

SPATIAL DEVELOPMENT FRAMEWORK 2013: REGION 4

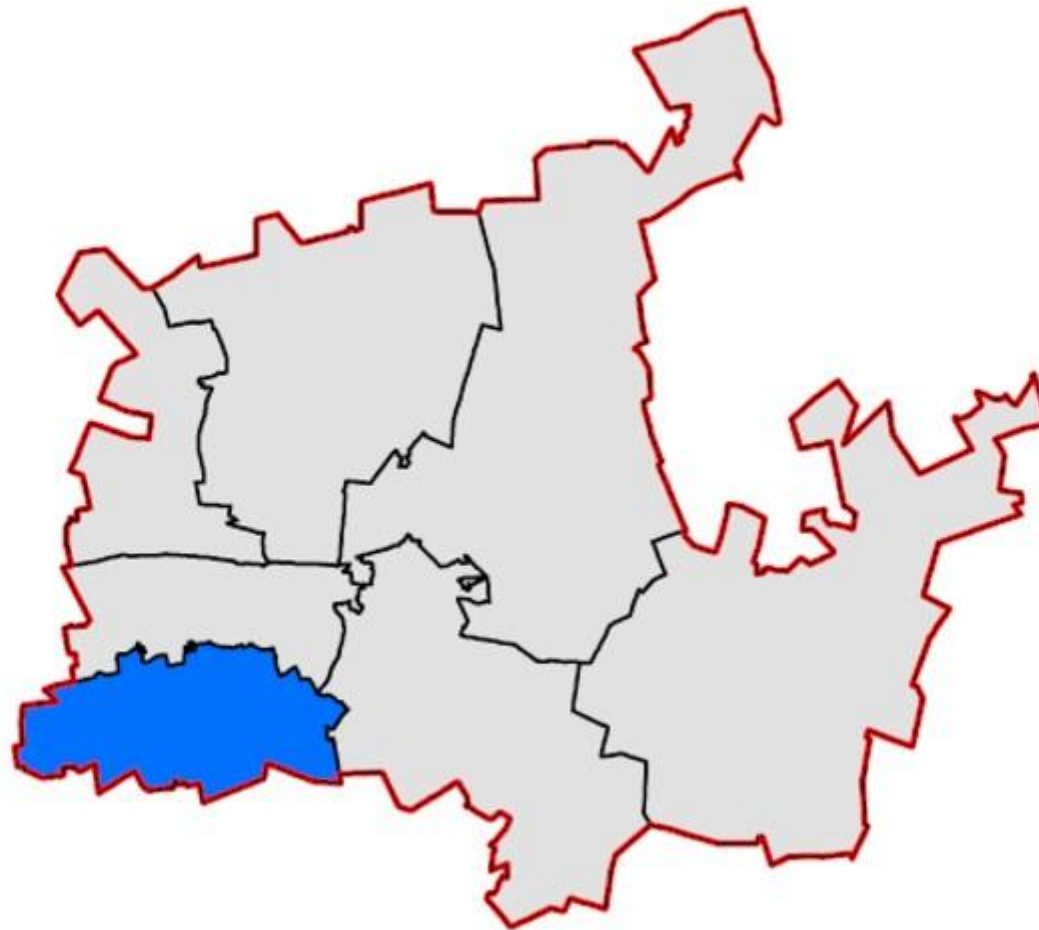


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ABBREVIATIONS

BTR

- Bulk Transport Route, which could include dedicated bus lanes or light and heavy rail.

CBD

- Central Business District

CDS

- City Development Strategy

COT

- City of Tshwane

EIA

- Environmental Impact Assessment

EMF

- Environmental Management Framework

GLA

- Gross Leasable Area

IDF

- Integrated Development Framework

IDP

- Integrated Development Plan

ISDF

- Integrated Spatial Development Framework

ITP

- Integrated Transport Plan

LSDF

- Local Spatial Development framework

MCDC CORRIDOR

- Mabopane Centurion Development Corridor

MSDF

- Metropolitan Spatial Development Framework

RSDF

- Regional Spatial Development Framework

SAPOA

- South African Property Owners Association

SDF

- Spatial Development Framework

SEA

- Strategic Environmental Assessment

SMME's

- Small-Medium & Micro Enterprises

SPTN

- Strategic Public Transport Network

TOSF

- Tshwane Open Space Framework

UDZ

- Urban Development Zone

ZOC

- As per CDS: Zone of Choice

GLOSSARY OF TERMS

ACTIVITY NODES

- Areas of concentration of mixed land uses.

ACTIVITY SPINES

- Mobility routes connect a number of nodes or mixed use areas, serving as the main public transport channels of the region. These routes could support linear development although not necessarily continuous along its length. Higher order land uses should be accommodated in the nodes, but lower order land uses could develop in a linear fashion subject to alternative access opportunities. Densification along these spines should be encouraged to maximise the public transport opportunities provided by these routes.

ACTIVITY STREETS

- Local collector roads supporting lower order land uses in a linear fashion along its length. Direct access to land uses is provided compromising mobility for activity. Development along activity streets should be permitted in accordance with a local spatial development framework.

BLUE IQ

- Refers the Provincial Unit set up through the provincial Department of Finance and Economic Affairs to implement key economic projects in the Gauteng Province.

CAPITAL CORE

- The Tshwane Inner city is identified as the Capital Core as it is the city's first order node amongst all metropolitan nodes. Traditionally, the inner city is also the Central Business District (CBD) of major cities. Tshwane is no different. Historically, the inner city was the geographic heart and centre of what is now the Tshwane area. Over time, though, due to the extension of the Tshwane boundaries, the Inner City is no longer geographically central, but still plays a very important role with regards to the concentration of retail, office and government buildings to be found in the area.

The Capital Core must:

- Be the focal point for housing government departments
- Be developed to a higher than average density, supporting all principles of smart growth

CLUSTER AND SPACE

- Refers to clustering of residential activities and consolidation of ecological spaces.

COMPACT

- A compact urban form increases efficiency in the way people can use the city and in the way the city is managed. More people live in a smaller area in a compact city and this higher density allows for efficient provision of public transport, social and other services. The opposite of a compact city is urban sprawl.

CONCENTRATION ZONES

- See activity nodes.

CONSERVANCY

- A contractually legitimated co-management entity which involves two or more recognised land and resource authorities formed for the use and conservation of natural resources on land under their jurisdiction.

CONSOLIDATED OPEN SPACE

- Refers to open space which is not fragmented into small pockets and not subjected to the degradation of the ecological integrity of the open space as a result of the so-called "edge effect" or decreasing ecological process.

COT

- City of Tshwane.

DENSIFICATION

- Increase of residential density following the guidelines of the Densification and Compaction Strategy, May 2005.

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DENSIFICATION SPINE

- Introduction of medium to higher densities as defined in the Densification and Compaction Strategy along a mobility route to maximise the benefits of public transport. Densification is proposed at a block depth, making use of alternative access options, not to compromise the mobility function of the spine.

EMERGING NODES

- Over the past few years, certain economic, social and/or residential opportunities have begun to emerge in various localities in the city. The realization of these localities into fully fledged nodes will depend on a number of factors. While the future of these nodes is uncertain, the *potential* for greater development is clear. Identifying future urban areas also provides an opportunity to plan for the provision of new infrastructure and timely planning for growth that is sustainable. Emerging nodes will be managed subject to growth management principles.

ESTATES

- Exclusive development containing a number of dwelling units and associated land uses, that may be marketed as either “golf”, “equestrian”, “eco”, “nature”, “country living”, etc., within a secure environment. An estate development takes place within a restricted, specified ecological footprint, which will sustain the ecological integrity of the site.

FUTURE URBAN DEVELOPMENT AREA

- An area identified for development in the near future, to accommodate appropriate land uses in accordance with an approved strategy or local spatial development framework.

HIGHER ORDER LAND USES

- Land uses normally associated with higher impact on the surrounding environments and high traffic generating land uses. It includes but is not restricted to include the following: retail, entertainment, industrial.

INDUSTRIAL

- As referred to on the framework plans includes: light or heavy industrial or high-tech and commercial uses. The appropriate intensity of development to be determined on a local level.

INFILL

- The development of undeveloped or underdeveloped land within a developed urban area with infrastructure available.

INNER CITY

- An area in the City of Tshwane comprising the Pretoria Central Business District and surrounding residential areas.

INSTITUTIONAL

- As referred to on the framework plans includes: educational, medical or government uses.

INTEGRATED DEVELOPMENT PLAN

- A plan to integrate development and management of municipal areas as stipulated in the Municipal Systems Act, 2000. All metropolitan councils are required to formulate and implement an Integrated Development Plan incorporating metropolitan land use planning, transportation planning, infrastructure planning and the promotion of economic development, taking cognisance of the needs and priorities as determined by the metropolitan council concerned.

INTENSIFICATION

- The process of intensifying activities or land use by increasing floor area, height or number of activities.

LEAP-FROG DEVELOPMENT

- Development which takes place on undeveloped land, separating the new township from existing development. It is thus not contiguous with existing development.

LINEAR ZONES

- As per Densification and Compaction Strategy referring to activity spines and linear channels forming a lattice of movement.

LOW DENSITY ZONES

- Areas where only limited densification is proposed.

LOWER ORDER LAND USES

- Land uses that are not usually associated with high impact on the surrounding environment and with low traffic generating characteristics.

MANAGEMENT AREA

- Areas outside the built-up areas which are proposed to accommodate land uses at densities not provided for in the built-up areas.

METROPOLITAN /DEVELOPMENT CORRIDOR

- A development strip located between a first or second order mobility route providing visual exposure and a parallel activity route providing access.

METROPOLITAN CORE

- These are primary nodes of the highest order. These nodes accommodate the highest degree of service specialisation and offer the widest range of services. Often, metropolitan nodes will have regional/provincial relevance. In the Tshwane context, Metropolitan nodes are those nodes within the City (economically) benefiting primarily from the investment of the private sector. Equally important is that these nodes serve as economic hubs and focal points for employment opportunities. The role of the public sector in such nodes is to manage the rate of growth, provide infrastructure in line with the growth management plan and maintain the urban environment.

MIXED USE

- Refers to land uses such as offices/commercial/residential/industrial/retail/entertainment/institutional etc. It also refers to a mix of uses within a specific area (node or corridor). The advantage of mixed uses is that access and convenience are increased as transportation distances are decreased. The combination depends on the specific area. A mixed-use could refer to retail at street level, institutional on the floor above and residential on the upper floors, or only use per erf. Principles regarding retail, commercial and industrial uses / rights are still applicable as indicated in this document. Mixed land use in an industrial area could include industry, commercial and retail uses.

MOBILITY ROAD

- Primarily serves intra-metropolitan traffic. While this route is characterised by through traffic, trends indicate pockets of mixed use developments located alongside. It serves as the most important linkages between the Metropolitan Activity Areas (Capital Core/Metropolitan Cores/Urban Cores/Specialised Activity Areas).

MOBILITY SPINE

- A Mobility Spine is an arterial along which through traffic flows with minimum interruption (optimal mobility). Much smaller than highways, Mobility Spines are usually made of two lanes of opposite vehicle flow. It serves the purpose of inter-regional and metropolitan movement.

NODES

- A node is a place where both public and private investment tends to concentrate. Nodes are usually associated with major road intersections, or with public transport nodes such as railway stations and taxi ranks. It offers the opportunity to locate a range of activities, from small to large enterprises and is often associated with mixed-use development including high density residential uses. Nodes differ in size, the types of activity that occur within them, the size of the areas served and the significance within the city.

PUBLIC TRANSPORT FACILITIES

- Including train stations, taxi and bus facilities with ancillary uses.

RESORT

- Means land and buildings used for accommodating guests/tourists for short periods and includes recreation facilities, dining room and kitchen or restaurant, a conference centre or social hall(s), wedding chapel, caretaker's flat, staff quarters and ancillary and subservient uses.

SUBURBAN DENSIFICATION

- As per Densification and Compaction Strategy: Residential densification in areas that are not located in concentration zones of along linear development spines.

SUSTAINABLE DEVELOPMENT

- Development that has integrated social, economic and environmental factors into planning, implementation and decision-making, so as to ensure that it serves present and future generations.

TRANSPORT –ORIENTATED DEVELOPMENT (TOD)

- Transit-oriented development (TOD) is a mixed-use residential or commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership. A TOD neighbourhood typically has a center with a transit station or stop (train station, metro station, tram stop, or bus stop), surrounded by relatively high-density development with progressively lower-density development spreading outward from the center. TODs generally are located within a radius of one-quarter to one-half mile (400 to 800 m) from a transit stop, as this is considered to be an appropriate scale for pedestrians.

URBAN CORE

- Former township areas were developed as a result of forced relocation programmes. Inevitably, these townships grew to accommodate large populations of low income or unemployed people. The economic circumstance was clearly evident in the quality of the physical environment. Under the new government which was established in 1994, these township areas were identified, not as a blight in the urban fabric as previously thought of, but as beacons of opportunity, through the human capital that was concentrated within the various communities of the townships. Due to the great need that often belies such nodes, the government has to play a more active role in social and economic restructuring, especially in view of the limited private investment, relative to Metropolitan cores. The Neighbourhood Development Programme (NDPG) is a Nationally funded programme that aims to address the improved quality of environment in urban cores.

URBAN DEVELOPMENT

- Developed areas that will be completely transformed by human intervention and accommodate a range of intense land uses.

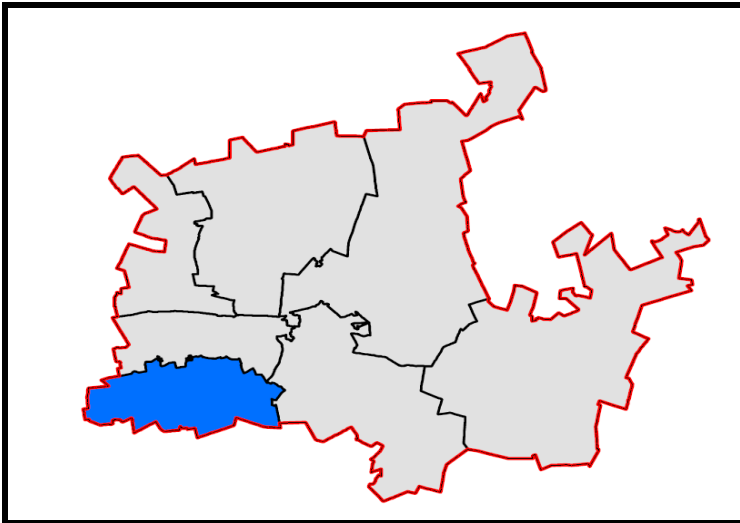
PART ONE: INTRODUCTION

1.1 BACKGROUND

The City of Tshwane (COT) embarked on processes to compile seven Regional Spatial Development Frameworks (RSDF's) for the administrative planning regions of the metropolitan area in 2011.

The RSDF's needed to be inter-linked and also support the Tshwane Metropolitan Spatial Development Framework (MSDF) of 2012 as well as the Tshwane City Development Strategy (CDS), Tshwane Densification and Compaction Strategy (2005) and Tshwane Open Space Framework.

This RSDF for Region 4 was therefore prepared within the context of the MSDF, the City Development Strategy and in support of the other RSDF's.



1.2 LEGISLATIVE FRAMEWORK

- The Municipal Systems Act, 2000 (Act 32 of 2000) determines that a municipality must adopt a framework for integrated development in its area in the form of an Integrated Development Plan (IDP) (Section 27).
- A Spatial Development Framework, which guides and informs all development forms part of the IDP (Section 35 (2)).
- The Gauteng Planning and Development Act, 2003 (Act 3 of 2003) determines that municipalities must formulate spatial development frameworks for their areas (Section 31 and 32).
- The content of these plans “shall be in the form of maps or a map together with explanatory report of the desired spatial form of the municipality”.

A Spatial Development Framework must:

- Indicate where public and private development infrastructure investment should take place.
- Indicate desired development and land use patterns for different areas.
- Indicate where development of particular land uses should be discouraged or restricted.
- Provide broad indication of the areas where priority spending should take place.
- Shall provide guidelines for development and land use decision-making by the municipality.

This Regional Spatial Development Framework was prepared in accordance with the above mentioned provisions.

1.3 APPROACH AND METHODOLOGY

The approach to the preparation of the RSDF was based on the following:

- The MSDF objectives, vision and supporting strategies as well as development issues were used to inform the role and function of the region.
- The metropolitan role and function of the region was determined.
- Existing planning documents were utilised to inform the analysis and no primary research was done.
- The analysis was done in terms of the following planning environments and its impact on the spatial structure investigated:
 - the economic environment
 - the physical environment (natural and man made)
 - the social environment.
- The RSDF is issue based, through the identification of critical development issues and catalytic planning interventions.
- The RSDF was formulated to meet both regional and metropolitan requirements.

1.4 THE USE OF THIS DOCUMENT

As a point of departure in terms of the governance model adopted by Council, it should be understood that no decision on site specific development application can have the effect of materially amending the RSDF's or undermine the IDP with reference to section 35 of the MSA.

The burden on a local authority in the preparation of the IDP and the SDF's with regard to public participation limits the power of a local authority to, without proper consideration amend, undermine or redirect policy. The citizenry within the jurisdiction of the City of Tshwane has the right to be able to rely on the content of the IDP and SDF's and any amendment thereto should not be taken lightly.

In particular, no development proposal may undermine the budgetary provisions contained in the IDP read with the SDF. Should such development proposals have merit, they should be tested against the overall objectives of the policy documentation and formally incorporated to ensure integrated, funded and sustainable development takes place, that reach the objectives set out in the policy documents. The RSDF's indicate where and how discretionary powers are granted to deal with applications on merit. A merit deviation should be based on **specific criteria** or **threshold requirements**, which requirements shall in the sole opinion of the local authority be complied with, in order to deviate or amend

the RSDF or any component thereof. Keeping in mind that if it is so material as to impact on the overall objectives of the SDF's or IDP, that it can only be formally amended by the legislative body of Council, with public participation.

MAPS AND PRINCIPLES

The different principles as indicated in Chapter 4 must be interpreted per Map and against the principles as specified in the document. For Example density applications will be evaluated according to the density map and accompanying principles as specified in chapter 4. Alternative land uses and activities will be evaluated according to the movement and activity map and accompanying principles. The composite map at the end of the document must only be regarded as a schematic representation of the principles.

INFRASTRUCTURE

Development proposals, whether in line with these documents or on merit, should only be supported if infrastructure to the satisfaction of the local authority can be provided in line with the overall IDP. This should include the provision of infrastructure by developers that may have an impact on the operational budget of Council. The availability of infrastructure shall not be regarded as sufficient support for a development proposal. The prioritisation and provision of infrastructure is within the sole discretion of the local authority and shall be considered and evaluated based on accumulative impact and prioritisation of resources.

TRANSITIONAL ARRANGEMENTS

In order for the City of Tshwane to ensure that pending applications that were submitted in line with the rescinded MSDF/SDF's or RSDF's to be substituted by the reviewed MSDF and RSDF's, to be effectively and efficiently evaluated against policy the following transitional measures shall apply:

Any development application which relied on the provisions of the MSDF's or RSDF's in support of consideration of the said applications, that are pending before the City of Tshwane at the time of the adoption by Council of the reviewed MSDF's and RSDF's, shall be dealt with as if these revised documents have not been adopted.

These pending development applications shall be finalised based on the policy provisions contained the rescinded MSDF's and RSDF's or any component of these documents; provided that where applications are pending before the local authority and the reviewed MSDF's and RSDF's are in support of an application that the local authority in their sole discretion and interpretation of whether in support or not, the

application may be considered against the reviewed MSDF's and RSDF's. This provision shall not be applicable if the application by evaluation against the reviewed MSDF's and RSDF's shall have the result of negatively impacting on the rights of an applicant.

The RSDF is not the sole mechanism in determining the suitability of any potential change in land use, but should be used in conjunction with requirements as may be determined by infrastructure and other relevant aspects that may not be contained in the RSDF.

PART 2: METROPOLITAN CONTEXT

2.1 CITY VISION

2.1.1 THE VISION

The Vision of the City of Tshwane is to become *The African Capital City of Excellence*. Seven strategic objectives have been identified in order to respond to the vision:

1. Provide basic services, roads and stormwater
2. Economic Growth and Development and Job Creation
3. Sustainable communities with clean, healthy and safe environment and integrated social services
4. Foster Participatory Democracy and Batho Pele
5. Promote Sound Governance
6. Ensure financial sustainability
7. Organisational Development and Transformation

Over the next 5 years, the City's performance in these seven areas must improve and will be reflected in the input and outcome indicator of 2011-2016.

The RSDF and MSDF respond primarily to

- **Strategic Objective 2** (Economic growth and development):
 - Provide strategic direction around infrastructure provision

- Guide developers and investors as to appropriate investment localities
- Rural development programmes to improve livelihoods and stimulate employment
- **Strategic Objective 3** (sustainable communities with clean healthy and safe environment and integrated social services). :
 - Restructure the spatially inefficient City through compaction, densification and transport orientated development.
 - Promote sustainable use of land resources
 - Growth management

2.1.2 THE SPATIAL VISION

The Spatial Vision of the City of Tshwane is to lead integrated planning maximising on spatial efficiencies for optimal service delivery.

This will be addressed through spatial interventions:

- Addressing social need
- Restructuring of a spatially inefficient City
- Promotion of sustainable use of land resources
- Strategic direction around infrastructure provision
- Creating opportunities for both rural and urban areas

2.1.3 GAUTENG SPATIAL DEVELOPMENT FRAMEWORK

The **G2055** initiative is an initiative aimed at preparing the Gauteng City Region for a population of approximately 28million people by 2055. The G2055 vision is *for Gauteng to have a strong knowledge capital, be the hub of innovation to Africa, be a livable, prosperous, competitive, equitable, accessible and sustainable City* region. The initiative is spatially addressed in the Gauteng Spatial Development Framework (approved in February 2011).

The Gauteng Spatial Development Framework (GSDF) provides a common future spatial structure for the Gauteng Province and is clear on the fact that ***growth must be structured and directed; not merely***

accepted and accommodated and thus informs and guides the Tshwane MSDP with specific regards to the location and nature of the physical development in the Province.

The following five critical factors were identified in the GSDF:

- Contained urban growth
- Resource based economic development (resulting in the identification of the economic core)
- Re-direction of urban growth (stabilise/limit growth in economically non-viable areas, achieve growth on the land within the economic growth sphere)
- Protection of rural areas and enhancement of tourism and agricultural related activities
- Increased access and mobility.

The primary structuring elements identified within the GSDF are those of:

- urban mixed-use activity nodes
- open space and green system
- public transit and movement routes
- urban corridors and activity spines

Node Hierarchy	Function	Economy/Land Use	Intensity of Use	Density	Walkability/ Extent	Public Facilities	Public Transport
Regional Node	Historic/Original urban core/ centre, can have specialist national function such as govt. administration	Mixed, including retail, commercial, business, residential and industrial	High, with high-rise buildings, up to 30+ storeys	High, full density range	At least one or a series of overlapping 800m isopleths can be 4-8km ²	Focus on national/provincial level	Multi-modal and diverse, can include airport node
Primary Node	Serving a wider metropolitan area, this can comprise a clustering of districts	Mixed, including residential (full scope of activities, incl. provincial/ national theatre etc.)	High, with high-rise buildings, up to 30 storeys	High, full density range	At least one or a series of overlapping 800m isopleths can be 4-8km ² in area	Full scope, up to national/provincial level	Multi-modal and diverse, can include airport
Secondary Node	Serving a clustering of suburbs with precinct areas/ district town	Mixed, including residential with district/regional scope of facilities. Can have specialist use focus	High, medium to high-rise building range (3-20 storeys)	Medium to high density range	400m-800m isopleths	Full scope, up to community and provincial level	Multi-modal and diverse (minimum of two modes)
Tertiary Node	Serving two or more local/precinct areas- neighbourhood suburb	Mixed, focused on suburban level, can include specialist facilities	Medium to low, clustering of facilities, up to 4 storeys	Low-medium density	400m isopleths	Up to community level standard	One to two modes
Local Node	Small convenience centre local precinct Mono-use specialist function (sport, event, medical, exhibition and other).	Specialist/convenience retail/services	Few facilities, up to 3 storeys	Low density	200m isopleths	Satellite/ mobile/ very small	Single mode e.g. bus only
Specialist Node	Has a regional and metropolitan function, attracts national events	Mono-use specialist function (sport, event, medical, exhibition and other)	Large and Massive structures, space extensive	n/a	At least one or a series of overlapping 800m isopleths can be 2-4km ² in area	National, regional and local	Multi-modal and diverse, mass transit oriented

2.1.3.1 NODE HIERARCHY

The GSDF defines nodes as being intense concentrations of activities, containing a mixture of uses such as retail, office, entertainment, community facilities and adjoining residential component. A node can be orientated towards a local, neighbourhood, regional or city-wide community. The GSDF identifies a hierarchy of nodes that correspond with Tshwane nodes in the following manner:

GSDF	MSDF
Regional Node	Capital Core/ Tshwane CBD
Primary Node	Metropolitan Node
Secondary Node	
Secondary Node	Urban Core
Tertiary Node	
Local Node	Emerging Node
Specialist Node	Specialised Nodes

The GSDF further defines nodes in terms of: Function, Economy/Land Use, Intensity of Use, Density, Walkability/Extent, Public Facilities and Public Transport.

2.1.3.2 OPEN SPACE AND GREEN SYSTEM

The GSDF open space and green system is informed by the provincial dolomite belts, soil fertility for purposes of agricultural activity, conservation areas, ridges, watercourses and heritage sites.

2.1.3.3 PUBLIC TRANSIT AND MOVEMENT ROUTES

The GSDF indicates that the existing rail systems and BRT routes should form the basis of the transport system for Gauteng for both freight and public transport. The GSDF further takes cognisance of the proposed extended/upgraded rail links, providing a commuter line that connects Mabopane to Hammanskraal and Hammanskraal to the Capital Core (urban structuring initiative), as indicated in the

Tshwane MSDF of 2005. It is further indicated that the proposed Tshwane inner-rail loop of the Tshwane MSDF (2005) would significantly increase urban consolidation potential as a well-located public, subsidized initiative.

2.1.3.4 URBAN CORRIDORS AND ACTIVITY SPINES

The GSDF defines an urban corridor as being the largest of the urban structure elements, consisting of a combination of structuring elements at the metropolitan and regional scale of the urban environment. It is typically a linear element linking two metropolitan nodes, showing that it is origin and destination driven (i.e. it goes from somewhere important to somewhere important). A corridor of this nature is complex in profile and the mix of uses, resulting in varying development intensity and a width .

On the other hand, an activity spine is a linear mixed-use element of urban structure containing an intense concentration of facilities which are all focused along a major transportation route. It is the focal point of an urban corridor or can be a separate element. The spine is traffic orientated, accessed through public and private transport. It carries various modes of traffic which give direct access to a range of high intensify land uses. Pedestrian movement in between passing trade characterizes the nature of the activity, supported by a strong residential component.

Major Regional Corridors identified are:

- N1 (Polokwane/Tshwane/JHB/Vaal/Bloem/Cape Town)
- N 4 (Rustenburg/Tshwane/ Witbank)

Major Provincial Corridor:

- R21 from Tshwane to OR Tambo International Airport

2.1.3.5 CONSOLIDATION AND DENSIFICATION

Given the comprehensive system of discernible urban corridors and public transport potential within Gauteng, consolidation of urban development should be concentrated around existing primary urban centers, urban nodes, and urban corridors and along urban activity spines.



2.1.3.6 GROWTH MANAGEMENT: URBAN EDGE

In 2011 the decision was taken that the Provincial Urban Edge would no longer be implemented by Gauteng. Rather, that the edge should be managed by local municipalities, themselves, to ensure an appropriate and contextual application of growth management.

To this end, the City of Tshwane will reflect strategic urban edge delineations within the Regional Spatial Planning Frameworks and other lower hierarchy spatial plans. Amendments or deviations to the urban edge will be at the discretion of the municipality, subject to the merits of the specific application.

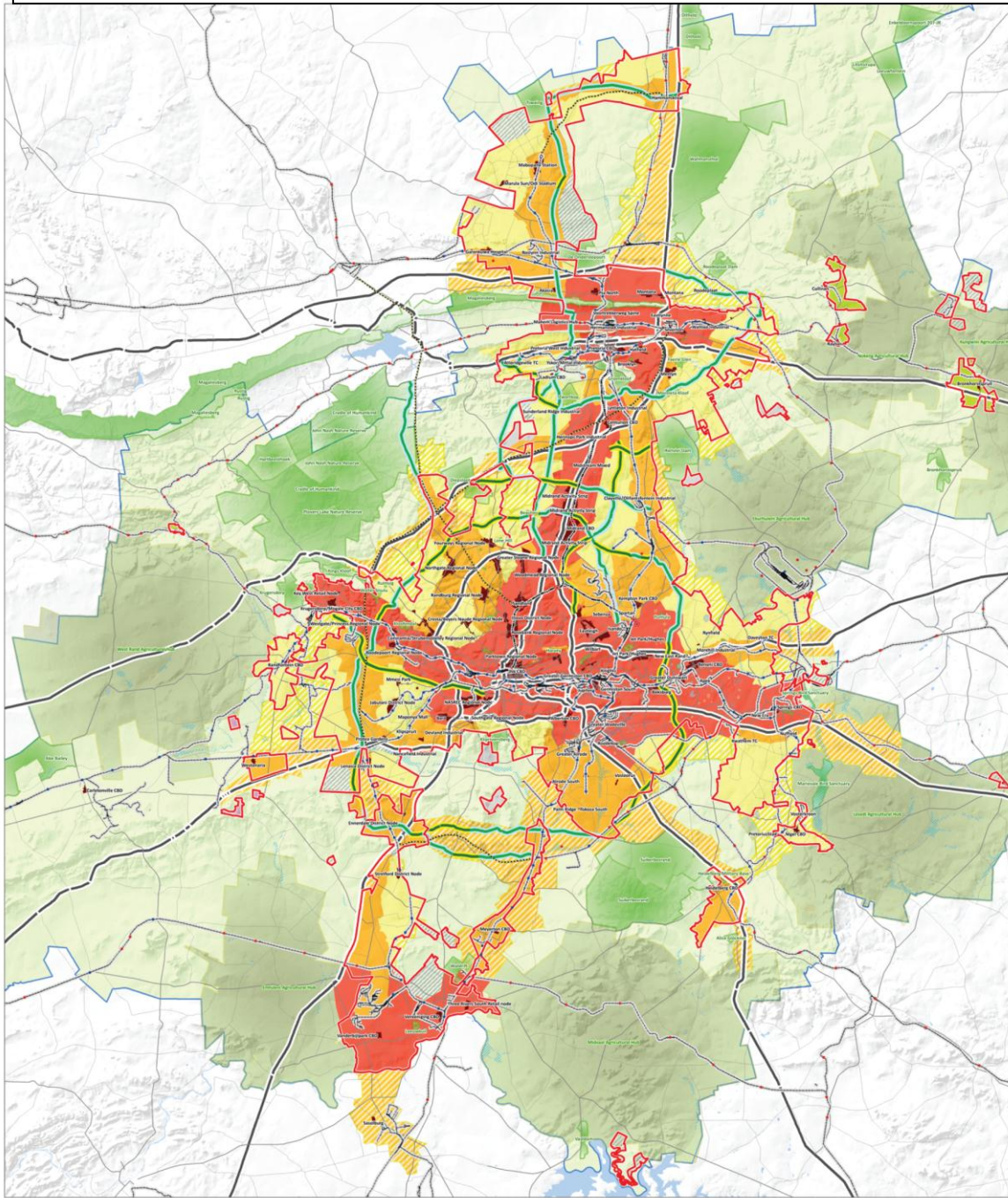
The concept of the 'urban void', as defined in the GSDF, is also important to note. The urban void comprises expansive areas (or

discontinuities) within the urban system that remain or are under- and/or undeveloped for very specific reasons. These typically include extensive agricultural holdings and mining areas, as well as land used for military purposes. Some areas remain undeveloped due to their potential threat to human safety and health, for example unstable geotechnical conditions due to the formation of sink holes and previous mining activity, and industrial activity/ production which prohibit urban development in close proximity in the industrial activity. Other areas may be developed over time, as the urban system grows and expands, certain of the activities may be re-located and/or discontinued, creating opportunities for new development.

What is critical to remember is that the GSDF is a long term spatial framework and reflects the vision for 2055. On the municipal level, spatial planning will need to respond to the G2055 vision and GSDF within the *local context* in *incremental* stages providing more detailed spatial directives in short, medium and long-term plans that should respond to the G2055.

The primary growth management tool will be the urban edge. The urban edge is an urban management tool used to counter urban sprawl and unplanned expansion, encourage densification and protect natural resources within the city.

GAUTENG SPATIAL DEVELOPMENT FRAMEWORK : 2012



- ★ Gautrain Stations
- Freight stations
- Passenger Stations
- Urban edge delineation 2009
- Urban nodes
- Protected Areas/Natural Systems
- Extensive general agricultural hinterland
- Designated Agricultural Hubs
- Urban consolidation zones
- Rail network
- Strategic Rail connectors
- Gautrain Rapid Rail
- Strategic Road connectors - New
- Strategic Road connectors - Upgrade
- Passenger Ring Rail
- Future corridors
- Urban development corridors
- Future outer edge of urban development by 2055*
- Existing mining settlements
- Freeway and Primary
- Secondary
- Tertiary
- Future urban consolidation within the urban edge
- Rural centres
- Residential Estates
- Urban Edge for review
- Waterbodies



0 5 10 15 20 25 Kilometres

Date: 14 April 2010
Projection: Transverse Mercator 24 C - Spheroid: WGS84

* Zones in which incremental urban consolidation may encroach subject to socially sustainable economic, infrastructural and environmental performance criteria.

2.2 THE CITY STRUCTURE

The CoT covers an area of 6260 km² and is the result of an amalgamation of the previous City of Tshwane, which was established in December 2000, and the three Metsweding Municipalities (Nokeng tsa Temane Local Municipality, Kungwini Local Municipality, Metsweding District Municipality), found directly east and south east of the previous City of Tshwane. The City of Tshwane (CoT), found within the Gauteng Province, is bordered by Limpopo to the north, Mpumalanga to the east, the Ekurhuleni and City of Johannesburg Metropolitan Municipalities to the south and North West to the west.

With Gauteng being at a total area of 16 548 km², Tshwane, at 6260 km², covers approximately 39% of the entire province.

Tshwane consists of 7 planning regions each with their own unique characteristics.

2.2.1 HIERARCHY OF NODES

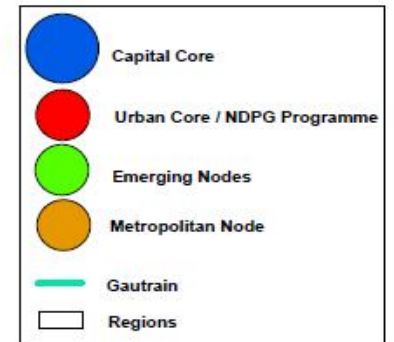
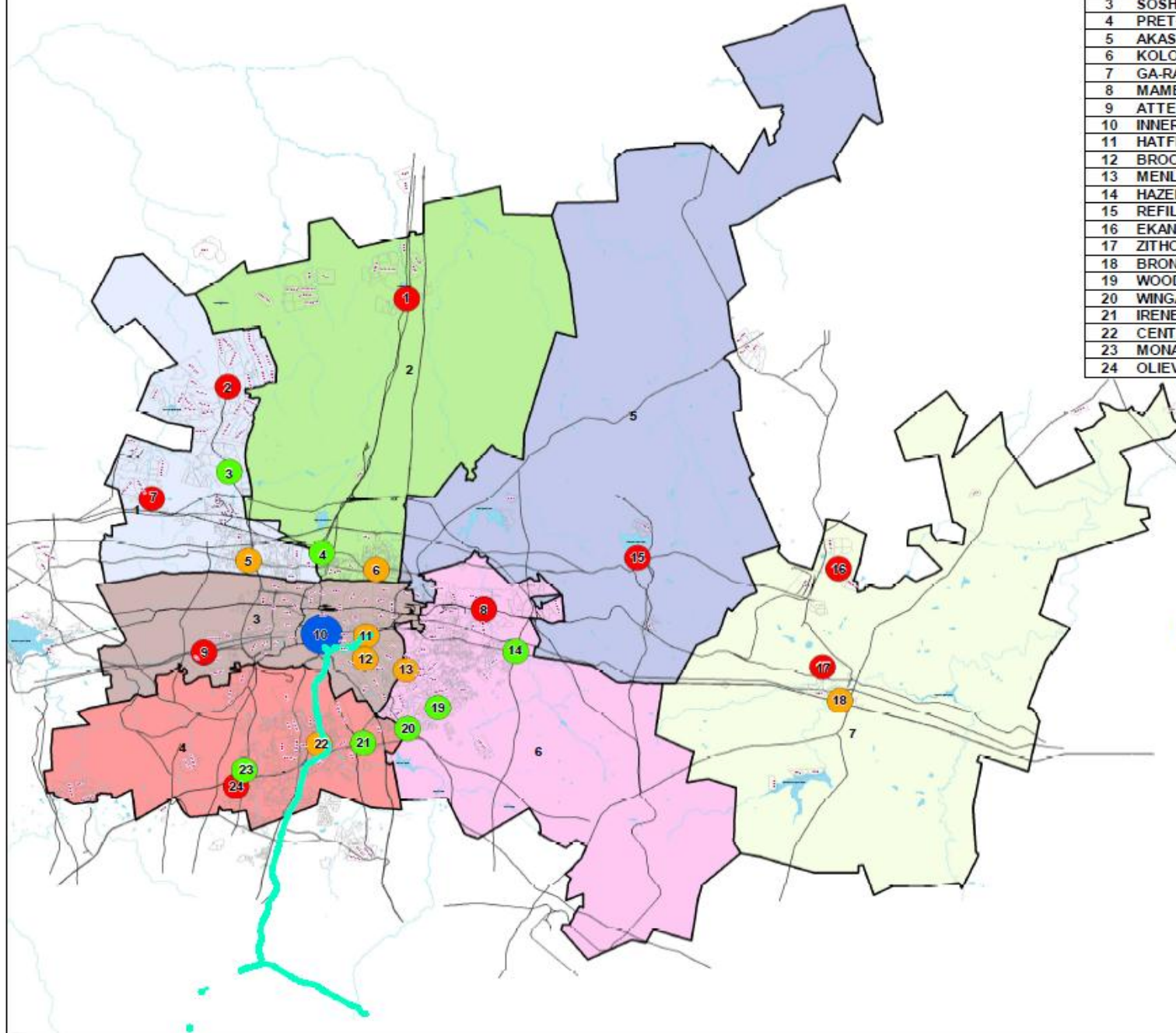
Understanding that the current needs far outweigh the resources, it is important that the City focuses on the opportunities that exist for

exponential growth and investment in the long term. These opportunities will be determined within the spatial vision by indicating where growth will occur in transport, housing, energy, water, recreation, education, health infrastructure and services. As explained by the smart growth concept. The spatial plan will promote efficient and effective resource allocation, ensuring that resources such as infrastructure are delivered in the right place and at the right time. This spatial plan also provides a sense of certainty for the future, and thus, investor confidence.

It is clear that the CoT holds a number of spatial opportunities. So many, in fact, that only the most prominent were named. The City of Tshwane must operate within the context of the greater City- region of Gauteng, so that it can position itself to be competitive relative to other major nodes within the province. This means that nodes within Tshwane should serve a specific function, either within the local, provincial, or national context. Various nodes can complement others or be functionally independent.

Tshwane Nodes

1	HAMMANSKRAAL / TEMBA
2	MABOPANE / SOSHANGUVE
3	SOSHANGUVE SOUTH / KOPANONG
4	PRETORIA NORTH / RAINBOW JUNCTION
5	AKASIA CBD
6	KOLONNADE
7	GA-RANKUWA
8	MAMELODI
9	ATTERIDGEVILLE / SAULSVILLE
10	INNER CITY
11	HATFIELD
12	BROOKLYN
13	MENLYN
14	HAZELDEAN
15	REFILWE
16	EKANGALA
17	ZITHOBENI
18	BRONKHORST SPRUIT
19	WOODLANDS
20	WINGATE PARK
21	IRENE
22	CENTURION CBD
23	MONAVONI
24	OLIEVENHOUTBOSCH



The key issue is that nodes within the city do not compete but complement and support each other so that the synergies between them maximise the potential of the City as a whole.

An important distinction is made between four nodal typologies i.e.

Metropolitan Nodes- these are primary nodes of the highest order. These nodes accommodate the highest degree of service specialisation and offer the widest range of services. Often, metropolitan nodes will have regional/provincial relevance. In the context of Tshwane, Metropolitan nodes are those nodes within the City benefiting from the investment of the private sector. Equally important is that these nodes serve as economic hubs and focal points for employment opportunities. The role of the public sector in such nodes is to manage the pace of growth, provide infrastructure in line with the growth management plan and maintain the urban environment. Such localities are also where the most extensive land use rights, including densities, are likely to be supported, also in line with the growth management strategy.

Urban Cores- former township areas were as a result of forced relocation programmes. Inevitably, these townships grew to accommodate large populations of low income or unemployed people. The economic circumstance was clearly evident in the quality of the physical environment. Under the new government which was established in 1994, these township areas were identified, not as a blight in the urban fabric as previously thought of, but as beacons of opportunity, through the human capital that was concentrated within the various communities of the townships. Due to the great need that often belies such nodes, the government has to play a more active role in social and economic restructuring, especially in view of the limited private investment, relative to Metropolitan cores. The Neighbourhood Development Programme (NDPG) is a lead City programme and the main instrument 'township renewal'. Zithobeni, Ekangala and Refilwe are presented as Urban Cores.

Emerging nodes- over the past few years, certain economic, social and/or residential opportunities have begun to emerge in various localities in the city. The realisation of these localities into fully fledged nodes will depend on a number of factors. While the future of these nodes is uncertain, the

potential for greater development is clear. Identifying future urban areas also provides an opportunity to plan for the provision of new infrastructure and timely planning for growth that is sustainable. Cullinan is presented as Emerging nodes.

Specialised Activity Areas - There are nodes in the metropolitan area that are characterised by largely mono-functional land uses taking up large, concentrated and defined space. The character of the areas ranges from industrial to high technology smart industries, medical facilities, educational and research facilities. It is important to acknowledge these specialised activity areas not just in terms of their scale, but because of their sphere of influence in terms of generating movement, opportunities and linkages with other areas. These linkages do not only refer to physical linkages, but also to "connectivity" in a broader sense, such as between institutions of learning and research.

The Blue IQ initiative of the Gauteng Provincial government contributes significantly towards the specialised activity areas in Tshwane. Blue IQ aims to deliver strategic economic infrastructure to catalyse sustainable economic growth and to indirectly contribute to job creation; to influence the composition of exports, and influence the diversification of Gauteng's GGP. The Blue IQ initiative focuses on four growth areas:

- Business Tourism
- High value-added Manufacturing (high value-add)
- Logistics
- Information and Communication Technology (ICT)

The following are examples of such metropolitan specialised activity areas:

Industrial

- Rosslyn Industrial area (Blue IQ Gauteng Automotive Cluster)
- Babelegi
- GaRankuwa
- Soshanguve industrial
- Mabopane industrial
- Klerksoord

- Kirkney
- Hermanstadt
- Pretoria
- Sunderland Ridge
- Rooihuiskraal
- Hennopspark
- Samcor Park
- Waltloo/Silverton
- Silvertondale
- Koedoespoort
- Ekandustria
- Ovipropark industrial (Bronkhorstspuit)

Research, education and technology

- Highveld Technopark
- Irene / Route 21 Gateway
- Innovation Hub (Blue IQ)
- Onderstepoort Training and Research Facility
- Persequor Hightech Park
- Human Sciences Research Council (HSRC)
- Council for Scientific and Industrial Research (CSIR)
- University of Pretoria
- Tshwane University of Technology (TUT)
- Steve Biko Academic Hospital and surrounding medical precinct
- George Mukhari Academic Hospital

Airports

- Wonderboom National Airport
- Waterkloof Airforce Base
- Thaba Tshwane Airforce Base
- Swartkops Air Force Museum
- Lanseria (cross border influence)

In 2004 the so called “Zone of Choice” was identified as a focus area for strategic investment.

The Zone of Choice is proposed as a strategic investment focus area to have a positive catalytic effect on development within the northern areas of Tshwane. This area, running in a broad band to the north of the Magaliesberg has the most potential for new development that will benefit most people in the North. The reason why this area has been identified as the Zone of Choice is related to its proximity to the Capital Core, existing infrastructure (such as the N4) and the momentum of existing developments such as the industrial area of Rosslyn.

The Zone of Choice can be defined as the Magaliesberg mountain range in the south, the western boundary is the western boundary of the old Akasia area. The northern boundary stretches from the Rosslyn Industrial area along the southern boundary of the Onderstepoort nature area, the northern boundary of the Bon Accord Dam, and then along the Cullinan / Brits railway line. The eastern boundary stretches along the N1 from the railway line up the Magaliesberg. The needs of the North need to be addressed by:

- Avoiding unsustainable provision of municipal services.
- Moderating levels of services so as to ensure that services are affordable.
- Investing in communal facilities and infrastructure.
- Visible public investment.
- Refining tariff and property tax structures.
- Ensuring productive investment – increasing accessibility to opportunity, mobility and job creation.
- Managing the total cost of municipal services.

The Zone of Choice will act as a catalyst for further social and economic development in the North and has the potential to benefit a majority of the region's current population. It is a focus area for strategic intervention in the North. It is evident that there is a need for clear policy shifts to be made in order to fully support the redirecting of developmental focus within this area. Proposals made regarding these policy shifts include:

- The continuation of delivering basic social services, but differentiating between rudimentary and higher order services.

- Upgrading the movement system so as to ensure access to urban opportunities.
- Upgrading of the road infrastructure system in an effort to alleviate traffic congestion (e.g. build K8/Third Road as matter of urgency).
- Creating places of value.
- Differentiating public housing options so as to allow for opportunities of choice and social mobility.

2.3 GROWTH MANAGEMENT

Growth management is a spatial concept that encompasses all aspects that ensure efficient, optimal and sustainable development of the physical environment. A key principle of this concept is smart growth. The smart growth principle guides development such that resources and services are provided in such a manner that they meet the demands of the affected population over a long-term period.

The role of nodes within the growth management concept is key. Nodes are those parts of the city where development should be focused. The widest variety of services and opportunities should be provided at nodal points, at degrees relative to their nodal status. The costs of urban sprawl and associated low densities are undeniable. Due to the limitation that development can be subjected to through the inability to provide bulk infrastructure, it is imperative that available infrastructure within the nodes are used optimally. This requires densification and intensification of land uses through compaction and infill developments. The maximisation of urban management within the nodes requires that these areas are specifically delineated within the greater developable areas for optimal growth.

The Compaction and Densification Strategy that was approved by the Council contains proposals for densification of the metropolitan area, which have local implications for each of the planning regions. The interpretation of the densification strategy for every region required special attention in the preparation of the RSDF.

The strategy contains proposals for four key density zones:

- Concentration zones (high density / transit zones).
- Linear Zones i.e. corridors and spines (medium density).
- Suburban Densification (low to medium densities).
- Low-density areas (little densification).

Densification and infill are sound urban development principles to pursue, but caution should be issued that most existing developed areas were not planned to accommodate higher densities and that in general the present road infrastructure cannot accommodate the additional traffic that densification implies. Densification should therefore be approached holistically striving to also support a better public transportation system as a dual development process.

Densification is necessary for a number of reasons but most importantly it should support the provision of all urban services as best as possible.

Looking at the city from a metropolitan perspective ideally, areas with higher densities should be in the following localities:

- As close as possible to the CBD.
- Close to metropolitan core areas and services.
- In the proximity of areas with job opportunities.
- Close to public transportation facilities (major road and railway facilities).

At metropolitan level strategic land pockets that satisfy the above criteria were identified with the aim to propose the development of high-density residential nodes within such areas to make a significant impact on compacting the city in a more sustainable and focussed manner. These areas are located within different socio-economic characteristics and will therefore have to respond to the economic characteristics within which it is located.

These delineations extend to the containment of areas where development is permissible to areas where little or no development is permissible- such as environmentally sensitive or conservation areas.

2.3.1 URBAN EDGE

One tool for providing such delineations as discussed above is the urban edge. The urban edge will contribute to the achievement of the strategic objectives by conserving valuable environmental areas which would otherwise be compromised by development and promoting the use of existing infrastructure through redevelopment, infill development and densification within the edge thus achieving development that is sustainable. The urban edge also encourages the agglomeration of economies within the edge, encouraging scattered secondary or emerging nodes to develop into consolidated primary nodes as opposed to leapfrog development. The edge also ensures the protection of land- an exhaustible resource- by encouraging Brownfield developments instead of Greenfield developments.

2.3.2 TSHWANE RETAIL STRATEGY

A Tshwane Retail Strategy was formulated to guide decision-making on the development and management of retail nodes for the city.

Retail development should balance the needs of the retail sector with the needs of communities, urban functionality and sustainable development and should make a positive contribution to the overall urban environment. The local authority will take a more facilitative approach toward retail developments, provided that the actual development is in line with and support the urban objectives and contribute to a more functional, equitable, convenient and attractive metropolitan environment. Retail development should therefore be approached holistically, looking at the economic, social and environmental aspects.

The principles that underlay the approach taken in retail developments in Tshwane can be summarised as follows:

- To allow market forces and the free economy to determine the trend and tempo of retail development within the parameters set by the Tshwane Retail Policy.

- The desirability of a retail facility will be influenced by the broader area and the specific site as well as the degree to which the retail development contribute to the enhancement of the overall environment and the achievement of metropolitan development goals, as set out in the MSDF.
- Retail developments must be sensitive towards its location and surrounding environment, and be designed and sited in such a way that it contributes to the overall quality of the environment and not detract from it. A number of qualitative aspects will therefore have to be considered when evaluating retail applications, such as urban design, landscaping, public transport, interfaces etc.
- Retail applications and the evaluation thereof have to take consideration of the local context, i.e. the same guidelines and criteria do not apply uniformly to all parts of the metropolitan area.

Because of the fact that Tshwane comprises a large number of diverse areas, each with its own history, level of maturity, growth, population characteristics etc., it would be unwise to have a singular approach to retail development as a land use.

For this reason, a package of spatial strategies has been developed, that aim to address the relationship between specific contextual circumstances and future retail potential. These strategies should be interpreted more on local level, and are reflected in the Regional Spatial Development Frameworks.

The following provides a brief summary of each of the spatial strategies of the Retail Policy:

Renewal Strategy: In many instances retail facilities have become outdated, the increase in passing traffic has created a problem and in many instances parking facilities are inadequate. The revitalisation, upgrade and improvement of these areas should be encouraged.

Once a particular location or structure is no longer viable for retail purposes it is recommended that the structure be demolished and

converted for other uses. This strategy will be driven by the decrease in return on investment in a particular area, large vacancies and the reluctance of retailers to move into a particular area. Urban decay, poor locations and unsafe areas will be the main problems to deal with. This should also form part of a broader revitalisation strategy for areas experiencing urban decay.

A renewal or upgrade strategy should also be followed by shopping centre owners. In most cases shopping centres are in need of a minor upgrade/major maintenance overhaul at intervals of 5 to 7 years.

Maintenance strategy: In certain cases shopping centres have become outdated and routine maintenance no longer effective and the upgrading or the redevelopment of the centre imperative. A maintenance strategy will mainly be applicable in already built up areas.

Expansion strategy: The change and growth in consumer demand in a particular area as well as new retail offerings will 'force' landlords to expand their existing retail facilities or to include new retail types. This is especially applicable in the case of regional and super regional centres, but can also be relevant for existing business clusters.

Most regional centres continuously expand to make provision for internal growth and to accommodate new retail concepts or trends. Cognisance should be taken of this particular need. This growth will mainly be driven by the already proven success of a particular centre, its location and the needs of the market.

Infill strategy: In this instance reference is made to infill in already built up residential areas where retail has been lacking or undersupplied. This type of development will then capitalise on an existing market and will prevent major outflows from a particular area to other shopping destinations.

The most important infill gaps currently exist in the traditionally black urban areas, although it is not necessarily restricted to these areas. There is currently major interest in the development of shopping centres in these areas, and development in these areas should be encouraged. The

developments range from small neighbourhood to regional (large community) centres.

It is important to note that once the area is sufficiently serviced, the Infill Strategy must be replaced by the Maintenance and Expansion Strategies, and where new growth occurs, the Follow-the-roofs strategy.

'Follow-the roofs'/ new growth areas strategy: This strategy focuses on new growth areas and the provision of retail facilities once a certain threshold level of houses and disposable income is reached.

In the case of a 'follow the roofs' strategy, timing is of critical importance. Should a centre be built too soon the retail performance will be low and casualties, especially amongst the smaller tenants, will be high. Further growth in an area should also be such that the trade area of the proposed centre will fill up sooner rather than later.

Nodal strategy: Nodal or urban core strategy is applicable where larger retail facilities will create agglomeration advantages for complementary retail facilities. Urban and Metropolitan cores are those nodes or urban centres that fulfil a city wide function. These nodes are not stagnant and will expand over time. It is important that these agglomeration nodal developments take place in close proximity of small to super regional centres. Different types of retail facilities are on offer and not all can be accommodated in a traditional shopping centre. The best locational advantages of these complementary retail facilities are in close proximity to the existing regional centres. Other types of retail nodes where agglomeration benefits could be created could also be established.

The agglomeration effect is created by the catalytic nature of regional centres. The node will grow to include a variety of facilities and to reach a stage where the required tenant mix reaches the necessary critical mass.

Modal interchange strategy: This type of facility depends mainly on the nature of the commuters, the area as well as the different transport modes used.

Land uses in these areas should be focussed on transport orientated developments, with retail focussing on convenience and day-to-day goods.

2.3.3 RETAIL IN URBAN CORES

It is important to look at the retail development within urban cores relative other parts of the city in context. The retail developments in urban cores are not developed to the same level as in other parts of the city due to the inequitable development policies of the past. Nonetheless, these tables reflect that retail activity does serve as an economic activity within urban cores, albeit not to the same extent as in the metropolitan cores which have a long history of favourable development policies.

Within the current context of the city's development policies where equal opportunity is promoted, it is also important to note that retail development, as with many other economic activities, is largely a function of the private sector. The private sector is market-driven, which means that it responds to demand and consumer characteristic. At the same time, the consumer will seek out very specific retail typologies depending on their specific characteristics as a consumer. This supply-demand relationship between developer and consumer will remain a permanent state of affairs. At present, the extent of retail development has largely catered for the consumer group mostly found within urban cores. Previously, due to a lack of private transport and expensive public transport, low-income earners were compelled to source their needs from small localised township retailers. Lower priced goods available at township shopping centres or establishments offered not only the variety of goods available, but also allowed goods and services at more affordable prices.

But the population profiles throughout the city are changing as it becomes more integrated spatially, socially and economically. These new population dynamics require that access is given to the upwardly mobile of the former township areas so that spending within the retail arena or urban cores can be directed inward to contribute towards further developing the urban cores. Those that move up the social and income ladder that previously preferred to shop outside townships in upmarket malls (known as 'outshopping') may to a large extent start redirecting their expenditure to

township malls if upmarket retail developments are increasingly brought into the urban cores.

The importance of increased, high quality retail development within urban cores is thus two-fold:

- Equitable access to retail opportunities
- Economic stimulation by redirecting spending that might otherwise leave the urban core back towards the core to increase development

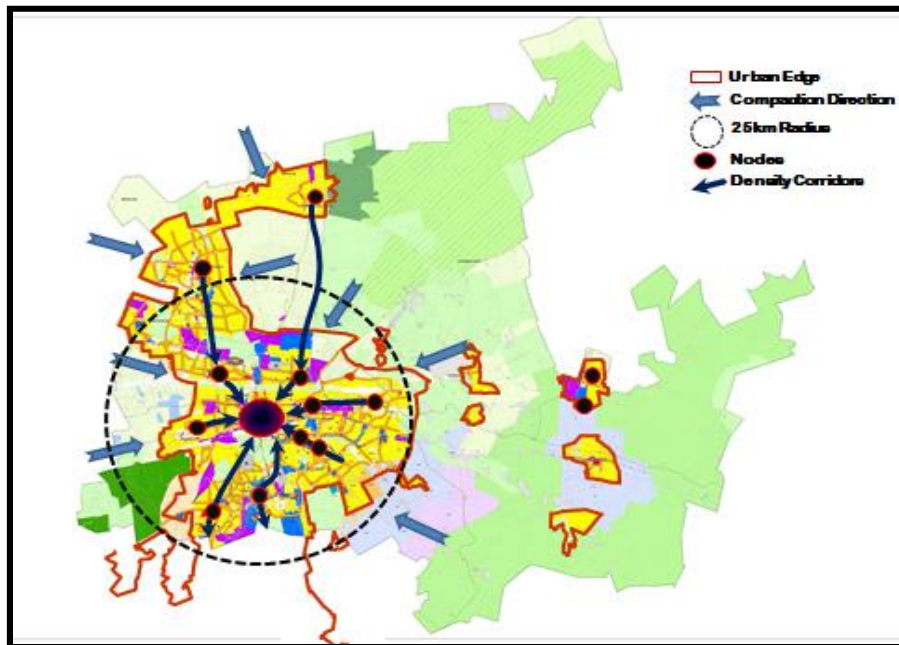
While retail development is driven by the private sector, the city has a role towards facilitating the ease with which developers invest in the urban cores. This especially relates to service infrastructure and supporting development policies. Through the NDPG programme, public initiatives will support private funding within urban core areas.

Township/Catchment Area	Node/Precinct
Mamelodi/Nelmampus	1. Eerste Fabrieke Station Node
	2. Solomon Mahlangu Precinct (Denneboom Station)
	3. T-Section Node
Atteridgeville	4. Saulsville Station Node (includes: Saulsville Station, Atteridgeville Station, CBD and resorts)
Mabopane/Soshanguve	5. Mabopane Station
	6. Soshanguve South x14 (Klip-kruisfontein)
Hammanskraal/Temba	7. Hammanskraal/Temba Node
Olievenhoutbos/Monavoni	8. Olievenhoutbos Node
Refilwe	9. To be determined
Zithobeni	10. To be determined
Ekgangala	11. To be determined
Node being considered for future incorporation	
Mabopane/Soshanguve	Garankuwa Node

2.6 MOVEMENT AND CONNECTIVITY

Movement of people and goods throughout the metropolitan area is of city-wide importance. Movement in Tshwane can be described by the following diagram showing major movement patterns in the area.

- Many public transport dependant persons moving into the CBD from the north, the west and the east characterise every morning peak.
- Masses of private vehicles originating in the south and south-eastern parts move from the city in a southerly direction towards Johannesburg.
- In the afternoon peak the reverse is true with masses of people leaving the CBD towards the north, west and east, with people returning to the southern and south-eastern parts from Johannesburg.



2.4.1 URBAN FORM AND TRANSPORT INTEGRATION

In all successful cities there is a strong linkage and interaction between movement patterns and systems and urban development. It is necessary that land use planning is done in a manner which supports public transport but it is also necessary to ensure that mass public transport planning promotes and supports urban restructuring and sustainable urban development.

The city historically developed around a strong central core as mono-centred city. Private investment patterns changed over time with increasing car ownership and a ring of satellite nodes developed. These satellite nodes developed into viable decentralised locations, creating a multi-nodal urban form.

A further implication of the development of the satellite nodes is that the City of Tshwane is becoming increasingly inefficient and hence unsustainable spatially. More residents are becoming ever more dependent on private transport, which is becoming increasingly expensive. The majority of the City's residents have no option other than to rely on inadequate public transport which is also becoming more expensive and unsafe.

Spatial problems identified at Metropolitan Scale

Tshwane is a very large and dispersed metropolis featuring numerous problematic characteristics:

- Low density sprawl: Based on an anti-urban ethic of the free-standing house on a plot.
- Fragmentation: the grain of development is coarse, with isolated (introverted) pockets (cells) connected by roads (and freeways), frequently separated by buffers of under-utilised open space.
- Separation of functions: land uses, public facilities (urban elements), races, income groups are all separated by great distances.

Settlement form

The combined implications of the spatial patterns on the lives of the majority are disastrous:

- Much time-consuming and expensive commuting is necessitated, which aggravates poverty (and inequity) in society;
- City living has become over-dependant on the private car, which the vast majority cannot afford;
- Increasing numbers of private cars results in traffic congestion and increases pollution;
- The nature of roads results in environments which generate few opportunities to which small-scale economic operators can respond;
- The system is inefficient and wasteful of scarce resources, such as land, energy and finance.

Future Spatial Development of Tshwane

In order for Tshwane to accommodate the projected population growth and become sustainable within the Gauteng context, densification will have to take place within specific transport orientated corridors.

The future spatial development of Tshwane will focus on the intensification of urban and metropolitan core areas. The growth of Tshwane should be directed inwards towards the urban cores, mixed used activity spines and specialised activity zones.

The nature of Public Transport Corridors and their role as Macro Urban Structuring Elements

The development of a mass public transport system such as the IRPTN/Bus Rapid Transit System, Rail and Light Rail can be seen as a tool to achieve either of the following:

- The efficient movement of people around the metropolitan area; or
- The overall restructuring of urban functionality through the employment of an efficient and appropriate public transport system.

The distinction between the two objectives is important from an urban planning perspective. If the objective is merely to move people around in the city, particularly moving them from home to work and vice versa, then the development of a mass public transport system is purely a transportation issue and is primarily concerned with the provision of roads, infrastructure and vehicles.

However, if such a system is to be utilised to improve not only the movement of people, but also to contribute to the improvement of the overall urban functionality an urban image, then the integration between aspects such as transport planning, land-use planning, urban design and urban management becomes vital.

Mobility Corridors

The primary reason for the existence of this type of corridor is to move large numbers of people from one point to another in the city and often over relatively long distances.

This corridor will typically move people from the peripheral areas to work opportunities and back during the day. Because of the long distances separating many people from their work opportunities there is a great need to move people around the city during peak hours in the fastest, most cost effective manner with as little stops as possible between the origins and destinations.

Activity Corridors

The integration between land use, economic activity and movement is the key function of this corridor. People do not only move between the two outer points of the corridor but also between various points along the corridor.

A mature activity corridor displays most of the positive aspects associated with activity corridors, such as high residential densities and high non-residential land use intensities.

Such a corridor will be most appropriate in the more central parts where a number of nodes with a certain degree of intensity and mix of uses already exist in relative close proximity to each other.

Within the Tshwane context accessibility has to be ensured on the following three levels:

- To and from other parts of the world and South Africa
- To and from the Gauteng City Region
- Movement within the Tshwane Metropolitan Area

2.4.2 THE BASIS OF AN EFFICIENT METROPOLITAN MOVEMENT SYSTEM IN TSHWANE IS:

- Highways which form the corridors for large scale economic development and connect Tshwane with the rest of Gauteng and the country. These include the N1, R21, the proposed western bypass and Bakwena Platinum Highway.
- All areas in Tshwane must be well inter-connected by means of a good and efficient public transport system. Two systems are proposed that can serve as the basis of a public transport system, namely rail and the IRPTN/Bus Rapid Transit System.
- The existing rail system has great potential of becoming the basis of public transport throughout Tshwane and should therefore form the primary movement system, especially over the longer distances. This system however has current challenges that must be resolved.
- The central ring-rail system provides an ideal opportunity for urban restructuring in the central parts of Tshwane. This system is already in operation but it is not functioning efficiently nor do the densities exist to make it viable. The areas surrounding stations on the ring-rail must therefore be densified significantly in order to ensure the necessary population threshold for the rail system, and the condition of stations and rolling stock must be upgraded.

- The establishment of an IRPTN/Rapid Bus Transit System is the ideal solution to solve public transport problems over short to medium distances, and will also contribute to connecting metropolitan activity nodes that do not lie on the rail network with each other.
- The incomplete concentric road network needs to be developed further to serve the multi-nodal structure of Tshwane.
- The Gautrain which links Tshwane to Johannesburg and the OR Tambo International Airport by means of a high speed rail link. The areas around the Gautrain Stations provide the potential for urban renewal in and around station precincts.
- The Gautrain project is primarily aimed at enhancing and supporting economic growth in the Gauteng Province and generating employment. Gautrain is contributing to the urban restructuring of Gauteng. Gautrain station nodes are important as the more people start to stay around stations, the better services are used, less time and money is spent travelling and a more convenient lifestyle is offered.
- Spatial inefficiency- densification policies cannot be implemented without the support of public transport. More residences add more vehicles on roads which are over capacity. Public transport can be regarded as the tipping point of the success of the city's spatial policies.



With regards to the movement system, the central concern should be maximising access to regional opportunities. Access has both physical and non-physical dimensions. At a physical level this relates to convenience and at a non-physical level this relates primarily affordability.

The success of all focussed spatial interventions relies on the adequacy of that spatial form to meet the needs of all users. As efficient as a node may be within itself, the node will not be sustainable if the target users cannot access it. The regional profiles indicate clearly that Tshwane accommodates quite a number of nodes, some performing very different functions, while others are quite similar. The synergies that exist between the various nodes are what enable many of them to be sustainable. But those synergies cannot exist without efficient linkages between the nodes. While Tshwane has a comprehensive system of higher order mobility routes and development corridors, there are still several localities that are not adequately catered for.

Apart from the physical route, there is also the matter of the means by which one will travel along those routes. Tshwane is experiencing high economic growth, a growing middle-class, and increased vehicle ownership that is causing a surge in traffic volume and congestion. Public transit has not been providing an attractive commuting alternative for those who can afford private travel options.

Prasa is currently undertaking studies into the existing and future demand and capacity of rail-based transport. All planning in this regard will also be informed by financial feasibility. There is an opportunity to create efficiency and close public transport gaps by integrating the BRT network with the Rail network. The BRT offers opportunities for both long and short distance travel. This means that where long-distance rail is not feasible, BRT can be implemented or vice versa, specifically in the case of long distance travel.

The integration should be carefully planned in order to ensure sustainability by avoiding competition between the two transport options. Preliminary indications are that there is not enough capacity to support both the Rail and BRT system along the same routes. Further, it is expected that the first phase of the BRT will link the Akasia and Menlyn area to the CBD. The BRT will provide both long and short distance travel options. This scenario negates the necessity for rail along the same route. Funding that has been allocated towards the upgrading of the services along the Mabopane-CBD Rail link can then be re-allocated to the Hammanskraal- CBD Rail link.

The Bus Rapid Transit and Rail should be the backbone of the future Tshwane transport system. The intention is that they become the preferred mode of travel for the majority of residents. In time, the improved public transport system should slowly start overtaking private vehicle usage specifically in nodal areas. This intervention will encourage transit-oriented developments.

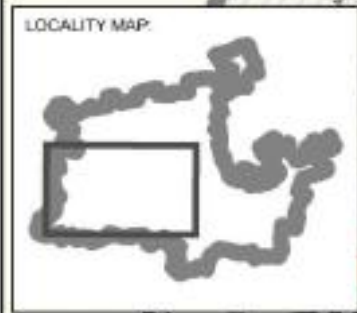
Key characteristics of transit-oriented development include:

- a rapid and frequent transit service
- high accessibility to the transit station
- a mix of residential, retail, commercial and community uses
- high-quality public spaces and streets which are pedestrian and cyclist friendly
- medium to high density development within 800 metres of a transit station
- reduced rates of private car parking.

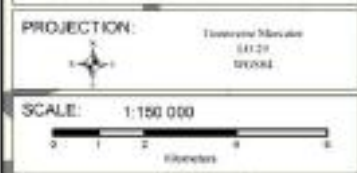
This means that developments that cater for, or provide public transport solutions or align themselves along public transport routes will be

prioritised. The decrease of private vehicle usage will also promote pedestrianisation of urban areas and an overall decreased carbon footprint. On the reverse side, in order for efficient transport systems to be sustained, a critical mass of users must be achieved. This means that localities that would induce the convergence of large numbers of people would be required. This again, brings us back to the nodal concept of the widest possible range of services within an area and highest residential densities being supported. The higher the rate of usage of the public transport system, the more affordable it will be. At the same time, the convergence of a large number of private vehicles in a locality causes traffic congestion and an avoidance of such an area by those who have alternatives. Removal of private vehicles can effectively improve the quality of an environment.

INTEGRATED RAPID PUBLIC TRANSPORT NETWORK: 2013



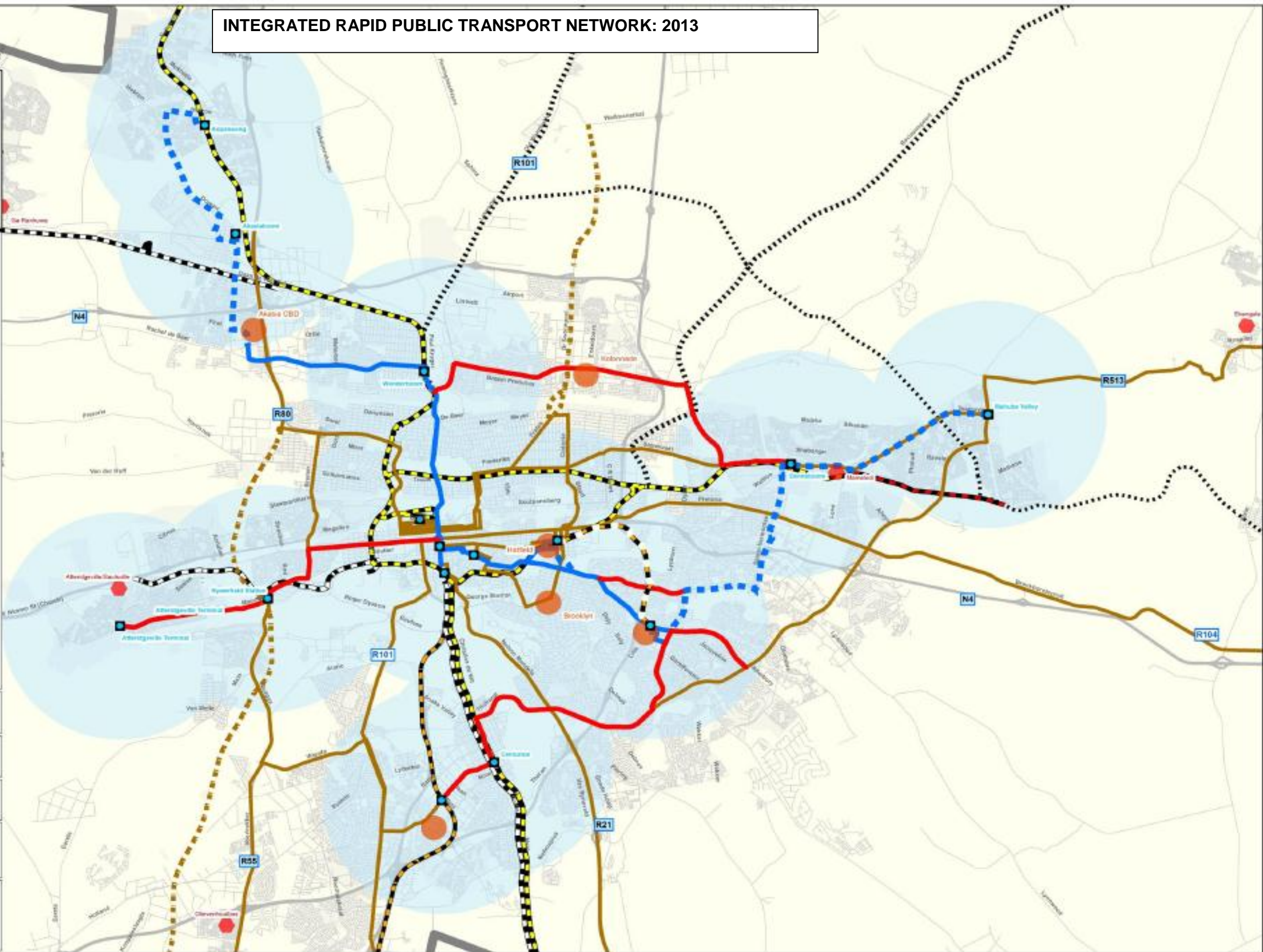
- LEGEND:**
- Modal Transfer Stations
 - SDF: Metropolitan Nodes
 - SDF: Urban Core
 - IRPTN Road Network
 - Potential GBSHGV
 - Phase 1, Potential BRT Trunk
 - Phase 1.1, Potential BRT Trunk
 - Phase 1.1 Proposed, Potential BRT Trunk
 - Phase 2-3, Potential BRT Trunk
 - Potential GBSHGV Planned Roads
 - IRPTN Rail Network
 - Current Doubling of Rail Line
 - COT/Phase Priority Suburban Rail
 - Lower Priority rail
 - Planned Rail
 - Provincial Phase Priority Suburban Rail
 - Conceptual Gautrain Extension
 - Sdm Catchment Area
 - Freeways
 - Main Roads
 - Suburbs
 - City of Tshwane Boundary
 - dash-dot lines indicate future roads



TITLE:
Integrated Rapid Public Transport Network

PREPARED BY:
 SSI
Spatial Systems International

CLIENT:
 CITY OF TSHWANE
TRANSFORMING THE CITY



The City's road, rail and air movement systems will need to be developed to optimise all related opportunities.

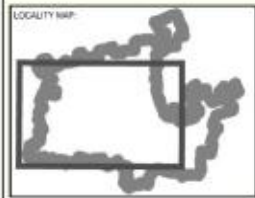
The rail system should become the backbone of public transport throughout Tshwane and it is therefore an important structuring element of the city. The positions of the urban cores purposefully coincide with major railway stations. The Gautrain stations in Tshwane include Hatfield, Centurion and the Inner City, again creating opportunities for intensification and development.

The proposed metropolitan vehicular movement system should be designed to support the rail system, i.e. to enable convenient transport of people to and from the railway stations. The rail network which is well developed with only a few missing linkages is not utilized in terms of its potential as a mass transport facility. With the majority of the population dependant on public transport the strategic rethinking of this mode of transport is necessary.

The ring rail linking the inner circle of decentralised nodes offers a major opportunity – but needs commitment and strategic drive to deliver on the promise. The development of the rapid rail (Gautrain) towards the south linking with the economic centres of Johannesburg and the Airport is a major step in a strategic change in direction from a predominantly private vehicle transport system to creating an appropriate alternative in the form of a public transport system over the long term.

The Ring Rail system and the Gautrain are the two most important elements of the rail system that contribute to the overall spatial structure. The intra-city movement should be supported by the Ring Rail system and the completion and operation of linkages to the North, East (Menlyn) and inter-city movement should specifically be catered for by the Gautrain initiative.

INTEGRATED RAPID PUBLIC TRANSPORT NETWORK: 2013



- LEGEND:**
- Model Transfer Stations
 - SDF: Metropolitan Nodes
 - SDF: Urban Core
 - IRPTN Road Network
 - Potential GBSH-OV
 - Phase 1, Potential BRT Trunk
 - Phase 1, Future Trunk Extension
 - Phases 2-4, Potential BRT Trunk
 - Potential GBSH-OV Planned Roads
 - IRPTN Rail Network
 - Current Doubling of Rail Line
 - Provincial Phase Priority Suburban Rail
 - COT/Phase Priority Suburban Rail
 - Lower Priority rail
 - Planned Rail
 - Conceptual Gautrain Extension
 - Freeways
 - Main Roads
 - Suburbs
 - City of Tshwane Boundary
 - Dashed lines indicate future roads

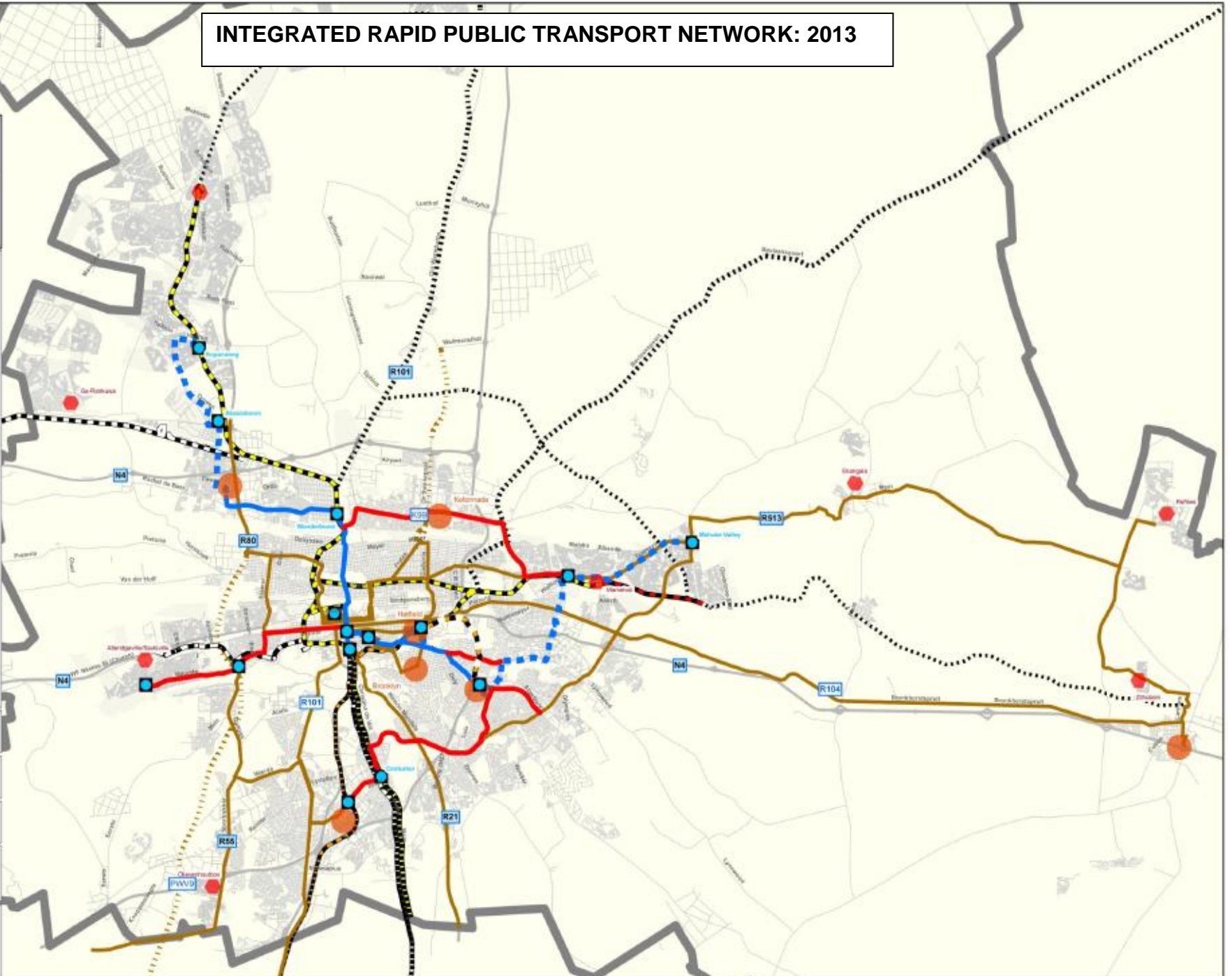
PROJECTION: Transverse Mercator
LO 24
N2024

SCALE: 1:250 000

TITLE:
Integrated Rapid Public Transport Network

PREPARED BY:
SSI
Spatial Systems International

CLIENT:
CITY OF TSHWANE
City of Tshwane Municipality



2.5 ENVIRONMENTAL STRUCTURING CONCEPT

2.5.1 HERITAGE AND CULTURAL SITES

Tshwane's urban form and identity is closely linked to the influence of its natural and cultural elements. The developed areas are intimately intertwined with open spaces, creating a city with a unique character. The spatial development of the city should continue to value the role and prominence of the natural environment that sustains and informs the city. The natural structuring elements of Tshwane are those physical features that have to a great extent influenced the historical growth and settlement development pattern and that have an important ecological role to play in the ecological integrity of the metropolitan area.

With regards to the cultural heritage of the city, conservation worthy, distinct/unique areas reflect the continual changes in the socio-economic status, value systems, lifestyles, habits, aesthetic criteria and social interactions of their inhabitants over decades and sometimes centuries. They are therefore important elements of the community's collective memory and their sense of identity. The uniqueness of these areas, which has arisen from the unique geographical, topographical, social, cultural, political, historical, economic and other circumstances in which they were developed, has the potential of attracting both locals and tourists, and inspiring future developments.

In terms of the cultural heritage of the city, certain areas are identified as unique areas including the Union Buildings Precinct, Church Square, Marabastad, Bryntirion / Lisdogan/Eastwood and Irene Village. Precinct Plans must be compiled for these areas to determine in detail which features (topographical characteristics, landscaping, layout elements, land uses, activities, structures, architectural features, etc.) make each of these areas unique and conservation worthy, and compile a set of development guidelines, controls and incentives aimed at the preservation, enhancement and utilisation of those features and further development of the areas.

Special sites such as memorials, gardens of remembrance, walls of remembrance, markers, triumphal arches, water features, monuments, statues, museums, forts, battlefields, cemeteries, mausoleums, cenotaphs,

etc. that symbolise people's values, beliefs, aspirations, important personalities and important historical events are needed. It is particularly important for Tshwane, which houses the Capital of South Africa, to project the image of the entire nation and to reflect, therefore, the values, beliefs, history, achievements and aspirations of all South African racial, ethnic, religious, gender and other cultural groups.

The heritage, both natural and cultural, is a valuable, finite, non-renewable and irreplaceable resource which must be carefully managed. Every generation has a moral responsibility to act as a trustee of the natural and cultural heritage for following generations. In a spatial context, areas with distinct and unique character, as well as places and structures of definite historical, aesthetical or symbolical merit have to be conserved in order to:

- provide the necessary link between the city and its past, as well as current residents and their ancestors
- create a sense of place
- establish a system of lasting points of reference
- nourish the sense of belonging to the city and boost the civic pride
- enhance the uniqueness, identity and attractiveness of the city.

2.5.2 OPEN SPACE AND CONSERVATION AREAS

A well-defined open space network is an important and integral part of the Spatial Development Concept of the MSDF.

The Tshwane Open Space Framework was approved in November 2005. The Framework will need to be reviewed and updated to include the newly incorporated areas of Tshwane.

The development of an open space network is an integral part of shaping the city. Ecological resources are irreplaceable and should thus be one of the major structuring elements guiding the development of the city instead of unplanned urban growth taking precedence and open space becoming

merely land that is not desirable for urban development and thus 'left over' space. An important step in shaping urban form is thus the determination of an open space network, which contains natural processes and systems. The open space network is concerned with the spatial structure of green areas in the urban landscape and with all planning activities that are essential to create conditions for green areas to perform ecological services and to contribute to the quality of urban life. It is thus used to indicate the position of green areas in the urban landscape. As such it has spatial, social and technical dimensions. An open space network is also a planning concept, indicating the intention to develop planning and management tools for the structural role of green areas in the urban fabric and the urban organization.

An open space network contains not only the elements that constitute the open space in itself (vegetation, water, animals, natural materials etc.), but above all how the various open spaces are shaped in relation to the concepts of distribution and organization, to form a system of open spaces. An open space network incorporates a wide variety of open spaces into one system. Open spaces cease to be discreet elements within the city but together form a network in which each component contributes to the whole.

It must be stressed that an open space network does not focus only on 'green' spaces, but also on more urban or 'brown' spaces as well as spaces that contribute to the place-making of the city.

From a city-planning perspective open spaces have various important functions:

City structuring: Historically Tshwane's numerous mountain ranges and ridges, rivers and water courses, and nature reserves and conservation areas have had a lasting impact on the city form and development pattern. Today this impact is still felt, as the Magaliesberg with only a few crossings still forms a barrier between the more prosperous southern suburbs of Tshwane and the less well developed northern suburbs. The scenically beautiful conservancy areas in the south-western part of the city form natural buffers for urban expansion in that direction.

On the other hand these structuring elements do present an opportunity to connect and integrate the various parts of the city, e.g. the Apies River which crosses almost the entire municipal area from south to north.

City image and identity: The mountain ranges and ridges, and large conservancy and protected areas in particular, and rivers and water courses to a lesser degree, are responsible for Tshwane's unique African character and identity, which is being best described as 'nature within a city' and 'a city within nature'. There is the positive contrast between the built-up and natural environments everywhere, but nowhere more expressive than at the southern approach to the inner city. This uniqueness must be protected, enhanced and celebrated at all costs in the future.

Urban expansion: The large open spaces (ridges, conservancies, protected areas, etc.) contain urban expansion and prevent the city from developing into a monotonous build-up urban 'desert'. Because of the limitations on land availability this will eventually lead to a more compact city with higher densities, guarantying a more sustainable and efficient urban structure for the future.

Land Uses: Land-use planning must be done in relation to the open space network where possible, which creates the opportunity to place various urban land uses or developments inside or adjacent to the network. The full potential of the open space network can therefore be exploited for unique projects which otherwise would not be feasible.

Open Spaces thus include the following:

Conservation Areas: Areas designated for nature conservation, which may include tourism related facilities and recreational facilities directly related to the main use.

Tourism and recreational related facilities: Outdoor and tourism related activities, including hiking trails, hotels, 4x4 trails, wedding venues, conference facilities, curio markets, farm stalls, restaurants, game lodges and resorts with a rural character with due consideration to its impact on the surrounding area and environment. The CoT has tremendous

opportunities in the eco-tourism arena. Most of the eco-tourism activities occur along the Roodeplaat Dam which is situated in the north of Cullinan (Zambezi) Road on the farms of Zeekoegat, Leeuwfontein and Roodeplaat. There is also the Dinokeng Blue IQ project. Eco-tourism activities that can be enjoyed include but not limited to the following: game farms, nurseries and bird watching to mention but a few.

Residential (within the natural areas where you find irreplaceable, important and highly ecological sensitive sites): Environmental Development or **service centres** aimed at the local market, and which are situated at a service delivery centre or central place to the community.

Estates where the primary focus is the conservation of the natural resource (open space). Conservation in this sense must not be seen as only protecting special or sensitive environments, but conserving open space as a valuable resource itself. The residential development is seen as a mechanism to protect and enhance the open space character and not as an end in itself. Special conditions shall apply in the consideration and approval of such developments, including the following: Dwelling units shall be grouped together in as few clusters as possible; a Strategic Environmental Assessment shall be done to determine the open space, the position of the clusters, the position of ancillary uses, roads; conservation conditions shall be strictly adhered to; conditions shall be set for the design, character and overall relationship with its environment.

Roodeplaat Dam and Bronkhorstspuit Dam are under immense pressure from high income essential enclaves. Increased development pressure could cause serious degradation of the natural areas as limited environmental management guidelines exist.

2.5.3 RURAL MANAGEMENT

2.5.3.1 INTRODUCTION

The erstwhile City of Tshwane (previous dispensation) was mostly characterize as an urbanized Metropolitan area with only a smaller sector known and characterized as definite Rural Areas. It is also important to note that parts of these apparently Rural Areas were further earmarked as

Future Urban Development. These Future Urban Development Areas were designated in terms of each Regional Spatial Framework for future urban expansion and development.

The newly demarcated CoT, as a result of the merger between Metsweding District Municipality and the former City of Tshwane now includes a significant rural component. These new Rural Areas as well as the other existing areas need to be analyzed and planned in order e.i. to protect the Environmental sensitive areas, to manage the buffer areas and to create opportunities for sustainable development and promote sound land use development in the less sensitive areas.

2.5.3.2 BACKGROUND

The following source documents were used as building block for the compilation of the revised Rural Component, Rural Management and Rural Development:

- The Conservation Plan (C-Plan)

All information with regard to the existing Urban Edge, Ridges, Ecological support areas, Important areas, Irreplaceable areas, Protected areas, Game Reserves and Nature Reserves were used
- The existing and future provision of essential services

Information with regard to the provision and capacity of Water(Reservoirs), Sanitation (Waste water plant), Roads, Storm water, Electricity, watersheds and flood lines were used to determine the development edge
- The Metsweding Environmental Management Plan
- The 2008 Regional Spatial Frameworks
- The “Division” Plan and policy
- The Gauteng Spatial Development Framework 2010.

- The National Planning Commission: National Development Plan 2011: Chapter 6 : An Integration and Inclusive Rural Economy.

It must be noted that all these documents were used to inform the revised Rural Component and did not dictate the final product.

2.5.3.3 DEMARCATION OF THE RURAL COMPONENT

The 2010 Gauteng Urban Edge, does not form a continuous line throughout the CoT, but demarcate the core larger Urban areas within the former CoT, as well as pockets within the Bronkhorstspuit, Cullinan, Rayton and Ekandustria/ Ekangala ,areas.

There are examples of developments that were approved and developed inconsistent with the Urban Edge and these developments and areas need to be evaluated against the backdrop of sound town planning principles and the smart growth concept.

In terms of the Gauteng Spatial Development Framework, 2011 the function of determining the Urban Edge has moved to the Local Authorities and is a function is not part of the Provincial Planning functions.

There are furthermore areas within the Urban Edge earmarked for Future Urban Development and densification with no provision of essential services. The promotion of efficient and effective resource allocation will also not provide services in the near future.

These areas will remain as Future Urban Development as it shall retain a rural character until such time that basic service can be provided. These areas still need to be managed as rural areas with specific guidelines contained in the different RSDF's.

As soon as the areas earmarked as Future Urban Development been serviced, these newly serviced areas will be excluded from the Rural Component and will form part of the Urban fabric of the city.

2.5.3.4 VISION

The Tshwane Rural Component will promote:

- An effective response to rural poverty
- Ensure food security by maximizing the use and management of natural and other resources
- Create vibrant, equitable and sustainable rural communities
- To contribute towards the redistribution and sustainable use of all potential agricultural land
- Rural economies will be supported by agriculture, and where possible by mining, tourism and agro processing.
- To create employment and business opportunities for the existing rural population
- Aims to prevent natural disasters like erosion and pollution and other detrimental effects on natural resources
- Formalize residential settlements according to the Rural Component Framework.
- Accessibility to community facilities, work opportunities and housing for all
- Maintenance of acceptable standard for roads and other modals
- Public transport should be provided as a service for the more densely rural areas.
- Identification of multipurpose community centers to provide for business, medical, educational, recreational, social and other needs at the most optimum and accessible locations.
- Adequate and respectable services must be addressed to improve living conditions.
- The matter of ownership and tenants rights must receive attention especially in areas where tribal land ownership exists.

The different Rural Areas within each Region will be subject to specific guidelines set in the RSDF for that area. Each rural area differs in size, location, sensitivities and different detail planning and sustainable development shall be introduced to cater for each specific area.

2.5.3.5 GUIDELINES

In the new Tshwane Metropolitan Rural component, the following conditions exist that need to be taken into consideration. Each Region has its own specific rural character and rural composition and detail proposals for the Rural component are therefore dealt with in each Regional context.

Various Rural land use / Rural activity zones are located within the Rural areas and are indicated on the different Rural Component map for each Region. Together with the maps there are tables contained in each of the Regional Spatial Frameworks with restrictive or promotional conditions for every Rural land use/Rural activity zone located in that Region.

The Rural land uses/Rural activity zone for Tshwane Metropolitan area are:

- Development Edge
- Major Rural Roads
- Existing Infrastructure for essential services
- Future Urban areas
- Management zones
- Agricultural areas and
- Agricultural High Potential areas
- Sensitive protected areas. (Combination of C-Plan protected areas), including (Ridges and Streams, Natural resources, Fauna and Flora protected places / areas)
- Heritage and Cultural protected areas
- Tourism potential places / areas
- Human settlements
- Conservancies
- Game and Nature Reserves
- Mines / Places of manufacturing
- Community Service Centres

2.5.3.6 CONCLUSION

The main principle is to increase accessibility of rural people to basic services in support of survival strategies in the first instance and, in the second, to establish a base from which to start engaging more in productive activities. Given limited resources, the rural component should provide for basics for survival to all existing settlements but no provision for additional settlement growth. Localities with some economic potential should receive higher levels and a wider range of services/facilities.

The Smart growth principle will further more be strengthened through a well-managed Rural Component and will assist in:

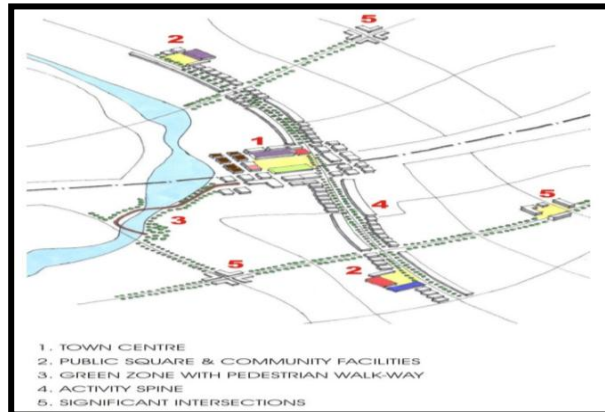
- Discouragement of urban sprawl and contain growth with the city limits
- Compaction of the city through infill and densification
- Improvement of the utilisation of existing infrastructure, services and facilities
- Preservation of the rural environment and landscape
- Protection of the rural assets and resources
- Protection of agricultural land, especially high potential agricultural land
- Preservation of the environments that promote tourism, recreation and nature conservation
- Assisting the urban regeneration by adopting an inward approach
- Protecting cultural and tourism assets
- Giving structure and form to the city (urban growth); and
- Manage the re-shaping of the city towards a more sustainable outcome

2.6 TSOSOLOSO PROGRAMME

The Tsošološo Programme attempts to create a liveable city that provides our citizens with a high quality public environment in which people want to settle and invest. In order to successfully achieve this goal we need to provide a framework that is committed to ensuring that all citizens achieve a healthy and dignified living standard.

The comprehensive programme identifies areas where investment must be concentrated so as to maximise impact and these are:

- Centres – town centres, neighbourhood centres and intersection nodes as these are the areas of activity
- Community Facilities – such as libraries, clinics, vocational training centres are places where people converge
- Linear Spines of Activity – premised on the fact that Activity Spines and the smaller scale Activity Street/Strip large volumes of clientele to the businesses located on the linear spine of activity, it becomes evident that this trend will promote the development of SME's and entrepreneurs alike
- Inter-modal Interchanges – as a large volume of people rely on public transport, the transport facilities must seek to improve on the dredge of daily commuting.



Coupled with areas to concentrate investment, it is important to explore critical elements of the public environment as these will form the tools for intervention. The Tsošološo Programme defines the critical elements of the public environment as being:

- Public Squares
- Markets
- Pedestrian Walkways
- Public Transport Routes and Stops
- Public Art
- Green Structure - trees, gardens, landscaping and natural open spaces

Five Points of Action

The fulcrum of the Tsošološo Programme really rests on the points of action, and there are five points of action in total.

(1)-Create community activity centres and focal points

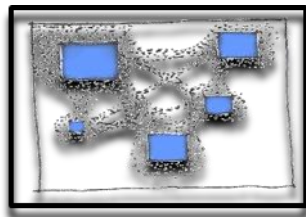
The Tsošološo Programme aims to (re) build and cluster social facilities in a more tactical manner thus giving it more purpose in the community that it serves. By incorporating other facilities such as public open spaces/squares into these clusters, the programme will inherently generate lively people friendly centres. Along with the amenities mentioned above, a retail component and a public transport termini could add exciting dimensions to the activity centres, but this must be done without transforming the activity centres into retail shopping malls or mass taxi/bus ranks.

(V) - Enrich the quality of the public environment with public art and 'green structures'

In promoting the greater use of public transport the COT must champion the need for a comprehensive transport strategy which must include pedestrian connections which link people to other nodes/hubs. These connections must be separated from vehicular traffic and must also follow the desire lines for pedestrians.

In terms of the connections itself, materials can be used to ensure permanence and legibility. The promotion of more trees for the environment must feature prominently in the pedestrian environment as well, as trees provide shelter and a good quality atmosphere for pedestrians.

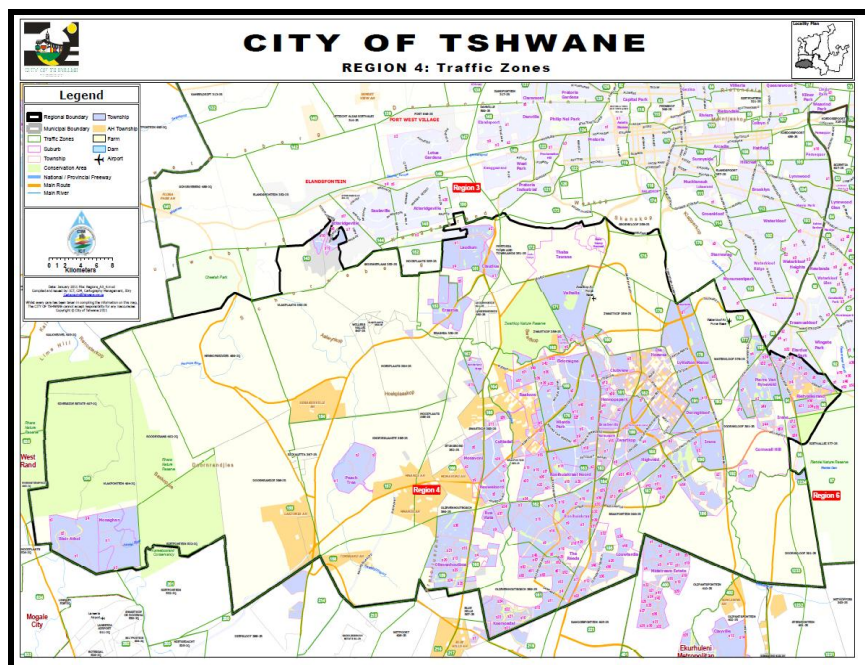
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PART THREE: REGIONAL ANALYSIS

3.1 LOCALITY

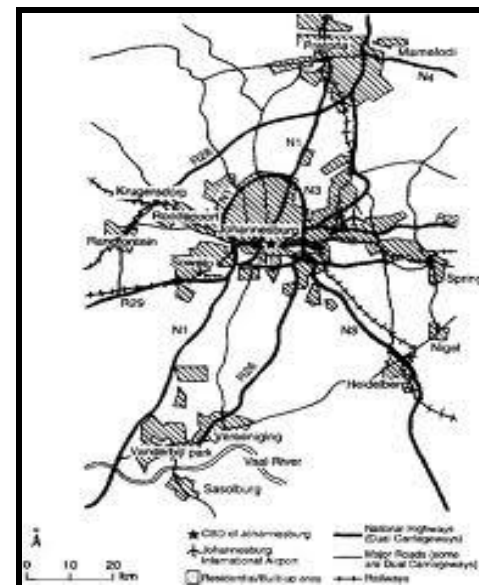
Region 4 is situated in the south-western portion of the Metropolitan area. The Region borders on the area of jurisdiction of the City of Johannesburg Metropolitan Municipality, Ekurhuleni Metropolitan Municipality as well as Mogale City to the west.



Region 4 is accessible via:

- The N1 Highway which runs partly through the region and links the City of Tshwane with the Limpopo Province in the north and Johannesburg, Bloemfontein and Cape Town towards the south.
- The R21 Highway which runs along the eastern boundary of the region and connects the City of Tshwane with the Ekurhuleni Municipality and the Oliver Tambo International Airport.
- The R28 (N14) Highway which connects the region with Mogale City (Krugerdp) and the North-West Province.

The region is accessible from a regional point of view as it is served by both north-south and east-west first order roads (Highways) linking it to the rest of Gauteng and the broader region.



3.2 AREA

Region 4 is in extent 489 km² and has 11 wards.

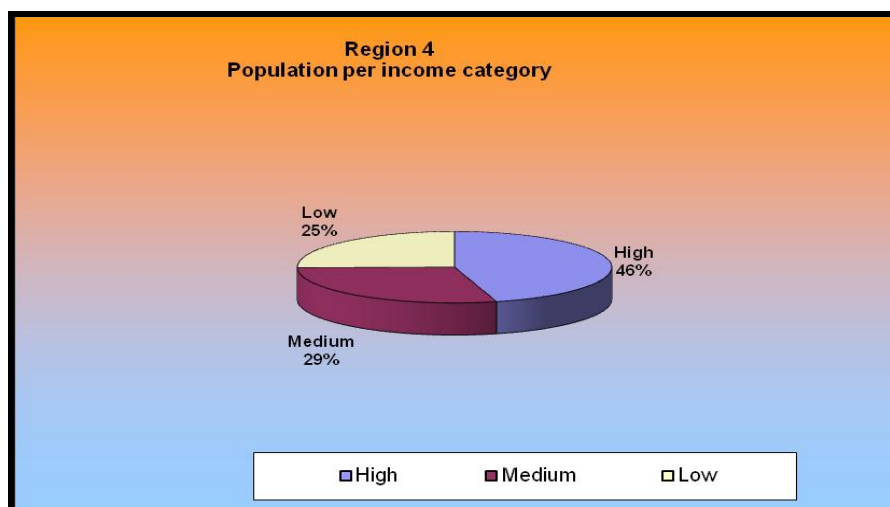
	M ²	km ²	ha	Wards
Region 4	488,555,898	489	48856	11

3.3 DEMOGRAPHIC INFORMATION

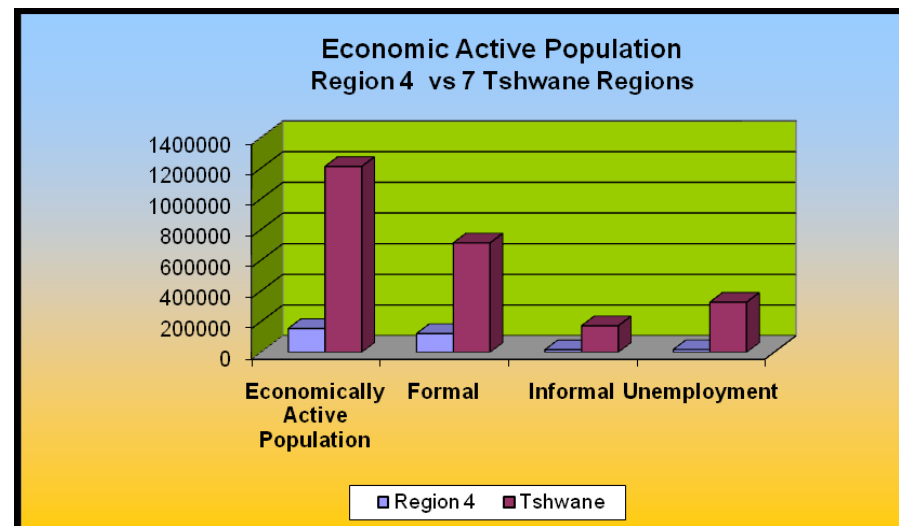
Region 4 had a population of about 290 118 people in 2010.

POPULATION			
High	Medium	Low	Total
132713	83973	73432	290 118

In terms of income groups 25 % of the population can be regarded as within the low income group (monthly household income of less than R2000 rand a month).



Region 4 has an unemployment figure of about 10 % which is below the national average of 25%.



3.4 REGIONAL CHARACTERISTICS

The main characteristics of the Region 4 are discussed below:

- The Region consists of an urban area to the east and a rural area to the west of which both areas are currently under pressure for development.
- The core area of Region 4 is located between two major highways, the Ben Schoeman Highway (N14) and the N1 Highway (M1).
- The N1 corridor represents one of the most sought after development strips in South Africa. This corridor manifests primary

within the Midrand and Centurion areas and it is known as one of the high technology belts within the South African economy.

- The region falls within the Economic Core identified for Gauteng Province with the legs of the triangular core the N1 Highway on the western side and the R21 Highway with its linkage to the Oliver Tambo International airport on the eastern side. This economic core is the primary growth focus for Gauteng Province.
- Region 4 is located at the southern gateway of the City of Tshwane and is easily accessible from the Johannesburg financial and corporate district and the Oliver Tambo International Airport.
- The region includes and shares with other regions a number of conservancies within reach of Johannesburg and the greater Tshwane area.
- The Hennops River basin is situated within this region. The Crocodile River basin in Region 3 also contributes water to this region. These are important natural resources which provide opportunities for tourism and recreational activities.
- The underlying dolomite in the region, the sensitive environmental areas and ridges tend to direct and inform urban development.
- Region covers an area of 48856ha and consists of 11 Wards.

3. 5. ECONOMIC BASE

The following information indicates that the Region's local economy is based on the certain dominant economic sectors:

- Finance and Business Service Sector (26.7%)
- General Government Services (22.7%)
- Manufacturing Sector (18.1%)
- Trade Sector (14%)

These sectors represent the pillars of the local economy.

The economic sectors increasing their share within the local economy, 1998 to 2004 include

- Finance and Business Services (24.0% to 26.7%) includes banking and real estate
- Transport and communication (5.1% to 7.6%) includes warehousing and distribution
- Trade sector (12.6% to 14.0%)
- Construction sector (2.4% to 2.8%)

Those economic sectors that have experienced a decline in its contribution to economic activity between 1998 and 2004 include:

- General Government Services (27.8% to 22.7%)
- Electricity and Water (2.2% to 1.9%)
- Manufacturing Sector (19.4% to 18.1%)
- Mining and Quarrying Sector (0.9% to 0.7%)

It is evident that two of the economic pillars have experienced a decline in economic production (manufacturing and government services), whereas the other two (trade and business services) have increased its overall contribution to economic activity in the Region.

Region 4 forms part of an area of economic expansion to the north of Johannesburg. This sub-node is dominated by Smart Industries and Business Tourism. There is a prospect for future expansion of a Smart Industry/Knowledge Regional sub-node that could be used in strengthening the Gauteng Province's comparative advantage as a "Smart Province".

3.6 PHYSICAL ENVIRONMENT

3.6.1 NATURAL STRUCTURING ELEMENTS

The environmental features of Region 4 are major form giving elements that determine the surrounding urban structure.

- Significant sensitive open space resources, especially so in the western parts of the region, which forms one entity with the open space resources of the south-western part of the Region 3;
- Significant ridge systems in Region 4 and contributing to the region such as Klapperkop, Skurweberg, Langeberg, Kwaggasrand, Groenkloof Ridge;
- Significant watercourse systems in Region 4 and contributing to the region, i.e. Hennops River, Apies River; Riet Spruit, Swartbooi Spruit, Sesmyl Spruit; Crocodile River, Jukskei River;
- Several dams, quarries and wetlands, i.e. N1/R21 Quarry, PPC Quarry, Gommers Quarry, Rossway Quarry, Ecopark Wetland, Centurion Lake;
- Significant Protected Areas, notably three Conservancies, a World Heritage Site and four Nature Reserves;
- Ecologically sensitive areas associated with ridge and watercourse systems;
- Potential Place making opportunities around the N1, R21, provincial roads and Centurion Metropolitan Core;
- Several culture historical sites at Cornwall Hill, Irene, Rooihuiskraal, Koppie Alleen, Hospital Cave, etc.

3.6.2 STRATEGIC LAND USES

The region includes a few prominent land uses of strategic significance to the local as well as the broader urban environment of Tshwane. These include:

- Zwartkop and Waterkloof Military Airports.
- Thaba Tshwane/ Voortrekker Hoogte Military Base.
- Centurion Metropolitan Core

- Centurion Gautrain Station.
- Super Sport Park
- Highveld Technopark.
- Highway Business Park
- Route 21 Corporate Park
- Sunderland Ridge Industrial Area.
- N1 Corridor – mixed use development.
- Samrand Commercial Area
- Gateway development.
- Olievenhoutbos Absa Housing development.
- Centurion Aviation Village (CAV).

3.6.3 NODES

The region accommodates the higher income community of the City of Tshwane with the result that many offices and retail functions have relocated to the region during the past few years.

The Centurion CBD (Metropolitan Core) is the strongest node in the region.

A new Emerging Node was approved during 2012, situated at the intersection of the N14 Highway and the K55 routes, known as Forest Hills. This emerging node will be supported by various other approved mixed use developments.

Various townships were identified, that will form part of the Irene Emerging Node. The existing Irene Village Mall forms the core of this emerging node and various additional land uses will be integrated e.g. retail, offices, high technology industries, industrial uses etc.

During 2011, a new Emerging Node situated at the intersection of the R55 and Main Road (K103) to the east of Erasmia, known as Erasmia Extension 15, was approved. This emerging node will be developed as a regional retail centre as well as various other mixed land uses such as wholesale trade, warehouses, motor related uses, etc.

Numerous large nodes are located throughout the region accommodating combinations of retail, office and industrial functions.

- Route 21 -Corporate Park (high technology industries and offices)
- Sunderland Ridge - Industrial
- Highveld Technopark – Industrial and Office development (part of N1 development corridor)
- Hennospark Industrial Area (part of the N1 development corridor)
- Louwlandia - Commercial/Industrial
- Samrand/ Kosmosdal – Commercial/Industrial
- Mall@Reds – Retail
- Doornkloof Mall - Retail
- Pick & Pay Lifestyle development –Retail and Commercial
- Southdowns Shopping centre– Retail and Offices

3.6.4 INTEGRATED (MIXED) LAND USES:

The trend for new development is integrated development nodes which include various land uses and emphasize the need to incorporate job opportunities close to residential development. The following integrated nodes have been established/envisaged within the region:

- Eco-Park (Highveld) – including different housing typologies, commercial, retail, office development
- Louwlandia / Heritage Hill– Mixed use development
- Route 21 integrated development consisting of Route 21 industrial Commercial development, the Irene Central development as well as the 5 o'clock development
- The proposed PWV 9 development corridor

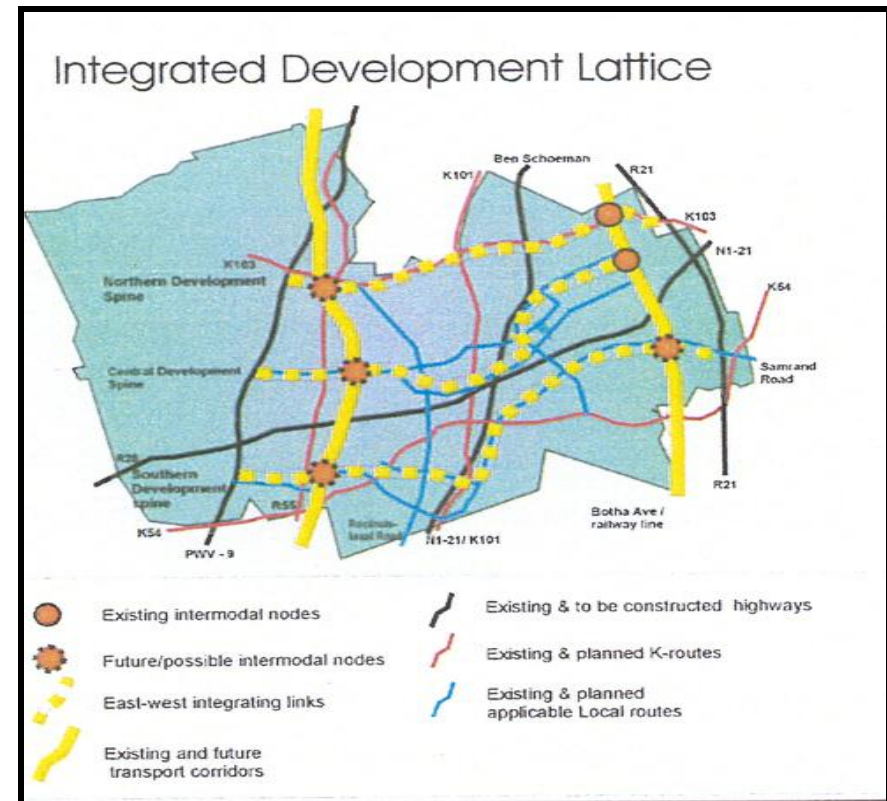
3.6.5 LINEAR ACTIVITY AREAS

The structure of the eastern urban area of Region 4 is defined by a grid of integrated roads, nodes, linkages and open space systems.

The urban fabric within this grid is based on an integrated urban lattice on which densification and intensification of development can take place in an integrated manner. A set of linear systems form the framework of the urban development lattice and relays urban energy from the traversing

highways to lower order roads where it can be converted into physical development and economic growth. Existing and future mass transport routes are and should be integrated into this urban system.

A system of activity nodes is located onto the development lattice to provide thrust to development occurring in a linear fashion along highways or other linear activity systems.



Highways:

- The R21 highway to the Oliver Tambo International Airport and Ekurhuleni in the east of the Region

- N1 (Polokwane Bypass)/N4 (Emalahleni Highway), known as the Centurion N1 economic Promotion Belt
- The N14 (Mogale City Highway)
- The proposed PWV 9 to be developed in the west of the Region

The following east-west spines are:

- The Northern Mobility Spine follows the K103 as an extension of Solomon Mahlangu Drive/ Trichardt Road/ Wierda Road
- The Central Activity Spine does not fall on a single road and the alignment thereof is based on the east-west extension of Hendrik Verwoerd - and Lenchen Avenues through the Centurion Metropolitan Core
- The Southern Mobility Spine is located between the R21 Highway following the proposed K45 and Nellmapius Road and Uitsig Road

3.6.6 RESIDENTIAL

In terms of a city wide perspective the region has the following residential characteristics. (Source: Tshwane Metropolitan Profile and 2001 Census data).

The region has a relatively low density with 9% of the population of Tshwane occupying approximately 20 % of the municipal area.

The residential stock of Region 4 is as follows:

TYPE	NUMBER	%
Single Residential	35 037	50%
Group housing/ Flats	25134	37%
Informal Structures	9041	13%
Total	69 212	100%

(Source: Census 2001)

- Although beyond the municipal area, it is of importance to note that in addition to the above number of structures, Diepsloot (Johannesburg Metro) along the region's southern boundary, accommodates 6020 formal structures and 17 000 informal structures.
- To the southeast of this Region, the Lanseria Precinct with residential densification and job opportunities surrounding the area to the north of the Lanseria Airport abuts this Region.
- The average household size according to the Centurion Development Atlas, 1999 is 3, 65 persons per single residential structure and 2,32 persons per flat or group housing structure.
- Vacant areas within the suburban environment have recently developed extensively with densities varying from 60 units per hectare to lifestyle and gentleman's estates. Rural densities is very low and only densities of 1 dwelling per 1ha and 2 dwellings per 1ha (management area) and 1 dwelling per 5ha (rural area) are proposed in line with the Rural Component.

3.6.7 MOVEMENT AND TRANSPORT SYSTEM

3.6.7.1 Road network and private transport

The primary road network through this region is of a strategic nature and also has national and regional significance, connecting Johannesburg with the City of Tshwane.

The primary network consists of the following routes:

- N1 Highway
- Ben Schoeman Highway
- R21 Highway
- N14 (R28)
- R 101 (Old Johannesburg Road)
- R 55/K71 (Voortrekker Road)
- K103 (Trichardt/Wierda Road)
- K 52
- R511/M26
- R 26

The supporting arterial network within the urbanised area is under pressure during peak hours due to continued development. Some of these routes are currently operating at capacity. Especially the primary roads in the western part of the Region (Rural areas) need to be upgraded and maintained.

3.6.7.2 Public transport

Rail

The Johannesburg – Pretoria commuter railway line passes through Region 4. Due to the location of the railway line and the extent of the Region the rail system, in practice serves only a small portion of the population that is concentrated in the east of the Region.

Development trends and pressure for development are to the south and to the west of the region, of which the latter is not served by the current rail system.

The Gautrain runs through the area along the N1 from Midrand, crossing the N1 Highway and John Vorster Drive, along West Street crossing the Ben Schoeman Highway close to Jean Avenue. From there it runs west of and adjacent to the Ben Schoeman Highway in a northerly direction, up to Pretoria Station.

The Gautrain bus service provides the road based service in conjunction with the Gautrain rail service. This bus service can be altered as demand dictates. The Centurion Gautrain Station Precinct is situated north of West Street opposite the Centurion Lake and forms part of the Metropolitan Urban Core.

Road based

Taxi transport is the predominant mode and has a larger market share than bus transport, although there are private bus services operating in the Region.

Air Transport

The two military airports in the Region mainly affect land uses and land use planning within close proximity to these airports. The most important aspects in this regard are safety and noise control.

Safety relates to the flight paths leading to the runways. Restrictions on the height of structures within the identified obstruction free areas have been identified and should be included in decision making when changes in land use are considered.

The Waterkloof Air force base and the Zwartkop Air force base also create economic opportunity. The long term objective of the Centurion Aviation Village development adjacent to the south-eastern boundary of the Waterkloof Air force base is to create an Aero-Mechanical Manufacturing Cluster of International importance.

The Lanzeria Airport is situated just south-west of this region creating opportunity for economic and residential development within Region 4.

3.6.8 SERVICE INFRASTRUCTURE

The Region is generally well provided with service infrastructure. With development rapidly moving closer to the development edge and demarcated urban edge to the west of the region, development pressure in this area challenges the rate at which bulk infrastructure can be provided to accommodate expansion.

It is common knowledge that the provision of sufficient roads and capacity on existing roads is under pressure, especially in areas such as Irene, Highveld, Louwlandia and the Centurion CBD. Extension of essential services (electricity, water and sanitation services) to accommodate new developments, place a huge burden on the Municipality and the developer. Not only is services not readily available (time constraint), but to make funds available (public and private) for the installing of more and upgraded bulk services are a constant battle.

The Rural Development Strategy formed one of the building blocks for the refinement of 'Rural Areas' in this document. The Compaction and Densification Strategy, on the other hand, informed the Urban Build up Areas.

A spatial perspective has been developed for the rural precincts of the City of Tshwane in line with the principles of "Smart growth"

- Discourage urban sprawl and contain growth within the city limits
- Compact the city through infill and densification
- Improve the utilisation of existing infrastructure, services and facilities
- Preserve the rural environment and landscape
- Protect the rural assets and resources
- Protect agricultural land, especially high potential agricultural land
- Preserve the environments that promote tourism, recreation and nature conservation
- Assist urban regeneration by adopting an inward approach
- Protect cultural and tourism assets
- Give structure and form to the city (urban growth)
- Manage the re-shaping of the city towards a more sustainable outcome"

A Local Spatial Development Framework was completed for the Monavoni and Western Farms area. The Framework identified a Development Edge to restrict development up to the year 2020.

The areas to the west of the Development Edge are not interlinked with the urban system and are earmarked as "Future Urban Development Areas" with the emphasis on development after 2020 when a follow up framework will determine the land uses for the revised LSDF. The area to the north east of the Development Edge is underlain by dolomite and only low densities can be accommodated

The timeframe for the proposed development of the Knopjeslaagte farm areas is envisaged to be triggered after the available farm portions to the

east has been developed (3000 – 4000 ha). The land to the east of the north/south Pretoriusrand watershed must get preference in terms of policy recommendation and service provision. The Monavoni Agricultural Holdings, Stukgrond 382-JR, Honeypark 437-JR and parts of Mooiplaats 355-JR farm portions will be able to link up with the existing Municipal sewer works situated at Sunderland Ridge, subject to capacity constraints.

A Municipal sewer purification plant is planned to be constructed to the west of the watershed to provide sufficient connection to the proposed future development areas. Although previously permitted, the Municipality does not support the provision of private outfall works.

3.7 KEY ISSUES AND S.W.O.T ANALYSIS

In order to determine the key issues and development opportunities for the area a S.W.O.T. analysis for the region was done.

3.7.1 STRENGTHS

- The region enjoys excellent regional accessibility via the N1, N14 and R21 linking it to the economic areas in the south.
- This region connects the City of Tshwane with Johannesburg, the Oliver Tambo International Airport and Ekurhuleni Metro.
- The region forms the southern gateway of the City of Tshwane.
- The region is interrelated with major adjoining Metropolitan Municipalities within Gauteng and North-West Province.
- The region has significant natural resources.
- The N1 development corridor/high technology belt is a major development strip in South Africa.
- The region is part of the Economic Core of the Gauteng Province and form an integral part of the "Smart Province".
- There is a railway line passing through the eastern portion of the region.
- The Waterkloof Airport is a gateway for VIP travel.
- The region accommodates well-developed, high quality residential areas.
- The region has access to private sector investment.

- The Gautrain plus Centurion Gautrain Station Precinct unlock economic opportunities.
- The Super Sport Park hosting sport and entertainment events
- The region is in close proximity to airports and rail transport routes.
- The region enjoys high levels of visibility.
- The region is host to a number of strategic land-uses such as the Centurion Aviation Village.
- The region has infrastructure to attract further Industrial and Commercial development.

3.7.2 WEAKNESSES

- The current structure is based on private vehicle transport, with a very poorly developed public transport system.
- The current railway infrastructure only serves the eastern part of the region although development is taking place towards the south and the west.
- The western part of the region is not sufficiently served by bulk infrastructure although this is the general direction of development.
- Underlying dolomite dictates the intensity of development as well as typologies.

3.7.3 OPPORTUNITIES

- The development of the Gautrain station in the Centurion Metropolitan Core area has improved public transport opportunities in the region and will unlock development opportunities.
- Potential corridor development along the R21 will create new opportunities.
- The future development of Super Sport Park
- The development of the PWV 9 will complete the ring road system around the metro and greatly improve accessibility at a regional level.
- High-tech industrial uses along the N1 development corridor will stimulate more high-tech economic opportunities

- Residential expansion in a westerly direction.
- African gateway convention and exhibition (AGCEP) precinct.
- The re-development of the Centurion Lake and surrounding areas to enhance the Metropolitan Core
- Monavoni Emerging Node Development.
- Irene Emerging Node Development
- Sunderland Ridge Industrial expansion.
- The construction of the West Avenue intersection with the N14 will unlock the Centurion Metropolitan Core for further development.

3.7.4 THREATS

- Rapid population growth with the provision of bulk services lacking behind.
- Uncontrolled and uncoordinated development outside the boundaries of the municipality, placing pressure on the internal movement system and engineering services of the region.
- Growth in a western direction could threaten ecologically sensitive environments.
- Underlying dolomite will inform development intensity towards lower density development or alternative land uses.
- Upgrading of Provincial Roads lagging behind development growth.

3.8 ROLE AND FUNCTION

The role and function within the Metropolitan context can be summarized as follows:

- Region 4 contains the mixed-use Centurion Metropolitan Core,
- It provides job opportunities to a large section of the metropolitan population.
- It is the area containing the highest intensity of land uses.
- Region 4 can be described as the high-tech heartland of the metropolitan area.

- Irene and Monavoni will in future support the Centurion Metropolitan Core as part of the larger poly-centric city.
- The Western Rural area of the region provides opportunities for tourism and rural development.
- The far western areas play an important role in the provision of regional open space in the metropolitan area with ridges and wetlands defining the area in the north and south.
- It holds as a resource large strategically under developed land parcels, which could in future accommodate effective focused development.
- To provide residential opportunities for all income groups and to accommodate new residential development in a sustainable form.
- To provide secondary and tertiary sector job opportunities in well-developed nodes and along development corridors.
- To provide open space within the metropolitan boundaries

PART FOUR: REGIONAL SPATIAL DEVELOPMENT FRAMEWORK

4.1 INTRODUCTION

The main development objectives for the region to fulfil its metropolitan role and function have been identified and are represented in the following development concept:

Region 4 comprises of two major environments namely the Urban Area and the Rural Area. Two main Metropolitan Strategies informs these environments namely:

- Urban Area – Tshwane Compaction and Densification Strategy
- Rural Area (forms an integrated part with Region 3) – Rural Development Strategy

These environments and its relevance to Region 4 are explained in more detail below:

4.1.1 URBAN AREA

- Metropolitan Node

The urban environment in Region 4 includes the urban core as illustrated and previously known as Centurion City and surrounding areas. Metropolitan nodes are high order activity nodes with a high concentration of mix of business, residential, social, cultural and other general activities that will ensure vibrant, 24-hour environments. The location of the Gautrain station, the redevelopment of the Centurion Lake as well as the proposed African gateway convention and exhibition Precinct (AGCEP) within the urban core will further enhance the strategic function of the area.

This core area is located between John Vorster Drive to the south and south-west, the Ben Schoeman (R28) to the west, the midblock between

Jean – and Glover Avenue to the north and the mid-block between Leonie - and South Street to the east.

Residential densification is proposed for the areas within and surrounding the Metropolitan Core. High density residential development consisting of multiple storeys which will be seen as Legibility and Landmark Anchors should be accommodated on locations in line with the Centurion Nodal Plans. Medium and high density housing should be developed within walking distance from the Gautrain station (Transit promotion zone).

- Road System and Nodes

The road network and road interchanges within the Region must support planning and is an important mechanism to unlock development potential.

The urban lattice (development corridors along highways, mobility spines, mobility roads, activity spines and activity streets) offer alternative locations for amongst other retail and/or office uses. The road network should facilitate linkages between the eastern and western areas within the Region to support the development lattice.

High intensity activity areas are located along major routes. Mixed use developments are encouraged which are in line with the character of the specific area and in line with the existing trend of uses and developments.

The activity nodes are areas of highest accessibility where both public and private investment tends to concentrate. The activity nodes offer the opportunity to locate a range of activities also in line with the character of the specific area and in line with the existing trend of uses and developments.

A pattern of nodes forms the corner stone of the urban structure and movement patterns. The nodes of regional and/or metropolitan importance should be located on the urban lattice where various transport

elements converge. Nodes should be distributed throughout the community and scaled in differing sizes. The concept of nodes is also directly linked to the importance of legibility and identity within the region.

Residential densification along the development corridors along highways, mobility spines, mobility roads, activity spines and activity streets are proposed at medium or high densities, subject to densities in line with the character of the specific area. Buffer uses along certain roads and medium density residential to the rear is supported in line with the character of the specific area and in line with the existing trend of uses and developments.

- Suburban Residential Areas

The larger area of the region consists of suburban residential areas. Residential neighbourhoods are set aside primarily for lower density residential development (Suburban densification zones) and should be attractive, quiet and safe environments for people to live in. The Suburban Residential Areas comprise a number of individual, usually introverted, residential neighbourhoods interspersed with neighbourhood related non-residential developments along identified activity streets.

The potential for moderate densification with due consideration of possible local constraints (e.g. geological conditions), is in line with the Compaction and Densification Strategy.

4.1.2 RURAL AREA

The western area (west of the proposed PWV 9 route) of Region 4 as well as the western and south-western parts of Region 3 is under pressure for development. The natural direction of growth can be attributed to the following:

- Spontaneous growth of Region 4 westwards
- The rural development axis between Johannesburg and the Hartebeespoort Dam (road P103-2).
- Lanseria Airport with economic activities
- Diepsloot and

- Olievenhoutbos

Large portions of this area consist of elements of environmental importance. These environmentally sensitive areas need to be protected as a major environmental resource of the city.

- Future Urban Development Areas

The area to the west of the Development Edge is within the long term direction of growth as it represents an important area of expansion of the region and metropolitan area. The concept therefore recognises this trend by including the area to the west of the Development Edge as “Future Urban Development Areas”. The area to the north east of the Development Edge is underlain by dolomite and only low densities can be accommodated

The future land uses, densities and intensities between the PWV 9 and the R511/M26 was the subject of a local spatial development framework which took, inter alia, the environmental sensitivities into account. The area identified for future residential development is in the extent of 60 000 ha. The area south of the K31 and north of the N14 could in future be considered as part of a corridor and may accommodate job opportunities. (Refer to the Monavoni and Western Farms LSDF)

- Management Area

The immediate area to the west of the R511/M26 and to the north of Lanseria is identified as a “Management Area”. Within the “Management Area” land uses and densities which do not fit into the denser urban complex should be permitted. This area can accommodate future residential as well as rural residential (2 units per hectare) in terms of the Rural Development Strategy.

Non-residential uses serving the rural population should be concentrated in rural nodes as earmarked in the Rural Plan (western area).

The “Management Area” replaces the function of the Urban Edge. It seems as if the Urban Edge policy was not a workable, implemental and

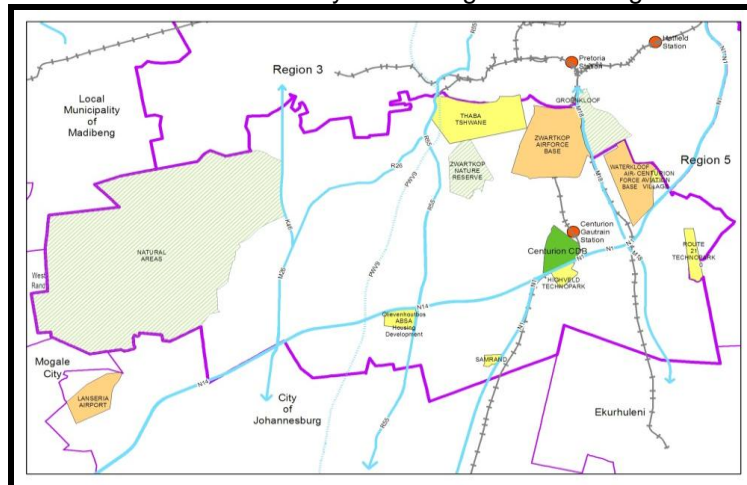
practical policy. “The Management Area” still adheres to the Urban Edge principles such as combating urban sprawl and promoting smart growth.

Although the theory of a “Management Area” instead of a line was acceptable, the “line or lines” still had to be refined. After the information of the C-plan was made available, the specific areas of very sensitive, less sensitive and areas for development became clear.

The earmarked areas in the Rural Development Strategy and the areas indicated in the Regional Spatial Development Frameworks were informed by the new C-plan, the structural elements, smart growth principle, compact city vs urban sprawl and existing development.

- Natural Area

By creating an area where there is ample opportunity for development (Future Urban Development Area) the Municipality earmarked certain areas of the farm portions of Hennopsrivier 489 JQ, Roodekrans 492 JQ, Vlakfontein 494 JQ and Rietfontein 532 JQ ext. as ‘Natural Area’ as this area was informed by the C-plan to be protected from densification . This area forms an environmental unity within Region 4 and Region 3



proposed building of 30 storeys was not approved by the relevant geological authorities although a structural solution was acceptable for the conditions on the site. The risk for sinkholes surrounding the proposed structure on public areas was seen as a “possibility” should leakage or infiltration of water and sewerage occur.

However evaluation of the scale and maintenance of waterborne services indicate that the higher intensity land-uses present a scenario that can be managed with a significantly lesser degree of risk than a lower intensity scenario. Where responsibility of management is done on a collective basis, higher intensity uses actually contribute to reducing risk.

In attempting to define an abstract concept such as “risk” scientifically, the answer is a dynamic definition incorporating inherent characteristics with operational impacts. Distinction must also be made between “risk” and “probability”

Probability implies the statistical chance for a certain event to occur within definable set of variables. In the case of dolomitic subsidence, such probability is the end result of depth of dolomitic rock, nature of overlaying material and intensity and frequency of concentration and infiltration of water.

The concept of risk adds the operational dimension to any given set of probability determinants. Exposure of wet services and management and maintenance of such services in relation to specific land development proposals contribute to the final analysis of risk implied by such proposal in relation to such given probability.

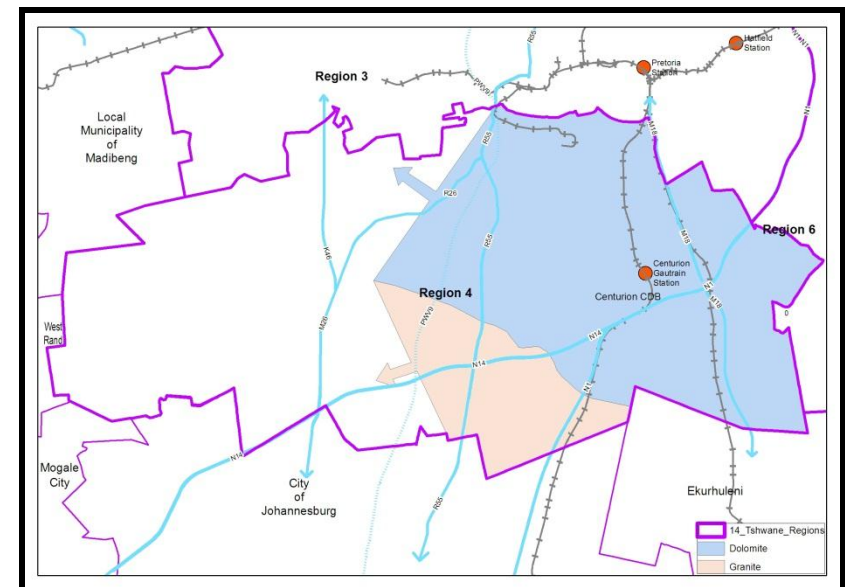
For the purpose of formulating evaluation criteria for land development proposals applicable to dolomitic areas, it is therefore inadequate to assume a static stance on the concept of risk. Such evaluation criteria must recognise the dynamic nature of risk determined by different factors.

Consensus should be achieved regarding criteria for development within this area, based on uniform and scientific approach to

constraints and a dynamic approach in respect of development guidelines.

The biggest problem for market related development is the scale of development allowed in relation to perceived danger of dolomite. The budget should be allocated to a project constituting an independent investigation for reinstatement of the rehabilitation approach to land development on dolomite underlain areas.

It must however be emphasized that any recommendations on land-uses and densities made in the RSDF, are subject to the site specific conditions revealed after drilling has taken place. Any recommendations on land-uses and densities made in the RSDF, will not overrule any other legislation relating to geological conditions.



GEOLOGY (CONCEPTIONAL) - EXISTING URBAN AREA: Region 4

(Source: Guideline for engineering-geological characterisation and development of dolomitic land, Council for Geoscience/ South African Institute of Engineering and Environmental Geologists, 2003).

4.2 NODES

The Metropolitan Spatial Framework (MSDF) indicates one Metropolitan Node in Region 4. Three Emerging Nodes are identified. The Tshwane Retail Strategy is also applicable to these nodal areas of metropolitan importance. In Region 4 these activity areas are linked to public transport facilities and represent the environments where high levels of public sector investment are required. The intention is to group economic, social and residential opportunities in mixed-use environments within these core areas.

The following core area is highlighted in terms of the MSDF:

4.2.1 CENTURION CBD METROPOLITAN CORE

The Centurion CBD is a prominent focal point and regional node on the N1 Development Corridor and on local level on the Centurion Central Spine. It was planned and developed over time as a diverse precinct consisting of different character zones within the core area. It consists of a retail zone, entertainment zone, institutional zone, service retail zone, corporate zone, office zone, sport and recreational zone as well as a mixed use zone. A variety in urban form is created through the reaction of development on various form giving elements, creating uniqueness and enhancing the identity of Centurion City.

The Centurion CBD will be more identifiable and legible as the major node and focus point for development in this region with the accommodation of the proposed African Gateway Convention and Exhibition Precinct, the redevelopment of the Centurion Lake, the further development of the Gautrain Station and the Super Sport Park, as well as future high rise residential and mixed use developments.

The scale and intensity of further developments as well as redevelopment in this precinct should be managed to enhance the functional and sustainable development of the core area.

Innovative ways in dealing with the dolomite geological formations in order to proceed with the higher intensity developments in this area should be investigated and negotiated.

The introduction of high density residential development in the form of multi-storey blocks should be encouraged.

The RSDF indicates a number of Emerging Nodes which are important on a regional and local level.

- Irene emerging Node
- Monavoni emerging node
- Erasmia/Claudius emerging node

4.2.2 REGIONAL NODES

The framework indicates a number of larger nodes of which some are existing and/or emerging.

The principle of providing higher density residential development around all the nodes should be encouraged to facilitate economies of scale and to bring job opportunities closer to residential areas. Nodes should include social and community facilities.

For nodes to function properly they should form part of a hierarchy of nodes, directly related to the characteristics of the population it serves. Typically community centres and neighbourhood centres should include both commercial and social facilities, such as retail facilities, schools, professional offices and supporting community facilities.

The ideal locality of community centres and local nodes will have to be determined through retail studies taking into account all factors that could have a significant impact on the need and desirability of such a node.

Feasibility studies will be compulsory for retail developments larger than 4000 square metres.

- To ensure that prospective applicants who intend developing retail facilities sufficiently address all aspects in their applications for retail rights and are thoroughly briefed on all the requirements of the Municipality with regard to such developments, a pre-application consultation should be held, where the following aspects will be addressed:

Location Requirements
Urban Design
Parking requirements and layout
Taxi ranks and public transport facilities
Informal Trade
Site development plans
Impact Studies
Population profile

- The Tshwane Retail Strategy is applicable to these nodal developments. The following table provides an overview of the retail developments in the Region 4.

Number of existing centres	1 Super Regional center (Metropolitan Node) 3 Emerging Nodes 30 Community centre/ Small regional centre Numerous smaller centres
Total GLA of existing shopping centre space	314 667m ² , excluding centres smaller than 'Neighborhood centres'.
Dominant LSM classification	LSM 9, changing due to LSM 10+ moving in
Major retail classification	1. Centurion Metropolitan Node can be regarded as a strong regional center offering a strong tenant mix and a variety of facilities. The entire

	Centurion CBD is a very strong retail destination. 2. Mall @ Reds, Doornkloof Mall, Centurion Value World/ Makro, Irene Mall are 'Community centres'. Similar centres (Heuweloord Crossings, Highveld x 62, Monavoni x20, Erasmia x 15 etc) are under construction and/or in the planning phase.
Centre dominance: * Outflow	Between 6% and 8% of the disposable income in the area flows out to Menlyn Park Shopping Centre, Brooklyn Mall as well as centres in Johannesburg (due to workers commuting on a daily basis). This has been reduced mainly because of the attractiveness of the Centurion Metropolitan Core.
* Inflow	Inflow is limited, but was increased by the expanded/ renovated Centurion City Mall and proposed AGCEP development
Dynamics of the area: • Residential growth	Region 4 has also been a fast growing, upper income residential area in Tshwane. During the last 2 – 3 years between 2 500 and 3 000 new houses have been added to the existing stock annually. It is expected that this growth will continue for the time being.
• Growing residential areas	Louwlandia, Raslouw, Monavoni, Irene A large number of decentralized office space/hightech is located in Region 4.
• Other growth	The Centurion Metropolitan Core represents a strong first decentralized order node for Tshwane. This growth is

	also associated with hotels and entertainment.
Proposed strategy <ul style="list-style-type: none"> Expansion strategy: Centurion CBD Renewal /upgrade strategy: in areas such as Lyttelton, Centurion Value World Nodal strategy: Centurion CBD, Hennopspark 'Follow the roofs' / New growth areas strategy: To be managed within Local Spatial Development Frameworks (Planning in place, market to determine the phasing/ implementation , extent and/or type/tenant mix) Maintenance strategy: To be encouraged Infill strategy: To be evaluated on merit Modal interchange strategy: Limited scale at Gautrain stations, introduction of additional modal facilities e.g. at the Olievenhoutbosch / Main Road intersection with the railway line, Lyttelton along Botha Avenue 	

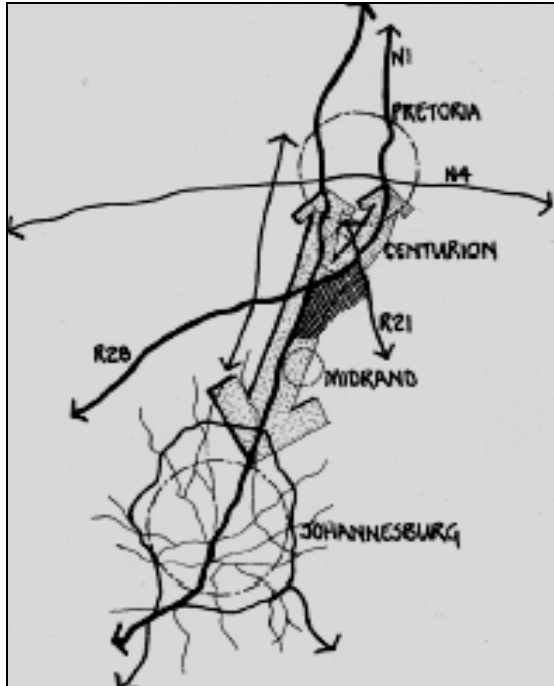
Future Developments		
Location	GLA and Strategy	Status of application
Erasmia x 15	100 000m ² Follow the roofs	Approved
C/O Hendrik Verwoerd and Rooihuiskraal Road	52 000 m ² Contain expansion	Approved
Monavoni x39	350 000 m ² New growth areas strategy	Approved
Irene	89 000 m ² New growth	Approved

4.3 JOB OPPORTUNITIES

4.3.1 HIGH TECHNOLOGY / MIXED USE AREAS

Apart from the core CBD area, areas for job opportunities will be focused around development corridor areas. These areas usually contain a high concentration of population and mixed land uses with the focus on high technology and consist of the following:

- Areas around the N1 route considered with Samrand, Nellmapius, Brakfontein and Olievenhoutbosch Roads as the activity spines through the Kosmosdal, Louwlandia, Highveld and Irene suburbs. The corridor manifests primarily within the Midrand and Centurion areas and it is known as the high technology belt within the South African economy. The region falls within the Economic Core identified for Gauteng Province with the legs of the triangular core the N1 highway on the western side and the R21 with its linkage to the international airport on the eastern side. This economic core is the primary growth focus for Gauteng Province. The so-called high profile developments, such as office, finance and information technology related developments therefore tend to concentrate in Region 4.



4.3.2 INDUSTRIAL /MIXED USE AREAS

- A mixed use area with the focus on job opportunities in an industrial environment to be developed north and south of Sunderland Ridge and east of the proposed PWV 9 mobility spine .
- Industrial uses is to be developed north of Sunderland Ridge and the K103 route and east of the proposed PWV 9.
- An existing mixed use area with the focus on Service Industries is located east of Botha Avenue and to the north of the N1 (between

R101 and the N1). This is an existing industrial area accommodating light industries and commercial uses.

- East and west of R21/ Nelson Mandela route where an existing industrial area (Route 21) consisting of high technology industrial uses have already developed.
- A mixed use area primarily west of the R21 at the intersection with Nellmapius Road where mixed uses consisting of high technology industries and offices have already developed.
- The Samrand/ Louwlandia areas , east and west of the N1 serve as a high tech/mixed use area consisting of big box warehouses, offices and Industrial 2 uses.

4.4 FUNCTIONAL ROAD CLASSIFICATION AND ACTIVITY MATRIX

The movement system in an urban environment is literally the arteries of the city – without these linkages there can be no economy, no inter-relatedness, and no “life”. Movement systems can be used to create access, structure, settlements, and promote integration, diversity and mixed land use. Movement (flow of people, finance, goods) defines the energy networks of settlements. Accordingly, more continuous lines of movement represent planes of greater accessibility and, therefore, become the more desirable planes of connection for intensive use. Significantly, the energy potential contained in lines of movement is released through stopping, not through movement. Different movement modes have varied patterns of stopping. Accordingly, they establish different rhythms of accessibility and the co-ordination of different modes enables certain points to be strongly reinforced.

By creating a complex and diverse pattern of accessibility, all activities, both large and small, can naturally find a place within the structural system, depending on their need for accessibility and their ability to pay for it. Movement systems, therefore, provide a powerful planning mechanism to bring about mixed, but broadly predictable, patterns of activity, provided activities are allowed to respond to them. Existing and

future mass transport routes should also be integrated into this urban system.

The movement system is an enabling feature of a city as it enables the free movement of people, goods and services through a region. Development trends are directly influenced by accessibility and therefore strategic planning with regard to movement is of utmost importance in the context of a growing metropolitan centre.

Erven adjacent to roads that link nodes with mobility or activity function within a residential area may be considered on merit. The merit will be evaluated in terms of the guidelines as set out in this chapter.

4.4.1 DEVELOPMENT CORRIDORS

The development opportunities offered by the N1 and R21 corridors are exploited by proposing linear development on both sides of the first order roads passing through the urban area of Region 4. First order roads in the development corridor are supported by lower order roads to provide access. Mobility and visibility is provided by first order roads and accessibility is provided by lower order roads.




- The N1 development corridor is supported by the R101 to the west and Olievenhoutbosch Road to the east. The focus of this development corridor is on the provision of job opportunities. Residential development could however be accommodated in focus areas along the corridor subject to the availability of supporting community and social facilities. Buffer uses along the corridors and


medium density residential to the rear is supported especially along the highways.


- The R21 development corridor is supported by Van Ryneveld Avenue in the west and Goedehoop Road in the east as well as the future Olievenhoutbosch Road/ Nellmapius Drive providing an east-west link. This mixed use areas accommodates light industries, high-tech land-uses and offices.
- To the north of the intersection of the R21 and the N1 directly south of Solomon Mahlangu Drive (K69), there is further opportunity for mixed uses which is complementary to the existing Aerosat and the approved Centurion Aviation Village (CAV).
- The proposed PWV 9 together with the R55 will provide the necessary energy for the development of a third development corridor. The extension of Sunderland Ridge in a northern and southern direction to accommodate light and high-tech industries is proposed for this section of the new development corridor. The development of this corridor is subject to the construction of the PWV 9 and the feeder routes to the proposed highway.
- The extension of Sunderland Ridge in a northern and southern direction to accommodate industrial land uses is proposed for this section of the new PWV 9 development corridor.

The interrelationship between a proposed functional road classification and an activity matrix is illustrated by the following table below:

(Please note that a road / route may differ in classification at certain points or segments, the following table does not include site specific classifications, and the classification of a road/route therefore needs detail information at a certain location to determine the function)

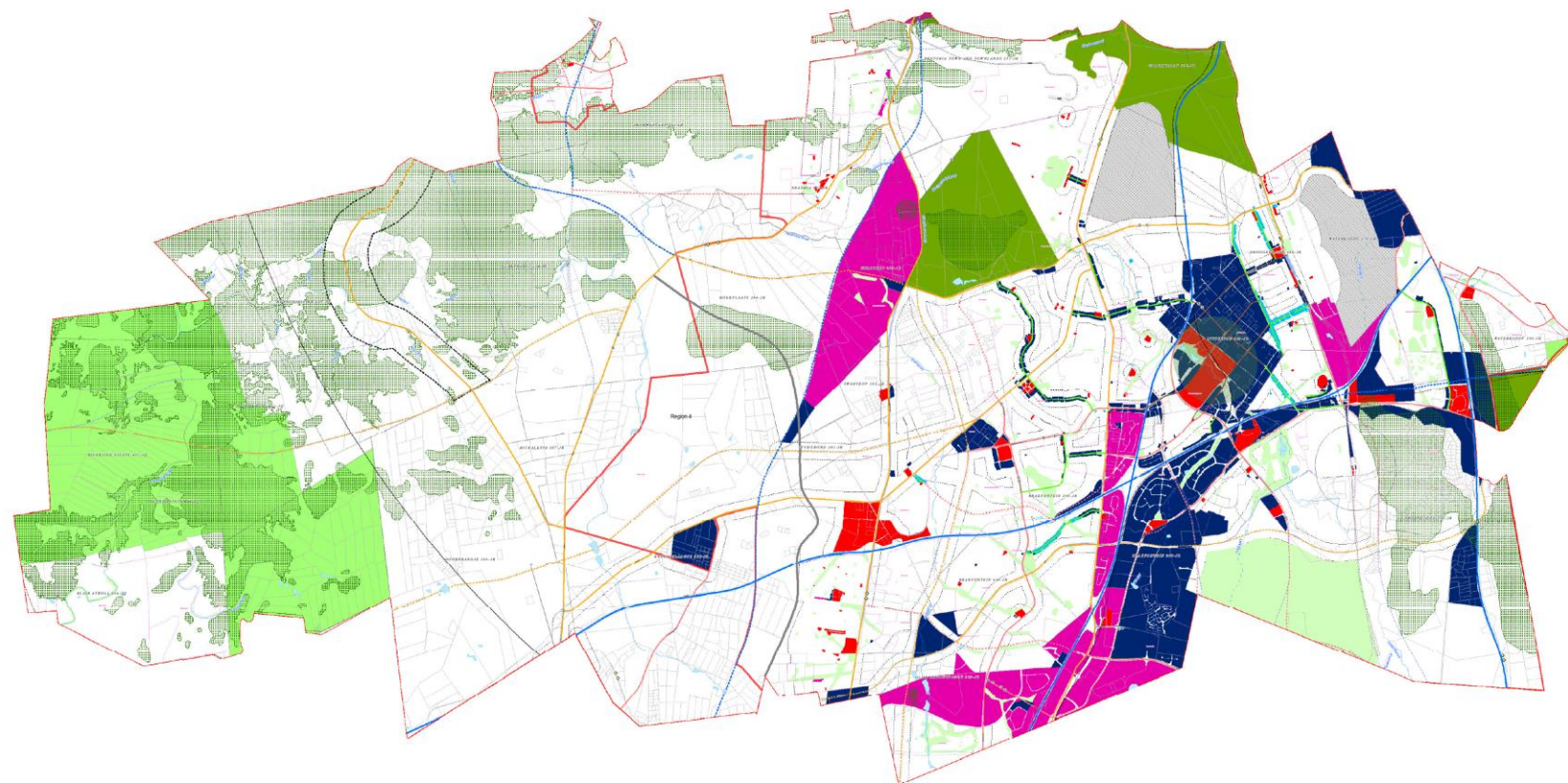
Functional Road Classification	Land Use	Function and Design	Roads and Streets
Highways 	<ul style="list-style-type: none"> No Direct Access to land uses. 	<ul style="list-style-type: none"> Accommodate mainly national, regional and longer distance metropolitan trips. No traffic lights on these roads Access is restricted to the interchanges only. 	<ul style="list-style-type: none"> N1 (Polokwane Bypass), N4 (Emalahleni Highway), R21 (Nelson Mandela Freeway south of Solomon Mahlangu Avenue), N14 Proposed PWV 9
Mobility Spine  A Mobility Spine is an arterial along which through traffic flows with minimum interruption (optimal mobility). Much smaller than highways, Mobility Spines are usually made of two lanes of opposite vehicle flow. It serves the purpose of inter-regional and metropolitan movement.	<ul style="list-style-type: none"> Nodal Development at intersections. Mixed land uses at intersections. 	<ul style="list-style-type: none"> Little (exception) or no direct access to land uses adjoining the spine. Access is usually through side roads and service roads. Involves inter-metropolitan and inter-regional routes No on street parking permitted Very few traffic lights Restricted pedestrian movement 	<ul style="list-style-type: none"> K103 –Solomon Mahlangu Drive / Trichardt Road/Wierda Avenue (part of the Northern Development Spine) K54 – Proposed(part of the Southern Development Spine) R101 – Old JHB road R55 – Voortrekker Road M34 – Ruimte Road / Tulip Road PWV 6 - Proposed K52 - Proposed K46 / K103 / M26 K27 – Hennopsriver Road K44 – Proposed
Mobility Roads  Primarily serves intra-metropolitan traffic. While this route is characterised by through traffic,	<ul style="list-style-type: none"> Medium to high density residential Nodal development with a mixed use character (developments 	<ul style="list-style-type: none"> Limited direct access permitted (not frequent) Services roads to enhance access opportunities On street parking also permitted close to major intersections and in 	<ul style="list-style-type: none"> Botha Avenue(K103) Goedehoop Avenue Hendrik Verwoerd Drive(part of the Central Development Spine) John Vorster Avenue K103 extension

Functional Road Classification	Land Use	Function and Design	Roads and Streets
<p>trends indicate pockets of mixed use developments locate alongside.</p> <p>It serves as the most important linkages between the Metropolitan Activity Areas (Capital Core/Metropolitan Cores/Urban Cores/Specialised Activity Areas)</p>	concentrated at intersections)	<p>the vicinity of significant nodes only</p> <ul style="list-style-type: none"> Plays a collector and distributor function though trips are of a short distance Pedestrian movement along the route in various parts Public transport very important along Mobility Roads Provide public transport facilities 	<ul style="list-style-type: none"> K73 – Proposed Knoppieslaagte Road Lenchen Avenue / River Street(part of the Central Development Spine) Mimosa Street Mimosa Street– proposed Olievenhoutbosch Drive and Nellmapuis Drive Rabie Street / Cantonments Street Rooihuiskraal Road Tulip Von Melle Road- proposed Van Ryneveld Road (North of the N1) West Avenue (Refer to LSDF for Monavoni) Brakfontein Road K109
<p>Activity Spine </p> <p>These streets are characterised by slower moving traffic due to the nature of activity along the street (activity is of paramount importance, mobility is compromised to allow the activity). The street provides a focus for various non-residential and medium to higher density residential developments that create a vibrancy and specific identity.</p>	<ul style="list-style-type: none"> Mixed uses along the spine Interface with adjoining lower intensity residential developments to be treated sensitively Urban design guidelines important to guide the development along the spine. 	<ul style="list-style-type: none"> Pedestrian/cyclist oriented environment with traffic calming for cars where appropriate High accessibility to land uses Mixed land uses along service roads High density development with mixed uses must be promoted in suitable locations along these routes. On-street parking where appropriate. 	<ul style="list-style-type: none"> Botha Avenue (the section between Cantonments Road and River Road) Cantonments Road (excluding the Lyttelton Manor Business Node and the retail centre on the south-western corner of the Cantonments/ Selbourne intersection) Jean Avenue (North of South Street) West Avenue Hendrik Verwoerd Avenue/Lenchen Avenue (Central Activity Spine)

Functional Road Classification	Land Use	Function and Design	Roads and Streets
Activity Street  Local collector road within suburb, characterised by small scale (in keeping with the existing character of surrounding residential developments) local economic activities and social amenities	<ul style="list-style-type: none"> • Low-intensity mixed land uses with a focus on community services and economic opportunities as further depicted in paragraph 4.4.2 • Low to medium density residential developments • Interface with adjoining lower intensity residential developments to be treated sensitively • Urban design guidelines important to guide the development along the street. 	<ul style="list-style-type: none"> • Characterised by low speeds (60km/h and less) • Mixed land uses along service roads • Must be provision for pavements • Parking on site • These streets serve primarily local traffic accessing the served area and feeds into arterial roads 	<ul style="list-style-type: none"> • Alexander (only erven in Doringkloof not Irene) • Apiesdoring Road (part of) • Clifton / Zircon Street • Cradock Street (the section from Cantonments road up to Trichardt Road and excluding the Lyttelton manor Business node) • Escourt Street • Golf Avenue (the service lane adjacent to the Old Johannesburg Road) • Hekla Road (the section between Vindhella and Broadway East) - Valhalla • Jean Avenue (The portion south of South street – Doringkloof) • Korana Street (only between aster avenue and erven east of Erf 1129, Doringkloof x 1) • Lyttelton Road (the section between the N14 Highway and the Old Johannesburg Road) • Panorama Road (only from the Old Johannesburg Road up to Rooihuiskraal Road) • River Road (only the section between Clifton Avenue and Botha Avenue) • Ruimte Road (parts of Ruimte Road where service lanes are adjacent to or parallel with the mobility spine and access can be obtained from the mobility spine without entering the surrounding residential area. The use of the service lanes is restricted in terms of an approved traffic impact)

Functional Road Classification	Land Use	Function and Design	Roads and Streets
			<p>assessment and access management plan as well as approval by Gautrans)</p> <ul style="list-style-type: none"> • Saxby Road (the section between the Old Johannesburg Road and Ruimte Road) • Saxby Road between Ruimte Road and Wierda Road (subject to a traffic impact assessment and an approved access management plan) • Theuns van Niekerk Avenue (only south of Hendrik Verwoerd Drive, up to Rooihuiskraal Road) • Tulip Road • Van Ryneveld Drive (south of the N1 up to nelmapius Drive) • Willem Botha Street (from the intersection with Hendrik Verwoerd Avenue up to the intersection with Wierda Road) • Pretorius Road (between River Road and Amkor Road) • Legong Street

Region 4 - Nodal and Corridor Map



Legend					
Water Shed / Development Edge	Proposed BRT	Activity Spine	Land-Use	Service Centres	Open Space
Urban Edge 2013	Proposed	Existing	Cemetery	Community Service Centre	Conservation Areas
CBD 25 km Radius	Highways	Proposed	Mixed Uses	Human Settlement	Dinokeng Game Reserve
Gautrain Station	Existing	Activity Street	Sport Incubator	Proposed Rural Service Centre	Game Reserve Startup
Proposed Railway	Proposed	Existing	Office	Rural Service Centre	Nature Reserve
Proposed Station	Mobility Road	Proposed	Airport		Open Space
Tourism Potential	Existing		Campus		Ridge
Service Industry and Mini Storages	Mobility Spine		Future Nodes		
Landfill	Existing		Future Regional Cemetery		
PWV & K Routes	Proposed		Mining		
Existing PWV/Routes			Protected Residential Area		
Proposed PWV/Routes			Proposed Local Nodes		
Existing K-Routes			Cores / Node		
Proposed K-Routes			Linear Zone		

TSHWANE REGIONAL SPATIAL DEVELOPMENT FRAMEWORK REGION 4

4.4.2 DEVELOPMENT MEASURES FOR ACTIVITY STREETS ABUTTING RESIDENTIAL DEVELOPMENTS

One of the main concerns for activity streets within residential areas is the compatibility and interaction of land use changes with the abutting residential uses. The existing characteristics of an area and street play an important role in the determination of land uses that are considered appropriate and are compatible with the residential component. The activity streets in Region 4 can be divided into four categories and land uses permitted along these streets will differ accordingly. The permitted land uses shall only be accommodated along the street up to the mid-block line of the erven in the blocks running parallel to an activity street or adjacent service lane. The following criteria shall determine if a particular erf is suitable to accommodate a permitted land use change:

- Acceptable safe access possible
- Adequate on-site parking available
- Adequate space available for landscaping purposes
- Acceptable impact on residential component
- Site characteristics
- Availability of services

4.4.2.1 Category 1 Activity streets

Characteristics of the streets:

These streets are lined with single residential uses, which form part of a larger residential component and in some instances (e.g. Cantonments Road, Van Ryneveld Road, Cradock Street, Saxby Road, Willem Botha Street and Ruimte Road), community retail centres occur at certain intersections. The following activity streets are included:

- Alexander Road (only erven in Doringkloof not Irene)
- Cantonments Road (excluding the Lyttelton Manor Business Node and the retail centre on the south-western corner of the Cantonments/ Selbourne intersection)
- Clifton / Zircon Street

- Cradock Street (the section from Cantonments road up to Trichardt Road and excluding the Lyttelton manor Business node))
- Hekla Road (the section between Vindhella and Broadway East)
- Jean Avenue (the portion of Jean Avenue south of South Street – Doringkloof)
- Korana street (only between Aster Avenue and erven east of Erf 1129, Doringkloof x 1)
- Panorama Road (only from the Old Johannesburg Road up to Rooihuiskraal Road)
- Parts of Ruimte Road (parts of Ruimte Road where service lanes are adjacent to or parallel with the mobility spine and access can be obtained from the mobility spine without entering the surrounding residential area. The use of the service lanes is restricted in terms of an approved traffic impact assessment and access management plan as well as approval by Gautrans)
- River Road (only the section between Clifton Avenue and Botha Avenue)
- Saxby Road (the section between the Old Johannesburg Road and Ruimte Road)
- Saxby Road Extension (subject to a traffic impact assessment and an approved access management plan)
- Theuns van Niekerk Street (only south of Hendrik Verwoerd Drive, up to Rooihuiskraal Road)
- Van Ryneveld Road (area south of the N1 highway up to Nelmapius Road)
- Willem Botha Street (from the intersection with Hendrik Verwoerd Drive up to the intersection with Wierda Road)
- Pretorius Road (between River Road and Amkor Road)
- Legong Street

The following table indicates the land uses that shall be permitted and not permitted along Category 1 activity streets in Region 4. Take note that, all erven with existing approved land uses shall be excluded from the list below:

PERMITTED LAND USES	LAND USES NOT PERMITTED
<ul style="list-style-type: none"> • Beauty salon • Dress-making and tailoring • Estate agents • Guest-house • Hair dresser • Jewellery manufacturing • Medical consulting rooms • Offices • Picture framing and art gallery • Place of child care (preferable on a corner property and in accordance with the approved policy) • Place of instruction (preferably on a corner property) • Residential developments with densities as described in Compaction and Densification Policy • Veterinary clinic 	<ul style="list-style-type: none"> • Animal boarding places • Blasting contractor • Building society agency • Butchery • Call centres • Car wash • Commercial • Courier services • Escort agency • Filling station and Public garage • Fish-fryer • Funeral undertaker • Hiring and selling of vehicles (including trailers, caravans etc) • Industrial • Light Industries • Manufacturing of concrete products • Micro-lender • Motor related activities • Motor workshop • Packaging contractor • Panel-beater • Parcel delivery service • Pet salon • Place of Amusement • Place of Refreshment • Public storage • Radio control / telephone exchange • Retail / shops / spaza shops (excluding the existing retail nodes, neighbourhood

PERMITTED LAND USES	LAND USES NOT PERMITTED
	<ul style="list-style-type: none"> centres and community centres) • Retail Industries (excluding picture framing, jewellery manufacturing and dress-making / tailoring) • Shooting range • Showrooms • Shuttle services • Spray-painting • Taxi-business • Tow-in service • Transport depot • Transport terminus • Veterinary hospital • Warehouses • Workshops • Other

Development controls:

The following Development controls shall be applicable for permitted land uses:

Land use management:

- FSR not higher than 0, 3 and with merits a maximum FSR of 0, 45 – 0,5 may be considered on larger erven.
- 2 storeys
- Adequate building lines to protect neighbouring residential component
- Landscaping: Indigenous landscaping shall be incorporated
- Intensive Landscaping along street boundaries with the inclusion of trees where possible
- The road reserve between the erf boundaries and the street shall be landscaped in accordance with the landscape development plan. The landscaping should include design measures to prevent on-street

parking and include a walkway (at least 2 m wide) to ensure pedestrian safety

- Trees to buffer from residential uses where necessary
- Provide one tree per every two parking spaces
- Soft landscaping shall form part of parking areas

Advertising:

- Advertising shall be limited to one location on the erf and shall be integrated in the building and design, loose standing advertising features shall be discouraged
- Limited to one signboard which is of an acceptable scale
- No advertisements shall be painted on any boundary walls
- No banners will be allowed
- No figurines, displays on the roof(s) of buildings or any other part of the building shall be allowed
- Buildings and land shall not be decorated in such a manner to advertise the particular business or any other businesses
- No showrooms shall be allowed
- No neon- or potential intrusive lightning

Access:

- Accesses as far as possible limited to a communal boundary
- Adequate stacking space for vehicles to enter the erf shall be provided to ensure traffic safety

Other:

- No on-street parking shall be allowed
- Carports must as far as possible be located in such a manner that it is not visible from the street
- 2,1 high solid brick walls shall be erected on all erf boundaries abutting residential properties.
- No pre-cast walls shall be allowed on street boundaries
- Fencing along the street boundaries shall be semi-transparent to enhance landscaping, architecture and aesthetics
- All refuse areas and service yards shall be screened off with a solid wall and /or landscaping. Refuse areas shall be placed as far as possible from residential developments.

- The architecture of buildings shall interact with the immediate surroundings in terms of facades, advertising, color, texture, finishes etc.
- No air conditioners shall be visible from the street boundaries
- No balconies that are orientated towards existing residential developments shall be permitted.

4.4.2.2 Category 2 Activity streets

Characteristics of the street:

The street has a commercial character and abuts onto the railway line to the east, there are little residential uses located along the particular street but the activities abut single residential uses to the west. The following activity street is included:

- Botha Avenue (the section between Cantonments Road and River Road)

The following land uses shall be permitted and not permitted along Category 2 activity streets in Region 4. Take note that, all erven with existing approved land uses other than Residential 1 shall be excluded from the list below:

PERMITTED LAND USES	LAND USES <u>NOT</u> PERMITTED
<ul style="list-style-type: none"> • Beauty salon • Estate agents • Hair dresser • Medical consulting rooms • Offices • Place of Amusement • Place of Refreshment • Residential developments with densities as described in Compaction and Densification 	<ul style="list-style-type: none"> • Blasting contractor • Industrial uses • Packaging contractor • Panel-beater • Public storage • Scrap yards • Shooting range • Spray-painting • Transport depots • Warehouses

PERMITTED LAND USES	LAND USES <u>NOT</u> PERMITTED
<ul style="list-style-type: none"> policy Retail / Shops Retail Industries Vehicle Sales showroom Vehicle Sales mart Veterinary clinic 	<ul style="list-style-type: none"> Other

Development controls:

The following Development controls shall be applicable for permitted land uses:

Land use management:

- FSR not larger than 0,4 or on merits
- 2 storeys
- A 5m building line to protect neighbouring residential component which will include a row of indigenous trees

Landscaping:

- Indigenous landscaping shall be incorporated
- Intensive Landscaping along street boundaries with the inclusion of trees where possible
- Trees to buffer from residential uses
- Provide one tree per every two parking spaces
- Soft landscaping shall form part of parking area

Access:

- Accesses as far as possible limited to a communal boundary
- Adequate stacking space for vehicles to enter the erf shall be provided to ensure traffic safety

Workshops:

- Workshop areas shall not be visible from the street
- An oil catch pit shall be installed on the erf to the satisfaction of the Municipality

- No used or polluted water shall be stored in or discharged into the road reserve to the storm water drainage system
- Workshop areas shall be acoustically screened from the abutting residential component

Other:

- No on-street parking shall be allowed
- 2,1 high solid brick walls shall be erected on all erf boundaries abutting residential properties.
- No pre-cast walls shall be allowed on street boundaries
- All refuse areas and service yards shall be screened of with a solid wall and /or landscaping. Refuse areas shall be placed as far as possible from residential developments.
- No balconies that are orientated towards existing residential developments shall be permitted.

4.4.2.3 Category 3 Activity Streets

Characteristics of the street:

The street has a dominant commercial character with established uses. The following activity street is included:

- Lytelton Road (the section between the N14 Highway and the Old Johannesburg Road).

The following land uses shall be permitted and not permitted along Category 3 activity streets in Region 4. Take note that, all erven with existing approved land uses other than Residential 1 shall be excluded from the list below:

PERMITTED LAND USES	LAND USES <u>NOT</u> PERMITTED
<ul style="list-style-type: none"> Arts and crafts centre Beauty salon Dress-making and tailoring Estate agents Funeral undertaker Hair dresser Interior decorating 	<ul style="list-style-type: none"> Animal boarding places Blasting contractor Butcher Call centres Car wash Escort agency Industrial

PERMITTED LAND USES	LAND USES NOT PERMITTED
<ul style="list-style-type: none"> Jewellery manufacturing Laundrette (excluding dry-cleaning) Medical consulting rooms Offices Picture framing and art gallery Printing and copying Residential developments with densities as described in Compaction and Densification Policy Showrooms Tea garden (for the preparation, sale and consumption of light refreshments on the property where operating hours are restricted. All other uses as contained in the definition for a place of refreshment are excluded) Veterinary clinic 	<ul style="list-style-type: none"> Light Industries Manufacturing of concrete products Micro-lender Packaging contractor Panel-beater Parcel delivery service Pet salon Place of Amusement Place of Refreshment Public storage Radio control / telephone exchange Retail / shops / spaza shops (excluding existing retail nodes, neighbourhood centres and community centres) Retail Industries (excluding picture framing, jewellery manufacturing, printing and copying, interior decorating, dress-making and tailoring and a laundrette) Scrap yards Shooting range Spray-painting Taxi-business Tow-in service Transport depot Transport terminus Veterinary hospital Warehouses Workshops Other

Development controls:

The following Development controls shall be applicable for permitted and uses:

Land use management:

- FAR of 0,4 or higher, in accordance with a site development plan on special merit
- 2 storeys or higher, depending on the locality and surrounding land uses (not directly adjacent to residential components).
- Adequate building lines to protect neighbouring residential component.

Landscaping:

- Indigenous landscaping shall be incorporated
- Intensive landscaping along street boundaries with the inclusion of trees where possible
- The road reserve between the erf boundaries and the street shall be landscaped in accordance with the landscape development plan. The landscaping should include design measures to prevent on-street parking and include a walkway (at least 2 m wide) to ensure pedestrian safety
- Trees to buffer residential uses where necessary
- Provide one tree per every two parking spaces
- Soft landscaping shall form part of parking areas

Advertising:

- Advertising shall be limited to one location on the erf and shall be integrated in the building and design, loose standing advertising features shall be discouraged
- Limited to one signboard which is of an acceptable scale
- No advertisements shall be painted on any boundary walls
- No banners will be allowed
- No figurines, displays on the roof(s) of buildings or any other part of the building shall be allowed
- Buildings and land shall not be decorated in such a manner to advertise the particular business or any other businesses
- No neon- or potentially intrusive lightning

Access:

- Accesses as far as possible limited to a communal boundary
- Adequate stacking space for vehicles to enter the erf shall be provided to ensure traffic safety

Other:

- No on-street parking shall be allowed
- Carports must as far as possible be located in such a manner that it is not visible from the street
- 2,1 high solid brick walls shall be erected on all erf boundaries abutting residential properties
- No pre-cast walls shall be allowed on street boundaries
- Fencing along the street boundaries shall be semi-transparent to enhance landscaping, architecture and aesthetics
- All refuse areas and service yards shall be screened off with a solid wall and /or landscaping. Refuse areas shall be placed as far as possible from residential developments.
- The architecture of buildings shall interact with the immediate surroundings in terms of facades, advertising, colour, texture, finishes etc.
- No air conditioners shall be visible from the street boundaries.
- No balconies that are orientated towards existing residential developments shall be permitted.

4.4.2.4 Category 4 Activity streets

Characteristics of these streets:

These streets borders onto single residential uses or larger residential components or protected cells. The following activity streets are included:

- Golf Avenue (the service lane adjacent to the Old Johannesburg Road)
- Estcourt Street

The following land uses shall be permitted and not permitted along Category 4 activity streets in Region 4. Take note that, all erven with

existing approved land uses other than Residential 1 shall be excluded from the list below:

PERMITTED LAND USES	LAND USES NOT PERMITTED
<ul style="list-style-type: none"> • Beauty salon • Dress-making and tailoring • Estate agents • Hair dresser • Interior decorating • Jewellery manufacturing • Laundrette (excluding dry-cleaning) • Medical consulting rooms • Offices • Picture framing and art gallery • Printing and copying • Residential developments with densities as described in Compaction and Densification Policy • Veterinary clinic 	<ul style="list-style-type: none"> • Animal boarding places • Blasting contractor • Building society agency • Butcher • Call centres • Car wash • Courier services • Escort agency • Fish-fryer • Funeral undertaker • Hiring and selling of vehicles (including trailers, caravans etc) • Industrial • Light industries • Manufacturing of concrete products • Micro-lender • Motor related • Motor workshop • Packaging contractor • Panel-beater • Pet salon • Place of amusement • Place of refreshment • Public storage • Radio control/ telephone exchange • Shooting range • Shops • Showrooms • Shuttle services • Spray-painting • Taxi-business • Tow-in service

PERMITTED LAND USES	LAND USES NOT PERMITTED
	<ul style="list-style-type: none"> • Transport depot • Transport terminus • Veterinary hospital • Warehouses • Workshops • Other

Development controls:

The following Development controls shall be applicable for permitted and uses:

Land use management:

- FSR not larger than 0,3 and with merits a maximum FSR of 0,4 may be considered on larger erven
- 2 storeys
- Adequate building lines to protect neighbouring residential component

Landscaping:

- Indigenous landscaping shall be used
- Intensive Landscaping along street boundaries with the inclusion of trees where possible
- The road reserve between the erf boundaries and the street should be landscaped in accordance with the landscape plan. The landscaping should include design measures to prevent on-street parking and include a walkway (at least 2 m wide) to ensure pedestrian safety
- Trees to buffer from residential uses where necessary
- Provide one tree per every two parking spaces
- Soft landscaping shall form part of parking area

Advertising:

- Advertising shall be limited to one location on the erf and shall be integrated in the building and design, loose standing advertising features shall be discouraged
- Limited to one signboard which is of an acceptable scale
- No advertisements shall be painted on any boundary walls

- No banners will be allowed
- No figurines, displays on the roof(s) of buildings or any other part of the building shall be allowed
- Buildings and land shall not be decorated in such a manner to advertise the particular business or any other businesses
- No showrooms shall be allowed
- No neon lightning or potentially intrusive lightning

Access:

- Accesses as far as possible limited to a communal boundary
- Adequate stacking space for vehicles to enter the erf shall be provided to ensure traffic safety

Other:

- No on-street parking shall be allowed
- Carports must as far as possible be located in such a manner that it is not visible from the street
- 2,1 high solid brick walls shall be erected on all erf boundaries abutting residential properties
- No pre-cast walls shall be allowed on street boundaries
- Fencing along the street boundaries shall be semi-transparent to enhance landscaping, architecture and aesthetics.
- All refuse areas and service yards shall be screened of with a solid wall and /or landscaping. Refuse areas shall be placed as far as possible from residential developments.
- The architecture of buildings shall interact with the immediate surroundings in terms of facades, advertising, colour, texture, finishes etc.
- No air conditioners shall be visible from the street boundaries

4.4.2.5 Category 5 activity streets:

Characteristics of these streets:

The western part of the street borders onto the Waterkloof Ridge Extension 2 Business Node and retail uses are permitted on certain erven in terms of the Waterkloof Ridge Extension 2 Business Node Framework. The eastern part of Cliff Avenue (from Kierieklapper to Koedoesnek) abuts onto Solomon Mahlangu Drive to the south and onto single

residential uses towards the north of the street. This part of the street is still characterized by the filling station and drive-through facility at the intersection of Kierieklopper with Solomon Mahlangu, the intensity of activities scale down towards the east of the street where a few office uses are established and the larger part of the erven are still used for residential purposes.

The following activity street is included:

- Cliff Avenue, Waterkloof Ridge x 2

The following land uses shall be permitted and not permitted along Category 5 activity streets in Region 4. Take note that, all erven with existing approved land uses other than Residential 1 shall be excluded from the list below:

PERMITTED LAND USES	LAND USES <u>NOT</u> PERMITTED
<ul style="list-style-type: none"> • Beauty salon • Estate agents • Guest-houses • Hair dresser • Medical consulting rooms • Offices • Place of Instruction (preferably on a corner) • Residential developments with densities as described in Compaction and densification policy • Shops and place of refreshment <u>only on</u> 	<ul style="list-style-type: none"> • Animal boarding places • Blasting contractor • Building society agency • Butcher • Call centres • Car wash • Escort agency • Filling station and public garages • Fish-fryer • Funeral undertaker • Hiring and selling of vehicles (including trailers, caravans etc) • Industrial • Manufacturing of concrete products • Micro-lender • Motor related

PERMITTED LAND USES	LAND USES <u>NOT</u> PERMITTED
<p>erven 1384-1390, 1973 and 1980 as well as the Waterkloof Ridge x 2 Business Node (as indicated in the Waterkloof Ridge Extension 2 Business Node Framework)</p> <ul style="list-style-type: none"> • Veterinary clinic 	<ul style="list-style-type: none"> • Motor workshop • Packaging contractor • Panel-beater • Parcel delivery service • Pet salon • Place of amusement • Place of refreshment • Public storage • Radio control/ telephone exchange • Retail / shops / spaza shops excluding erven 1384-1390, 1973 and 1980 • Shooting range • Showrooms • Shuttle services • Spray-painting • Taxi-business • Tow-in service • Transport depot • Transport depot • Transport terminus • Veterinary hospital • Veterinary hospital • Warehouses • Other

Development controls:

The following Development controls shall be applicable for permitted land uses:

Land use management:

- FSR not larger than 0,3 and with merits a maximum FSR of 0,4 may be considered on larger erven.
- 2 storeys
- Adequate building lines to protect neighbouring residential component

Landscaping:

- Indigenous landscaping shall be used
- Intensive Landscaping along street boundaries with the inclusion of trees where possible.
- The road reserve between the erf boundaries and the street should be landscaped in accordance with the landscape plan. The landscaping should include design measures to prevent on-street parking and include a walkway (at least 2 m wide) to ensure pedestrian safety.
- Trees to buffer from residential uses where necessary
- Provide one tree per every two parking spaces
- Soft landscaping shall form part of parking area

4.5 RESIDENTIAL

Residential development within Region 4 should be guided by the principles contained in the Tshwane Compaction and Density Strategy. The core principles of this strategy are:

- Density must contribute to the overall structure and functionality of the metropolitan area in that it takes place in a balanced, focussed, structured and meaningful way
- Appropriate higher density housing opportunities at appropriate locations must be provided for all income groups to promote the aims of social integration.
- Specific areas of opportunity or need for restructuring should be identified (areas that should not be densified for specific reasons should also be identified)
- Areas targeted for densification should be treated as whole environments, i.e. densification should not happen in isolation but as part of a larger program aimed at creating a suitable high density environment
- Areas targeted for densification should be well served by public transport, or have the potential to be well served by public transport in future

- Areas targeted for densification should be well served by social facilities such as education, open space, recreation etc. or should have the potential to be well served by social facilities
- Preserve and enhance open space, farmland, natural beauty and critical environmental areas.
- Encourage community and stakeholder collaboration
- Retain, enhance and encourage cultural assets
- Density's for old age homes and retirement centres will be evaluated on their own merits where location and accessibility to social infrastructure will play an important role.

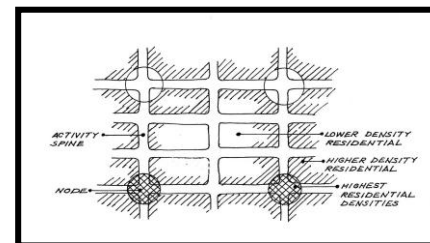
Another important underlying principle of the Tshwane Compaction and Density Strategy, is that higher density developments should not merely be dictated by density, but that design and typology considerations should be of critical importance, as these are the factors that in reality make either a positive or negative contribution to the overall quality of the environment in which they are situated.

Densification and compaction is not an end in itself, but a means to achieve an overall efficient, integrated and sustainable metropolitan area. Density proposals within Region 4 should therefore not be done for the sake of densification, but to achieve a range of other goals, such as

- increasing accessibility to public transport facilities
- creating the necessary population thresholds for economic growth and viable business development (especially small and medium sized enterprises) in specific areas
- minimising distances between home and work (i.e. integration of higher densities with employment opportunities)
- containing outward expansion of the urban footprint

The strategy proposes four key density zones, namely:

- Concentration Zones
- Linear Zones
- Suburban Density Zones
- Low Density Zones



Criteria for densification

Applications for densification shall be evaluated against the following criteria: proposed form of property, height, whether sufficient parking is available, privacy of adjoining owners, consolidation of stands and access, northern orientation, services available, and unit typology, size of the property, open space.

Densification throughout the city will still be in accordance with availability of services and geological conditions such as dolomite restrictions.

Refer to the density map for a schematic illustration of densifications; it is important to note that walking distances to public transport will be applied in the evaluation of density applications.

4.5.1 CONCENTRATION ZONES

The **Concentration Zones** are the primary focus areas for high density, medium to high-rise residential developments and are centred around nodes of metropolitan importance such as Metropolitan and Urban Cores (High Density Zones), Transit Promotion Zones and other strategic locations.

High density Zones in Region 4 are focussed on the Metropolitan Nodes and Urban Cores. These are the Centurion CBD Metropolitan Core and the Olievenhoutbos Urban Core.



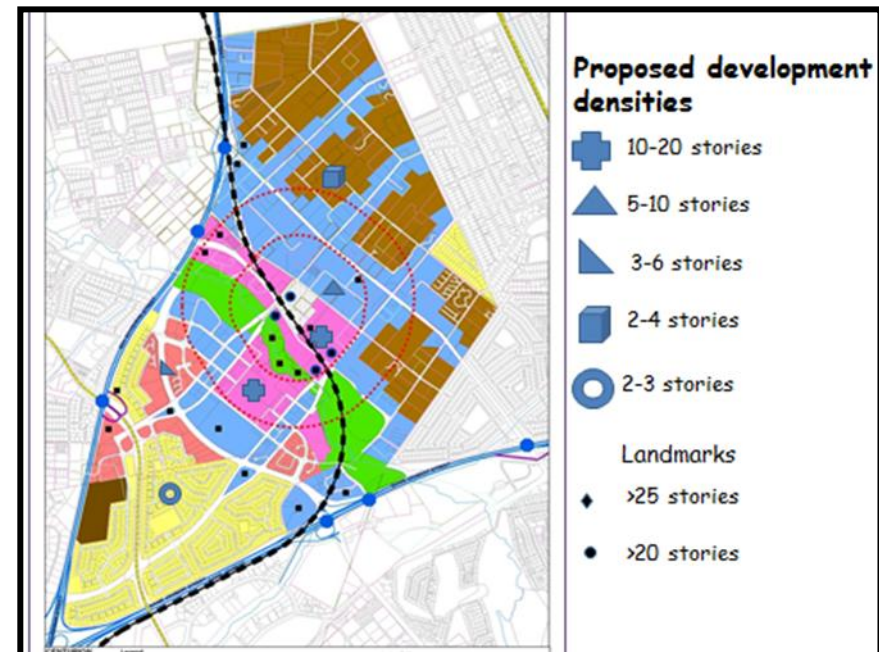
(Less than 500 m walking distance: density + 200 units/ha)

Residential densification is proposed for the areas surrounding the Metropolitan Node and Urban Core. This includes the Lyttelton Agricultural Holdings and Zwartkop x 7 area situated along John Vorster Avenue, Ben Schoeman Highway, Jean Avenue, Leonie (south of Jean Avenue) and South Streets. This High Density Zone is identified as the area which

should be developed as a medium to high-rise residential area including a whole range of activities of high intensity.

As increased densification is needed to support a meaningful urban structure, more residential typologies should be introduced to the area. Within the Centurion Metropolitan Node, Legibility and Landmark Anchor buildings and Gateway buildings should be accommodated on strategic locations to be determined by an Urban Design Framework for the Core area. Higher densities can also be considered on portions of land bordered and linked to the different activity axis and promenade (central open space). High residential densities on the remaining land will contribute to reach the critical mass in order to make public transportation within this area viable.

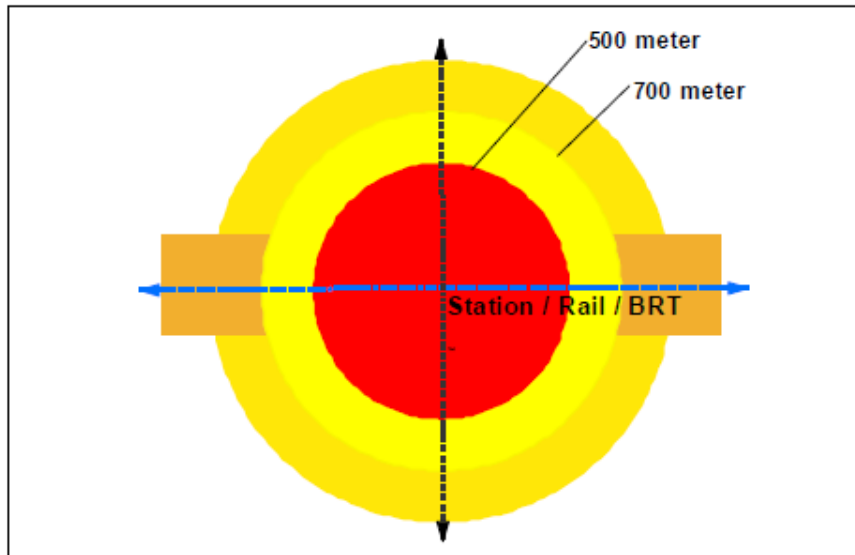
A number of strategic areas for focused intervention could be identified within the Core area, to be determined by an Urban Development Framework



Transit Promotion Zones refer to those nodes that are centred on transportation nodes such as stations and large intermodal transfer sites, and where Transport Orientated Development should take place. Transport Orientated Development is defined as a unique mix of high density and intensity land uses located within an 700m walking radius of a railway station or a major public transport node.



(800 / 400 m walking distance + 120 units /ha)



In Region 4 the areas around the 5 existing stations and 2 planned stations has been identified as Transport Promotion Zones. The areas around the existing Gautrain and PRASA railway stations and around the proposed BRT / ITPN stations have been earmarked for higher density transit promotion zones. Densification should take place within a 700m walking radius of a BRT / IPTN station. Densities of + 200 units /ha in

nodes and around rail stations will be applicable for the first 500 m walking distance and up to 120 units / ha for the area between 500 m and 700 m.

Densities within Concentration zones should not be developed at densities of below 120 units per hectare or less than 3 storeys, unless other factors, such as unique characteristics of the existing built environment, historical and cultural elements, environmental, traffic or geological conditions dictates otherwise.

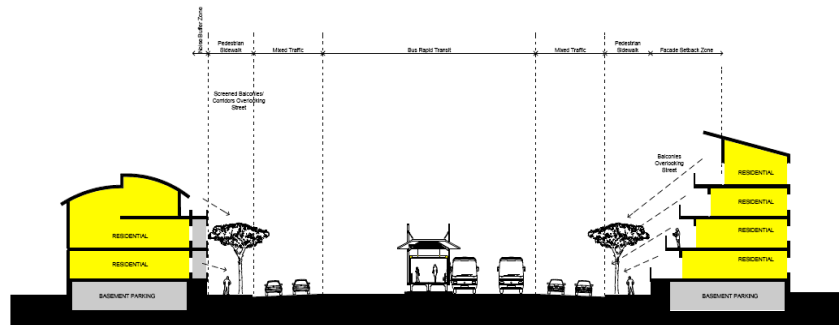
4.5.2 LINEAR ZONES (CORRIDORS AND SPINES)



(Up to 200 m walking distance from public transport: density in excess of 80 units/ha)

For the purpose of densification, linear zones refer specifically to high intensity activity areas that are located along major routes. The routes usually carry high volumes of traffic to areas such as Zones of Concentration and Transit Promotion Zones and thus encourage the feasibility of public transport on strategic routes. The linear zones also connect the urban core areas with one another within the City.

The identification of these linear zones should follow a focussed, selective and phased approach, where only the most important routes are identified in the short term. This is necessary in order to achieve a high level of concentration along each of these routes rather than dispersing development along too many routes, and then the critical mass for public transport viability is never achieved.



Source: City of Johannesburg: Design Guidelines: 2009

The following areas are deemed existing or potential development corridors along the highways and mobility spines within Region 4 where mixed land uses with the focus on job opportunities will be supported:

- The R21 highway to the Oliver Tambo International Airport and the East Rand.
- N1 route considered with Olievenhoutbosch Road, known as the Centurion N1 economic Corridor area.
- The proposed PWV-9 highway that will be a major link between the western areas of the two metropolitan areas namely Johannesburg Metro and CoT.

In terms of the densification strategy, linear zones refer specifically to high activity areas that are located along major routes. Mixed use development should be encouraged along its length as appropriate in the context of the precinct.

The following **east west** development spines along mobility/activity routes can be identified as the main constituents of the Urban Lattice:

The following east-west spines are:

- The Northern Mobility Spine follows the K103 as an extension of Solomon Mahlangu Drive/ Trichardt Road/ Wierda Road
- The Central Activity Spine does not fall on a single road and the alignment thereof is based on the east-west extension of Hendrik Verwoerd - and Lenchen Avenues through the Centurion Metropolitan Core
- The Southern Mobility Spine is located between the R21 Highway following the proposed K45 and Nellmapius Road and Uitsig Road

The **north-south** development spines can be identified as:

- R55
- Old Johannesburg road (K101)
- K111
- R 21
- K109

Densification along the development spines along mobility and activity routes and streets are proposed at medium densities. The current practice of providing buffer uses along the street interface and medium density residential to the rear is supported. Access should be arranged according to an access management system to protect the mobility function of activity spines.

It is proposed that more than a single erf depth be used to accommodate densification along activity spines to permit space for proper planning of such developments.

4.5.3 SUBURBAN DENSIFICATION ZONES



(density 10 – 200 units/ha)

Suburban Density Zones are those existing suburban areas where there is potential for moderate densification because of the area's strategic location within the city (within a 25 km radius of the City). This zone makes for good application in areas that are close to places of employment, major retail centres and prominent transport routes, but where it is still desirable and warranted to maintain a suburban character. These areas are indicated in yellow on the Density Map. The maximum density in these areas will be restricted to a maximum 25 dwelling units per hectare. Whereas the Concentration and Linear Zones propose a particular urban environment, both the Suburban Density Zone and the Low Density Zone are distinctly suburban zones. The exceptions will be the nodal areas within the suburban areas where densities of up to 200 units / dwelling-units per hectare can be supported depending on available public transport.

Within Suburban Density areas the core principles of densification are:

- Densification must contribute the provision of lifestyle choices within the specific area for example provision must be made for all the lifestyle phases from young working people and students, families with young children, and elderly people.
- Appropriate higher density housing opportunities at appropriate locations must be provided for all income groups to promote the aims of social integration.
- Specific areas of opportunity or need for restructuring should be identified (areas that should not be densified for specific reasons should also be identified)
- Areas targeted for densification should be treated as whole environments, i.e. densification should not happen in isolation but

as part of a larger program aimed at creating a suitable high density environment.

- Areas targeted for densification should be well served by public transport, or have the potential to be well served by public transport in future. Pedestrianisation must be included into the densification process.
- Areas targeted for densification should be well served by social facilities such as education, open space, recreation etc. or should have the potential to be well served by social facilities.
- Preserve and enhance open space, farmland, natural beauty and critical environmental areas.
- Encourage community and stakeholder collaboration.
- Retain, enhance and encourage cultural assets

The various housing and densification typologies must be employed in a structured manner within this Zone, with cluster housing and apartments located adjacent to strategic points within the neighbourhood such as local nodes, public transport facilities on a major public transport route, education facilities and parks. These developments shall be subject to urban design principles and site development plans.

Applications for densification shall also consider aspects such as the proposed size, height, whether sufficient parking is available, privacy of adjoining owners, unit sizes, size of the property, open space, geological conditions and overall quality.

In essence, within this zone the urban form remains the same as it currently is, only with an increase in general density and a change in typology and density around strategic points within these areas.

4.5.4 LOW-DENSITY ZONES



(up to 10 units/ha)

Low Density Zones are so called because those are the areas in the city where lower densities are actually more desirable, either because of location or *bona fide* special circumstances.

The majority of these zones are the peripheral areas that are removed from opportunities such as economic and employment nodes and mass transportation opportunities and is characterised by long travelling distances to areas of employment. In these areas, higher densities serve no purpose or could actually be detrimental to the functionality of the city.

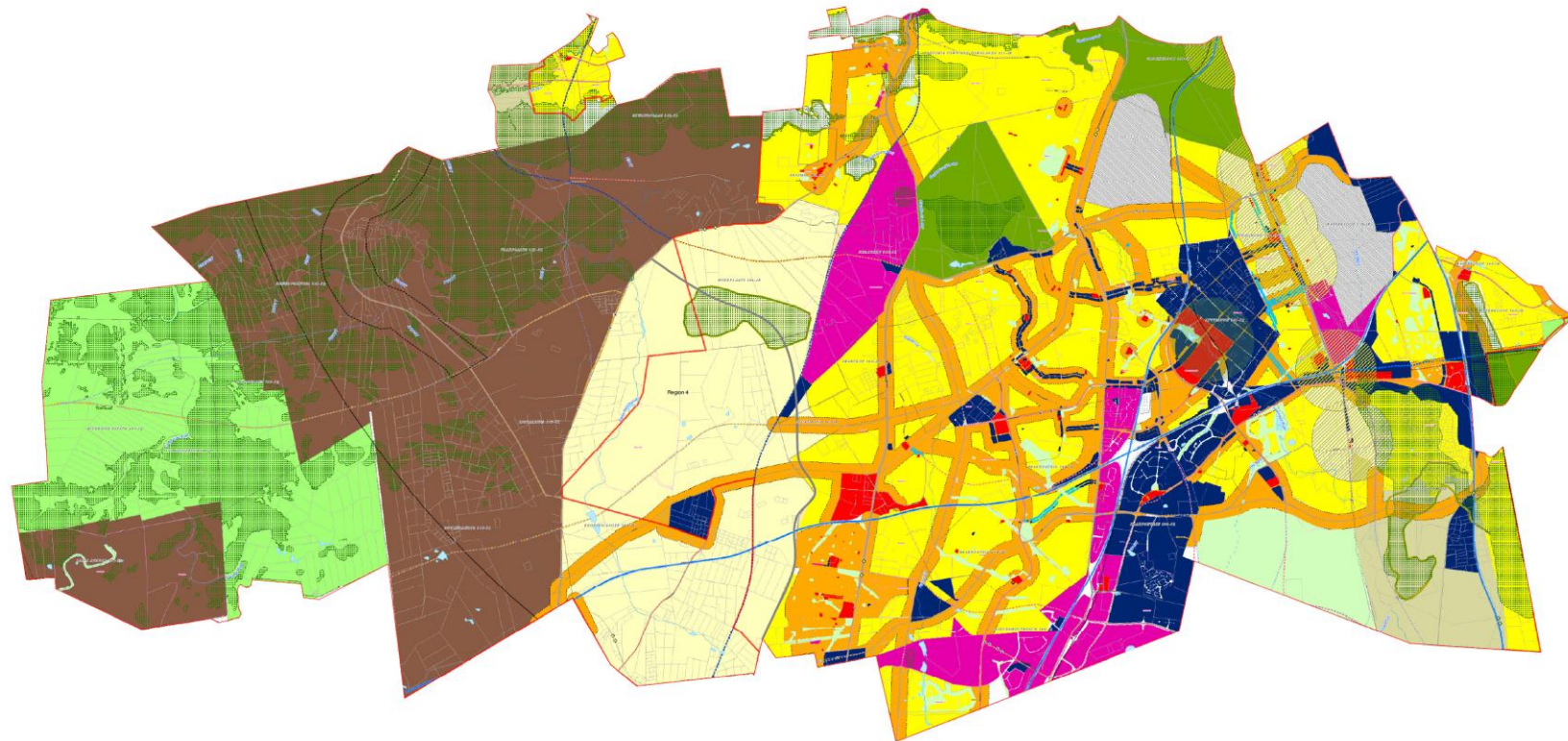
The Low Density Zone however also includes areas that are more centrally placed, but which have special characteristics that need to be preserved, and hence a low density is considered justifiable. These include areas along ridges, where lower densities are more conducive to a built form that is sensitive to the ridge quality from a visual point of view, including issues such as skyline, further spacing of buildings etc. These low density areas will also serve to provide visual relief in between adjoining higher density areas. Ideally, a Low Density Zone's density should not exceed 10 dwelling units per hectare. Encouraging low densities in these areas are also important to ensure that the higher densities are directed and actually take place where they are desirable and required.

4.5.5 RURAL DIVISIONS



Divisions of farm portions and agricultural holdings will be according to the densification map. The basic principle applicable will be that division of up to 1 ha and more will be allowed in areas with Council approved piped water. Division of 5 ha and more will be supported in areas without piped water except in cases of high agricultural potential and environmentally sensitive areas.

Region 4 - Density Map



Legend					
Water Shed / Development Edge	Proposed BRT	Land-Use	Density	Rural Density	Open Space
Urban Edge 2013	Proposed	Cemetery	Cores / Node	5000m ²	Conservation Areas
CBD 25 km Radius	Highways	Mixed Uses	Transit Zone	1 Ha	Dinokeng Game Reserve
Gautrain Station	Existing	Sport Incubator	Linear Zone	2 Ha	Game Reserve Startup
Proposed Railway	Proposed	Office	Suburban Density	4 Ha-5 Ha	Nature Reserve
PWV & K Routes	Mobility Road	Airport	Low Density Zone	8.5 Ha	Open Space
Existing PWV-Routes	Existing	Campus	Low Density Zone	10 Ha	Ridge
Proposed PWV-Routes	Proposed	Future Nodes		>20 Ha	
Existing K-Routes	Mobility Spine	Future Regional Cemetery			
Proposed K-Routes	Existing	Industrial			
	Proposed	Mining			
		Protected Residential Area			
		Proposed Local Nodes			



TSHWANE REGIONAL SPATIAL DEVELOPMENT FRAMEWORK REGION 4

4.6 MOVEMENT SYSTEM

During the development of the RSDF's the spatial location of proposed land uses is considered. It is essential that the transportation network and services can support the land use proposals. Therefore, a strategic assessment of the transportation needs was undertaken to identify possible transportation system interventions and refinements. The proposals are intended to serve as a point of departure for further more detailed feasibility studies.

4.6.1 PLANNING PROJECTS OF A STRATEGIC NATURE

There are currently several important strategic road links that are needed and justified. Some of these are planned to be implemented using public and private funding in partnerships.

The following projects have been identified:

- **Olievenhoutbosch Road** – the eastern link from the R21 highway to Alexandra road in Irene
- **Lenchen Road** - 2nd carriageway from Old Jhb Road across the N14 to John Vorster Drive (including bridge)
- **West Avenue** - Build portion of West avenue and West avenue off-ramp
- **John Vorster** - Extension of the John Vorster dual carriage-way from Hendrik Verwoerd Drive up to the proposed West Avenue intersection with the Ben Schoeman (N1

Upgrading of intersections:

- **Ruimte Road (K52) and Willem Botha Street** - Ruimte Road is regarded as a major north-south transport route in terms of the RSDF and the Tshwane Integrated Transport plan of 2007. It is a major link between Johannesburg and Tshwane in general, with several developments along this corridor. Willem Botha Street is an activity street and requires a functional intersection with Ruimte Road.

- **Nellmapius Drive (K54) and Main Road** - The existing traffic situation at this intersection is of great concern, although the construction of Olievenhoutbosch Road is in process, the bridge construction alone might take another 2 years, in which time, this particular intersection will be under additional stress. The upgrading must therefore be a priority project, the preservation of historical pine trees must be considered and the upgrading must therefore be done with the necessary consultation with the ward councillor and Irene residents.
- **Rooihuiskraal Road and Panorama Road** - Rooihuiskraal Road is an important north-south mobility spine in the area and a major link between the northern and southern suburbs and business nodes of Centurion, with several developments along this corridor. Panorama Road is also an activity street and requires a much improved intersection with Rooihuiskraal Road.
- **Ruimte Road (K52) and Rooihuiskraal Road** - Both these transport corridors fulfil an important regional function in terms of accessibility and mobility. Ruimte Road itself has been upgraded in this part and future upgrades of the intersection with Rooihuiskraal Road will depend on the functionality of the existing situation and future developments.
- **Jean Avenue and Rabie Street** - Detail should take into account the proposed West Avenue intersection option by BKS and not intervene with that preliminary planning.
- **Old Jhb Road (K101) and Wierda Road (K103)** - Both these transport corridors fulfil an important regional function in terms of mobility. As a result the intersection of these roads is regarded as very important from a traffic flow point of view. The current situation is not desirable and the upgrade of this intersection and its capacity is highly recommended.
- **Wierda Road (K103) and Ashwood Drive** - This intersection plays an important role in supporting the intersection of the Old Johannesburg Road and Wierda Road. It also caters for the east-west flow of traffic throughout the area, as well as from Lyttelton Road via Ashwood Drive. It should therefore be upgraded to a level which will be in line with the function of the other regional transport routes in the area.
- **Old Jhb Road and Panorama Avenue** - The Old Johannesburg Road is a very important north-south corridor in the Tshwane area, providing

a link to the greater Johannesburg as well. Intersections with the transport routes should therefore be optimized, especially with Panorama Avenue being an activity street. This intersection requires serious attention in order to alleviate the current situation. Provision for public transport facilities, including taxis, should also be incorporated in the planning.

- **West Avenue intersection and Ben Schoeman Highway (N14)**
- **West Avenue and N1 Highway half intersection**
- **Hendrik Verwoerd Drive and Ben Schoeman Highway half intersection**

For the unfolding of major development opportunities in the Centurion Metropolitan Node area, the “traffic box” around the Metropolitan Node need to be developed and accessibility needed to be increased by the provision of these three intersections as a priority:

A number of provincial road projects of a strategic nature are required in Tshwane. The priorities for implementation in the Region 4 are:

- K54 to the south of the region
- PWV9 along the western boundary of the built-up area
- R55- upgrading
- Old Johannesburg Road (R101)

In a metropolitan context these projects are significant. The PWV9 road would complete the “ring road” and improve the accessibility of the regions to the north of Tshwane with Johannesburg. It would also open up the western areas in the city for further development and opportunities. The doubling of Old Johannesburg Road (R101) between Eeufes Road and Nellmapius Road has also been identified as a strategic project.

In terms of the Integrated Transport Plan (ITP) the following road network projects have been listed:

- Rooihuiskraal Interchange on the N14
- Olievenhoutbosch Road (Rietvlei Dam Interchange to Brakfontein Road)

4.6.2 PLANNED MAJOR PUBLIC TRANSPORT SYSTEM DEVELOPMENTS

Recognising the need for public transport Gautrans developed a Strategic Public Transport Network for the Province. This network spans municipal and geographical boundaries in order to achieve mobility on a provincial level.

Planned major public transport system developments for Region 4 include:

- Rail passenger transport
- Bus Rapid Transport
- Gautrain

The re-evaluation and restructuring of the passenger rail system in Tshwane is a priority. This relates closely to the introduction of the Gautrain and the integration thereof within the CoT public transport network. The Gautrain station in the Centurion CBD will improve public transport to the region. Road related projects are:

Mabopane Centurion Development Corridor (MCDC)

The PWV9 forms the backbone of this corridor. It is considered as an important public transport corridor linking low income areas in the north with the southern sections of Tshwane and the rest of Gauteng. In terms of the City Strategy this project is seen as the number one priority within the City. The development of the Zone of Choice to its full potential will also rely heavily on the construction of the PWV 9.

4.6.3 RSDF MOVEMENT SYSTEM PROPOSALS

Since the RSDF's are concerned primarily with the physical environment and aim to guide development, the transportation aspects in this section focus on physical infrastructure and not public transport services. Public transport servicing and scheduling should be guided by the spatial framework and development. It is therefore assumed that the necessary public transport operational planning will be undertaken in due course in support of the RSDF's.

Furthermore, the proposals made are largely aligned with existing planning and aim to:

- Supplement existing transportation planning
- Recommend large scale intervention
- Scrutinise existing transportation planning (infrastructure)

All proposals made in this section are of a principle nature and require to be investigated in more detail to establish feasibility. Therefore the proposals are intended to inform the transportation planning process in an attempt to ensure integrated land use and transportation planning.

Some of the proposals are of a regional nature but they are dealt with per town planning region.

4.6.3.1 Road network

City of Tshwane recently embarked upon local road network planning in Region 4. The area is developing fast and constant updates of network planning are required although current planning will guide development. It is thus essential that integrated land use and transportation planning is undertaken in this region continuously.

In addition it is essential that continuous co-ordination with road planning in Ekurhuleni and Johannesburg is promoted to ensure proper planning co-ordination on an intra metropolitan level.

East-west linkage between Olievenhoutbos and Rooihuiskraal is currently non-existent and must be implemented. The K54 and Olievenhoutbosch Road can fulfil this function and link the community of Olievenhoutbos to the N1 and Rooihuiskraal.

The construction of Olievenhoutbosch Road will improve mobility south of the N1 and parallel to it. It will also serve the fast developing southern area of Region 4.

4.6.3.2 Public transport

Vision and Objectives

Tshwane's residents depend upon the efficient provision of public transport services to fulfil their daily mobility needs. The integration of the different rail, bus, minibuss and non-motorised transport options remains a major goal in delivering more convenient and cost-effective services.

Rail

The Gautrain is serving the Centurion Metropolitan Core directly. The future planning of the Gautrain rail alignment allows for a station to be constructed in the vicinity of the Rooihuiskraal interchange. This intermodal facility can serve the rail/BRT from the east of Tshwane and can be extended to Olievenhoutbos or beyond, thereby contributing significantly to the creation of an integrated transport system.

PRASA priority corridor in the next 5 years in Gauteng is the Mabopane/ Johannesburg/ Soweto line. The proposal includes upgrading of the capacity in terms of rolling stock and lines. New stations are also planned within this upgrading phase.

PRASA gave an in principle approval for an additional rail way station at the proposed Olievenhoutbosch Road crossing of the existing Pretoria / Olifantsfontein Railway line. The station will form part of a Transport Terminus where rail, bus and taxi facilities will be integrated in support of the emerging Irene Node.

Road based

The K54 has been earmarked as a Strategic Public Transport Network (SPTN) route. This route should be considered in conjunction with the BRT/rail concept put forward in this report.

The PWV9 and K101 have also been earmarked as SPTN routes. These are supported seeing that they service areas west of the N1 as well as the

N1 corridor. It is important that these be integrated with the Gautrain in terms of intermodal facilities and services.

A comprehensive public transport infrastructure development and operational plan should be developed to support the RSDF. Given that this area is currently developing there is still an opportunity to intervene. This should be exploited.

4.7 IRTPN / BRT PROPOSALS

Since the RSDF's are concerned primarily with the physical environment and aim to guide development, the transportation aspects in this section focus on physical infrastructure and not public transport services. Public transport servicing and scheduling should be guided by the spatial framework and development. It is therefore assumed that the necessary public transport operational planning will be undertaken in due course in support of the RSDF's as part of the 2012/2013 IRTPN process.

Furthermore, the proposals made are largely aligned with existing planning and aim to:

- Supplement existing transportation planning.
- Recommend large scale intervention.
- Scrutinise existing transportation planning (infrastructure).

All proposals made in this section are of a principle nature and require to be investigated in more detail to establish feasibility. Therefore the proposals are intended to inform the transportation planning process in an attempt to ensure integrated land use and transportation planning.

Some of the proposals are of a regional nature but they are dealt with per town planning region.

Bus Rapid Transit (IRPTN System)

The need for a high-quality, customer-orientated public transport (transit) system was identified that will deliver fast, comfortable and low-cost urban mobility within the City. The City's Integrated Transport Plan (ITP) and the

Strategic Public Transport Network (SPTN) approved by Council in January 2007 clearly identified certain corridors that should be further investigated and implemented as mass rapid transport corridors.

Vision and Objectives

Tshwane's residents depend upon the efficient provision of public transport services to fulfill their daily mobility needs. The integration of the different rail, bus, minibus, and non-motorised transport options remains a major goal in delivering more convenient and cost-effective services. The proposed Implementation Plan seeks to articulate the vision and steps required to implement a public transport system that integrates all modes into a seamless and high-quality network.

The overall goal of this initiative is to improve the quality of life for the city's residents through the provision of an integrated public transport network that is rapid, safe and secure, convenient, clean, affordable, and socially equitable.



Phased Implementation

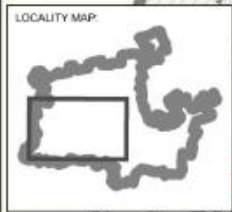
The development of the full integrated network will take place over a series of phases, in order to match the available resources for planning, financial, and construction. In addition to the full implementation of the Priority Rail Network, the following corridors are recommended for development of trunk and or other road services in project Phase 2. See Details in Chapter 2.

Phase 2 A -

Phase 2A basically consists of the corridor from Klipkruisfontein Node /Akasia Node to Pretoria CBD, with a further extension to Hatfield, Menlyn and Mamelodi, and will be made up as follows:

Region 4 is not affected by the first phases.

INTEGRATED RAPID PUBLIC TRANSPORT NETWORK: 2013



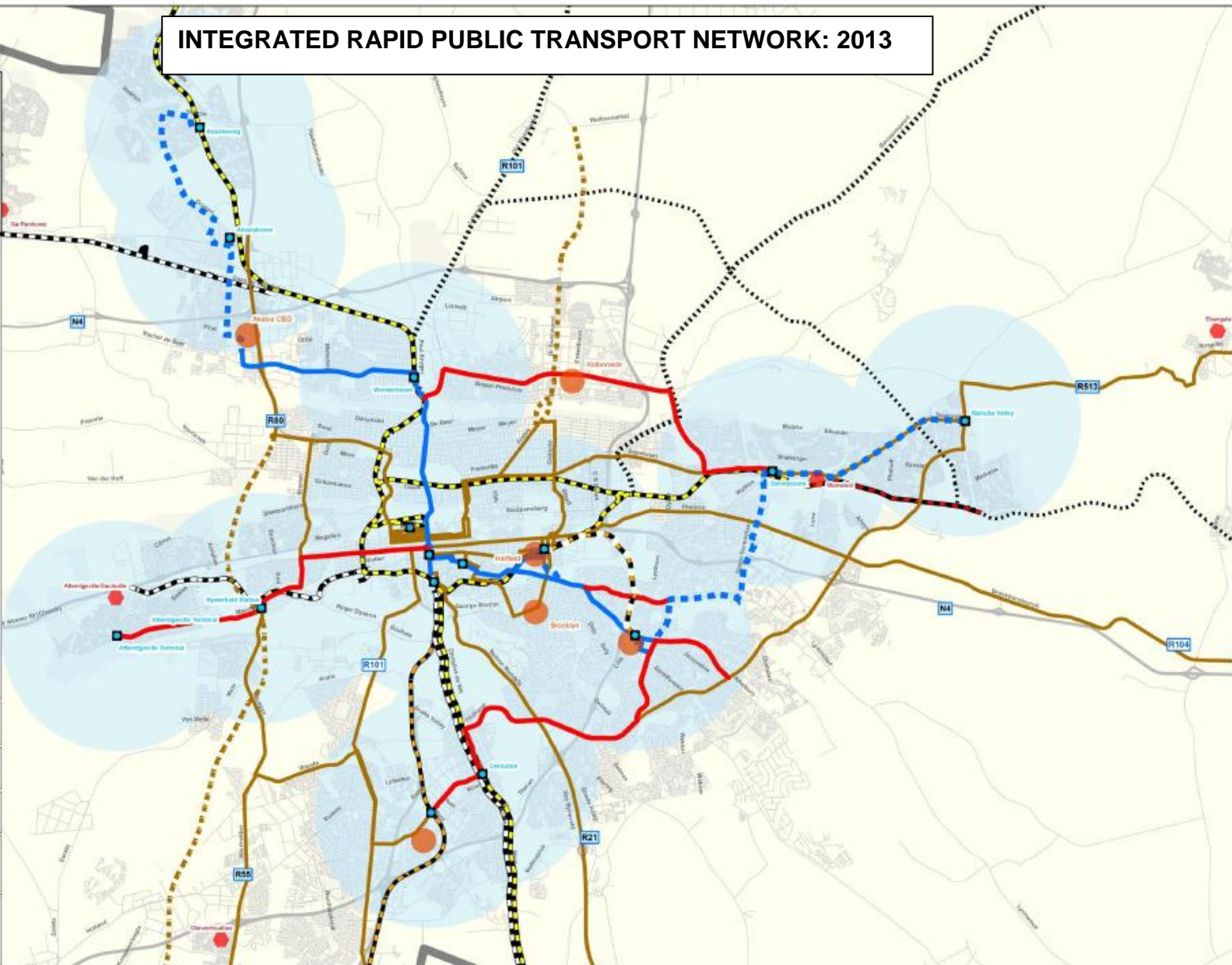
- LEGEND:**
- Model Transfer Stations
 - SDF: Metropolitan Nodes
 - SDF: Urban Core
 - IRPTN Road Network
 - Potential QBSA-HOV
 - Phase 1, Potential BRT Trunk
 - Phase 1.1, Potential BRT Trunk
 - Phase 1.1 Proposed, Potential BRT Trunk
 - Phase 2-3, Potential BRT Trunk
 - Potential QBSA-HOV Planned Roads
 - IRPTN Rail Network
 - Current Doubling of Rail Line
 - COD/Phase Priority Suburban Rail
 - Lower Priority rail
 - Planned Rail
 - Provincial Phase Priority Suburban Rail
 - Conceptual Gautrain Extension
 - Sem Catchment Area
 - Freeways
 - Main Roads
 - Suburbs
 - City of Tshwane Boundary

PROJECTION: Transverse Mercator
 1:150 000
 SCALE: 1:150 000
 Kilometers

TITLE:
 Integrated Rapid Public Transport Network

PREPARED BY:
 SSI
 Spatial Systems International

CLIENT:
 CITY OF TSHWANE
 2013



TSHWANE REGIONAL SPATIAL DEVELOPMENT FRAMEWORK
 REGION 4

4.8 RURAL AREAS

The newly demarcated CoT, as a result of the merger between Metsweding District Municipality and the former City of Tshwane now includes a significant rural component. These new Rural Areas as well as the other existing areas need to be analyzed and planned in order e.i. to protect the Environmental sensitive areas, to manage the buffer areas and to create opportunities for sustainable development and promote sound land use development in the less sensitive areas.

The Tshwane Rural Component will promote:

- An effective response to rural poverty
- Measures to ensure food security by maximizing the use and management of natural and other resources
- Creation of vibrant, equitable and sustainable rural communities
- Contribution towards the redistribution and sustainable use of all potential agricultural land
- Creation of employment and business opportunities for the existing rural population
- Aims to prevent natural disasters like erosion and pollution and other detrimental effects on natural resources
- Formalization of residential settlements according to the Rural Component Framework.
- Accessibility to community facilities, work opportunities and housing for all
- Maintenance of acceptable standard for roads and other modals
- The provision of Public transport as a service for the more densely rural areas.

- The Identification of multipurpose community centers to provide for business, medical, educational, recreational, social and other needs at the most optimum and accessible locations.
- Provision of Adequate and respectable services to improve living conditions.
- Attention to the matter of ownership and tenants' rights especially in areas where tribal land ownership exists.

The Rural Component for Region 4 is defined in line with the "Smart Growth" principles of the MSDF. Together with the demarcation of the Urban Edge, the Development Edge, the C-plan and the Densification Strategy the Rural Component must be seen as a management tool to counter urban sprawl, encourage densification within the urban area and discourage densification within the rural area to protect and conserve all natural and cultural resources of the region

4.8.1 Major Rural Roads

Each Region shows major roads and routes of Metropolitan context through the Region ensuring movement patterns and the continuation of roads and corridors for the greater Metropolitan area.

The following major roads serve the Rural Component of Region 4:

- N14/R28 (existing)
- R511 (existing)
- R512 (existing)
- Tulip Road/P 1582 (existing)
- K52 (proposed)
- PWV 6 (proposed)
- PWV 7 (proposed)
- PWV 9 (proposed)
- K44/103 (proposed)

4.8.2 Urban Edge

There are furthermore areas within the Urban Edge earmarked for Future Urban Development and densification with no provision of essential services. The promotion of efficient and effective resource allocation will also not provide services in the near future.

The Gauteng Urban Edge divides Region 4 into two areas. As indicated in Part 2 “Metropolitan Context” of this document the Urban Edge cannot be seen as the only management tool to demarcate the Rural Component of Region 4. The Urban Edge however gives an indication of a proposed line between the Rural Component to the west, and the Urban Area to the east of Region 4.

4.8.3 Development Edge

Compliments and corresponds mostly with the Provincial Urban Edge to indicate the extend of the Urban Fabric but deviates in some instances and only in some Regions from the Urban Edge where it follows the line indicating the non-availability of services infrastructure in the Region. The resulting area caused by the deviation between the edges can realistically not be developed in the near future and need to remain rural in character until such time that services can be provided.

In terms of the Local Spatial Development Framework for the Monavoni and Western Farms Development Framework 2020, a watershed line acts as the western boundary of the Sunderland Ridge Waste Water Treatment Plant drainage area. This watershed line does not correlate with the Gauteng Urban Edge. However both these lines were combined to form the new Development Edge. The new

Development Edge separates the Urban Area and the new Future Urban Development Area/s

4.8.4 Future Urban Development Areas

These areas that results from the non- availability of services will form part of the Urban fabric in the future but needs to be planned for and preserved as Rural areas in a sensible way that will not constrict its incorporation when needed.

The Future Urban Development Area for Region 4 has been identified to the west of the Development Edge of this Region. The western boundary of the Future Urban Area is in line with the C-Plan's demarcation. The Future Urban Development Area excludes the most environmental sensitive and most environmental important areas that need to be protected as a major resource of the city.

The Future Urban Development Area, west of the Development Edge is under pressure for development. This area represents a natural direction of growth of the metropolitan area and region 4. Any future development could be accommodated in this area subject to the LSDF for the area and the availability of all essential services. This area should retain a rural character until such time that all basic services can be provided by the Municipality.

The pressure for development originates from the following main sources of development:

- Western growth of the Urban Area of region 4
- The rural development axis between Johannesburg and the Hartebeespoort Dam (road P103-2).
- Lanseria airport development and densification strategy
- Diepsloot residential- and Diepsloot nodal development (Johannesburg Metro)

- Olievenhoutbos development
- The regional location and accessibility from William Nichol Road (R511) from the Johannesburg area

Proposed Guidelines for development in the Future Urban Area:

- Development that is in line with the LSDF for the Monavoni and Western Farms Development Framework 2020
- The contribution of proposed development towards the goals of the City strategy and Metropolitan Spatial Development Framework.
- The availability of bulk engineering services.
- The protection of environmental sensitivity of the area.
- Proximity to other existing supporting social facilities, economic opportunities, retail, recreation.
- Physical features that may define the development – such as railway lines/watersheds/ provincial roads/environmental areas
- Provision of social services such as schools, medical facilities, police stations and other amenities.

4.8.5 Management Zones



The Management zones are areas not considered suitable for urban development as they are not well located in terms of the larger urban structure and areas of opportunity and/or are characterised by environmental sensitivities as indicated by the C-Plan and Open Space Framework, which are important to protect from a metropolitan perspective. Rural development such as low density eco and equestrian estates will be supported depending on services that can be provided.

The following Management Zones are earmarked in Region 4 and Region 3.

- Zone A - Situated in the south-west corner of Region 4 (Blair Atholl and Monaghan)
 - One dwelling unit per hectare
 - no second dwellings
 - cluster and space principles – 20% development footprint with 80% conservation footprint
 - 5% ecological footprint on class 2 ridges
 - No intervention on class 1 ridges
- Zone B – Laezonia Agricultural Holdings as well as portions of the farm Doornrandje 386 JR
- Zone C – Gerhardsville Agricultural Holdings as well as portions of the farms Doornrandje 386 JR, Knopjeslaagte 734 JR and Rickaletta 387 JR
- Zone D – Portions of the farm Vlakplaats 352 JR, Willers Vallei 647 JR, hoekplaats 384 JR and Mooiplaats 355 JR

Zone B, C and D

- 2 dwelling units per hectare
- no second dwellings
- cluster and space principles - 20% development footprint with 80% conservation footprint
- 5% ecological footprint on class 2 ridges
- No intervention on class 1 ridges

Within these Management Zones land uses and densities, which do not fit into the denser urban complex, should be permitted. **Non-residential uses serving the rural population should be concentrated in Community Service Centres as indicated on Region 4's and Region 3 Rural Component Plan.**

4.8.6 Agricultural High Potential Areas



Where so indicated certain land in Tshwane Rural has unique agricultural potential in terms of its location, soil quality, being close to irrigation and other amenities or able to provide high yields and or produce with specific feeding qualities. These quality areas have importance on Regional, Metropolitan and even National level and should be preserved and used in terms of their uniqueness only. Food produce for the country as a whole should be maintained and improved for future generations.

4.8.7 Sensitive Protected Areas /Biodiversity Zone



Throughout Tshwane there remains farm portions outside of the Urban Edge that will continue to be used for agricultural purposes. These areas are sometimes already enclosed by other land uses but are not earmarked for change yet. It is necessary to preserve the agricultural and rural character and these areas need to be protected from other uses

Sensitive protected areas. (Combination of C-Plan protected areas), including (Ridges and Streams, Natural resources, Fauna and Flora protected places / areas. These areas are important in terms of nature conservation and must be managed to maintain its rural character, visual attractiveness and natural environmental content.

The Sensitive Protected Area of Region 4 is located to the far west of the Region. This area should be managed through environmental codes, to protect the basic resources.

The Sensitive Protected Area include important areas, irreplaceable areas, protected areas, ridges and blue ways in line with the C-Plan

The Sensitive Protected Areas of Region 4 are:

2. Significant ridge systems such as the Schurveberg, Langeberg, Kwaggasrand;
3. Significant watercourse systems throughout, most notably the Hennops River, Jukskei River and Crocodile River.
4. Ecologically sensitive areas associated with ridge and watercourse systems;

Range of uses on merit related to agriculture, conservation, tourism, recreation, arts and crafts can be considered provided:

- 1 dwelling units per 10 hectare
- no second dwellings
- cluster and space principles - 5% development footprint with 95% conservation footprint
- 5% ecological footprint on class 2 ridges
- No intervention on class 1 ridges

4.8.8 Sensitive Ridge Areas



Sensitive Ridge area as indicated on the C Plan should be protected as far as possible in terms of development. All development will be restricted in terms of environmental considerations. These areas are important in terms of nature conservation and must be managed to maintain its rural character, visual attractiveness and natural environmental content.

The Sensitive Protected Areas of Region 4 are:

Significant ridge systems such as the Schurveberg, Langeberg, Kwaggasrand;

4.8.9 Heritage and Cultural protected Areas

Heritage and Culture

Similar to monumental protection of structures, places and land within the urban context there are equally important structures places and land found in Tshwane's Rural areas that need protection. In most cases the best protection can be provided when it is also developed and operated as a Tourism attraction.

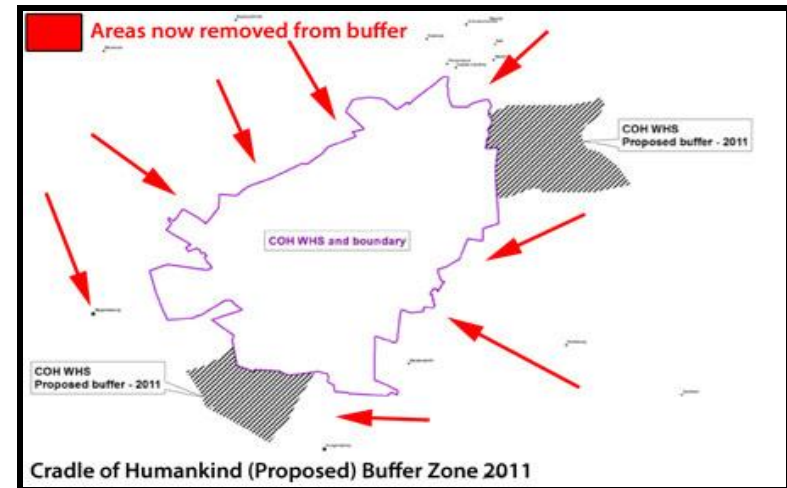
4.8.10 Tourism potential places/areas

Tourism

Of natural and economic importance for Tshwane is the accrue ment and expansion of the already known places of tourism, tourism attractions and tourism activities. Places with tourism potential occur throughout Tshwane's rural areas. Conservation and preservation needs to be maintained and tourism potential exploited without damaging overall natural and rural character. Different tourism related uses such as picnic areas, lodges, wedding venues and arts and craft related uses including places of refreshment will be supported in these areas. Commercial uses and uses such as storage and light industrial uses should not be supported in these areas. The Cradle of Humankind World Heritage Site is situated outside the boundaries of Region 4 to the west, but the buffer zone of the heritage site falls in die Sensitive Protected Area of Region 4.

The following places with tourist potential can be found in Region 4:

- Parts and portions of the R511 from Diepsloot in the south to Hartbeespoort Dam in the north
- Renosterspruit Nature Reserve
- Kareebosrand Conservancy



Further cultural historical sites are Koppie Alleen, Hospital Cave, Bat Cave

4.8.11 Conservancies

Conservancies

Proclaimed conservancies have legal standing and management prescriptions. Conservancies strive towards preservation and the protection of their present state and the notion should be honored in the Rural context and the evaluation of development proposals.

The following conservancies potential can be found in Region 4:

- The Kareebosrand Conservancy

4.8.12 Game and Nature Reserves

Game and
Nature Reserves

The following places with tourist potential can be found in Region 4:

- Renosterspruit Nature Reserve

4.8.13 Mines/ Places of Manufacturing

Mines/ Places of
Manufacturing

There are few and dispersed mines and or places of manufacturing in Region 4. All of them need to be managed for their time of existence and specific rehabilitation programs should be investigated and installed. Protection measures should be implemented for adjacent land and sensitive environments.

4.8.14 Human Settlements



There are a number of places in the Rural Component of Tshwane where villages and other forms of human settlements

occur. Some are tribal in nature with official captaincy while others are just a habitual conference of people living together. Some have legal support while others are just illegal squatters. It remains a sensitive issue how to deal with settlements and in each specific case measurements should apply how to best resolve settlement issues. Settlements to remain should be formalized and provided for in terms of human needs and basic services. Settlements that must move needs planning according to an approved program. Specific measures must be taken to manage adjacent land.

4.8.15 Community Service Centres



Remote rural areas most of the time do not have the convenience of facilities and amenities within easy reach and sometimes have to rely on the closest urbanized area to fulfill certain basic needs. Because of the extensiveness of most Rural areas it is therefore most logical to concentrate whatever facilities, services and amenities that can and should be provided together close to the bulk of the population at a location that is the most accessible to all. As transport provides accessibility, road junctions or cross roads tend to provide most accessible locations for surrounding populations in vast Rural areas.

There are no Community Service Centres located in the Rural Component of Region 4. There are two nodal developments adjacent to Region 4, which serve the community of this Rural Component

The Hennopsrivier Rural Node is situated in Region 3 on the R511 in the Hennopsriver Valley. Although this node is just outside the northern boundary of Region 4, it serves the rural

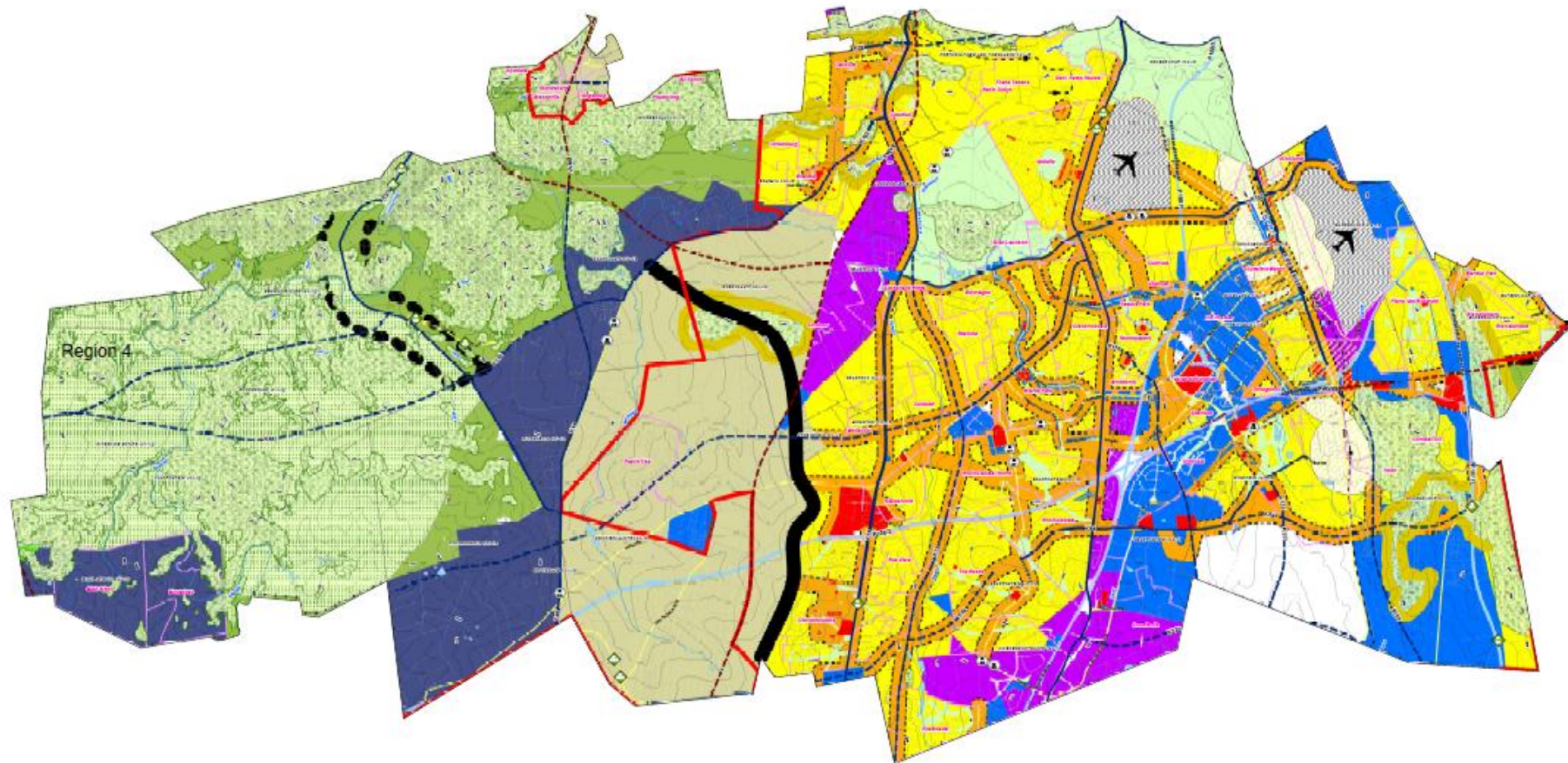
community of Region 4, by way of a Primary School and subservient rural uses.

There is potential for this node to develop into a full Community Service Centre

The second Node is situated just outside the southern boundary of the Rural Component of Region 4. The Diepsloot Metropolitan Node is situated on the south-eastern quadrant of the intersection of William Nicol and the N14.

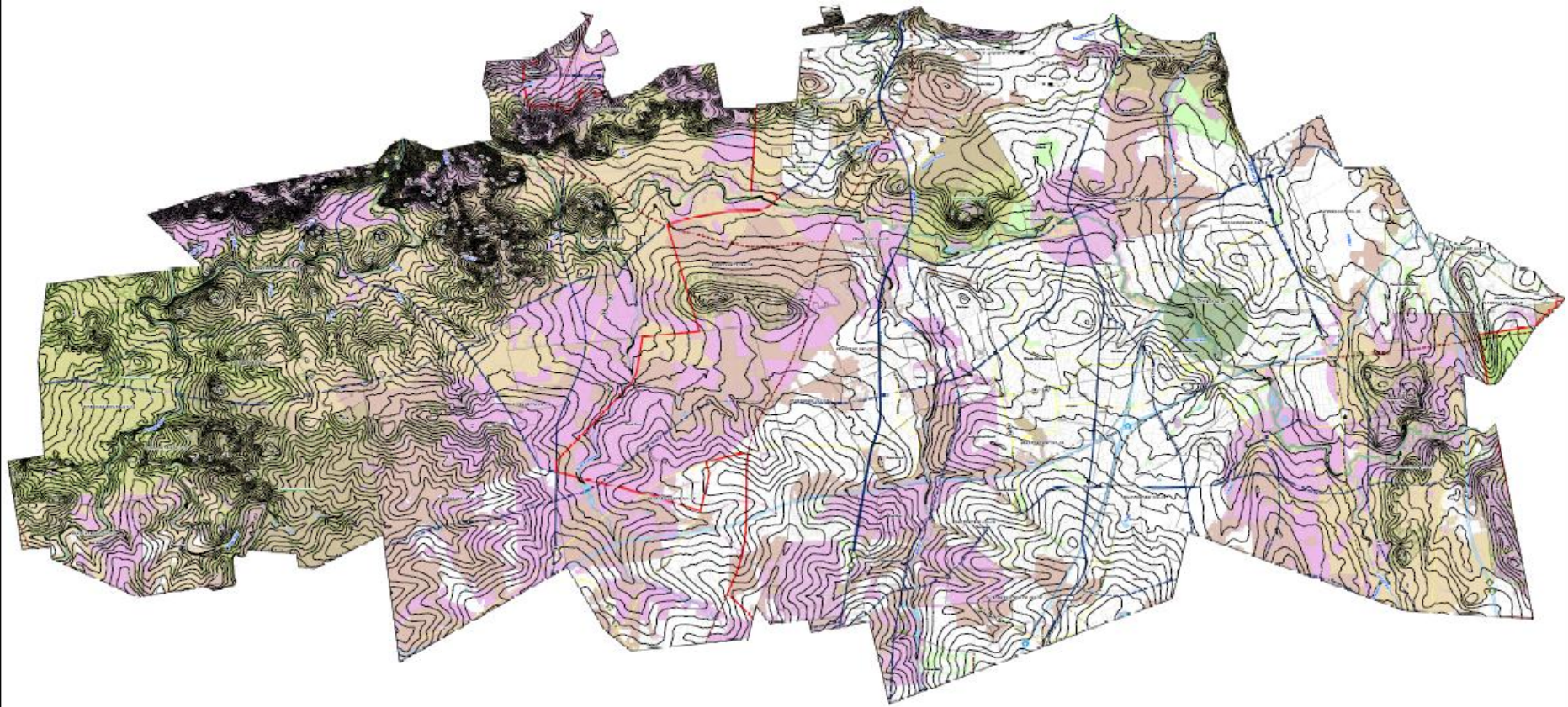
This node is not a Rural Node (Community Service Centre) but the influence of this emerging Metropolitan Node will impact on the Rural Component of region.

Region 4: Rural plan



Legend		
Edited version Urban Edge 2011	Game / Nature Reserves	Sensitivity Protective Areas
Ridges	High Potential Agriculture	Cradle Buffer Zone
Main Rural Roads	Office	Development Edge
Low Density Zone	Core	Management Zone
Mixed Use	200m 30/60 ha Linter Line	Future Urban Development Areas
Mines	Industrial	Community Service Centre
Future Regional Cemetery	Suburban density	Biodiversity Zone
	Human Settlement	
	Tourism Potential Places	
	Rural Service Centre	

Region 4: Open Space & Environmental Sensitivity plan



TSHWANE REGIONAL SPATIAL DEVELOPMENT FRAMEWORK
REGION 4

4.9 OPEN SPACE AND ENVIRONMENTAL AREAS

Region 4 is characterized by a vast number of ecological assets which form the basis for the open space nodes and directs the city form. To ensure that ecological assets and especially irreplaceable sites remain protected they should form an integrated part of development and be in the interest of the public. The aim should be that public open spaces should be accessible, effective, sustainable, manageable, safe, well maintained and aesthetically pleasing and contribute to a unique city image and promote tourism.

The Open Space System in Region 4 consists of several ecological and socio-economic focal points and resources connected together by means of natural elements e.g. rivers, streams. The continuity of the linkages ensures accessibility for citizens and the permeable open space structure further contributes to ecological sustainability on a city scale, since species of fauna will be able to move between different habitats without restriction. Where natural elements lack in ensuring continuity of the linkages, the open space system should be enhanced by means of streets, servitudes etc.

The ideal is to have an open space system that is identifiable and legible on all scales. A distinction is made between a primary network (of relevance on a city scale), a secondary network (of relevance on a district scale/neighbourhood scale) and a tertiary network (of relevance on a precinct scale).

The primary network forms a deformed super grid over natural features and the physical layout of the region. A network of linkages (as linear connections) and nodes (cluster spaces) is established. In the western part of the region that grid is more intense, with smaller blocks being created mostly as waterways and greenways.

The secondary network forms a minor grid dividing the super grid into smaller portions. This will include the smaller tributaries of waterways (rivers) and natural drainage courses. All other streets, servitudes and sidewalks promoted to enhance the linkages are considered part of the tertiary network.

The RSDF plan addresses the open space network on a regional scale only and does therefore not include all open space elements as defined in the Tshwane OSF. The plan addresses the following two categories:

- Open Spaces
- Socio-economic areas
- Environmental Areas

4.9.1 OPEN SPACES

Open space includes all rivers, water courses, mountain ranges and ridges, protected areas, conservation areas and conservancies, as well as major brown nodes (e.g. sport complexes).

Ecological Focal Points

The following Ecological Focal Points are identified:

- The Schurveberg and surrounding area to the north-west of the region with its unique and valuable ecological assets (dolomite caves) and the strong rural ambience to the south west of the region.
- The Groenkloof Nature Reserve to the north-east forming the Southern Inner City Gateway because of its ecological and historical significance.
- Rietvlei Dam to the south-east of the region forms part of the Hennops River waterway stretching from the Rietvlei Dam to the Hartbeespoort Dam north west of the Region.

Natural Resources

The natural resources form part of the primary open space network of ecological focal points and physical resources connected together by means of the natural elements.

- Ridge systems: Schurveberg, Hills on Hoekplaats, Cornwall hill
- Watercourse system: Hennops River, Rietspruit, Swartbooispruit, Sesmylspruit, .
- Dams, quarries and wetlands: Rosema Quarry, Centurion Lake, Rietspruit marshland.

- Protected areas: Zwartkop Nature Reserve, Rhenosterspruit Nature Reserve
- Irene Agricultural Research Institute
- Conservancies: Hennopsvallei Conservancy, Rhenosterspruit Conservancy.

4.9.2 SOCIO-ECONOMIC AREAS

The socio-economic areas contribute to the ecological focal points which form the basis of the primary open space network. These mainly consist of sports complexes and related facilities.

- Centurion Lake, Centurion Cricket Stadium linked together by means of the Hennops river embankment.
- A number of Golf Courses: Gardener Ross, Dienste Golf Course, Monumentpark Golf Course, Irene Golf Course, Zwartkop Golf Course, Centurion Estate Golf Course
- Other: Zwartkop Race course, Fountains Valley recreational resort.

4.9.3 ENVIRONMENTAL AREAS

Environmental Areas are all irreplaceable, important and high ecological sensitivity sites, as identified and defined by GDACE.

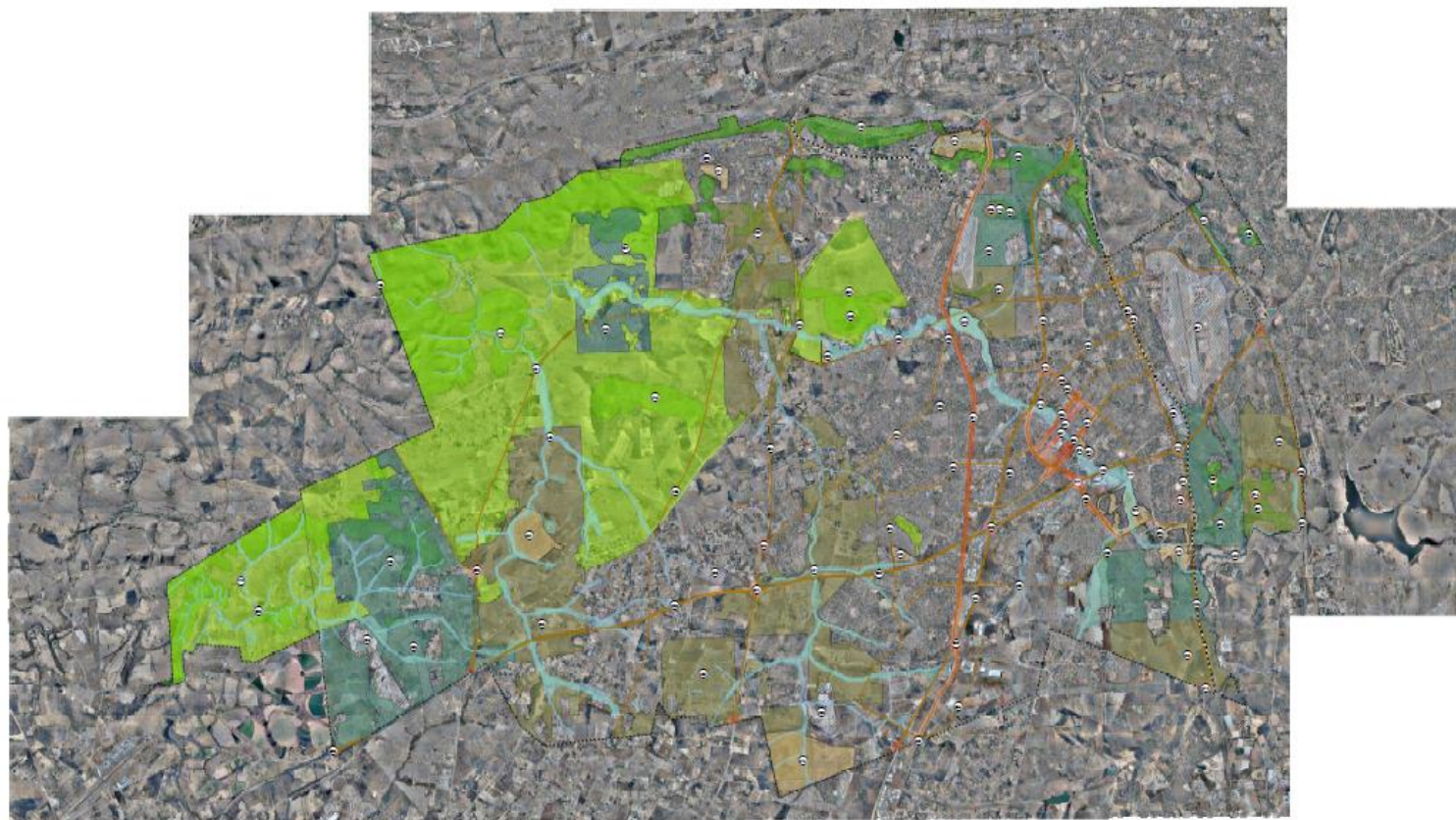
Cultural-Historical Areas

- Schurweberg area
- Smutskoppie, Smuts farm house
- Cradle of Humankind World Heritage Site
- Antiquities at Zwartkop Air Base and Waterkloof Air Base
- Rooihuiskraal Historical Terrain.

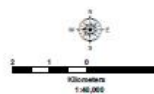
Brown, grey and red nodes and ways are not shown. For complete and detailed information regarding the Metropolitan open space network, it is essential and of utmost importance that the Tshwane OSF plan is always consulted together with the RSDF plan.

Discussions with GDACE and the Municipality's Environmental Planning Section must be held before any development or change of land-use application can be submitted, to determine whether the important sites, irreplaceable sites and high ecological sensitivity sites are subject to a possible E.I.A. survey.

Southern



- Legend**
- Region/Point
 - ~ BrownWay
 - ~ GreyWay
 - ~ RedWay
 - ~ BlueWay
 - ~ GreenWay
 - ~ BrownNode
 - ~ GreenNode
 - ~ High Ecological Sensitivity/Impassable Sites
 - ~ Important Sites
 - ~ Protected Areas/Conservation Areas/Conservation
 - ~ GreenWay
 - ~ GreyNode
 - ~ RegionBoundary



PART FIVE: DETAIL PRECINCT PLANS

5.1 NODAL PLANS

Previously a number of precinct plans and policies have been developed for areas within the region which are in line with the CDS and MSDF. The following policies and plans with their main proposals are included as part of this framework:

5.1.1 CENTURION METROPOLITAN NODE

Centurion Metropolitan Node is a place of opportunity in Gauteng and Tshwane Context.

This node is a fairly new metropolitan node develops as the core of the previous city of Centurion. Centurion Metropolitan Core within Region 4 is directly in the growth path of development forces that are establishing on the north-south development corridor between JHB and Tshwane and Ekurhuleni and Tshwane. The multi-nodal linear urban lattice that emerges- in effect a “linear city” becomes the area of priority to accommodate future growth and intensification.

Centurion Metropolitan Node is one of the beads on this development axis, (Other are Rosebank, Sandton, Woodmead and Midrand) where the foundation of the lattice is planned and developed. The planning of the metropolitan node was based on modern town planning principles that provide the foundations for integrated and on-going development in a sustainable way.

The Centurion Metropolitan Node is centrally located in the knowledge economy region on the N1 ranging from the Innovation Hub in Pretoria East to Midrand in the south.

This Metropolitan node is linked and part of the eastern portions of Region 4 that is characterised by high-technology developments, warehousing, distribution centres and office developments along the N1 strip, which results in a large influx of skilled labour into the Region on a daily basis. This Metropolitan Node provide numerous opportunities for the financial and corporate sector while it can also be a central “think tank” and administration headquarters in the high technology zone.

The larger Metropolitan Node provides for all the important ingredients and potential to be branded as a “knowledge city”, “smart city”, “creative city”, “green technology city” with the realisation of the proposed redevelopment of the Centurion Lake, and the spinoffs it will be provided.

The Centurion CBD core area can be seen as a place of opportunity for much higher intensity and density developments than in the past. In the core area much developable land remain within walking distance from the Gautrain station, where high intensity mixed uses can be developed.

The proposed high intensity scale of future development will address possible geological problems, development and functionality of the Centurion Lake and surrounded open spaces. The evaluation of the scale and maintenance of waterborne services, indicate that the higher intensity use present scenarios that can be managed with a significantly lesser degree of risk than a lower intensity scenario. Where responsibility of management is done on a collective basis, higher intensity uses actually contribute to reducing risk.

Proposals such as the following will contribute to the sustainability and the realization of huge development opportunities in the Centurion metropolitan node:

- The future of the Centurion Metropolitan Node and the eastern parts of Centurion indicate the radical departure from a rural nature to a robust urbanity
- Apply the holistic approach in the future planning and development
- The development of a transportation box around the core area of the metropolitan node in order to increase the accessibility for large developments;
- More urban design guidelines for the CBD shall be provided and implemented for the integration and functional efficient of the core area and surrounds of this area;
- In the context of expected development pressures, the focus falls squarely on how urban management will allow and promote this growth while a high quality of urban environment is maintained.

Interventions

- Promote high intensity mixed use development in the core area and surrounding the Gautrain Station to obtain economy of scale.
- Facilitate the re-development of the Centurion Lake and surroundings to be an integrated development.
- The urban design of the core area with the focus on the pedestrianisation of the area and the integration of developments north and south of the lake.

The Centurion Metropolitan Core and surroundings displays varying degrees of development stability and/or propensity for significant change and these trends are manifest in clear patterns.

The south western precinct is most stable with very solid suburban residential development and well located mixed use development at its key entrances. Significant or large scale change in this area will be difficult to achieve in that land values associated with current use is still high and

stable and areas where change is most likely has already occurred (Gateway development)

The central precinct by contrast is under significant pressure for change due to the prevalence of well-located vacant land and also pressure to regenerate the area so as to protect existing investments in primary business developments, as well as, the significant rate base. Change need to occur here in order to regenerate and protect existing development, but also to capitalise on new locational advantages being generated for the node by improved overall regional accessibility. Good opportunity also exists on those sites that are not optimally developed. Developments in the central precinct is most likely to be large and catalytic in nature with significant impacts on character in infrastructure capacity

The north eastern precinct is the most dynamic area in terms of land-use and activity change and this is being driven by the high regional accessibility of the area, the “soft” existing agricultural uses which are no longer viable, and regional pressure to be located within a primary development corridor of the Gauteng regional economic landscape. Change in this area will be smaller scale and incremental with changes of agricultural land to urban uses whilst there may be more adventurous and larger scale and higher impact change associated with the new station through consolidation and redevelopment of existing run down developments.

PROPOSED LAND USES CENTURION METROPOLITAN NODE AND SURROUNDINGS Urban Development Framework



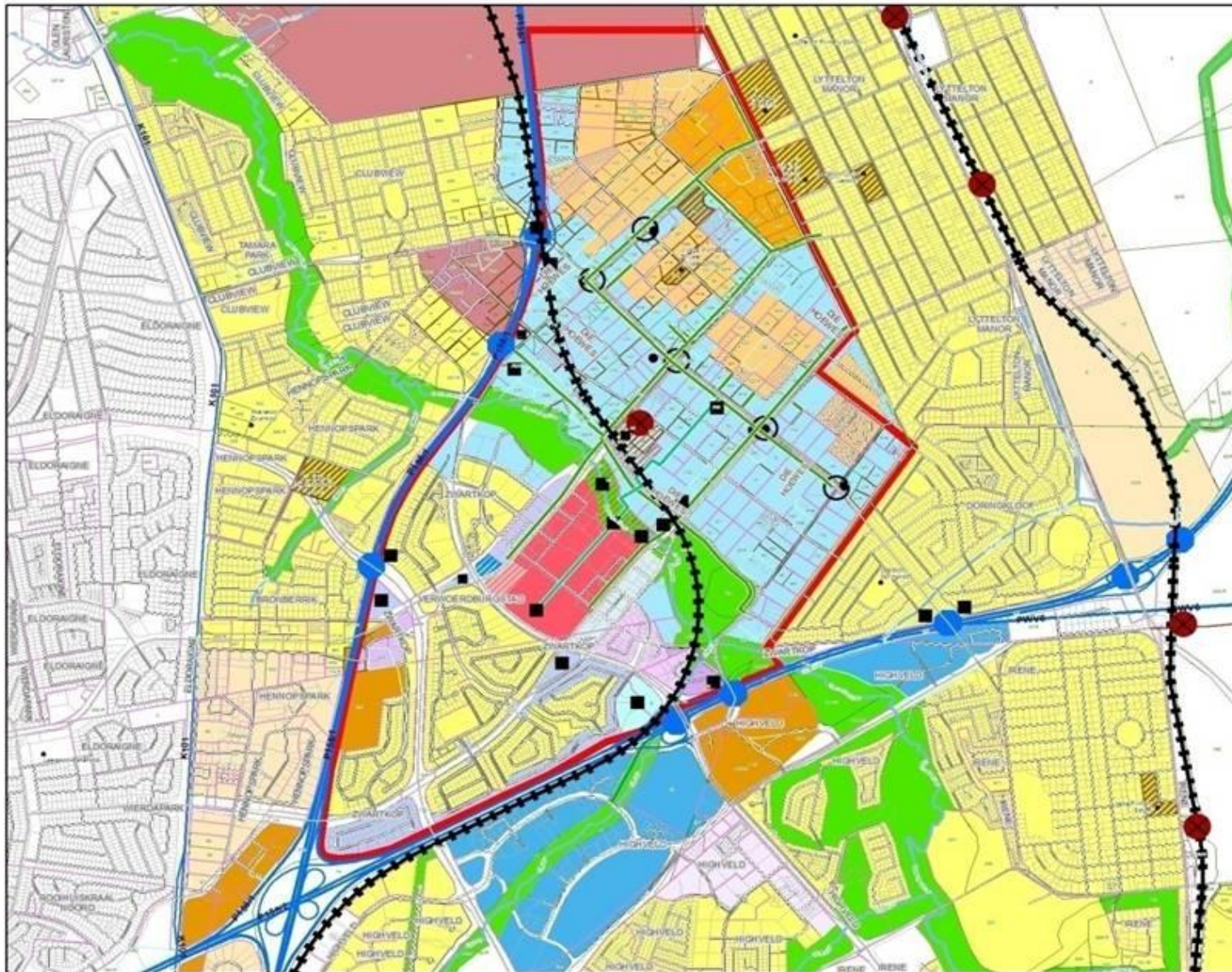
Legend

- Existing and Proposed Intersections
- Landmark Buildings
- Local Node Area
- Stations
- Business 1
- Business 1 Focus on Parking
- Commercial
- Business Focus on Showrooms
- Commercial and Offices
- Education
- Focus on Business and Residential Public Open Space
- Focus on offices Business
- Gautrain Station
- Green belt
- High Technology
- Institutional Uses
- Light Industrial
- Offices Focus on Parking
- Offices and Showrooms
- Residential and Offices
- Residential Densification Zone
- Residential
- Warehousing & Offices
- Taxi Facilities
- Walkway
- Walkway
- Study Area

Compiled By: W Boucher

Whilst every care has been taken in compiling the information on this map, the CITY OF TSHWANE cannot accept responsibility for inaccuracies.

Date: 2/23/2012



5.1.2 IRENE EMERGING NODE

Regional Context

The Irene Emerging Node is strategically wedged within 2 km south of where the R21 and N1 highways intersect. Currently the Nellmapius Road off-ramp system from the R21 highway is the main access to the area and forms the southern boundary of the node. The area is bound to the west by the railway line, the N1 Highway to the north and Goedehoop Avenue to the east. The emerging node is therefore ideally situated to exploit maximum benefit from both the R21 and N1 corridor, the off-ramp systems and the railway line. This area also falls within the Economic Core identified for Gauteng Province and high profile developments, such as offices, finance and information technology related developments which provide accessible job opportunities, is promoted.

The area is currently characterized by the following:

- The Irene Village Mall with a retail capacity of 54 000m²
- Route 21 Corporate Park consisting of multiple high technology corporations
- 244 ha of prominently situated vacant land
- Low residential areas: Pierre van Ryneveld, Cornwall Hill and Irene Village to the west

Vision

The key vision for the Irene node is to create an urban precinct that promotes overall functionality and liveability through adhering to the principles of sustainability and responsive planning. The development shall strive to optimally utilise existing resources in order to contribute to the process of restructuring our cities into healthy sustainable environments through providing opportunities to promote higher residential density and integrated environments with typical urban characteristics, thereby counteracting suburban sprawl, ensuring that residents have access to a range of choices with regard to housing typologies and integrating

residential development, mixed uses facilities, movement systems, social facilities and employment opportunities. A concept where a community live, work and play within a sustainable area are foreseen. The large conservancy area that will be home to an environmental information centre and restaurant along the ridge becomes one of the key elements within the node to create a Public Space System (PSS) that promotes pedestrian movement and contribute to a unique aesthetically pleasant node which will be enhanced by urban design elements, landscaping and architecture.

A mixed land use area is promoted to achieve the vision for the node. Certain land uses will be dominant in areas of economic opportunities e.g. offices and high technology industries that will exploit visibility from the highways whilst residential uses will mainly be located on the periphery where the node collides with the existing low residential areas.

The area will consist of various precincts consisting of superblocks which will give some flexibility in land-uses and design to allow adaption through time as the development evolves. The precincts can be described as distinct areas, each having its own character, dominant land use(s) and relevant spatial patterns which are in line with an approved Urban Design Framework(s). The Urban Design Framework(s) and Development guidelines will ensure that certain key elements e.g. the continuity of pedestrian movement, design elements, architecture are integrated through-out the node to ensure that the urban form and vision for the node is contained within a development of high urban quality.

Road Network

Both the N1 Highway and the R21 form part of the dynamic development corridors for Region 4 linking development nodes from Johannesburg International Airport (O R Tambo) with the north of Tshwane. Development trends along corridors are directly influenced by the interrelation between the visibility and mobility functions of the highway. The development potential of areas along highways are supported by first order roads which provide access and creates further opportunity for development due to

through traffic. The area plays a key integration role in the future road network. Nellmapius Road will traverse through the area, providing an east-west link between the N1 and R21 highways. This section of Olievenhoutbosch Road will strengthen and forms part of the N1 development corridor and will provide alternative access to the Centurion CBD Metropolitan Node. A large part of Olievenhoutbosch Road will be developed as a double carriage way system forming 'islands of opportunity' between the carriage ways of the one-way road system. An intermodal facility which will include a railway station (with PRASA stop), bus- and taxi-facilities are planned on Olievenhoutbosch Road where it will cross over the railway line. The introduction of this facility as part of the node provides the opportunity for intensifying land uses, promoting public transport and achieving a reduced per-capita automobile travel.

Development Potential

The development potential of the vacant land in the area is approximately 1 500 000m². These properties have all been the subject of land-use applications that have already been approved. The bulk of land uses is indicated below and will be distributed throughout the area, also note that, apart from the value mart planned south of the Irene Village Mall, additional retail facilities will not be centre based, but will be integrated with other land uses and concentrate on destination retail and service based retail e.g. convenient stores, confectioneries etc.

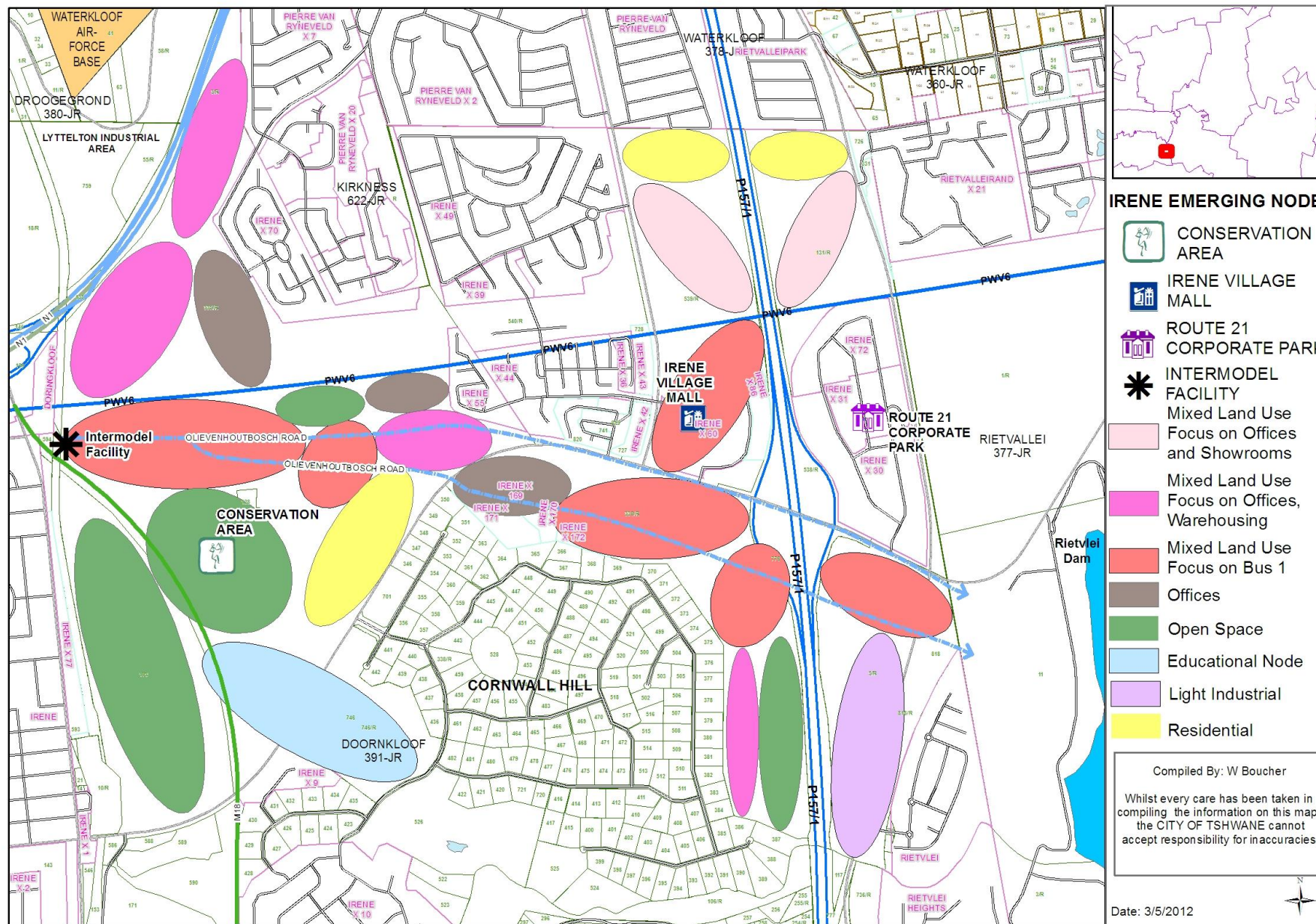
- Offices: 673 772 m²
- Business: 227 491 m²
- Retail: 133 431 m²
- Light industry / warehousing: 142 481 m²
- Hotels: 310 rooms

network for Region 4 as illustrated on the map. Olievenhoutbosch Road/

- Residential: 3100 units, Educational facilities: 31 431 m² - additional educational facilities were included in most of the zonings to create opportunities for smaller facilities such as places of child care.

Strengths of the Node

- Visibility and accessibility from the R21 and N1 highways, additional access (off-ramp) from N1 at Kruger Avenue.
- An additional bridge is planned linking the vacant land north of the Route 21 Corporate Park with the Irene Village Mall precinct. The bridging structure will be in the form of an explicit 25 storey landmark building. This will mark the area as a southern gateway to Region 4 and the City of Tshwane from the R21 corridor.
- Construction of a new road network to strengthen the east-west link in the region.
- The existing Route 21 Corporate Park which is home to a large number of high technology and creative industries links onto the vision for the Metropolitan Node to be branded as a "Knowledge City".
- The existing Irene Village Mall with its unique character.
- A conservation area of 39 ha which will include an environmental information centre and place of refreshment along the ridge.
- An educational node that will consist of all levels of education and is located within close proximity of the existing Cornwall Hill College
- An intermodal facility that will promote public transport and will in future become part of the BRT system.
- The large portions of land create the opportunity to create an integrated and unique urban form with the implementation of Urban Design Frameworks and development guidelines.



TSHWANE REGIONAL SPATIAL DEVELOPMENT FRAMEWORK
REGION 4

5.1.3 MONAVONI EMERGING NODE

Background

The Monavoni Area and the Monavoni Precinct are an important emerging Regional Node, with the potential to evolve over time into a Metropolitan Node in the south western part of Region 4. This potential is seen as a driving force in the approach and vision for the Monavoni Precinct to contribute to the elevation of the role and contribution of the Monavoni Region in the broader city context.

Most of the Monavoni Region is still rural in nature, comprising farmland and scattered agricultural holdings. The urbanised eastern areas of Region 4 are steadily filling in the undeveloped land located between Centurion and Midrand.

Mixed-use projects within the Monavoni Precinct, such as the Monavoni Extensions 58 and 59 (290,000m²) and an adjoining Heuweloord Extensions 18 and 19 (of 30,000m²), have raised the profile of the broader Monavoni Region, and have demonstrated the developmental need and potential of this part of the City.

This potential and opportunity is confirmed in the findings of the Monavoni and Western Farms Development Framework (2008).

Adjoining the Monavoni Precinct, south of the N14 are the Olievenhoutbos townships. Olievenhoutbos is the only large scale affordable housing development in Region 4 with a current population of roughly 40,000 residents. Development of the Monavoni Precinct will provide immediate opportunities for job-creation, employment, recreation and social facilities to the Olievenhoutbos residents.

Local Context

The Monavoni Precinct is located north of the existing N14 Highway and enjoys good regional connectivity. The Precinct is contained within the boundaries of the existing N14 Highway linking the City of Tshwane with

Mogale City, and the proposed PWV9 Highway linking the northern suburbs of Johannesburg with the south west of Tshwane.

Two, existing east-west linkages, the M34 and the K52, run through the precinct, connecting it with the Centurion Metropolitan Node. The M34 (Ruimte Road), divides the precinct into a northern and southern section and the K52, to the far-north of the precinct, will feed vehicular movement into the precinct, from the proposed PWV9 Highway. The precinct plan proposes new north-south linkages across the K52 and M34.

The Monavoni Precinct Plan study area is bounded by the N14 in the south, the R55 in the east, the planned K52 and PWV9 in the north and west respectively. It comprises of some 1000 ha.

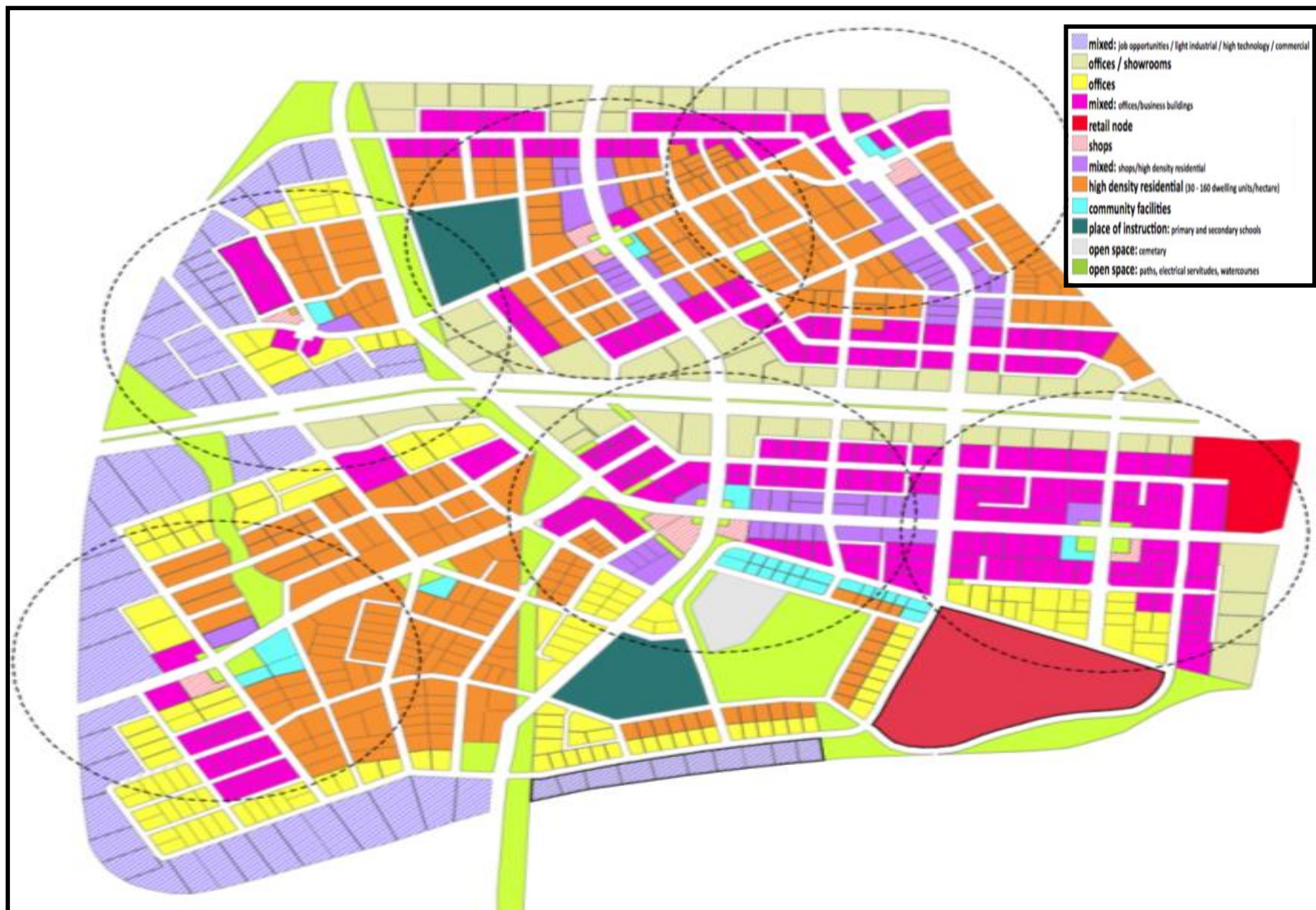
Opportunities of the Monavoni Precinct

- The Precinct forms part of the southern gateway that connects Tshwane with Johannesburg and Mogale City.
- The Precinct enjoys excellent regional accessibility via the N14, R55 and the planned PWV9.
- The precinct enjoys high levels of visibility.
- The area can accommodate well-developed, good quality residential areas.
- The precinct has attracted private sector investment.
- Limited number of landowners in the precinct improves likelihood of realising the vision and eases the implementation process.
- The precinct comprises of private smallholdings permitting ease of assembly for large-scale developments.
- The development of the PWV 9 will complete the ring road system around the metro and improve accessibility at a regional level.
- Monavoni can provide economic and employment opportunities for Olievenhoutbos residents and surroundings
-

Land uses in the Monavoni Precinct

A broad range of land uses and activities are proposed for the Monavoni Precinct:

- High density and mixed uses at local district centres and along their connecting corridors, such as: apartments, offices, shops and public amenities.
- Freeways and K-routes (Class 2 roads), are edged by large footprint uses: commercial, light industrial, showrooms and high technology capitalising on the visibility, exposure and access
- Local district centres are primarily surrounded by community facilities or public amenities, with a mix of shops, businesses, offices and high-density residential
- Primary residential areas are located away from local district centres and their immediate connecting corridors.
- A large, regional retail node is proposed for the south-eastern corner of the precinct. It is anticipated that the Monavoni Ext 39 and Heuweloord Ext 12 developments will have an influence on the local district attracting larger business and commercial interests compared to other local districts.
- Proposed Schools and Educational facilities have been positioned in close or direct proximity to residential areas and public open spaces.



5.2 EXISTING PRECINCT PLANS

Previously a number of precinct plans and policies have been developed for areas within the region which are in line with the CDS and MSDF. The following list of policies and plans with their main proposals are included as part of this framework:

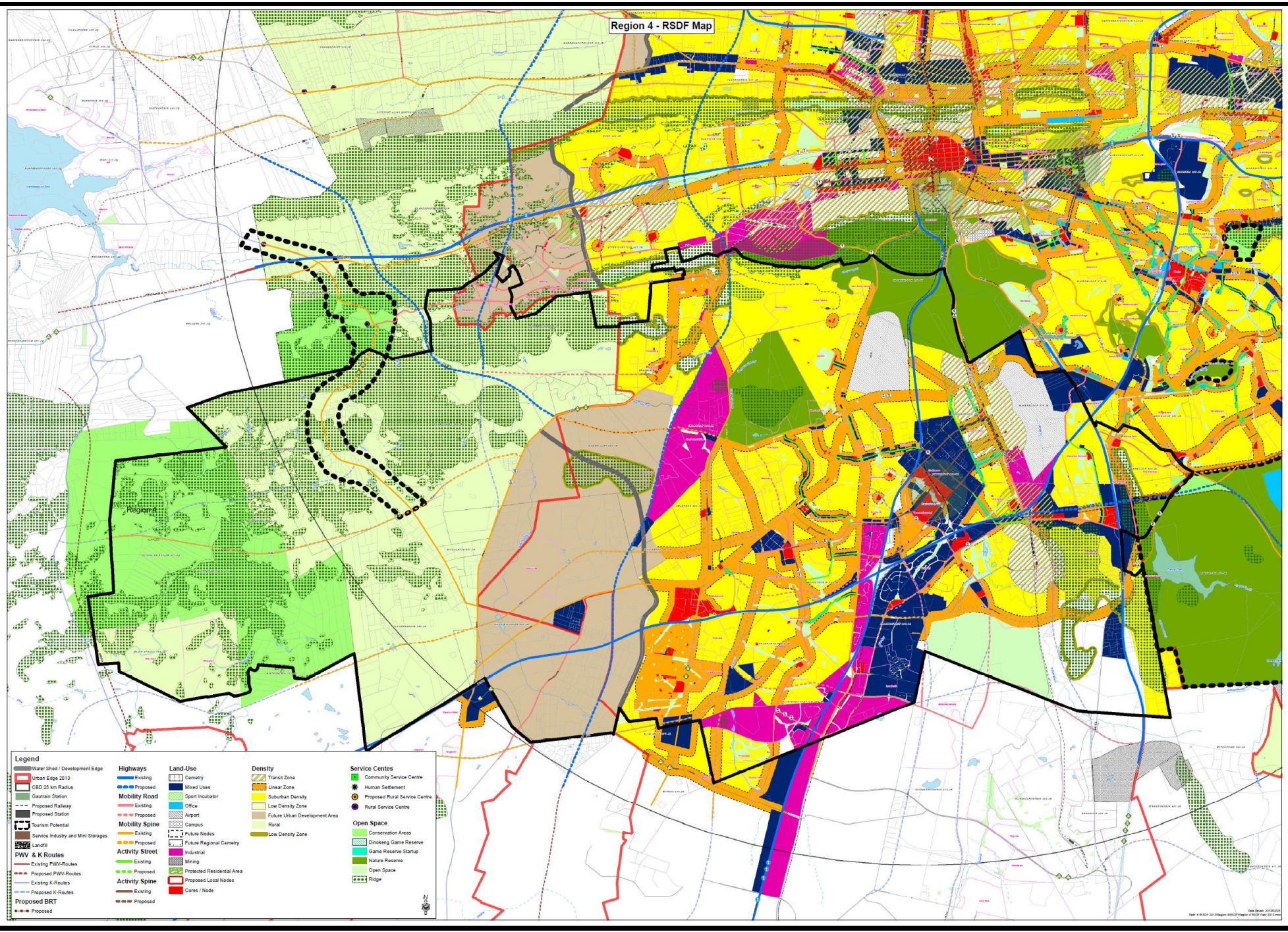
- Centurion Open Space Network (Holm Jordaan and Associates)
- Central Activity Spine (Holm Jordaan and Associates)
- East-West Mass Transport Development Corridor Strategic Development Framework (PlanPractise, 1998)
- Centurion Integrated Development Plan (Revision) June 2000
- Integrated Development Framework for Strategic Development Area 5 and the Olievenhoutbos area (Plan Associates, 1999)
- Tshwane 2020 Integrated Development Plan Spatial Development Framework, June 2002
- Monavoni and western farms development framework 2020

5.3 REQUIRED PRECINCT PLANS (NON-PRIORITISED)

The following are precinct plans that are required to guide the development of specific precincts within the Region. It includes:

- LSDF for Laudium/Claudius/Erasmia/Christoburg
- LSDF for the Centurion Metropolitan Core
- Precinct Plan for Gautrain Station (Centurion)
- Urban Design Framework and Infrastructure Management Framework for the Centurion Metropolitan Core.

Region 4 - RSDF Map



- | | | | | |
|---|--|--|---|--|
| Legend
Urban Edge 2013
CBD 25 km Radius
Gautrain Station
Proposed Railway
Proposed Station
Tourism Potential
Service Industry and Mini Storages
Landfill
PWV & K Routes
Existing PWV/Routes
Proposed PWV/Routes
Existing K-Routes
Proposed K-Routes
Proposed BRT
Proposed | Highways
Existing
Proposed
Mobility Road
Existing
Proposed
Activity Street
Existing
Proposed
Activity Spine
Existing
Proposed | Land Use
Cemetery
Mixed Uses
Sport/Recreation
Office
Airport
Campus
Future Nodes
Future Regional Cemetery
Industrial
Mining
Protected Residential Area
Proposed Local Nodes
Cores / Node | Density
Transit Zone
Linear Zone
Suburban Density
Low Density Zone
Future Urban Development Area
Rural
Low Density Zone | Service Centres
Community Service Centre
Human Settlement
Proposed Rural Service Centre
Rural Service Centre
Open Space
Conservation Areas
Drinking Game Reserve
Game Reserve Startup
Nature Reserve
Open Space
Ridge |
|---|--|--|---|--|