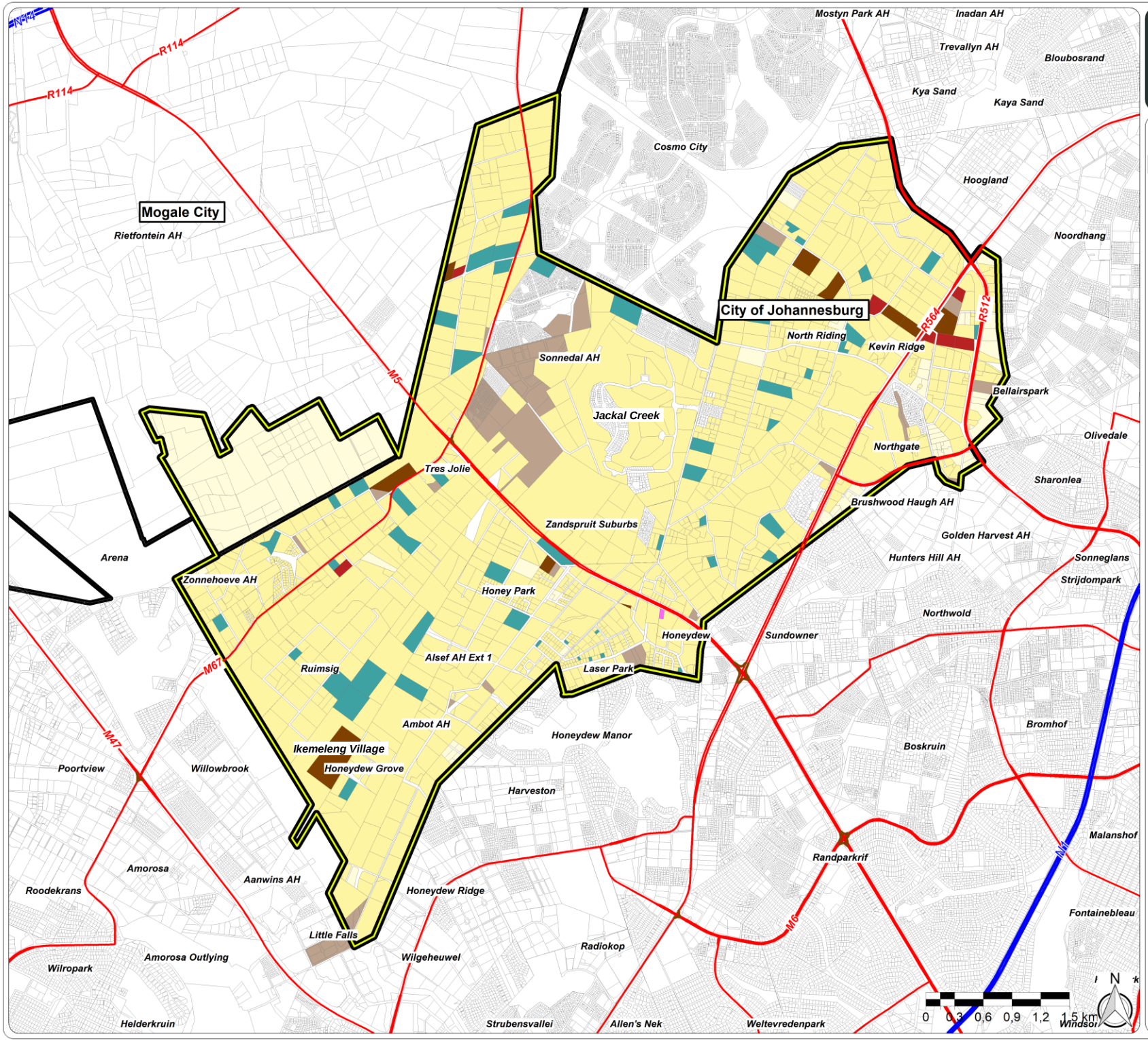
Figure 12 outlines the land ownership in the study area, from which the following is notable:

- The majority of the land in the study area is privately-owned.
- There are pockets of Municipal owned land in the north-eastern quadrant of the interchange of Peter Road (M67) and Beyers Naude Drive (M5) in which the Zandspruit Informal Settlement is situated.
- There is a strip of properties which are owned by Provincial Government and National Government in the north-eastern parts of the study area at North Riding. A portion of land in the south-western parts of the study area is also owned by Province in which the Ikemeleng Village is located.

2.2.2.3 EXISTING ZONING

Figure 13 depicts the zoning of the study area, from which the following is evident:

- The zoning pattern of the overall study area is predominantly *Agriculture.*
- The agricultural holdings in the north-western parts of the study area are zoned *Undetermined.*
- The main *Industrial 1* areas include Kya Sans and Hoogland to the north of the study area as well as Honeydew/Laser Park in the south-eastern parts of the study area.
- There are a number of land parcels zoned either *Residential 3* or *Residential 4*, with little-to-no *Residential 1* zoned erven in the area.
- There is a large parcel of land just outside the western boundary of the study area which is zoned *Institutional* for the Monash University situated on the site.



LAND OWNERSHIP

Legend

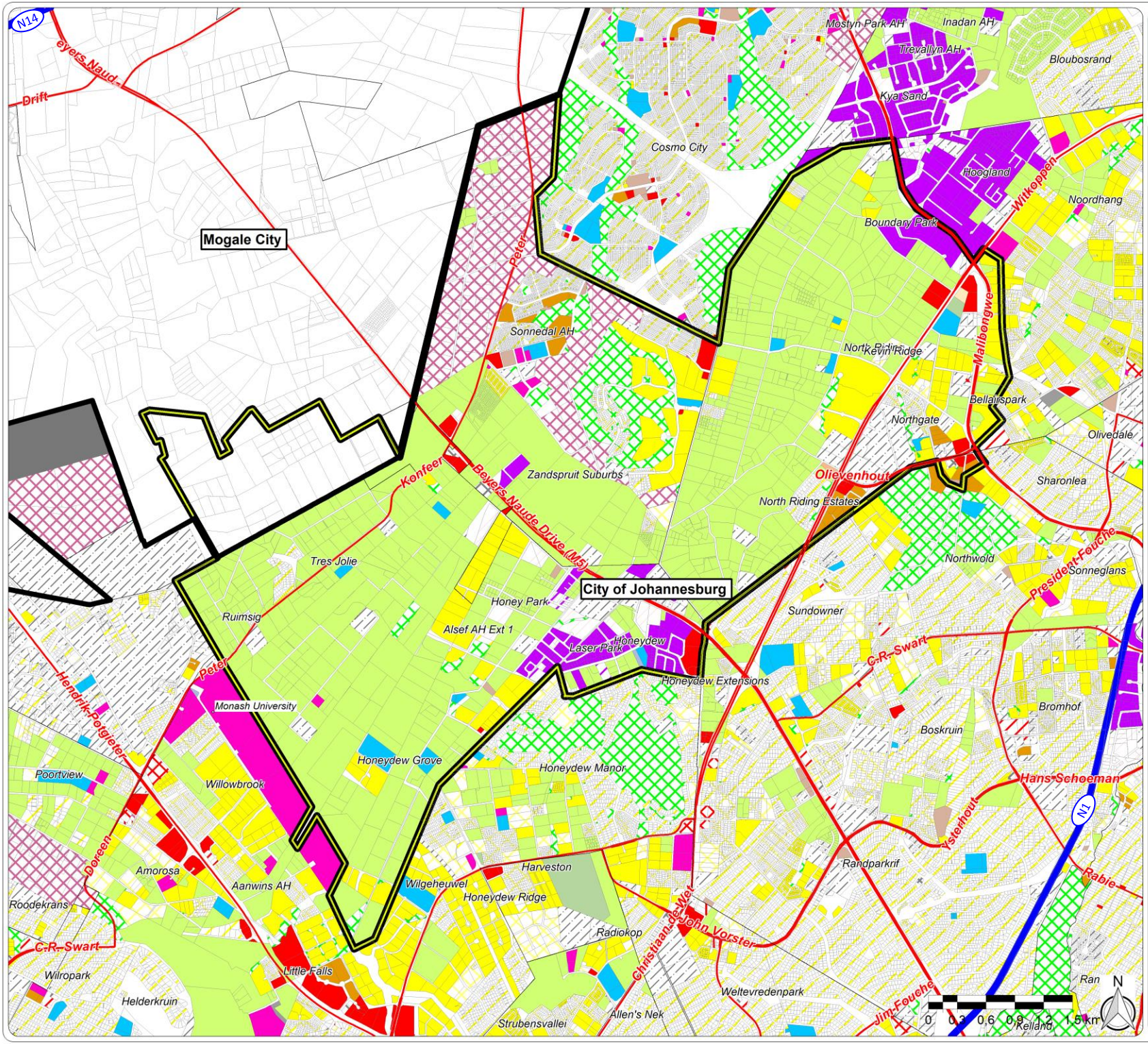
- Study Area
- Private
- Municipal Government
- Provincial Government
- National Government
- Trust
- Parastatal
- Unknown / No Information
- Cadastral
- A Suburbs
- Municipal Boundaries
- National Roads
- Provincial Roads

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Figure 12

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK



ZONING

Legend

- Study Area
- A Suburbs
- Agriculture
- Business 1
- Business 2
- Business 3
- Business 4
- Cemetery
- Commercial 1
- Educational
- Government
- Industrial 1
- Industrial 3
- Institutional
- Municipal
- Mining
- Open Space
- Parking
- Public Garage
- Residential 1
- Residential 2
- Residential 3
- Residential 4
- Special
- Undetermined
- National Roads
- Provincial Roads

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Figure 13

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

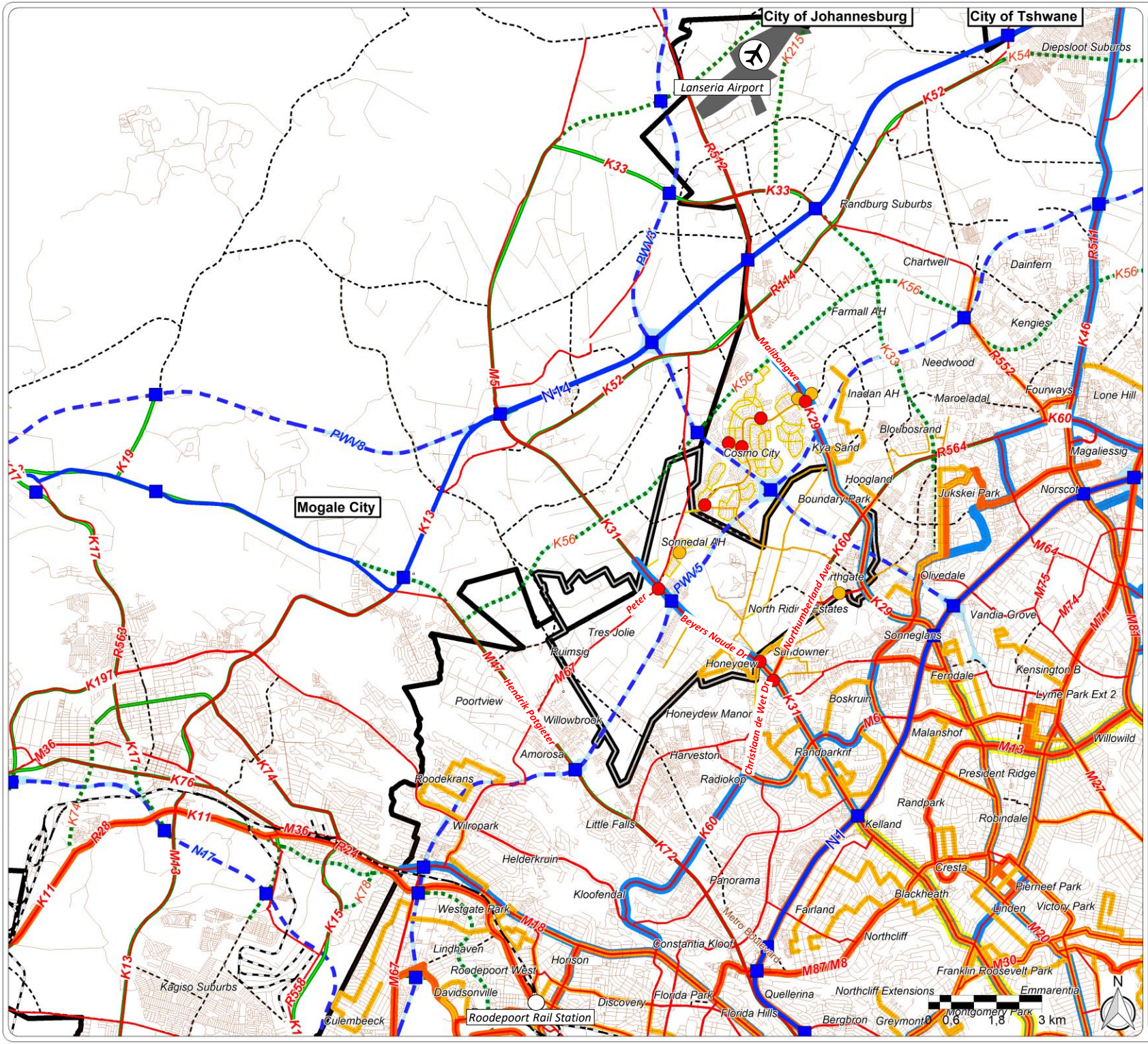
2.2.3 MOVEMENT/TRANSPORTATION NETWORK

Figure 14 illustrates the Transportation Network of the study area as well as the broader surrounding area, which is discussed below.

It should be noted that the Zandspruit and Surrounding Areas Transportation Master Plan, November 2022 as well as the Provincial and Local SDFs were utilised for the analysis of the existing and proposed movement network.

2.2.3.1 ROADS & PUBLIC TRANSPORT

- Route **N14** is situated north of the study area and creates a strong east-west link between Krugersdorp and the City of Tshwane where it connects to the N4. The N14 is complimented by the R114 (old N14) which creates a parallel network to the N14.
- Route **N1** bypasses the study area to the east and provides regional connectivity to Cape Town in the south and Polokwane/Beit Bridge far north.
- The following main routes provide access through the study area:
  - **Beyers Naude Drive (M5)** is the main route through the study area and connects the study area with both the N14 and N1 highways. Beyers Naudé Drive starts at the University of Johannesburg in Auckland Park, travelling through Melville, Roosevelt Park, Northcliff, Blackheath and traversing the N1 Western Bypass at Randpark Ridge. It terminates at the N14 freeway near Muldersdrift.
  - **Hendrik Potgieter Drive (M47)** provides access west of the study area and provides a link between the N14 and N1 highways.
  - **Malibongwe Drive (R512)** traverses through the east of the study area and extends further north towards Hartebeestpoort Dam.
  - **Marina Street (M67)** provides east-west connectivity to the study area and is complimented by Christiaan de Wet / Northumberland Avenue.
  - Route **R564** traverses the eastern part of the study area and connects the study area to Roodepoort and Buccleuch.
- Three planned national routes affect the study area, as per the Zandspruit Transport Master Plan (November 2022) as follows:
  - The **PWV3**, which travels through Cosmo City and traverses the far north-eastern part of the study area.
  - The **PWV5** which intersects the PWV3 at Cosmo City and continues in a south-western direction through the study area.
  - The **PWV8** which provides an extension of the N14 towards the west.
- Furthermore, there are two planned K-routes in the surrounding area (not within the study area), including the **K33** which lies east of the study area and links to the **R114** as well as the **K56** which travels to the north of the study area.
- New Interchanges are proposed within the study area at the convergence of the proposed **PWV5** and **Beyers Naude Drive**.
- Further major interchanges are proposed at the interchange of the **PWV3** and **PWV5,** which are potential hotspots for economic activity and nodal development.
- It is further evident that there are a number of **informal taxi ranks** serving the Cosmo City Area, north of the study area.
- There are further 3 **informal taxi ranks** along the K31 (Beyers Naude Drive) of which one is within the study area at the Zandspruit suburbs and two lie just outside the study area to the east.
- There are two **formal taxi ranks** in the study area, one at the Sonnedal AH (Zandspruit Informal Settlement) and one at Northgate.
- There are currently no **BRT routes** within the study area or in close proximity.



Regional Transportation Network

Legend

- Study Area
- Suburbs
- Municipal Boundaries
- National Roads
- Proposed National Roads
- Interchanges
- Provincial Roads
- K-Routes
- Proposed K-Routes
- Class 3 Roads
- Other Roads
- CoJ BRT Routes
- CoJ IPTN Network
- CoJ Putco Bus Routes
- CoJ Metro Bus Routes
- Taxi Routes
- Taxi Rank Formal
- Taxi Rank Informal
- Railway Line
- Railway Station
- Airport

Source: Zandspruit Transport Master Plan (Nov 2022);

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Figure 14

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

- The **IPTN route** runs along a part of the K29 (Malibongwe Drive) at the far eastern boundary of the study area.
- There is no **PUTCO bus service** within the study area, however, the **CoJ Metro bus route** runs along Malibongwe Drive and through parts of Laser Park in the southern extents of the study area.

2.2.3.2 *EXISTING ROAD HIERARCHY*

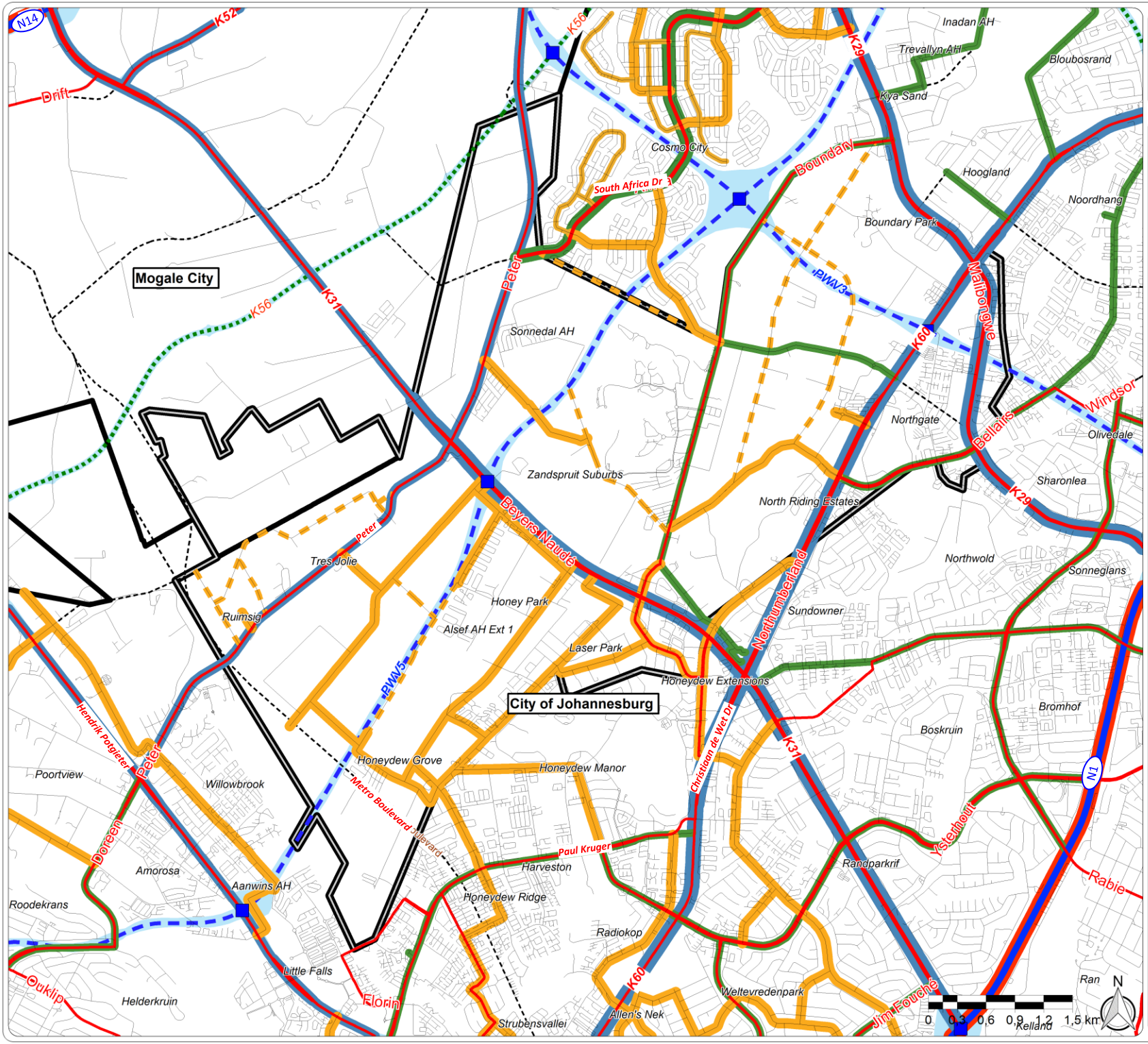
Figure 15 depicts the Existing Road Hierarchy and Lane Configuration, from which the following is noted:

- The section of Beyers Naude Drive within the study area is a Class 2, 4 lane dual carriage route. The route downgrades to a Class 2, 2 lane single carriage where it crosses the western boundary of the study area.
- Routes R564 and R512 are further Class 2 routes, with 4 lane dual carriage.
- Hendrik Potgieter Drive (M47) and Marina Street (M67) are both classified as Class 2 roads with 2 lane single carriage.
- Majority of the internal roads within the study area are Class 4 roads with 2 lanes single carriage. There are further some gravel roads found in the study area.

2.2.3.3 *PROPOSED PUBLIC TRANSPORT*

Figure 16 depicts the **Proposed Public Transport Corridors**, as per the Gauteng SDF, the CoJ SDF as well as the Zandspruit Transport Master Plan, from which the following is notable:

- There is a Proposed Gautrain Rail Network which traverses the study area and broadly follows the parallel alignment of the PWV3 up to Boundary Road and then travels south parallel to the PWV5 road alignment.
- Two Gautrain Stations are proposed in the study area, with one located in Boundary Park, just west of the K60 (Northumberland Drive) and the other one located at the Monash University at the western boundary of the study area.
- In terms of the Zandspruit Transport Master Plan (TMP), a Gautrain station is further proposed along Northumberland Drive.
- Furthermore, a public transport corridor upgrade and an extension to provide a continuous public transport route within the study area between Malibongwe Drive, Northumberland Road, Boundary Road and Africa Road is proposed in the Zandspruit TMP.
- The prominent proposed intersection of the proposed PWV3 and PWV5 is further noted as an important potential structuring element.



Existing Road Hierarchy and Lane Configuration (Expanded Southwards)

Legend

- Study Area
- Suburbs
- Municipal Boundaries
- National Roads
- Proposed National Roads
- Interchanges
- Provincial Roads
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Roads
- Other Roads
- Road Reserve

- Class 1, 4 Lane Dual Carriage
- Class 2, 4 Lane Dual Carriage
- Class 2, 2 Lane Single Carriage
- Class 3, 4 Lane Dual Carriage
- Class 3, 2 Lane Single Carriage
- Class 4, 2 Lane Single Carriage
- Class 4, 2 Lane Gravel
- Class 4, Unknown Lane

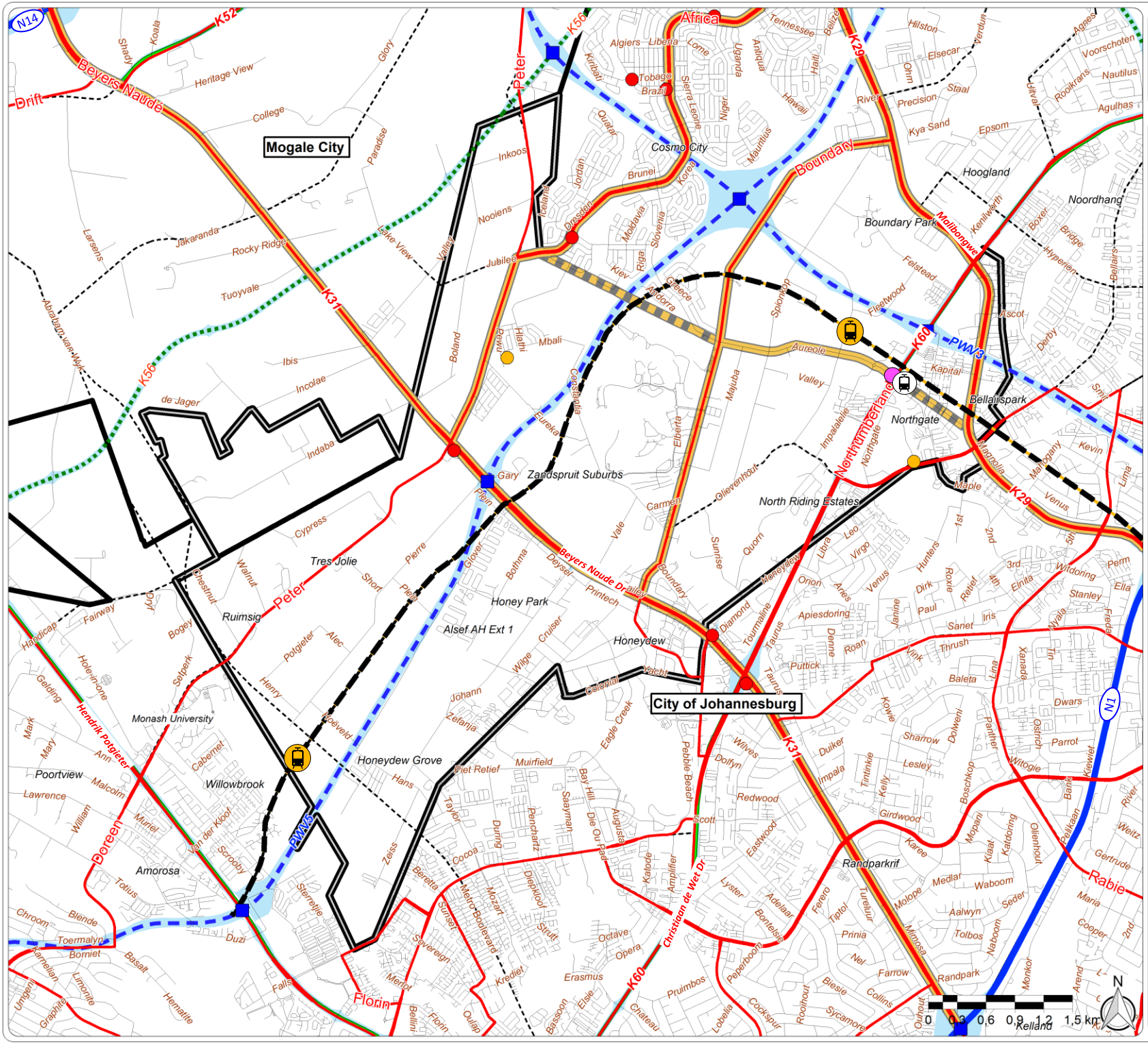
Source: Zandspruit Transport Master Plan (Nov 2022); EX Plan

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Figure 15

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK



Proposed Public Transport Corridors

Legend

- Study Area
- Suburbs
- Municipal Boundaries
- National Roads
- Proposed National Roads
- Interchanges
- Provincial Roads
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Roads
- Other Roads
- Road Reserve
- Taxi Rank Formal
- Taxi Rank Informal
- Proposed Gautrain Rail Network
- Proposed Gautrain Station
- Proposed TMP Gautrain Station
- Proposed Multimodal Facility
- Public Transport Corridor Upgrades
- Public Transport Corridor Extensions

Source: GP SDF 2030; CoJ SDF; Zandspruit Transport Master Plan (Nov 2022); EX Plan

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Figure 16

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

2.2.4 ENVIRONMENTAL FEATURES

Figure 17 depicts the Topography and Hydrology of the study area showing the prominent dams, rivers and ridges, from which the following is noted:

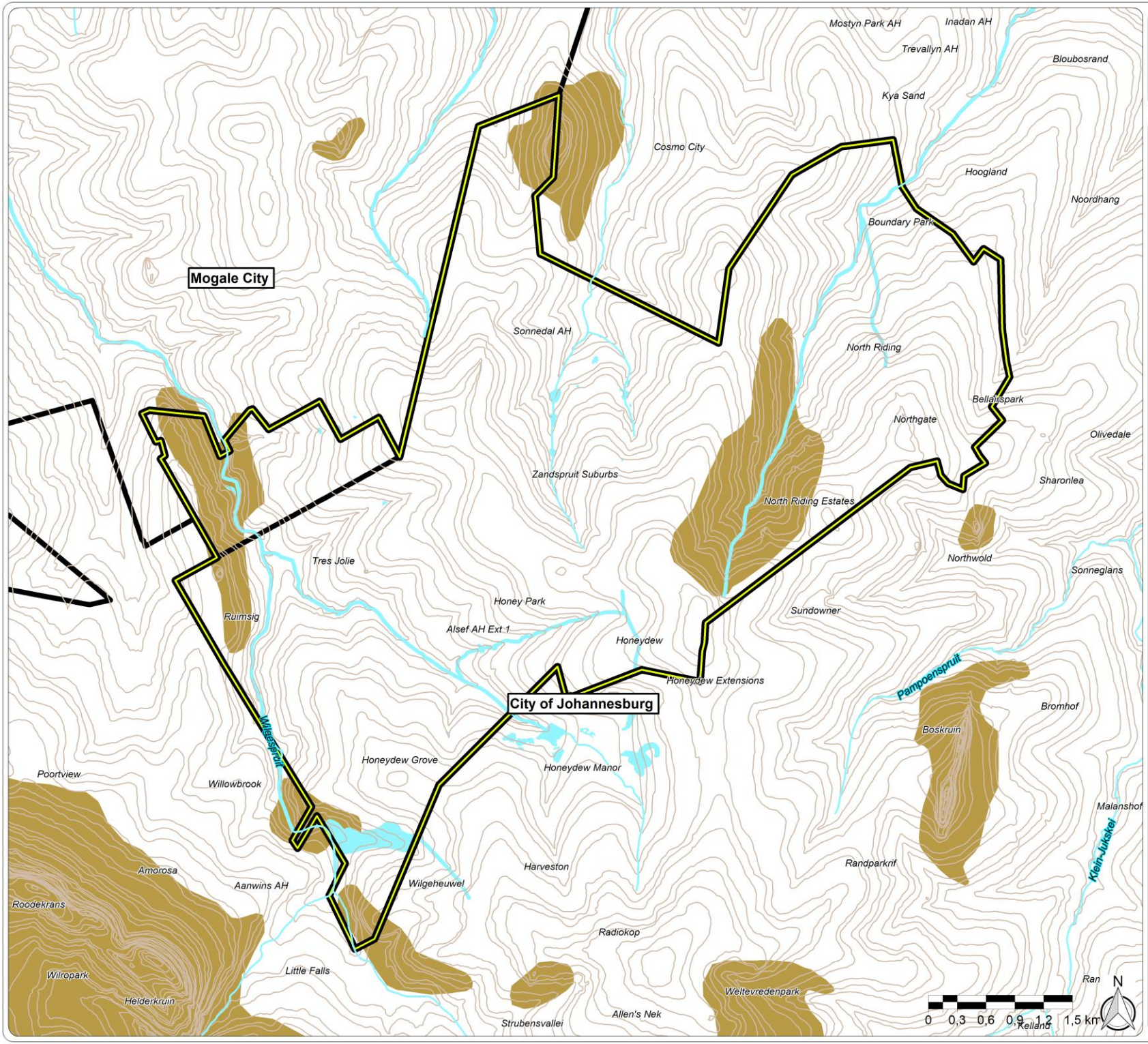
- The study area is affected by a number of streams draining in a north-south direction.
- The study area is further impacted by a number of ridges, in terms of the Gauteng Ridge Policy.
- However, due to the topography of the ridges, the only ridge that can be seen from desktop studies as a fatal development flaw is the ridge situated in the northern extents, on the eastern side of Peter Road. This ridge has a prominent outcrop and is considered undevelopable.
- The remaining ridges are seen as developable, although the development potential of these areas will need to be confirmed by the required Environmental Studies and low densities will be applied.

Figure 18 depicts the Gauteng Conservation Plan (C-Plan V3.3) of the study area and surrounds., from which the following is noted:

- ***Critical Biodiversity Areas (CBAs)*** are found in the central parts of the study area along the streams through the Sonnedal AH and the Zandspruit suburbs, as well as in the western parts at Tres Jolie. These CBA's need to be maintained in their natural state.
- ***Ecological Support Areas (ESAs)*** are found throughout the area including the eastern parts at the North Riding Estates (along the stream) as well as the western extents at Ruimsig/Honeydew Grove. These ESAs are associated with the ridges in the area.
- It is interesting to note that despite the *CBAs* and *ESAs* identified over large parts of the area to the north of the study area (at Cosmo City), major development has taken place which may indicate that the area is not necessarily undevelopable, according to Environmental Impact Assessments that would have been done prior to development.
- Caution will however be taken around the floodlines, which will be considered non-developable from the onset as part of this Development Framework.
- The terminology of the CBAs and ESAs of the C-Plan V3.3 are expanded on in **Table 2.**

Table 2: Terminology of Biodiversity Areas

TERM:	DESCRIPTION:
Ecological Support Areas	Natural, near-natural, degraded or heavily modified areas are required to be maintained in an ecologically functional state to support Critical Biodiversity Areas and/or Protected Areas. ESAs maintain the ecological processes on which Critical Biodiversity Areas and Protected Areas depend. Some ESAs are irreversibly modified but are still required as they still play an important role in supporting ecological processes.
Critical Biodiversity Areas (CBA's)	CBAs include natural or near-natural terrestrial and aquatic features that were selected based on an area's biodiversity characteristics, spatial configuration and requirements for meeting both biodiversity pattern and ecological process targets. CBAs include irreplaceable sites where no other options exist for meeting targets for biodiversity features, as well as best-design sites which represent an efficient configuration of sites to meet targets in an ecologically sustainable way that is least conflicting with other land uses and activities. These areas need to be maintained in the appropriate condition for their category. Some CBAs are degraded or irreversibly modified but are still required for achieving specific targets, such as cultivated lands for threatened species.



TOPOGRAPHY AND HYDROLOGY

Legend

- Study Area
- Rivers
- Dams / Pans
- 5m Contours
- Ridges
- A Suburbs
- 1 2021 Ward Boundaries
- Municipal Boundaries

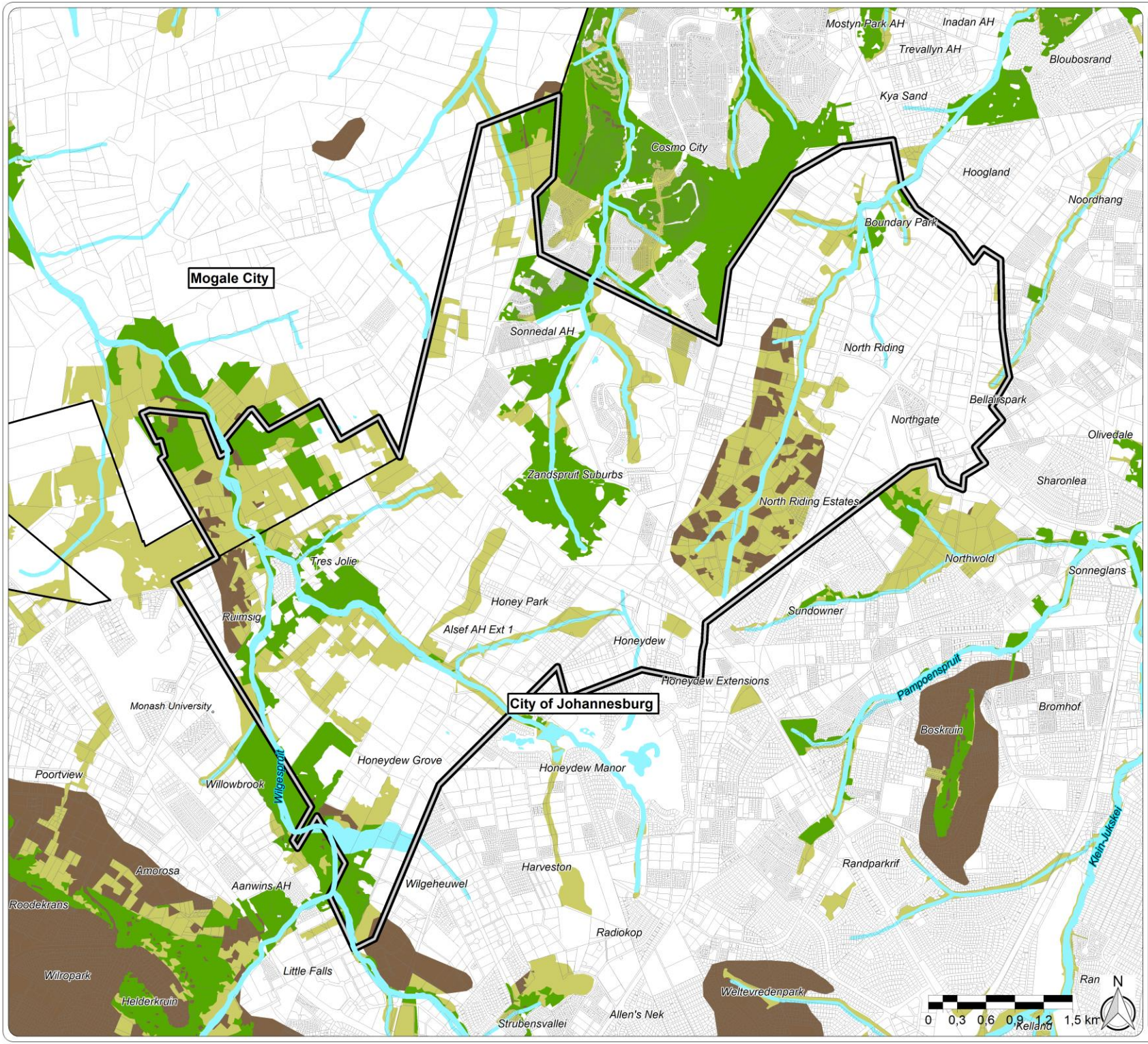
Source: C-Plan V3.3

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Figure 17

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK



C-PLAN V3.3

Legend

- Study Area
- Cadastral
- CBA
- ESA
- Ridges
- Dams / Pans / Rivers
- A Suburbs
- Municipal Boundaries

Source: C-Plan V3.3

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Figure 18

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

2.2.5 ECONOMIC ACTIVITIES

Figure 19 spatially depicts the existing economic activities of the study area, specifically the retail and industrial activities taking place, which are elaborated on below.

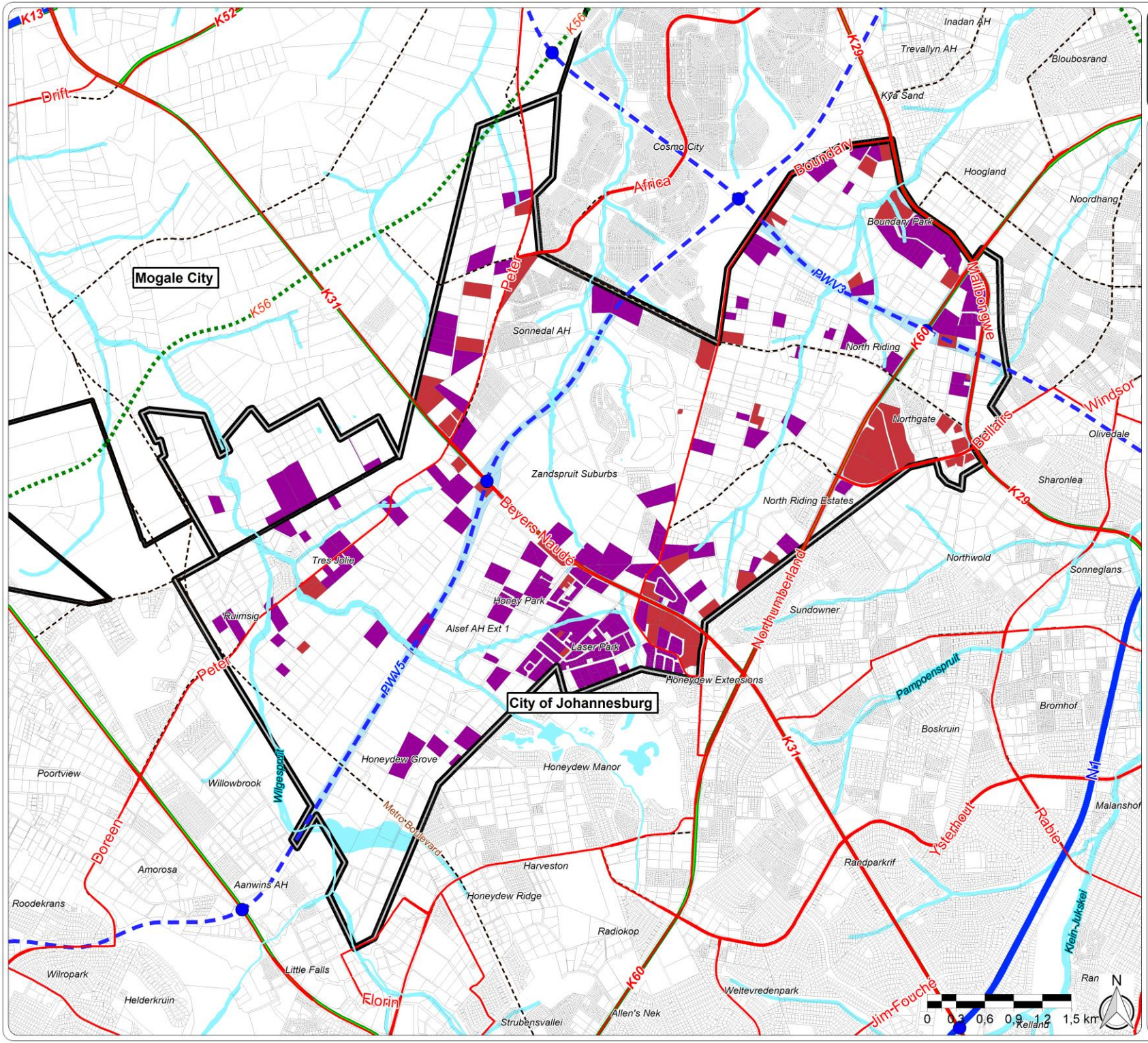
2.2.5.1 INDUSTRIAL ACTIVITY

From Figure 19 it is evident that there are a number of industrial clusters within the study area, with the largest being Laser Park and Honey Park.

These industrial activities comprise the main employment base in the area and range from a number of industrial parks to light industries/commercial uses such as scrapyards, truck yards, panel-beaters and appliance repair shops.

There are further a number of heavy/noxious industries in the area such as a timber yard, pharmaceutical laboratories, kitchen and cupboard factories, glass and aluminium processing, paint manufacturers, furniture makers, a chemical production plant and stone and concrete manufacturing.

Examples of the typical industrial activities taking place in the study area are visually depicted on **Diagram 7.**



ECONOMIC ACTIVITIES

Legend

- Study Area
- Existing Business
- Existing Industrial / Commercial
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Water Areas / River Buffer

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Figure 19

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

TYPICAL INDUSTRIAL USES IN THE STUDY AREA

Diagram 7

Industrial Parks







Light Industries/ Commercial







Heavy/Noxious Industries







2.2.5.2 RETAIL FACILITIES

Table 3 summarises the overall retail facilities found within the study area. The clusters and types of retail activity are spatially depicted on **Diagram 8** for the Zandspruit informal area and **Diagram 9** for the remaining study area.

Diagram 8 further shows the Informal Trade present in the Zandspruit informal area, and it is interesting to note that these informal trade markets remain linear (along Peter Road and Beyers Naude Drive), and do not extend into the adjacent Zandspruit informal area which shows the strong dependency on pedestrian movement.

Table 3: Existing Retail: Overall Study Area

Number of Shops/ Centres	CoE Type of Centre	Size of Centre (m²)	Floor Area Size (m^2)	Ave. Size (m^2)
Core Classification				
5	Filling Station Stores	<250	1,148	230
1	Small Free-standing Centre	500-1 000	502	502
5	Local Convenience Stores/C	1 000-5 000	11,224	2,245
6	Neighbourhood Centre	5 000-12 000	43,152	7,192
2	Community Centre	12 000-25 000	32,600	16,300
1	Regional Centre	50 000-100 000	89,463	89,463
20	**Subtotal**		**178,089**	**8,904**
Specialist Classification				
1	Specialty Centre	2 000-30 000	11,000	11,000
1	**Subtotal**		**11,000**	**11,000**
21	**Total**		**189,089**	**9,004**
Source: Shopping Centre Directory, 2022. South African Council of Shopping Centres Plan Associates, Measured from Google Earth, 2023				

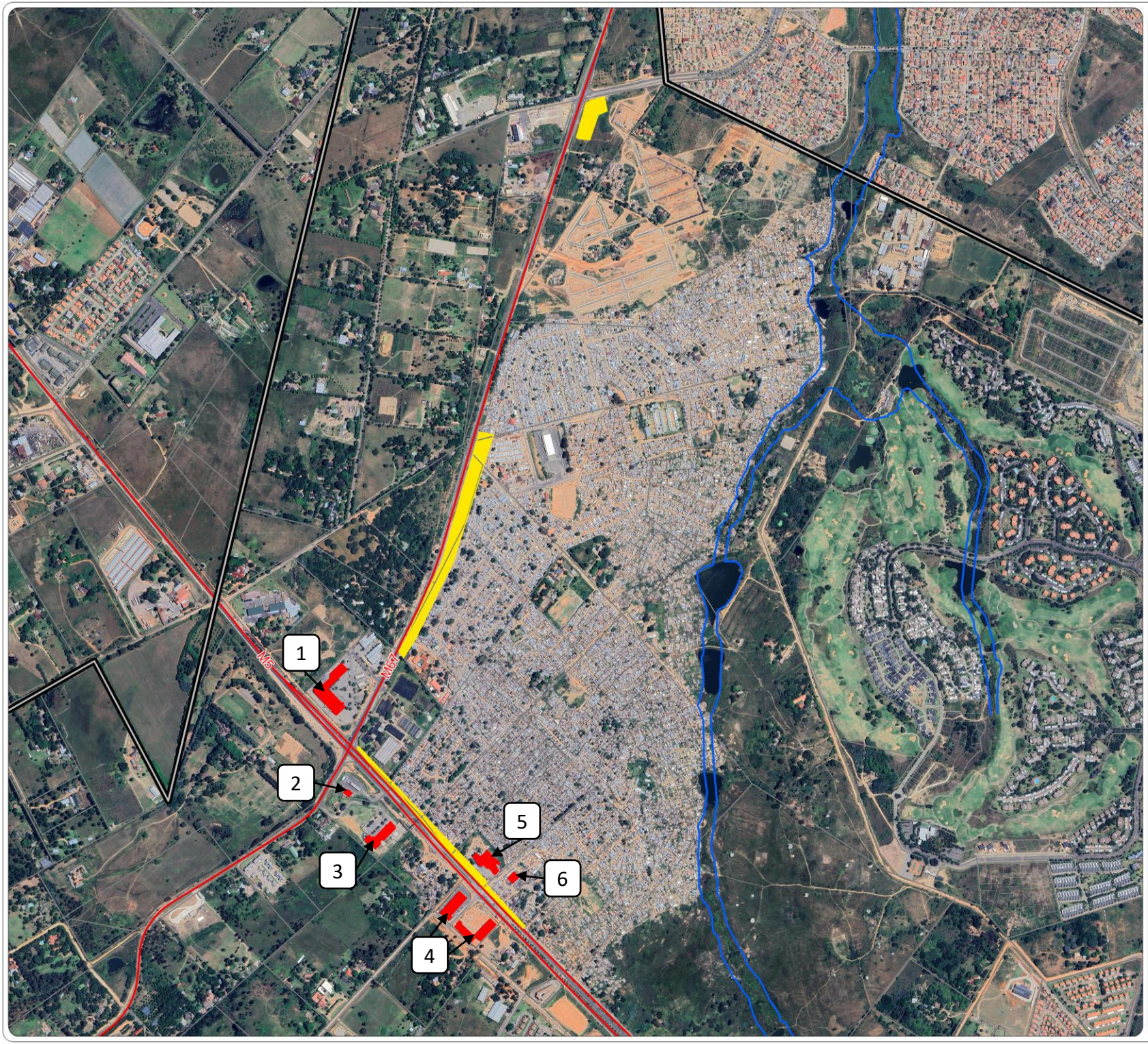
From Table 3 it is evident that there is roughly 189,089 m² of retail activity within the study area. The detailed tables of the retail facilities captured as well as the classification of the types of retail are attached as **Annexure A.**

Further to the existing facilities, the retail requirement of the study area (based on a Land Use Budget of the study area) is depicted on **Table 4**, from which the following is notable:

- In general, the existing population is well served by retail facilities at a ratio of 1,7m²/person (the requirement is a ratio of 1,4m²/person).
- Small Free-Standing/Local Convenience Retail is supplemented by informal trade along Beyers Naude Drive and Marina Street.
- Neighbourhood and Community Centres are well provided for.
- The Regional Shopping Centre serves a wider community, and not only the study area.

Table 4: Retail Requirement of the Study Area

	Total UDF Area (2023)
Population	**109 451**
Retail Requirement	**Floor Area m²**
Small Free standing & Local Retail centres	41 480
Neighbourhood Centre	45 802
Community Centre	37 157
Regional	25 933
Total	**150 371**
Source: Plan Associates Land Use Budget, Retail Classification	



RETAIL: ZANDSPRUIT INFORMAL AREA

Legend

- Study Area Boundary
- Cadastral
- Retail
- Informal Trade
- 100Yr Floodline

Retail:

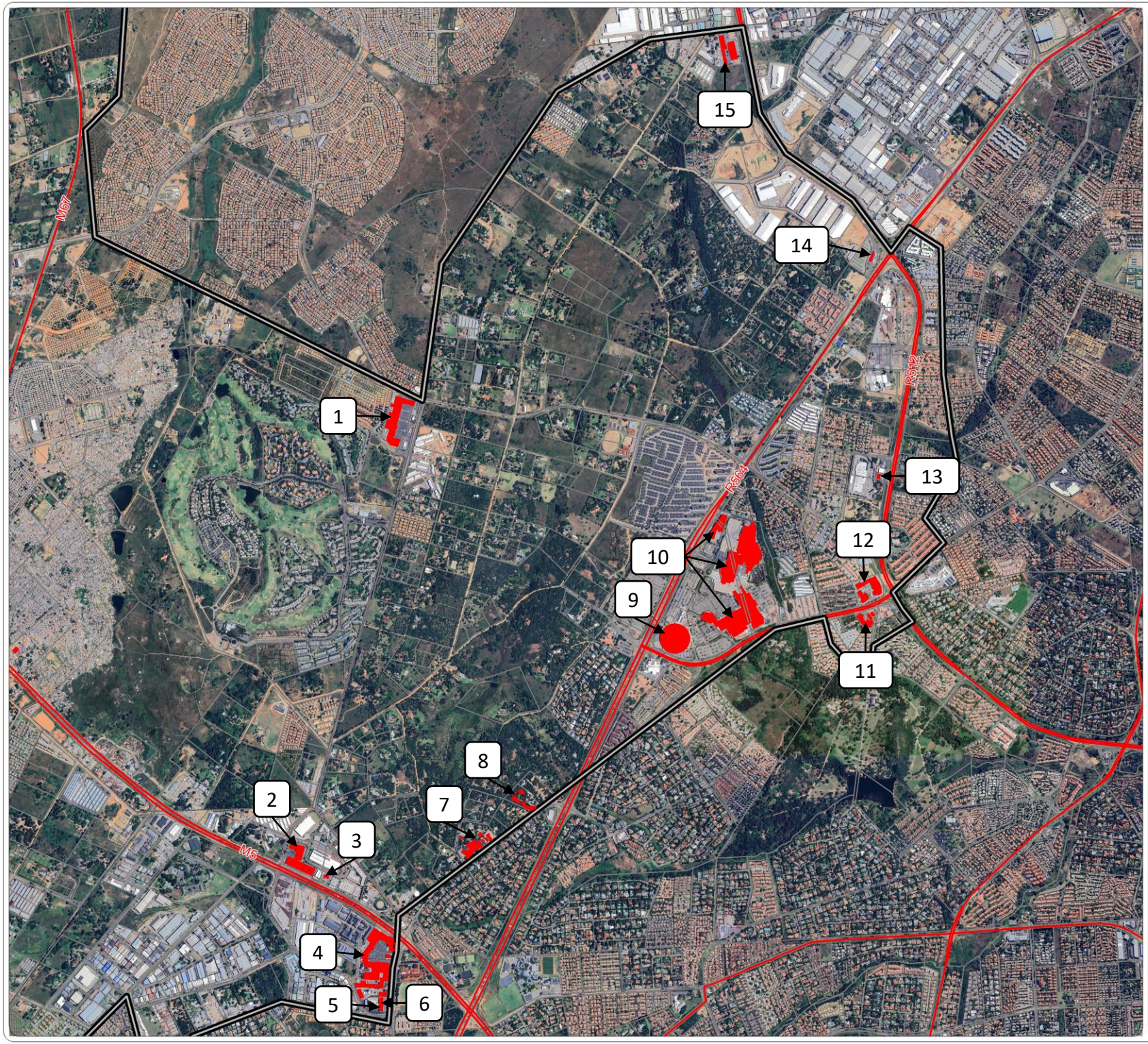
1. Zandspruit Value Centre
2. Fueling Station (Caltex)
3. Shopping Centre (eco Centre)
4. Shopping Centre
5. SaveMor Zandspruit
6. Discount supermarket

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Diagram 8

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK



RETAIL: REMAINDER OF STUDY AREA

Legend

- Study Area Boundary
- Cadastral
- Retail

Retail:

1. Jackal Creek Corner
2. Shopping Centre (A Five Star Junction)
3. Engen Garage
4. Blueberry Square Shopping Centre
5. Shell Garage Convenience Centre
6. Shell Garage
7. Honeydew Eco Village
8. Stepping Stones (Business Centre)
9. WeBuyCars Dome
10. Northgate Shopping Centre
11. Banbury Cross Village
12. Northview Shopping Centre
13. Sasol North Riding
14. TotalEnergies Northriding Service Station
15. Boundary Corner Retail Centre

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Diagram 9

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

2.2.6 COMMUNITY FACILITIES

2.2.6.1 EXISTING COMMUNITY FACILITIES

The existing Community Facilities in the study area are spatially depicted on **Figure 20.**

Table 5 depicts a summary of the existing Local Community Facilities in the study area, while **Table 6** depicts the Regional Community Facilities available in the study area.

It can be noted that the Zandspruit area has a limited number of community facilities, relative to the population. The facilities mainly consist of two primary schools, three clinics and a community hall.

The remainder of the study area is served by seven primary and five secondary schools and Monash University is located in the south-west, just outside the study area.

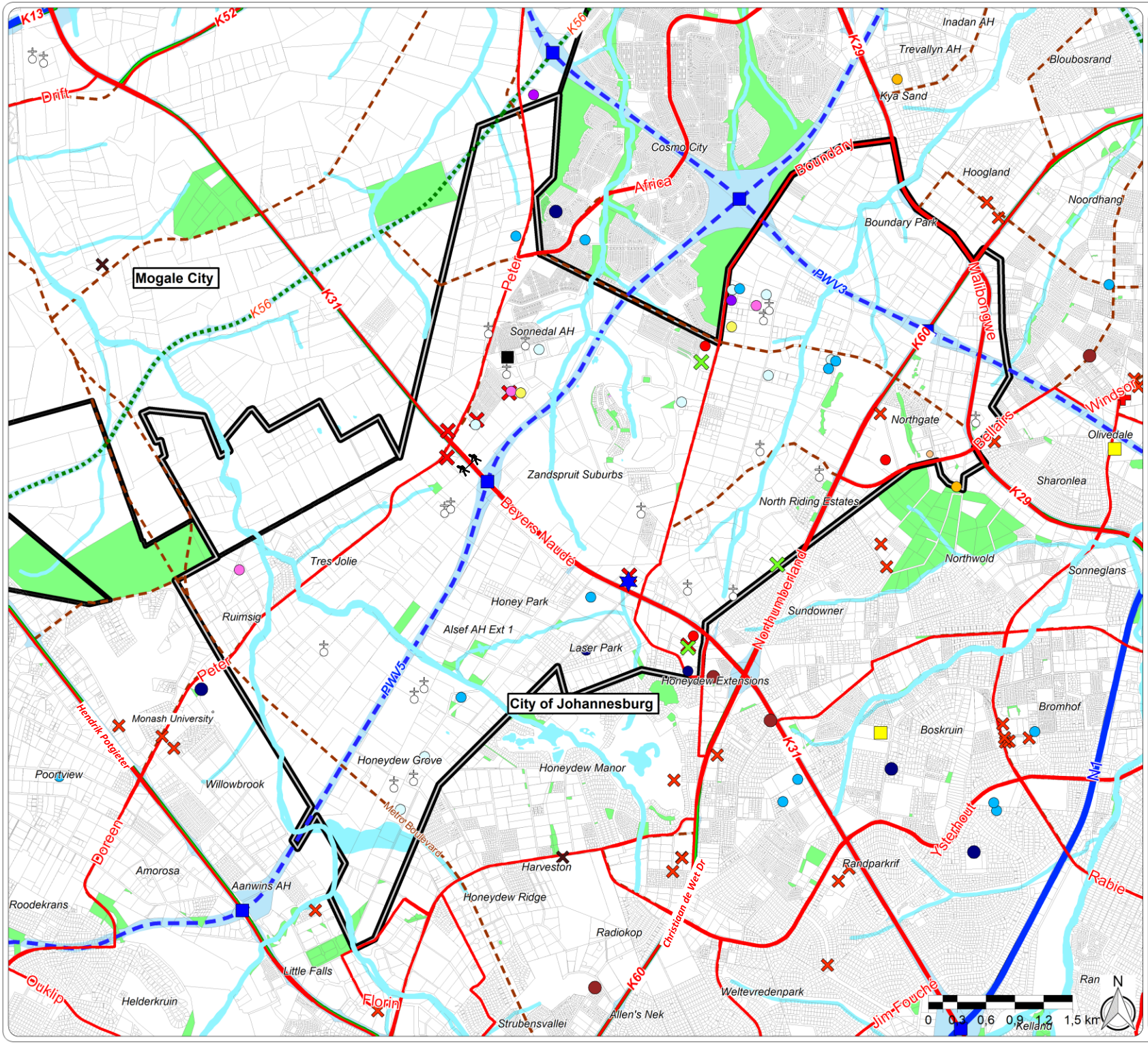
The Regional Community Facilities located in the area, which are aimed at serving a broader function consist of a Police Station (Laser Park) and a Fire Station (Kya Sands) and two Post-Matric Skills Training Centres.

Table 5: Existing Local Community Facilities by Type, 2023

Facility	Zandspruit Informal Area	Remainder of Study Area	Total	Total Size (ha)
Primary School (including Grade R)*	2	7	9	
Secondary School*		5	5	
Primary Health Clinic	3	2	5	
Community Hall	1	2	3	
Library		1	1	
Post Office/ICT Access		3	3	
Neighbourhood and Community Sports and Recreation	2	1	3	92.6
Neighbourhood and Community Parks	6	21	27	14.1

Table 6: Existing Regional Community Facilities by Type, 2023

Facility	Zandspruit Informal Area	Remainder of Study Area	Total	Total Size (ha)
Post-Matric Skills Training	1	1	2	
Community Health Centre		3	3	
Police		1	1	
Fire Station		1	1	
Regional Library			0	
Thusong Centre, Home Affairs Office (Medium), SASSA, Labour Office, Licencing		1	1	
Civic Centre/Municipal Offices			0	
Indoor Sports Hall (Medium)/Regional Sport			0	
District/ Regional Parks/Open	8	51	59	197.8



COMMUNITY FACILITIES

Legend

- Study Area
- Primary School
- Secondary School
- Tertiary Education
- Combined Education (Prim, Sec, College, BTEC)
- Community Hall/Centre
- Library
- Religion
- Institution
- Hospital
- Clinic
- Community Health Centre
- Cemetery
- Fire Station
- Police Station
- Postnet
- Government Offices
- Taxi Rank
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Pedestrian Bridge
- Open Space
- Water Areas / River Buffer

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Figure 20

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

2.2.6.2 REQUIRED COMMUNITY FACILITIES BASED ON THE CURRENT POPULATION

Further from the existing community facilities (Tables 5 and 6) and based on the **current population of the study area of 109,451**, the required community facilities at a local and regional level are depicted on **Table 7** and **Table 8** respectively, from which the following is noted:

- There is a need for 7 additional Primary Schools and 3 additional Secondary Schools in the study area according to the standards applied.
- There is a need for 4 additional Libraries and 2 Post Offices in the total study area.
- There are very limited sports facilities in the study area, with 1 tennis court and 2 informal soccer fields in the Zandspruit Informal Area and a Golf Course in the Remaining Area.
- In terms of the Regional Community Facilities, there is a small deficit for most of the facilities, with the exception of a regional Library.
- The most pertinent facility shortage within the Zandspruit area is a police station.
- The remaining regional facilities could be provided in a strategic regional node.

Table 7: Local Community Facilities Need/Requirement

Facility	Need	Time Period	Zandspruit Informal Area (ZIA)		Remainder of Study Area (RemSA)		Total UDF Area (2023)		Ratio
			Number	ha	Number	ha	Number	ha	ha
Population	**Existing**	2023	66,230		43,221		109,451		
Primary School (including Grade R)* 1:7000	Required	2023	9		6		16		
	Provided	2023	2		7		9		
	Surplus/Deficit	**2023**	**- 7**	**20.9**	**1**		**- 7**	**20.9**	**2.8**
Secondary School* 1:12 500	Required	2023	5		3		8		
	Provided	2023	-		5		5		
	Surplus/Deficit	**2023**	**- 5**	**24.0**	**2**		**- 3**	**24.0**	**4.8**
Primary Health Clinic 1:24 000	Required	2023	3		2		5		
	Provided	2023	3		2		5		
	Surplus/Deficit	**2023**	**0**		**0**		**0**		**0.5**
Community Hall 1:10 000	Required	2023	1		1		2		
	Provided	2023	1		2		3		
	Surplus/Deficit	**2023**	**-**		**1**		**1**		**0.5**
Library 1:20 000	Required	2023	3		2		5		
	Provided	2023	-		1		1		
	Surplus/Deficit	**2023**	**- 3**	**0.2**	**- 1**	**0.1**	**- 4**	**0.2**	**0.05**
Post Office/ICT Access Point/Post Boxes/Social Grant Paypoint 1:20 000	Required	2023	3		2		5		
	Provided	2023	-		3		3		
	Surplus/Deficit	**2023**	**- 3**	**0.3**	**1**		**- 2**	**0.3**	**0.11**
Neighbourhood and Community Sports and Recreation 0,4ha/1000 population	Required (ha)	2023		30		19		49	
	Provided (ha)	2023		1		92		93	
	Surplus/Deficit	**2023**		**- 29**		**72**		**44**	**0.4**
Neighbourhood and Community Parks 0,3ha/1000 population	Required (ha)	2023		20		13		33	
	Provided (ha)	2023		0.95		13		14	
	Surplus/Deficit	**2023**		**- 19**		**0**		**- 19**	**0.3**

Table 8: Regional Community Facilities Need/Requirement

Facility	Need	Time Period	Zandspruit Informal Area (ZIA)		Remainder of Study Area (RemSA)		Total UDF Area (2023)		Ratio
			Number	ha	Number	ha	Number	ha	ha
Community Health Centre 1:100 000	Required	2023	1		0		1		
	Provided	2023	-		3		3		
	Surplus/Deficit	**2023**	- 1	1.0	3		2		1.5
Police 1:60 000	Required	2023	1		1		2		
	Provided	2023			1		1		
	Surplus/Deficit	**2023**	- 1	0.2	0		- 1	0.2	0.2
Fire Station 1:60 000	Required	2023	1		1		2		
	Provided	2023			1		1		
	Surplus/Deficit	**2023**	- 1	0.3	0		- 1	0.3	0.3
Regional Library 1:200 000	Required	2023	-		-		-		
	Provided	2023	-		-		-		
	Surplus/Deficit	**2023**	-	-	-	-	-	-	0.6
Thusong Centre, Home Affairs Office (Small), SASSA, Labour Office, Licencing 1:40 000	Required	2023	2		1		3		
	Provided	2023			1		1		
	Surplus/Deficit	**2023**	- 2	0.3	-	-	- 2	0.3	0.2
Solid Waste Disposal Site and Recycling Depot	Required	2023	1		-		1		
	Provided	2023	-		-		-		
	Surplus/Deficit	**2023**	- 1	0.2	-	-	- 1	0	0.2
Regional Sports and Recreation 0,1ha/1000 population	Required (ha)	2023		7		5		12	
	Provided	2023						0	
	Surplus/Deficit	**2023**		- 7		- 5		- 12	0.1
District/ Regional Parks 0,2ha/1000 population	Required	2023		13		9		22	
	Provided	2023		8		51		59	
	Surplus/Deficit	**2023**		- 5		42		37	0.2

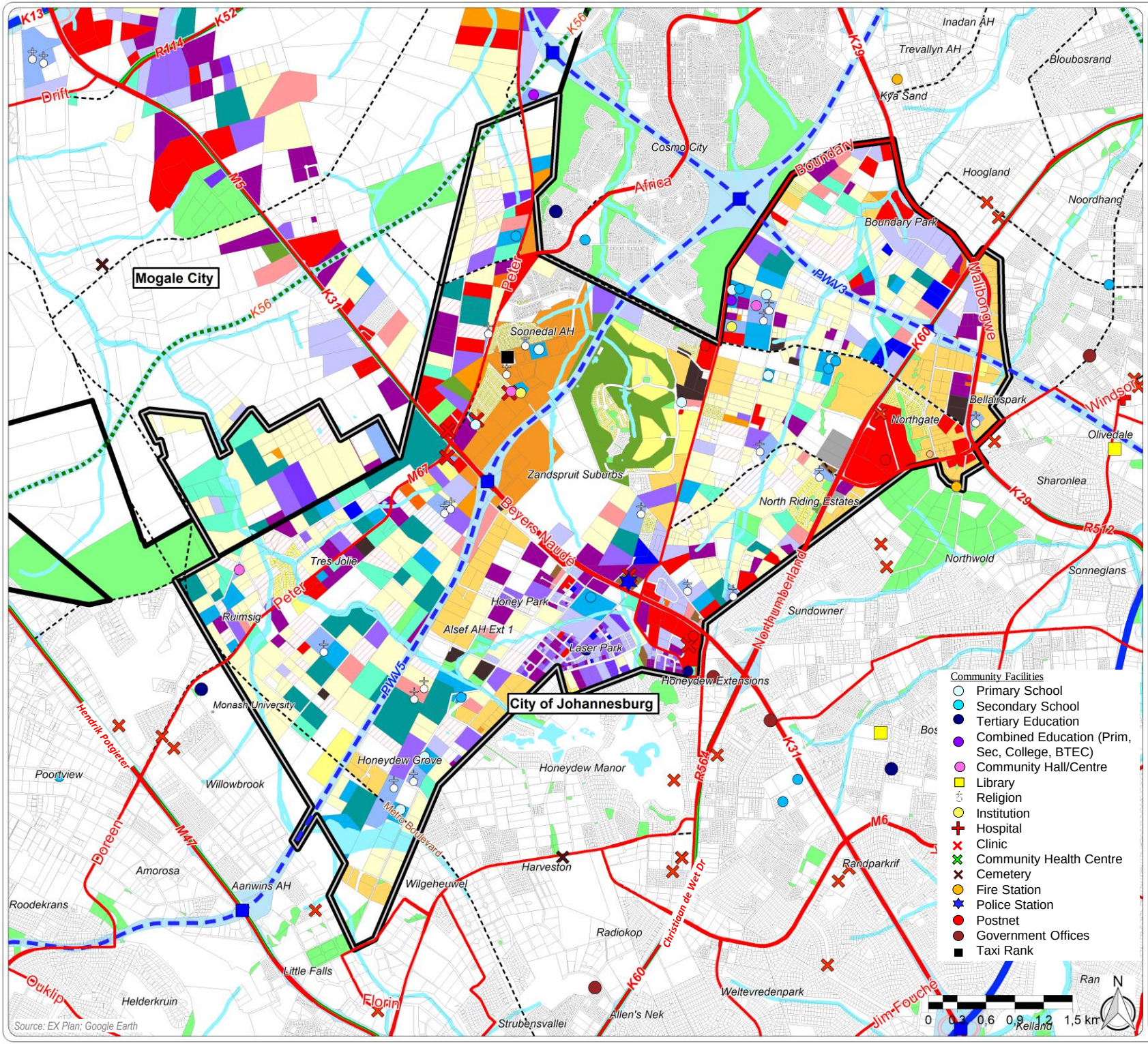
2.2.7 EXISTING LAND USE PATTERNS AND THEMES

Figure 21 outlines the land use for the study area which was compiled through a number of land use surveys. The following is notable from Figure 21:

- When looking at the variety of land uses in the study area, It is evident that there are a number of informal/illegal/non-conforming land uses (as compared to the zoning map in Figure 13).
- The agricultural holdings and smaller farm portions south of Beyers Naude Drive are being utilised for a variety of uses, with a trend of rural hospitality uses, equines, rural residential dwellings and light/service industries.
- There are a variety of industrial uses at Laser Park, including light/service industries, general industrial, heavy/noxious industrial as well as commercial activities. Business and Industrial type of land uses extend north-west along Beyers Naude Drive towards the N14.
- The affluent Jackal Creek Golf Estate is located in the centre of the study area which is bordered to the west by the Zandspruit Informal Settlement and south by Cosmo City.
- The growing Zandspruit Informal Settlement extends from Beyers Naude Drive, north along Marina Street up to Cosmo City.
- Informal trade is prominent along Beyers Naude Drive, predominantly in the section south of Zandspruit.
- It is further clear that economic activities are focused around Beyers Naude Drive, far beyond the study area to the north-west.

Figure 22 classifies the variety of land uses from Figure 21 into broader land use categories in order to determine the land use trends/patterns found in the study area, from which the following is notable:

- Pockets of medium density residential development have taken place within the agricultural holdings and along the main transport routes in the area which is indicative of development pressure in these areas.
- Home Enterprises and Hospitality Uses seem very popular throughout the study area, specifically to the south of Beyers Naude Drive.
- The mix of land uses throughout the area is indicative of the Development pressure in the area and the need to promote a mixed-use approach.



LAND USE

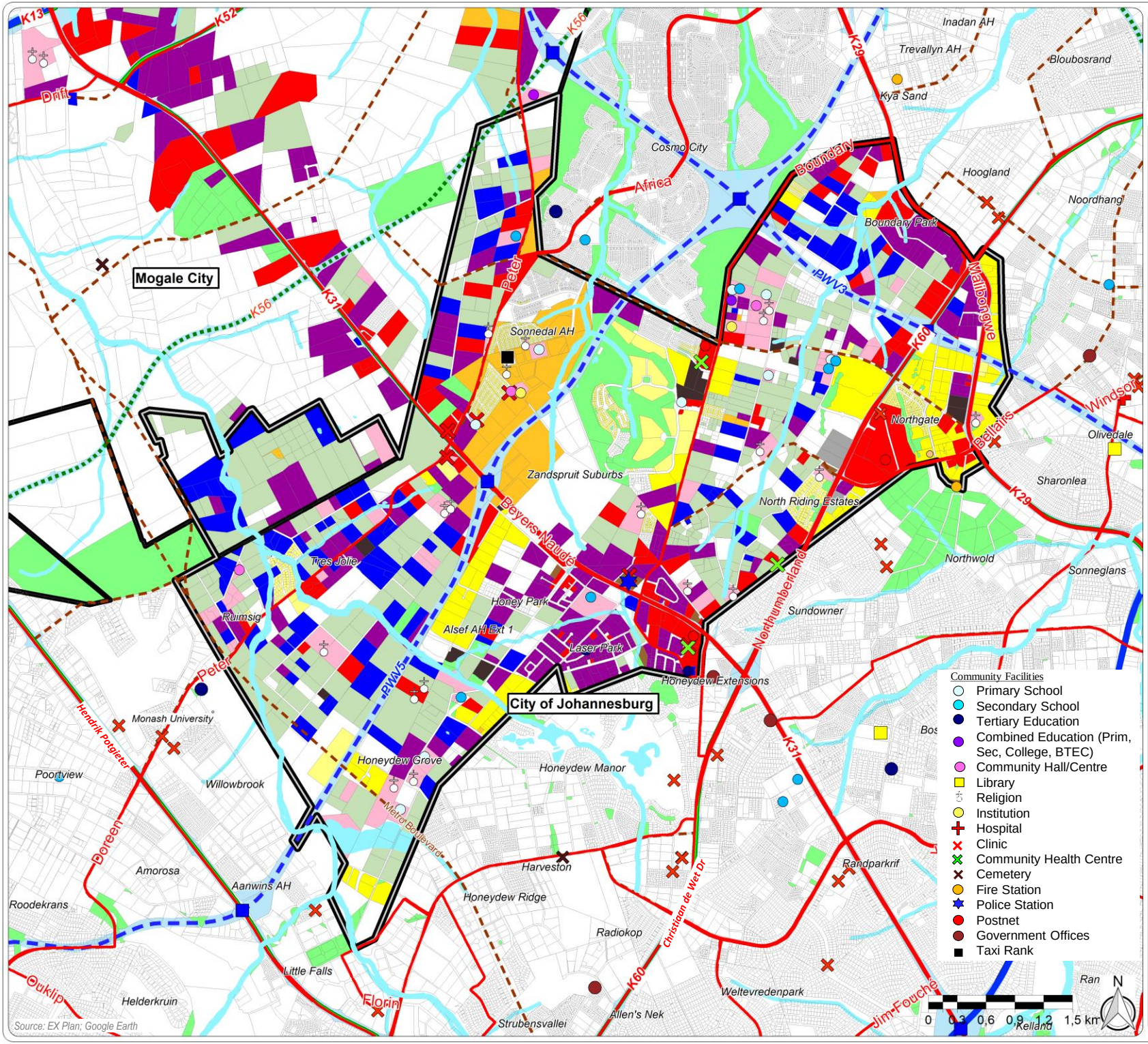
- Study Area
- A Suburbs
- Agriculture
- Rural Residential
- Rural Residential Hospitality Use
- Rural Residential and Equine
- Residential
- Multiple Residential
- Informal Residential
- Rural Residential
- Business
- Mixed Use (Bus / Comm)
- Offices / Office Park
- Home Enterprise
- Light / Service / Industrial Park
- General Industrial
- Heavy / Noxious Industrial
- Commercial
- Parking
- Community Facility
- Institutional / Education
- Municipal / Government
- Open Space
- Sports and Recreation
- Building Under Construction
- Vacant Land
- Vacant Building
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Interchanges
- Provincial Roads
- Other Roads
- Road Reserve
- Water Areas / River Buffer

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Figure 21

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK



LAND USE THEMES

Legend

- Study Area
- Cadastral
- Agriculture / Rural Residential / Equine
- Residential
- Medium Density Residential
- Informal Residential
- Institutional / Education / Community Facility
- Business
- Home Enterprise / Hospitality Use
- Light Industrial / Industrial / Commercial
- Municipal
- Sports / Recreation / Open Space
- Parking
- Vacant Land / Vacant Building
- Under Construction
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Water Areas / River Buffer

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Figure 22

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

2.3 ENGINEERING SERVICES

This section deals with an overview of the engineering services in the study area in terms of the Movement Network, Water and Sanitation.

2.3.1 MOVEMENT INFRASTRUCTURE

The following major arterial roads serve the study area:

- Malibongwe Drive (R512) (Provincial road – K29)
- Northumberland Avenue (Provincial road – K60)
- Beyers Naude Drive (M5) (Provincial road – K31)
- Peter Road (City of Johannesburg's road)
- Marina Drive (Provincial road – D1410)
- Aureole Avenue (City of Johannesburg's road)
- Johan Road (City of Johannesburg's road)
- Taylor Road (City of Johannesburg's road)

Both Beyers Naude Drive and Malibongwe Drive are major east-west routes, linking the study area with the N14 in the west and the N1 in the east, as well as the CBD of Johannesburg. The N14 is located approximately 6,5 km west of the study area and directly links to Krugersdorp in the south and Tshwane in the north.

2.3.1.1 PLANNED PROVINCIAL AND LOCAL AUTHORITY ROADS

Based on the Gauteng Strategic Road Planning, the future PWV5 and PWV3 are planned within the boundaries of the study area.

The PWV3 is located along the northern part of the study area, while the PWV5 alignment traverses the study area (as shown on **Diagram 10** and **Diagram 11**).

From the City of Johannesburg side, a new 40 m wide east-west route, referred to as the Metro Boulevard, is planned along the southern side of the study area.

Metro Boulevard, which is planned in parallel to Hendrik Potgieter Drive, is a proposed Class 3 route which is aimed at supplementing the road capacity for the area.

Diagram 10: Gauteng Strategic Road Network

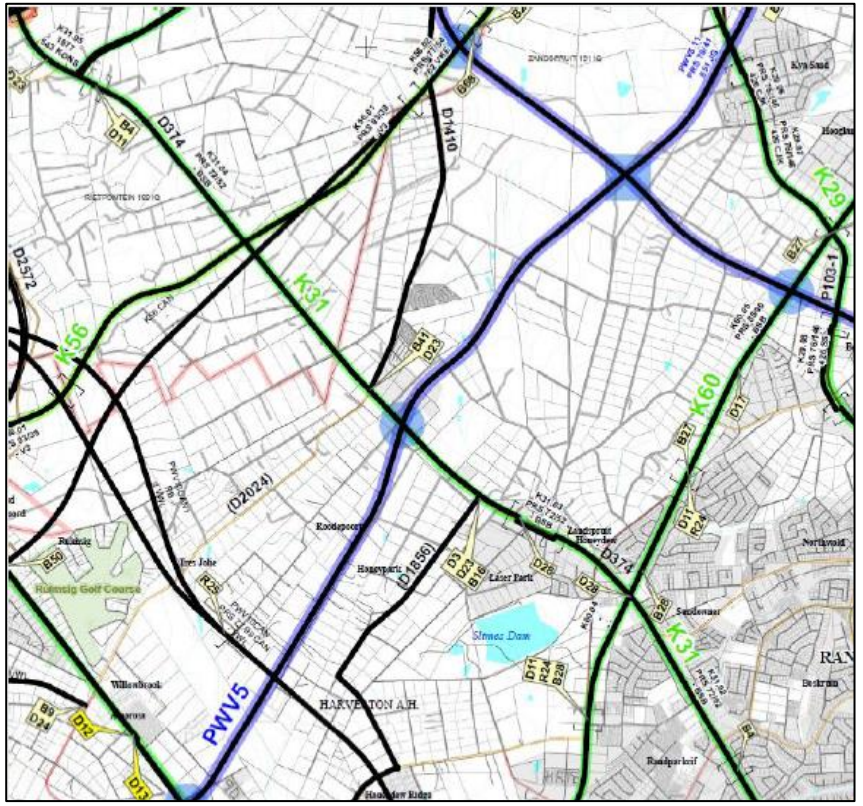
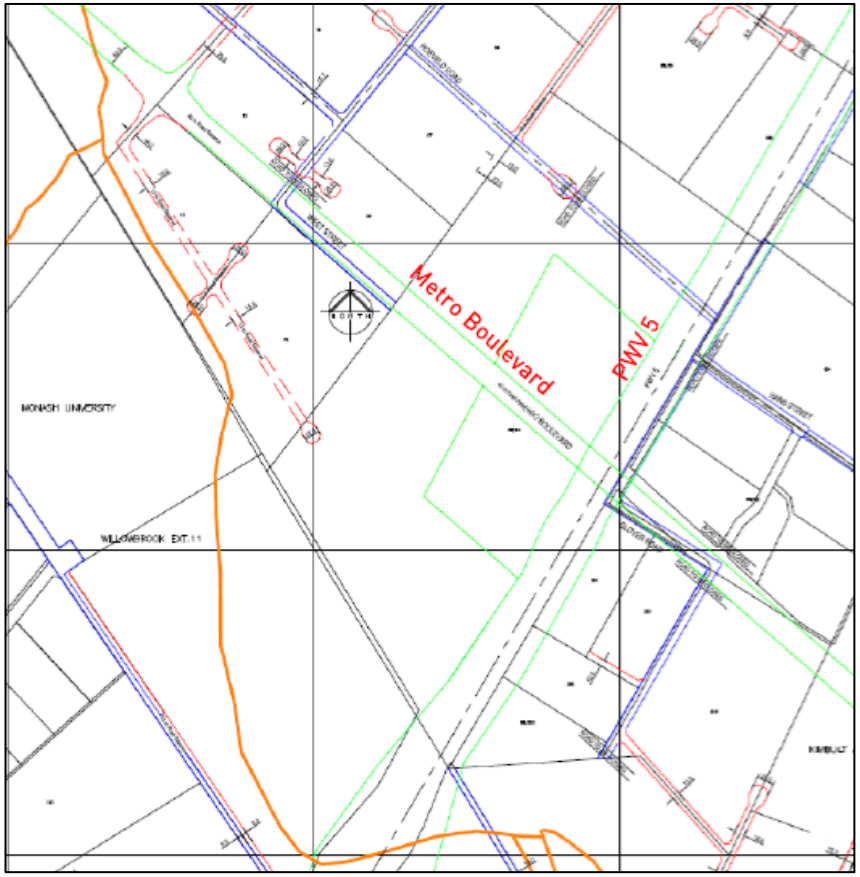


Diagram 11: Future PWV5 & Metro Boulevard



2.3.1.2 RAILWAY

No Metro Rail services are provided in the study area.

2.3.1.3 ROAD MASTER PLAN

The company *Inroads Consulting* was appointed by Johannesburg Road Agency in 2009 to prepare a road master plan for the Honeydew, Amarosa, Harveston, Tres Jolie and Ruimsig areas. An extract from the road master plan covering the Honeydew, Tres Jolie and Harveston areas is shown in **Diagram 12**, from which the following can be noted:

- The proposed PWV5 alignment with a possible half-diamond link with the proposed Metro Boulevard and link with the existing Hendrik Potgieter Drive.
- The planned alignment of Metro Boulevard in parallel to Hendrik Potgieter and Beters Naude Drive.
- Peter Drive and Johan Drive provide an east-west linkages between Beyers Naude Drive and Hendrik Potgieter Road.

Diagram 12: Road Master Plan

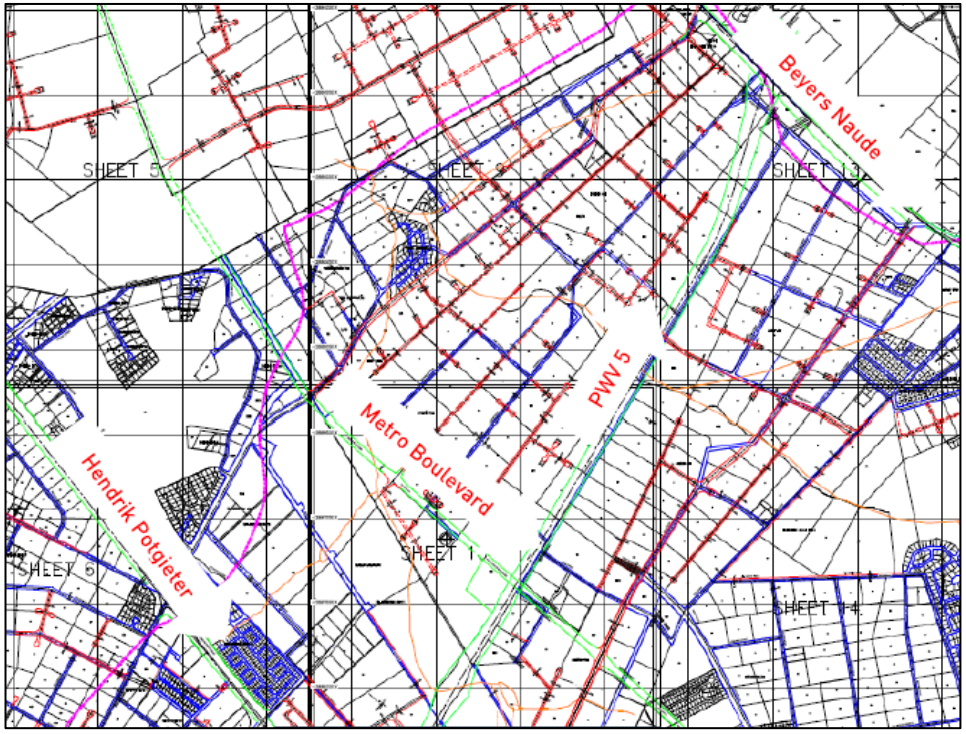
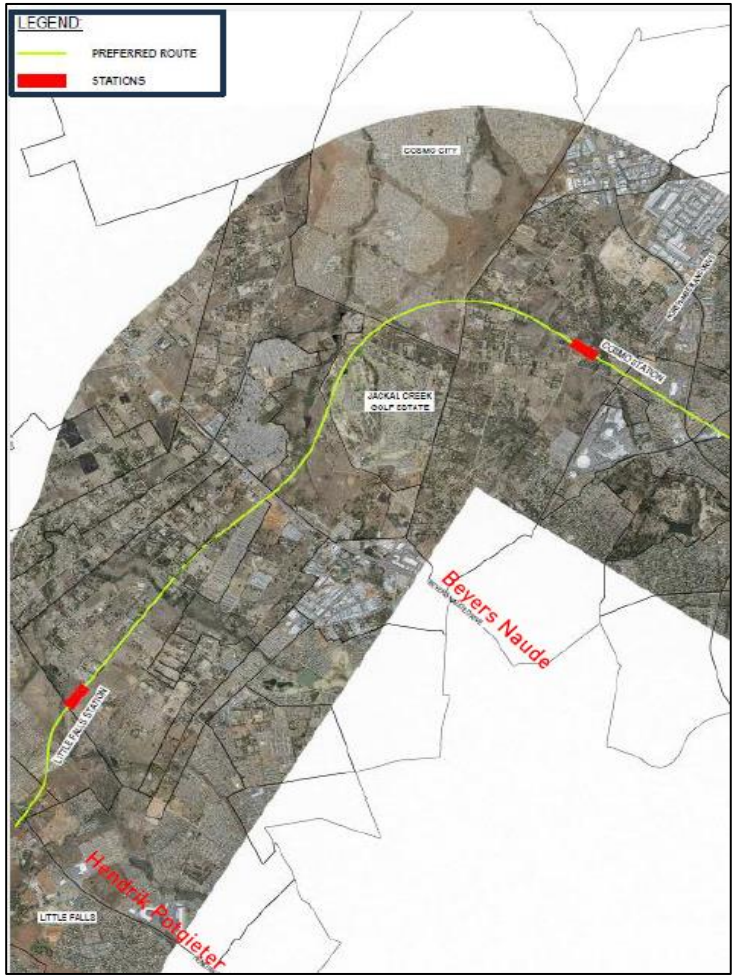


Diagram 13: Gautrain Planned Routes



2.3.1.4 FUTURE GAUTRAIN SERVICE

Based on the Gautrain network planning, a new route is planned for the study area., which includes a new station, as shown on **Diagram 13.**

2.3.2 WATER, SEWER AND ELECTRICITY

Figure 23 depicts the main water, sewer and electricity infrastructure in the study area and surrounds, which is briefly discussed below.

2.3.2.1 WATER INFRASTRUCTURE

The study area currently falls within two water sub districts. The majority of the study area falls within the Boshkop, Honeydew and Randpark Ridge sub-districts as outlined on **Diagram 14** while the south-western parts of the study area at Tres Jolie/Ruimsig fall within the Helderkruin and Weltevreden distribution area which is supplied from Rand Water (RW).

The water demand for the existing Boschkop reservoirs (4.5 ML and 9.1 ML) is supplied from the Rand Water (RW) bulk connection RW5754 via a 700 mm Ø bulk supply pipeline. The water demand for the existing Honeydew reservoir (15 ML) is supplied from the Rand Water (RW) connection RW5848 via a 600/760 mm Ø bulk supply pipeline. The bulk pipelines have sufficient capacity to supply the existing and ultimate required flow rate (no upgrades required).

The Honeydew and Boschkop reservoirs have the same EGL (energy grade line) and supply into one distribution zone with a combined reservoir storage of 28.6 ML. The Boschkop/Honeydew reservoirs have an existing zonal demand of 28 000 kL/d.

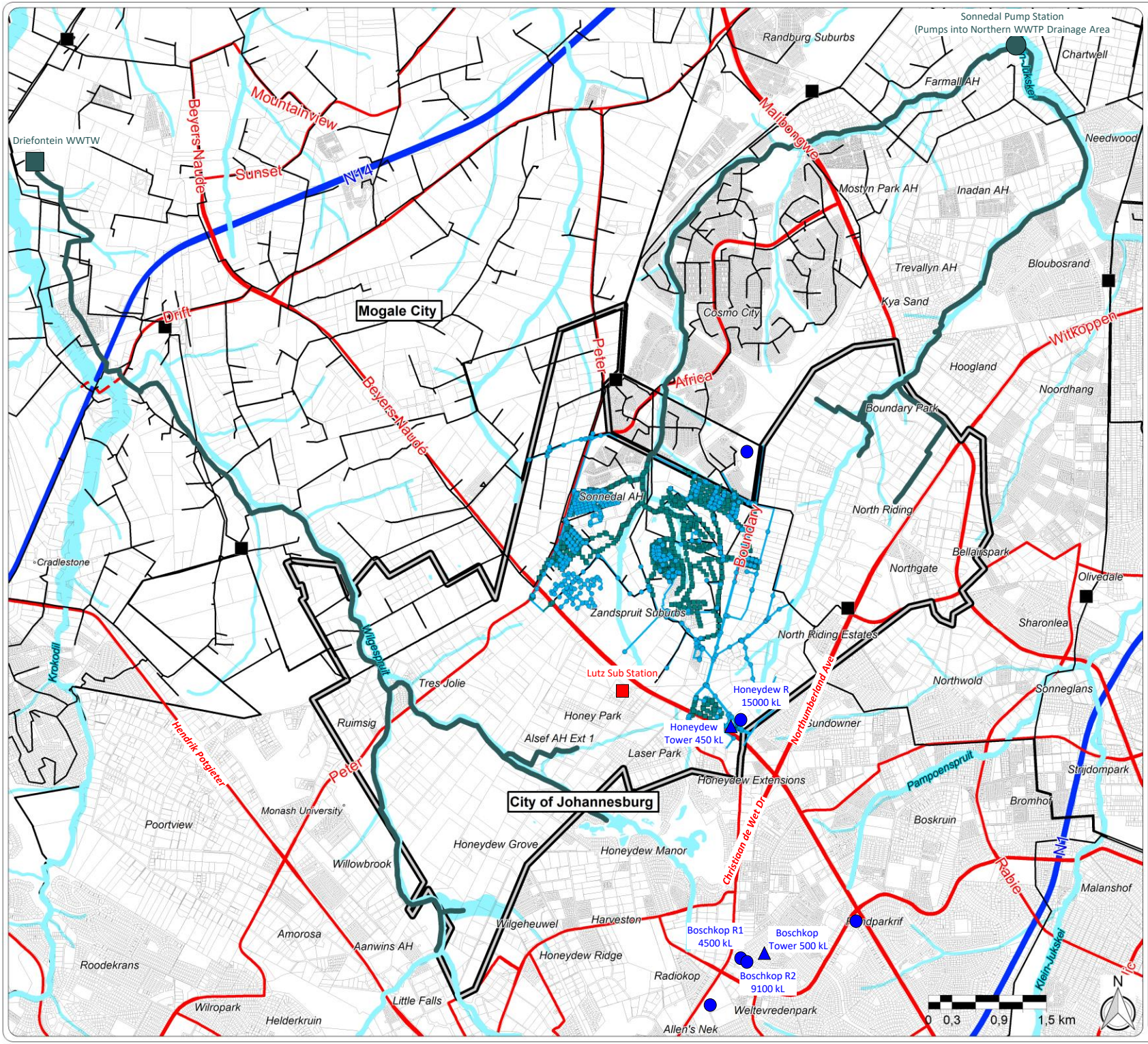
The Boschkop and Honeydew Reservoirs are supported by the Honeydew Water Tower which currently has an existing zonal demand of 931 kL/d.

Diagram 15 and **Diagram 16** illustrate the areas that are experiencing static pressure and peak hour pressures respectively and it can be noted that peak pressures are experienced from the Zandspruit area.

The bulk supply pipelines from the RW supply to the Boschkop/Honeydew reservoirs have sufficient spare capacity; however, the Boschkop/Honeydew reservoirs storage will drop below the minimum required 24 hours considering all the township applications in the Boschkop/Honeydew reservoirs distribution zone. Based on the increased demand, additional storage capacity will be required for the broader area.

Figure 24 illustrates the water and sewer network within the Zandspruit Informal Settlement.

The reticulation areas coincide with the cadastral structure and where formalisation has been undertaken.



ENGINEERING SERVICES Existing

Legend

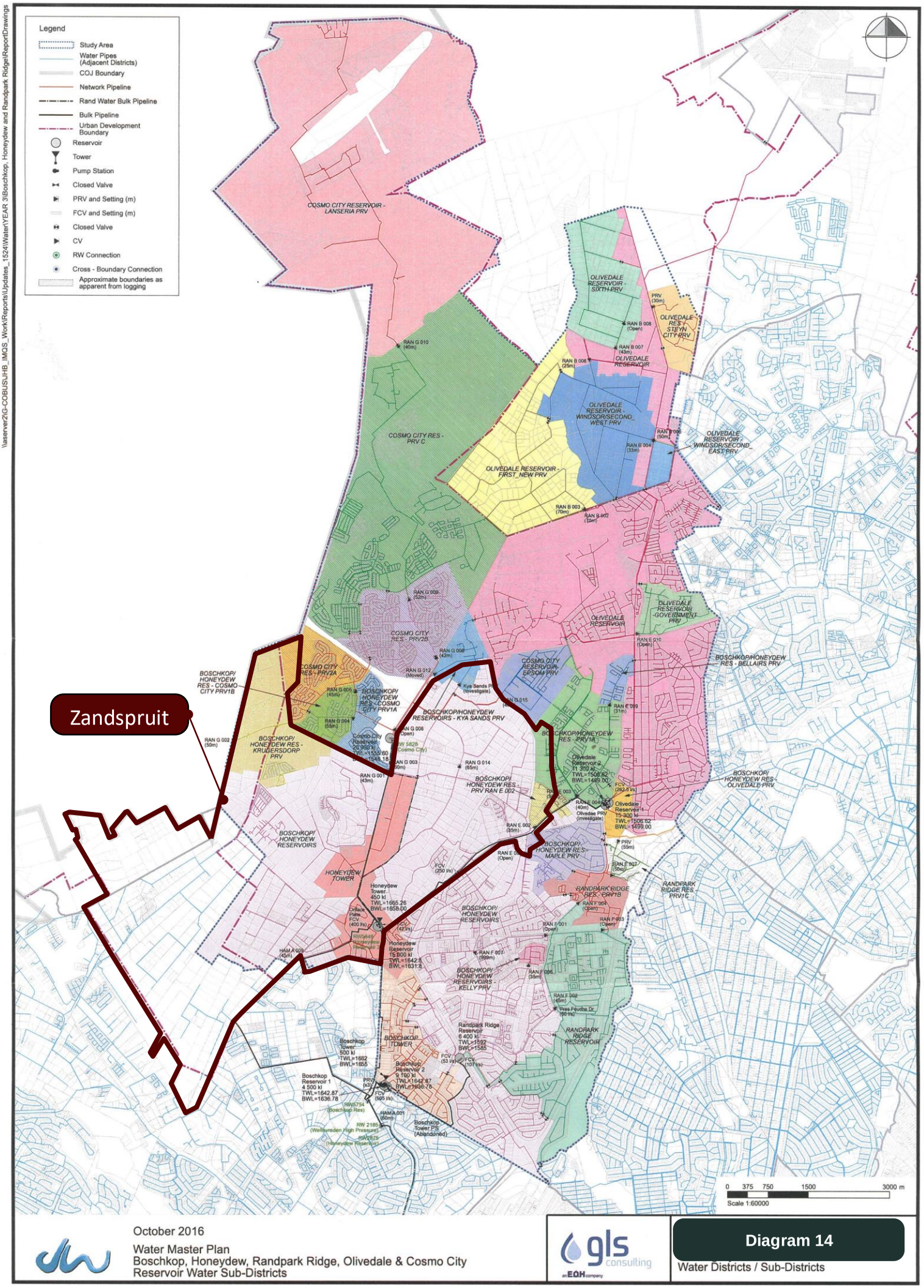
- Study Area
- Cadastral
- Powerlines
- Existing Sub Station
- Lutz Sub Station (to be energized)
- Reservoirs
- Towers
- Water pipeline
- Water nodes
- Sewer Pipes
- Sewer Manholes
- Bulk Sewer Line
- WWTW
- Pump Station
- National Roads
- Provincial Roads
- Water Areas / River Buffer

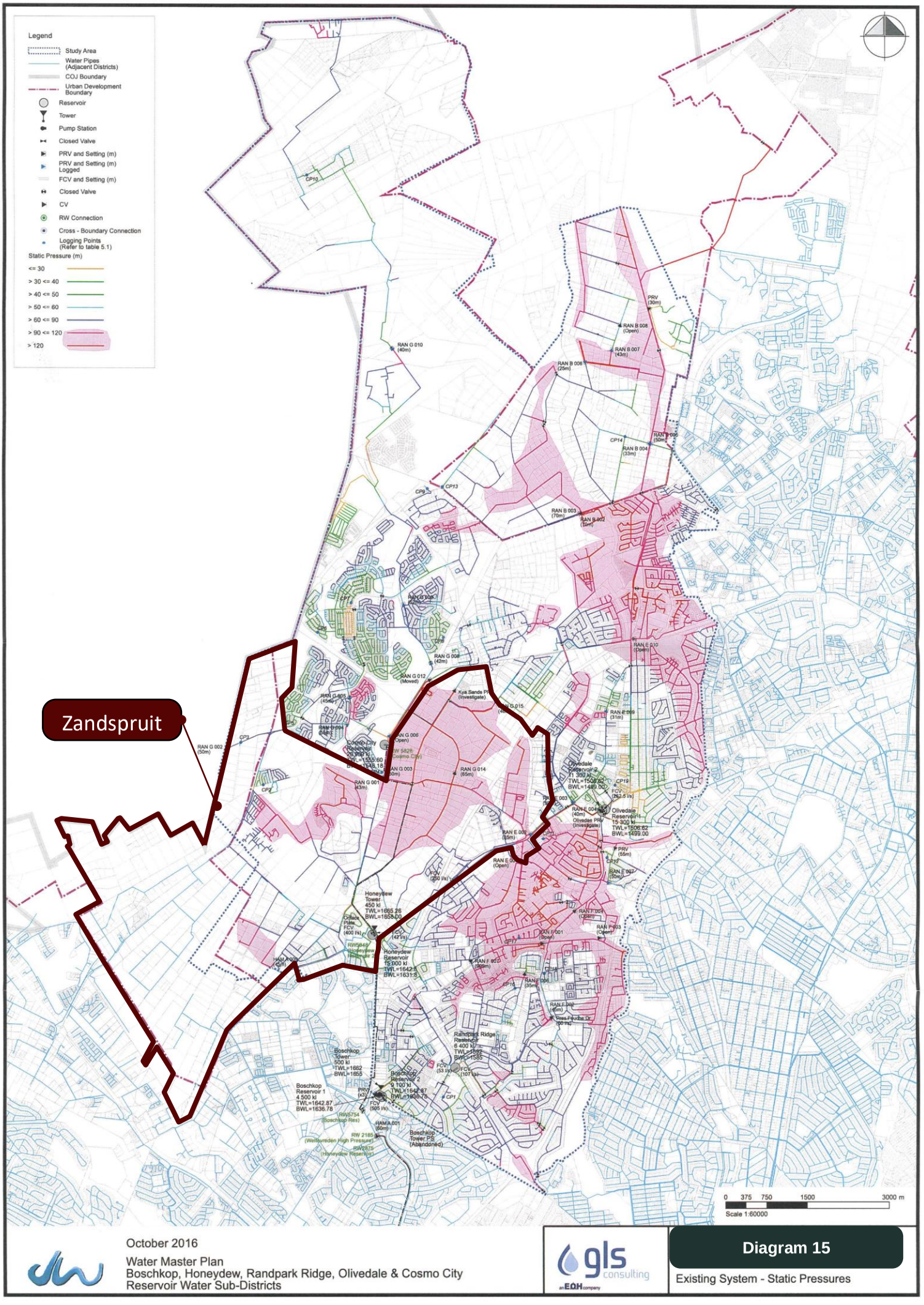
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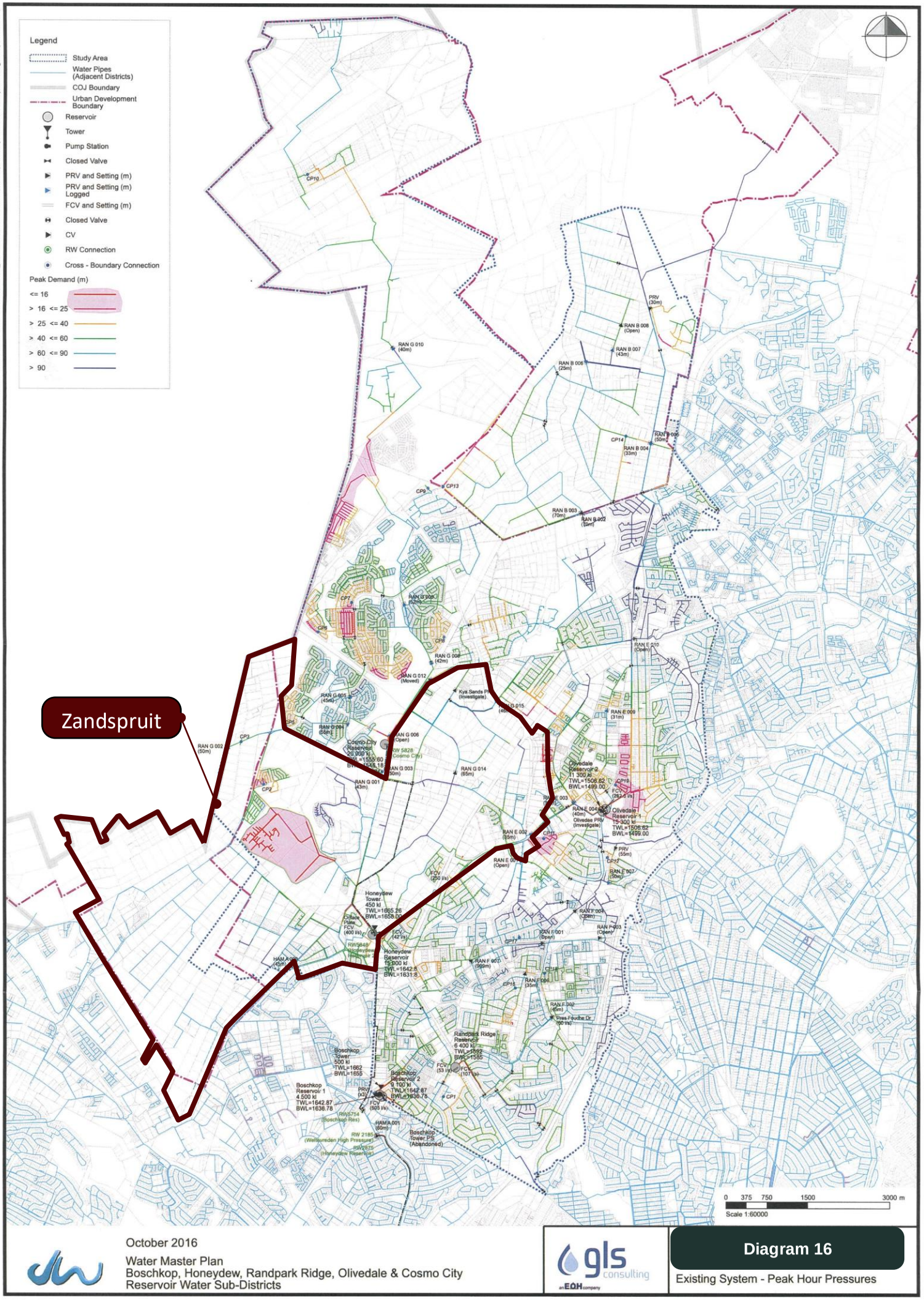
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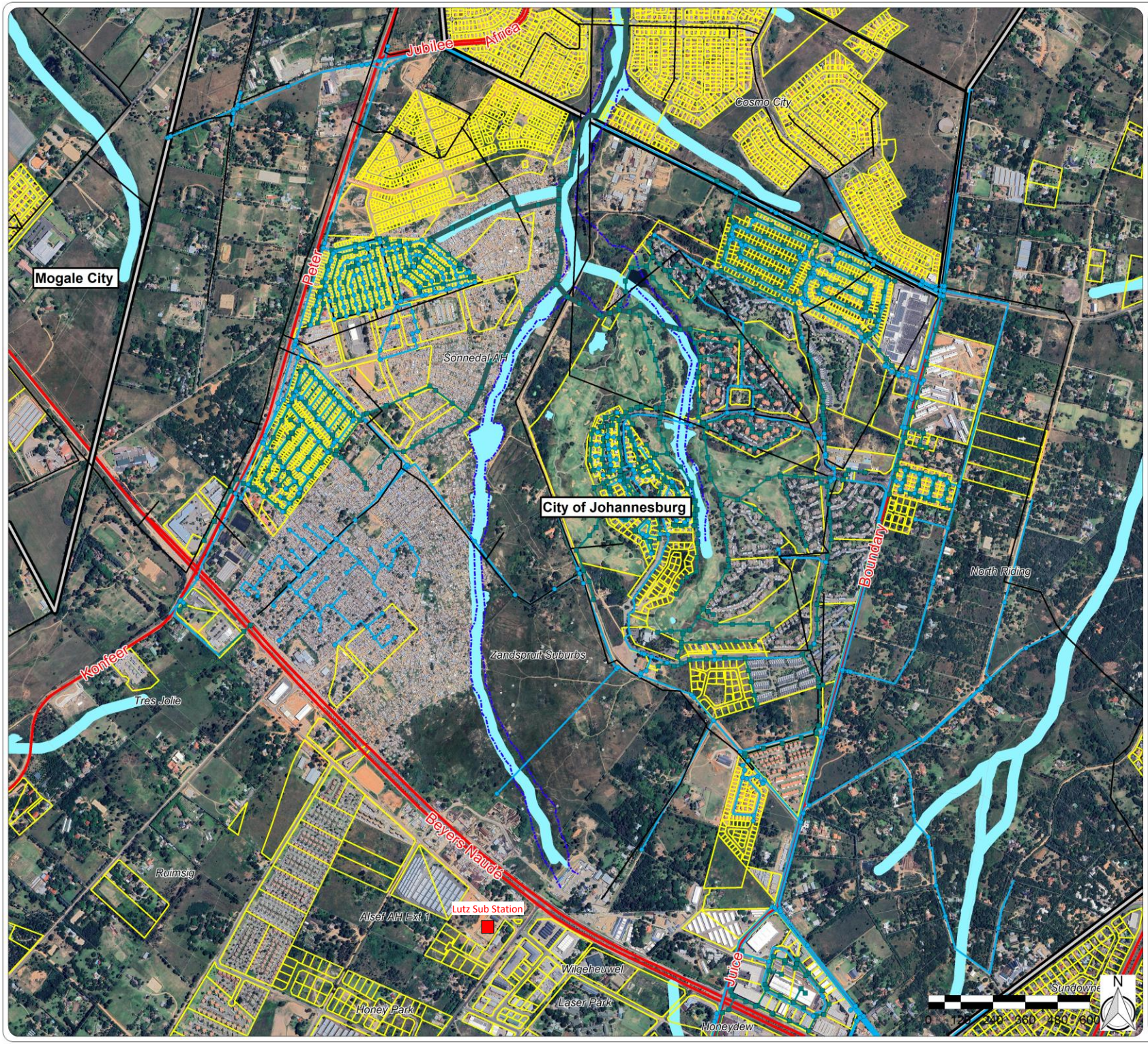
Figure 23

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK


\\aserver2\G-COBUS\JHB_IMOS_Work\Reports\Updates_15241\WaterYEAR 3\Boschkop, Honeydew and Randpark Ridge\ReportDrawings
Legend
Study Area
Water Pipes (Adjacent Districts)
COJ Boundary
Network Pipeline
Rand Water Bulk Pipeline
Bulk Pipeline
Urban Development Boundary
Reservoir
Tower
Pump Station
Closed Valve
PRV and Setting (m)
FCV and Setting (m)
Closed Valve
CV
RW Connection
Cross - Boundary Connection
Approximate boundaries as apparent from logging
Zandspruit
COSMO CITY RESERVOIR - LANSERIA PRV
OLIVEDALE RESERVOIR - SIXTH PRV
OLIVEDALE RES - STEYN CITY PRV
OLIVEDALE RESERVOIR
OLIVEDALE RESERVOIR - WINDSOR/SECOND WEST PRV
OLIVEDALE RESERVOIR - WINDSOR/SECOND EAST PRV
COSMO CITY RES - PRV C
OLIVEDALE RESERVOIR - FIRST NEW PRV
COSMO CITY RES - PRV2B
COSMO CITY RES - PRV2A
OLIVEDALE RESERVOIR -GOVERNMENT PRV
BOSCHKOP/ HONEYDEW RES - COSMO CITY PRV1B
BOSCHKOP/ HONEYDEW RES - COSMO CITY PRV1A
COSMO CITY RESERVOIR - EPSOM PRV
BOSCHKOP/HONEYDEW RES - BELLAIRS PRV
BOSCHKOP/HONEYDEW RESERVOIRS - KYA SANDS PRV
BOSCHKOP/ HONEYDEW RES - KRUGERSDORP PRV
BOSCHKOP/HONEYDEW RES - PRV1A
BOSCHKOP/ HONEYDEW RES - PRV RAN E 002
BOSCHKOP/ HONEYDEW RES - OLIVEDALE PRV
BOSCHKOP/ HONEYDEW RESERVOIRS
BOSCHKOP/HONEYDEW RES - MAPLE PRV
HONEYDEW TOWER
RANDPARK RIDGE RES - PRV1B
RANDPARK RIDGE RES - PRV1C
BOSCHKOP/ HONEYDEW RESERVOIRS
BOSCHKOP/ HONEYDEW RESERVOIRS - KELLY PRV
RANDPARK RIDGE RESERVOIR
BOSCHKOP TOWER
0 375 750 1500 3000 m
Scale 1:60000
October 2016
Water Master Plan
Boschkop, Honeydew, Randpark Ridge, Olivedale & Cosmo City Reservoir Water Sub-Districts
gls consulting
an EOH company
Diagram 14
Water Districts / Sub-Districts


\\aserver2\G-COBUS\JHB_IMQS_Work\Reports\Updates_1524\Water\YEAR 3\Boschkop, Honeydew and Randpark Ridge\Report\Drawings
Legend
Study Area
Water Pipes (Adjacent Districts)
COJ Boundary
Urban Development Boundary
Reservoir
Tower
Pump Station
Closed Valve
PRV and Setting (m)
PRV and Setting (m) Logged
FCV and Setting (m)
Closed Valve
CV
RW Connection
Cross - Boundary Connection
Logging Points (Refer to table 5.1)
Static Pressure (m)
<= 30
> 30 <= 40
> 40 <= 50
> 50 <= 60
> 60 <= 90
> 90 <= 120
> 120
Zandspruit
Honeydew Tower 450 kl TWL=1665.26 BWL=1658.00
Honeydew Reservoir 15 000 kl TWL=1642.45 BWL=1631.8
Boschkop Tower 500 kl TWL=1662 BWL=1655
Boschkop Reservoir 1 4 500 kl TWL=1642.87 BWL=1636.78
Boschkop Reservoir 2 9 100 kl TWL=1642.87 BWL=1636.78
Randpark Ridge Reservoir 6 400 kl TWL=1592 BWL=1585
Olivedale Reservoir 1 15 300 kl TWL=1506.62 BWL=1499.00
Olivedale Reservoir 2 11 300 kl TWL=1506.62 BWL=1489.00
Cosmo City Reservoir 10 000 kl TWL=1555.60 BWL=1548.18
0 375 750 1500 3000 m
Scale 1:60000
October 2016
Water Master Plan
Boschkop, Honeydew, Randpark Ridge, Olivedale & Cosmo City Reservoir Water Sub-Districts
gls consulting
an EOH company
Diagram 15
Existing System - Static Pressures


\\server2\G-COBUS\UHB_IMQS_Work\Reports\Updates_15241\Water\YEAR 3\Boschkop, Honeydew and Randpark Ridge\Report\Drawings
Legend
Study Area
Water Pipes (Adjacent Districts)
COJ Boundary
Urban Development Boundary
Reservoir
Tower
Pump Station
Closed Valve
PRV and Setting (m)
PRV and Setting (m) Logged
FCV and Setting (m)
Closed Valve
CV
RW Connection
Cross - Boundary Connection
Peak Demand (m)
<= 16
> 16 <= 25
> 25 <= 40
> 40 <= 60
> 60 <= 90
> 90
Zandspruit
Honeydew Tower 450 kl TWL=1665.26 BWL=1658.00
Honeydew Reservoir 15 000 kl TWL=1642.8 BWL=1631.8
Boschkop Tower 500 kl TWL=1662 BWL=1655
Boschkop Reservoir 2 9 100 kl TWL=1642.87 BWL=1630.78
Boschkop Reservoir 1 4 500 kl TWL=1642.87 BWL=1638.78
Randpark Ridge Reservoir 6 400 kl TWL=1592 BWL=1585
Olivedale Reservoir 2 11 300 kl TWL=1506.62 BWL=1499.00
Olivedale Reservoir 1 15 300 kl TWL=1506.62 BWL=1499.00
Cosmo City Reservoir 20 000 kl TWL=1555.60 BWL=1548.18
0 375 750 1500 3000 m
Scale 1:60000
October 2016
Water Master Plan
Boschkop, Honeydew, Randpark Ridge, Olivedale & Cosmo City Reservoir Water Sub-Districts
gls consulting
an EQH company
Diagram 16
Existing System - Peak Hour Pressures



ZANDSPRUIT INFORMAL Water and Sewer

Legend

- Study Area
- Erven
- Farm Portions, Holdings
- Powerlines
- Existing Sub Station
- Lutz Sub Station (To be energized)
- Water pipeline
- Water nodes
- Sewer Pipes
- Sewer Manholes
- Water Areas / River Buffer
- 100yr Flood Line
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- Road Reserve
- Provincial Roads
- Interchanges

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 24

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

2.3.2.2 SEWER INFRASTRUCTURE

The position of the Wastewater Treatment Works (WWTW) and Pump Stations is outlined on Figure 23.

The wastewater watershed is created by Beyers Naude Drive, with the part of the study area lying south of Beyers Naude Drive lying in one drainage basin and the area to the north of Beyers Naude Drive lying in another drainage basin.

The part of the study area to the south of Beyers Naude Drive is located within the Driefontein drainage basin and sewerage from this area drains via a bulk sewer pipeline (ranging in diameters between 300 and 900 mm) in a north-westerly direction until it reaches the Driefontein WWTW. The bulk pipes have a relative spare capacity for development (between 15 and 30% spare capacity) and upgrades will not typically be required in the short-term.

The Driefontein WWTW consists of an activated sludge plant with a design capacity of 55 ML/d and the total current flow discharging into the Driefontein WWTW is 38.9 ML/d. In the short-medium term, the Driefontein WWTW should have sufficient capacity to accommodate the development of the study area. However, assuming a yearly increase of 3.5% in sewer flows as the area develops, the design capacity would typically be reached within the next 10 years.

Therefore, the Driefontein WWTW has some spare capacity available at present, but for the long term it is proposed that the Driefontein WWTW be upgraded to a 135 ML/d plant. Previous reports have, however, indicated that the existing Driefontein WWTW site can only accommodate 85 ML/d. Therefore, any excess flow (>85 ML/d) will need to be diverted to another site still to be determined.

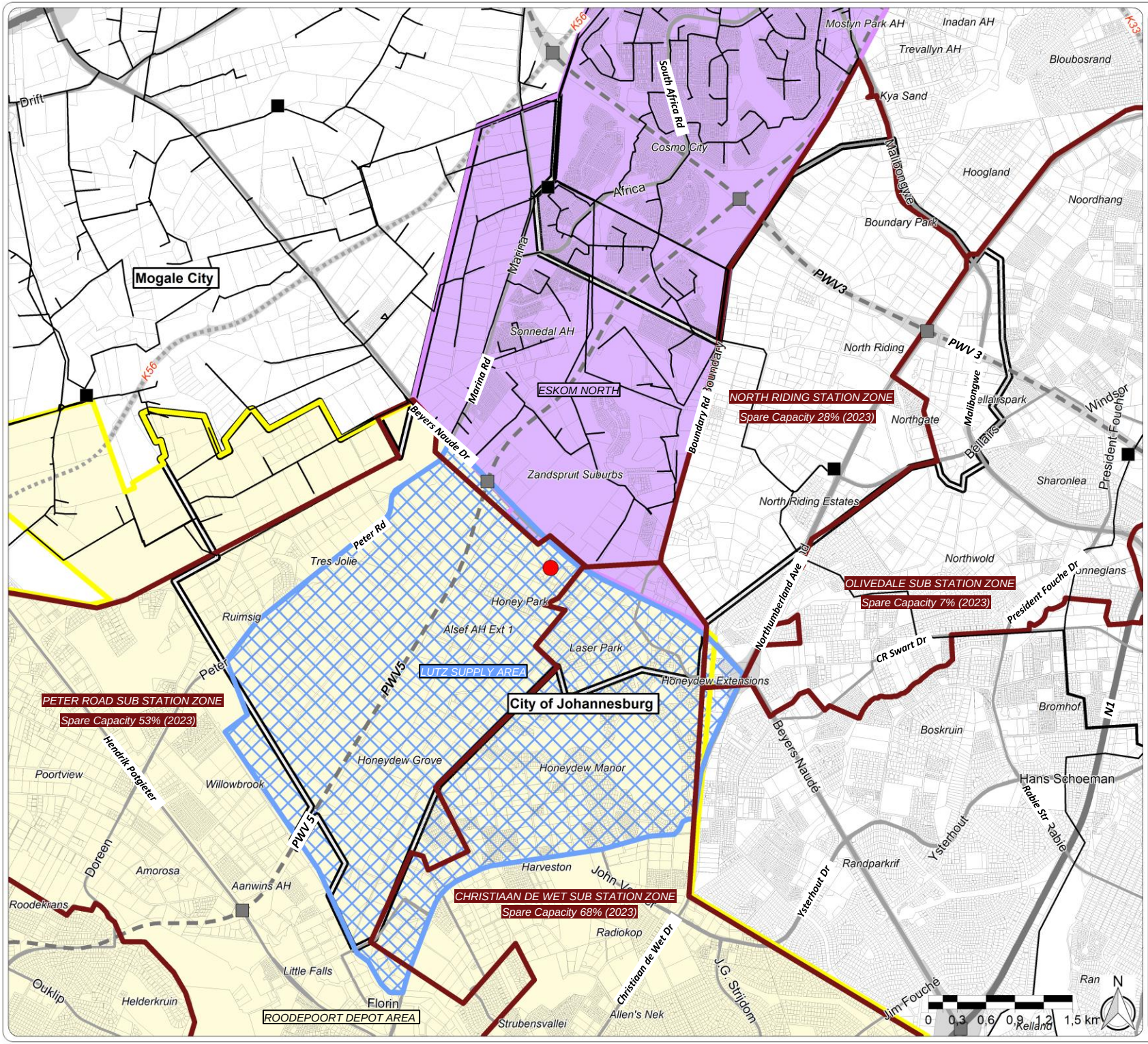
The part of the study area to the north of Beyers Naude Drive forms part of the Western Klein Jukskei (pumped) drainage area. Sewer flows to the Sonnedal/Zandspruit Pump Station where it is pumped to the Northen WWTW at Diepsloot West.

It can be noted from Figure 24 that the Zandspruit Informal area only has two sewerage lines linking into the Jackal Creek sewerage lines. Very limited water borne sewerage infrastructure exists in the informal settlement areas. The sewerage network coincides with the formal township area and due to the lack of formalisation it is not yet possible to install formal sewerage.

The capacity of the Northern WWTW is currently 405 ML/day and as part of the proposed Lanseria development, an additional upgrade of 150 ML is proposed in three phases, as per the JW Future Lanseria Drainage Basin Report (2016). Phase 1 of the project, which consists of increasing the capacity by 50 ML/day is currently in process, which should increase the capacity of the WWTW to 450 ML/day.

2.3.2.3 ELECTRICITY INFRASTRUCTURE

Figure 25 illustrates the electrical supply areas for the study area. The majority of the area falls within City Power's supply area, while the area west of Boundary Road and north of Beyers Naude Drive falls within Eskom's supply area. Figure 25 further indicates the distribution zone of the various substation zones and the relevant space capacity.



Electrical Engineering Infrastructure

Legend

- Study Area
- A Suburbs
- Municipal Boundary
- Lutz Sub Station
- Lutz Supply Area
- Eskom Powerlines
- Eskom Sub Stations
- City Power Sub Station Zones
- Eskom North Area
- City Power Roodepoort Depot Area
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- National Roads
- Provincial Roads
- Interchanges

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 25

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

The spare capacity of each zone is outlined below:

- North Riding Station Zone: 28% (2023)
- Christiaan de Wet Sub Station Zone: 68% (2023)
- Peter Road Sub Station Zone: 53% (2023)

The capacity from Eskom has not been confirmed with the writing of the report.

The Lutz Sub Station has recently been completed to serve the southern part of the study area. The substation has not yet been energised (commissioned). The purpose of the substation is to augment the supply within the area.

2.4 SOCIO-ECONOMIC PROFILE

2.4.1 ECONOMIC PROFILE

Diagram 17 summarizes the **Economic Size and Structure of the City of Joburg versus the Region C Economy**.

Region C is the second largest contributor to the CoJ economy, contributing 18%, with a total GVA of R1,9 billion. The regional economy is primarily made up of the tertiary sector, being the most reliant on business services which make up 38,5% of the regional economy.

Figure 26 depicts the **Crime Statistics** within the study area from which it is evident that the study area is categorised by high crime rates. There are approximately between 8 853 – 13 431 annual reported crime cases in the UDF area, mostly being contact crimes (approximately 2 879 cases on average) and other serious crimes (approximately 2 733 cases on average). The area also experiences an average of 1 800 property related crime cases reported per year.

Despite the high crime rates in the study area, there is only one police station within the UDF Boundary.

ECONOMIC SIZE AND STRUCTURE: COJ VERSUS REGION C ECONOMY

ECONOMY SIZE AND CONTRIBUTION

Region C Regional Economy GVA
(current prices 2021)

R1.9 billion

18.0% contribution to the City of Johannesburg Metro Economy

7.3% contribution to the Gauteng Provincial Economy

City of Johannesburg Metro Economy GVA
(current prices 2021)

R770.3 billion

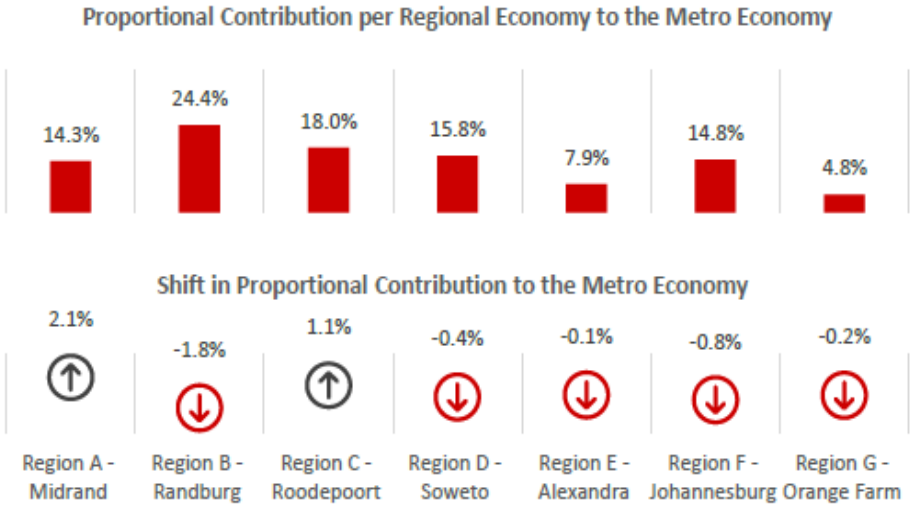
40.3% contribution to the Gauteng Provincial Economy

13.8% contribution to the National Economy

The Region C Regional economy is the **second largest** contributor to the total economy of the City of Johannesburg Metro Economy.

The Region C Regional economy is one of only two regional economies that has **increased** its proportional contribution to the metropolitan economy since 2011.

COMPARATIVE ECONOMY SIZE AND CONTRIBUTION ANALYSIS



ECONOMY STRUCTURE



The Regional economy is primarily characterised by the **tertiary sector**. The Regional economy is mainly reliant on the **business services (38.5%)** sector.
The agriculture (0.05%), mining (0.5%), utilities (0.6%), wholesale and trade (0.2%), government (0.6%) and community services (1.2%) sectors have increased their proportional contribution to the Regional economy since 2011.

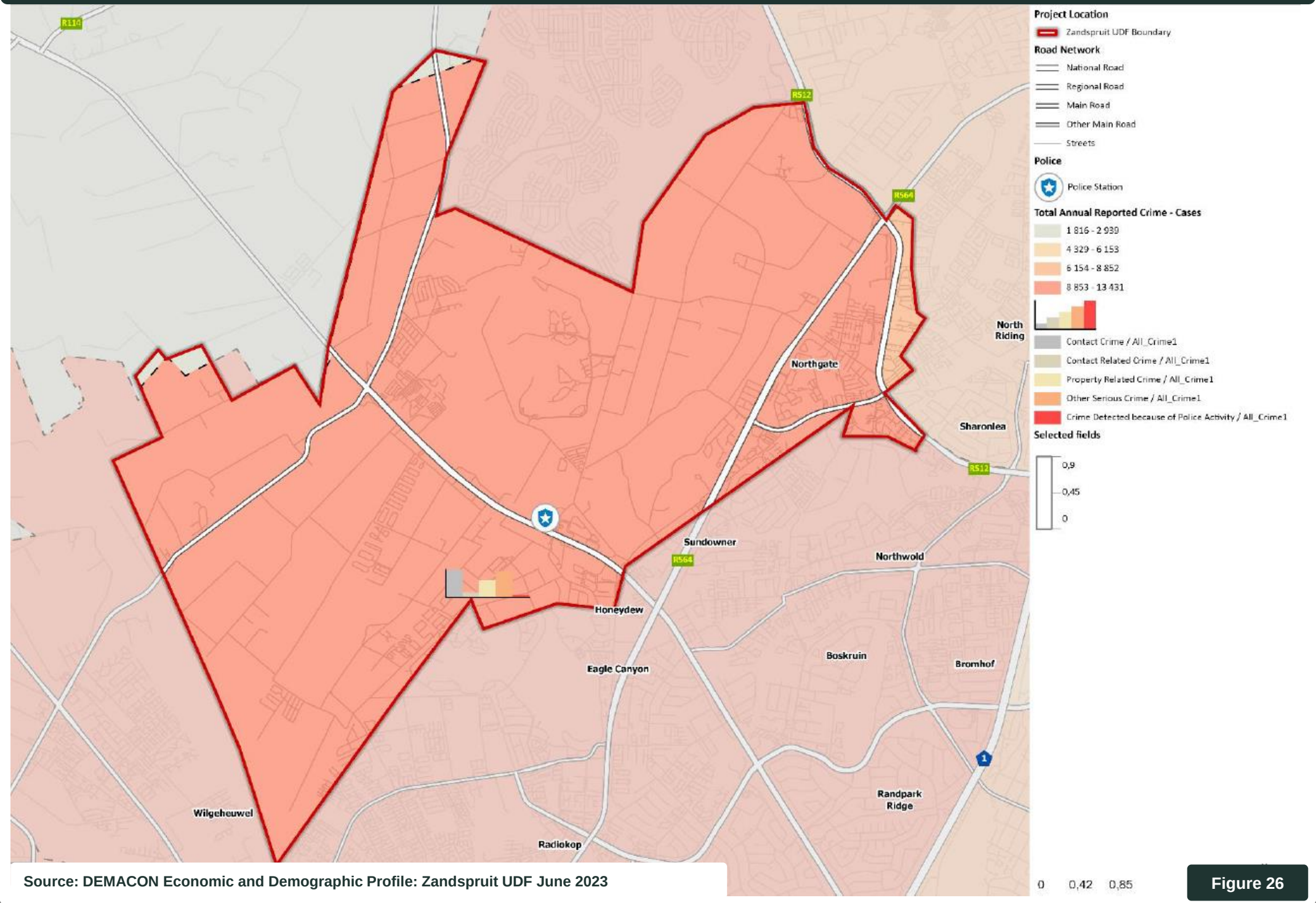


The Metro economy is primarily characterised by the **tertiary sector**. The Metro economy is, however, fairly diversified with sizeable contributions from **community services (17.0%), business services and trade sectors (16.6% respectively) and the mining sector (16.1%).** The agriculture (1.0%), mining (8.9%), utilities (0.8%) and the government (0.3%) sectors have increased their proportional contribution to the Metro economy since 2011.

Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 17

CRIME STATISTICS WITHIN THE STUDY AREA



Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Figure 26

2.4.2 DEMOGRAPHIC PROFILE

Diagram 18 depicts the **Demographic Size and Composition of the Study Area** from which it is evident that there is a **total of 109,451 people and 45,952 households** within the study area which are growing at an average annual growth rate of 6,11% and 7,77% respectively.

Figure 27 depicts the overall **Density and Growth** within the study area while **Diagrams 19, 20, 21** and **22** show aerial imagery of certain areas where growth is evident over the past 10 years, from 2013 to 2023 from which the following is notable:

- The Zandspruit Informal Settlement expanded considerably in an easterly direction, comprising mostly informal residential units (Diagram 19).
- The Jackal Creek Golf Estate experienced expansion in the form of the development of higher income, formal residential houses which were developed (Diagram 20).
- At Honeydew Manor, a number of medium-density residential complexes were developed in a westerly direction (Diagram 21).
- At Boundary Park, a number of sites were developed for light-industrial and commercial purposes (Diagram 22).

It is evident that various residential (both formal and informal) and business development took place within the study area which could contribute to the high population and household growth rates.

It is further interesting to note that over 50% of the population found within the study area migrated there since 2011 of which 36,2% are South African and 14,2% are migrants from other countries.

In terms of the population demographics, the population groups are predominantly Black African (80,4%), followed by White (14,2%) with 3,6% being Indian/Asian and 1,7% being Coloured.

In terms of the gender and age distribution, 54.3% of the population within the study area are male, of which 27% of males are between the ages of 20 and 34 while 45,7% are female of which 21,4% are between the ages the ages of 20-34. There is further a large proportion of the population of young children under the age of 4 (10,1%).

Diagram 23 summarises the **Labour Force Profile of the Study Area** from which it is evident that 79,6% of the population are economically active (people of a working age between 15 and 65 who are either employed or unemployed) of which 81,3% are employed (18,7% are unemployed).

In terms of the Occupation Profile, 33,7% are skilled, 44,2% are semi-skilled and 21,3% are low-skilled occupations with the tertiary sector accounting for the highest number of jobs.

Diagram 24 summarises the **Household Profile** of households within the study area from which it is evident that 57.8% of households reside in formal dwellings, 41,9% of households reside in informal dwellings and 0,3% reside in traditional dwellings.

In terms of Household Income, only 1,7% of the households in the study area are considered high-income, with 48,3% considered middle income and **50% considered low-income households.**

DEMOGRAPHIC SIZE AND COMPOSITION: STUDY AREA

POPULATION SIZE

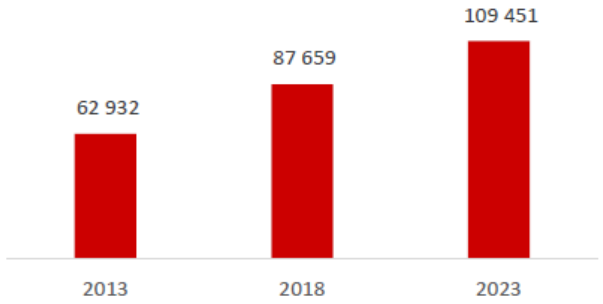
109 451 PEOPLE IN THE **UDF**

Population Average Annual **Growth Rate** **6.11%**

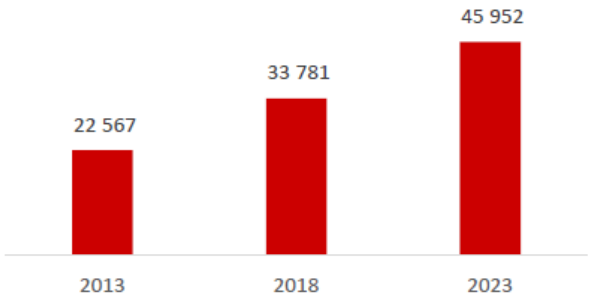
45 952 HOUSEHOLDS

Household Average Annual **Growth Rate** **7.77%**

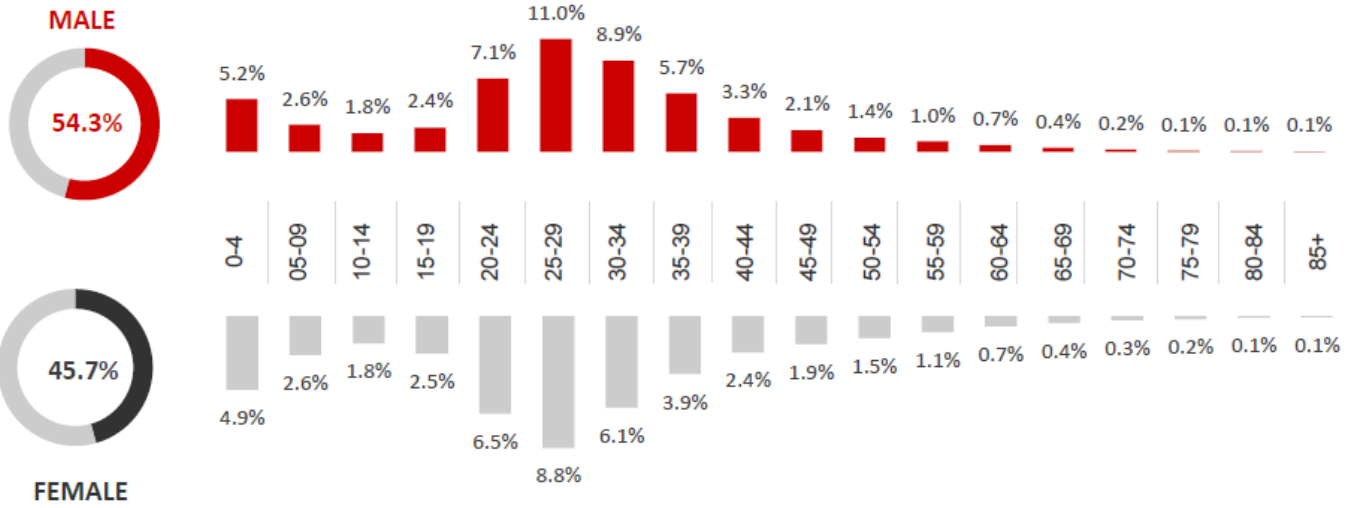
POPULATION GROWTH



HOUSEHOLD GROWTH



AGE AND GENDER PROFILE



POPULATION GROUP

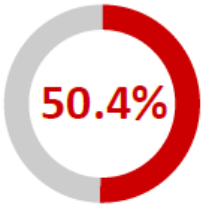


Black African	80.4%
Coloured	1.7%
Indian / Asian	3.6%
White	14.2%

MIGRATION PROFILE

Data indicates that 50.4% of people migrated to the UDF since 2011.

36.2% of migrants are South African
14.2% of migrants are from other countries



EDUCATION PROFILE

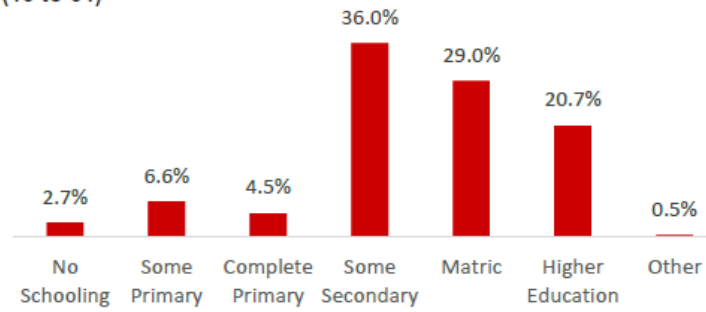
Education Institution Attended by a Person Enrolled and Aged 20 and Older

57.8% attend a **University**

13.7% attend an **ABET**

9.9% attend an **Ordinary School**

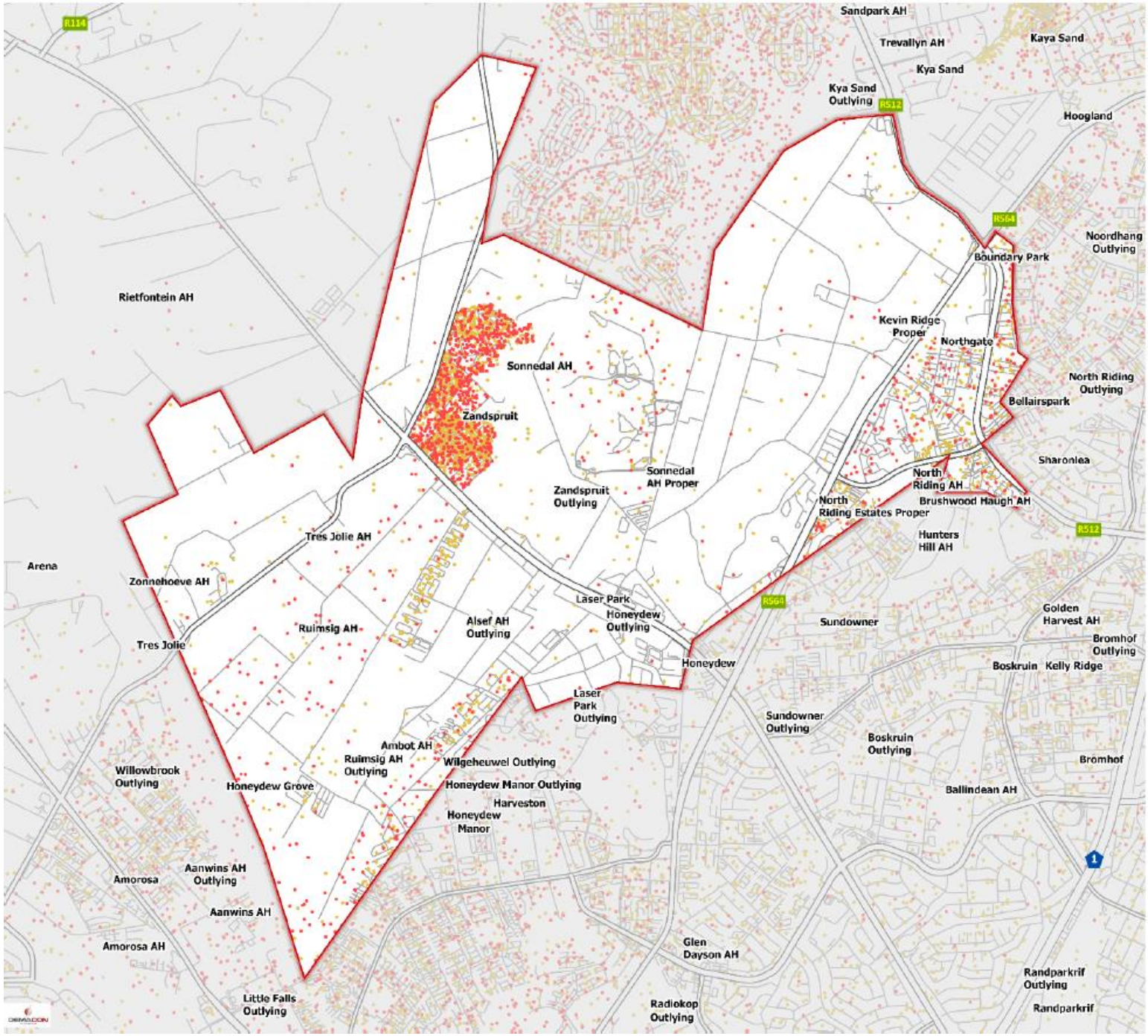
Highest Level of Education Obtained – Working Age Population (15 to 64)



Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 18

POPULATION DENSITY AND GROWTH: STUDY AREA



Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Figure 27

10-YEAR GROWTH: ZANDSPRUIT INFORMAL SETTLEMENT

2013



2023



Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 19

10-YEAR GROWTH: JACKAL CREEK GOLF ESTATE

2013



2023



Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 20

10-YEAR GROWTH: HONEYDEW MANOR

2013



2023



Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 21

10-YEAR GROWTH: BOUNDARY PARK

2013



2023



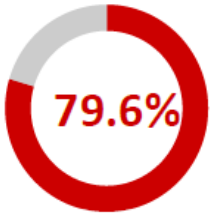
Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 22

LABOUR FORCE PROFILE: STUDY AREA

ECONOMICALLY ACTIVE SEGMENT

ECONOMICALLY **ACTIVE** Population

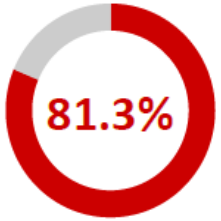


20.4% Not Economically Active

Economically active population refers to a person of working age 15 to 65 who are either employed or unemployed.

Not economically active population refers to ages 0 to 14 and 65 and older, persons unable to work or persons engaged in educational activities or are homemakers.

EMPLOYMENT PROFILE



Employed Economically Active

18.7% Unemployed Economically Active

Employed and unemployed persons are considered to be economically active and thus is a segment of the economically active percentage.

OCCUPATION PROFILE

Skilled Occupations **33.7%**



Semi-Skilled Occupations **44.2%**



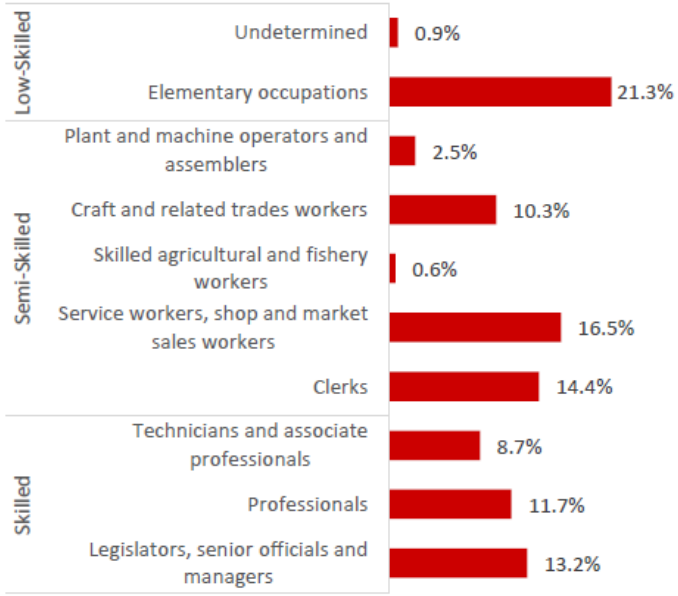
Low-Skilled Occupations **21.3%**



Elementary Occupations
Are most popular
21.3%

Service workers, shop and market sales workers
Are the second most popular
16.5%

Clerks
Are the third most Popular
14.4%



EMPLOYMENT PER INDUSTRY



3.3% Employed in the **Primary Sector**

18.1% Employed in the **Secondary Sector**

65.9% Employed in the **Tertiary Sector**

28.0% Financial; insurance; real estate and business services

16.1% Community; social and personal services

15.7% Wholesale and retail trade



Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 23

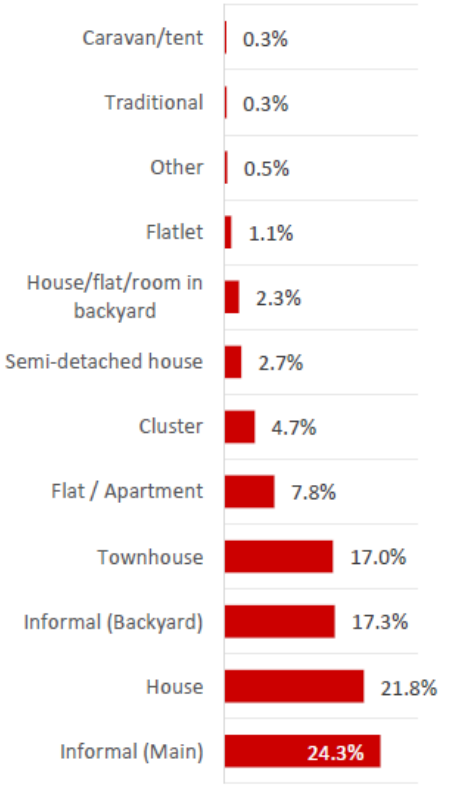
HOUSEHOLD PROFILE: STUDY AREA

DWELLING TYPOLOGY

Majority of Households Reside in a **Formal Dwelling** **57.8%**

41.9% of households reside in an **informal dwelling**

0.3% of households reside in a **traditional dwelling**



TENURE STATUS



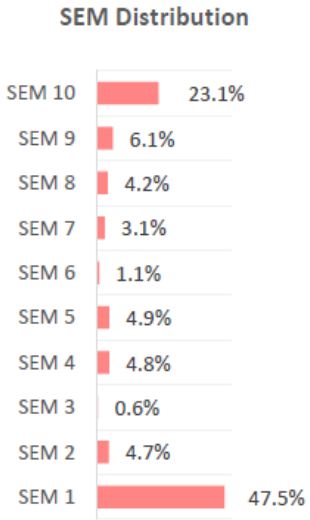
7.4% of households **own** and have **paid** for the property where they reside

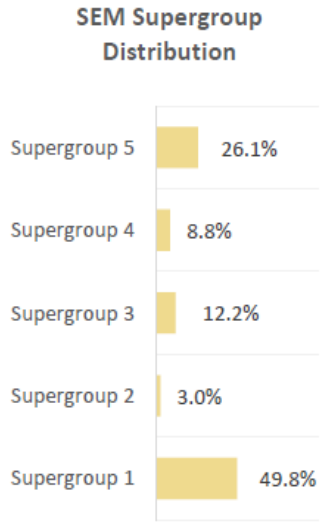
13.8% of households **own** but have **not finished paying** for the property where they reside

16.5% of households **occupy** the property where they reside **rent free**

62.3% of households **rent** the property where they reside

SEM





HOUSEHOLD INCOME PROFILE

Average annual household income for all SEM Supergroups (2023)

R252 589

Average annual household income for SEM Supergroups 2+ (2023)

R549 752

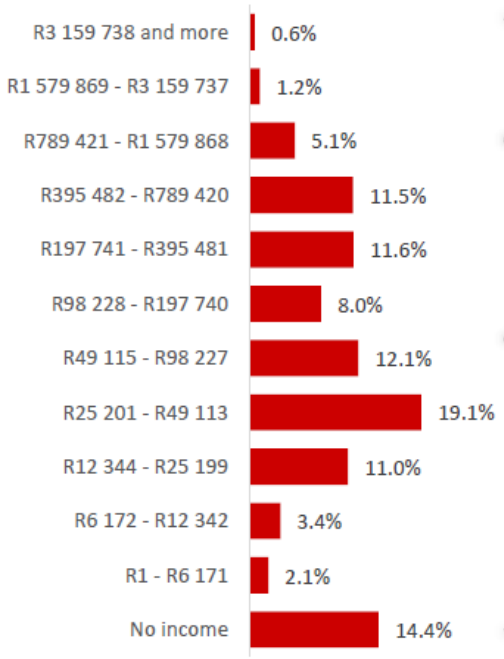


Average monthly household income for all SEM Supergroups (2023)

R21 049

Average monthly household income for SEM Supergroups 2+ (2023)

R45 751



±1.7% of households in the UDF are **high-income** households

±48.3% of households in the UDF are **middle-income** households

±50.0% of households in the UDF are **low-income** households

Source: DEMACON Economic and Demographic Profile: Zandspruit UDF June 2023

Diagram 24

2.5 STAKEHOLDER ENGAGEMENTS

Extensive Stakeholder Engagements were undertaken throughout the formulation of the Zandspruit UDF, which are discussed in this section. Stakeholder engagements were a crucial part of the process in formulating the Zandspruit UDF to ensure that the proposals made in the plan are in line with the vision of the community living in the area and may further be endorsed by the Local Municipality who is predominantly responsible for implementing the plan.

2.5.1 IDENTIFICATION OF RELEVANT STAKEHOLDERS

The first part of the Stakeholder Engagement Process was identifying the relevant stakeholders that would need to form part of the process. The list of stakeholders was updated throughout the process as new interests emerged. The stakeholders that were identified for the project are shown in **Table 9.**

Table 9: Identified Stakeholders

PRIMARY STAKEHOLDERS	SECONDARY STAKEHOLDERS	MOE's
• City of Joburg Municipality • The Joburg Development Agency • Service Provider	• Private Developers/ Town Planners • Ward Councilors and Ward Committee • Informal Traders • Formal Traders • Taxi Associations • Any other key stakeholders • Community Members	• Gautrans • Gauteng Department Human Settlements • Gauteng Department Economic Development • Eskom • HDA

2.5.2 STAKEHOLDER ENGAGEMENTS HELD

A summary of the Stakeholder Engagements that were held throughout the formulation of the Zandspruit UDF are shown in **Table 10** and it is evident that extensive engagements were held with 22 engagements held to date.

2.5.3 CALL FOR PUBLIC COMMENT

Further to the various engagements held, the Public had an opportunity to submit written comments on the document.

Notification calling for public comment was given on the following platforms:

- A3, laminated notices (**Diagram 25**) were put up in and around the Zandspruit UDF study area on all major roads, prominent pedestrian routes, malls, public spaces, etc.;
- Notification was given in the Citizen Newspaper (**Diagram 26**);
- The CoJ gave notification on their website, which included an Electronic Link to the Document; and
- The JDA gave notification on their website, which included an Electronic Link to the Document.

A copy of the Zandspruit UDF Document was further available for inspection for a period of 30 days from 23 February 2024 at the following locations:

- CoJ Regional Offices: Roodepoort Civic Centre, 100 Christiaan De Wet Road, Roodepoort.
- Ward 97: SAPS Honeydew Police Station, Plot 3 Juice Street, Honeydew, Johannesburg.
- Ward 114: Zandspruit Clinic & Emothonjeni Community Centre, 69 Eureka Street, Zandspruit 191-IQ, Roodepoort.
- Ward 134: Boskruin Library, Kelly Avenue, Boskruin, Johannesburg.

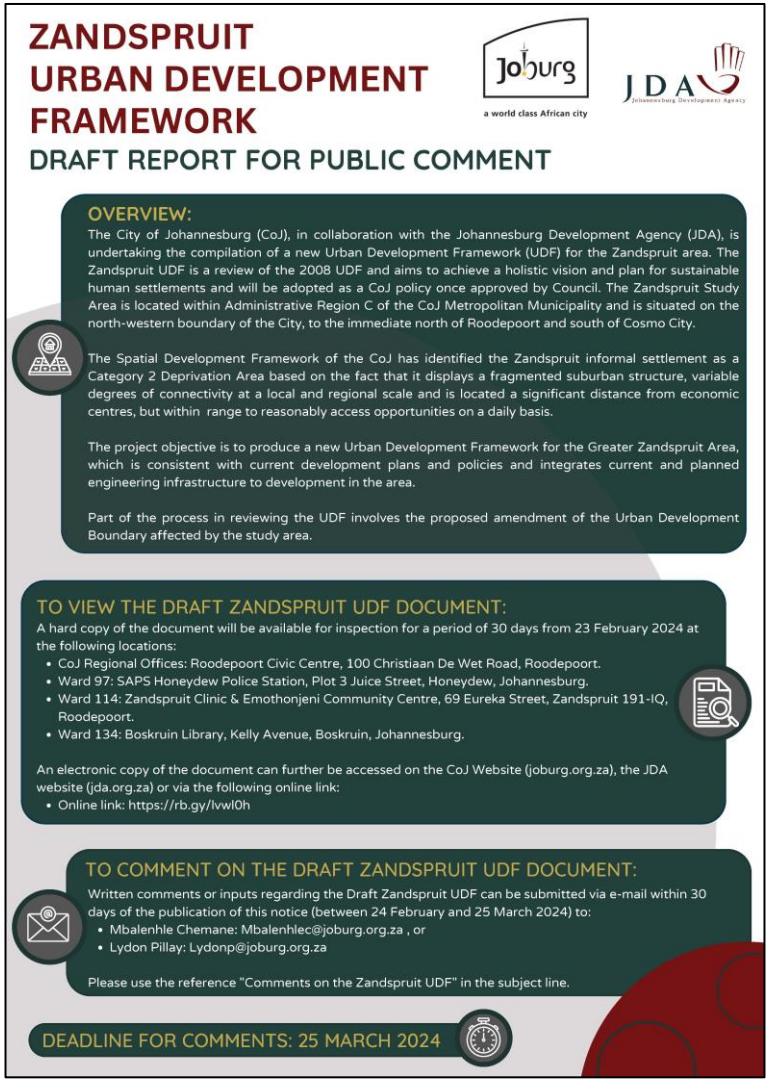
Table 10: Stakeholder Engagements Held

Zandspruit UDF Engagements Held					
No.	**Date**	**Description**	**Venue**	**Time**	**Comments**
1	13/03/2023	Inception Meeting	JDA Offices, 3 Helen Joseph St, Newtown, Johannesburg	10h00-12h00	Plan Associates to share the Draft Situational Analysis document after the meeting. Written comments to be submitted to Plan Associates within 1 week. Plan associates to present Engagement Plan on the 6th of July 2023. Meetings with Ward Councillors to be arranged ASAP. Bi-monthly meetings should be arranged
2	15/09/2023	Progress Meeting	Teams	14h00-15h00	Collect and update stakeholder contacts register; schedule internal and external engagements, collect outstanding data and plan for community engagements.
3	02/11/2023	Engagement with External and Internal Departments: MOE's GDED, GDHuS, JDA, Gautrans, CoJ MOEs, CoJ City Transformation, CoJ Human Settlements, CoJ Community Development, CoJ Social Development	Teams	09h30-10h30	Obtain maps and existing plans from CoJ Housing Department.
4	07/11/2023	Engagement with External and Internal Departments: City Power, EISD, JRA, JDA, CoJ MOEs, CoJ City Transformation, City Planning, GPDE	Teams	14h00-15h30	Invite JOSHCO and Human Settlements (CoJ & Province) for 9 November 2023. Engage the relevant City Power/Eskom department.
5	07/11/2023	Engagement with Internal Departments: JPC, City Transformation, CoJ Land Use Management, Plan Associates	Teams	09h30-10h30	Follow-up and Set-up meetings with HDA, Human Settlements (CoJ & Province), Gauteng Department of Economic Development (GDED), JDA, Plan Associates, Emendo, CoJ Economic Development and other Consultants.
6	09/11/2023	Engagement with External and Internal Departments: HDA, Human Settlements (CoJ & Province), Gauteng Department of Economic Development (GDED), JDA, Plan Associates, Emendo, CoJ Economic Development and other Consultants (TYB and GIB)	Teams	10h00-11h30	Arrange meeting with CoJ Economic Development- Informal Traders. Traffic Impact Assessment (TIA) and Town Planning Reports requested from Emendo by Plan Associates.
7	15/11/2023	Engagement with External and Internal Departments: CoJ Community Development, GDARD, JOSHCO, JDA	Teams	10h00-11h30	JOSHCO and Human Settlements need to confirm information regarding existing plans and applications.
8	17/11/2023	Progress Meeting	Teams	10h00-11h00	Ward Councillors feedback still outstanding, prior to further community and Business Forums engagements. The councillors and committee are well positioned to propose the relevant stakeholders.
9	23/11/2023	Engagement with External and Internal Departments: City Parks, Mogale City, CoJ Health Department, Economic Development: Informal Traders, CoJ Social Development, Property Developers /Homeowners Associations	Teams	10h00-11h30	Ms Glaudi Turner (Mogale City LM) committed to forwarding contact details of key stakeholders and to search for contacts of an ESKOM official as requested.

Zandspruit UDF Engagements Held					
No.	**Date**	**Description**	**Venue**	**Time**	**Comments**
10	23/11/2023	Engagement with External and Internal Departments: CoJ Land Use Management, JDA, CoJ City Transformation, Emendo, Plan Associates, Human Settlements (CoJ & Province), JOSHCO, Community Development	Teams	13h00-14h00	Meeting Cancelled due to low turnout. Only CoJ Social Development, CoJ City Transformation, JDA and Plan Associates were present.
11	24/11/2023	Engagement with Internal Departments: CoJ Land Use Management, JDA, CoJ City Transformation, Plan Associates	Teams	13h00-14h00	One-page Urban Development Boundaries (UDB) recommendations requested from CoJ Land Use Management
12	27/11/2023	Engagement with External and Internal Departments: CoJ Social Development, Economic Development: Informal Traders, JDA, CoJ City Transformation, Plan Associates	Teams	10h00-11h30	Additional information requested from Human Settlements (CoJ), Emendo and CoJ Economic Development: Informal Traders.
13	01/12/*2023	Progress Meeting	Teams	13h00-14h00	Comments for UDB and Zandspruit requested from CoJ City Transformation and JDA. Next meeting date is 15 January 2024.Update Zandspruit UDF draft document. Arrange Community Engagements with Wards Councillors for Wards 97, 114 and 134.
14	10/01/2024	Follow-up External Stakeholder Meeting: Hunter-Theron Town Planners (Representing Property Developers) and Plan Associates	Teams		Virtual meeting between the Property Developers and Plan Associates to discuss the nature of the development densities, development trends and the type of land use applications that have been lodged with the municipality.
15	15/01/2023	Progress Meeting	Teams	15h00-16h00	Updated Zandspruit UDF draft document to be sent to CoJ City Transformation and JDA. Confirm community engagement dates with Ward Councillors.
16	25/01/2024	Community Engagement 1: Wards 97, 114 and 134	Roodepoort Civic Centre, 100 Christiaan de Wet Road, Florida Park, Roodepoort	17h30-19h00	Zandspruit UDF Draft document presented; overall inputs requested from the community members (Ward councillors, committee members; I&APs).

Zandspruit UDF Engagements Held					
No.	**Date**	**Description**	**Venue**	**Time**	**Comments**
17	12/02/224	Progress Meeting	Teams		Ward 114 meeting confirmed; Ward 97 still outstanding; Plan Associates to place adverts and hardcopies to ward locations, CoJ and JDA websites. Updated UDB maps requested by CoJ/JDA.
18	15/02/204	Progress Meeting	Teams		Project Team meeting held to discuss meeting logistics and verify upcoming dates. Public notice and hardcopy Zandspruit UDF draft documents placement dates proposed for 23 February 2024.
19	27/02/2024	Community Engagement 2: Ward 134: Councillor, Committee members and Community members; CoJ: City Transformation & Spatial Planning	North Haven Country Estate (Plot 422, Fleetwood Avenue, Northriding AH	17h30-19h00	Community members requested to provide their comments for the Zandspruit UDF draft document. Challenges: land invasions, CoJ City Power: Power cuts, vandalism and no capacity to approve new developments; congestion and potholes. Concerns: road maintenance and upgrades; impact of the proposed PWV-3 road on property owners; the proposed industrial zone threatens the natural habitat.
20	29/02/2024	Community Engage 3: Ward 114: Councillor, Committee members and Community members; CoJ: City Transformation & Spatial Planning; JDA and Plan Associates	Emothonjeni Community Centre (69 Eureka Street, Zandspruit)	10h00-12h00	Ward 114 engagement cancelled due to low turnout. Only 3 community and 2 Ward Committee Members showed up. It is proposed that an informal traders survey be conducted as an alternative.
21	12/03/2024	Community Engagement 4: Wards 97 and 114			Informal Traders Survey conducted in Ward 114; Ward 97, draft summary of findings compiled.
22	14/03/2024	Community Engagement 5: Ward 97: Councillor, Committee Members, Residents Association and Busines Forums; CoJ: City Transformation & Spatial Planning; JDA and Plan Associate	Roodepoort Civic Centre, 100 Christiaan de Wet Road, Florida Park, Roodepoort	17h30-19h00	Community members requested to provide their comments for the Zandspruit UDF draft document.

Diagram 25: Call for Public Comment Notice



ZANDSPRUIT
URBAN DEVELOPMENT
FRAMEWORK

DRAFT REPORT FOR PUBLIC COMMENT

Joburg
a world class African city

JDA
Johannesburg Development Agency

OVERVIEW:

The City of Johannesburg (CoJ), in collaboration with the Johannesburg Development Agency (JDA), is undertaking the compilation of a new Urban Development Framework (UDF) for the Zandspruit area. The Zandspruit UDF is a review of the 2008 UDF and aims to achieve a holistic vision and plan for sustainable human settlements and will be adopted as a CoJ policy once approved by Council. The Zandspruit Study Area is located within Administrative Region C of the CoJ Metropolitan Municipality and is situated on the north-western boundary of the City, to the immediate north of Roodepoort and south of Cosmo City.

The Spatial Development Framework of the CoJ has identified the Zandspruit informal settlement as a Category 2 Deprivation Area based on the fact that it displays a fragmented suburban structure, variable degrees of connectivity at a local and regional scale and is located a significant distance from economic centres, but within range to reasonably access opportunities on a daily basis.

The project objective is to produce a new Urban Development Framework for the Greater Zandspruit Area, which is consistent with current development plans and policies and integrates current and planned engineering infrastructure to development in the area.

Part of the process in reviewing the UDF involves the proposed amendment of the Urban Development Boundary affected by the study area.

TO VIEW THE DRAFT ZANDSPRUIT UDF DOCUMENT:

A hard copy of the document will be available for inspection for a period of 30 days from 23 February 2024 at the following locations:

- CoJ Regional Offices: Roodepoort Civic Centre, 100 Christiaan De Wet Road, Roodepoort.
- Ward 97: SAPS Honeydew Police Station, Plot 3 Juice Street, Honeydew, Johannesburg.
- Ward 114: Zandspruit Clinic & Emothonjeni Community Centre, 69 Eureka Street, Zandspruit 191-IQ, Roodepoort.
- Ward 134: Boskruin Library, Kelly Avenue, Boskruin, Johannesburg.

An electronic copy of the document can further be accessed on the CoJ Website (joburg.org.za), the JDA website (jda.org.za) or via the following online link:

- Online link: https://rb.gy/lvwl0h

TO COMMENT ON THE DRAFT ZANDSPRUIT UDF DOCUMENT:

Written comments or inputs regarding the Draft Zandspruit UDF can be submitted via e-mail within 30 days of the publication of this notice (between 24 February and 25 March 2024) to:

- Mbalenhle Chemane: Mbalenhlec@joburg.org.za , or
- Lydon Pillay: Lydonp@joburg.org.za

Please use the reference "Comments on the Zandspruit UDF" in the subject line.

DEADLINE FOR COMMENTS: 25 MARCH 2024

Diagram 26: Call for Public Comment – Citizen Newspaper



PLAN ASSOCIATES

ZANDSPRUIT

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK Notice is hereby given that the City of Johannesburg Metropolitan Municipality (CoJ) is undertaking a public participation process according to the Spatial Planning and Land Use Management Act, Act No. 16 of 2013 (SPLUMA) for the compilation of the Zandspruit Urban Development Framework (UDF). The Zandspruit UDF is a review of the 2008 UDF and aims to achieve a holistic vision and plan for sustainable human settlements and will be adopted as a City of Johannesburg policy once approved by Council. The Zandspruit Study Area is located within Administrative Region C of the CoJ Metropolitan Municipality. The study area is situated on the north-western boundary of the City, to the immediate north of Roodepoort and south of Cosmo City. Part of the process in reviewing the UDF involves the proposed amendment of the Urban Development Boundary affected by the study area. A hard copy of the document will be available for inspection for a period of 30 days from 23 February 2024 at the following locations: `CoJ Regional Offices: Roodepoort Civic Centre, 100 Christiaan De Wet Road, Roodepoort. `Ward 97: SAPS Honeydew Police Station, Plot 3 Juice Street, Honeydew, Johannesburg. `Ward 114: Zandspruit Clinic & Emothonjeni Community Centre, 69 Eureka Street, Zandspruit 191-IQ, Roodepoort. `Ward 134: Boskruin Library, Kelly Avenue, Boskruin, Johannesburg. An electronic copy of the document can further be accessed on the CoJ website (joburg.org.za) as well as the JDA website (jda.org.za) or via the following Google Drive Link: https://rb.gy/lvwl0h Written comments or inputs on the document can be submitted via e-mail to: •Mbalenhlec @joburg.org.za or Lydonp @joburg.org.za Closing Date for comments: 25 March 2024.

KP096556

2.5.4 INFORMAL TRADERS SURVEY

As part of the Public Engagement Process, a survey was undertaken in order to obtain a better understanding of the Informal Trading economy within the Zandspruit study area.

A total of 25 Informal Traders were surveyed, and the most prominent findings are briefly summarised below:

- Majority (52%) of the Informal Traders are Males, between the ages of 30 and 60 years.
- Informal Trading was most prominent along Peter/Marina Street as well as Eureka Street.
- Majority of the Informal Traders had permanent stalls (40%) while the rest made use of temporary structures including canopies, street paving and tables or temporary canopies.
- Majority of the Informal Traders offered Vehicle Related Services (36%), while the second most popular form of Informal Trade was the selling of Cooked Food (28%) as well as the selling of various Goods (12%).
- The most common reasons that the Informal Traders gave for selecting a location were Accessibility and Visibility.
- Almost all (92%) of the Informal Traders indicated that they would like a formal stall and would be willing to pay rent for such stall, with majority (40%) willing to pay between R400-R500 a month, while 28% were willing to pay over R500 a month.
- Although some of the Informal Traders communicated that they would like Electricity and a Refuse Area for their stalls, the most desired requirements were Shelving/Storage Space and the need to have a safe place to Lock-Up goods.
- It was interesting to note that only one of the Informal Traders who were surveyed were part of an Informal Trader Association/Group (which is in contradiction to the CoJ Informal Trading Policy).
- Some of the main challenges that the Informal Traders faced included Metro Police harassment, obtaining stock, crime and a lack of water and electricity for their businesses.
- The Informal Traders indicated that some Skills or Training Programs which would benefit the informal traders include woodworking training, welding training, panel beating training, mechanical training, marketing courses, cooking courses, as well as hairdressing and other beauty courses.

2.6 SITUATIONAL ANALYSIS SYNTHESIS

The following important development directives emanated from the Situational Analysis.

2.6.1 POLICY DIRECTIVES

- The Zandspruit UDF will conform to the principles of SPLUMA to ensure Spatial Justice, Spatial Sustainability, Spatial Efficiency, Spatial Resilience and Good Administration.
- It is imperative that informal settlements are upgraded on suitable, well-located land which improves access and opportunities for the residents (NDP).
- The study area is strategically located within the largest National Urban Region (Gauteng City Region) and in close proximity of the point of convergence of the N1, N3 and N17/N2 Key National Development Corridors which poses an opportunity (NSDF).
- Jobs, housing and transport should be used to promote urban restructuring by reducing travel costs and distances, preventing further development of housing in marginal places, increasing urban densities to reduce sprawl, improving public transport and the coordination between transport modes, and shifting jobs and investment towards dense peripheral townships (IUDF).
- Spatial targeting through prioritizing specific spatial areas or localities for investment and spending by both State and Non-State actors in order to achieve spatial justice and economic efficiency (GSDF).
- Zandspruit is identified as a Category 2 deprivation area which is characterized by a fragmented suburban structure, variable degrees of connectivity at a local and regional scale and some distance from economic centres but within range to reasonably access opportunities on a daily basis (CoJ SDF).
- The study area contains a regional node at Northgate, an LED zone around the Sonnedal AH, an Industrial Development Zone at Laser Park and Honeydew as well as parts Beyond the Urban Development Boundary (UDB).
- **It is important to note that the UDB will be amended as part of this process in order to include areas of densification into the UDB.**

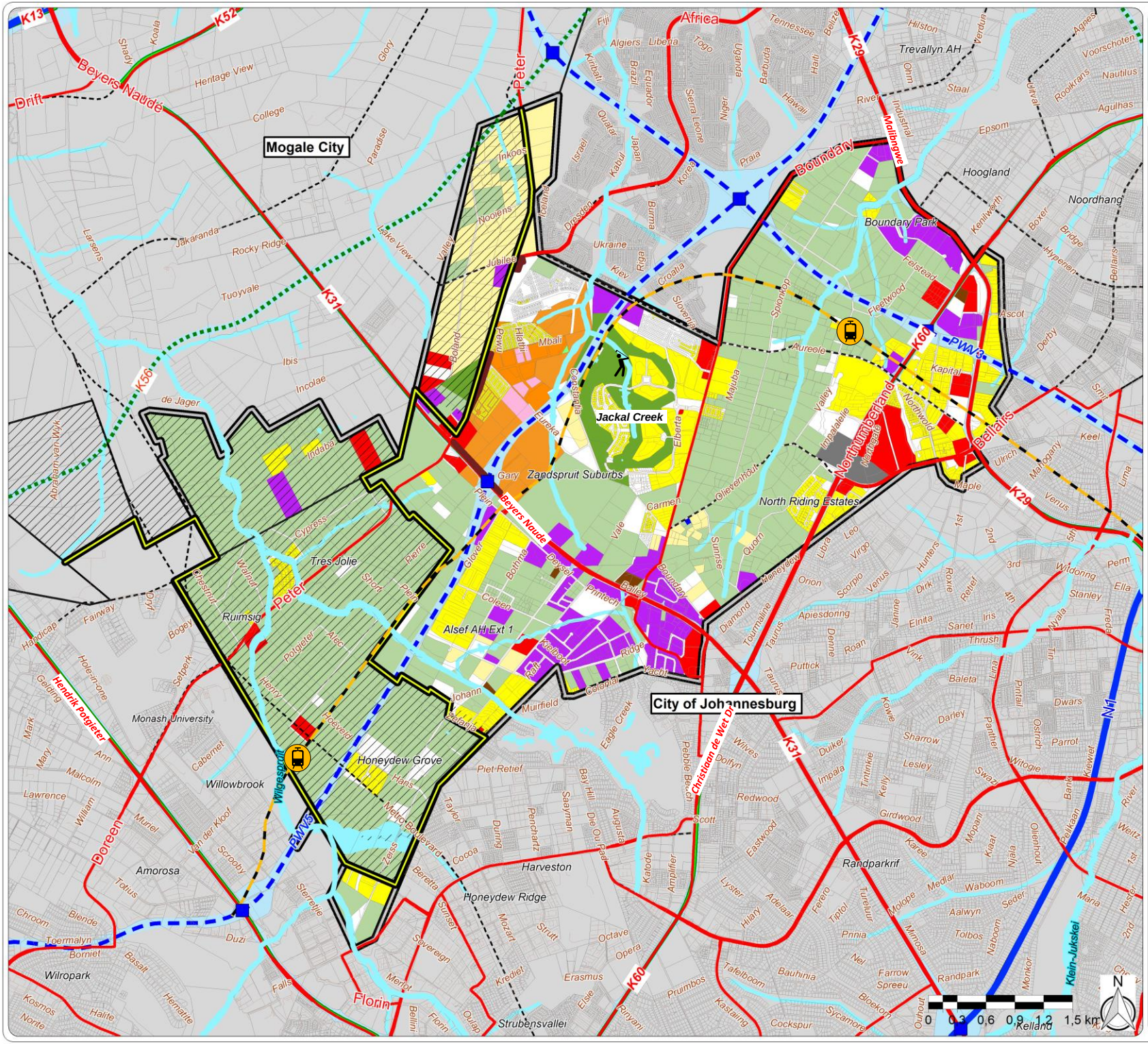
2.6.2 SOCIO-ECONOMIC FEATURES

- Region C is the second largest contributor to the CoJ economy, contributing 18%, with a total GVA of R1,9 billion.
- The study area is categorised by high crime rates with approximately between 8 853 – 13 431 annual reported crime cases in the UDF area.
- There is a total of 109 451 people and 45,952 households within the study area.
- Notable growth/development took place within the study area over the past 10 years in the Zandspruit Informal Settlement, the Jackal Creek Golf Estate, at Honeydew Manor and at Boundary Park.
- Over 50% of the current population in the study area have migrated there since 2011.
- The age distribution is predominantly between 20 and 34 years of age.
- In terms of employment, 79,6% of the population are economically active of which 81,3% are employed.
- 57.8% of households reside in a formal dwelling, with 41,9% of households residing in an informal dwelling and 0,3% residing in a traditional dwelling.
- 50% of households in the study area are considered low-income households.

2.6.3 SPATIAL FEATURES

Figure 28 shows the synthesis of the most prominent spatial features of the study area, as outlined below.

- The N14 creates a strong east-west link between Krugersdorp and the City of Tshwane.
- The N1 traverses the study area and provides regional connectivity.
- The main internal routes include Hendrik Potgieter Drive (M47), Beyers Naude Drive (M5), Malibongwe Drive (R512) and Peter Road (M67).
- The main industrial areas include Kya Sand, Hoogland, Laser Park and Strijdom Park.
- The Randburg CBD is situated north-east of the area and Monte Casino is located directly east of the area.
- The Zandspruit UDF falls within 3 CoJ wards, namely 97, 114 and 134, and Ward 23 in Mogale City LM.
- There are three streams running through the study area with dispersed ridges. There are further areas earmarked as Critical Biodiversity Areas (CBA's) within the area, for which special consideration needs to be given.
- The majority of the land is privately-owned with pockets of land around Peter Road / Beyers Naude Drive interchange which is municipal-owned.
- The agricultural holdings and farm portions are zoned as *Agricultural* and *Undetermined* respectively.
- Large pockets of land within the area and to the south (Willowbrook, Wilgeheuwel) are zoned as Residential 3 which allow for sectional title developments.
- The land use pattern of the outlying areas is predominantly agriculture or rural residential in nature, however; pressure is experienced for medium to high density residential development.
- There are a number of informal settlements in the area, with Zandspruit being the largest in the area.
- Informal Trade is predominantly taking place along Peter Road.
- The areas west (Willowbrook) and south (Honeydew) of the study area have experienced rapid growth in terms of medium density residential development.
- There are industrial uses at Kya Sand and Laser Park industrial hubs with commercial/retail uses at the Northgate Shopping Centre Complex.
- There is a cluster of community facilities around the Sonnedal AH, north of Beyers Naude Drive.
- The planned PWV3 and PWV5 routes which traverse the area are major structuring elements in unlocking the future development of the area.
- There is a proposed Gautrain railway through the study area, with two planned Gautrain stations at Boundary Park and on the western boundary of the study area at the Monash University.
- The existing Urban Development Boundary does not extend to the areas north of Peter Road and excludes the areas of Tres Jolie, Ruimsig and Honeydew Grove, despite development pressures (land use applications) emanating from these areas.



SPATIAL SYNTHESIS

Legend

- Study Area
- Existing Urban Edge
- Existing Outside Urban Edge
- A Suburbs
- Municipal Boundary
- Agriculture
- Community Facilities
- Municipal
- Business
- Industrial / Commercial
- Residential
- Rural Residential
- Informal Residential
- Informal Trade
- Parking
- Sports and Recreation
- Municipal Boundaries
- National Roads
- Proposed National Roads
- Provincial Roads
- Proposed Provincial Roads
- Interchanges
- Road Reserve
- Proposed Gautrain Rail Network
- Proposed Gautrain Station
- Rivers

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 28

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

CHAPTER 3:

URBAN DEVELOPMENT FRAMEWORK

Chapter 3 comprises the Urban Development Framework which is dealt with in six parts.

Firstly, the Vision of the study area is confirmed followed by the Development Concept in its Regional Context.

The Development Objectives are then confirmed, and the Development Concept is spatially depicted and discussed on a local level.

The Development Strategies for each of the Development Objectives is then provided, which results in the Composite Urban Development Framework of the study area.

Section 3 is concluded with a set of Urban Management Guidelines which should be applied to the study area.



3.1 DEVELOPMENT VISION

The Development Vision for the Zandspruit study area is to become:

"A vibrant precinct where residents prosper sustainably in a dynamic, resource efficient environment, with a range of job opportunities, diverse housing typologies, and community facilities, which is seamlessly integrated with the broader region, encouraging social, economic, and physical networks."

3.2 REGIONAL SPATIAL CONCEPT

The proposed Regional Spatial Concept for the broader Zandspruit Area is graphically illustrated on **Figure 29** and briefly summarized in line with the following two broader **Development Principles**:

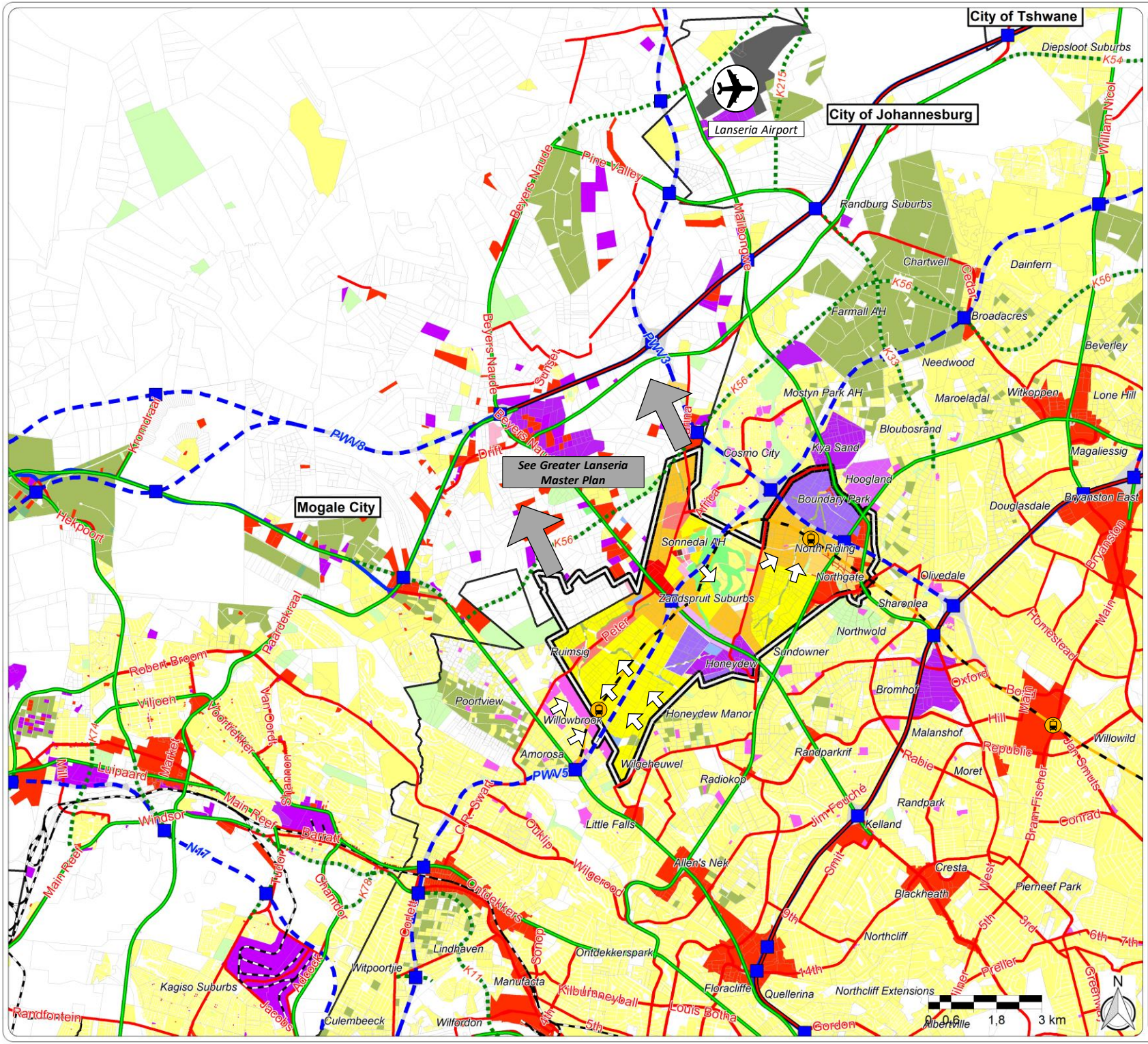
Principle 1: To develop an efficient, integrated and practical movement system which will cater for public, private and non-motorised transport:

- The broader movement network needs to be enhanced to unlock the development potential and to link up with the regional development nodes. The following proposals are relevant to the study area:
- The retention and reservation of the road reserve and alignment of the PWV3 which creates a strong link from Lanseria airport into the study area and between the N14 and the N1.
- The retention and reservation of the road reserve and alignment of the PWV5 which creates a parallel route to the N14 and N1.
- The preservation and protection of the road reserves and function of the following K-routes:
  - Hendrik Potgieter Drive (K72),
  - Beyers Naude Drive (K31), and
  - Malibongwe Drive (K29)

Principle 2: To promote economic development and job creation with a focus on economic upscaling and industrial/commercial business uses.

The Zandspruit area functionally forms part of the Lanseria Master Plan and the earmarked business and industrial nodes need to be supported and developed. The following nodes need to be developed to promote economic development and job creation:

- The Lanseria Mixed-use and Commercial/ Warehousing node
- The Lanseria Industrial Development north of the N14
- The Muldersdrift Business/Mixed-Use Area



REGIONAL SPATIAL CONCEPT

Legend

- Study Area
- A Suburbs
- Municipal Boundaries
- Towns and Settlements
- Single Residential
- Multiple Residential
- Rural Residential
- Community Facilities
- Institutional
- Agricultural Holdings
- Business Nodes
- Mixed Use
- Industrial Nodes
- Light Industrial
- Industrial Commercial
- Open Space
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Intersections
- Road Reserve
- Proposed Gautrain Railway
- Proposed Gautrain Station
- Lanseria Airport

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 29

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

3.3 DEVELOPMENT OBJECTIVES

The main development objectives will respond to the (1) Natural Environment, (2) Movement Network, (3) Residential Development, (4) Community Facilities, (5) Infrastructure, and (6) Economic Activities.

The Development Objectives for the study area are as follows:

1. **Objective 1:** To enhance, protect and maintain the integrity of the regional Open Space System.
2. **Objective 2:** To develop an efficient, integrated and practical Movement Network which will cater for public, private and non-motorised transport.
3. **Objective 3:** To upgrade and formalise existing informal settlements and to optimise the number of Human Settlement opportunities in the area.
4. **Objective 4:** To provide a range of highly accessible Community Facilities to serve the residents and ensure sustainable human settlements.
5. **Objective 5:** To ensure that Engineering Services serve the basic needs of the existing and future communities and to facilitate and accommodate economic growth.
6. **Objective 6:** To promote Economic Development and job creation with a focus on economic up-scaling and industrial/commercial business uses.

3.4 SPATIAL DEVELOPMENT CONCEPT

The main proposals of the Spatial Development Concept are discussed below.

3.4.1.1 PROPOSED AMENDMENT OF THE URBAN DEVELOPMENT BOUNDARY

As part of the compilation of the Urban Development Framework, it is proposed that the existing Urban Development Boundary (UDB) in the area be amended to include the areas south of Beyers Naude Drive, including Tres Jolie, Ruimsig and Honeydew Grove.

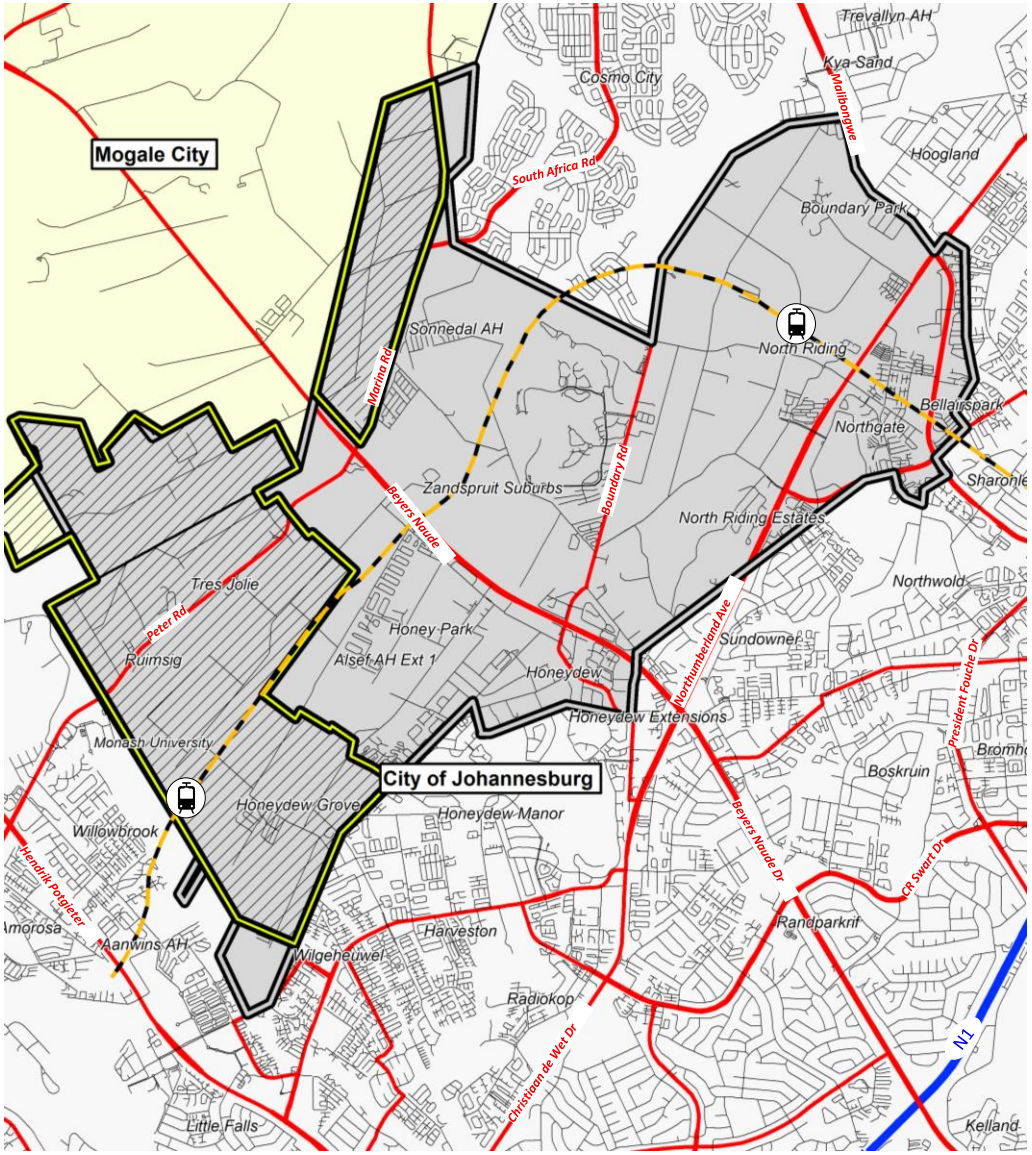
The proposed amendment of the Urban Development Boundary is based on the following considerations (which are expanded on further as part of the *Development Strategies in Chapter 3.5*):

- The proposed alignment of the Gautrain extension and the possible development of a Gautrain Station in the south-western parts of the area contributed to the proposed amendment of the UDB.
- The Tres Jolie and Ruimsig areas are experiencing development pressures for the optimum utilization of the land in the area ranging from residential development as well as a variety of mixed-uses such as hospitality uses, home offices, businesses, etc.
- The Zandspruit study area's population has grown with 6,11% per annum from 2011 underscoring the pressure for development. The proposed amendment is aimed at accommodating the rapid population growth of the area.
- The UDF has taken the proposed amendment of the Urban Development Boundary into consideration from an engineering and community facilities demand perspective and has included recommendations and projects to address the future demands.
- The proposed amendment of the UDB is aimed at facilitating the incremental development of the area towards the existing urban area of Willowbrook to the west and Wilgeheuwel to the south.

The Proposed UDB Amendment is shown in **Figure 30**, and it is noted that no proposals are made for the amendment of the UDB in the Mogale City LM jurisdiction.

PROPOSED URBAN DEVELOPMENT BOUNDARY AMENMENT

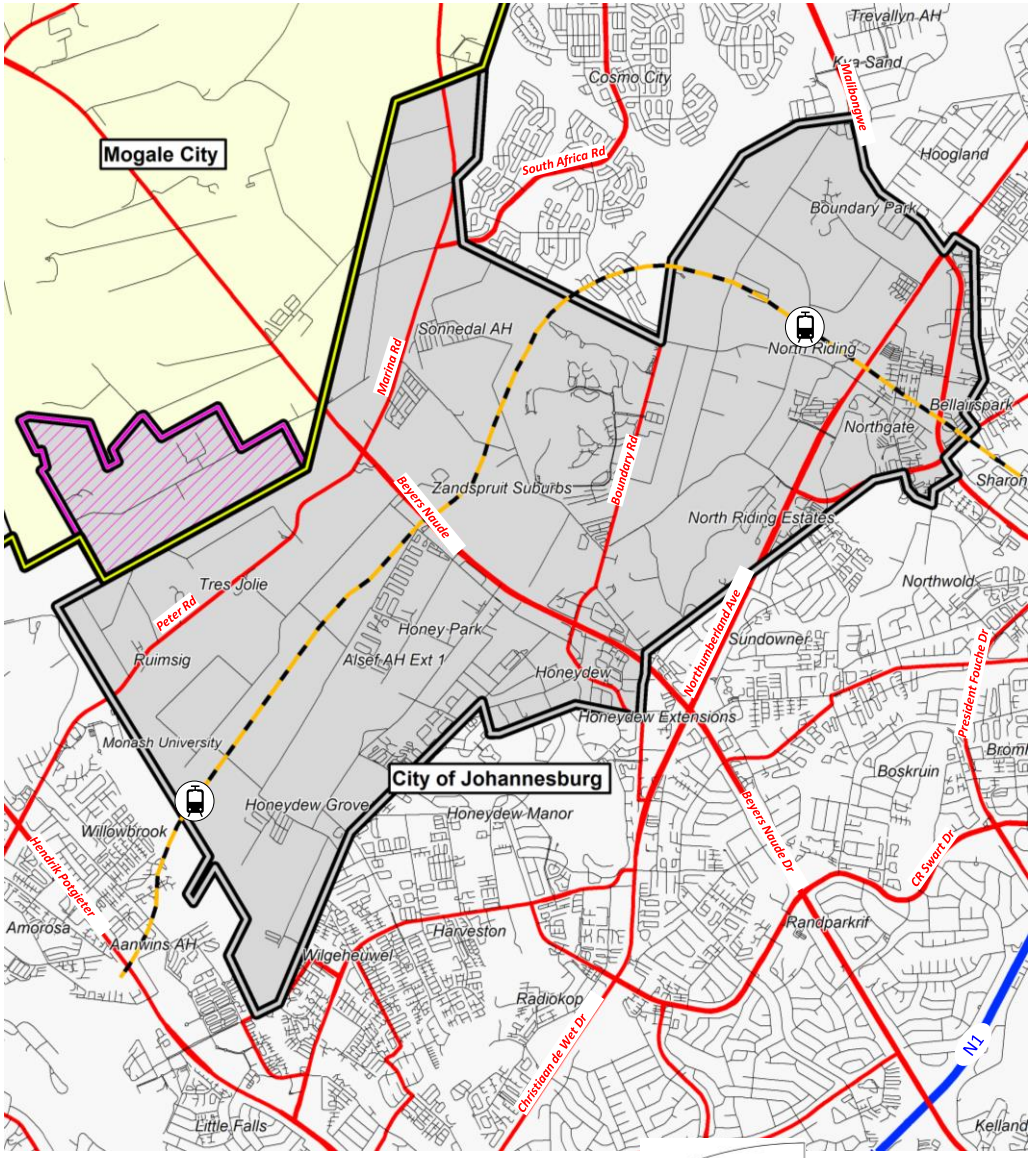
EXISTING URBAN DEVELOPMENT BOUNDARY (UDB)



City of Johannesburg
Mogale City
Study Area (Zandspruit)
Existing UDB
Existing Outside UDB

National Roads
Provincial Roads
Other Roads
Gautrain Rail
Gautrain Station

PROPOSED URBAN DEVELOPMENT BOUNDARY (UDB)



City of Johannesburg
Mogale City
Study Area (Zandspruit)
Proposed UDB
Outside CoJ (Mogale)

National Roads
Provincial Roads
Other Roads
Gautrain Rail
Gautrain Station

Joburg
City of Johannesburg Metro Municipality

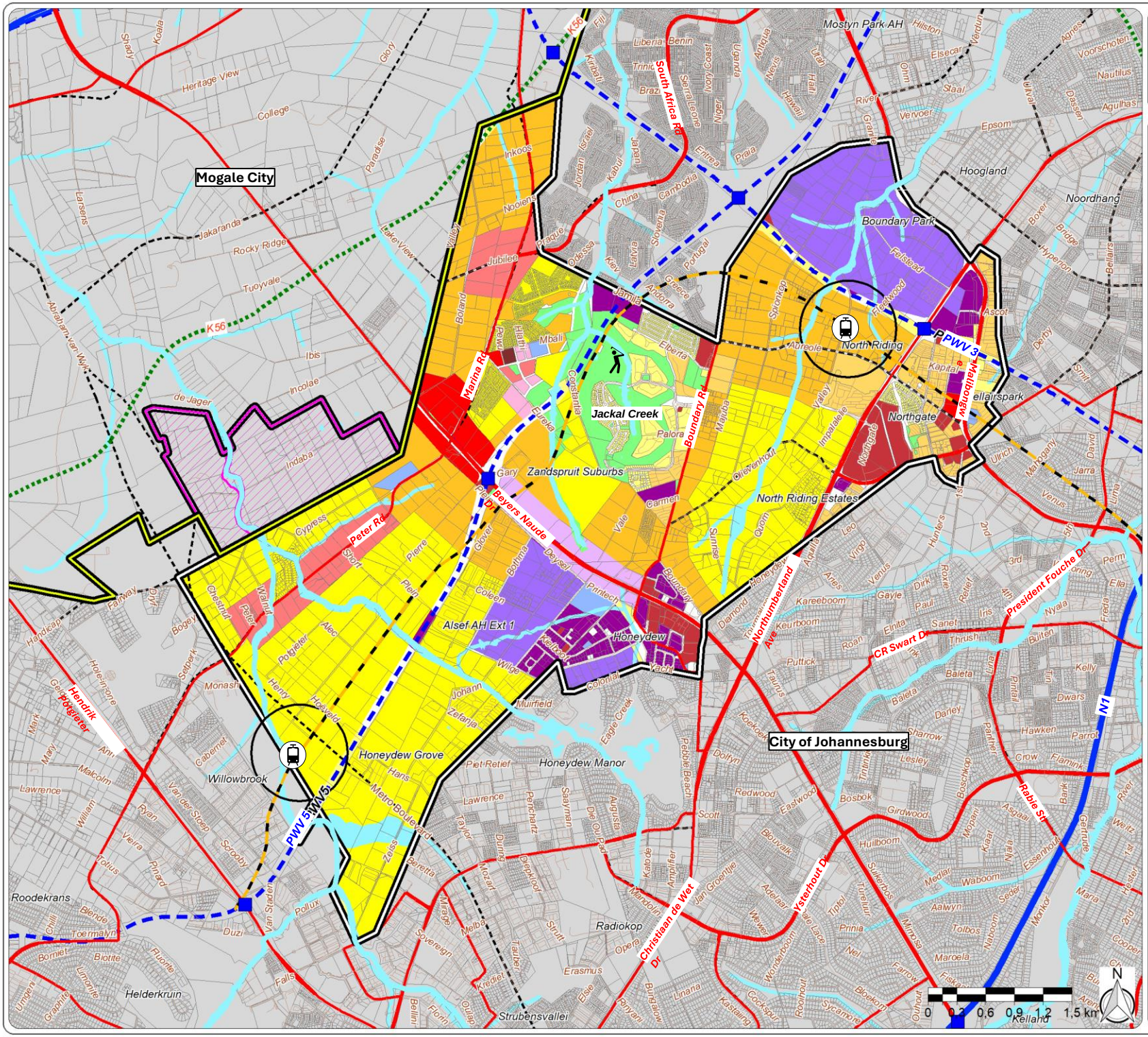
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Johannesburg Development Agency

Figure 30

3.4.1.2 OVERALL SPATIAL DEVELOPMENT CONCEPT

Figure 31 depicts the overall **Spatial Development Concept** of the area, of which the main points are highlighted as follows:

- The north-western parts of the study area are earmarked for medium-density **residential development**, with a **mixed-use node** at the intersection of Jubilee and Peter Road.
- The **Zandspruit informal settlement** is earmarked to be formalized at varying densities, with a cluster of community facilities integrated into the settlement, where a cluster of community facilities already exists.
- **Medium densities** are proposed all along **Boundary Road** up to the future PWV3 road alignment. Medium density is further proposed in the areas **along the PWV3** up to **North Riding Estates** where low-density residential uses are to be maintained.
- **Light Industrial** uses are proposed along the **eastern extents of Beyers Naude Drive** which extends south to Honey Park, while the western extents of Beyers Naude Drive are earmarked for Business.
- **Residential uses** are further proposed from the **Honey Park industrial area** for the south-western segment of the study area.



LOCAL SPATIAL DEVELOPMENT CONCEPT

Legend

- Study Area
- Proposed Urban Edge
- Outside Urban Edge (CoJ)
- Outside Urban Edge (Mogale)
- A Suburbs
- Municipal Boundary
- Proposed Single / Medium Density Residential
- Proposed Medium Density Residential
- Proposed Community Facilities
- Proposed Business
- Proposed Mixed Use
- Proposed Light Industrial
- Proposed Industrial / Commercial
- Existing Residential
- Existing Medium Density Res
- Existing Business
- Existing Industrial / Commercial
- Institutional / Education
- Municipal
- Sports / Recreation / Open Space
- Taxi Rank
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges — Road Reserve
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer
- River Buffer — 100yr Floodline

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Figure 31

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

3.5 SPATIAL DEVELOPMENT STRATEGIES AND FRAMEWORK

This section highlights the Development Strategies associated with each of the Six Development Objectives for the study area as noted above. Collectively, these strategies culminate into the Development Framework for the Zandspruit area.

3.5.1 DEVELOPMENT OBJECTIVE 1: NATURAL ENVIRONMENT

Objective 1:
To enhance, protect and maintain the integrity of the regional open space system.

Figure 32 depicts the Development Concept of the Natural Environment, which comprises of 3 Strategies.

3.5.1.1 STRATEGY 1.1: CONSERVE THE ENVIRONMENTALLY SENSITIVE AREAS:

It is crucial that the areas identified as CBAs, ESAs, and Ridges within the study area be conserved and protected at all costs as to not compromise the existing natural environment in the area.

Care should be taken, and developers need to be held accountable for undertaking the necessary Environmental Studies, prior to the consideration of developing areas identified as environmentally sensitive.

The streams throughout the area should further be preserved and the necessary precautions need to be taken to ensure that no development takes place within the floodlines.

3.5.1.2 STRATEGY 1.2: ADAPT AND MITIGATE CLIMATE CHANGE CHALLENGES

The area could be sensitive to severe **Climate Change Challenges**, and fires have been a massive danger in the past (especially within the informal areas). It is accordingly important that the necessary **Climate Change Adaption and Mitigation Measures** be implemented in the study area, which are discussed below.

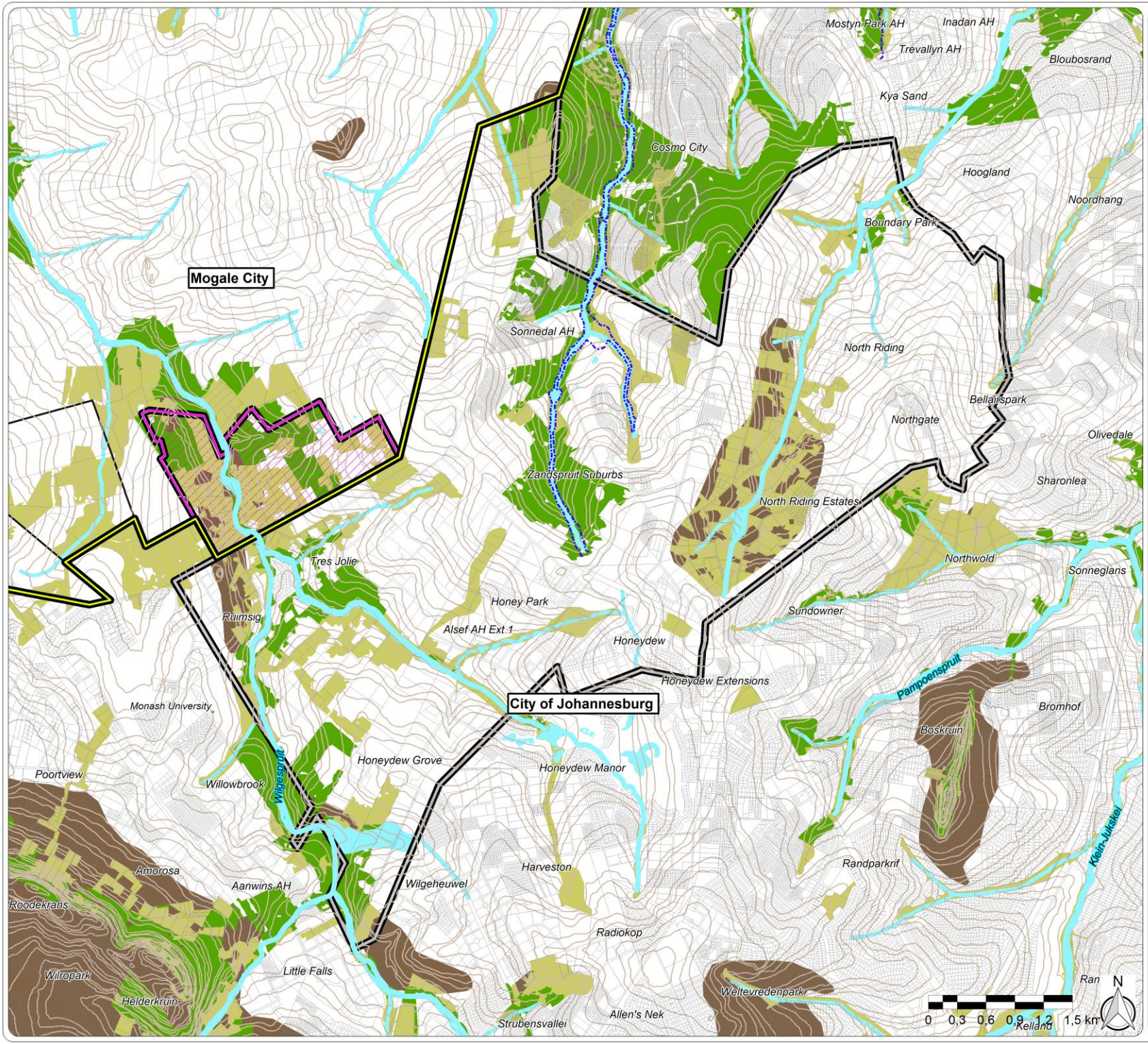
The study area is prone to a myriad of extreme climate events of which the most prominent are the following:

- Increased temperatures with increased number of very hot days, heat wave days and high **fire-danger days**, and
- Irregular and below-average rainfall which could lead to occasional **flooding** and may have a large impact on the informal residential townships.

Fire Risk: The high densities and unsafe living standards of the Zandspruit Informal Settlement exacerbate the risk of fires which places great risk to life and property at significant economic and social cost. The CoJ's Risk Management Department must oversee the management of fire risks which must also be incorporated into the planning By-Laws.

Flood Risks: Land uses must be managed to reduce the risk of flooding and to protect human life and property in the case of extreme flooding. Where critical infrastructure and areas are located within flood risk areas, the resilience of these settlements in the instance of extreme events will be compromised.

Flood risk mitigation strategies must be integrated into the land use management and infrastructure master planning systems of the municipality. Sustainable urban drainage systems and ecologically sound rural practices must be adopted when planning new development and approving changes to existing land uses.



DEVELOPMENT CONCEPT
Natural Environment

Legend

- Study Area
- Proposed Urban Edge
- Outside Urban Edge (CoJ)
- Outside CoJ (Mogale)
- A Suburbs
- Municipal Boundary
- CBA
- ESA
- Ridges
- Dams / Pans / Rivers
- 100year flood line
- Contours

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Figure 32

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

Based on the possible risks, **Table 11** includes a range of planning and design actions that can be taken by the CoJ to adapt to the impacts of climate change, reduce exposure to hazards, and exploit opportunities for sustainable development.

Table 11: Climate Change Adaptation Measures

TYPE	DESCRIPTION
Determine the Urban Edge 	Define the outer limits of urban expansion, or urban edge, to promote efficient land development and limit urban sprawl.
Identify Open Spaces 	Identify existing and potential sites and spaces that can be used as open space. Sites should be identified with multiple uses in mind, such as recreation as well as stormwater.
Identify Key Ecosystems and Protected Areas 	Identify key ecosystems that are vulnerable to the impacts of climate change and that should be protected, rehabilitated and restored.
Connect Open Space 	Plan for an open space network in support of ecosystem services and quality of life by identifying and reclaiming land to defragment open space within the settlement.
Identify Vulnerable Heritage and Cultural Sites 	Identify important cultural and heritage sites that are vulnerable to the impacts of climate change.
Identify Suitable Sites for Infiltration of Rainwater Runoff 	Identify space within the urban edge that can be used or redeveloped to capture, infiltrate, slow down and treat water runoff.
Identify areas where Vegetation Coverage can be Increased 	Identify areas within the urban edge where vegetation can be increased by planting shrubs and vegetation.
Identify areas for Designated Firebreaks 	Identify areas to be designated as firebreaks to protect areas vulnerable to wildfire.
Identify Suitable Landfill and Recovery Sites 	Identify future areas that can be used as landfill sites, as well as buffer zones around them.
Protect and Maintain Critical Infrastructure 	Protect critical infrastructure from the impacts of climate change and extreme events.

3.5.1.3 STRATEGY 1.3: ADOPT SUSTAINABLE PRACTICES FOR A CLEANER ENVIRONMENT

Sustainability Factors need to be considered for the area to ensure that the current and future generations have a safe and clean environment to live and work in; and for the overall carbon footprint of the area to be decreased.

Table 12 sets out a number of Sustainability Practices which could be applied to the Zandspruit study area.

Table 12: Generic Mitigation Interventions

SECTOR	PROPOSED MITIGATION	DETAILS OF THE INTERVENTIONS
Energy	Energy Efficiency (EE)	Refurbish buildings (Government buildings, hospitals, clinics and schools with EE equipment)
		Refurbish streetlights with LED lights
		Encourage EE industry processes
Human Settlements	Insulate RDP Houses	To reduce heating and air conditioning needs for human comfort
	Renewable Energy	Install Solar Water Heaters or heat pumps in Residential areas (existing and new houses and RDP houses)
	Energy Efficiency	Refurbish residential areas with LED lighting
Agriculture	Smart Agriculture	Agricultural practices that reduce methane emissions
		Encourage organic farming (Introduce vermiculture – organic manure)
Transport	Public Transport	Prioritize comprehensive Taxi/bus public transport system
	Introduce bicycle lanes	Encourage bicycle use / Non-Motorized Transport (NMT)
Waste Management	Waste to Energy	Convert Landfill gas to electricity
	Recycling	Reduction, Recycling, Reuse of waste material
		Separation at Source
		Introduce Manufacturing Plant industries using Recycled materials to create jobs
Biodiversity	Plant indigenous trees to act as carbon emissions sinks	Remove invasive alien plant species and plant indigenous plants
	Protect parks and open spaces to maintain their role as carbon sinks	e.g., Municipal Open Space System
Commercial and Industry	Energy Efficiency	Encourage and incentivise EE initiatives by industries

3.5.2 DEVELOPMENT OBJECTIVE 2: MOVEMENT NETWORK

Objective 2:
To develop an efficient, integrated and practical movement system which will cater for public, private and non-motorised transport.

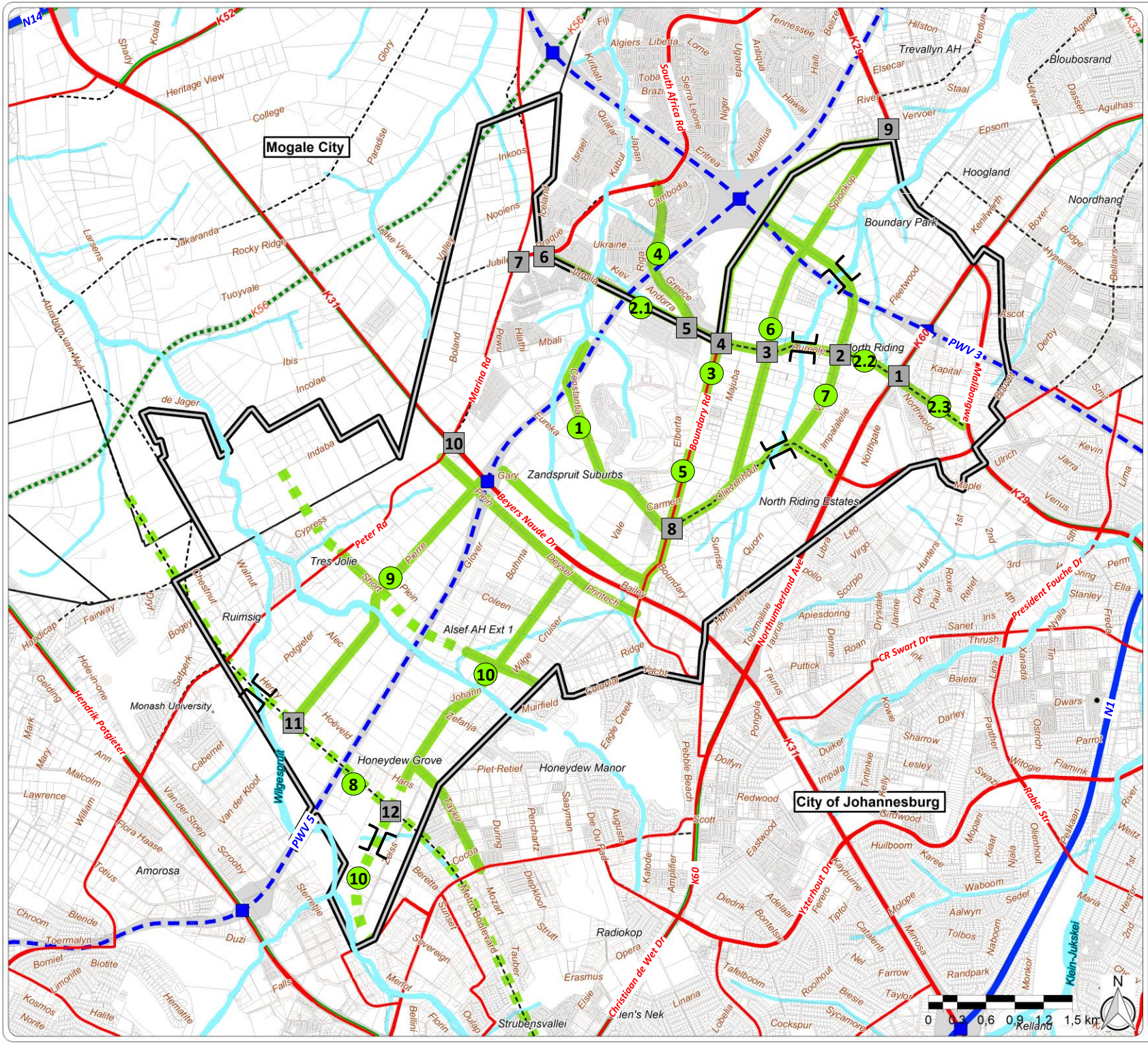
The proposals regarding the movement network of the study area are dealt with in three parts including: (1) **Road Infrastructure** Proposals, (2) **Public Transport** Proposals and (3) **Non-Motorised Transport (NMT)** Proposals and these proposals are closely aligned to the *Zandspruit and Surrounding Areas Transport Mastre Plan & Implementation Report, 2022.*

3.5.2.1 STRATEGY 2.1: PROTECT AND ENHANCE THE ROAD INFRASTRUCTURE

The Road Infrastructure Upgrades for the area include the proposed road upgrading, the proposed intersection upgrading as well as the proposed vehicular bridges to be provided, which proposals are collectively shown on **Figure 33**.

The **Proposed Road Upgrades** are as follows:

- **North of Beyers Naude Drive:**
  - Upgrade Constantia Street from gravel to surfaced standard (*green number 1 on Figure 33*);
  - Extend Aureole Avenue Westward along Jamilia Street to intersect with South Africa Drive in the vicinity of Marina Street to provide a critical east-west linkage. The existing cul-de-sac single land should be upgraded to accommodate two through lanes (and turning lanes at intersections) (*green number 2.1*);
  - The existing narrow single lane section of Aureole Avenue (between Northumberland Drive and Boundary Road) should be upgraded to two lanes per direction (*green number 2.2*);
  - Extend the section of Aureole Drive (east of Northumberland Road) to Malibongwe Drive, creating a new link between Northumberland Drive and Malibongwe Drive (*green number 2.3*);
  - Boundary Road forms the north-south corridor through the area and the existing single carriageway road should be upgraded to two lanes per direction in the section between Beyers Naude Drive and Malibongwe Drive (*green number 3*);
  - Upgrade Slovenia Street from Aureole Avenue to the intersection with Ukraine Street from gravel to surfaced standard (*green number 4*);
  - Upgrade Boundary Road between Beyers Naude Drive and Malibongwe Drive (*green number 5*);
  - Upgrade the section of Spionkop Avenue between Olievenhout Street and Boundary Avenue from gravel to surfaced standard (*green number 6*);
  - Upgrade the section of Valley Road between Olievenhout Street and Boundary Road from gravel to surfaced standard (*green number 7*).
- **South of Beyers Naude Drive:**
  - The development of Metro Boulevard which is a proposed Class 3 route to create additional capacity parallel to Beyers Naude and Hendrik Potgieter Drive (*green number 8*).
  - The proposed upgrade of Pierre Road up to Metro Boulevard to allow additional capacity to Peter Road (*green Number 9*).
  - The proposed upgrade of Johan Road to improve the linkage between Hendrik Potgieter and Beyers Naude and provide a north-south linkage (*green number 10*).



ENGINEERING SERVICES
Proposed Transport Infrastructure

Legend

- Study Area
- Cadastral
- Water Areas / River Buffer
- National Roads
- Proposed National Roads
- Interchanges
- Provincial Roads
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Roads
- Other Roads
- Road Reserve

- Proposed Road Upgrades
- Proposed New / Extension
- Proposed Intersection Upgrades
- Proposed Vehicular Bridge

Source: GP SDF 2030; CoJ SDF; Zandspruit Transport Master Plan (Nov 2022); EX Plan

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Figure 33

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

The **Proposed Intersection Upgrades** are as follows:

- Upgrade the intersection of Aureole Avenue and Northumberland Road with traffic signals and turning lanes in both directions (*grey number 1 on Figure 33*);
- Upgrade the intersection of Aureole Avenue and Valley Road with traffic signals and turning lanes in both directions (*grey number 2*);
- Upgrade the intersection of Aureole Avenue and Spionkop Avenue with traffic signals and turning lanes in both directions (*grey number 3*);
- Upgrade the intersection of Aureole Avenue and Boundary Road with traffic signals and turning lanes in both directions (*grey number 4*);
- Upgrade the intersection of Jamilia Street and Slovenia Street with traffic signals (*grey number 5)*;
- Upgrade the intersection of Jamilia Street and South Africa Drive with traffic signals (*grey number 6*);
- Upgrade the intersection of South Africa Drive and Marina Drive with traffic signals (*grey number 7*);
- Upgrade the intersection of Boundary Road, Constantia Street and Olievenhout Street with traffic signals and turning lanes in both directions (*grey number 8*);
- Upgrade the intersection of Boundary Road and Malibongwe Drive with traffic signals and turning lanes in both directions (*grey number 9*); and
- Upgrade the intersection of Beyers Naude Drive and Marina Street with traffic signals and turning lanes in both directions (*grey number 10*).
- Develop intersection at the proposed Metro Boulevard and Pierre Road (*grey number 11*);
- Develop intersection at the proposed Johann Road and proposed Metro Boulevard intersection (*grey number 12*).

The **Proposed Vehicular Bridges** are as follows:

- A vehicular bridge is proposed over the spruit at Valley Road;
- A vehicular bridge is proposed over the spruit at Aureole Avenue;
- A vehicular bridge is proposed over the spruit at Olievenhout Street; and
- A vehicular bridge is proposed over the spruit at Johan Road.

Further to the above Road Infrastructure Proposals, the following is required to **Protect the Movement Network** for future sustainability of the area:

- The proposed Metro Boulevard is a key route that needs to be implemented to create additional capacity in the western parts of Zandspruit;
- A parallel road network is proposed along Beyers Naude Drive to allow for access to businesses while maintaining the mobility function of Beyers Naude;
- The PWV3 and PWV5 road alignments need to be protected (from invasion and encroachment) and maintained;
- Access management along the various K-routes need to be maintained to ensure the mobility of the routes; and
- Peter Road and Johan Road need to be prioritised for upgrading in order to improve the linkage between Hendrik Potgieter and Beyers Naude Drive.

3.5.2.2 STRATEGY 2.2: PROVIDE A FUNCTIONAL, SAFE, ACCESSIBLE AND INTEGRATED PUBLIC TRANSPORT NETWORK

The proposed Public Transport Strategies are depicted on **Figure 34** and include proposals for Public Transport Routes, Public Transport Facilities, and the Railway Services.

The Proposals regarding the **Public Transport Routes** are as follows:

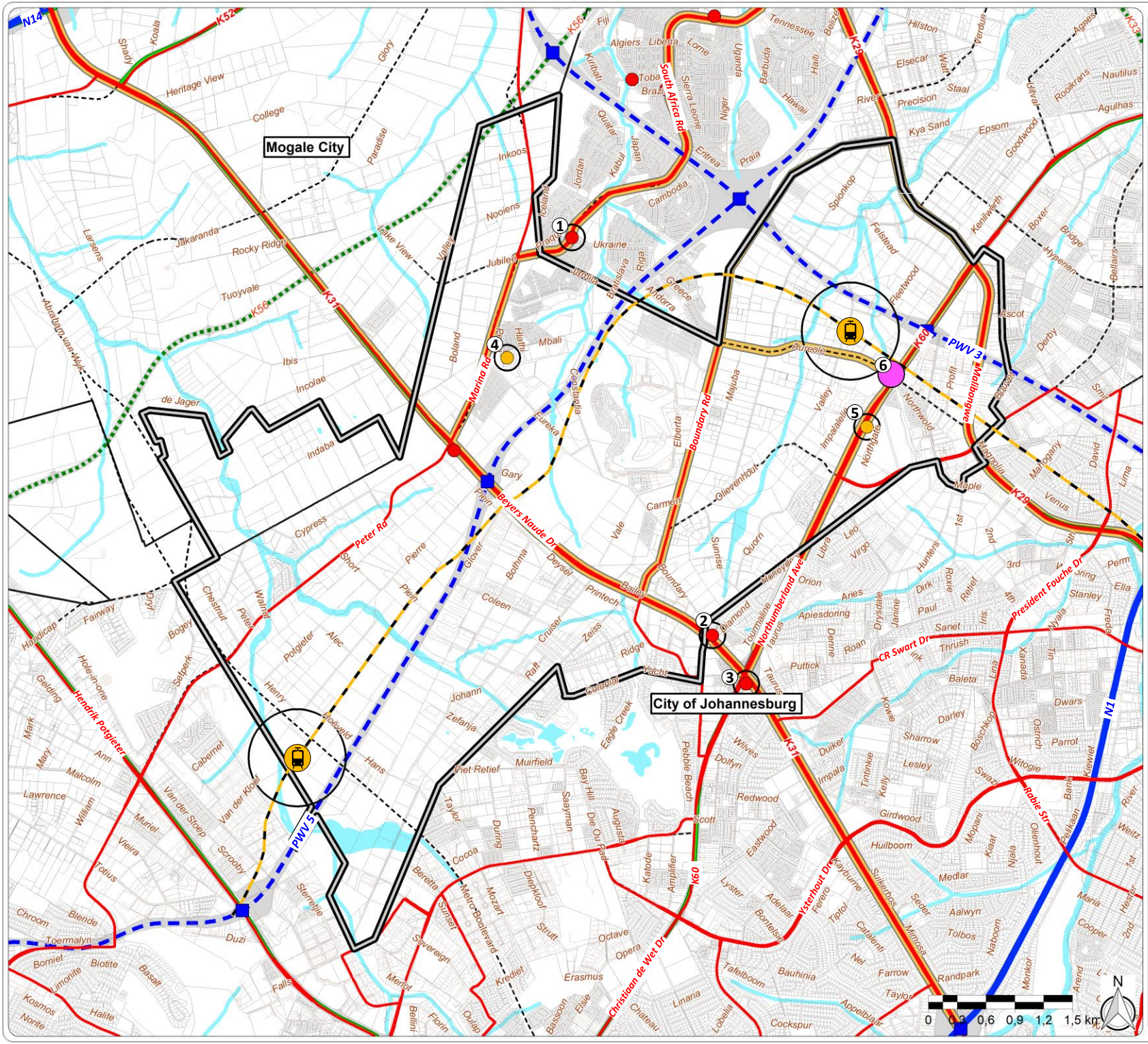
- The **Key Public Transport Corridors** for Minibus Taxis and Bus Services include: Malibongwe Drive, Beters Naude Drive, Northumberland Avenue, Marina Street, South Africa Road, Boundary Road and Aureole Avenue.
- The above routes are recommended for upgrades and improvements that prioritise Public Transport and should have the following facilities:
  - Access to multi-modal public transfer facilities;
  - Exclusive public transport lanes for buses and taxis;
  - Sheltered bus and taxi lay-bys in intervals of no more than 1000 m apart; and
  - Surfaced sidewalks.

The proposals regarding the **Public Transport Facilities** include:

- Upgrade the Ukraine informal taxi rank (corner of South Africa Drive and Ukraine Avenue) to a formal scholar transport and Minibus Taxi holding facility with adequate parking bays, signage and universal access (*number 1 on Figure 34*);
- Consolidate the function of the Honeydew informal taxi rank (corner of Honeydew Road West and Beters Naude Drive) and the Northumberland informal taxi rank (corner of Beyers Naude Drive and Northumberland Avenue). Suitable land should be identified nearby for the development of a formal multi-modal public transport facility that facilitates the transfer between taxis, Metrobus and PUTCO services (*number 2 and 3*);
- Improve the Zandspruit Public Transport Facility by upgrading the surrounding network to cater for improved access by pedestrians and integrate the facility with informal trading activity by providing formal trading stalls within the facility (*number 4*);
- Retain and improve the Northgate Taxi Rank by allocating additional space for holding facilities and metered taxis (*number 5*).
- It is proposed that a Multi-Modal Facility be provided at Kevin Ridge that facilitates the transfer between taxis, Metrobus, PUTCO, and the future Rea Vaya/BRT Lite services (*number 6*).
- It is further proposed that trading facilities such as formal stalls be provided at all taxi ranks throughout the area.

The proposals regarding the **Railway Services** include:

- The proposed Gautrain extension through the area with planned stations at Boundary Park and at the Monash University in the western extents of the study area should be implemented.



ENGINEERING SERVICES
Public Transport Proposals

Legend

- Study Area
- Suburbs
- Municipal Boundaries
- Water Areas / River Buffers
- National Roads
- Proposed National Roads
- Interchanges
- Provincial Roads
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Roads
- Other Roads
- Road Reserve
- Existing Formal Taxi Rank
- Existing Informal Taxi Rank
- Key Public Transport Corridors
- Proposed Public Transport Facility Upgrades
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer
- Proposed Multimodal Facility

Source: GP SDF 2030; CoJ SDF; Zandspruit Transport Master Plan (Nov 2022); EX Plan

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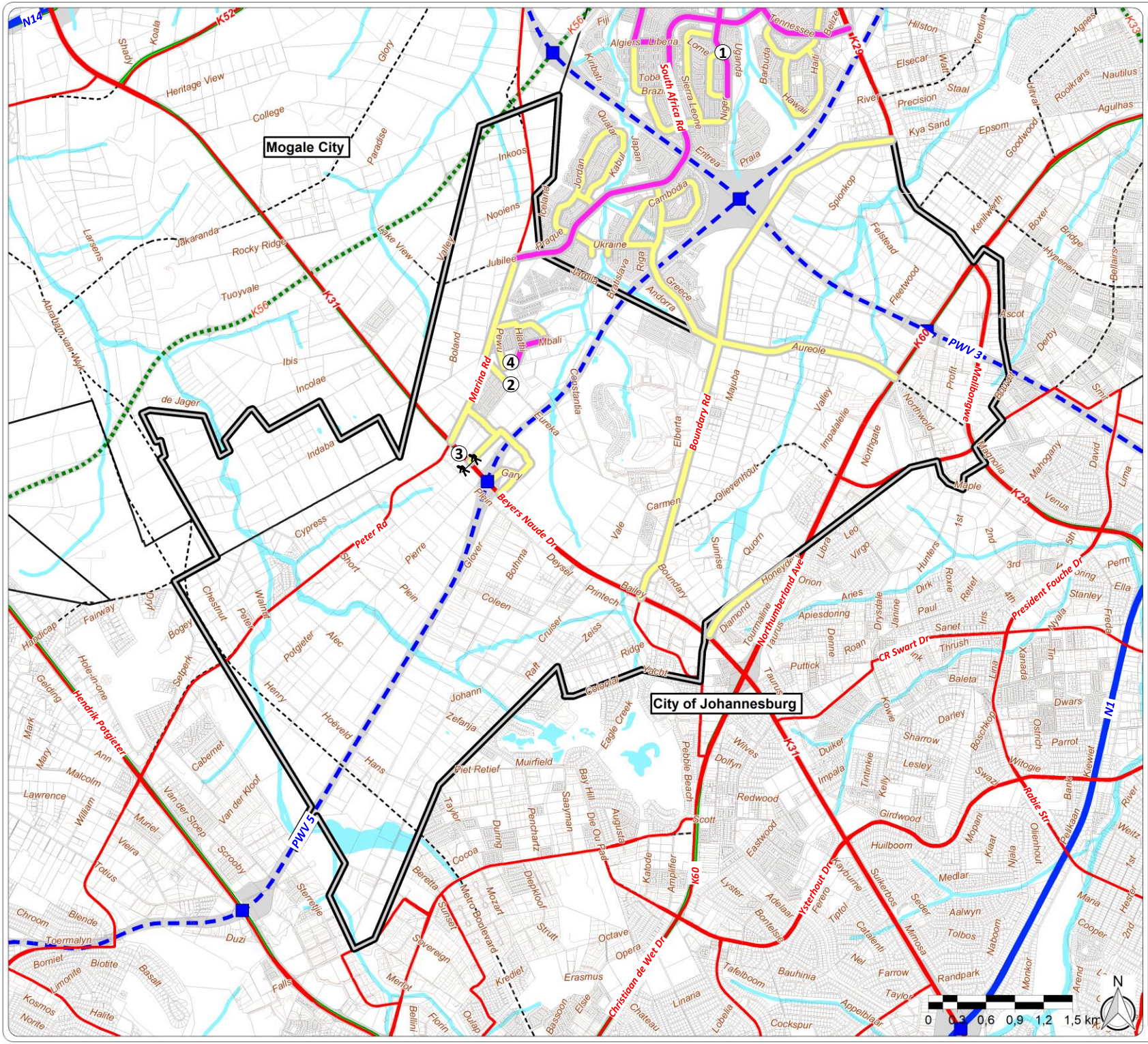
Figure 34

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

3.5.2.3 STRATEGY 2.3: PROVISION OF A SAFE AND ACCESSIBLE NON-MOTORISED TRANSPORT NETWORK

Figure 35 depicts the Non-Motorised Transport Proposals for the study area, which aims at linking the public transport nodes, schools, trading facilities and community facilities in a safe and clean manner.

- There are a number of routes with no existing sidewalks, and it is proposed that new paved sidewalks be provided along these routes.
- There are further a number of routes where sidewalks do exist, but the sidewalks are in a very bad condition and need to be upgraded as follows:
  - Design and implementation of the NMT links connection at Central African Republic Drive linking the public transport facilities and the schools (*number 1 on Figure 35*);
  - Design and implementation of public environment upgrades along Eureka Street. These upgrades should include the provision of better signage, raised crossings, and a continuous connection from Marina Street to the Emthonjeni Community Centre (*number 2*);
  - Undertake a feasibility study for a pedestrian safety awareness campaign around the pedestrian bridge on Beyers Naude Drive (*number 3*); and
  - Design and implementation of public environment upgrades between the Zandspruit Taxi Rank and Zandspruit Primary School including the formalization of informal trading activity, provision of pedestrian sidewalks and raised pedestrian crossings (*number 4*).



ENGINEERING SERVICES
Proposed Non Motorized Transport

Legend

- Study Area
- A Suburbs
- Municipal Boundaries
- Water Areas / River Buffers
- Pedestrian Bridge
- National Roads
- Proposed National Roads
- Interchanges
- Provincial Roads
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Roads
- Other Roads
- Road Reserve

- Proposed New Sidewalk
- Existing Sidewalk Upgrade
- ① NMT Link Upgrades

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Figure 35

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

3.5.3 DEVELOPMENT OBJECTIVE 3: RESIDENTIAL

Objective 3:

To upgrade and formalise existing informal settlements and to optimise the number of human settlement opportunities in the area.

The Residential Development Concept for the Zandspruit Study Area comprises of three strategies which are elaborated on below.

3.5.3.1 STRATEGY 3.1: APPLY RESIDENTIAL DENSITIES WHICH PROTECT THE CHARACTER OF EXISTING RESIDENTIAL AREAS WHILE PROMOTING INCLUSIVE HOUSING

The Proposed Residential Densities for the Zandspruit Study Area are shown on **Figure 36.**

The proposed densities are based on the existing character of the different areas, and on the principle of supporting higher densities around public transport stations and transport corridors.

Three different **Density Categories** have been proposed as follows:

- A Minimum Density of 40 du/ha
- A Minimum Density of 50 du/ha; and
- A Minimum Density of 80 du/ha.

For the Western Areas (*marked as F on Figure 36*), three different Development Scenarios were developed in order to determine the yield that could be achieved per scenario.

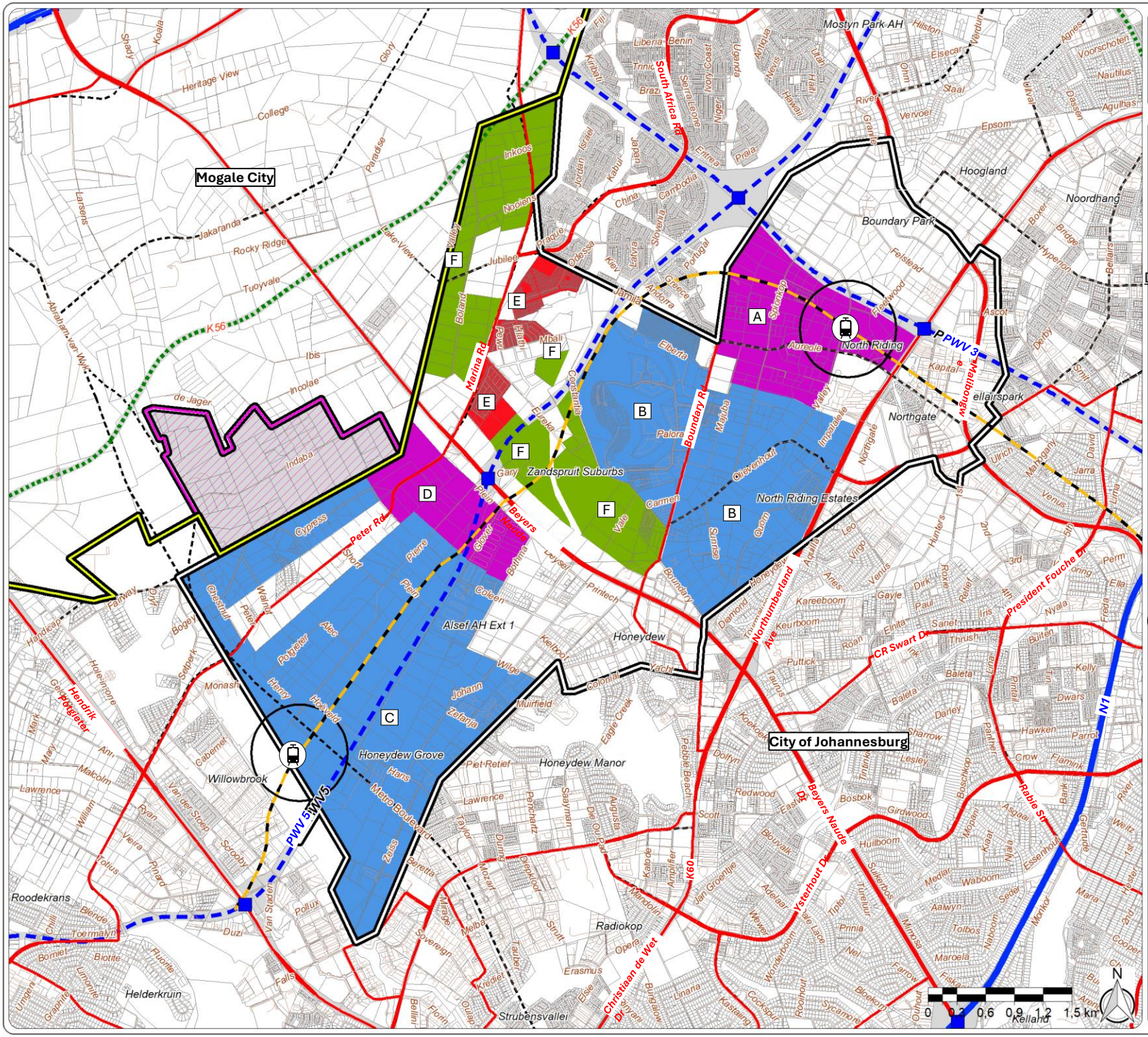
Table 13 provides a summary table of the proposed densities and heights for the areas marked as *A, B, C, D, E* and *F* on Figure 36. The table firstly outlines the densities that are contained in the Nodal Review Policy for each sub-area and outlining the recommended densities as part of this UDF. The higher proposed densities are aimed at accommodating the future population growth and capitalising on the existing infrastructure.

It should be noted that the dwelling units calculated are based on detailed Land Use Budgets compiled for each of the areas, which are attached to this document as **Annexure B**. The Land Use Budgets illustrate the number of units and associated population and further outlines the required community facilities that are required to create a sustainable settlement.

As per the Land Use Budgets, the densities were split using the Minimum Density Category as a guideline in order to ensure that the yields were realistic.

The findings of **Table 13** are discussed below:

- **Area A**: The area is located adjacent to a Regional Node, is traversed by a transport corridor (Aereola Street) and a Gautrain Station is proposed in the area. The Nodal Review Policy proposes a density of 60 du/ha and the UDF recommends a minimum density of 80 du/ha. Higher densities may be supported around the proposed Gautrain Station and along the transport corridors. The total potential yield was calculated at **8,590 dwelling units**.
- **Area B**: The area falls within a sub-urban and peri-urban zone with a 20 du/ha in terms of the Nodal Policy. A minimum density of 40 du/ha is recommended for the area and higher densities can be supported adjacent to the Northgate Regional Node and main movement routes. (Boundary Road, Northumberland Road). The total potential yield was calculated at **7,420 dwelling units**.



Development Concept Proposed Densities

Legend

- Study Area
- Proposed Urban Edge
- Outside CoJ (Mogale)
- A Suburbs
- Municipal Boundary

Density Categories

- Minimum 40 du/ha (Net)
- Minimum 50 du/ha (Net)
- Minimum 80 du/ha (Net)
- Scenario Testing (refer to table)

- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer

0 0.2 0.6 0.9 1.2 1.5 km

Figure 36

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

Table 13: Residential Densities and Incremental Development Potential

Functional Area	Map #	Nodal Review Policy 19/20: Minimum Net. Density (du/ha)	Recommended Typology: Minimum Net. Density (du/ha)	Recommended Height (storeys)	Dwelling units*	Residential Density (du/ha)	Populati
EAST	A	60	80	2 to 4	8,590	94	20,6
EAST	B	20	40	2	7,420	47	17,8
Subtotal East					**16,010**	**64**	**38,4**
SOUTH	C	20	40	2	17,515	48	42,0
SOUTH	D	20	80	2 to 4	5,220	117	12,5
SOUTH	Outside CoJ	not spesified	not spesified		1,120	7	2,6
Subtotal South					**23,855**	**42**	**57,2**
WEST	E	50	50	1 to 2	1,872	36	4,4
WEST	**F Sc1**	50	50	1 to 2	9,425	50	22,6
WEST	**F Sc2**	50	80	2	13,940	80	33,4
WEST	**F Sc3**	50	160	2 to 4	23,370	160	56,0
Subtotal West Sc1					**11,297**	**47**	**27,1**
Subtotal West Sc2					**15,812**	**70**	**37,9**
Subtotal West Sc3					**25,242**	**127**	**60,5**
Total Sc1					**51,162**	**48**	**122,7**
Total Sc2					**55,677**	**53**	**133,6**
Total Sc3					**65,107**	**64**	**156,2**

* Calculated from Land Use Budget

The recommended minimum density for area F-Zandspruit Informal area and expansion is 80 du/ha. The density can be adjusted based on site characteristics, market forces and beneficiary needs.

- **Areas C**: The Nodal Policy proposes a density of 20 du/ha for the area within the current UDB and no densification outside the UDB. A minimum density of 40 du/ha is recommended for the area with densities of 80 du/ha are recommended around the proposed Gautrain Station. The total potential yield was calculated at **17,515 dwelling units**.
- **Area D:** The area is situated adjacent to a proposed Regional Node and a number of high density applications have been submitted in the area. The Nodal Policy proposes a density of 20 du/ha; however, a minimum density of 80 du/ha is proposed for the area and higher densities can be considered for areas adjacent to Beyers Naude, Peter Road and the proposed PWV05. The total potential yield was calculated at **5,220 dwelling units**.
- **Area E**: the existing layouts for the area depicted a Minimum Density of 50 du/ha, and a total yield of **1,872 dwelling units**.
- **Areas F:** The area comprises the areas proposed for the formalisation/ development of Zandspruit informal settlement (comprising approximately **23,371 units**). The three scenarios are outlined below:
  - Scenario 1: Apply a Minimum Density of 50 du/ha (in line with the Nodal Review Policy) for a total yield of **9,425 dwelling units**.
  - Scenario 2: Apply a Minimum Density of 80 du/ for a total yield of **13,940 dwelling units.**
  - Scenario 3: Apply a Minimum Density of 160 du/ha for a total yield of **23,370 dwelling units**, which could accommodate the entire Informal Settlement.

Important to Note:

The densities proposed in this section will be subject to the availability of engineering services.

3.5.3.2 *STRATEGY 3.2: OPTIMIZE RESIDENTIAL DEVELOPMENT POTENTIAL TO ADEQUATELY ACCOMMODATE EXISTING AND FUTURE POPULATIONS*

Further from the broader density areas, (previously discussed and shown *in Figure 36 as A-F)* the study area has been broken down into a number of Development Precincts shown on **Figure 37** and the **Residential Development Potential** for each of the precincts were calculated with detailed land use budgets (**Annexure B**).

In order to determine the Residential Development Potential of each precinct the following factors were considered (see **Table 14**):

- Firstly, the Developable Land was determined in each precinct, by subtracting the area of any servitudes, road reserves or environmental constraints which were evident in each precinct and could not be developed on.
- Next, a unique density was applied to each of the precincts, based on the individual characteristics of the precinct, such as surrounding densities and proximity to TOD stations, transport corridors, universities, etc. The densities applied are consistent with the Proposed Densities in Figure 36.
- Once the number of Dwelling Units were determined, the population that could be accommodated was calculated using the Household Size of the area.
-

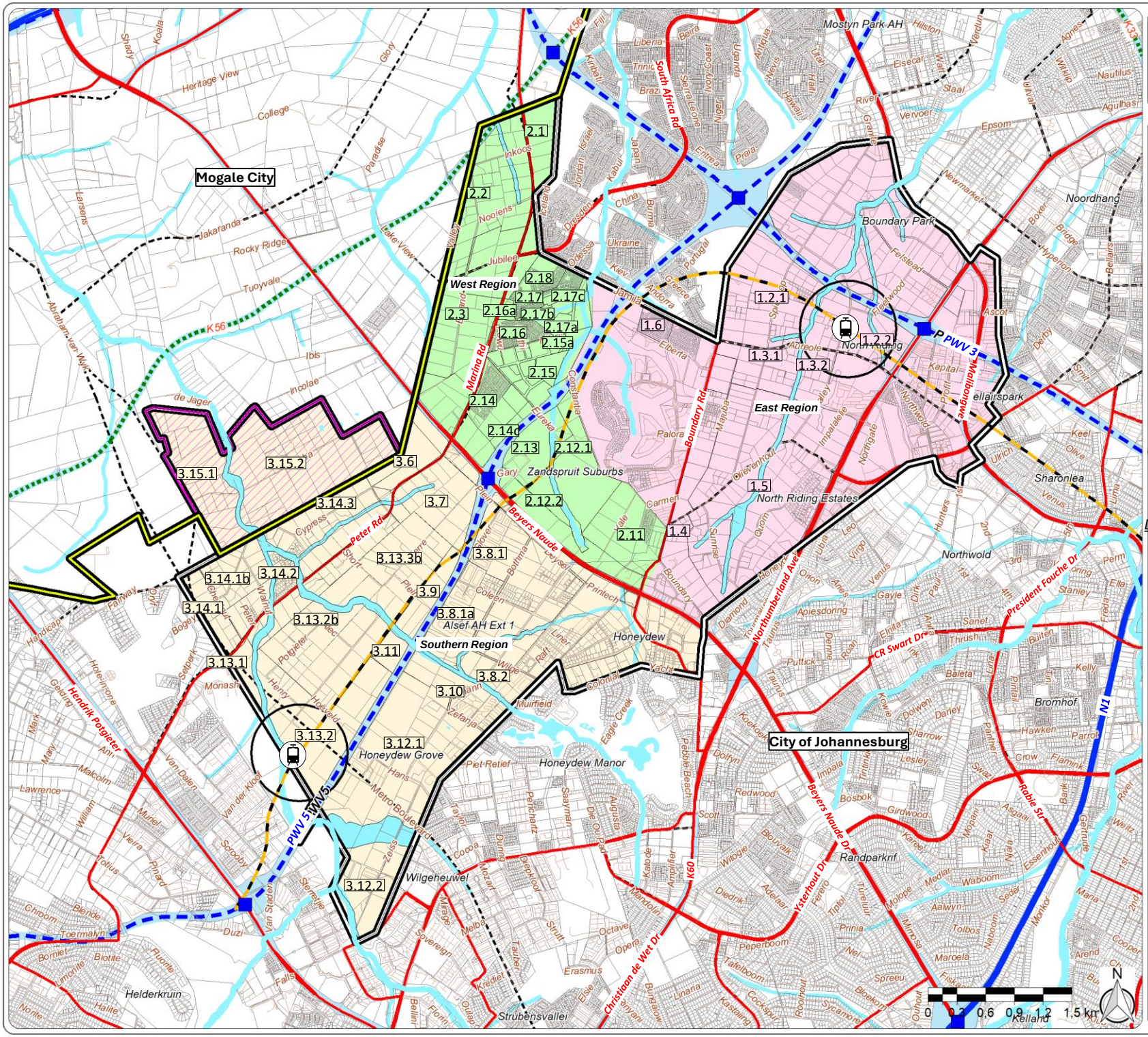
The Residential Development Potential of the Area has been dealt with in terms of the three functional areas of the study area: Functional Area East, Functional Area West and Functional Area South. The Residential Development Potential of each functional area is shown on the various tables below and briefly discussed as follows:

- **Functional Area East:** there is a development potential to accommodate **16,230** dwelling units on **404,2 ha** of developable land for residential purposes (**Table 15**).
- **Functional Area South:** there is a development potential to accommodate **23,855** dwelling units on **567,4 ha** of developable land for residential purposes (**Table 16**).
- **Functional Area West – Scenario 1 (Minimum 50 du/ha):** there is a development potential to accommodate **11,297** dwelling units on **240,5 ha** of developable land for residential purposes (**Table 17**).
- **Functional Area West – Scenario 2 (Minimum 80 du/ha):** there is a development potential to accommodate **15,812** dwelling units on **226,5 ha** of developable land for residential purposes (**Table 18**).
- **Functional Area West– Scenario 3 (Minimum 160 du/ha):** there is a development potential to accommodate **25,242** dwelling units on **198 ha** of developable land for residential purposes (**Table 19**).

In conclusion, Scenario 3 is the only scenario which will provide enough capacity to accommodate the existing 23,371 dwelling units in the Zandspruit Informal Settlement as shown below:

Table 14: Development Potential of 3 Scenarios Summary

Zandspruit	WEST Potential number of Units		
Number of Units	Sc 1	Sc 2	Sc 3
23 371	11 297	15 812	25 242
Surplus/Deficit	- 12 074	- 7 559	1 871



DEVELOPMENT CONCEPT
Residential Precincts

Legend

- Study Area
- Proposed Urban Edge
- Outside CoJ (Mogale)
- A Suburbs
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer
- Water Areas / River Buffer

Developable Residential Precincts

1. East
2. West
3. South

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 37

Table 15: Residential Development Potential: Functional Area East

Functional Area	#	Redevelopment Typology	Detail Typology	Developable Area (ha)	Residential Area (ha)	Dwelling units	Residential Density (du/ha)	Population
EAST	1.2.1	Medium to High Density Residential	Minimum 80du/ha	71.3	41.2	3,870	94	9,288
EAST	1.2.2	Medium to High Density Residential	Minimum 80du/ha	41.4	24.4	2,300	94	5,520
EAST	1.3.1	Medium to High Density Residential	Minimum 80du/ha	31.1	18.1	1,710	94	4,104
EAST	1.3.2	Medium to High Density Residential	Minimum 80du/ha	13.1	7.6	710	94	1,704
EAST	1.4	Medium Density Residential	Minimum 40du/ha	42.6	28.1	1,320	47	3,168
EAST	1.5	Medium Density Residential	Minimum 40du/ha	196.3	130.0	6,100	47	14,640
EAST	1.6	Medium Density Residential	Minimum 40du/ha	8.4	5.5	220	40	528
Subtotal Inc. Dwelling Units EAST				**404.2**	**254.9**	**16,230**	**64**	**38,952**

Table 16: Residential Development Potential: Functional Area South

Functional Area	#	Redevelopment Typology	Detail Typology	Developable Area (ha)	Residential Area (ha)	Dwelling units	Residential Density (du/ha)	Population
SOUTH	3.6	Medium to High Density Residential	Minimum 80du/ha	17,6	8,8	1 400	160	3 360
SOUTH	3.13.3	Medium to High Density Residential	Minimum 80du/ha	2,5	1,3	140	107	336
SOUTH	3.14.3a	Medium to High Density Residential	Minimum 80du/ha	2,0	1,1	120	107	288
SOUTH	3.7	Medium to High Density Residential	Minimum 80du/ha	42,7	24,0	2 560	107	6 144
SOUTH	3.8.1b	Medium to High Density Residential	Minimum 80du/ha	16,3	9,4	1 000	107	2 400
SOUTH	3.8.1a	Medium Density Residential	Minimum 40du/ha	23,3	15,5	680	44	1 632
SOUTH	3.8.2	Medium Density Residential	Minimum 40du/ha	12,2	8,0	355	44	852
SOUTH	3.9	Medium Density Residential	Minimum 40du/ha	20,0	13,1	580	44	1 392
SOUTH	3.10	Medium Density Residential	Minimum 40du/ha	17,8	11,8	525	44	1 260
SOUTH	3.11	Medium Density Residential	Minimum 40du/ha	9,1	6,1	270	45	648
SOUTH	3.12.1	Medium Density Residential	Minimum 40du/ha	116,8	77,5	3 450	45	8 280
SOUTH	3.12.2	Medium Density Residential	Minimum 40du/ha	26,3	17,6	780	44	1 872
SOUTH	3.13.1	Medium Density Residential	Minimum 40du/ha	10,3	6,8	305	45	732
SOUTH	3.13.2	Medium Density Residential	Minimum 40du/ha	91,0	57,1	3 770	66	9 048
SOUTH	3.14.1	Medium Density Residential	Minimum 40du/ha	17,2	11,5	510	44	1 224
SOUTH	3.13.2b	Medium Density Residential	Minimum 40du/ha	79,9	53,0	2 350	44	5 640
SOUTH	3.13.3b	Medium Density Residential	Minimum 40du/ha	67,2	45,0	2 000	44	4 800
SOUTH	3.14.1b	Medium Density Residential	Minimum 40du/ha	29,2	19,1	850	44	2 040
SOUTH	3.14.2				-	-		
SOUTH	3.14.3	Medium Density Residential	Minimum 40du/ha	36,9	24,5	1 090	44	2 616
SOUTH	3.15.1	Low Density Residential	Maksimum 10du/ha (outside CoJ)	72,3	54,0	340	6	816
SOUTH	3.15.2	Low Density Residential	Maksimum 10du/ha (outside CoJ)	136,5	102,3	780	8	1 872
Subtotal Inc. Dwelling Units SOUTH				**847,2**	**567,4**	**23 855**	**42**	**57 252**

Table 17: Residential Development Potential: Functional Area West Scenario 1

Functional Area	#	Redevelopment Typology	Detail Typology	Developable Area (ha)	Residential Area (ha)	Dwelling units	Residential Density (du/ha)	Gross Density (du/ha)	Population
WEST	2.1	Single Residential	Minimum 50du/ha	18,9	12,0	600	50	80	1 440
WEST	2.2	Single Residential	Minimum 50du/ha	77,9	51,0	2 550	50	80	6 120
WEST	2.3	Single Residential	Minimum 50du/ha	57,6	37,8	1 890	50	80	4 536
Subtotal Inc. Dwelling Units M67 WEST				**154,4**	**100,8**	**5 040**	**50**	**33**	**12 096**
WEST	2.11	Single Residential	Minimum 50du/ha	45,0	29,6	1 480	50	80	3 552
WEST	2.12.2	Single Residential	Minimum 50du/ha	8,7	5,6	280	50	80	672
WEST	2.12.1	Single Residential	Minimum 50du/ha	44,2	26,2	1 310	50	82	3 144
WEST	2.17	Single Residential	Single Residential (existing Layout)	11,5	12,5	378	30	82	907
WEST	2.18	Single Residential	Single Residential (existing Layout)	15,1	10,6	322	30	82	773
Subtotal Inc. Dwelling Units Zandspruit				**124,4**	**84,5**	**3 770**	**45**	**30**	**9 048**
Subtotal 1 Inc. Dwelling Units WEST				**278,9**	**185,3**	**8 810**	**48**	**32**	**21 144**
WEST	2.13	Single Residential	Minimum 50du/ha	23,2	15,0	750	50	80	1 800
WEST	2.14c	Single Residential	Minimum 50du/ha	3,6	2,2	110	50	80	264
WEST	2.15a	Single Residential	Minimum 50du/ha	2,6	1,7	85	50	80	204
WEST	2.16a	Single Residential	Single Residential Min. 60du/ha	2,7	1,7	100	61	80	240
WEST	2.17a	Single Residential	Minimum 50du/ha	4,4	2,8	140	50	80	336
WEST	2.17b	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	1,0	0,5	80	160	80	192
WEST	2.17c	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	2,8	1,4	225	160	80	540
WEST	2.14	Single Residential	Single Residential (existing Layout)	23,5	11,9	361	30	82	866
WEST	2.15	Single Residential	Minimum 50du/ha	7,1	4,6	230	50	82	552
WEST	2.16	Single Residential	Single Residential (existing Layout)	13,9	13,4	406	30	82	974
Subtotal 2 Inc. Dwelling Units WEST				**84,8**	**55,2**	**2 487**	**45**	**29**	**5 969**
Residential WEST				**363,7**	**240,5**	**11 297**	**47**	**31**	**27 113**

Table 18: Residential Development Potential: Functional Area West Scenario 2

Functional Area	#	Redevelopment Typology	Detail Typology	Developable Area (ha)	Residential Area (ha)	Dwelling units	Residential Density (du/ha)	Gross Density (du/ha)	Population
WEST	2.1	Medium to High Density Residential	Minimum 80du/ha	18,9	11,3	900	80	80	2 160
WEST	2.2	Medium to High Density Residential	Minimum 80du/ha	77,9	46,9	3 750	80	80	9 000
WEST	2.3	Medium to High Density Residential	Minimum 80du/ha	57,6	34,8	2 780	80	80	6 672
Subtotal Inc. Dwelling Units M67 WEST				**154,4**	**92,9**	**7 430**	**80**	**48**	**17 832**
WEST	2.11	Medium to High Density Residential	Minimum 80du/ha	45,0	27,1	2 170	80	80	5 208
WEST	2.12.2	Medium to High Density Residential	Minimum 80du/ha	8,7	5,0	400	80	80	960
WEST	2.12.1	Medium to High Density Residential	Minimum 80du/ha	44,2	25,0	2 000	80	82	4 800
WEST	2.17	Single Residential	Single Residential (existing Layout)	11,5	12,5	378	30	82	907
WEST	2.18	Single Residential	Single Residential (existing Layout)	15,1	10,6	322	30	82	773
Subtotal Inc. Dwelling Units Zandspruit				**124,4**	**80,2**	**5 270**	**66**	**42**	**12 648**
Subtotal 1 Inc. Dwelling Units WEST				**278,9**	**173,1**	**12 700**	**73**	**46**	**30 480**
WEST	2.13	Medium to High Density Residential	Minimum 80du/ha	23,2	13,9	1 110	80	80	2 664
WEST	2.14c	Medium to High Density Residential	Minimum 80du/ha	3,6	2,1	165	80	80	396
WEST	2.15a	Medium to High Density Residential	Minimum 80du/ha	2,6	1,4	115	80	80	276
WEST	2.16a	Single Residential	Single Residential Min. 60du/ha	2,7	1,7	100	61	80	240
WEST	2.17a	Medium to High Density Residential	Minimum 80du/ha	4,4	2,6	210	80	80	504
WEST	2.17b	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	1,0	0,5	80	160	80	192
WEST	2.17c	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	2,8	1,4	225	160	80	540
WEST	2.14	Single Residential	Single Residential (existing Layout)	23,5	11,9	361	30	82	866
WEST	2.15	Medium to High Density Residential	Minimum 80du/ha	7,1	4,3	340	80	82	816
WEST	2.16	Single Residential	Single Residential (existing Layout)	13,9	13,4	406	30	82	974
Subtotal 2 Inc. Dwelling Units WEST				**84,8**	**53,1**	**3 112**	**59**	**37**	**7 469**
Residential WEST				**363,7**	**226,2**	**15 812**	**70**	**43**	**37 949**

Table 19: Residential Development Potential: Functional Area West Scenario 3

Functional Area	#	Redevelopment Typology	Detail Typology	Developable Area (ha)	Residential Area (ha)	Dwelling units	Residential Density (du/ha)	Population
WEST	2.1	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	18,9	9,4	1 500	160	3 600
WEST	2.2	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	77,9	38,5	6 160	160	14 784
WEST	2.3	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	57,6	28,5	4 560	160	10 944
Subtotal Inc. Dwelling Units M67 WEST				**154,4**	**76,4**	**12 220**	**160**	**29 328**
WEST	2.11	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	45,0	22,5	3 600	160	8 640
WEST	2.12.2	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	8,7	4,3	695	160	1 668
WEST	2.12.1	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	44,2	22,5	3 600	160	8 640
WEST	2.17	Single Residential	Single Residential (existing Layout)	11,5	12,5	378	30	907
WEST	2.18	Single Residential	Single Residential (existing Layout)	15,1	10,6	322	30	773
Subtotal Inc. Dwelling Units Zandspruit				**124,4**	**72,4**	**8 595**	**119**	**20 628**
Subtotal 1 Inc. Dwelling Units WEST				**278,9**	**148,8**	**20 815**	**140**	**49 956**
WEST	2.13	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	23,2	11,5	1 840	160	4 416
WEST	2.14c	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	3,6	1,8	290	160	696
WEST	2.15a	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	2,6	1,3	210	160	504
WEST	2.16a	Single Residential	Single Residential Min. 60du/ha	2,7	1,7	100	61	240
WEST	2.17a	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	4,4	2,2	350	160	840
WEST	2.17b	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	1,0	0,5	80	160	192
WEST	2.17c	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	2,8	1,4	225	160	540
WEST	2.14	Single Residential	Single Residential (existing Layout)	23,5	11,9	361	30	866
WEST	2.15	Medium to High Density Residential	(3 to 4 storey Walk -Ups)(@160du/ha)	7,1	3,5	565	160	1 356
WEST	2.16	Single Residential	Single Residential (existing Layout)	13,9	13,4	406	30	974
Subtotal 2 Inc. Dwelling Units WEST				**84,8**	**49,2**	**4 427**	**90**	**10 625**
Residential WEST				**363,7**	**198,0**	**25 242**	**127**	**60 581**

3.5.3.3 STRATEGY 4.3: PROVIDE A STRATEGY FOR THE ZANDSPRUIT INFORMAL SETTLEMENT

It is proposed that an Informal Settlement Upgrading Strategy needs to be formulated for the Zandspruit Informal Settlement, which needs to be linked to a detailed Land Acquisition Strategy.

The aim of the strategies should be to:

- Accommodate the existing informal units within the area at the required densities,
- De-densify the informal settlement,
- Maintain the existing and approved single residential erven. Provision should be made for backyard dwellers on each of the single residential erven as it is predicted that the trend will continue to be popular in the area, and
- De-cant the remaining units to land parcels which are in close proximity and to apply high densities of 160 du/ha to these land parcels, typically in the form of 3-storey walk-ups.

It is proposed that the Priorities of the Informal Settlement Strategy should be as follows (as depicted on **Figure 38**):

- **Priority 1:** To finalise the development of Ext 84 that can serve as a receiving area;
- **Priority 2:** To relocate all informal settlements located on land earmarked for the provision of Community Facilities as well as informal settlements located within the Open Space Network or Floodlines (Ext 83);
- **Priority 3:** To commence with land acquisition and relevant planning activities to prepare (land bulk) land to serve as receiving area for possible relocations;
- **Priority 4:** To relocate informal settlements located on land earmarked for Business/Mixed-Use purposes;
- **Priority 5:** To formalise existing informal settlements at high densities; and
- **Priority 6:** To commence with land acquisition and relevant planning activities to prepare (land bulk) land to serve as receiving area for possible relocations.

In-Situ Formalization:

The Zandspruit Informal Settlement is characterised by high density informal units, limited access roads, varying environmental conditions and limited infrastructure. In order to fully unpack the Zandspruit Area, it needs to undergo the process of Upgrading of Informal Settlements Programme (UISP), which is graphically shown on **Diagram 27** and discussed below.

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.

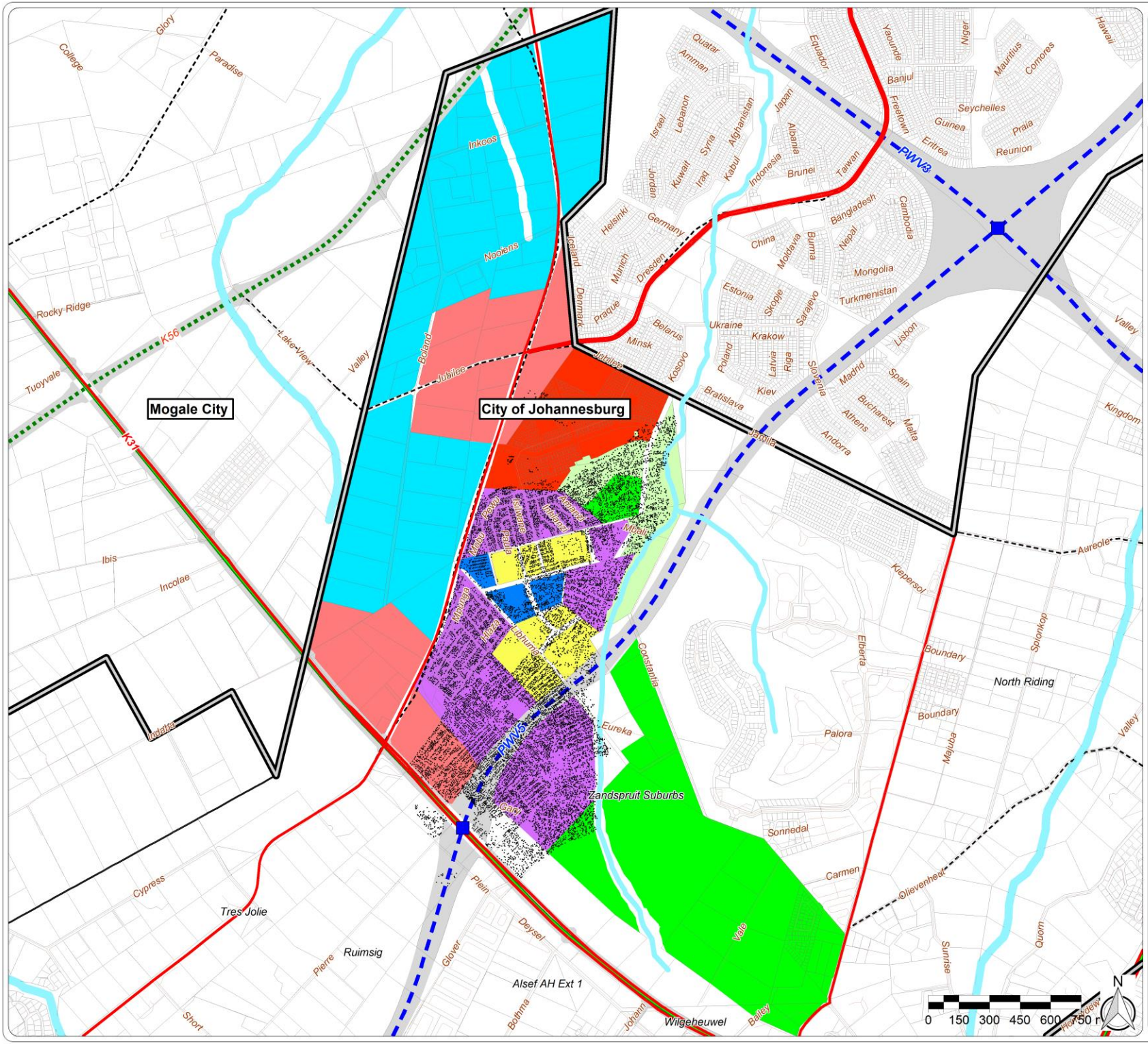
Phase 2 entails the provision of Interim Basic Services for the settlement.

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 27). The process will also inform the various internal and external departments of the roles, responsibilities and budget requirements. 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.



FORMALIZATION STRATEGY
Priority

Legend

- Study Area
- Proposed Business / Mixed Use
- Open Space
- Water Areas / River Buffer
- 100yr Flood Line
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- Road Reserve
- Provincial Roads
- Interchanges
- Informal

Residential Priorities

- Priority 1
- Priority 2
- Priority 3
- Priority 4
- Priority 5
- Priority 6

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 38

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

UISP CATEGORISATION TYPES AND UPGRADING LEVELS/ STAGES

Diagram 27

LEVEL 1 (National Upgrade Support Programme (NUSP))

UNLOCKS UISP

1. ASSESSMENT COMPONENTS

i. Location Suitability
ii. Topography
iii. Bulk Services Availability
iv. Geotechnical Conditions
v. Environmental Conditions
vi. Land Legal Issues, e.g. servitudes, mineral rights; land claims
vii. Land Availability/ Acquisition
viii. Socio-Economic Features

2. CATEGORISATION TYPES

- Category A: Full Upgrading
- Category B1: Interim Basic Services
- Category B2: Deferred Relocation with Interim Arrangements
- Category C: Immediate Relocation

UPGRADING PLANS and/or RELOCATION PLANS

LEVEL 4

- Top Structure



Through other Programmes

- Secure Tenure (Beneficiary Administration)



PHASE 1

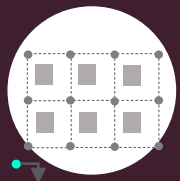
PROJECT APPLICATION

Settlement information (indicate the no. of households and infrastructure requirements).

PHASE 2

INTERIM BASIC SERVICES

Government obtaining available land and geotechnical investigations.

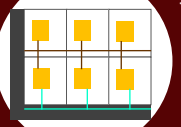


Communal Standpipe

PHASE 3

IMPLEMENTATION (permanent services)

Township Establishment and Full Services



PHASE 4

HOUSING CONSOLIDATION

Top Structure Provision and Tenure

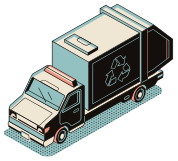
LEVEL 2

Interim Services Includes

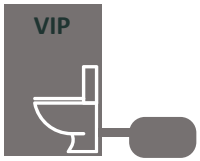
Communal Tap



Refuse Removal



Sanitation



Septic Tank

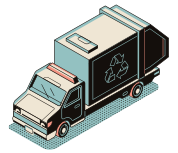
LEVEL 3

Full Services Includes

Households Water Supply



Refuse Removal



Electricity



Sanitation



Linked to a Sewer System

3.5.4 DEVELOPMENT OBJECTIVE 4: COMMUNITY FACILITIES

Objective 4:

To provide a range of highly accessible community facilities to serve the residents.

Figure 39 depicts the Development Concept of the Community Facilities objective, which comprises of one strategy.

3.5.4.1 STRATEGY 4.1: CLUSTER COMMUNITY FACILITIES IN ORDER TO CREATE CRITICAL MASS

Based on the Residential Strategy (Objective 4), the Community Facilities which may be required, in terms of the CSIR Guidelines, on a Local and Regional level were calculated and are shown on **Tables 20** and **21** respectively.

It should be noted that due to the fact that the intention is to de-densify the Zandspruit informal settlement and re-locate the excess units, the Community Facilities need did not account for an incremental growth for the Zandspruit area itself but did account for the incremental growth in the remainder of the area.

It is essential to continuously strive towards consolidating community facilities at strategic locations within the urban fabric in order to provide one-stop services to communities and it is accordingly proposed that the required community facilities be clustered around the existing community facilities within the Zandspruit Informal Settlement (as seen on Figure 39).

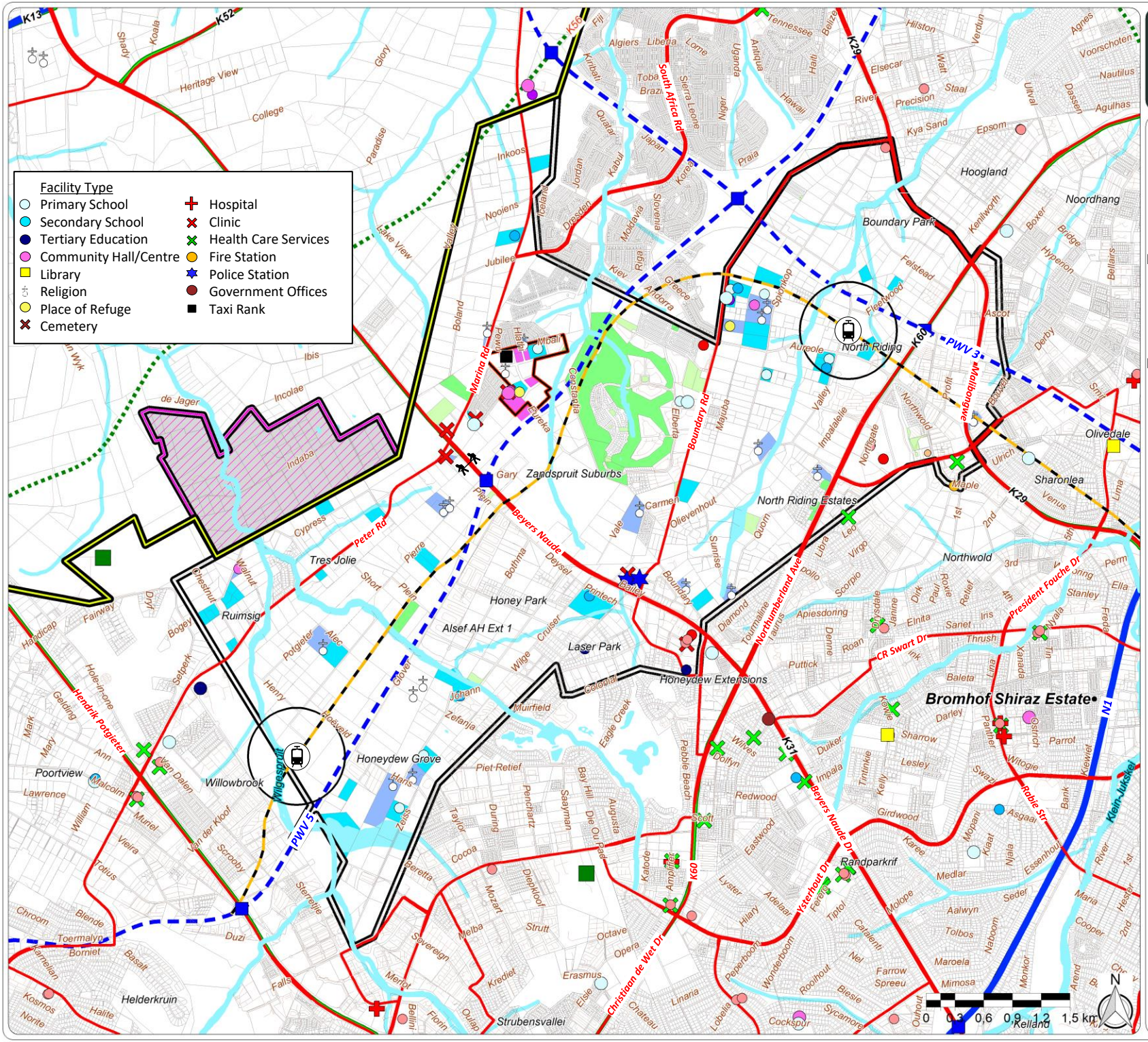
The Thusong Centre/Multi-Purpose Centre concept should be applied, as shown in **Diagram 28** and elaborated on in **Annexure C.**

The multi-purpose Thusong Centre should be functionally developed to ensure continuous use and prevent dilapidation. A secondary benefit to be derived from the clustering of community facilities is the fact that it also attracts “feet” to the area, which could in turn create the critical mass required to stimulate local economic development in the surrounding areas.

New development within the surrounding area should comply with the provision of community facilities in terms of the CSIR Development Standards (CSIR, Redbook).

The Multi-Purpose Centre should further be complimented by Retail, Institutions, Public Open Space, Schools and Public Transport Facilities in order to create an **Institutional Precinct** as depicted on **Diagram 29**.

DEVELOPMENT CONCEPT Community Facilities



Legend

- Study Area
- Proposed Urban Edge
- Outside CoJ (Mogale)
- A Suburbs
- Municipal Boundary

Existing
- Open Space / Sports / Recreation
- Education / Institutional
- Community Facilities
- Municipal

Proposed
- Community Facilities
- Institutional Precinct

- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Pedestrian Bridge
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer
- Water Areas / River Buffer

0 0,3 0,6 0,9 1,2 1,5 km

City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 39

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

Table 20: Zandspruit Local Community Facilities Need Based on the Residential Strategy

Facility	Need	Time Period	Total UDF Area (2023)		Future Development: Remainder of Study Area (RemSA)		Total UDF Area (Capacity)		Ratio	Notes
			Number	ha	Number	ha	Number	ha	ha	
Population	**Existing**	2023	109,451		112,795		222,246	-		
Primary School (including Grade R)* 1:7000	Required	2023	16		15		30	-		applied, but % of children of school going age only half of Gauteng distribution - need could thus be less.
	Provided	2023	9		-		9	-		
	Surplus/Deficit	**2023**	**- 7**	**20.9**	**- 15**	**40.8**	**- 21**	**59.4**	**2.8**	
Secondary School* 1:12 500	Required	2023	8		8		17	-		but % of children of school going age only half of Gauteng distribution. Also a surplus in RemSA - need could thus be less.
	Provided	2023	5		1		6	-		
	Surplus/Deficit	**2023**	**- 3**	**24.0**	**- 7**	**34.4**	**- 11**	**51.0**	**4.8**	
Primary Health Clinic 1:24 000	Required	2023	5		5		9	-		The need for 4 Primary Health Clinics will develop in future years.
	Provided	2023	5		-		5	-		
	Surplus/Deficit	**2023**	**0**		**- 5**	**2.3**	**- 4**	**2.1**	**0.5**	
Community Hall 1:10 000	Required	2023	2		2		4	-		A Community Hall will be needed in the future.
	Provided	2023	3		-		3	-		
	Surplus/Deficit	**2023**	**1**		**- 2**	**0.9**	**- 1**	**0.3**	**0.5**	
Library 1:20 000	Required	2023	5		6		11	-		additional Libraries exist, but with present-day use of the internet, it is doubtful if this will materialise.
	Provided	2023	1		-		1	-		
	Surplus/Deficit	**2023**	**- 4**	**0.2**	**- 6**	**0.3**	**- 10**	**0.5**	**0.05**	
Post Office/ICT Access Point/Post Boxes/Social Grant Paypoint 1:20 000	Required	2023	5		11		16	-		According to standards applied, a need for 13 additional Post Office/ICT Access Point/Post Boxes/Social Grant Paypoint exist, but with present-day use of private sector delivery
	Provided	2023	3		-		3	-		
	Surplus/Deficit	**2023**	**- 2**	**0.3**	**- 11**	**1.2**	**- 13**	**1.5**	**0.11**	
Neighbourhood and Community Sports and Recreation 0,4ha/1000 population	Required (ha)	2023		49		22	-	71		Very limited sports facilities (1 tennis court, 2 informal soccerfields) exist in ZIA. Golf course in RemSA.
	Provided (ha)	2023		93		93	-	93		
	Surplus/Deficit	**2023**		**44**		**71**	**-**	**22**		
Neighbourhood and Community Parks 0,3ha/1000 population	Required (ha)	2023		33		16	-	49		A need for public open space to be used effectively in future exists.
	Provided (ha)	2023		14		14	-	14		
	Surplus/Deficit	**2023**		**- 19**		**0**	**-**	**- 35**		

Table 21: Zandspruit Regional Community Facilities Need Based on the Residential Strategy

Facility	Need	Total UDF Area (2023)		Total UDF Area (Inc. to Capacity)		Total UDF Area (Capacity)		Ratio
		Number	ha	Number	ha	Number	ha	ha
Community Health Centre 1:100 000	Required	1		2	2.8	3	4.5	1.5
	Provided	3		-	-	3		
	Surplus/Deficit	2		- 2	**2.8**	0	-	**1.5**
Police 1:60 000	Required	2		2	0.2	4	0.4	0.1
	Provided	1		-	-	1		
	Surplus/Deficit	- 1	0.2	- 2	**0.2**	- 3	**0.3**	**0.1**
Fire Station 1:60 000	Required	2		2	0.6	4	1.1	0.3
	Provided	1		-	-	1		
	Surplus/Deficit	- 1	0.3	- 2	**0.6**	- 3	**0.8**	**0.3**
Thusong Centre, Home Affairs Office (Small), SASSA, Labour Office, Licencing 1:40 000	Required	3		3	0.6	5	1.1	0.2
	Provided	1		-	-	1	-	
	Surplus/Deficit	- 2	0.3	- 3	**0.6**	- 4	**0.9**	**0.2**

MULTI-PURPOSE COMMUNITY CENTRE (MPCC) / THUSONG CENTRE CONCEPT

Clinic



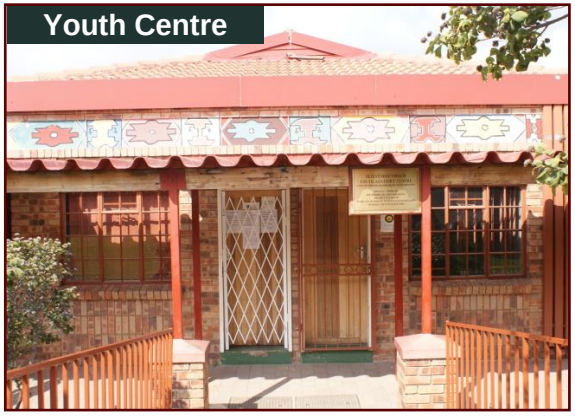
Customer Care Centre & Pre-Paid Offices



Municipal Offices



Youth Centre



Study Hall



Library



EXAMPLE OF A THUSONG CENTRE/ MPCC IN

OLIEVENHOUTBOSCH




1 Retail
2 Taxi Rank
3 MPCC
4 Primary School
5 Proposed Retail
6 Public Open Space
7 Community Facility
8 Emothonjeni Community Centre
9 Impact Kids Primary School
10 Community Facility
11 Sports Field Cluster
Site
1 : 2000 @ A1
0m
50m
150m
300m

3.5.5 DEVELOPMENT OBJECTIVE 5: INFRASTRUCTURE

Objective 5

To ensure that Engineering Services serve the basic needs of the existing and future communities and to facilitate and accommodate economic growth.

Engineering Infrastructure is firstly required to meet the basic domestic needs of residents in the area and for future expansions. Secondly, engineering infrastructure should unlock the economic development potential of the area which is key for long term sustainability.

The water and sanitation infrastructure proposals have been developed in-line with the human settlement proposal under Objective 3 (Section 3.5.3) which divided the area into east, west and south.

3.5.5.1 STRATEGY 5.1: ENSURE THE REQUIRED BULK ENGINEERING SERVICES ARE AVAILABLE

Water:

The water demand for the West and East portions of the precinct is supplied from the Honeydew/Boschkop Reservoirs and Honeydew Tower. The South portion is also partly supplied from the Honeydew/Boschkop Reservoirs and Honeydew Tower and directly from Rand Water.

The Honeydew/Boschkop Reservoirs are at capacity with an existing reservoir storage of 24 hours (h x AADD). Any further development in the Honeydew/Boschkop supply area will prompt the implementation of the master plan to ensure sufficient reservoir storage (> 24 hours) is available. The proposed master plan projects to secure additional reservoir storage are discussed below.

Figure 40 shows the proposed water districts in colour, the proposed Zandspruit Reservoir and Tower, and the existing Honeydew/Boschkop supply area is depicted in hatch.

Proposed Zandspruit Reservoirs and Towers:

The Zandspruit Reservoirs and Towers are required for development in the West and South areas of the precinct. The proposed Zandspruit reservoir complex consists of two 20 ML reservoirs and two 1.25 ML Towers to be phased according to the future water demand. Bulk water will be supplied to the proposed Zandspruit Reservoirs through an existing 600 mm Ø bulk pipeline from the Rand Water connection (RW5848) at the Honeydew Reservoir. The existing network will have to be disconnected from the 600 mm Ø bulk pipeline (which currently forms part of the Honeydew/Boschkop distribution network) to ensure a dedicated supply to the Zandspruit Reservoirs. New distribution mains will also have to be installed to connect the Zandspruit Reservoir and Tower to the distribution network. All projects are listed in **Table 22**.

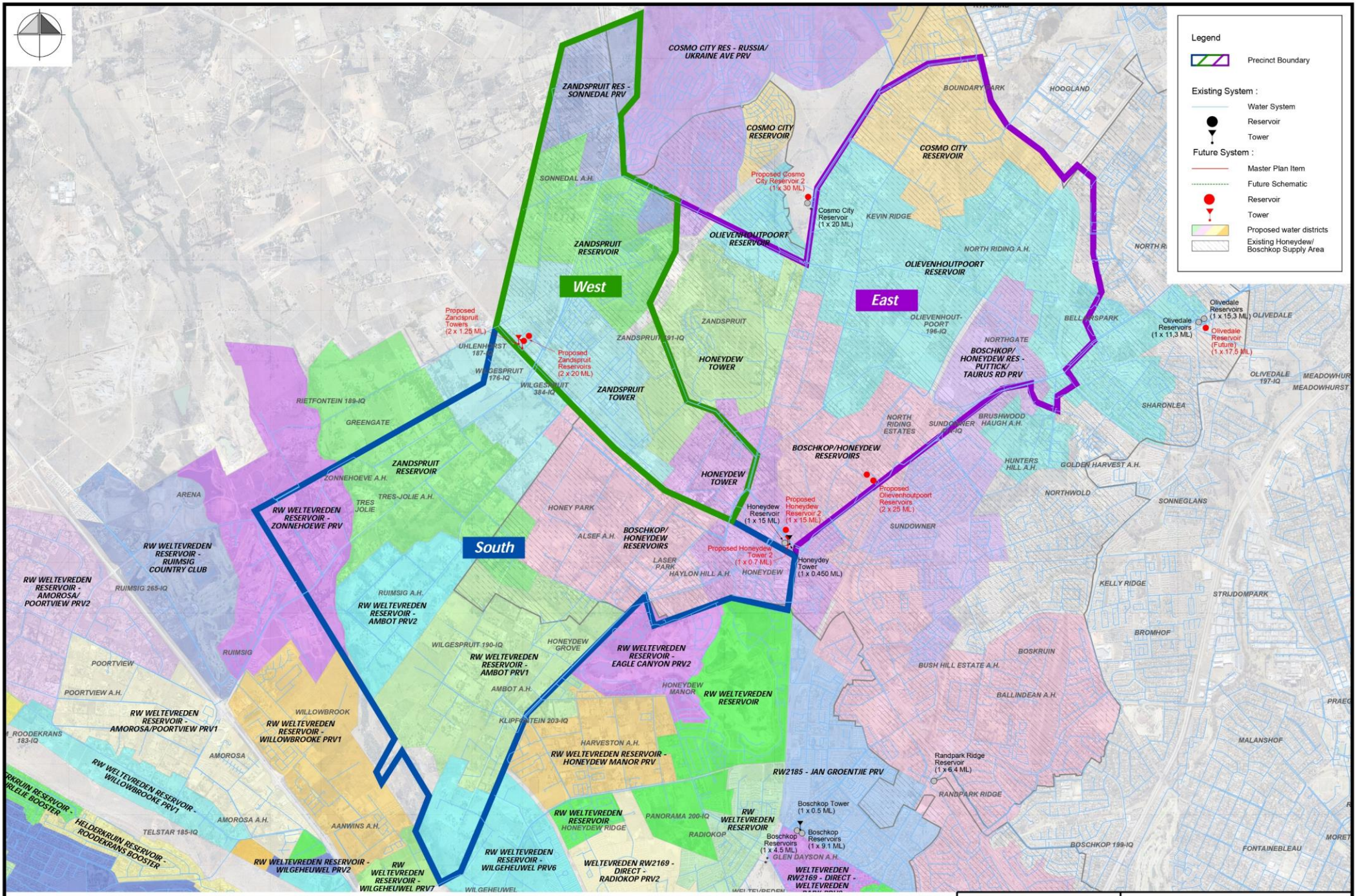

X:\1346_Johannesburg_Ad_Hoc\SI068_Main Reef\Drawings\Water
Legend
Precinct Boundary
Existing System :
Water System
Reservoir
Tower
Future System :
Master Plan Item
Future Schematic
Reservoir
Tower
Proposed water districts
Existing Honeydew/ Boschkop Supply Area
West
East
South
COSMO CITY RES - RUSSIA/ UKRAINE AVE PRV
ZANDSPRUIT RES - SONNEDAL PRV
COSMO CITY RESERVOIR
Proposed Cosmo City Reservoir 2 (1 x 30 ML)
Cosmo City Reservoir (1 x 20 ML)
OLIEVENHOUTPOORT RESERVOIR
ZANDSPRUIT RESERVOIR
ZANDSPRUIT TOWER
HONEYDEW TOWER
Proposed Zandspruit Towers (2 x 1.25 ML)
Proposed Zandspruit Reservoirs (2 x 20 ML)
BOSCHKOP/ HONEYDEW RES - PUTTICK/ TAURUS RD PRV
OLIEVENHOUT-POORT 196-IQ
Olivedale Reservoirs (1 x 15,3 ML)
Olivedale Reservoirs (1 x 11,3 ML)
Olivedale Reservoir (Future) (1 x 17,5 ML)
BOSCHKOP/HONEYDEW RESERVOIRS
Honeydew Reservoir (1 x 15 ML)
Proposed Honeydew Reservoir 2 (1 x 15 ML)
Proposed Olievenhoutpoort Reservoirs (2 x 25 ML)
Proposed Honeydew Tower 2 (1 x 0.7 ML)
Honeydew Tower (1 x 0.450 ML)
RW WELTEVREDEN RESERVOIR - ZONNEHOEWE PRV
RW WELTEVREDEN RESERVOIR - RUIMSIG COUNTRY CLUB
RW WELTEVREDEN RESERVOIR - AMOROSA/ POORTVIEW PRV2
RW WELTEVREDEN RESERVOIR - AMBOT PRV2
RW WELTEVREDEN RESERVOIR - AMBOT PRV1
RW WELTEVREDEN RESERVOIR - EAGLE CANYON PRV2
RW WELTEVREDEN RESERVOIR - AMOROSA/POORTVIEW PRV1
RW WELTEVREDEN RESERVOIR - WILLOWBROOKE PRV1
RW WELTEVREDEN RESERVOIR - HONEYDEW MANOR PRV
RW2185 - JAN GROENTJIE PRV
Randpark Ridge Reservoir (1 x 6.4 ML)
Boschkop Tower (1 x 0.5 ML)
Boschkop Reservoirs (1 x 4.5 ML)
Boschkop Reservoirs (1 x 9.1 ML)
RW WELTEVREDEN RESERVOIR - WILGEHEUWEL PRV2
RW WELTEVREDEN RESERVOIR - WILGEHEUWEL PRV7
RW WELTEVREDEN RESERVOIR - WILGEHEUWEL PRV6
WELTEVREDEN RW2169 - DIRECT - RADIOKOP PRV2
WELTEVREDEN RW2169 - DIRECT - WELTEVREDEN
HELDERKRUIN RESERVOIR - ROODEKRANS BOOSTER
RW WELTEVREDEN RESERVOIR - WILLOWBROOKE PRV1
HELDERKRUIN RESERVOIR - HILLELIE BOOSTER
COSMO CITY
KEVIN RIDGE
NORTH RIDING A.H.
OLIEVENHOUTPOORT
ZANDSPRUIT
SONNEDAL A.H.
UHLENHORST 187-IQ
WILGESPRUIT 176-IQ
WILGESPRUIT 384-IQ
ZANDSPRUIT 191-IQ
RIETFONTEIN 189-IQ
GREENGATE
ZONNEHOEVE A.H.
ARENA
TRES JOLIE
TRES-JOLIE A.H.
HONEY PARK
ALSEF A.H.
LASER PARK
HAYLON HILL A.H.
HONEYDEW
RUIMSIG 265-IQ
RUIMSIG
RUIMSIG A.H.
WILGESPRUIT 190-IQ
HONEYDEW GROVE
POORTVIEW
POORTVIEW A.H.
WILLOWBROOK
ROODEKRANS 183-IQ
AMOROSA
AMOROSA A.H.
TELSTAR 185-IQ
AANWINS A.H.
AMBOT A.H.
KLIPFONTEIN 203-IQ
HARVESTON A.H.
HONEYDEW MANOR
HONEYDEW RIDGE
PANORAMA 200-IQ
RADIOKOP
GLEN DAYSON A.H.
WILGEHEUWEL
NORTHGATE
BELLAIRSPARK
OLIVEDALE
OLIVEDALE 197-IQ
MEADOWHURST
SHARONLEA
NORTH RIDING ESTATES
SUNDOWNER 190-IQ
BRUSHWOOD HAUGH A.H.
HUNTERS HILL A.H.
GOLDEN HARVEST A.H.
NORTHWOLD
SONNEGLANS
SUNDOWNER
KELLY RIDGE
STRIJDOMPARK
BROMHOF
BOSKRUIN
BUSH HILL ESTATE A.H.
BALLINDEAN A.H.
MALANSHOF
RANDPARK RIDGE
BOSCHKOP 199-IQ
FONTAINEBLEAU
2024
Proposed Water Infrastructure
0 225 450 900 1800 m
Scale 1:35000
Joburg
a world class African city
JDA
Johannesburg Development Agency
Figure 40

Table 22: Zandspruit: Water Projects

MP Item No.	MP Project No.	Project Description	Task/Comment	Total Cost*
Proposed Zandspruit Reservoirs and Towers				
BHR62.1	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	Flow Controll Valve to install	R1 413 000
BHR62.2	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	326 m x 650 mm Ø Pipe to install	R4 643 000
BHR62.3A	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	20 ML Reservoir to install	R57 400 000
BHR62.3B	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	20 ML Reservoir to install (phase according to future demand)	R57 400 000
BHR62.4	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	Valve to close/Pipe to disconnect	R0
BHR62.5	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	7 m x 650 mm Ø Pipe to install	R89 000
BHR62.6	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	61 m x 400 mm Ø Pipe to install	R363 000
BHR62.7A	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	1.25 ML Water Tower to install	R18 918 000
BHR62.7B	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	1.25 ML Water Tower to install (phase according to future demand)	R18 918 000
BHR62.8	BHR62	Required to supply proposed Zandspruit Reservoir and Tower	415 L/s Pump Station to construct	R13 462 000
Sub Total				**R172 606 000**
Establish Proposed Zandspruit Reservoir Zone				
ZSP1.1	ZSP1	Required to supply proposed future Zandspruit/Ruimsig development areas	36 m x 950 mm Ø Pipe to install	R919 000
ZSP1.2	ZSP1	Required to supply proposed future Zandspruit/Ruimsig development areas	815 m x 650 mm Ø Pipe to install	R10 647 000
ZSP2.1	ZSP2	Required to supply Zonnehoew/Tres Jolie AH developments	1215 m x 450 mm Ø Pipe to install	R11 304 000
ZSP2.2	ZSP2	Required to supply Zonnehoew/Tres Jolie AH developments	1185 m x 315 mm Ø Pipe to install	R4 785 000
ZSP2.3	ZSP2	Required to supply Zonnehoew/Tres Jolie AH developments	1850 m x 200 mm Ø Pipe to install	R3 905 000
BHR64.1	BHR64	Required to supply proposed future Zandspruit development areas	47 m x 315 mm Ø Pipe to install	R191 000
BHR64.2	BHR64	Required to supply proposed future Zandspruit development areas	748 m x 355 mm Ø Pipe to install	R3 657 000
BHR67.1	BHR67	Required to supply proposed future Zandspruit development areas	1843 m x 315 mm Ø Pipe to install	R7 443 000
Sub Total				**R42 851 000**
Establish Proposed Zandspruit Tower Zone				
ZST1.3	ZST1	To implement proposed Zandspruit Tower sub-districts	414 m x 650 mm Ø Pipe to install	R5 242 000
ZST1.4	ZST1	To implement proposed Zandspruit Tower sub-districts	196 m x 550 mm Ø Pipe to install	R1 906 000
ZST1.5	ZST1	To implement proposed Zandspruit Tower sub-districts	30 m x 315 mm Ø Pipe to install	R122 000
ZST1.6	ZST1	To implement proposed Zandspruit Tower sub-districts	635 m x 400 mm Ø Pipe to install	R3 791 000
ZST1.7	ZST1	To implement proposed Zandspruit Tower sub-districts	215 m x 450 mm Ø Pipe to install	R1 711 000
ZST1.8	ZST1	To implement proposed Zandspruit Tower sub-districts	469 m x 250 mm Ø Pipe to install	R1 145 000
ZST1.9	ZST1	To implement proposed Zandspruit Tower sub-districts	Valve to insert and close	R244 000
ZST1.10 & 11	ZST1	To implement proposed Zandspruit Tower sub-districts	Valve to close/Pipe to disconnect	R0
Sub Total				**R14 161 000**
Establish dedicated bulk supply to Zandspruit reservoir complex				
BHR7.1	BHR7	Remove connections to Zandspruit Reservoir bulk pipeline - When Zanspruit Res is implemented	800 m x 450 mm Ø Pipe to install	R6 376 000
BHR7.2	BHR7	Remove connections to Zandspruit Reservoir bulk pipeline - When Zanspruit Res is implemented	8 m x 355 mm Ø Pipe to install	R41 000
BHR7.3 - 6	BHR7	Remove connections to Zandspruit Reservoir bulk pipeline - When Zanspruit Res is implemented	Valves to close/Pipes to disconnect	R0
BHR8.1	BHR8	Improve supply for future developments	1450 m x 250 mm Ø Pipe to install	R3 536 000
Sub Total				**R9 953 000**
Proposed Ollevenhoutpoort Reservoirs				
BHR5.1	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	61 m x 750 mm Ø Pipe to install	R1 175 000
BHR5.2	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	496 m x 650 mm Ø Pipe to install	R6 284 000
BHR5.3A	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	723 m x 500 mm Ø Pipe to install	R6 377 000
BHR5.3B	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	1140 m x 500 mm Ø Pipe to install	R10 053 000
BHR5.4C - E	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	Valves to close/Pipes to disconnect	R0
BHR5.5A	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	55 m x 550 mm Ø Pipe to install	R669 000
BHR5.5B	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	Flow Control Valve to install	R982 000
BHR5.5C	BHR5	Required to implement proposed Ollevenhoutpoort Reservoir district	25 ML Reservoir to install	R68 600 000
BHR56.1	BHR56	Required to supply/Implement proposed Ollevenhoutpoort Reservoir	1118 m x 1100 mm Ø Pipe to install	R34 651 000
BHR56.2	BHR56	Required to supply/Implement proposed Ollevenhoutpoort Reservoir	Bulk Connection to install	R2 324 000
BHR57.1	BHR57	To implement Ollevenhoutpoort Reservoir 2	25 ML Reservoir to install (phase according to future demand)	R68 600 000
BHR57.2	BHR57	To implement Ollevenhoutpoort Reservoir 2	197 m x 550 mm Ø Pipe to install	R1 924 000
BHR57.3	BHR57	To implement Ollevenhoutpoort Reservoir 2	Flow Control Valve to install	R982 000
Sub Total				**R202 621 000**
Rand Water Weltevreden Reservoir				
HK2.1	HK2	To switch supply to RW Weltevreden Reservoir	767 m x 700 mm Ø Pipe to install	R11 164 000
HK2.2	HK2	To switch supply to RW Weltevreden Reservoir	527 m x 355 mm Ø Pipe to install (In progress)	R2 906 000
HK2.13	HK2	To switch supply to RW Weltevreden Reservoir	10 m x 650 mm Ø Pipe to install	R323 000
HK2.15	HK2	To switch supply to RW Weltevreden Reservoir	52 m x 750 mm Ø Pipe to install	R803 000
HK2.16	HK2	To switch supply to RW Weltevreden Reservoir	227 m x 250 mm Ø Pipe to install (In progress)	R555 000
HK5.1	HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	461 m x 600 mm Ø Pipe to install	R4 905 000
HK5.3	HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	585 m x 315 mm Ø Pipe to install (In progress)	R3 043 000
HK5.5	HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	219 m x 200 mm Ø Pipe to install (In progress)	R684 000
HK5.30B	HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	6 m x 125 mm Ø Pipe to install (In progress)	R8 000
HK5.49B	HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	68 m x 125 mm Ø Pipe to install	R89 000
HK5.54H	HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	100 m x 200 mm Ø Pipe to install	R212 000
HK5.55A	HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	Pressure Reducing Valve to install	R2 223 000
Various MP Items	HK2 & HK5	Establish new water sub-districts when implementing the RW Weltevreden Res	Open/Close valves to establish new zone boundary	R0
Sub Total				**R26 915 000**
Total Cost for the Proposed Zandspruit Reservoirs and Towers and accosiated projects				**R239 571 000**
Total Cost for the Proposed Ollevenhoutpoort Reservoirs				**R202 621 000**
Total Cost for implementing Rand Water Weltevreden Reservoir supply area				**R26 915 000**
Grand Total				**R469 107 000**

* Costs include P&G's, Contingencies & Fees, but exclude EIA studies, registration of servitudes and/or land acquisition and VAT

The implementation of the Zandspruit Reservoir and Tower should be prioritized given the various development applications within its proposed supply area and the fact that the Honeydew/Boschkop Reservoirs are at capacity.

Proposed Olievenhoutpoort Reservoirs:

The proposed Olievenhoutpoort reservoir complex consists of two 25 ML reservoirs to be phased according to the future water demand. Bulk water will be supplied to the Olievenhoutpoort Reservoirs through a new Rand Water connection and 1000 mm Ø bulk pipeline. The bulk pipeline is sized to also supply bulk water to the Olivedale Reservoirs. New distribution mains will have to be installed to connect the Olievenhoutpoort Reservoirs to the distribution networks. All projects are listed in Table22. It should be noted that an alternative reservoir site may have to be investigated since the property identified in the master plan has been developed.

The implementation of the Olievenhoutpoort Reservoirs will be required for development in the East section of the precinct to ensure the Honeydew/Boschkop Reservoirs maintain the minimum required storage of 24 hours. Although the implementation of the Zandspruit Reservoirs will alleviate some of the pressure on the Boschkop/Honeydew Reservoirs, it will not be sufficient in the long term. Therefore, the Olievenhoutpoort Reservoirs may be required in the short to medium term depending on the rate of development.

Proposed Honeydew Reservoir 2 and Honeydew Tower 2:

To ensure at least the minimum reservoir storage (24 hours) is maintained for the Honeydew/Boschkop Reservoirs in the future scenario, an additional 15 ML of storage is required. The master plan proposed an additional 15 ML Honeydew Reservoir 2; however, the availability of land is a concern. An additional Honeydew Tower is also proposed. Although the implementation of these projects will be required in future, the feasibility is dependent on land acquisition and the projects are therefore not yet linked to any development requirements.

Rand Water Weltevreden Reservoir:

A large area of the South portion of the precinct is currently supplied directly from two Rand Water connections (RW2875 and RW2169). The master plan proposes supplying the areas from the Rand Water Weltevreden Reservoir through a new connection at the reservoir outlet. The supply to the area will effectively remain directly from Rand Water, but it will be an improvement to the Rand Water system and increase water security/storage. The required projects are listed in Table 22.

Sewer:

The sewer flows from the precinct area will drain into two catchment areas namely Driefontein and Western Klein Jukskei (Pumped) as shown in **Figure 41**.

Driefontein catchment:

Sewer flows from the South portion of the precinct drain in a south-westerly direction toward the Honeydew bulk outfall sewer. The collector and bulk sewer pipelines have sufficient capacity to accommodate the existing sewer flows. The Honeydew bulk outfall connects to the Wilgespruit/Driefontein bulk outfall sewer pipelines and the sewer flows gravitate to the Driefontein Waste Water Treatment Works (WWTW).

The Honeydew bulk outfall has sufficient capacity to accommodate future sewer flows, however, upgrading the Wilgespruit/Driefontein bulk outfall sewer pipelines is proposed to accommodate future sewer flows for the greater Driefontein catchment. The proposed projects are indicated in **Table 23**.

The Driefontein WWTW has sufficient capacity to accommodate the existing sewer flows. The Driefontein WWTW has a design capacity of 55 ML/d and according to the latest flow measurements, the average sewer flow discharged at the Driefontein WWTW is 40 ML/d.

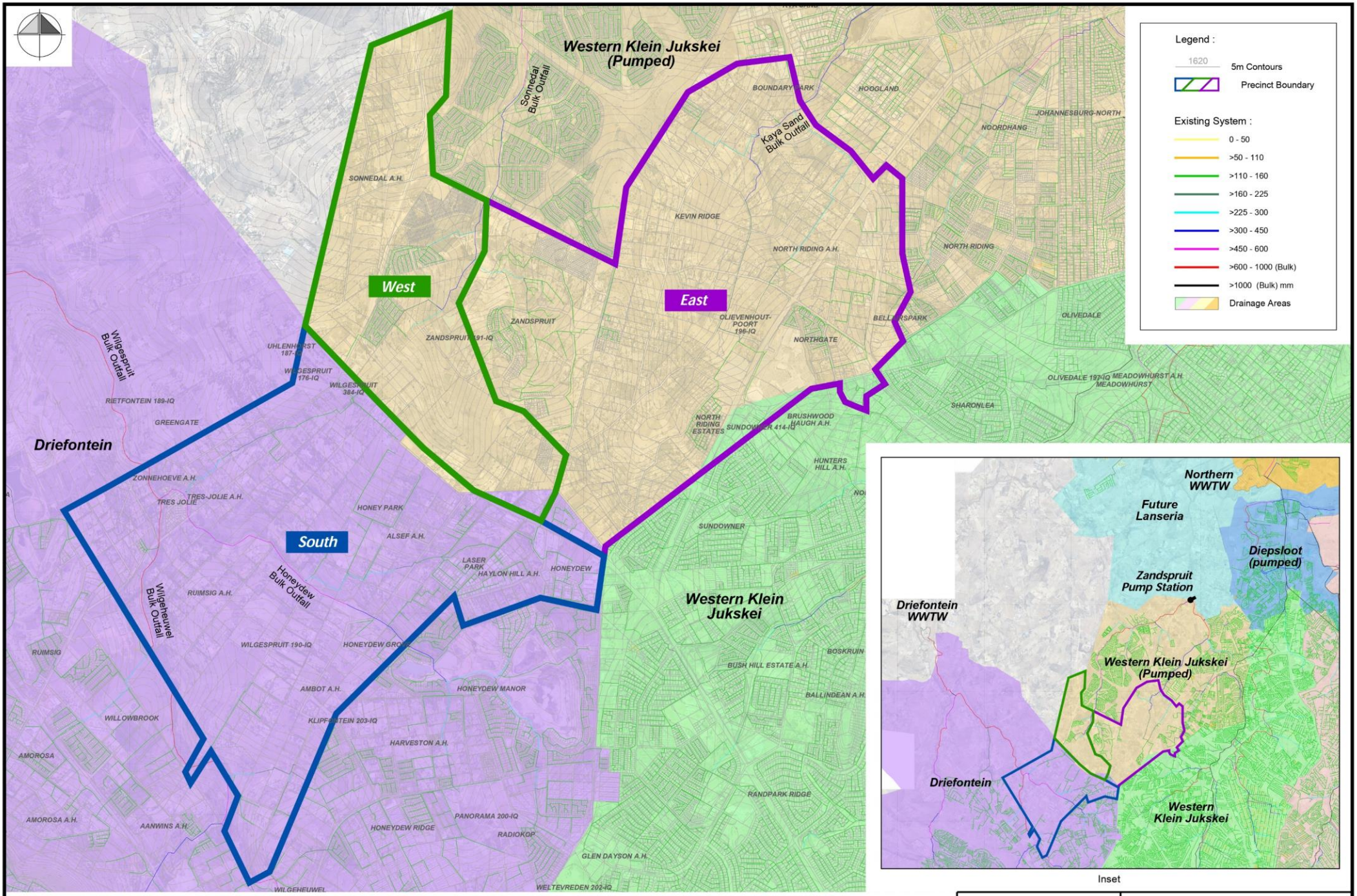
Assuming a yearly increase of 3.5% in sewer flows, the Driefontein WWTW will reach its design capacity of 55 ML/d within the next 10 years. For the long-term, ultimate scenario, upgrading the Driefontein WWTW to a 135 ML/d plant is proposed. Previous reports have however indicated that the existing Driefontein WWTW site can only accommodate 85 ML/d. Therefore, any excess flow (> 85 ML/d) will be diverted to another site still to be determined.

Table 23: Zandspruit Sewerage Projects

MP Item No.	MP Project No.	Project Description	Existing Diameter	New Proposed Diameter	Total Length	Total Cost
Driefonten Catchment						
DF34.1	DF34	Wilgespruit Outfall Upgrades	700	900	910	R14 412 000
DF34.2	DF34	Wilgespruit Outfall Upgrades (Investigate/Monitor)	800	1 000	224	R4 239 000
DF11.1	DF11	Wilgespruit Outfall Upgrades	800	1 200	2 435	R51 988 000
DF28.1	DF28	Driefontein Outfall Upgrades	900	1 400	3 416	R90 891 000
Sub Total						**R161 530 000**
Western Klein Jukskei (Pumped) Catchment						
WKJ_P1.6	WKJ_P1	North Riding A.H. Development (Kaya Sand Outfall)	400	600	166	R1 542 000
WKJ_P1.6A	WKJ_P1	North Riding A.H. Development (Kaya Sand Outfall)	400	600	803	R6 833 000
WKJ_P1.7	WKJ_P1	North Riding A.H. Development (Kaya Sand Outfall)	400	600	415	R3 611 000
WKJ_P1.7A	WKJ_P1	North Riding A.H. Development (Kaya Sand Outfall)	400	600	530	R4 565 000
WKJ_P1.8	WKJ_P1	North Riding A.H. Development (Kaya Sand Outfall)	400	600	1 823	R15 289 000
Sub Total						**R31 840 000**
Total						**R193 370 000**

* Costs include P&G's, Contingencies & Fees, but exclude EIA studies, registration of servitudes and/or land acquisition and VAT

X:\1346_Johannesburg_Ad_Hoc\SI068_Main Reef\Drawings\Water



2024

Proposed Sewer Infrastructure

Figure 41

Western Klein Jukskei (Pumped) Catchment:

Sonnedal and Kay Sand bulk outfall sewers respectively. The collector and bulk sewer pipelines have sufficient capacity to accommodate the existing sewer flows. The bulk outfall sewer pipelines terminate at the Zandpruit Pump Station from where the sewage is pumped to the Direct bulk outfall sewer and gravitates to the Northern WWTW.

The Sonnedal bulk outfall has sufficient capacity to accommodate future sewer flows with only small sections of the pipeline (with flat slopes) that need to be monitored for capacity issues. The Kay Sand bulk outfall sewer will however require upgrading to accommodate the future sewer flows. The proposed projects are indicated in Table 23.

As noted above, the two bulk outfall sewer pipelines terminate at the Zandspruit Pump Station. The total pump capacity at the Zandspruit Pump Station is 515 L/s and the estimated maximum flow to be discharged from the bulk outfall sewer pipelines is 475 L/s. The pump station therefore has very little spare capacity and could be at risk of overflowing. It should be noted that no flow measurements were available to verify the maximum flow when the report was compiled. The spare capacity of the pump station should therefore be confirmed with Johannesburg Water.

The sewer master plan does not propose any upgrades to the Zandspruit Pump Station as it will be decommissioned when the proposed Lanseria WWTW and associated bulk outfall sewer pipelines have been constructed. The Lanseria WWTW project has however been delayed and special consideration should be given to the Zandspruit Pumps Station to ensure it has sufficient capacity up to the point in time when it can be decommissioned.

The Northern WWTW has a design capacity of 405 ML/d and according to the latest flow measurements, the average flow discharged at the treatment works is 350 ML/d. The flow measurements are however affected by operational challenges and sewer flows are expected to be closer to 400 ML/d. The Northern WWTW therefore has very limited spare capacity. The construction of an additional 50 ML/d module is underway with anticipated completion in 2026/27.

3.5.5.2 STRATEGY 5.2: ENSURE A SUSTAINABLE APPROACH TO ENGINEERING SERVICE PROVISION

Sustainable engineering is a comprehensive approach aimed at addressing the environmental, social, and economic challenges associated with infrastructure design, construction, and maintenance. The primary goal of sustainable engineering is to develop methods that allow current human activities to continue without harming the welfare of future generations or damaging the environment. This involves a shift in how engineering services are conceived, designed, and implemented within communities, moving away from traditional, linear resource utilization methods and toward sustainable approaches.

Sustainable engineering projects frequently integrate design components aimed at enhancing efficiency and reducing resource consumption. This may involve utilizing locally available, recycled, or renewable materials, as well as designing structures and infrastructure to optimize energy and water usage. Additionally, these projects prioritize minimizing environmental harm by decreasing waste generation, limiting the use of hazardous substances, and preserving natural resources.

Moreover, sustainable engineering projects adopt a comprehensive approach that considers the entire lifecycle of a project, from material selection and resource utilization to material disposal or reuse post-project completion. This ensures that environmental impacts are minimized, and sustainability is maximized. Furthermore, community engagement is often a key aspect of sustainable engineering projects, facilitating the inclusion of local perspectives and priorities. By involving the community, projects can better address local needs and concerns, enhancing their overall sustainability and effectiveness.

Some examples of Sustainable Engineering Practices which could be applied in the Zandspruit study area over the short- to medium-term are outlined below.

Water:

- More stringent water conservation and demand-management initiatives;
- Increase water-use efficiency and equitable distribution through appropriate incentives;
- Adopt the re-use of wastewater effluent as standard practice, and
- Improve monitoring and reporting to ensure best practice and standards in water and wastewater management.

Energy:

- Promote and enable energy efficiency and demand side management;
- Promote the installation of renewable energy technology in all developments;
- Enhance universal access to clean, renewable energy services.

Transport:

- Invest in public transport and non-motorised transport (NMT);
- Promote and enable low carbon transportation and shift transport patterns to reduce reliance on liquid fuels.

Waste:

- Reduce waste volumes and increase recycling and re-use;
- Introduce waste-to-energy initiatives in the longer term;
- Invest in clean technology and value adding to waste.

Information and Communication Technology:

- Establish a strong broadband and fibre infrastructure network to ensure efficient communications and internet services.

3.5.6 DEVELOPMENT OBJECTIVE 6: ECONOMIC ACTIVITY

Objective 6:
To promote economic development and job creation with a focus on economic up scaling and industrial/commercial business uses.

Figure 42 depicts the Development Concept for the Economic Activities, which comprises of four Strategies.

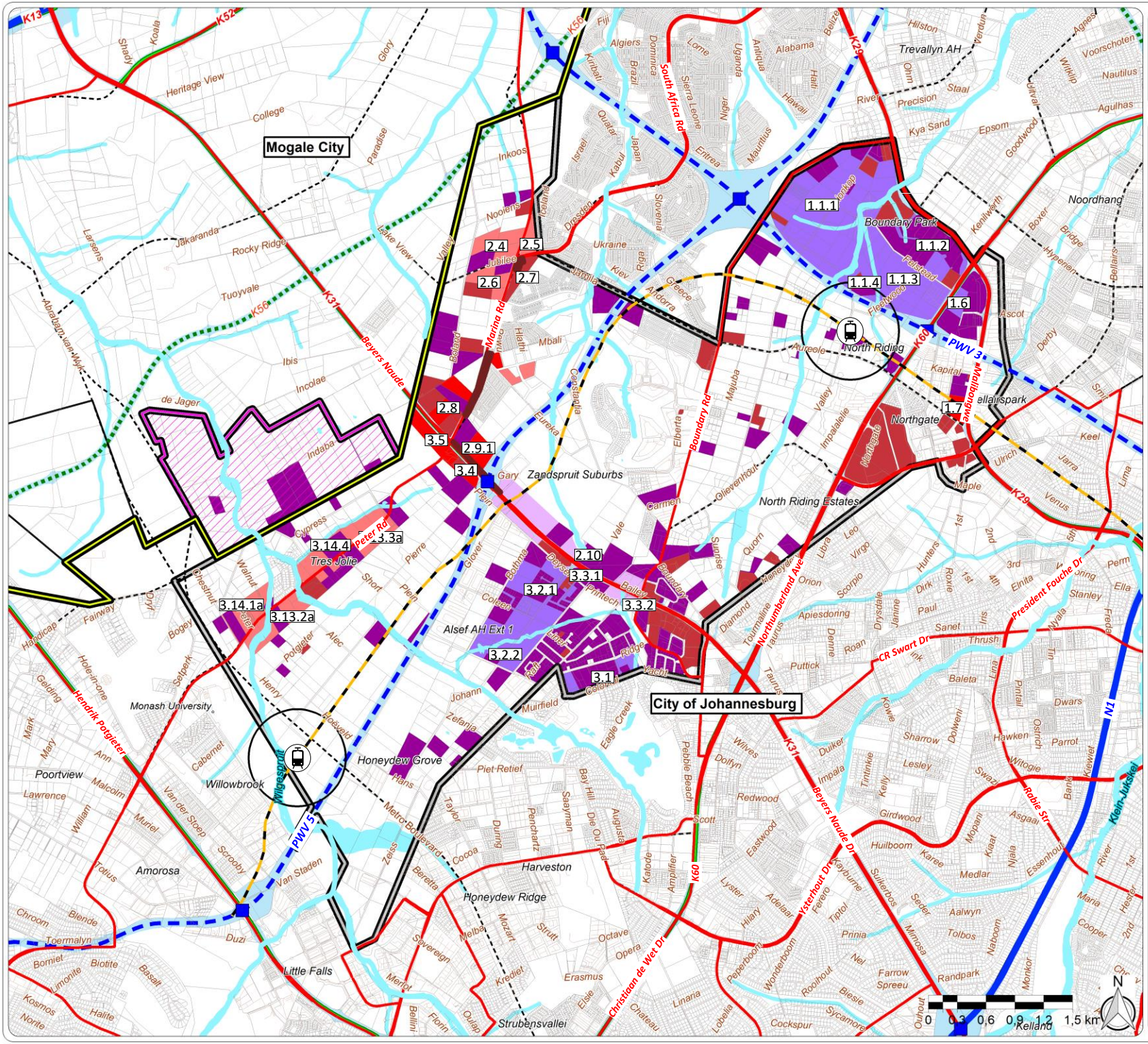
3.5.6.1 STRATEGY 6.1: ENSURE ECONOMIC DEVELOPMENT TAKES PLACE IN STRATEGIC, SPATIALLY SOUND LOCATIONS

- A Strategic **Business Node** if proposed to be established at the intersection of Beyers Naude Drive and Peter Road, in all four quadrants (*numbers 2.8, 2.9.1, 3.5 and 3.4 on Figure 42*).
- Further **Business Activity** is proposed in the far eastern extents of the study area, between Malibongwe Road and Profit Road (*number 1.7*).
- **Mixed Use** expansion is proposed in all four quadrants of the intersection of Peter Road and Jubilee Road, expanding south of the existing mixed-use in the area. (*numbers 2.4 up to 2.7*).
- **Mixed-Use** development is supported on both sides of Peter Road, within the Tres Jolie AH area (*numbers 3.13.3a, 3.14.4, 3.13.2a, and 3.14.1a*). It is proposed that the Mixed-Uses proposed in this area be of low-intensity such as Hospitality Uses, Small-Scale Retail, and Offices.
- **Light Industrial** uses are proposed to the north and south of Beyers Naude Drive, between the proposed PWV5 and Plein Street (*numbers 2.10 and 3.3.1*).
- **Industrial/Commercial** uses are proposed to expand southward of Beyers Naude Drive, along Bothma and Johann Streets (*numbers 3.2.1 and 3.2.2*).
- It is proposed that the area between Malibongwe Drive and the planned PWV3 route in the north-eastern extents of the study area, be earmarked for **Industrial/Commercial** uses (numbers 1.1.1 up to 1.1.4 and 1.6).

Table 24 below depicts the **Economic Development Potential** of the various economic precincts (as per Figure 42) within the three functional areas (east, west and south). The following is notable from Table 24:

- The eastern part of the study area has approximately 154,2 ha of land which could be redeveloped for economic activity, with the western part having 116,6 ha and the southern part having 148,6 ha.
- The eastern part can provide for 9,600 m² of retail, 960 m² of office space and 343,200 m² of industrial/commercial floor area. There is potential to create an estimated 2,975 jobs should the economic activities be developed fully in the eastern part.
- The western part can provide for 108,714 m² of retail, 15,414 m² of office space and 99,300 m² of industrial/commercial floor area. There is potential to create an estimated 4,759 jobs should the economic activities be developed fully in the western part.
- The southern part can provide for 54,857 m² of retail, 35,957 m² of office space and 188,100 m² of industrial/commercial floor area. There is potential to create an estimated 4,759 jobs should the economic activities be developed fully in the western part.

The typical types of Economic Uses as proposed above, are shown in **Diagram 30.**



DEVELOPMENT CONCEPT
Proposed Economic Activities

Legend

- Study Area
- Proposed Urban Edge
- Outside CoJ (Mogale)
- A Suburbs
- Municipal Boundary

Existing:

- Existing Business
- Existing Industrial / Commercial
- Informal Trade

Proposed:

- Proposed Business
- Proposed Mixed Use
- Proposed Light Industrial
- Proposed Industrial / Commercial

- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer
- Water Areas / River Buffer

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 42

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

Table 24: Incremental Development Potential; Economic Development

Functional Area	#	Redevelopment Typology	Detail Typology	Developable Area (ha)	Local Retail Floor Area (m^2) provision	Strategic Retail Node (m^2) provision	Total Retail (m^2) provision	Office (m^2) Provision	Strategic Industrial/ Commercial Site Area (ha)	Industrial/ Commercial Floor Area (m^2)	Jobs:Retail	Jobs: Office	Jobs: Industrial/ Commercial	Estimated Jobs***
EAST	1.1.1	Industrial / Commercial	Industrial / Commercial	84.0			-		64.5	193,500	-	-	1,488	1,488
EAST	1.1.2	Industrial / Commercial	Industrial / Commercial	21.5			-		16.5	49,500	-	-	381	381
EAST	1.1.3	Industrial / Commercial	Industrial / Commercial	32.9			-		25.1	75,300	-	-	579	579
EAST	1.1.4	Industrial / Commercial	Industrial / Commercial	7.3			-		5.5	16,500	-	-	127	127
EAST	1.6	Industrial / Commercial	Industrial / Commercial	3.7			-		2.8	8,400	-	-	65	65
EAST	1.7	Business	Business	4.8		9,600	9,600	960			291	44	-	335
Subtotal Inc. Economic Activities EAST				**154.2**	**-**	**9,600**	**9,600**	**960**	**114.4**	**343,200**	**291**	**44**	**2,640**	**2,975**
WEST	2.10	Light Industrial Strip	Small Scale industries	24.6			-		18.5	55500	-	-	427	427
WEST	2.9.1	Business	Regional Node: Intersection	5.0		10,500	10,500	1,050			318	48	-	366
WEST	2.8	Business	Regional Node: Intersection	20.0		42,000	42,000	4,200			1,273	191	-	1,464
WEST	2.15d	Business	Small Node	20.0	3,900		3,900	1,050			118	48	-	166
WEST	2.4	Mixed Use	Retail, Storage, Wholesale	16.5		12,000	12,000	1,200	8.1	24300	364	55	187	605
WEST	2.5	Mixed Use	Retail, Storage, Wholesale	5.7		12,000	12,000	1,200	0	0	364	55	-	418
WEST	2.6	Mixed Use	Retail, Storage, Wholesale	14.2		12,000	12,000	1,200	6.5	19500	364	55	150	568
WEST	2.7	Mixed Use	Retail, Storage, Wholesale	5.7		12,000	12,000	1,200	0	0	364	55	-	418
WEST	2.15e	Mixed Use	Retail, Office, Community Facilities	2.6	2,383		2,383	2,383	0	0	72	108	-	181
WEST	2.15h	Mixed Use	Retail, Office, Community Facilities	2.1	1,931		1,931	1,931	0	0	59	88	-	146
Subtotal Inc. Economic Activities WEST				**116.6**	**8,214**	**100,500**	**108,714**	**15,414**	**33.1**	**99,300**	**3,294**	**701**	**764**	**4,759**
SOUTH	3.1	Industrial / Commercial	Industrial / Commercial	10.5			-		8.0	24,000	-	-	185	185
SOUTH	3.2.1	Industrial / Commercial	Industrial / Commercial	46.9			-		36.0	108,000	-	-	831	831
SOUTH	3.2.2	Industrial / Commercial	Industrial / Commercial	11.1			-		8.5	25,500	-	-	196	196
SOUTH	3.3.1	LI Strip	Small Scale industries	10.6			-		8.1	24,300	-	-	187	187
SOUTH	3.3.2	LI Strip	Small Scale industries	3.0			-		2.1	6,300	-	-	48	48
SOUTH	3.4	Business	Regional Node: Intersection	2.8		5,700	5,700	570			173	26	-	199
SOUTH	3.5	Business	Regional Node: Intersection	7.3		15,300	15,300	1,530			464	70	-	533
SOUTH	3.13.1a	Mixed Use	Retail,Office, Hospitality	0.7	420		420	420			13	19	-	32
SOUTH	3.13.2a	Mixed Use	Retail,Office, Hospitality	9.4	5,620		5,620	5,620			170	255	-	426
SOUTH	3.13.3a	Mixed Use	Retail,Office, Hospitality	16.4	9,855		9,855	9,855			299	448	-	747
SOUTH	3.14.1a	Mixed Use	Retail,Office, Hospitality	13.0	7,805		7,805	7,805			237	355	-	591
SOUTH	3.14.4	Mixed Use	Retail,Office, Hospitality	16.9	10,157		10,157	10,157			308	462	-	769
Subtotal Inc. Economic Activities SOUTH				**148.6**	**33,857**	**21,000**	**54,857**	**35,957**	**62.7**	**188,100**	**1,662**	**1,634**	**1,447**	**4,744**

PROPOSED ECONOMIC USES

Diagram 30

Business	Mixed Use	Light Industrial	Industrial/Commercial

























Further from Table 24, **Table 25** provides a summary of the Economic Activities, per economic node.

In order to put the expansion into perspective, the total strategic retail provision in the study area is estimated at 131,100 m², which is much larger than the Northgate Regional Shopping Centre, which measures approximately 89,460 m² in extent.

In terms of the strategic industrial/commercial area, the total area measures about 210 ha in extent, compared to the entire Kya Sand/Hoogland industrial area which measures about 276 ha in extent.

Should the development potential of the economic activities be achieved, a total of **12,477 estimated jobs** could be provided.

Table 25: Zandspruit Incremental Development Potential Summary per Node

Functional Area	Developable Area (ha)	Local Retail Floor Area (m²) provision	Strategic Retail Node (m²) provision	Total Retail (m²) provision	Office (m² Provision	Strategic Industrial/ Commercial Site Area (ha)	Industrial/ Commercial Floor Area (m²)	Estimated Jobs***
Kya Sand Expansion	149.4	-	-	-	-	114	343,200	2,640
Northgate Business Area Expansion	4.8	-	9,600	9,600	960	-	-	335
Laser Park Expansion	68.6	-	-	-	-	53	157,500	1,212
Beyers Naude Strip	38.2	-	-	-	-	29	86,100	662
Strategic Node (PWV - BN/K-31)	35.1	-	73,500	73,500	7,350	-	-	2,561
Peter Road Mixed Use Corridor	56.4	33,857	-	33,857	33,857	-	-	2,565
Zandspruit Retail/Mixed Use Node	66.9	8,214	48,000	56,214	10,164	15	43,800	2,502
Subtotal Inc. Economic Activities	**419.4**	**42,071**	**131,100**	**173,171**	**52,331**	**210**	**630,600**	**12,477**

3.5.6.2 STRATEGY 6.2: ASSIST IN THE ECONOMIC UPSCALING OF INFORMAL TRADERS

Informal Traders are an integral part of the study area and should be upscaled in order to ensure they reach their full potential and provide the community of Zandspruit with the required goods and services in a clean and respectable manner.

From the surveys that were conducted with the Informal Traders in the area, as part of this project, there was a general consensus that the informal traders wished to have a formal stall to sell their goods and services, which included a safe space to lock-up their goods as well as shelving/packing space. The informal traders were all happy to pay a monthly fee to the CoJ for the rental of such structures.

It is accordingly proposed that Informal Traders be upscaled, through the concept as illustrated in **Diagram 31**, which is further elaborated on in **Annexure D**.

3.5.6.3 STRATEGY 6.3: LOCAL ECONOMIC DEVELOPMENT THROUGH URBAN AGRICULTURE

Urban agriculture refers to the practice of growing, processing, and distributing food within urban areas, such as cities and towns. It includes various methods and scales of food production, including rooftop gardens, community gardens, hydroponic and aquaponic systems, vertical farming, and small-scale livestock farming (examples shown on **Diagram 32**). A number of Renewable Materials can further be used in Urban Agriculture, which would significantly cut costs, as shown on **Diagram 33.**

The aim of urban agriculture is multifaceted. It can serve as a means to increase access to fresh and nutritious food in areas where it may be scarce, promote local food security and resilience against disruptions in food supply chains, reduce the environmental impact of food production and transportation by shortening supply chains, utilize underutilized urban spaces, enhance community engagement and education around food and agriculture, and contribute to the revitalization and greening of urban areas.

Urban agriculture projects can vary widely in scale and scope, from small backyard gardens tended by individuals or families to large-scale commercial operations integrated into the urban landscape. Overall, urban agriculture represents a multifaceted approach to addressing various social, environmental, and economic challenges associated with food production and distribution in urban environments.

It is accordingly proposed that Urban Agriculture Projects be implemented throughout the area, specifically on the Agricultural Holding areas, where Agricultural Land is readily available.

DEVELOPMENT APPROACH TO INFORMAL TRADE

Diagram 31

LEVEL 1 - Lack of Formal Structure

Retail



A Trade of goods along roadside

Manufacturing/ Service Industry



B Services and sales along roadside

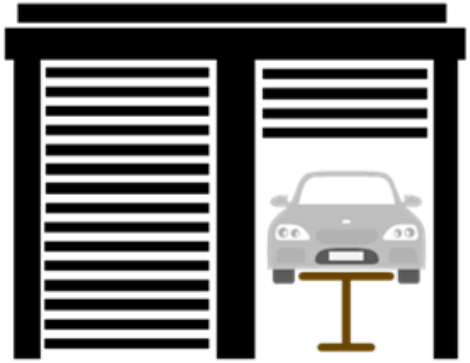
LEVEL 2 - Small-scale Formalised Structure

Retail



A Temporary stalls, with display shelves

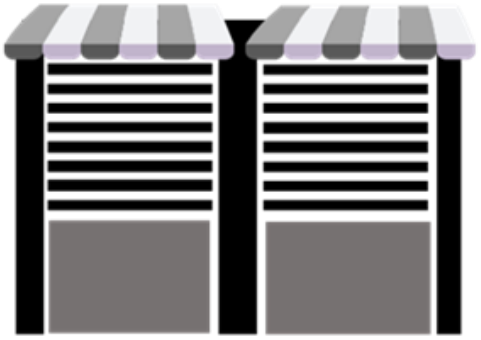
Manufacturing/ Service Industry



B Narrow 'beehive industries'

LEVEL 3 - Medium-scale Formal Business Structure

Retail



A More comprehensive stalls (eg. Including bench, lock-up option, services etc)

Manufacturing/ Service Industry



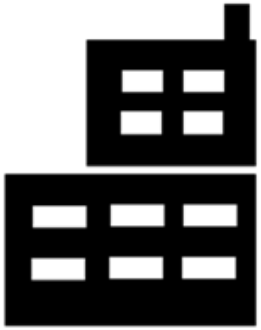
B Larger 'beehive industries'

LEVEL 4 - Informal Trade Incorporated into Formal Retail

Retail



A Market area forms part of shopping centre/ parking lot



B Fresh produce processed at Agro-Industries

Manufacturing/ Service Industry



C Formal business eg. workshop

AQUAPONICS



Eastgate Rooftop Farm – Gauteng, South Africa

HYDROPONICS



Vegetable Garden - Cameron Highlands, Malaysia

Definition: Urban agriculture refers to the practice of cultivating, processing, and distributing food within urban environments. It encompasses a wide range of activities, including rooftop gardens, community gardens, aquaponics, and hydroponics, often aiming to increase food security, promote sustainability, and enhance community well-being in cities.

COMMUNITY GARDEN



Bourke Street Park – Sydney, Australia

URBAN GREENHOUSE



Tulla Culture Center – Tirana, Albania

URBAN AGRICULTURE: PRACTICAL EXAMPLES OF RECYCLABLE MATERIALS

Diagram 33















3.5.6.4 STRATEGY 6.4: EMPOWER THE YOUTH THROUGH YOUTH DEVELOPMENT PROGRAMMES

It is proposed that Youth Programmes be implemented in the study area, specifically to accommodate the youth from the Zandspruit Informal Settlement.

Youth programs are initiatives, activities, or projects specifically designed to cater to the needs, interests, and development of young people. These programs can encompass a wide range of areas such as education, skill-building, mentorship, recreation, community service, leadership development, and career preparation. The primary goal of youth programs is to support the holistic development of young individuals, providing them with opportunities for personal growth, social interaction, and positive engagement within their communities. These programs are often organized and facilitated by various entities including government agencies, non-profit organizations, schools, religious institutions, and community groups.

The goals of youth programs typically encompass a wide range of objectives aimed at promoting the holistic development and well-being of young people. Some common goals include:

- **Personal Development:** Encouraging the personal growth of young individuals by fostering self-awareness, self-esteem, resilience, and a sense of identity.
- **Academic Achievement:** Supporting academic success and educational attainment by providing academic support, improvement activities, tutoring, and resources to help youth excel in school.
- **Social and Emotional Well-being:** Promoting the social and emotional well-being of youth by providing opportunities for positive social interaction, emotional support, and relationship-building.
- **Health and Wellness:** Encouraging healthy lifestyles and well-being among youth by promoting physical activity, nutrition, mental health awareness, and healthy decision-making.
- **Leadership and Citizenship:** Developing leadership skills, civic engagement, and responsible citizenship among young people by providing opportunities for youth to take on leadership roles, participate in community service projects, and engage in civic education and advocacy efforts.
- **Career Readiness:** Preparing youth for the workforce and future career success by offering career exploration, job readiness training, internships, mentorship, and exposure to various career pathways.

Overall, the key goal of youth programs is to empower young people to reach their full potential, become active and engaged members of society, and contribute positively to their communities and the world around them.

South Africa has a diverse array of youth programs aimed at addressing various needs and challenges faced by young people in the country. Some examples of these programs include:

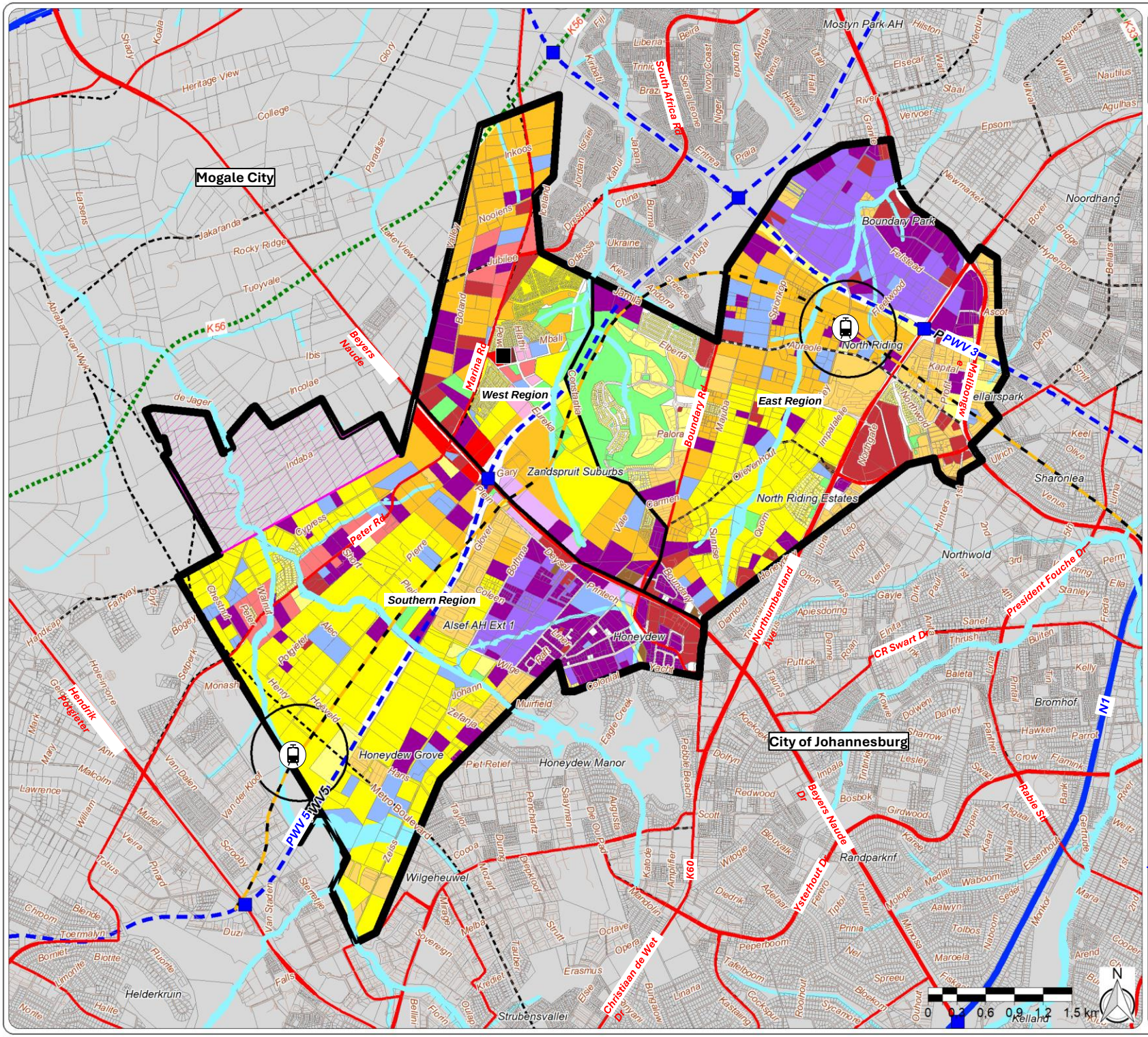
- **Youth Employment Service (YES):** YES, is a business-led collaboration with government and labour to create one million new work opportunities for young people over the next few years. It provides paid work experience, skills development, and support to unemployed youth, helping them to gain valuable skills and improve their employability.
- **Ikamva Youth:** Ikamva Youth is a non-profit organization that provides after-school tutoring, career guidance, and mentorship to disadvantaged youth in townships across South Africa. The program helps students improve their academic performance, gain access to higher education, and pursue their career goals.

- **Activate Change Drivers:** Activate Change Drivers is a network of young leaders who are driving change in their communities across South Africa. The program offers training, mentorship, and support to young activists, enabling them to initiate and lead social innovation projects addressing local issues.
- **Youth Cafés:** Youth Cafés are community-based centres that provide a range of services and opportunities for young people, including skills training, entrepreneurship support, recreational activities, and access to information and resources. These cafés aim to empower youth and promote social inclusion and economic participation.
- **Youth Health Programs:** Various organizations in South Africa run youth health programs focused on sexual and reproductive health, HIV/AIDS prevention, substance abuse prevention, and mental health support. These programs often involve peer education, counselling services, and outreach activities targeting young people.
- **Youth Agricultural Programs:** With a focus on addressing youth unemployment and food security issues, agricultural programs provide training and support to young people interested in agriculture and agribusiness. Initiatives like the National Rural Youth Service Corps (NARYSEC) offer skills development and job opportunities in the agricultural sector.
- **Youth Entrepreneurship Programs:** Entrepreneurship programs support young aspiring entrepreneurs by providing training, mentorship, access to finance, and networking opportunities. Examples include the National Youth Development Agency's Entrepreneurship Development Program and various incubators and accelerators targeting youth-owned businesses.
- **Sports and Recreation Programs:** Sports and recreation programs offer young people opportunities for physical activity, leadership development, and social integration. These programs range from school sports leagues to community-based initiatives that use sports as a tool for youth development and social cohesion.
- These examples represent just a snapshot of the diverse youth programs operating in South Africa, each contributing in its own way to the empowerment, development, and well-being of young people in the country.

3.5.7 COMPOSITE URBAN DEVELOPMENT FRAMEWORK

Following from the Development Strategies, per Development Objective, the **Composite Urban Development Framework** for the Zandspruit Study Area is depicted on **Figure 43**.

As part of the Growth Management Strategy for the area, a **Linkage Table** is provided as **Table 26** which provides a linkage between the land uses proposed in the UDF and the zoning categories which should typically be allowed under each of the envisioned uses, in terms of the CoJ Land Use Scheme, 2018.



DEVELOPMENT CONCEPT Composite

Legend

- Study Area
- Proposed Urban Edge
- Outside CoJ (Mogale)
- Proposed Single/Medium Density Residential
- Proposed Medium Density Residential
- Proposed Community Facilities
- Proposed Business
- Proposed Mixed Use
- Proposed Light Industrial
- Proposed Industrial / Commercial
- Existing Single Residential
- Existing Medium Density Res
- Existing Business
- Existing Industrial / Commercial
- Institutional / Education
- Municipal
- Sports / Recreation / Open Space
- Taxi Rank
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- Proposed Links (Class 4)
- Proposed Local Connectivity
- National Roads
- Provincial Roads
- Other Roads
- Interchanges
- Road Reserve
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer
- Water Areas / River Buffer
- 100yr Floodline

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Figure 43

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

Table 26: Linkage Table Between the UDF Spatial Planning Categories and the CoJ Land Use Scheme Zoning Categories

Notation	Section A: Zandspruit UDF: Spatial Planning Categories	Section B: CoJ Land Use Scheme: Use Zones applicable to future usage of land - colours for illustration purposes only																																				
		Residential 1	Residential 2	Residential 3	Residential 4	Residential 5	Business 1	Business 2	Business 3	Pedestrian Mall	Public Walkways	Business 4	Special	Industrial 1	Industrial 2	Industrial 3	Commercial 1	Commercial 2	Institutional	Educational	Amusement	Municipal	Undetermined	Agricultural 1	Public Garage	Parking	General	Public Open Space	Private Open Space	Cemetery	Sewage Farm	Aerodrome	Government	SAR	Reservoir	Existing Public Roads	Proposed New Roads and Widenings	Mining
		1	2	3	4	5	6	7	8	36	33	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	34	35	37
	Single Residential Areas	√	o						o		o	o	o						√	√		√			o		o	√	√				√	o	√	√	√	
	Medium to High Density Residential		√	√	√	√			o		o	o	o						√	√		√			o		o	√	√				√	o	√	√	√	
	Community Facilities										√		o						√	√	√	√						√	√				√	o	√	√	√	
	Institutional/Educational										√	o	o						√	√	√	√						√	√				√	o	√	√	√	
	Municipal										√		o									√						√					√	o	√	√	√	
	Business Nodes (Regional)			√	√	√	√	√	√	√	√	√	o			o		o	√	√	√	√			√	√	o	√	√				√	o	√	√	√	
	Business Nodes (Local)		√	√	√	√		√	√	√	√	√	o			o		o	√	√	√	√			o	√	o	√	√				√	o	√	√	√	
	Mixed Use Node in Zandspruit *(Retail, Office, Community Facilities)*							√	√	√	√	√	o			o		o	√	√	√	√			o	√	o	√	√				√	o	√	√	√	
	Mixed Use Node at the intersection of M67 and Jubilee							√	√	√	√	√	o			√	√	√	√	√	√	√			√	√	o	√	√				√	o	√	√	√	
	Mixed Use Corridor along Peter Road *(Retail,Office, Hospitality)*	√	√	√	√			√	√		√	√	o						√	√	√	√			o	√	o	√	√				√	o	√	√	√	
	Industrial/Light Industrial/Commercial Areas								√		√	√	o	√	√	√	√	√	o	o	o	√			√	√	o	√	√				√	o	√	√	√	

Notes:
√ Allowed
o Allowed under certain conditions

3.6 URBAN MANAGEMENT AND URBAN DESIGN GUIDELINES

In order to ensure the efficient implementation of the Development Framework, it is proposed that seven **management and maintenance programmes** be implemented by the JDA/ City of Joburg for the study area, which is briefly discussed below.

Annexure E further provides the Urban Design Guidelines which should be applied to the study area.

1. **Basic Maintenance and Service Enhancement Programme:** To comprise a number of programmes which are all aimed towards achieving a minimum level of basic maintenance and service enhancement in the study area. It should deal with aspects such as joint Memoranda of Understanding/ Service Level Agreements with internal and external (other spheres of government) service providers in the study area; joint maintenance scheduling for the area; the implementation of consistent wayleave procedures for all public and private developments; and the possible establishment of a multi-disciplinary Response Crew to speedily clean-up/ fix problems within the study area whenever required. This programme should also provide for the establishment of a Central Complaints or Reporting Centre through which the community can report problems/ complaints regarding maintenance, renewal and upgrading in the various areas.
2. **By-Law Enforcement Programme:** The launching of a Public By-Law Awareness Campaign; a renewed focus on By-Law Enforcement; and dedicated prosecution teams to enforce by-laws in the study area.
3. **Public Space and Properties Management Programme:** To oversee the proper management and maintenance of all government owned properties and public open spaces in the study area. This programme should focus on the following three main areas:
   - ❖ The compilation and maintenance of a database on government owned properties (municipal, provincial, national);
   - ❖ The identification of "problem" government properties and the formulation of redevelopment, disposal, or restoration strategies, and
   - ❖ The development/maintenance of all road reserves, sidewalks, parks and public open spaces in the area.
4. **Neglected Private Properties Management Programme:** Should seek to efficiently monitor and identify poorly maintained and neglected private properties within the study area and surrounding suburbs in order to proactively prevent urban decay.
5. **Safety and Security Programme:** Should aim to establish private sector confidence and to create a climate conducive to private investment. It should include aspects such as visible policing and support services; the implementation of CCTV and other crime prevention strategies; the provision/ maintenance of street lighting in priority areas; and design guidelines aimed at designing out crime, e.g., building orientation providing "eyes on the street", etc.
6. **Social Development and Care Programme:** This programme is aimed at investing in the people of Zandspruit. It should formulate and implement a Social Capacity Building and Training Strategy which will result in human

behaviour supportive of urban development/renewal, focussing on the following:

- The Social Care Programme to focus on providing proper shelter, health and welfare services to the homeless in Zandspruit and surrounds. This also includes initiatives to deal with prostitution, drug trafficking and abuse, alcohol abuse and street children.
- The Sustainable Livelihoods Programme to focus on skills development and training for emerging entrepreneurs, as well as initiatives to facilitate economic upscaling of informal traders in order to incrementally become part of the mainstream formal economy in Zandspruit.

7. **Incentive and Investment Promotion** firstly focuses on identifying and declaring specific areas to qualify for certain incentive schemes (e.g., Restructuring Zone; City Improvement District; Integration Zone, etc.). It should also include a Strategic Development Fast Tracking Programme to speed up administrative processes for approval and high profile (catalytic) projects. The establishment of Development Agencies to provide specialist support to facilitate development; and establishment of Business Liaison mechanisms in order to enhance public-private partnerships could also form part of the Incentive and Investment Promotion Programme.



CHAPTER 4:

IMPLEMENTATION FRAMEWORK

Chapter 4 comprises the Implementation Framework which lists the various projects that are required in order to implement the proposals as set out in the Spatial Concept and Strategies.

4.1 IMPLEMENTATION FRAMEWORK

Table 27 below provides the list of projects to be implemented, as aligned with the development objectives, including their estimated budget and priority. The projects are spatially depicted on **Figure 44.**

Table 27: Implementation Framework

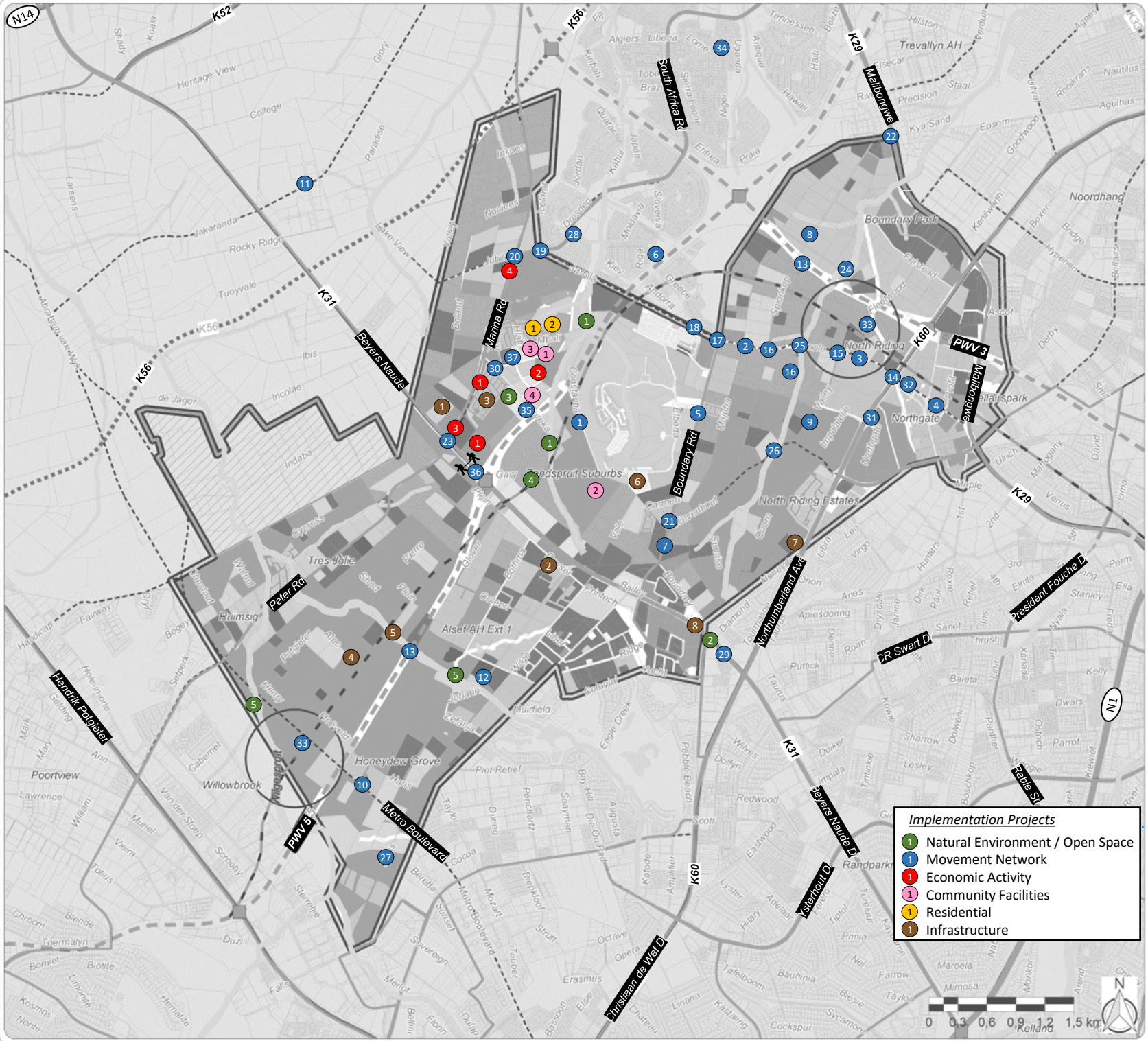
MAP REF.	PROJECT DESCRIPTION	RESPONSIBLE DEPARTMENT/ENTITY	APPROXIMATE/ ESTIMATED BUDGET	PRIORITY		
				S	M	L
DEVELOPMENT OBJECTIVE 1: NATURAL ENVIRONMENT						
1	Delineate and mark-out 1:100-year floodline area in Zandspruit. Develop active open space along 1:100-year mark with street furniture and parks.	City Parks	R4 000 000	X		
2	Develop a sportsfield for 6-a-side soccer and combi-courts across Honeydew taxi rank.	City Parks, JPC	R8 000 000	X		
3	Develop a sportsfield with combi-courts at Emthonjeni Community Centre	City Parks, JPC	R8 000 000	X		
4	Develop a park with seating, park furniture and children's play area	City Parks, JPC	R2 500 000	X		
5	Keep water courses and stormwater infrastructure clear of refuse	City Parks, JRA	Operational	X		
DEVELOPMENT OBJECTIVE 2: MOVEMENT NETWORK						
Road Infrastructure Projects						
1	Upgrade Constantia Street from gravel to surfaced standard	JRA, Transport	R5 000 000 per km	X		
2	Extend Aureole Avenue to intersect with South African Drive	JRA	R8 000 000 per km	X		
3	Upgrade the existing narrow single lane section of Aureole Avenue to two lanes per direction	JRA	R8 000 000 per km	X		
4	Extend section of Aureole to Malibongwe Drive	JRA	R8 000 000 per km	X		
5	Upgrade Boundary Road from single carriageway to two lanes per direction	JRA	R8 000 000 per km		X	
6	Upgrade Slovenia Street from Aureole Avenue to the intersection with Ukraine Street from gravel to surfaced standard	JRA, Transport	R5 000 000 per km	X		

MAP REF.	PROJECT DESCRIPTION	RESPONSIBLE DEPARTMENT/ENTITY	APPROXIMATE/ ESTIMATED BUDGET	PRIORITY		
				S	M	L
7	Upgrade Boundary Road between Beyers Naude Drive and Malibongwe Drive	JRA, Transport	R5 000 000 per km	X		
8	Upgrade the section of Spionkop Avenue between Olievenhout Street and Boundary Avenue from gravel to surfaced standard	JRA, Transport	R5 000 000 per km	X		
9	Upgrade the section of Valley Road between Olievenhout Street and Boundary Road from gravel to surfaced standard	JRA, Transport	R5 000 000 per km	X		
10	Design and implement the proposed Metro Boulevard	JRA	R8 000 000 per km		X	
11	Plan and design the complementing Class 3 road north of Beyers Naude Drive	JRA, Transport	R7 000 000 per km		X	
12	Design and implement the proposed re-alignment of Johan Road	JRA, Gautrans	R8 000 000 per km		X	
13	Maintain road reserves of PWV3 and PWV5 and prevent development encroachments into reserves	JRA, Gautrans	Operational	**Continuous**		
14	Upgrade the intersection of Aureole Avenue and Northumberland Road with traffic signals and turning lanes in both directions	JRA, Gautrans	R12 000 000		X	
15	Upgrade the intersection of Aureole Avenue and Valley Road with traffic signals and turning lanes in both direction	JRA, Gautrans	R12 000 000		X	
16	Upgrade the intersection of Aureole Avenue and Spionkop Avenue with traffic signals and turning lanes in both directions	JRA, Gautrans	R12 000 000		X	
17	Upgrade the intersection of Aureole Avenue and Boundary Road with traffic signals and turning lanes in both directions	JRA, Gautrans	R12 000 000		X	
18	Upgrade the intersection of Jamilia Street and Slovenia Street with traffic signals	JRA, Gautrans	R8 000 000		X	
19	Upgrade the intersection of Jamilia Street and South Africa Drive with traffic signals	JRA, Gautrans	R8 000 000		X	
20	Upgrade the intersection of South Africa Drive and Marina Drive with traffic signals	JRA, Transport	R8 000 000	X	X	
21	Upgrade the intersection of Boundary Road, Constantia Street and Olievenhout Street with traffic signals and turning lanes in both directions	JRA, Gautrans	R8 000 000		X	
22	Upgrade the intersection of Boundary Road and Malibongwe Drive with traffic signals and turning lanes in both directions	JRA, Gautrans	R12 000 000	X		
23	Upgrade the intersection of Beyers Naude Drive and Marina Street with traffic signals and turning lanes in both directions	JRA, Gautrans	R12 000 000	X		

MAP REF.	PROJECT DESCRIPTION	RESPONSIBLE DEPARTMENT/ENTITY	APPROXIMATE/ ESTIMATED BUDGET	PRIORITY		
				S	M	L
24	Design and develop a vehicular bridge at Valley Road	JRA, Transport	TBC: Subject to Detailed Design		**X**	
25	Design and develop a vehicular bridge at Aureole Avenue	JRA, Transport	TBC: Subject to Detailed Design		**X**	
26	Design and develop a vehicular bridge at Olievenhout Street	JRA, Transport	TBC: Subject to Detailed Design		**X**	
27	Design and develop a vehicular bridge at Johan Road	JRA, Transport	TBC: Subject to Detailed Design		**X**	
Public Transport Projects						
28	Upgrade the Ukraine informal taxi rank (corner of South Africa Drive and Ukraine Avenue) to a formal scholar transport and taxi holding facility	JRA, Transport	TBC		**X**	
29	Consolidate Honeydew informal taxi rank with Northumberland informal taxi rank	JRA, Transport	TBC		**X**	
30	Upgrade the Zandspruit Public Transport Facility	JRA, Transport	TBC	**X**		
31	Upgrade the Northgate Taxi Rank to accommodate a holding facility	JRA, Transport	TBC		**X**	
32	Develop a Multi-Modal Facility at Kevin Ridge	JRA, Transport	TBC		**X**	
33	Implementation of the planned Gautrain Extension through the area with stations at Boundary Park and Monash University	Gautrain	TBC			**X**
General Project	Provide or Upgrade Informal Trading Stalls at all taxi ranks	ComDev, Economic Development	TBC	**X**		
Non-Motorised Transport						
34	Upgrading of sidewalks at Central African Republic Drive	JRA, Transport	TBC	**X**		
35	Public Environment Upgrades along Eureka Drive	JRA, Transport	TBC	**X**		
36	Undertake a feasibility study for a safety awareness campaign at the pedestrian bridge over Beyers Naude Drive	JRA, Transport	TBC	**X**		
37	Public environment upgrades between Zandspruit Taxi Rank and Zandspruit Primary School	Comdev	TBC	**X**		

MAP REF.	PROJECT DESCRIPTION	RESPONSIBLE DEPARTMENT/ENTITY	APPROXIMATE/ ESTIMATED BUDGET	PRIORITY		
				S	M	L
DEVELOPMENT OBJECTIVE 3: RESIDENTIAL DEVELOPMENT						
1	Commission Assessment and Categorisation of Zandspruit Informal Settlement and compile upgrading plans	Department of Human Settlements	R1 500 000	X		
2	Compile land acquisition strategy for all parcels of land affected by the Zandspruit Informal Settlements. The strategy should provide clear outline on the land acquisitions which will impact the phasing and implementation.	JPC, Joshco	R1 200 000	X		
DEVELOPMENT OBJECTIVE 4: COMMUNITY FACILITIES						
1	Develop a police station in the Zandspruit area	Public Works	R15 000 000		X	
2	Plan and reserve land for the development of a Primary and Secondary School	DoE, Public Works, Gauteng DID	TBC		X	
3	Develop a Multi-Purpose Community Centre (MPCC) on community zoned property in Zandspruit	JDA, Community Development, Health	R18 000 000		X	
4	Develop new clinic in Zandspruit Extension 83	Health	R12 000 000	X		
DEVELOPMENT OBJECTIVE 5: INFRASTRUCTURE						
1	Develop the 20ML reservoir and 1,25ML water tower in Zandspruit including ancillary infrastructure (pipes, valves, etc) (Table 22)	JW	R239 743 606	X		
2	Energize Lutz Transformer to extend electrical network in Zandspruit	City Power	Operational	X		
3	Electrification of well-structured and formalised informal units in Zandspruit	City Power	R19 000 per unit		X	
4	Undertake Wilgespruit Outfall Sewer upgrading (Table 23)	JW	R70 639 000		X	
5	Undertake Driefontein Outfall Sewer upgrading (Table 23)	JW	R90 891 000		X	
6	Undertake Western Klein Jukskei (sewer) Catchment (Table 23)	JW	R31 840 000		X	
7	Identify alternative site for additional alternative site for proposed Olievenhoutpoort Reservoirs (Table 22)	JW	R202 621 000		X	
8	Identify alternative site for the 15 ML Honeydew Reservoir (Table 22)	JW	R26 915 000		X	

MAP REF.	PROJECT DESCRIPTION	RESPONSIBLE DEPARTMENT/ENTITY	APPROXIMATE/ ESTIMATED BUDGET	PRIORITY		
				S	M	L
General Project - Not Spatially Referenced	Develop stormwater master plan for Zandspruit	JW	R2 000 000	X		
General Project - Not Spatially Referenced	Conduct routine maintenance on all stormwater infrastructure to prevent blockages	JW	Operational	Continuous		
Outside Study Boundary	Upgrade Northern WWTW with 150ML/day capacity to accommodate anticipated increased demand (first 50ML/day upgrade is underway)	JW	R260 000 000		X	
Outside Study Boundary	Conduct feasibility study to investigate options/scenarios that can accommodate additional 50ML/day demand on Driefontein WWTW	JW	R1 000 000			X
General Project - Not Spatially Referenced	Compile GLS Master Plan to incorporate proposed densities and proposed Urban Develeopment Boundary Amendment	JW	R1 000 000	X		
DEVELOPMENT OBJECTIVE 6: ECONOMIC ACTIVITY						
1	Plan for the formalisation of linear markets within the Zandspruit Informal Settlement	DED, JPC, JRA	R2 500 000	X		
2	De-densify mixed-use properties within Zandspruit to allow economic activities	DED, DHS, JPC	Operational	X		
3	Provide support for the development of business at the intersection of Peter Road and Beyers Naude Drive	DED, JPC, CoJ City Planning	Operational		X	
4	Provide support for the development of a mixed-use node at the intersection of Jubilee and Peter Roads	DED, JPC, CoJ City Planning	Operational		X	



IMPLEMENTATION FRAMEWORK PROJECTS

Legend

- Study Area
- Outside CoJ (Mogale)
- Proposed Single/Medium Density Residential
- Proposed Medium Density Residential
- Proposed Community Facilities
- Proposed Business
- Proposed Mixed Use
- Proposed Light Industrial
- Proposed Industrial / Commercial
- Existing Single Residential
- Existing Medium Density Res
- Existing Business
- Existing Industrial / Commercial
- Institutional / Education
- Municipal
- Sports / Recreation / Open Space
- Taxi Rank
- Proposed PWV Routes
- K-Routes
- Proposed K-Routes
- Proposed Class 3 Routes
- Proposed Links (Class 4)
- Proposed Local Connectivity
- National Roads
- Provincial Roads
- Other Roads
- Pedestrain Bridge
- Interchanges
- Road Reserve
- Proposed Gautrain Rail Network
- Proposed Gautrain Station with 500m Buffer
- Water Areas / River Buffer
- 100yr Floodline

Joburg City of Johannesburg Metro Municipality

JDA Johannesburg Development Agency

Figure 44

ZANDSPRUIT URBAN DEVELOPMENT FRAMEWORK

ANNEXURE A:

DATA ON EXISTING RETAIL

Zandspruit UDF: Existing Retail (Zandspruit Detail)

Number of Shops/ Centres	Name	Type of Centre	Size of Centre (m^2)	Floor Area Size (m^2)	Average Size (m^2)
1	Fueling Station (Caltex)	Filling Station Stores	<250	271	271
1		Filling Station Stores	<250	271	271
1	Discount supermarket	Small Free-standing Centre	500-1 000	502	502
1		Small Free-standing Centre	**500-1000**	502	502
1	Shopping Centre (Eco Centre)	Local Convenience Stores/Centres	1 000-5 000	2 620	2 620
1	SaveMor Zandspruit	Local Convenience Stores/Centres	1 000-5 000	2 140	2 140
2		Local Convenience Stores/Centres	1000-5000	4 760	2 380
1	Shopping Centre	Neighbourhood Centre	5 000-12 000	5 166	5 166
1	Zandspruit Value Centre	Neighbourhood Centre	5 000-12 000	7 626	7 626
2		Neighbourhood Centre	5 000-12 000	12 792	6 396
6		**TOTAL**		**18 325**	**3 054**

Source: Shopping Centre Directory, 2022. South African Council of Shopping Centres
Plan Associates, Measured from Google Earth, 2023

Zandspruit UDF: Existing Retail (Remainder Detail)

Table : Remainder of Study Area: Existing Retail Facilities by Type and Size, 2023

Number of Shops/ Centres	Name	Type of Centre	Size of Centre (m^2)	Floor Area Size (m^2)	Average Size (m^2)
1	Engen Garage	Filling Station Stores	<250	288	288
1	Sasol North Riding - Gas station	Filling Station Stores	<250	285	285
1	Shell Garage	Filling Station Stores	<250	175	175
1	TotalEnergies Northriding Service Station	Filling Station Stores	<250	129	129
4		**Filling Station Stores**	**<250**	877	219
1	Shell Garage Convenience Centre	Local Convenience Stores/Centres	1 000-5 000	1 023	1 023
1	Stepping Stones (Business Centre)	Local Convenience Stores/Centres	1 000-5 000	2 014	2 014
1	Banbury Cross Village - Shopping mall	Local Convenience Stores/Centres	1 000-5 000	3 427	3 427
3		**Local Convenience Stores/Centres**	**1000-5000**	6 464	2 155
1	Boundary Corner Retail Centre	Neighbourhood Centre	5 000-12 000	6 282	6 282
1	Northview Shopping Centre - Shopping mall	Neighbourhood Centre	5 000-12 000	7 401	7 401
1	Honeydew Eco Village	Neighbourhood Centre	5 000-12 000	6 230	6 230
1	Shopping Centre (A Five Star Junction)	Neighbourhood Centre	5 000-12 000	10 447	10 447
4		**Neighbourhood Centre**	**5 000-12 000**	30 360	7 590
1	Jackal Creek Corner (Shopping Centre)	Community Centre	12 000-25 000	14 000	14 000
1	Blueberry Square Shopping Centre	Community Centre	12 000-25 000	18 600	18 600
2		**Community Centre**	**12 000-25 000**	32 600	16 300
1	Northgate Shopping Centre - Shopping mall	Regional Centre	50 000-100 000	89 463	89 463
1		**Regional Centre**	**50 000-100 000**	89 463	89 463
1	WeBuyCars Dome	Specialty Centre	2 000-30 000	11 000	11 000
1		**Specialty Centre**	**2 000-30 000**	11 000	11 000
15		**TOTAL**		**170 764**	**126 727**

Source: Shopping Centre Directory, 2022. South African Council of Shopping Centres
Plan Associates, Measured from Google Earth, 2023

Zandspruit UDF: Existing Retail (Total Detail)

Table : Zandspruit UDF: Existing Retail Facilities by Type and Size, 2023

Number of Shops/ Centres	Name	CoE Type of Centre	Size of Centre (m^2)	Floor Area Size (m^2)	Average Size (m^2)
1	Engen Garage	Filling Station Stores	<250	288	288
1	Fueling Station (Caltex)	Filling Station Stores	<250	271	271
1	Sasol North Riding - Gas station	Filling Station Stores	<250	285	285
1	Shell Garage	Filling Station Stores	<250	175	175
1	TotalEnergies Northriding Service Station	Filling Station Stores	<250	129	129
5		**Filling Station Stores**	**<250**	1148	229,60
1	Discount supermarket	Small Free-standing Centre	500-1 000	502	502,00
1		**Small Free-standing Centre**	**500-1000**	502	502,00
1	Shopping Centre (eco Centre)	Local Convenience Stores/Centres	1 000-5 000	2620	2620
1	Shell Garage Convenience Centre	Local Convenience Stores/Centres	1 000-5 000	1023	1023
1	Stepping Stones (Business Centre)	Local Convenience Stores/Centres	1 000-5 000	2014	2014
1	Banbury Cross Village - Shopping mall	Local Convenience Stores/Centres	1 000-5 000	3427	3427
1	SaveMor Zandspruit	Local Convenience Stores/Centres	1 000-5 000	2140	2140
5		**Local Convenience Stores/Centres**	**1000-5000**	11224	2244,80
1	Boundary Corner Retail Centre	Neighbourhood Centre	5 000-12 000	6282	6282
1	Northview Shopping Centre - Shopping mall	Neighbourhood Centre	5 000-12 000	7401	7401
1	Honeydew Eco Village	Neighbourhood Centre	5 000-12 000	6230	6230
1	Shopping Centre (A Five Star Junction)	Neighbourhood Centre	5 000-12 000	10447	10447
1	Shopping Centre	Neighbourhood Centre	5 000-12 000	5166	5166
1	Zandspruit Value Centre	Neighbourhood Centre	5 000-12 000	7626	7626
6		**Neighbourhood Centre**	**5 000-12 000**	43152	7192
1	Jackal Creek Corner (Shopping Centre)	Community Centre	12 000-25 000	14000	14000
1	Blueberry Square Shopping Centre	Community Centre	12 000-25 000	18600	18600
2		**Community Centre**	**12 000-25 000**	32600	16300
1	Northgate Shopping Centre - Shopping mall	Regional Centre	50 000-100 000	89463	89463
1		**Regional Centre**	**50 000-100 000**	89463	89463
1	WeBuyCars Dome	Specialty Centre	2 000-30 000	11000	11000
1		**Specialty Centre**	**2 000-30 000**	11000	11000
21		**TOTAL**		**189 089**	**9 004**

Local Retail Floor Area (m^2)

Neighbourhood/ Community Centre Retail Floor Area (m^2)

Regional /Strategic Business Node (m^2)

Source: Shopping Centre Directory, 2022. South African Council of Shopping Centres
Plan Associates, Measured from Google Earth, 2023

Zandspruit UDF: Existing Retail - Summary

Table : Zandspruit UDF: Existing Retail Facilities by Type and Size, 2023

Number of Shops/ Centres	CoE Type of Centre	Size of Centre (m^2)	Floor Area Size (m^2)
Core Classification			
5	Filling Station Stores	<250	1 148
1	Small Free-standing Centre	500-1 000	502
5	Local Convenience Stores/Centres	1 000-5 000	11 224
6	Neighbourhood Centre	5 000-12 000	43 152
2	Community Centre	12 000-25 000	32 600
1	Regional Centre	50 000-100 000	89 463
20	**Subtotal**		**178 089**
Specialist Classification			
1	Specialty Centre	2 000-30 000	11 000
1	**Subtotal**		**11 000**
21	**Total**		**189 089**

12 874m²

1,7 m²/person

Source: Shopping Centre Directory, 2022. South African Council of Shopping Centres
Plan Associates, Measured from Google Earth, 2023

Table : Zandspruit UDF: Retail requirement based on existing Population and LUB

	Total UDF Area (2023)
Population	**109 451**
Retail Requirement	**Floor Area m^2**
Small Free standing & Local Retail centres	41 480
Neighbourhood Centre	45 802
Community Centre	37 157
Regional	25 933
Total	**150 371**

1,4 m²/person

Source: Plan Associates Land Use Budget, Retail Classification

- **In general, the existing population is well served by retail facilities (1,7m²/person).**
  - ❖ Small Free-standing/Local Convenience retail is supplemented by informal trade along Beyers Naude Drive and Marina Street.
  - ❖ Neighbourhood and Community centres are well provided for.
  - ❖ The Regional shopping centre serves a wider community, and not only the study area.

ANNEXURE B:

LAND USE BUDGETS FOR RESIDENTIAL PRECINCTS

Residential Precincts: East

Facilities	Precinct 1.2.1			Precinct 1.2.2			Precinct 1.3.1			Precinct 1.3.2			Precinct 1.4			Precinct 1.5			Precinct1.6		
	number	ha	% du	number	ha	% du	number	ha	% du	number	ha	% du	number	ha	% du	number	ha	% du	number	ha	% du
Number of Even	**3,870**	**41.2**	58%	**2,300**	**24.4**	58%	**1,710**	**18.1**	58%	**710**	**7.6**	58%	**1,320**	**28.1**	66%	**6,100**	**130.0**	66%	**220**	**5.5**	68%
Single/Multiple Residential (2 storey)(@40du/ha)		-	0%		-	0%		-	0%		-	0%	930	23.3	70%	4,300	107.5	70%	220	5.5	100%
Multiple Residential (2 storey)(@80du/ha)	2,720	34.0	70%	1,600	20.0	70%	1,190	14.9	70%	500	6.3	70%	390	4.9	30%	1,800	22.5	30%		-	0%
Multiple Residential (3 to 4 storey Walk -Ups)(@160du/ha)	1,150	7.2	30%	700	4.4	30%	520	3.3	30%	210	1.3	30%		-	0%		-	0%		-	0%
Population	**9,288**			**5,520**			**4,104**			**1,704**			**3,168**			**14,640**			**528**		
Existing Residential Density (du/ha)	94			94			94			94			47			47			40		
Business (floor area in m²)	**2,786**	**0.9**	**1%**	**1,656**	**0.6**	**1%**	**1,231**	**0.4**	**1%**	**511**	**0.2**	**1%**	**950**	**0.3**	**1%**	**4,392**	**1.5**	**1%**	**158**	**0.1**	**1%**
Offices (floor area in m²)	**279**	**0.1**	**0%**	**166**	**0.1**	**0%**	**123**	**0.0**	**0%**	**51**	**0.0**	**0%**	**95**	**0.0**	**0%**	**439**	**0.1**	**0%**	**16**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**7.8**	**11%**		**4.6**	**11%**		**3.4**	**11%**		**1.4**	**11%**		**2.7**	**6%**		**12.3**	**6%**		**0.4**	**5%**
Small Crèche/ECD Development Centre	3.9	0.5		2.3	0.3		1.7	0.2		0.7	0.1		1.3	0.2		6.1	0.7		0.2	0.0	
ECD Resource Hub and Care Centre	0.5	0.0		0.3	0.0		0.2	0.0		0.1	0.0		0.2	0.0		0.7	0.1		0.0	0.0	
Primary (including Grade R)	1.3	3.7		0.8	2.2		0.6	1.6		0.2	0.7		0.5	1.3		2.1	5.9		0.1	0.2	
Secondary	0.7	3.6		0.4	2.1		0.3	1.6		0.1	0.7		0.3	1.2		1.2	5.6		0.0	0.2	
Health/Emergency		**0.5**	**1%**		**0.3**	**1%**		**0.2**	**1%**		**0.1**	**1%**		**0.2**	**0%**		**0.8**	**0%**		**0.0**	**0%**
Primary Health Clinic	0.4	0.2		0.2	0.1		0.2	0.1		0.1	0.0		0.1	0.1		0.6	0.3		0.0	0.0	
Community Health Centre	0.2	0.2		0.1	0.1		0.1	0.1		0.0	0.0		0.1	0.1		0.2	0.4		0.0	0.0	
Police Station	0.2	0.0		0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.2	0.0		0.0	0.0	
Fire Station	0.2	0.0		0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.2	0.1		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.5	0.0		0.3	0.0		0.2	0.0		0.1	0.0		0.2	0.0		0.7	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.1**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.2	0.0		0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.4	0.1		0.0	0.0	
Social Services		**0.7**	**1%**		**0.4**	**1%**		**0.3**	**1%**		**0.1**	**1%**		**0.2**	**1%**		**1.1**	**1%**		**0.0**	**0%**
Worship Centre	3.1	0.5		1.8	0.3		1.4	0.2		0.6	0.1		1.1	0.2		4.9	0.7		0.2	0.0	
Community Hall (Small)	0.9	0.2		0.6	0.1		0.4	0.1		0.2	0.0		0.3	0.1		1.5	0.3		0.1	0.0	
Post Office/ICT Access Point	0.9	0.0		0.6	0.0		0.4	0.0		0.2	0.0		0.3	0.0		1.5	0.1		0.1	0.0	
Recreation (Sports and Parks)		**3.1**	**4%**		**1.9**	**4%**		**1.4**	**4%**		**0.6**	**4%**		**1.1**	**3%**		**4.9**	**3%**		**0.2**	**2%**
Sports Facilities		3.1			1.9			1.4			0.6			1.1			4.9			0.2	
TOTAL without streets		**54.4**	**77%**		**32.2**	**77%**		**24.0**	**77%**		**10.0**	**77%**		**32.6**	**77%**		**150.8**	**77%**		**6.2**	**77%**
Streets		**16.3**	**23%**		**9.7**	**23%**		**7.2**	**23%**		**3.0**	**23%**		**9.8**	**23%**		**45.2**	**23%**		**1.9**	**23%**
TOTAL		**70.7**	**100%**		**41.9**	**100%**		**31.1**	**100%**		**13.0**	**100%**		**42.4**	**100%**		**196.0**	**100%**		**8.1**	**100%**
Gross Density	**55**			**55**			**55**			**55**			**31**			**31**			**27**		

Residential Precincts: West - M67 (West of Peter Road) Scenario 1

TABLE : Zandspruit Land Use Budget: M-67 WEST (Sc 1)	Sc 1			Sc 1			Sc 1		
	Precinct 2.1			Precinct 2.2			Precinct 2.3		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**600**	**12.0**	66%	**2,550**	**51.0**	66%	**1,890**	**37.8**	66%
Single Residential 50du/ha	600	12.0	100%	2,550	51.0	100%	1,890	37.8	100%
Population	**1,440**			**6,120**			**4,536**		
Existing Residential Density (du/ha)	50			50			50		
Business (floor area in m²)	**432**	**0.1**	**1%**	**1,836**	**0.6**	**1%**	**1,361**	**0.5**	**1%**
Offices (floor area in m²)	**43**	**0.0**	**0%**	**184**	**0.1**	**0%**	**136**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**
Education		**1.2**	**7%**		**5.1**	**7%**		**3.8**	**7%**
Small Crèche/ECD Development Centre	0.6	0.1		2.6	0.3		1.9	0.2	
ECD Resource Hub and Care Centre	0.1	0.0		0.3	0.0		0.2	0.0	
Primary (including Grade R)	0.2	0.6		0.9	2.4		0.6	1.8	
Secondary	0.1	0.6		0.5	2.4		0.4	1.7	
Health/Emergency		**0.1**	**0%**		**0.3**	**0%**		**0.2**	**0%**
Primary Health Clinic	0.1	0.0		0.3	0.1		0.2	0.1	
Community Health Centre	0.0	0.0		0.1	0.2		0.1	0.1	
Police Station	0.0	0.0		0.1	0.0		0.1	0.0	
Fire Station	0.0	0.0		0.1	0.0		0.1	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.1	0.0		0.3	0.0		0.2	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.2	0.0		0.1	0.0	
Social Services		**0.1**	**1%**		**0.5**	**1%**		**0.3**	**1%**
Worship Centre	0.5	0.1		2.0	0.3		1.5	0.2	
Community Hall (Small)	0.1	0.0		0.6	0.1		0.5	0.1	
Post Office/ICT Access Point	0.1	0.0		0.6	0.0		0.5	0.0	
Recreation (Sports and Parks)		**0.5**	**3%**		**2.1**	**3%**		**1.5**	**3%**
Sports Facilities		0.5			2.1			1.5	
TOTAL without streets		**14.0**	**77%**		**59.7**	**77%**		**44.2**	**77%**
Streets		**4.2**	**23%**		**17.9**	**23%**		**13.3**	**23%**
TOTAL		**18.3**	**100%**		**77.6**	**100%**		**57.5**	**100%**
Gross Density	**33**			**33**			**33**		

Residential Precincts: West - M67 (West of Peter Road) Scenario 2

TABLE : Zandspruit Land Use Budget: M-67 WEST (Sc2)	Sc 2			Sc 2			Sc 2		
	Precinct 2.1			Precinct 2.2			Precinct 2.3		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**900**	**11.3**	60%	**3,750**	**46.9**	60%	**2,780**	**34.8**	60%
Multiple Residential (2 storey)(@80du/ha)	900	11.3	100%	3,750	46.9	100%	2,780	34.8	100%
Population	**2,160**			**9,000**			**6,672**		
Existing Residential Density (du/ha)	80			80			80		
Business (floor area in m²)	**648**	**0.2**	**1%**	**2,700**	**0.9**	**1%**	**2,002**	**0.7**	**1%**
Offices (floor area in m²)	**65**	**0.0**	**0%**	**270**	**0.1**	**0%**	**200**	**0.1**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**
Education		**1.8**	**10%**		**7.6**	**10%**		**5.6**	**10%**
Small Crèche/ECD Development Centre	0.9	0.1		3.8	0.5		2.8	0.3	
ECD Resource Hub and Care Centre	0.1	0.0		0.5	0.0		0.3	0.0	
Primary (including Grade R)	0.3	0.9		1.3	3.6		1.0	2.7	
Secondary	0.2	0.8		0.7	3.5		0.5	2.6	
Health/Emergency		**0.1**	**1%**		**0.5**	**1%**		**0.4**	**1%**
Primary Health Clinic	0.1	0.0		0.4	0.2		0.3	0.1	
Community Health Centre	0.0	0.1		0.2	0.2		0.1	0.2	
Police Station	0.0	0.0		0.2	0.0		0.1	0.0	
Fire Station	0.0	0.0		0.2	0.0		0.1	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.1	0.0		0.5	0.0		0.3	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.1	0.0		0.2	0.0		0.2	0.0	
Social Services		**0.2**	**1%**		**0.7**	**1%**		**0.5**	**1%**
Worship Centre	0.7	0.1		3.0	0.5		2.2	0.3	
Community Hall (Small)	0.2	0.0		0.9	0.2		0.7	0.1	
Post Office/ICT Access Point	0.2	0.0		0.9	0.0		0.7	0.0	
Post Boxes		-			-			-	
Recreation (Sports and Parks)		**0.7**	**4%**		**3.0**	**4%**		**2.2**	**4%**
Sports Facilities		0.7			3.0			2.2	
TOTAL without streets		**14.3**	**77%**		**59.7**	**77%**		**44.2**	**77%**
Streets		**4.3**	**23%**		**17.9**	**23%**		**13.3**	**23%**
TOTAL		**18.6**	**100%**		**77.6**	**100%**		**57.5**	**100%**
Gross Density	**48**			**48**			**48**		

Residential Precincts: West - M67 (West of Peter Road) Scenario 3

TABLE : Zandspruit Land Use Budget: M-67 WEST (Sc3)	Sc 3			Sc 3			Sc 3		
	Precinct 2.1			Precinct 2.2			Precinct 2.3		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**1,500**	**9.4**	50%	**6,160**	**38.5**	50%	**4,560**	**28.5**	50%
Multiple Residential (3 to 4 storey Walk -Ups)(@160du/ha)	1,500	9.4	100%	6,160	38.5	100%	4,560	28.5	100%
Population	**3,600**			**14,784**			**10,944**		
Existing Residential Density (du/ha)	160			160			160		
Business (floor area in m²)	**1,080**	**0.4**	**2%**	**4,435**	**1.5**	**2%**	**3,283**	**1.1**	**2%**
Offices (floor area in m²)	**108**	**0.0**	**0%**	**444**	**0.1**	**0%**	**328**	**0.1**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**
Education		**3.0**	**16%**		**12.4**	**16%**		**9.2**	**16%**
Small Crèche/ECD Development Centre	1.5	0.2		6.2	0.7		4.6	0.5	
ECD Resource Hub and Care Centre	0.2	0.0		0.7	0.1		0.5	0.1	
Primary (including Grade R)	0.5	1.4		2.1	5.9		1.6	4.4	
Secondary	0.3	1.4		1.2	5.7		0.9	4.2	
Health/Emergency		**0.2**	**1%**		**0.8**	**1%**		**0.6**	**1%**
Primary Health Clinic	0.2	0.1		0.6	0.3		0.5	0.2	
Community Health Centre	0.1	0.1		0.2	0.4		0.2	0.3	
Police Station	0.1	0.0		0.2	0.0		0.2	0.0	
Fire Station	0.1	0.0		0.2	0.1		0.2	0.1	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.2	0.0		0.7	0.0		0.5	0.0	
Civic		**0.0**	**0%**		**0.1**	**0%**		**0.1**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.1	0.0		0.4	0.1		0.3	0.1	
Social Services		**0.3**	**1%**		**1.1**	**1%**		**0.8**	**1%**
Worship Centre	1.2	0.2		4.9	0.7		3.6	0.5	
Community Hall (Small)	0.4	0.1		1.5	0.3		1.1	0.2	
Post Office/ICT Access Point	0.4	0.0		1.5	0.1		1.1	0.1	
Recreation (Sports and Parks)		**1.2**	**6%**		**5.0**	**6%**		**3.7**	**6%**
Sports Facilities		1.2			5.0			3.7	
TOTAL without streets		**14.5**	**77%**		**59.5**	**77%**		**44.0**	**77%**
Streets		**4.3**	**23%**		**17.8**	**23%**		**13.2**	**23%**
TOTAL		**18.8**	**100%**		**77.3**	**100%**		**57.3**	**100%**
Gross Density	**80**			**80**			**80**		

Residential Precincts: West - Central West Scenario 1 (page 1/3)

CENTRAL WEST (Sc1)	Sc 1			Sc 1			Sc 1			Sc 1			Layout		
	Precinct 2.11			Precinct 2.12.1			Precinct 2.12.2			Precinct 2.13			Precinct 2.14		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**1,480**	**29.6**	66%	**1,310**	**26.2**	60%	**280**	**5.6**	66%	**750**	**15.0**	66%	**361**	**11.9**	70%
Single Residential 50du/ha	1,480	29.6	100%	1,310	26.2	100%	280	5.6	100%	750	15.0	100%		-	0%
Residential (Layouts)		-	0%		-	0%		-	0%		-	0%	361	11.9	100%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%		-	0%
Population	**3,552**			**3,144**			**672**			**1,800**			**866**		
Existing Residential Density (du/ha)	50			50			50			50			30		
Business (floor area in m²)	**1,066**	**0.4**	**1%**	**943**	**0.3**	**1%**	**202**	**0.1**	**1%**	**540**	**0.2**	**1%**	**260**	**0.1**	**1%**
Offices (floor area in m²)	**107**	**0.0**	**0%**	**94**	**0.0**	**0%**	**20**	**0.0**	**0%**	**54**	**0.0**	**0%**	**26**	**0.0**	**0%**
Industrial/Commercial (floor area in	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**3.0**	**7%**		**5.8**	**13%**		**0.6**	**7%**		**1.5**	**7%**		**0.7**	**4%**
Small Crèche/ECD Development Centre	1.5	0.2		1.3	0.2		0.3	0.0		0.8	0.1		0.4	0.0	
ECD Resource Hub and Care Centre	0.2	0.0		0.2	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Primary (including Grade R)	0.5	1.4		1.0	1.8		0.1	0.3		0.3	0.7		0.1	0.3	
Secondary	0.3	1.4		1.0	3.8		0.1	0.3		0.1	0.7		0.1	0.3	
Health/Emergency		**0.2**	**0%**		**0.2**	**0%**		**0.0**	**0%**		**0.1**	**0%**		**0.0**	**0%**
Primary Health Clinic	0.1	0.1		0.1	0.1		0.0	0.0		0.1	0.0		0.0	0.0	
Community Health Centre	0.1	0.1		0.1	0.1		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.2	0.0		0.2	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.3**	**1%**		**0.2**	**1%**		**0.1**	**1%**		**0.1**	**1%**		**0.1**	**0%**
Worship Centre	1.2	0.2		1.0	0.2		0.2	0.0		0.6	0.1		0.3	0.0	
Community Hall (Small)	0.4	0.1		0.3	0.1		0.1	0.0		0.2	0.0		0.1	0.0	
Post Office/ICT Access Point	0.4	0.0		0.3	0.0		0.1	0.0		0.2	0.0		0.1	0.0	
Recreation (Sports and Parks)		**1.2**	**3%**		**1.1**	**2%**		**0.2**	**3%**		**0.6**	**3%**		**0.3**	**2%**
Sports Facilities		1.2			1.1			0.2			0.6			0.3	
TOTAL without streets		**34.6**	**77%**		**33.8**	**77%**		**6.6**	**77%**		**17.6**	**77%**		**13.1**	**77%**
Streets		**10.4**	**23%**		**10.1**	**23%**		**2.0**	**23%**		**5.3**	**23%**		**3.9**	**23%**
TOTAL		**45.0**	**100%**		**43.9**	**100%**		**8.5**	**100%**		**22.8**	**100%**		**17.1**	**100%**
Gross Density	**33**			**30**			**33**			**33**			**21**		

Residential Precincts: West - Central West Scenario 1 (page 2/3)

CENTRAL WEST (Sc1)	Sc 1			Sc 1			Sc 1			Layout			165m² (60du/ha)		
	Precinct 2.14.c			Precinct 2.15			Precinct 2.15.a			Precinct 2.16			Precinct 2.16.a		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**110**	**2.2**	66%	**230**	**4.6**	66%	**85**	**1.7**	66%	**406**	**13.4**	70%	**100**	**1.7**	64%
Single Residential 50du/ha	110	2.2	100%	230	4.6	100%	85	1.7	100%		-	0%		-	0%
Residential (Layouts)		-	0%		-	0%		-	0%	406	13.4	100%		-	0%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%	100	1.7	100%
Population	**264**			**552**			**204**			**974**			**240**		
Existing Residential Density (du/ha)	50			50			50			30			61		
Business (floor area in m²)	**79**	**0.0**	**1%**	**166**	**0.1**	**1%**	**61**	**0.0**	**1%**	**292**	**0.1**	**1%**	**72**	**0.0**	**1%**
Offices (floor area in m²)	**8**	**0.0**	**0%**	**17**	**0.0**	**0%**	**6**	**0.0**	**0%**	**29**	**0.0**	**0%**	**7**	**0.0**	**0%**
Industrial/Commercial (floor area in	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**0.2**	**7%**		**0.5**	**7%**		**0.2**	**7%**		**0.8**	**4%**		**0.2**	**8%**
Small Crèche/ECD Development Centre	0.1	0.0		0.2	0.0		0.1	0.0		0.4	0.0		0.1	0.0	
ECD Resource Hub and Care Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Primary (including Grade R)	0.0	0.1		0.1	0.2		0.0	0.1		0.1	0.4		0.0	0.1	
Secondary	0.0	0.1		0.0	0.2		0.0	0.1		0.1	0.4		0.0	0.1	
Health/Emergency		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.1**	**0%**		**0.0**	**0%**
Primary Health Clinic	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Community Health Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**1%**		**0.1**	**0%**		**0.0**	**1%**
Worship Centre	0.1	0.0		0.2	0.0		0.1	0.0		0.3	0.0		0.1	0.0	
Community Hall (Small)	0.0	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Post Office/ICT Access Point	0.0	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Recreation (Sports and Parks)		**0.1**	**3%**		**0.2**	**3%**		**0.1**	**3%**		**0.3**	**2%**		**0.1**	**3%**
Sports Facilities		0.1			0.2			0.1			0.3			0.1	
TOTAL without streets		**2.6**	**77%**		**5.4**	**77%**		**2.0**	**77%**		**14.8**	**77%**		**2.0**	**77%**
Streets		**0.8**	**23%**		**1.6**	**23%**		**0.6**	**23%**		**4.4**	**23%**		**0.6**	**23%**
TOTAL		**3.3**	**100%**		**7.0**	**100%**		**2.6**	**100%**		**19.2**	**100%**		**2.6**	**100%**
Gross Density	**33**			**33**			**33**			**21**			**39**		

Residential Precincts: West - Central West Scenario 1 (page 3/3)

CENTRAL WEST (Sc1)	Layout			Sc 1			160du/ha			160du/ha			Layout		
	Precinct 2.17			Precinct 2.17.a			Precinct 2.17.b			Precinct 2.17.c			Precinct 2.18		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**378**	**12.5**	70%	**140**	**2.8**	66%	**80**	**0.5**	50%	**225**	**1.4**	50%	**322**	**10.6**	70%
Single Residential 50du/ha		-	0%	140	2.8	100%		-	0%		-	0%		-	0%
Residential (Layouts)	378	12.5	100%		-	0%		-	0%		-	0%	322	10.6	100%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%		-	0%
Population	**907**			**336**			**192**			**540**			**773**		
Existing Residential Density (du/ha)	30			50			160			160			30		
Business (floor area in m²)	**272**	**0.1**	**1%**	**101**	**0.0**	**1%**	**58**	**0.0**	**2%**	**162**	**0.1**	**2%**	**232**	**0.1**	**1%**
Offices (floor area in m²)	**27**	**0.0**	**0%**	**10**	**0.0**	**0%**	**6**	**0.0**	**0%**	**16**	**0.0**	**0%**	**23**	**0.0**	**0%**
Industrial/Commercial (floor area in	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**0.8**	**4%**		**0.3**	**7%**		**0.2**	**16%**		**0.5**	**16%**		**0.6**	**4%**
Small Crèche/ECD Development Centre	0.4	0.0		0.1	0.0		0.1	0.0		0.2	0.0		0.3	0.0	
ECD Resource Hub and Care Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Primary (including Grade R)	0.1	0.4		0.0	0.1		0.0	0.1		0.1	0.2		0.1	0.3	
Secondary	0.1	0.3		0.0	0.1		0.0	0.1		0.0	0.2		0.1	0.3	
Health/Emergency		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**0%**
Primary Health Clinic	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Community Health Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.1**	**0%**		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**1%**		**0.1**	**0%**
Worship Centre	0.3	0.0		0.1	0.0		0.1	0.0		0.2	0.0		0.3	0.0	
Community Hall (Small)	0.1	0.0		0.0	0.0		0.0	0.0		0.1	0.0		0.1	0.0	
Post Office/ICT Access Point	0.1	0.0		0.0	0.0		0.0	0.0		0.1	0.0		0.1	0.0	
Recreation (Sports and Parks)		**0.3**	**2%**		**0.1**	**3%**		**0.1**	**6%**		**0.2**	**6%**		**0.3**	**2%**
Sports Facilities		0.3			0.1			0.1			0.2			0.3	
TOTAL without streets		**13.8**	**77%**		**3.3**	**77%**		**0.8**	**77%**		**2.2**	**77%**		**11.7**	**77%**
Streets		**4.1**	**23%**		**1.0**	**23%**		**0.2**	**23%**		**0.7**	**23%**		**3.5**	**23%**
TOTAL		**17.9**	**100%**		**4.3**	**100%**		**1.0**	**100%**		**2.8**	**100%**		**15.2**	**100%**
Gross Density	**21**			**33**			**80**			**80**			**21**		

Residential Precincts: West - Central West Scenario 2 (page 1/3)

WEST (Sc2)	Sc 2			Sc 2			Sc 2			Sc 2			Layout		
	Precinct 2.11			Precinct 2.12.1			Precinct 2.12.2			Precinct 2.13			Precinct 2.14		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**2,170**	**27.1**	60%	**2,000**	**25.0**	57%	**400**	**5.0**	60%	**1,110**	**13.9**	60%	**361**	**11.9**	70%
Residential (Layouts)		-	0%		-	0%		-	0%		-	0%	361	11.9	100%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%		-	0%
Multiple Residential (2 storey)(@80du/ha)	2,170	27.1	100%	2,000	25.0	100%	400	5.0	100%	1,110	13.9	100%		-	0%
Population	**5,208**			**4,800**			**960**			**2,664**			**866**		
Existing Residential Density (du/ha)	80			80			80			80			30		
Business (floor area in m²)	**1,562**	**0.5**	**1%**	**1,440**	**0.5**	**1%**	**288**	**0.1**	**1%**	**799**	**0.3**	**1%**	**260**	**0.1**	**1%**
Offices (floor area in m²)	**156**	**0.1**	**0%**	**144**	**0.0**	**0%**	**29**	**0.0**	**0%**	**80**	**0.0**	**0%**	**26**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**4.4**	**10%**		**5.9**	**13%**		**0.8**	**10%**		**2.2**	**10%**		**0.7**	**4%**
Small Crèche/ECD Development Centre	2.2	0.3		2.0	0.2		0.4	0.0		1.1	0.1		0.4	0.0	
ECD Resource Hub and Care Centre	0.3	0.0		0.2	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Primary (including Grade R)	0.7	2.1		1.0	1.8		0.1	0.4		0.4	1.1		0.1	0.3	
Secondary	0.4	2.0		1.0	3.8		0.1	0.4		0.2	1.0		0.1	0.3	
Health/Emergency		**0.3**	**1%**		**0.3**	**1%**		**0.1**	**1%**		**0.1**	**1%**		**0.0**	**0%**
Primary Health Clinic	0.2	0.1		0.2	0.1		0.0	0.0		0.1	0.1		0.0	0.0	
Community Health Centre	0.1	0.1		0.1	0.1		0.0	0.0		0.0	0.1		0.0	0.0	
Police Station	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.3	0.0		0.2	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Worship Centre	1.7	0.3		1.6	0.2		0.3	0.0		0.9	0.1		0.3	0.0	
Community Hall (Small)	0.5	0.1		0.5	0.1		0.1	0.0		0.3	0.1		0.1	0.0	
Post Office/ICT Access Point	0.5	0.0		0.5	0.0		0.1	0.0		0.3	0.0		0.1	0.0	
Recreation (Sports and Parks)		**1.7**	**4%**		**1.6**	**4%**		**0.3**	**4%**		**0.9**	**4%**		**0.3**	**2%**
Sports Facilities		1.7			1.6			0.3			0.9			0.3	
TOTAL without streets		**34.5**	**77%**		**33.7**	**77%**		**6.4**	**77%**		**17.7**	**77%**		**13.1**	**77%**
Streets		**10.4**	**23%**		**10.1**	**23%**		**1.9**	**23%**		**5.3**	**23%**		**3.9**	**23%**
TOTAL		**44.9**	**100%**		**43.7**	**100%**		**8.3**	**100%**		**23.0**	**100%**		**17.1**	**100%**
Gross Density	**48**			**46**			**48**			**48**			**21**		

Residential Precincts: West - Central West Scenario 2 (page 2/3)

WEST (Sc2)	Sc 2			Sc 2			Sc 2			Layout			165m² (60du/ha)		
	Precinct 2.14.c			Precinct 2.15			Precinct 2.15.a			Precinct 2.16			Precinct 2.16.a		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**165**	**2.1**	60%	**340**	**4.3**	60%	**115**	**1.4**	60%	**406**	**13.4**	70%	**100**	**1.7**	64%
Residential (Layouts)		-	0%		-	0%		-	0%	406	13.4	100%		-	0%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%	100	1.7	100%
Multiple Residential (2 storey)(@80du/ha)	165	2.1	100%	340	4.3	100%	115	1.4	100%		-	0%		-	0%
Population	**396**			**816**			**276**			**974**			**240**		
Existing Residential Density (du/ha)	80			80			80			30			61		
Business (floor area in m²)	**119**	**0.0**	**1%**	**245**	**0.1**	**1%**	**83**	**0.0**	**1%**	**292**	**0.1**	**1%**	**72**	**0.0**	**1%**
Offices (floor area in m²)	**12**	**0.0**	**0%**	**24**	**0.0**	**0%**	**8**	**0.0**	**0%**	**29**	**0.0**	**0%**	**7**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**0.3**	**10%**		**0.7**	**10%**		**0.2**	**10%**		**0.8**	**4%**		**0.2**	**8%**
Small Crèche/ECD Development Centre	0.2	0.0		0.3	0.0		0.1	0.0		0.4	0.0		0.1	0.0	
ECD Resource Hub and Care Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Primary (including Grade R)	0.1	0.2		0.1	0.3		0.0	0.1		0.1	0.4		0.0	0.1	
Secondary	0.0	0.2		0.1	0.3		0.0	0.1		0.1	0.4		0.0	0.1	
Health/Emergency		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**1%**		**0.1**	**0%**		**0.0**	**0%**
Primary Health Clinic	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Community Health Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Worship Centre	0.1	0.0		0.3	0.0		0.1	0.0		0.3	0.0		0.1	0.0	
Community Hall (Small)	0.0	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Post Office/ICT Access Point	0.0	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Recreation (Sports and Parks)		**0.1**	**4%**		**0.3**	**4%**		**0.1**	**4%**		**0.3**	**2%**		**0.1**	**3%**
Sports Facilities		0.1			0.3			0.1			0.3			0.1	
TOTAL without streets		**2.6**	**77%**		**5.4**	**77%**		**1.8**	**77%**		**14.8**	**77%**		**2.0**	**77%**
Streets		**0.8**	**23%**		**1.6**	**23%**		**0.5**	**23%**		**4.4**	**23%**		**0.6**	**23%**
TOTAL		**3.4**	**100%**		**7.0**	**100%**		**2.4**	**100%**		**19.2**	**100%**		**2.6**	**100%**
Gross Density	**48**			**48**			**48**			**21**			**39**		

Residential Precincts: West - Central West Scenario 2 (page 3/3)

WEST (Sc2)	Layout			Sc 2			160du/ha			160du/ha			Layout		
	Precinct 2.17			Precinct 2.17.a			Precinct 2.17.b			Precinct 2.17.c			Precinct 2.18		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**378**	**12.5**	70%	**210**	**2.6**	60%	**80**	**0.5**	50%	**225**	**1.4**	50%	**322**	**10.6**	70%
Residential (Layouts)	378	12.5	100%		-	0%		-	0%		-	0%	322	10.6	100%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%		-	0%
Multiple Residential (2 storey)(@80du/ha)		-	0%	210	2.6	100%		-	0%		-	0%		-	0%
Population	**907**			**504**			**192**			**540**			**773**		
Existing Residential Density (du/ha)	30			80			160			160			30		
Business (floor area in m²)	**272**	**0.1**	**1%**	**151**	**0.1**	**1%**	**58**	**0.0**	**2%**	**162**	**0.1**	**2%**	**232**	**0.1**	**1%**
Offices (floor area in m²)	**27**	**0.0**	**0%**	**15**	**0.0**	**0%**	**6**	**0.0**	**0%**	**16**	**0.0**	**0%**	**23**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**0.8**	**4%**		**0.4**	**10%**		**0.2**	**16%**		**0.5**	**16%**		**0.6**	**4%**
Small Crèche/ECD Development Centre	0.4	0.0		0.2	0.0		0.1	0.0		0.2	0.0		0.3	0.0	
ECD Resource Hub and Care Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Primary (including Grade R)	0.1	0.4		0.1	0.2		0.0	0.1		0.1	0.2		0.1	0.3	
Secondary	0.1	0.3		0.0	0.2		0.0	0.1		0.0	0.2		0.1	0.3	
Health/Emergency		**0.0**	**0%**		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**0%**
Primary Health Clinic	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Community Health Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Worship Centre	0.3	0.0		0.2	0.0		0.1	0.0		0.2	0.0		0.3	0.0	
Community Hall (Small)	0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.1	0.0	
Post Office/ICT Access Point	0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.1	0.0	
Recreation (Sports and Parks)		**0.3**	**2%**		**0.2**	**4%**		**0.1**	**6%**		**0.2**	**6%**		**0.3**	**2%**
Sports Facilities		0.3			0.2			0.1			0.2			0.3	
TOTAL without streets		**13.8**	**77%**		**3.3**	**77%**		**0.8**	**77%**		**2.2**	**77%**		**11.7**	**77%**
Streets		**4.1**	**23%**		**1.0**	**23%**		**0.2**	**23%**		**0.7**	**23%**		**3.5**	**23%**
TOTAL		**17.9**	**100%**		**4.3**	**100%**		**1.0**	**100%**		**2.8**	**100%**		**15.2**	**100%**
Gross Density	**21**			**48**			**80**			**80**			**21**		

Residential Precincts: West - Central West Scenario 3 (page 1/3)

WEST (Sc3)	Sc 3			Sc 3			Sc 3			Sc 3			Layout		
	Precinct 2.11			Precinct 2.12.1			Precinct 2.12.2			Precinct 2.13			Precinct 2.14		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**3,600**	**22.5**	50%	**3,600**	**22.5**	52%	**695**	**4.3**	50%	**1,840**	**11.5**	50%	**361**	**11.9**	70%
Residential (Layouts)		-	0%		-	0%		-	0%		-	0%	361	11.9	100%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%		-	0%
Multiple Residential (3 to 4 storey Walk -	3,600	22.5	100%	3,600	22.5	100%	695	4.3	100%	1,840	11.5	100%		-	0%
Population	**8,640**			**8,640**			**1,668**			**4,416**			**866**		
Existing Residential Density (du/ha)	160			160			160			160			30		
Business (floor area in m²)	**2,592**	**0.9**	**2%**	**2,592**	**0.9**	**2%**	**500**	**0.2**	**2%**	**1,325**	**0.4**	**2%**	**260**	**0.1**	**1%**
Offices (floor area in m²)	**259**	**0.1**	**0%**	**259**	**0.1**	**0%**	**50**	**0.0**	**0%**	**132**	**0.0**	**0%**	**26**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**7.2**	**16%**		**6.1**	**14%**		**1.4**	**16%**		**3.7**	**16%**		**0.7**	**4%**
Small Crèche/ECD Development Centre	3.6	0.4		3.6	0.4		0.7	0.1		1.8	0.2		0.4	0.0	
ECD Resource Hub and Care Centre	0.4	0.0		0.4	0.0		0.1	0.0		0.2	0.0		0.0	0.0	
Primary (including Grade R)	1.2	3.5		1.0	1.8		0.2	0.7		0.6	1.8		0.1	0.3	
Secondary	0.7	3.3		1.0	3.8		0.1	0.6		0.4	1.7		0.1	0.3	
Health/Emergency		**0.5**	**1%**		**0.5**	**1%**		**0.1**	**1%**		**0.2**	**1%**		**0.0**	**0%**
Primary Health Clinic	0.4	0.2		0.4	0.2		0.1	0.0		0.2	0.1		0.0	0.0	
Community Health Centre	0.1	0.2		0.1	0.2		0.0	0.0		0.1	0.1		0.0	0.0	
Police Station	0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Fire Station	0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.4	0.0		0.4	0.0		0.1	0.0		0.2	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.2	0.0		0.2	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Social Services		**0.6**	**1%**		**0.6**	**1%**		**0.1**	**1%**		**0.3**	**1%**		**0.1**	**0%**
Worship Centre	2.9	0.4		2.9	0.4		0.6	0.1		1.5	0.2		0.3	0.0	
Community Hall (Small)	0.9	0.2		0.9	0.2		0.2	0.0		0.4	0.1		0.1	0.0	
Post Office/ICT Access Point	0.9	0.0		0.9	0.0		0.2	0.0		0.4	0.0		0.1	0.0	
Recreation (Sports and Parks)		**2.9**	**6%**		**2.9**	**7%**		**0.6**	**6%**		**1.5**	**6%**		**0.3**	**2%**
Sports Facilities		2.9			2.9			0.6			1.5			0.3	
TOTAL without streets		**34.8**	**77%**		**33.6**	**77%**		**6.7**	**77%**		**17.8**	**77%**		**13.1**	**77%**
Streets		**10.4**	**23%**		**10.1**	**23%**		**2.0**	**23%**		**5.3**	**23%**		**3.9**	**23%**
TOTAL		**45.2**	**100%**		**43.7**	**100%**		**8.7**	**100%**		**23.1**	**100%**		**17.1**	**100%**
Gross Density	**80**			**82**			**80**			**80**			**21**		

Residential Precincts: West - Central West Scenario 3 (page 2/3)

WEST (Sc3)	Sc 3			Sc 3			Sc 3			Layout			165m² (60du/ha)		
	Precinct 2.14.c			Precinct 2.15			Precinct 2.15.a			Precinct 2.16			Precinct 2.16.a		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**290**	**1.8**	50%	**565**	**3.5**	50%	**210**	**1.3**	50%	**406**	**13.4**	70%	**100**	**1.7**	64%
Residential (Layouts)		-	0%		-	0%		-	0%	406	13.4	100%		-	0%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%	100	1.7	100%
Multiple Residential (3 to 4 storey Walk -	290	1.8	100%	565	3.5	100%	210	1.3	100%		-	0%		-	0%
Population	**696**			**1,356**			**504**			**974**			**240**		
Existing Residential Density (du/ha)	160			160			160			30			61		
Business (floor area in m²)	**209**	**0.1**	**2%**	**407**	**0.1**	**2%**	**151**	**0.1**	**2%**	**292**	**0.1**	**1%**	**72**	**0.0**	**1%**
Offices (floor area in m²)	**21**	**0.0**	**0%**	**41**	**0.0**	**0%**	**15**	**0.0**	**0%**	**29**	**0.0**	**0%**	**7**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**0.6**	**16%**		**1.1**	**16%**		**0.4**	**16%**		**0.8**	**4%**		**0.2**	**8%**
Small Crèche/ECD Development Centre	0.3	0.0		0.6	0.1		0.2	0.0		0.4	0.0		0.1	0.0	
ECD Resource Hub and Care Centre	0.0	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Primary (including Grade R)	0.1	0.3		0.2	0.5		0.1	0.2		0.1	0.4		0.0	0.1	
Secondary	0.1	0.3		0.1	0.5		0.0	0.2		0.1	0.4		0.0	0.1	
Health/Emergency		**0.0**	**1%**		**0.1**	**1%**		**0.0**	**1%**		**0.1**	**0%**		**0.0**	**0%**
Primary Health Clinic	0.0	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Community Health Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.0	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.1**	**1%**		**0.1**	**1%**		**0.0**	**1%**		**0.1**	**0%**		**0.0**	**1%**
Worship Centre	0.2	0.0		0.5	0.1		0.2	0.0		0.3	0.0		0.1	0.0	
Community Hall (Small)	0.1	0.0		0.1	0.0		0.1	0.0		0.1	0.0		0.0	0.0	
Post Office/ICT Access Point	0.1	0.0		0.1	0.0		0.1	0.0		0.1	0.0		0.0	0.0	
Recreation (Sports and Parks)		**0.2**	**6%**		**0.5**	**6%**		**0.2**	**6%**		**0.3**	**2%**		**0.1**	**3%**
Sports Facilities		0.2			0.5			0.2			0.3			0.1	
TOTAL without streets		**2.8**	**77%**		**5.5**	**77%**		**2.0**	**77%**		**14.8**	**77%**		**2.0**	**77%**
Streets		**0.8**	**23%**		**1.6**	**23%**		**0.6**	**23%**		**4.4**	**23%**		**0.6**	**23%**
TOTAL		**3.6**	**100%**		**7.1**	**100%**		**2.6**	**100%**		**19.2**	**100%**		**2.6**	**100%**
Gross Density	**80**			**80**			**80**			**21**			**39**		

Residential Precincts: West - Central West Scenario 3 (page 3/3)

WEST (Sc3)	Layout			Sc 3			160du/ha			160du/ha			Layout		
	Precinct 2.17			Precinct 2.17.a			Precinct 2.17.b			Precinct 2.17.c			Precinct 2.18		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**378**	**12.5**	70%	**350**	**2.2**	50%	**80**	**0.5**	50%	**225**	**1.4**	50%	**322**	**10.6**	70%
Residential (Layouts)	378	12.5	100%		-	0%		-	0%		-	0%	322	10.6	100%
Single Residential (165m² erven)		-	0%		-	0%		-	0%		-	0%		-	0%
Multiple Residential (3 to 4 storey Walk -		-	0%	350	2.2	100%	80	0.5	100%	225	1.4	100%		-	0%
Population	**907**			**840**			**192**			**540**			**773**		
Existing Residential Density (du/ha)	30			160			160			160			30		
Business (floor area in m²)	**272**	**0.1**	**1%**	**252**	**0.1**	**2%**	**58**	**0.0**	**2%**	**162**	**0.1**	**2%**	**232**	**0.1**	**1%**
Offices (floor area in m²)	**27**	**0.0**	**0%**	**25**	**0.0**	**0%**	**6**	**0.0**	**0%**	**16**	**0.0**	**0%**	**23**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**0.8**	**4%**		**0.7**	**16%**		**0.2**	**16%**		**0.5**	**16%**		**0.6**	**4%**
Small Crèche/ECD Development Centre	0.4	0.0		0.4	0.0		0.1	0.0		0.2	0.0		0.3	0.0	
ECD Resource Hub and Care Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Primary (including Grade R)	0.1	0.4		0.1	0.3		0.0	0.1		0.1	0.2		0.1	0.3	
Secondary	0.1	0.3		0.1	0.3		0.0	0.1		0.0	0.2		0.1	0.3	
Health/Emergency		**0.0**	**0%**		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**1%**		**0.0**	**0%**
Primary Health Clinic	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Community Health Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.1**	**0%**		**0.1**	**1%**		**0.0**	**1%**		**0.0**	**1%**		**0.1**	**0%**
Worship Centre	0.3	0.0		0.3	0.0		0.1	0.0		0.2	0.0		0.3	0.0	
Community Hall (Small)	0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.1	0.0	
Post Office/ICT Access Point	0.1	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.1	0.0	
Recreation (Sports and Parks)		**0.3**	**2%**		**0.3**	**6%**		**0.1**	**6%**		**0.2**	**6%**		**0.3**	**2%**
Sports Facilities		0.3			0.3			0.1			0.2			0.3	
TOTAL without streets		**13.8**	**77%**		**3.4**	**77%**		**0.8**	**77%**		**2.2**	**77%**		**11.7**	**77%**
Streets		**4.1**	**23%**		**1.0**	**23%**		**0.2**	**23%**		**0.7**	**23%**		**3.5**	**23%**
TOTAL		**17.9**	**100%**		**4.4**	**100%**		**1.0**	**100%**		**2.8**	**100%**		**15.2**	**100%**
Gross Density	**21**			**80**			**80**			**80**			**21**		

Residential Precincts: South (Page 1/4)

TABLE : Zandspruit Land Use Budget: SOUTH	D			D			D			C			C		
	Precinct 3.6			Precinct 3.7			Precinct 3.8.1b			Precinct 3.8.1a			Precinct 3.8.2		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**1,400**	**8.8**	50%	**2,560**	**24.0**	56%	**1,000**	**9.4**	56%	**680**	**15.5**	67%	**355**	**8.0**	67%
Single/Multiple Residential (2 storey		-	0%		-	0%		-	0%	560	14.0	82%	285	7.1	80%
Multiple Residential (2 storey)(@80du/ha)		-	0%	1,280	16.0	50%	500	6.3	50%	120	1.5	18%	70	0.9	20%
Multiple Residential (3 to 4 storey Walk -	1,400	8.8	100%	1,280	8.0	50%	500	3.1	50%		-	0%		-	0%
Population	**3,360**			**6,144**			**2,400**			**1,632**			**852**		
Existing Residential Density (du/ha)	160			107			107			44			44		
Business (floor area in m²)	**1,008**	**0.3**	**2%**	**1,843**	**0.6**	**1%**	**720**	**0.2**	**1%**	**490**	**0.2**	**1%**	**256**	**0.1**	**1%**
Offices (floor area in m²)	**101**	**0.0**	**0%**	**184**	**0.1**	**0%**	**72**	**0.0**	**0%**	**49**	**0.0**	**0%**	**26**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**2.8**	**16%**		**5.2**	**12%**		**2.0**	**12%**		**1.4**	**6%**		**0.7**	**6%**
Small Crèche/ECD Development Centre	1.4	0.2		2.6	0.3		1.0	0.1		0.7	0.1		0.4	0.0	
ECD Resource Hub and Care Centre	0.2	0.0		0.3	0.0		0.1	0.0		0.1	0.0		0.0	0.0	
Primary (including Grade R)	0.5	1.3		0.9	2.5		0.3	1.0		0.2	0.7		0.1	0.3	
Secondary	0.3	1.3		0.5	2.4		0.2	0.9		0.1	0.6		0.1	0.3	
Health/Emergency		**0.2**	**1%**		**0.3**	**1%**		**0.1**	**1%**		**0.1**	**0%**		**0.0**	**0%**
Primary Health Clinic	0.1	0.1		0.3	0.1		0.1	0.1		0.1	0.0		0.0	0.0	
Community Health Centre	0.1	0.1		0.1	0.2		0.0	0.1		0.0	0.0		0.0	0.0	
Police Station	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.2	0.0		0.3	0.0		0.1	0.0		0.1	0.0		0.0	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.1	0.0		0.2	0.0		0.1	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.3**	**1%**		**0.5**	**1%**		**0.2**	**1%**		**0.1**	**1%**		**0.1**	**1%**
Worship Centre	1.1	0.2		2.0	0.3		0.8	0.1		0.5	0.1		0.3	0.0	
Community Hall (Small)	0.3	0.1		0.6	0.1		0.2	0.0		0.2	0.0		0.1	0.0	
Post Office/ICT Access Point	0.3	0.0		0.6	0.0		0.2	0.0		0.2	0.0		0.1	0.0	
Recreation (Sports and Parks)		**1.1**	**6%**		**2.1**	**5%**		**0.8**	**5%**		**0.5**	**2%**		**0.3**	**2%**
Sports Facilities		1.1			2.1			0.8			0.5			0.3	
TOTAL without streets		**13.5**	**77%**		**32.7**	**77%**		**12.8**	**77%**		**17.8**	**77%**		**9.2**	**77%**
Streets		**4.1**	**23%**		**9.8**	**23%**		**3.8**	**23%**		**5.3**	**23%**		**2.8**	**23%**
TOTAL		**17.6**	**100%**		**42.5**	**100%**		**16.6**	**100%**		**23.2**	**100%**		**12.0**	**100%**
Gross Density	**80**			**60**			**60**			**29**			**30**		

Residential Precincts: South (Page 2/4)

TABLE : Zandspruit Land Use Budget: SOUTH	C			C			C			C			C			C		
	Precinct 3.9			Precinct 3.10			Precinct 3.11			Precinct 3.12.1			Precinct 3.12.2			Precinct 3.13.1		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**580**	**13.1**	67%	**525**	**11.8**	67%	**270**	**6.1**	67%	**3,450**	**77.5**	67%	**780**	**17.6**	67%	**305**	**6.8**	67%
Single/Multiple Residential (2 storey	470	11.8	81%	420	10.5	80%	215	5.4	80%	2,750	68.8	80%	625	15.6	80%	235	5.9	77%
Multiple Residential (2 storey)(@80du/ha)	110	1.4	19%	105	1.3	20%	55	0.7	20%	700	8.8	20%	155	1.9	20%	70	0.9	23%
Multiple Residential (3 to 4 storey Walk -		-	0%		-	0%		-	0%		-	0%		-	0%		-	0%
Population	**1,392**			**1,260**			**648**			**8,280**			**1,872**			**732**		
Existing Residential Density (du/ha)	44			44			45			45			44			45		
Business (floor area in m²)	**418**	**0.1**	1%	**378**	**0.1**	1%	**194**	**0.1**	1%	**2,484**	**0.8**	1%	**562**	**0.2**	1%	**220**	**0.1**	1%
Offices (floor area in m²)	**42**	**0.0**	0%	**38**	**0.0**	0%	**19**	**0.0**	0%	**248**	**0.1**	0%	**56**	**0.0**	0%	**22**	**0.0**	0%
Industrial/Commercial (floor area in m²)	-		0%	-		0%	-		0%	-		0%	-		0%	-		0%
Education		**1.2**	6%		**1.1**	6%		**0.5**	6%		**6.9**	6%		**1.6**	6%		**0.6**	6%
Small Crèche/ECD Development Centre	0.6	0.1		0.5	0.1		0.3	0.0		3.5	0.4		0.8	0.1		0.3	0.0	
ECD Resource Hub and Care Centre	0.1	0.0		0.1	0.0		0.0	0.0		0.4	0.0		0.1	0.0		0.0	0.0	
Primary (including Grade R)	0.2	0.6		0.2	0.5		0.1	0.3		1.2	3.3		0.3	0.7		0.1	0.3	
Secondary	0.1	0.5		0.1	0.5		0.1	0.2		0.7	3.2		0.1	0.7		0.1	0.3	
Health/Emergency		**0.1**	0%		**0.1**	0%		**0.0**	0%		**0.4**	0%		**0.1**	0%		**0.0**	0%
Primary Health Clinic	0.1	0.0		0.1	0.0		0.0	0.0		0.3	0.2		0.1	0.0		0.0	0.0	
Community Health Centre	0.0	0.0		0.0	0.0		0.0	0.0		0.1	0.2		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.1	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.1	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	0%		**0.0**	0%		**0.0**	0%		**0.0**	0%		**0.0**	0%		**0.0**	0%
Local Library	0.1	0.0		0.1	0.0		0.0	0.0		0.4	0.0		0.1	0.0		0.0	0.0	
Civic		**0.0**	0%		**0.0**	0%		**0.0**	0%		**0.0**	0%		**0.0**	0%		**0.0**	0%
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.0	0.0		0.0	0.0		0.0	0.0		0.2	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.1**	1%		**0.1**	1%		**0.0**	1%		**0.6**	1%		**0.1**	1%		**0.1**	1%
Worship Centre	0.5	0.1		0.4	0.1		0.2	0.0		2.8	0.4		0.6	0.1		0.2	0.0	
Community Hall (Small)	0.1	0.0		0.1	0.0		0.1	0.0		0.8	0.2		0.2	0.0		0.1	0.0	
Post Office/ICT Access Point	0.1	0.0		0.1	0.0		0.1	0.0		0.8	0.0		0.2	0.0		0.1	0.0	
Recreation (Sports and Parks)		**0.5**	2%		**0.4**	2%		**0.2**	2%		**2.8**	2%		**0.6**	2%		**0.2**	2%
Sports Facilities		0.5			0.4			0.2			2.8			0.6			0.2	
TOTAL without streets		**15.1**	77%		**13.6**	77%		**7.0**	77%		**89.3**	77%		**20.2**	77%		**7.8**	77%
Streets		**4.5**	23%		**4.1**	23%		**2.1**	23%		**26.8**	23%		**6.1**	23%		**2.3**	23%
TOTAL		**19.6**	100%		**17.7**	100%		**9.1**	100%		**116.0**	100%		**26.3**	100%		**10.1**	100%
Gross Density	**30**			**30**			**30**			**30**			**30**			**30**		

Residential Precincts: South (Page 3/4)

TABLE : Zandspruit Land Use Budget: SOUTH	C	Gutrain Station		C			D			C			C		
	Precinct 3.13.2			Precinct 3.13.2b			Precinct 3.13.3			Precinct 3.13.3b			Precinct 3.14.1		
Facilities	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**	**number**	**ha**	**% du**
Number of Even	**3,770**	**57.1**	63%	**2,350**	**53.0**	67%	**140**	**1.3**	56%	**2,000**	**45.0**	67%	**510**	**11.5**	67%
Single/Multiple Residential (2 storey	800	20.0	21%	1,890	47.3	80%		-	0%	1,600	40.0	80%	410	10.3	80%
Multiple Residential (2 storey)(@80du/ha)	2,970	37.1	79%	460	5.8	20%	70	0.9	50%	400	5.0	20%	100	1.3	20%
Multiple Residential (3 to 4 storey Walk -		-	0%		-	0%	70	0.4	50%		-	0%		-	0%
Population	**9,048**			**5,640**			**336**			**4,800**			**1,224**		
Existing Residential Density (du/ha)	66			44			107			44			44		
Business (floor area in m²)	**2,714**	**0.9**	**1%**	**1,692**	**0.6**	**1%**	**101**	**0.0**	**1%**	**1,440**	**0.5**	**1%**	**367**	**0.1**	**1%**
Offices (floor area in m²)	**271**	**0.1**	**0%**	**169**	**0.1**	**0%**	**10**	**0.0**	**0%**	**144**	**0.0**	**0%**	**37**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	**-**		**0%**	**-**		**0%**	**-**		**0%**	**-**		**0%**	**-**		**0%**
Education		**7.6**	**8%**		**4.7**	**6%**		**0.3**	**12%**		**4.0**	**6%**		**1.0**	**6%**
Small Crèche/ECD Development Centre	3.8	0.5		2.4	0.3		0.1	0.0		2.0	0.2		0.5	0.1	
ECD Resource Hub and Care Centre	0.5	0.0		0.3	0.0		0.0	0.0		0.2	0.0		0.1	0.0	
Primary (including Grade R)	1.3	3.6		0.8	2.3		0.0	0.1		0.7	1.9		0.2	0.5	
Secondary	0.7	3.5		0.5	2.2		0.0	0.1		0.4	1.8		0.1	0.5	
Health/Emergency		**0.5**	**1%**		**0.3**	**0%**		**0.0**	**1%**		**0.3**	**0%**		**0.1**	**0%**
Primary Health Clinic	0.4	0.2		0.2	0.1		0.0	0.0		0.2	0.1		0.1	0.0	
Community Health Centre	0.2	0.2		0.1	0.1		0.0	0.0		0.1	0.1		0.0	0.0	
Police Station	0.2	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Fire Station	0.2	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.5	0.0		0.3	0.0		0.0	0.0		0.2	0.0		0.1	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.2	0.0		0.1	0.0		0.0	0.0		0.1	0.0		0.0	0.0	
Social Services		**0.7**	**1%**		**0.4**	**1%**		**0.0**	**1%**		**0.4**	**1%**		**0.1**	**1%**
Worship Centre	3.0	0.5		1.9	0.3		0.1	0.0		1.6	0.2		0.4	0.1	
Community Hall (Small)	0.9	0.2		0.6	0.1		0.0	0.0		0.5	0.1		0.1	0.0	
Post Office/ICT Access Point	0.9	0.0		0.6	0.0		0.0	0.0		0.5	0.0		0.1	0.0	
Recreation (Sports and Parks)		**3.0**	**3%**		**1.9**	**2%**		**0.1**	**5%**		**1.6**	**2%**		**0.4**	**2%**
Sports Facilities		3.0			1.9			0.1			1.6			0.4	
TOTAL without streets		**70.0**	**77%**		**61.0**	**77%**		**1.8**	**77%**		**51.8**	**77%**		**13.2**	**77%**
Streets		**21.0**	**23%**		**18.3**	**23%**		**0.5**	**23%**		**15.5**	**23%**		**4.0**	**23%**
TOTAL		**91.0**	**100%**		**79.3**	**100%**		**2.3**	**100%**		**67.4**	**100%**		**17.2**	**100%**
Gross Density	**41**			**30**			**60**			**30**			**30**		

Residential Precincts: South (Page 4/4)

TABLE : Zandspruit Land Use Budget: SOUTH	C			C			D			Outside CoJ			Outside CoJ		
	Precinct 3.14.1b			Precinct 3.14.3			Precinct 3.14.3a			Precinct 3.15.1			Precinct 3.15.2		
Facilities	number	ha	% du	number	ha	% du	number	ha	% du	number	ha	% du	number	ha	% du
Number of Even	**850**	**19.1**	67%	**1,090**	**24.5**	67%	**120**	**1.1**	56%	**340**	**54.0**	75%	**780**	**102.3**	75%
Single/Multiple Residential (2 storey	680	17.0	80%	870	21.8	80%		-	0%		-	0%		-	0%
Multiple Residential (2 storey)(@80du/ha)	170	2.1	20%	220	2.8	20%	60	0.8	50%		-	0%		-	0%
Multiple Residential (3 to 4 storey Walk -		-	0%		-	0%	60	0.4	50%		-	0%		-	0%
Population	**2,040**			**2,616**			**288**			**816**			**1,872**		
Existing Residential Density (du/ha)	44			44			107			6			8		
Business (floor area in m²)	**612**	**0.2**	**1%**	**785**	**0.3**	**1%**	**86**	**0.0**	**1%**	**245**	**0.1**	**0%**	**562**	**0.2**	**0%**
Offices (floor area in m²)	**61**	**0.0**	**0%**	**78**	**0.0**	**0%**	**9**	**0.0**	**0%**	**24**	**0.0**	**0%**	**56**	**0.0**	**0%**
Industrial/Commercial (floor area in m²)	-		**0%**	-		**0%**	-		**0%**	-		**0%**	-		**0%**
Education		**1.7**	**6%**		**2.2**	**6%**		**0.2**	**12%**		**0.7**	**1%**		**1.6**	**1%**
Small Crèche/ECD Development Centre	0.9	0.1		1.1	0.1		0.1	0.0		0.3	0.0		0.8	0.1	
ECD Resource Hub and Care Centre	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.1	0.0	
Primary (including Grade R)	0.3	0.8		0.4	1.0		0.0	0.1		0.1	0.3		0.3	0.7	
Secondary	0.2	0.8		0.2	1.0		0.0	0.1		0.1	0.3		0.1	0.7	
Health/Emergency		**0.1**	**0%**		**0.1**	**0%**		**0.0**	**1%**		**0.0**	**0%**		**0.1**	**0%**
Primary Health Clinic	0.1	0.0		0.1	0.1		0.0	0.0		0.0	0.0		0.1	0.0	
Community Health Centre	0.0	0.1		0.0	0.1		0.0	0.0		0.0	0.0		0.0	0.0	
Police Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Fire Station	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social /Cultural		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Local Library	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.1	0.0	
Civic		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**		**0.0**	**0%**
Thusong Centre, Home Affairs Office, eGov Integrated Service, Labour Office	0.1	0.0		0.1	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Social Services		**0.2**	**1%**		**0.2**	**1%**		**0.0**	**1%**		**0.1**	**0%**		**0.1**	**0%**
Worship Centre	0.7	0.1		0.9	0.1		0.1	0.0		0.3	0.0		0.6	0.1	
Community Hall (Small)	0.2	0.0		0.3	0.1		0.0	0.0		0.1	0.0		0.2	0.0	
Post Office/ICT Access Point	0.2	0.0		0.3	0.0		0.0	0.0		0.1	0.0		0.2	0.0	
Recreation (Sports and Parks)		**0.7**	**2%**		**0.9**	**2%**		**0.1**	**5%**		**0.3**	**0%**		**0.6**	**0%**
Sports Facilities		0.7			0.9			0.1			0.3			0.6	
TOTAL without streets		**22.0**	**77%**		**28.2**	**77%**		**1.5**	**77%**		**55.2**	**77%**		**104.9**	**77%**
Streets		**6.6**	**23%**		**8.5**	**23%**		**0.5**	**23%**		**16.5**	**23%**		**31.5**	**23%**
TOTAL		**28.6**	**100%**		**36.7**	**100%**		**2.0**	**100%**		**71.7**	**100%**		**136.4**	**100%**
Gross Density	**30**			**30**			**60**			**5**			**6**		

ANNEXURE C:

THUSONG CENTRE CONCEPT

INCREMENTAL DEVELOPMENT OF A THUSONG CENTRE/MPCC

Essentially, a Thusong Centre is "*a focal point at which a comprehensive range of essential services can be obtained by people living in its vicinity*". The key to the success of Thusong Centre development is rooted in the principle of focused and deliberate government investment spending within and around a strategically selected spatial point, to ensure that these centres develop to provide an extensive range of community facilities. Such points are typically major intersections, and/or consolidated with existing cluster(s) of business activity and social services. A good example of a Thusong Centre/ MPCC in Olievenhoutbosch is depicted on **Diagram 1**.

The development of a Thusong Centre takes place over time and is based on an incremental growth process guided and stimulated by a number of strategic investments by various spheres of government (i.e. public investment). This process is, however, not limited to a single building as noted in the example above, but can also relate to the incremental development of a broader precinct (refer to **Diagram 2**).

Very briefly, the first step in the physical development of a Thusong Centre could be the establishment of a community hall which is utilised for a variety of functions, including serving as a SASSA pay-out point by the end of the month; accommodating the mobile clinic once a week; serving as an ABET entre during certain times of the week; etc. Because of the concentration of people at the community hall during the week, a formal/ informal public transport facility may establish which, in turn, attracts informal trade.

As the Thusong Centre develops, a greater variety of more permanent community facilities may be added by various spheres of government, including a clinic, post office, and police station.

DIAGRAM 1

EXAMPLE OF A THUSONG CENTRE/ MPCC IN OLIEVENHOUTBOSCH



Floor Area of MPCC 1 878m²

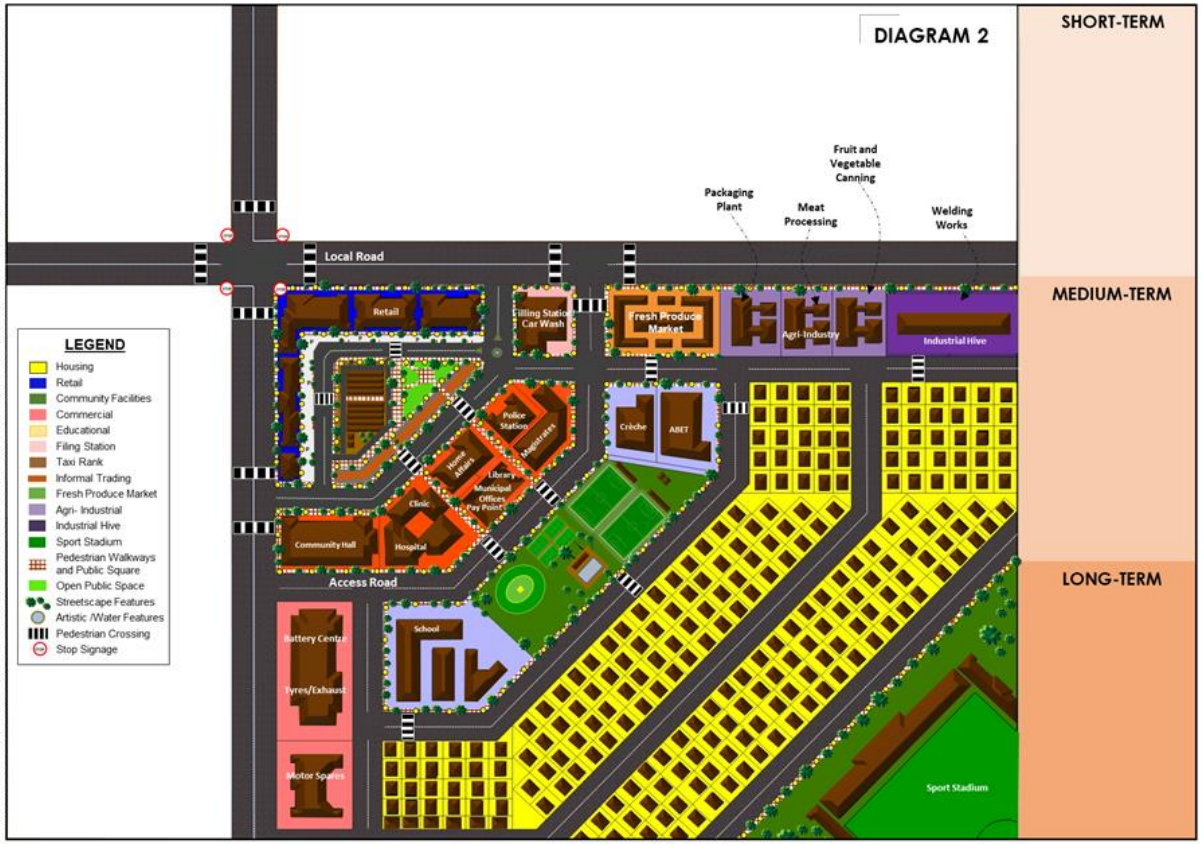
Community Facilities at Thusong Centre



INCREMENTAL DEVELOPMENT OF A THUSONG CENTRE / MPCC

With the increased intensity of activity and visitors at the precinct, the initial informal trade at the public transport facility can transform into some formal retail activities. Low and medium density residential development should be developed in close proximity around the node which not only enhances the viability of existing community facilities, but also strengthens the capacity for local economic development as the “critical mass” in the precinct increases.

Associated with the residential development follows the establishment of educational facilities like a crèche, primary school and sports fields. Over a period of time the node expands incrementally, and as more functions and associated residential activities are added, it may eventually also accommodate specialised services like adult education (FET colleges and ABET centres), some commercial activities like hardware stores and even light service industries.



ANNEXURE D:

ECONOMIC UPSCALING CONCEPT

TOWNSHIP ECONOMY: POTENTIAL JOB CREATION OPPORTUNITIES

Main Sectors	Secondary Category	Examples of Business Opportunities
1. Business	Retail (Formal)	Butchery, Bottle store, Cellphone, Café, Clothing, Tombstones, Fast Food, General Dealer, Farm Shop, Plant Nursery
	Retail (Informal)	Street Vending/Food Seller, Fruit & Vegetable Seller, Brick Making, Liquor Seller, Shebeen, Tavern, Spaza, Tombstone Trader
	Retail (Markets)	Crafters Market, Food & Fresh Produce Market
	Personal Services	Hair & Beauty Salons, Fashion Designer, Laundrette, Gym, Traditional Healer
	Offices	Burial Society, Banks, ATM, Financiers/Cash Loans, Internet Café, Renting of Machinery, Home Office, Security Companies
	Motor Vehicle Related Retail	Car Sales Lot, Car Wash, Cash for Scrapyard, Motor Spares, Filling Station
2. Service Industries	Services	Dress Making/Tailors/Manufacture Uniforms, Bakery/Catering, Engraving, Printing, Picture Framing, Jewellery Manufacturing, Watch/Cellphone Repairs, Shoe Repairs, Key Cutting, Dry Cleaners, Funeral Services (Parlour/Undertaker), Basket Ware and Cane Furniture, Office Furniture, Upholstery
	Infrastructure	Sanitation (plumbers), Electrician, Security Gates & Fencing, Mobile Toilets, Solar Panels/Geysers
	Green Economy	Cleaning Services, Waste Collection and Sorting/Recycling
3. Tourism	Retail (Formal)	Craft/Curio Shop, Coffee Shop, Restaurant
	Retail (Informal)	Crafters Market, Food & Fresh Produce Market
	Offices	Tourist Operators
	Hospitality Establishment	Hotel, Guest House, Bed & Breakfast, Conferencing, Camp Sites
	Services	Catering & Events, Heritage Tourism, Sports/Adventure Tourism, Water Sports and Recreation Parks, Tourist Guide, Hunting Guide
4. Creative Industry	Services	Arts & Crafts Workshops/Exhibitions, Cinemas, Music & Entertainment, Music & Video Production, Fashion Designer, Jewellery Manufacturing, Bead Making, Leather/Hide Products, Coordination of Cultural Events

TOWNSHIP ECONOMY: POTENTIAL JOB CREATION OPPORTUNITIES

Main Sectors	Secondary Category	Examples of Business Opportunities
4. Creative Industry	Services	Arts & Crafts Workshops/Exhibitions, Cinemas, Music & Entertainment, Music & Video Production, Fashion Designer, Jewellery Manufacturing, Bead Making, Leather/Hide Products, Coordination of Cultural Events
5. Community Services	Medical & Health	Hospital and Clinic, Substance Abuse Treatment/War on Drugs, Hospice/Nursing/Care Centre (treatment and care for HIV/AIDS and other chronic ailments), Traditional Healer
	Funeral / internment services (confinement)	Burial Society, Catering-, Renting-, Cemetery Services
	Institutional Care Facility	Orphanage/Children's Home, Shelters, Soup Kitchen, Care for Elderly, Assisting the Elderly with Social Grants
	Cultural Facilities	Community Centres, Church and Religious Services
	Educational Facilities	Crèche & pre-schools, Schools, Sports Coaching, FET Colleges, Feeding schemes for schools and hospitals
	Other Education	Motor vehicle driving school, Special education - disabilities, Initiation school, Dancing /Music/Art Schools
	Protection services	Security Guards
	Emergency services	Ambulance Services/Paramedics
	Administrative	Postal/Courier Services
	Animal Care Facilities	Indoor / outdoor kennels, Veterinarian clinic, Animal rehabilitation centres
	ICTS	Internet Solutions, Multimedia Service Centres, Internet Cafes, Electronic Repairs, ICT Recycling Depots
6. Agriculture and Agro Processing	Animal production	Livestock/Poultry Farming
	Crop production	Vegetable/Herb Farming
	Agricultural industry	Milling, Feed Mixing, Processing/Sorting/Packing of Farm Produce, Farm Stall, Oil refinery, Biofuels
7. Transport	Services	Taxi Operators/Associations, Logistics companies, Tour Operators
	Infrastructure	Paving of Walkways and Cycle Lanes
8. Finance	Services	Stokvels, Money Lending Schemes, Burial Societies
9. Manufacturing	Production & Manufacturing	Food production, Bakery, Manufacturing of Machinery-/Metal (steel)- /Non-metal (charcoal/tar/bricks)- /Clothing and Textile-/ Wood and Furniture (Carpentry) Products, Abattoir
	Motor Service related (Light) Industry	Fitment centre/Vehicle repairs, Panelbeater/Auto body, Towing Service, Motor Workshop
	Engineering Service related (Light) Industry	Engineering Workshop e.g. welding, cutting, joinery, pumps, pipes and fitting, etc. Electrical Workshop/Contractors, Lawnmower Repairs
10. Commercial	Warehousing & storage	Storage Facilities, Storage and selling of coal, sand, building material, Scrap Yard, Recycling Depot, Auction Yard
11. Construction and Real Estate	Services	Construction Business, Property Developers, Estate/Renting Agents
	Infrastructure	Builders, Carpenters, Brick/Paving layers, Electricians, Plumbers
12. Mining	Active Mining	Sand Mining, Quarrying
	Mining Rehabilitation	Cleaning Services, Waste Collection and Planting of new vegetation

INFORMAL TRADE EMPOWERMENT AND UPSCALING

Annexure A1 highlights the concept to upscale informal trading businesses, the stages to achieve upscaling are represented as Level 1 – Level 4 below.

Annexure A2 – Annexure A5 highlights examples of the various informal trade structures referred to the Informal Trade Upscaling concept on Annexure A1.

LEVEL 1	Informal trading business in a form of selling perishable or non-perishable goods, and informal motor repair businesses are being conducted without adequate formalised informal structures.
LEVEL 2	Formalised informal trading structures in this level are very basic. Level 2A structures are temporary and may be placed along pedestrian movement desire lines where space is limited, see examples on **Annexure D2.2**. Level 2B structures are more permanent in nature, and may be utilised by small emerging service industries.
LEVEL 3	The structures at Level 3 are permanent and typically larger in size when compared with 'level 1' informal trading structures. Level 3a includes features such as lock-up roller doors for over-night storage, and may include water and sanitation services shared between traders, see examples on **Annexure D2.2**. This allows for more comprehensive retail activities including food preparations and/ or service industries such as internet cafes, kiosk, electronic repair services, motor repairs services and welding works, as reflected on **Annexure D2.3** and **Annexure D2.4**.
LEVEL 4	Level 4 provides that informal traders be incorporated into the formal economy (as illustrated on **Annexure D2.5**) by way of providing permanent and formalised trading structures as part of a shopping centre or business incubation centre.

DEVELOPMENT APPROACH TO INFORMAL TRADE

LEVEL 1 - Lack of Formal Structure

Retail



A Trade of goods along roadside

Manufacturing/ Service Industry



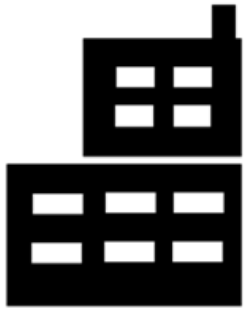
B Services and sales along roadside

LEVEL 4 - Informal Trade Incorporated into Formal Retail

Retail



A Market area forms part of shopping centre/ parking lot



B Fresh produce processed at Agro-Industries

Manufacturing/ Service Industry



C Formal business eg. workshop

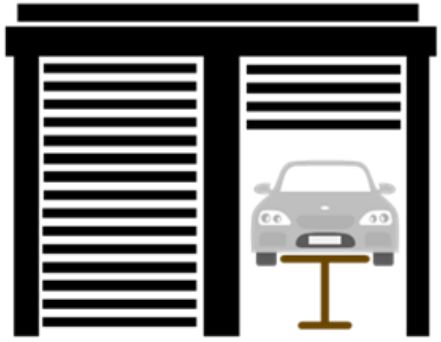
LEVEL 2 - Small-scale Formalised Structure

Retail



A Temporary stalls, with display shelves

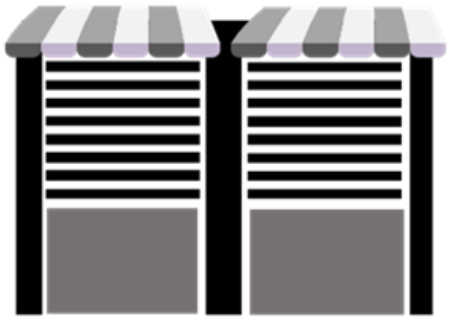
Manufacturing/ Service Industry



B Narrow 'beehive industries'

LEVEL 3 - Medium-scale Formal Business Structure

Retail



A More comprehensive stalls (eg. Including bench, lock-up option, services etc)

Manufacturing/ Service Industry



B Larger 'beehive industries'

Annexure B1

TYPES OF FORMALISED INFORMAL TRADE STRUCTURES

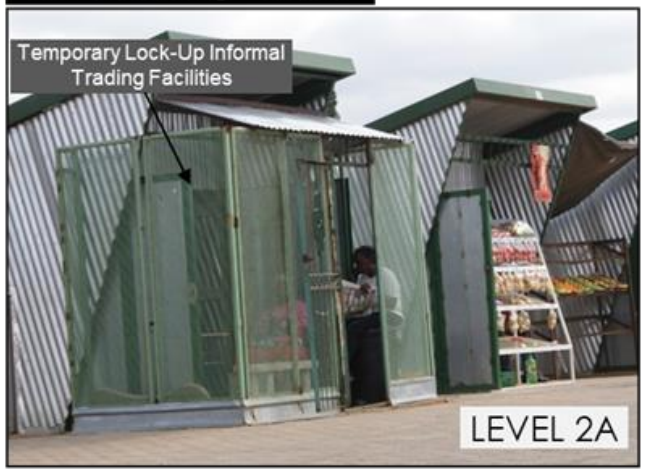
RETAIL – Temporary Formalised Informal Trading Structures

LEVEL 2

Pretoria - Hatfield



Johannesburg - Lesedi



SERVICE INDUSTRIES - Formalised Informal Trading Structures



RETAIL – Permanent Formalised Informal Trading Structures

LEVEL 3

Tshwane – Khutsong Station



Ogies – Nkangla DM



SERVICE INDUSTRIES - Formalised Informal Trading Structures



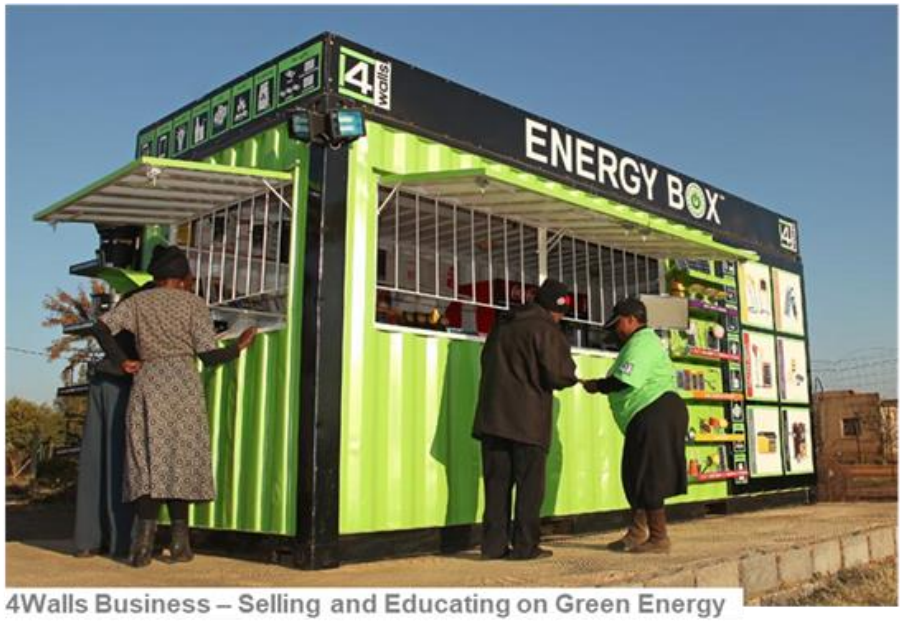
Annexure B2

EMERGING LOCAL ENTREPRENEURS – SHIPPING CONTAINERS CONVERTED FOR BUSINESS

RETAIL – Temporary Formalised Informal Trading Structures



Local Barber



4Walls Business – Selling and Educating on Green Energy



Local Businesses in Shipping Containers close to Taxi Rank



Spinach King Bakery and Gym in Khayelisha

LEVEL 3B

Annexure B3

LOCAL EMPOWERMENT INDUSTRIAL ZONE – BEEHIVE SERVICE INDUSTRY

SERVICE INDUSTRIES - Formalised Informal Trading Structures









LEVEL 3B

Annexure B4

TYPES OF FORMALISED INFORMAL TRADE STRUCTURES

RETAIL - Formalised Informal Trading Structures

LEVEL 4A

Cape Town - Nomzamo Business Area



Johannesburg - Lesedi



Ga- Nala – Ogies, Nkangala DM



SERVICE INDUSTRIES - Formalised Informal Trading Structures

LEVEL 4B

SMME INFRASTRUCTURE - Linear Beehive Buildings





Annexure B5

PROMINENT TOURISM DESTINATIONS DESIGNED FROM SHIPPING CONTAINERS



- Restaurants at Ground Floor
- Retail Clothing Shop on Upper Floor



Food Court



Las Vages – Downtown Container Park with an Outdoor Cinema



Shopping Mall

Annexure B6

ANNEXURE E:

URBAN DESIGN GUIDELINES

D.1 Public Spaces

What?

- Public spaces are social spaces where people from various cultures, age groups and backgrounds can commonly share.
- These spaces can either be hard spaces (activity square, outdoor trade markets, boulevards etc) or soft spaces (parks, public sports facilities, open space systems etc)

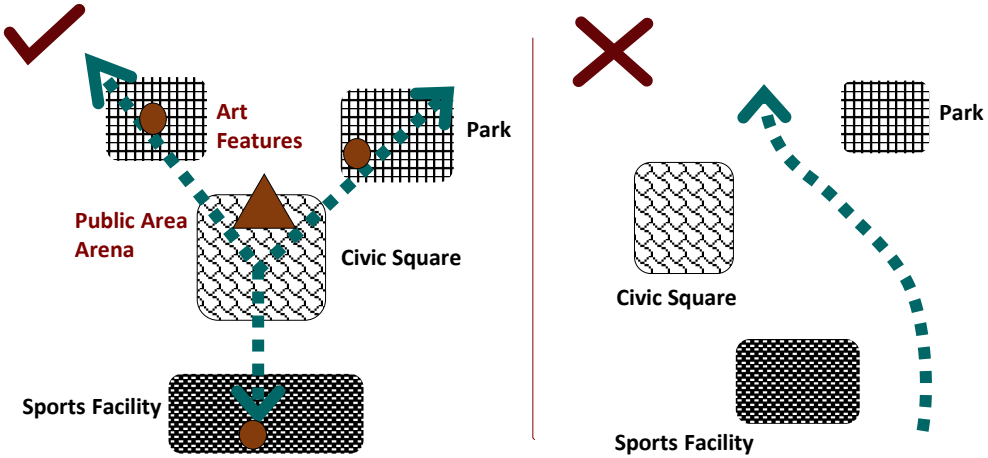
Why?

- Creates a **memorable image** for the city centre.
- Serves as a **symbol for a healthy community's social life**.
- If well designed and properly maintained, they are **powerful catalysts for private investmen**t.
- Accommodates **cultural entertainment, sport, play, rest and relaxation**.
- When **linked with complementing mixed land uses** they can become attractions and visitors destinations.

How?

- **Multi-functional public spaces** attracts people to the city centre.
- **Link public spaces** where the majority of pedestrian network/paths intersect; close to main retail anchors and public transport facilities.

Example:



Soft Spaces



Hard Spaces



D.1.1 Public Spaces



Formalisation of river/spruit areas

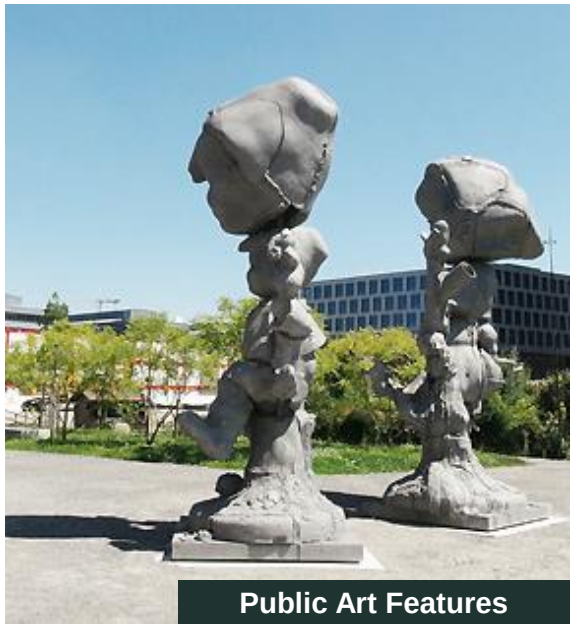


African Market Trade Square



Proper Maintenance of Sidewalks





Public Art Features

D.2 Mixed Land Use Development

What?

- Mixed land use may be developed at a range of scale, it could be within a single building, block or the entire neighbourhood.
- Mixed use developments blend a combination of complimentary land uses such as retail, offices, community facilities, educational facilities, institutions, commercial industries and even industrial uses.
- Different land uses are physically and functionally integrated.

Why?

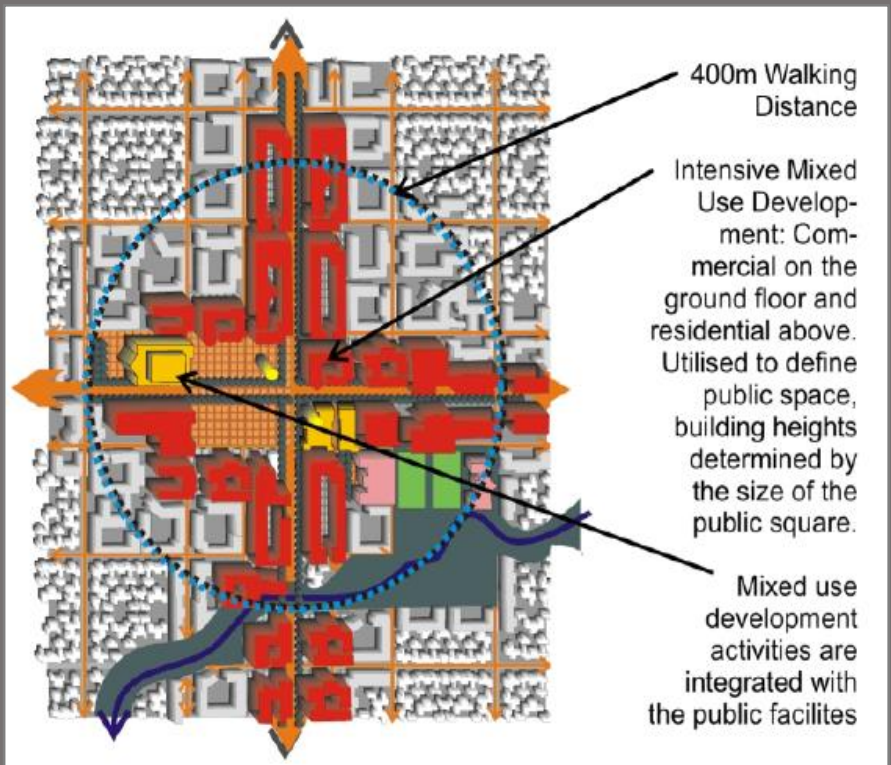
- Promotes a vibrant environment where people can **live, work and play**.
- Creates stronger **neighbourhood character**.
- Ensures **efficient use of land**.
- Improves **convenience** and **sense of choice**.
- Seeks to create **pedestrian friendly environments**.

How?

- **Combine mix land uses within a building or site/block** whether vertically or horizontal.
- Link **complimentary land uses** to one another.

Example:





Mixed Use Development Principles

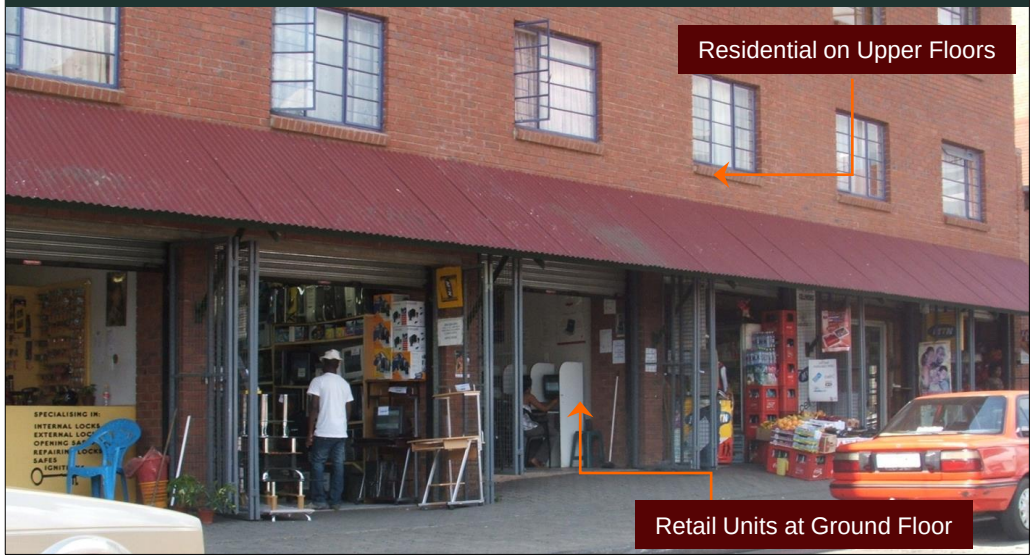
D.2.1 Mixed Land Use Development

Concept at the Home Affairs Node – Mangaung

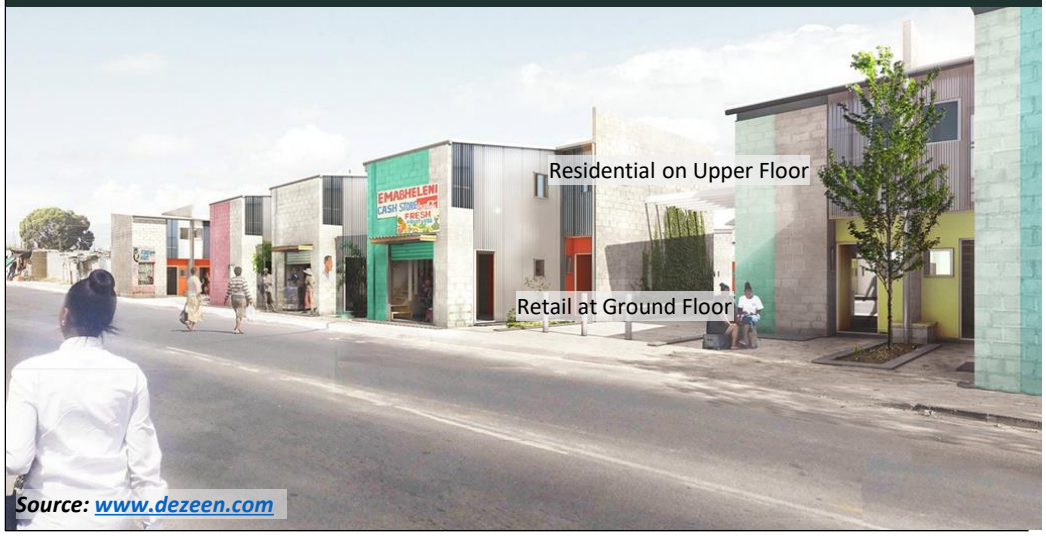


Source: www.jcafforablehousing.org

Brickfields Mixed Use Development – (Medium-Long Term)

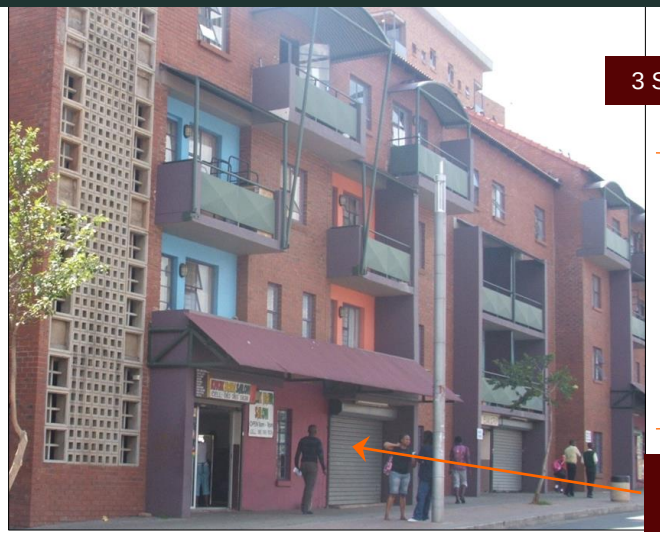


Mixed Use Development along Moshoeshoe Street (Short Term)



Source: www.dezeen.com

Brickfields Mixed Use Development –(Medium-Long Term)



D.2.2 Mixed Land Use Development



D.3 Density & Compactness

What?

- The increased occupancy of land developed, whether horizontal or vertical, within existing and established areas. Density and Compactness is accompanied with an increased number of units and/or population thresholds.

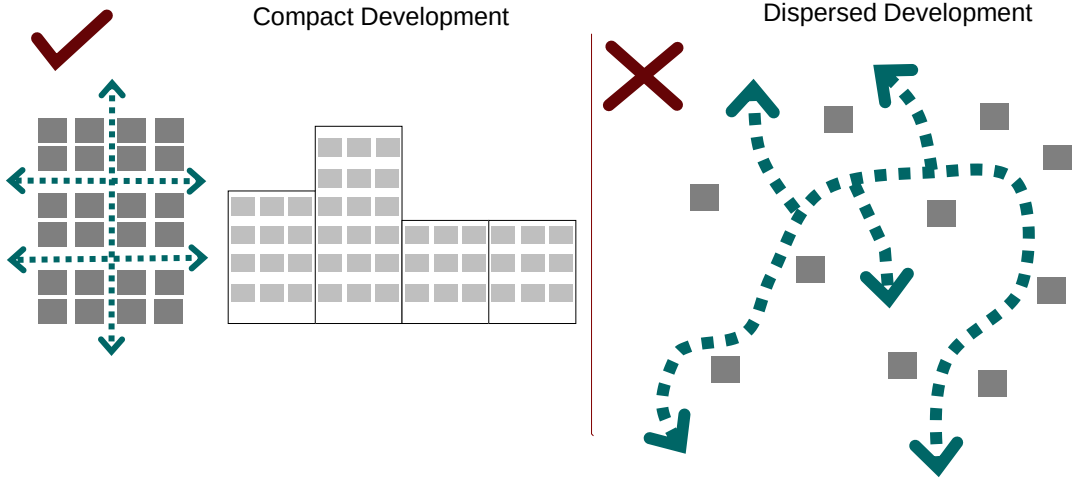
Why?

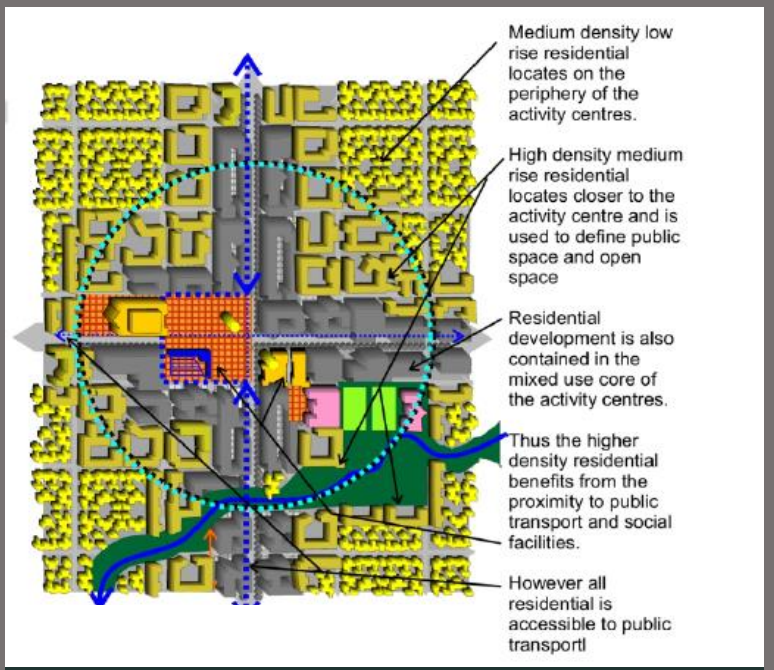
- **Reduces the consumption of valuable/non renewable resources** such as agricultural land on the outskirts of urban areas.
- Defines and **strengthens the city centres**.
- **Increases housing typologies.**
- Allows for **better utilisation of land**, which is especially useful in areas where land is scarce.

How?

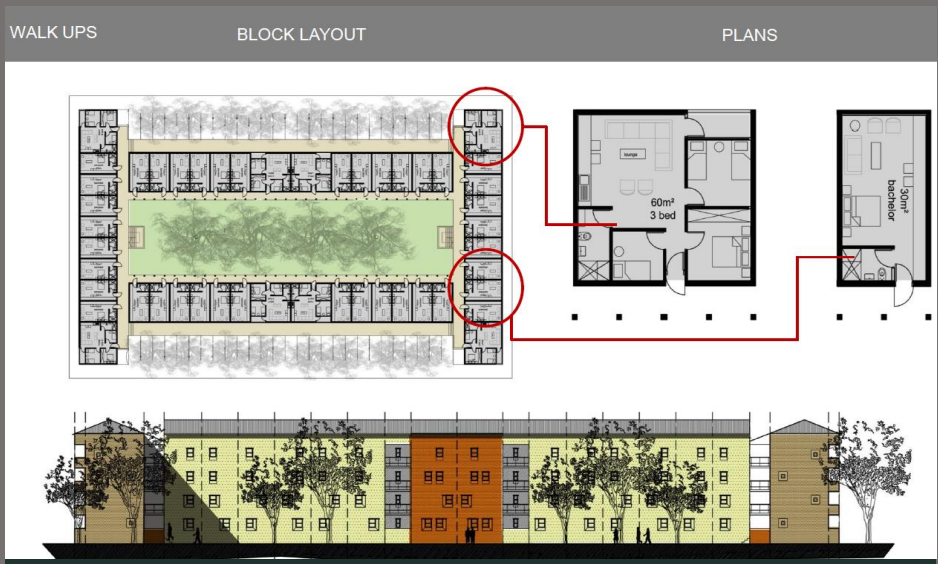
- Foster **intensity of development**.
- **Cluster** higher order public facilities around public transport nodes.
- **Avoid** creating new **unconnected centres**.
- Create critical mass of activity **easily accessible by foot**.

Example:





Residential Densification Principle



Typical Housing Typology 4-Storey Walk-Up

D.3.1 Density & Compactness

Clinic



Customer Care Centre & Pre-Paid Offices



Municipal Offices



Youth Centre



Study Hall



Library



EXAMPLE OF A THUSONG CENTRE/ MPCC IN

OLIEVENHOUTBOSCH



D.3.2 Density & Compactness

MANGAUNG TOWNSHIP



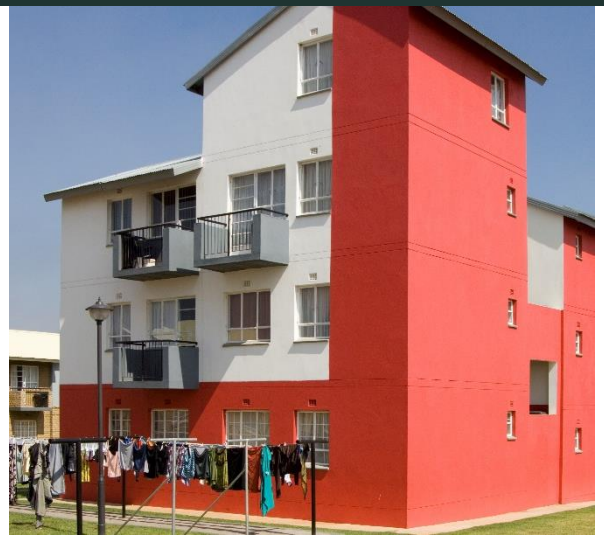
JOHANNESBURG - FLEURHOF



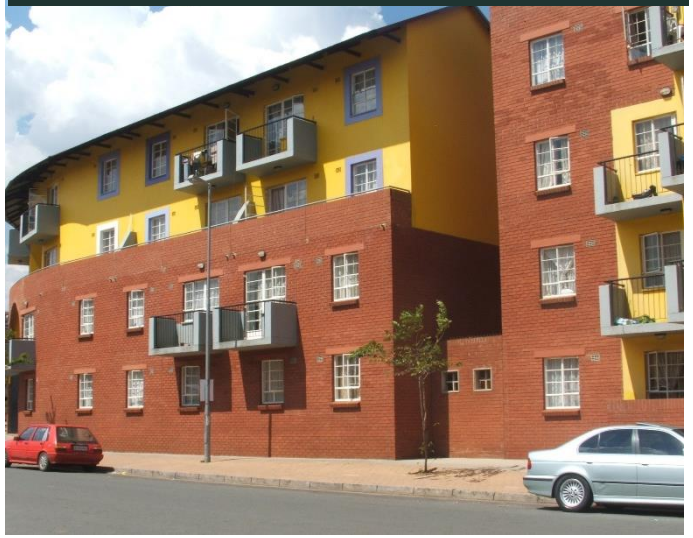
JOHANNESBURG - FLEURHOF



JOHANNESBURG – KLIPTOWN SOWETO



JOHANNESBURG – NEWTOWN BRICKFIELDS DEVELOPMENT



JOHANNESBURG – NEWTOWN BRICKFIELDS DEVELOPMENT



D.4 Public Transport Facilities & Stops

What?

- Public transport systems/facilities vary from mini taxis, taxis, buses, to trains, etc. These systems are designed to transport passengers to various places such as city centres, job opportunities, entertainment places, residential areas.
- The purpose of a taxi/bus stop is to help people find their way to public transport services, by the use of a signpost at the taxi/bus stop, commuters are able to be informed of the time schedules and routes which the mode of transport will travel.

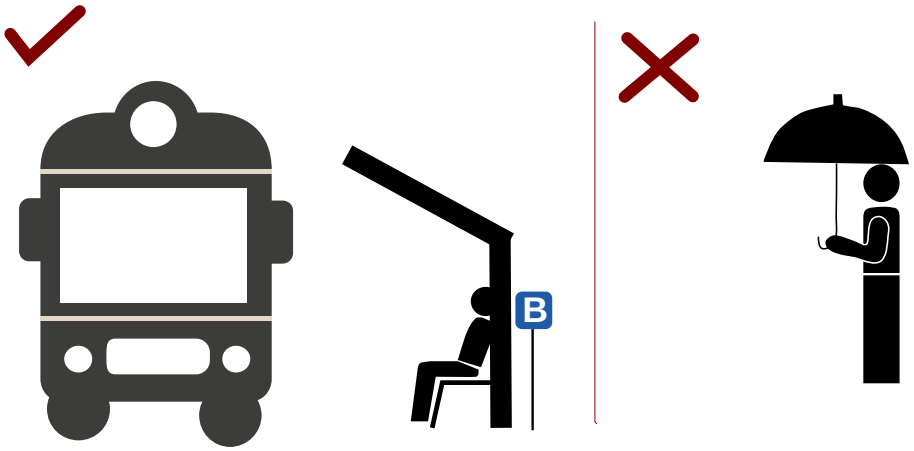
Why?

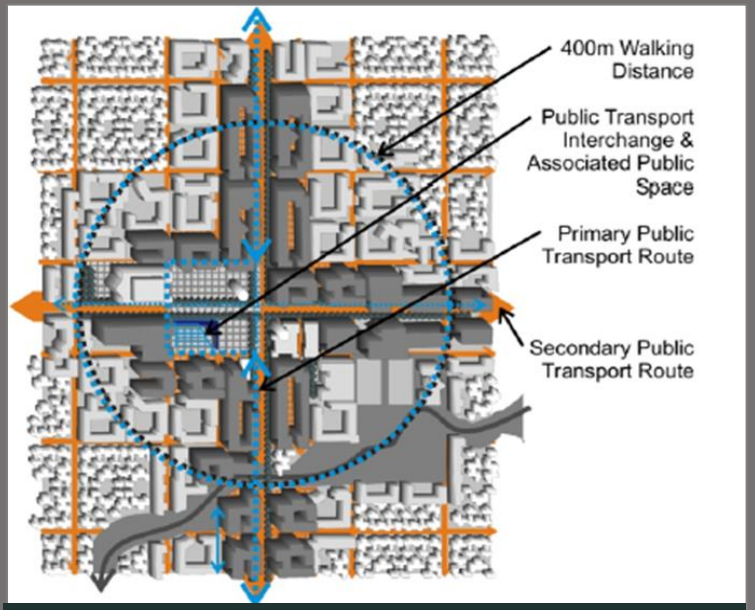
- Provides people with **access and mobility**.
- **Cost efficient**
- Located **close to areas of opportunity**.

How?

- Placed strategically **along public transport routes** that are highly accessible.
- **Provide within walking distance** to retail, job opportunities, community facilities.
- **Make stop signs or road markings visible** for passengers.
- **Shelter, public seating area, trade space, human-scale lighting, drinking taps, and ablution facilities** (if feasible).

Example:





Public Transport Organising Principles within Activity Centres



Clearly marked taxi rank in Cape Town

D.5 Streetscape

What?

- Streetscape are decorative elements which are placed along pedestrian movement networks in order to beauty and enhance pedestrian oriented spaces.
- The streetscape should establish an attractive foreground by creating an environment that is visually satisfying but does not detract from the visibility and appeal of storefronts.
- Should emphasise the continuity of the street space and enhance its potential for flexible use

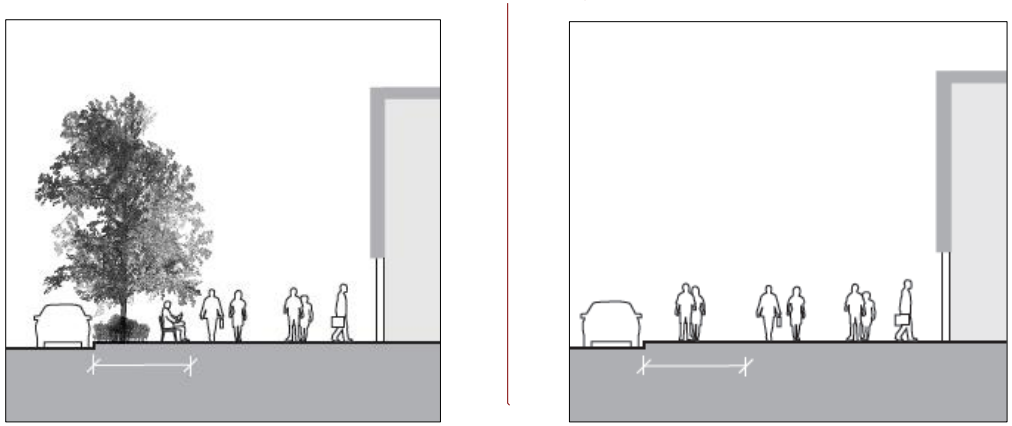
Why?

- To create **comfortable, safe and attractive** pedestrian environments.

How?

- Design streetscapes with the highest quality materials for **durability and visual appeal**.
- Includes elements such a **walkways, street lighting and landscaping** .

Example:





Defined Pedestrian Walkways



Durable Street Furniture beneath trees



Vegetation



Street Names



Street Lighting

D.6 Imageability & Legibility

What?

- Imageablity refers to the visual quality of a place observed, which may either be good or bad according to the observer.
- A good or bad image of a place is determined by the ability to capture attention, feelings evoked when experiencing a particular place and the lasting impression it has on the observer.
- Legibility is evident through physical elements which make navigation through a place easier to read and understand.

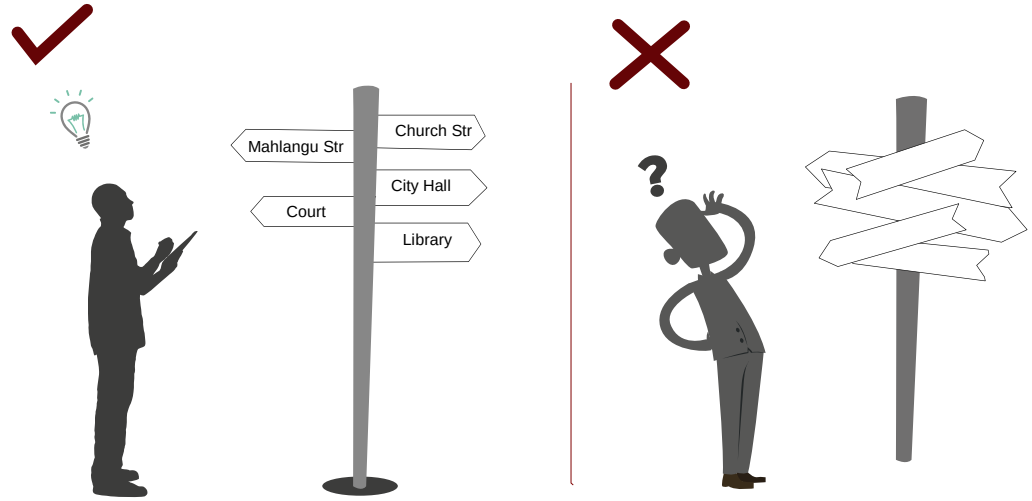
Why?

- Gives a **sense of place**, and **clear navigation** through the City.
- Identifies City's culture, history.
- A place with a good image is **memorable** and gives **comfort**.

How?

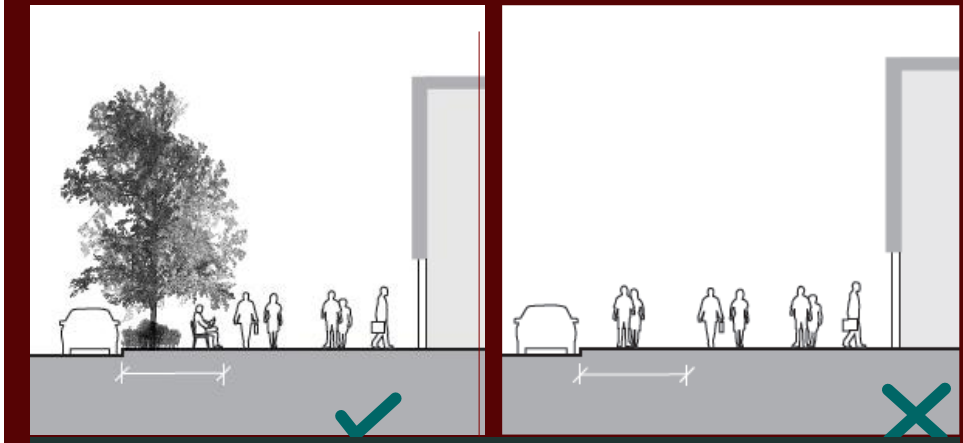
- Street names and Gateway Signage
- Historic Features and Public Art

Example:





Landmarks that embrace culture.



Create comfortable, safe and attractive pedestrian environments.

D.7 Urban Safety & Security

What?

- Urban Security, based on the Crime Prevention Through Environment Design (CPTED) principles aims to "***reduce the causes of, and opportunity for, criminal event and addressing the fear of crime by applying sound planning, design and management principles to the build environment".***
- CPTED is based on the following 5 principles:
    - Surveillance and visibility;
    - Territoriality and defensible space;
    - Access and escape routes;
    - Image and aesthetics; and
    - Target hardening

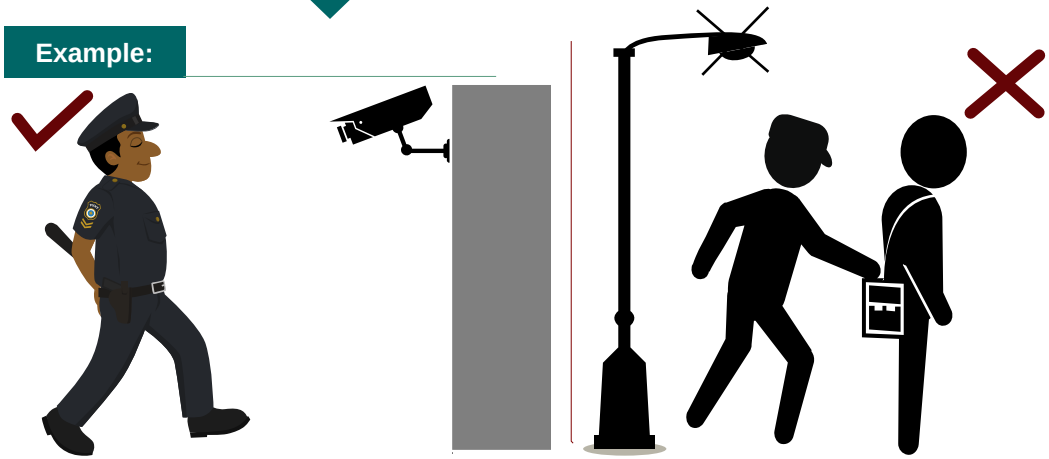
Why?

- Creates safe places and in turn a **sense of safety** within town and thus encourage the **utilisation** of public / open spaces.
- Communities take **ownership** of area and by means of **informal social control** systems limit criminal activity within a given area.

How?

- Appropriate street lighting (pedestrian orientated), inclusion of CCTV system,
- Encourage permeable street frontage (e.g. palisade fencing, shops opening onto street, etc.)
- Ensure that the physical appearance of an environment creates a positive image and instil feelings of safety in users

Example:





Informative Notice Boards



Human-Scale Lighting