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<tr>
<td>BRT</td>
<td>Bus Rapid Transit</td>
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<td>CBD</td>
<td>Central Business District</td>
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<td>COT</td>
<td>City of Tshwane</td>
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<td>EMF</td>
<td>Environmental Management Framework</td>
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<td>GLA</td>
<td>Gross Leasable Area</td>
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<td>GSDF</td>
<td>Gauteng Spatial Development Framework</td>
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<td>UP</td>
<td>University of Pretoria</td>
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<td>Spatial Development Framework</td>
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<td>SPTN</td>
<td>Strategic Public Transport Network</td>
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<td>Tshwane Open Space Framework</td>
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<td>As per CDS: Zone of Choice</td>
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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.

AGRI-VILLAGE
- A sustainable rural settlement which integrates residential development with agriculture in order to ensure the creation of vibrant, equitable and sustainable rural communities and food security. An agri-village is intended to improve the livelihood of rural communities by: 1) Meeting the basic human needs by building (through skill-development and training) the person, the household and the community as well as providing the required social for improved access to services; 2) Agricultural Development to ensure food production and food security for both the community and the market; and 3) Enterprise / entrepreneurial development through which the rural community will be encouraged to participate in livestock and cropping value chain development, thus jobs will be created by the community for the community."

CITY OF TSHWANE METROPOLITAN MUNICIPALITY LAND USE MANAGEMENT BY-LAW
- To give effect to “Municipal Planning” as contemplated in the Constitution of the Republic of South Africa, 1996, and in so doing to lay down and consolidate processes and procedures, to facilitate and make arrangements for the implementation of land development and land development applications, spatial planning and a Land Use Scheme within the jurisdiction of the City of Tshwane, in line with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013), to provide for the processes and procedures of a Municipal Planning and Appeals Tribunal and to provide for matters incidental thereto.

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

COT
- City of Tshwane.

DENSIFICATION
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. Emerging nodes will be managed subject to growth management principles.

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.

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

LIVABLE STREETS
- Liveable Streets are defined as streets for everyone that are planned, designed, and operated to enable a network of safe access for all users including pedestrians, bicyclists, and transit riders.

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

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

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 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.
- Such localities are also where the most extensive land use rights, including densities, are likely to be supported, in line with the growth management strategy.

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.

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.

SPLUMA
- Spatial Planning and Land Use Management Act, 16 of 2013.

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 (In terms of SPLUMA Objectives).

SUSTAINABLE HUMAN SETTLEMENTS
- The term ‘sustainable human settlement’ refers to a spatial concept that has two areas of emphasis: 1) human 2) sustainable. In terms of SPLUMA Principles) “The human-centred approach emphasises that a central purpose of planning is to ensure that the developmental needs and activities of people living in settlements are catered for and, in particular, that Opportunities for people to achieve their full potential are maximised through their own efforts. This approach, rather than being purely cost- or technology-driven, is people-driven and democratic”. It makes such settlements socially, politically and economically sustainable. But there is also the dimension of environmental sustainability.

- TRANSPORT–ORIENTATED DEVELOPMENT (TOD)
- Transport-oriented development (TOD) is a mixed-use residential or commercial area designed to maximise access to public transport, and often incorporates features to encourage transit ridership. A TOD neighbourhood typically has a centre with a transit station or stop (i.e. a train station, metro station, BRT stop, or taxi rank), surrounded by relatively high-density development with progressively lower-density development spreading outward from the centre. TODs are generally located within a radius of 500 to 800 m from a transit stop, as this is considered to be a convenient distance for pedestrians. TOD development guidelines are further in terms of the Urban Hub Design Toolkit: National Treasury. 2013

TRANSPORT CORRIDORS
- For the purpose of this RSDF the routes are defined as the approved BRT routes within Region 4 They are regarded as the main public transport channels of the region. Public –transport orientated – with the prioritising of public transport and Non – Motorised Transport over Private transport. Pedestrian/cyclist oriented environment with traffic calming for cars where appropriate. Densification along these spines should be encouraged to maximise the public transport opportunities provided by these routes. Mixed uses fronting the trunk route will also be supported in certain areas along the trunk route and not only at stations.

URBAN CORES
- 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 Grant (NDPG) is a nationally funded programme that aims to address the improved quality of environment in urban cores.
1. INTRODUCTION

1.1 INTRODUCTION AND LEGISLATIVE FRAMEWORK

Before dealing with the content of the document it is necessary to draw the attention of the reader to the list of abbreviations and glossary of terms hereunder, to which shall be referred to and which may be repeated in this introduction.

After the Local Government Elections of 2016, the Municipality was required to adopt its Integrated Development Plan (“IDP”) in terms of the Local Government Municipal Systems Act, 32 of 2000 (“MSA”). In terms of section 26(1)(e) of the MSA the IDP shall consist of various components including a Spatial Development Framework (“SDF”) as an integral part of the IDP.

Similarly the Spatial Planning and Land Use Management Act, 16 of 2013 (“SPLUMA”) refers to the MSA and the need to have a Municipal Spatial Development Framework (“Municipal SDF”) prepared and adopted as part of the IDP. Referred to herein as interchangeably as the “SDF” and the “Municipal SDF”.

In pursuance thereof, a report was drafted and adopted by Council on 25 May 2017, which authorized the drafting, finalization and further public participation of the SDF in terms of the Spatial Planning and Land Use Management Act, 16 of 2013.

The public participation required both in terms of the provisions of the MSA, as part of the IDP, as well as the public participation in terms of SPLUMA was completed by 10 December 2017. The purpose as per the legislation for the extensive public participation and engagement was to solicit as many comments as possible for consideration and incorporation thereof into the SDF.

The Regionalized Spatial Development Frameworks for the different Regions in Tshwane collectively form the sum of the SDF. The SDF is considered to be the implementation mechanism of the spatial component for the Roadmap Towards Tshwane 2030, Municipal Spatial Development Framework, as well as other strategic policies with a spatial emphasis, such as but not limited to the Council approved Densification and Compaction Strategy, Retail Strategy, Rural Strategy, Tshwane Integrated Transport Plan, the Tshwane Open Space Framework, etc.

1.2 THE SPATIAL DEVELOPMENT FRAMEWORK

A Spatial Development Framework guides and informs all development and forms part of the IDP in terms of Section 35 (2) of the MSA.

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 *inter alia* 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.
- Provide guidelines for development and land use decision-making by the municipality.

The IDP, SDF and RSDF’s focuses on spatial transformation, economic transformation and ecological transformation as specific objectives envisioned in the Roadmap Towards Tshwane 2030.

This Regionalized Spatial Development Framework was prepared in accordance with the above mentioned legislation.
1.3 APPROACH AND METHODOLOGY

The approach to the preparation of the RSDF was based on inter alia the following approved policies and plans:

- National Development Plan, 2014
- Comprehensive Rural Development Programme, 2009
- Gauteng Spatial Development Framework: 2030; 2016
- Gauteng Rural Development Plan, 2014
- Gauteng 25-year integrated Transport Master Plan, 2013
- The Integrated Development Development Plan 2017/2018
- The MSDF objectives, vision and supporting strategies as well as development issues were used to inform the role and function of the region (MSDF, 2012).
- The City of Tshwane Bioregional Plan, 2016.

The framework was also based on best practices applied internationally on the development of Municipal SDF / RSDF. See references used at the end of the document in the compilation of the framework.

The RSDF 2018: Region 4 was prepared in accordance with the following mentioned highlighted principles in Chapter 2 and specifically section 7(a) of SPLUMA:

- Indicate where densification should take place and promote economic and social inclusion;
- Indicate how urban regeneration should take place in the Region in order to stimulate land markets;
- Indicate where public and private development infrastructure investment should take place;
- Indicate desired development and land use patterns in Region 4 in order to achieve mixed income housing, community, educational and job opportunities that support the Bus Rapid Transit system;
- Provide for the opportunity to walk and cycle in the Region and move away from car orientated planning;
- Provide broad indication of the areas where priority spending should take place in the Region and what the impact on services will be;
- Provide guidelines for development and land use decision-making by the municipality in Region 4.

This framework obtains its guidelines, objectives and principles from the relevant National, Provincial and Local Planning Policies as prescribed by legislation. In the following section the different policies and guidelines are discussed in detail that are applicable.

1.4 THE USE OF REGIONALIZED SPATIAL DEVELOPMENT FRAMEWORKS AND MAPS

As a point of departure in terms of the legislation it is within the sole preserve of Council to approve the IDP and its component part i.e. the SDF. It should be understood that no land development applications decisions can have the effect of materially amending the RSDF’s or undermining the IDP with reference to Section 35 of the MSA. However, the context of section 22 of SPLUMA should be noted for purposes of the interpretation of this document.

The burden on a Municipality 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 land development proposal may undermine the budgetary provisions contained in the IDP read with the SDF. Should such land development proposals have merit, it should be tested against the overall objectives of the policy documentation and formally incorporated into the RSDF 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 departure should be based on specific criteria or threshold requirements, which requirements shall in the sole opinion of the Municipality be complied with, in order to depart or amend the RSDF or any component thereof. Keeping in mind that if a proposal is so material as to impact on the overall objectives of the SDF’s or IDP, it can only be formally amended by the
legislative body of Council, with public participation. The provisions of the content of the City of Tshwane Land Use Management By-law, 2016 shall apply.

MAPS AND PRINCIPLES

The different principles as indicated in Part 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 Part 4. Alternative land uses and activities will be evaluated according to the movement and activity map and accompanying principles. The same principles will apply for the Rural map in Part 4. The composite map at the end of the document must only be regarded as a schematic representation of the principles. The Bio diversity map will be used for all environmental issues and forms the basis of the RSDF maps. The composite map at the end of the document must only be regarded as a schematic representation of the principles.

INFRASTRUCTURE

Land development proposals, whether in line with these documents or on merit, should only be supported if infrastructure to the satisfaction of the Municipality with reference to Section 40 of SPLUMA 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 the Municipality. The availability of infrastructure shall not be regarded as sufficient support for a land development proposal or application. 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 land development application submitted and pending prior to the adoption of this RSDF, which relied on the provisions of the previously approved and adopted MSDF’s or RSDF’s, in support of the application shall be dealt with in terms of that MSDF or RSDF; provided that if this RSDF in the sole discretion and interpretation of the Municipality, the application may be considered against this RSDF. This provision shall not be applicable if the application by evaluation, against this RSDF, shall have the result of negatively impacting on the rights of an applicant or interested parties.

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.
1. **PART 2: METROPOLITAN CONTEXT**

2.1 **POLICY FRAMEWORK**

This framework obtains its guidelines, objectives and principles from the relevant National, Provincial and Local Planning Policies as prescribed by the Spatial Planning and Land Use Management Act (Act 16 of 2013). In the following section the different policies and guidelines are discussed that are applicable to spatial planning.

**APPLICABLE POLICY FOR RSDF 2018**

- National Development Plan; 2014
- Tshwane: Integrated Development Plan Revision : 2017/2021
- Built Environment Performance Plan (BEPP) : 2017/18
- Tshwane, Vulnerability Assessment to Climate Change:2015
- RSDF 2018
2.1.1 NATIONAL DEVELOPMENT PLAN: VISION FOR 2030: 2014

The overarching principles for spatial development in terms of the National Development Plan (pg. 246) is that all spatial development should conform to the following principles:

- **Spatial justice** – Unfair allocation of public resources between areas must be reversed and the confining of particular groups to limited space must be abandoned. The *increasing of urban population density* while improving the liveability of the cities, providing affordable public transport, it is seen as a complementary strategy to this principle (pg. 16). Transportation networks are seen as the key to spatial transformation (pg. 238) and the accommodation of diverse household types is encouraged. (pg. 254).

- **Spatial sustainability** – Sustainable patterns of consumption and production must be supported and ways found for living that does not damage the natural environment. *Walkable neighbourhoods*, for example, reduce the need to travel and limit greenhouse gas emissions. In terms of this principle a clear strategy for densification of cities through land use-use planning is proposed (pg. 33).

- **Spatial resilience** – Reduce the vulnerability to environmental degradation, resource scarcity and climate shocks. Ecological systems should be protected and replenished and support the transition to environmental sustainability (pg. 256).

- **Spatial quality** – The aesthetic and functional features of housing and the built environment need to be improved to create *more liveable, vibrant and valued places*. Prioritising public transport and the *discouragement of private car* users is seen as one of the strategies in terms of this principle (pg. 164).

- **Spatial efficiency** – Productive activity and *job creation must be supported*. Efficient commuting patterns and circulation of goods and services must be encouraged. Further procedures must not impose unnecessary costs on development. Unlocking development potential is seen as part of the spatial vision of the development plan (pg. 247).

2.1.2 THE COMPREHENSIVE RURAL DEVELOPMENT PROGRAMME, 2009

The CRDP was approved by Cabinet in August 2009, aimed at being an effective response against poverty and food insecurity by maximizing the use and management of natural resources to create vibrant, equitable and sustainable rural communities. The CRDP is meant to improve the standards of living and welfare of rural communities but also rectify past injustices through rights based interventions and address skewed patterns of distribution and ownership of wealth and assets. The CRDP is premised on a proactive participatory community-based planning approach rather than an interventionist approach to rural development. Therefore, the CRDP seeks to facilitate integrated development and social cohesion through participatory approaches in partnership with various stakeholders like other government departments, non-governmental organisations, the business
sector and the communities, in order to enhance socio-economic development issues.

The vision of the CRDP is to create vibrant, equitable and sustainable rural communities by: contributing to the redistribution of 30% of the country’s agricultural land; improving food security of the rural poor; creating business opportunities, de-congesting and rehabilitating over-crowded former homeland areas; and expanding opportunities for women, youth, people with disabilities and older persons who stay in rural areas. The vision will be achieved through a three-branched strategy based on: 1) Agrarian Transformation; 2) Rural Development; and 3) Land Reform.

1) **Agrarian Transformation** is the rapid fundamental change in the relations of land, livestock, cropping and community. Focusing on, but not limited to, i) the establishment of rural and agro-industries, cooperatives, cultural initiatives and vibrant local markets in rural settings; ii) the empowerment of rural people and communities (especially women and youth); and iii) promote farming (both crop and livestock), food security and related value chain development and champion for increased production and the sustainable use of natural resources.

2) **Rural Development** is all about enabling the rural communities to take control of their own destiny by investing in the improvement and development of economic and social infrastructure which are critical to unlocking the development potential of rural areas;

3) **Land Reform** is a national priority which is also entrenched in in the Constitution in order to address the injustices of the past, ensure the sustainable use of land and warrant that public land is administered effectively. The land reform programme focuses on the redistribution, tenure reform and restitution of land; and the establishment of agri-villages for local economic development on farms and communal land.
2.1.3 GAUTENG SPATIAL DEVELOPMENT FRAMEWORK: 2030.

The GSDF 2030 is guided and informed by the national legal framework; international, national and provincial spatial policy directives; and municipal Spatial Development Frameworks. SPLUMA provides South Africa with a single land development process and regulates the compilation and review processes of national, provincial, regional and municipal SDFs. All spheres of government must prepare and adopt SDFs, guided by the development principles of spatial justice, spatial sustainability, efficiency, spatial resilience and good administration.

Provincial SDFs must be consistent with the national SDF and municipal SDFs. Where a provincial SDF is inconsistent with a municipal SDF, the premier must, in accordance with the Intergovernmental Relations Framework Act (IGRFA) (Act 13 of 2005), take all necessary steps to ensure consistency.

Essentially, the framework seeks to (i) direct, guide, focus and (ii) align, coordinate and harmonise all public infrastructure investments and development spending in the province, in accordance with a spatial development logic built on ensuring rapid, sustainable and inclusive provincial economic growth, township redevelopment, and decisive spatial transformation.

This underlying provincial spatial development logic has five aspects:

1. Maintaining and deepening the economic productive capacity of those areas where a large part of the provincial economy is concentrated.

2. Pursuing densification, diversification and integration in those areas where a significant part of the provincial economy is concentrated, where the State owns significant tracts of land, and land prices are not as prohibitive as in the economic core areas.

3. Focusing township redevelopment, including nodal and corridor development, in townships where most people live, that are most accessible and connected via public transport to the economic core areas and similar township areas, and that show evidence of the localised spatial forces necessary for growth and concentrations of diverse economic activities.

4. Enhancing public transport connections with townships where fewer people live and hence economic accessibility is poorer, while at the same time focusing on skills development and supporting local economic development initiatives.

5. Protecting those parts of the province that provide key environmental support services, are environmentally sensitive, have been formally demarcated as conservation areas, have high agricultural potential, or are used as or have the potential for eco-tourism and rural economic activities.

Spatial Development Guidelines

These strategic spatial development guidelines, which support the four provincial spatial development strategies, are meant for use by all three spheres of government, but are primarily intended for use by municipalities when undertaking their mandated spatial planning activities and when making decisions on land development applications, infrastructure investments and development spending. The guidelines are presented in tabular format.

Focus densification and intensification actions in areas that are close to and/or well connected to primary and secondary municipal nodes in the province.

- Prioritise densification along existing BRT routes rather than planned future BRT routes, as construction often takes longer than anticipated.
- Develop future Gautrain stations as integrated, mixed-use, high-density and accessible urban nodes.
- Enable strategic emerging nodal developments in townships, to build the polycentric provincial network.
- Enable higher density land developments and housing typologies in nodes, with the aim of creating integrated, accessible, permeable, mixed-use and high-intensity environments.
- Discourage new low-density residential developments in and around core economic areas, as well as the spatial fragmentation resulting from private estate development.
- Redirect housing subsidies towards the development of affordable housing close to employment and public transport.

2.1.4 THE GAUTENG RURAL DEVELOPMENT PLAN: 2014

The Gauteng Rural Development Plan (GRDP), as prepared for Gauteng by the national DRDLR, is the first integrated, strategic plan prepared for rural areas in the province. It acknowledges that rural regions, like their urban counterparts, have intrinsic qualities and value, and function as integrated wholes, and so need to be managed as such. The GRDP emphasises that inappropriate development and the encroachment of urban areas can destroy these regions, and that rural areas should be protected and developed with care. The plan proposes the development of nine rural regions in Gauteng that are, in many cases, connected to parts of neighbouring provinces.

The GRDP developed the following spatial development concepts to guide development in rural areas:
- The ‘rural capital web’ provides (like its urban counterpart) an indication of how and in which sequence public and private sector investment would ideally be undertaken in rural areas.
- ‘Transit-oriented rural development’ entails optimising the interaction between transport (notably public transport) and land use in stations and on properties adjacent to or adjoining such routes.
- ‘Small-scale agriculture and agri-villages’ are rural settlements where inhabitants have access to enough land to be able to undertake small-scale agricultural/farming activities.
- ‘Large-scale agriculture’ is land explicitly for agriculture/farming. Settlements take the form of houses/homesteads and associated structures for the farmers (who may be farming in a single or a cooperative arrangement) and their families.
- ‘Rural enterprises, industries and tourism’ refers to land on which a diverse range of economic activities takes place. These activities are based on the unique rural attributes/qualities of the land, nearby farming activities and proximity to towns and larger urban areas for markets and customers (or tourists).
2.1.5 GAUTENG PROVINCE, GAUTENG 25 YEAR INTEGRATED TRANSPORT MASTER PLAN: 2013

The plan proposes a radical paradigm shift in spatial and transport planning. It serves as a point of departure from apartheid spatial planning, land use and mobility patterns and ushers in an innovative way of structuring our future societal development. It serves as a road map for more detailed planning, particularly in public transport, land use, human resource development and socio-economic development. It is underpinned by founding principles such as economic beneficiation; doing things in a smart and sustainable manner; and integrating transport networks, modes and services interventions” have been identified of which the following two clusters relate to BRT corridor planning (pg.23)

- Land Use Development
  Subsidised housing provision within urban core areas
  Land use densification in support of public transport;
- Strategic Public Transport Network
  Mainstreaming non-motorised transport (NMT)
  Reinforcing passenger rail network as the backbone of the system
  Extending the integrated rapid and road-based public transport networks

The promotion of NMT as part of a sustainable transport system, e.g. include NMT (walking and cycling) as a feeder system to all public transport systems. Redesigning and/ or creating a built environment (urban and rural) to inclusively accommodate NMT users according to universal design principles as may be appropriate in terms of social and economic objectives (pg.71).

Diagrammatic representation of the modal hierarchy approach depicting an operational Category that favours the NMT modes

Source: Gauteng 25 Year integrated Transport master Plan: 2013

Extensive land use densification and more efficient land use and transportation integration around the provincial public transport network will make a significant contribution towards enhancing the viability of public transport in the province. This would require large scale processes of infill development, densification and re-development of older urban areas in the province and the containment of urban sprawl by way of a comprehensive urban development boundary for the Gauteng City Region. Developing spatial compacts which promote processes of densification, intensification and infill development within the existing urban footprint of towns and cities. (pg. 136).

Municipalities should seek to achieve the following density guidelines in various functional areas:

- High Density: 80 units per hectare and higher within 1 kilometre from the provincial IRPTN network and activity nodes served by this network;

In terms of the Provincial Transport Master Plan all municipalities in Gauteng should identifying priority nodes/ areas along these corridors and compile detailed Precinct Plans for these areas (pg.32). The plan should be based on the following:
- Promote processes of densification and infill development.
- Reserving a percentage of spare bulk engineering services capacity to accommodate development along priority public transport corridors.
- Relaxing parking requirements for higher density developments along public transport Corridors.
- Facilitating and promoting non-motorised transport within the priority public corridor development areas by way of dedicated pedestrian and cycling lanes.
- Charging users for parking directly as opposed to hiding the true cost of parking in increased rent or tax subsidies.
- Improving public transport infrastructure significantly and subsidizing public transport costs.
- Road space reallocation aiming to re-balance provision between private cars and more sustainable modes of transport.

2.1.6 THE SPATIAL VISION OF THE CITY

The RSDF will focus on spatial transformation, Economic transformation and Ecological transformation as envisioned in the Roadmap towards Tshwane 2030. The approved IDP contain the strategic context within which the 2017/21 IDP has been developed and contain five strategic pillars which is guiding the focus for the 5 year term.

The five pillars as indicated in the Roadmap towards Tshwane 2030 can be summarised as follows:

1. A City that facilitates economic growth and job creation
2. A City that cares for residents and promotes inclusivity
3. A City that delivers excellent services and protects the environment
4. A City that keeps residents safe
5. A City that is open, honest and responsive
2.1.7 INTEGRATED DEVELOPMENT PLAN REVISION 2017/2021: (APPROVED 25 MAY 2017)

The 2017/2017 IDP is considered an important planning and management tool to give effect to the City’s Vision and respond to development needs.

Roadmap towards Tshwane 2030 as indicated in the IDP 2017/2021 focuses on Spatial transformation, Economic transformation and Ecological transformation as investigated in the Roadmap towards Tshwane 2030.

The Regional Spatial Development Frameworks (RSDF) are aimed at dealing with the following detail spatial related aspects, focussing however, on a regional level as indicated in the IDP 2017/2021.

- Provide spatial direction for development; (Spatial transformation)
- Provide an appropriate and integrated regional spatial framework for sustainable development; (Economic transformation).
- Ensure directed public investment, through the identification of geographic areas where intervention is necessary; (Economic transformation).
- Guide local development, in relation to urban movement and activity systems, in order to realise the vision of sustainability and urbanity; (Ecological Transformation).
- Inform developers and the general public of the location, structure and form of development that will most likely be approved and the sustainable urban planning and development guidelines to be followed; (Spatial transformation)


The Urban Network Strategy (UNS) is a national policy directive that informs spatial planning at both a provincial and regional scale and forms the basis of the Built Environment Performance Plan (BEPP) by providing a spatial approach by which to target investment. The UNS typologies comprises of the following elements:

- **The Central Business District (CBD)**, an area for focused regeneration and management;
- **Urban hubs**, including both traditional and emerging centres of economic activity, within which mixed-used development is to be encouraged and managed;
- **Smaller nodes**, within which mixed-use development is similarly to be promoted;
- **Activity corridors**, which connect the urban hubs and the CBD, along which rapid public transport and integrated high-density land development is to be promoted;
- **Secondary transport** linkages that are to ensure the spatial integration of smaller nodes by connecting them to urban hubs; and
- **Integration zones**, which represent a collective of these typologies and form the prioritised spatial focus areas for coordinated public intervention.

**Strategy Spatial Concept**
Strategy Spatial Concept

The Priority Nodes and Corridors for Spatial Transformation capex analysis was undertaken by means of the Tshwane Capital Planning system (CaPS), which allows for the spatial referencing of capital projects. The 2017/18 capital budget analysis of the Priority Nodes and Corridors for Spatial Transformation, is shown in the figure above.

2.1.8 METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK. (2012)

The MSDF represents the spatial interpretation of desired growth and development directions for the City. It spatially focuses economic and infrastructure development and gives spatial expression to the development plans above (CDS and IDP), both for the long-term and the medium term. The purpose of a metropolitan spatial framework for the city is to provide a spatial representation of the city vision and to be a tool to integrate all aspects of spatial (physical) planning such as land use planning; planning for pedestrian movement vehicular and other movement patterns; planning regarding buildings and built-up areas; planning of open space systems; planning of roads and other service infrastructure; as well as to guide all decision-making processes regarding spatial (physical) development.

It is the intention of the MSDF to restructure our fragmented, inequitable and inefficient urban form to create a more equitable, efficient and environmentally and financially sustainable urban dispensation in line with current legislation and policy.

The compaction and functional integration of the city are normative directives from national level, and implies:

- higher density urban development,
- greater mixing of compatible land uses and
- focused concentration of high-density residential land uses and intensification of non-residential land uses in nodes, around transit stations (such as the Gautrain, BRT, Rail and other formalised intermodal transport facilities.

2.1.9 TSHWANE INTEGRATED RAPID PUBLIC TRANSPORT NETWORK (IRPTN) STRATEGY (APPROVED 21 NOVEMBER 2012)

The purpose of the Policy is to provide the City with Operational guidelines for the IRPTN network. The document also provides guidelines in terms of the preparation of planning for IRPTN corridors. The key characteristics of strategy include:

- a rapid and frequent transit service
The Comprehensive Integrated Transport Plan (CITP) set out the transport goals and objectives for the City that are aligned with the City's mission and are the targets which the City aims to achieve:

- Plan and develop a transport system that improves accessibility and mobility whilst enhancing social inclusion;
- Provide a fully integrated public transport system;
- Develop a transport system that drives economic development;
- Improve the safety and security of the transport system;
- Develop a transport system that reflects the image of the city;
- Develop an efficient, effective, development orientated public transport system and integrates land use and public transport plans;
- Develop a transport system that is environmentally sustainable.

The CITP is built on the following five key pillars. A few policies and strategies are provided for each pillar as a means of illustration:

I. Sustainable transport:
- Provide a transport system with low negative environmental costs yet high positive social value, which supports resource efficient economic development.

II. Public-transport orientated:
- Prioritising public transport and Non-Motorised Transport (walking and cycling) over private transport;
- Provide public transport access to all residents, including tourists and visitors;
- Landuse to support and promote public transport e.g. linking economic nodes with public transport, increase land-use densities along routes and around modal transfer facilities.

III. Integrated transport:
- Integration of land-use with transport, e.g. densification along public transport corridors;
- Integrated planning and implementation between City of Tshwane departments, as well as between the City and other national and provincial authorities.

IV. Transport in support of a Smart City:
- Affordability and accessibility of technology e.g. use of electronic communication connections for transport, safety and security (urban traffic control, passenger information, CCTV cameras, etc.);
- Being “smart” by using scarce resources more effectively and through the application of suitable technology e.g. automatic fare collection using smart cards;
- Provide modern public transport modes e.g. BRT, LRT, Gautrain.

V. People-friendly:
- Social inclusion, with an emphasis on access, through the availability of public transport, to opportunities and services;
• Provide affordable, easy to use, safe and secure public transport, including universal access and facilities for walking and cycling.

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 Province to the west.

With Gauteng occupying a total area of 18 548 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.
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 / TOD - 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 range 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 townships 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.

2.2.2 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, research and conservation 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
- High value-added Manufacturing (high value-add)
- Logistics
- Information and Communication Technology (ICT)
- Tourism and conservation
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 2017.

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).

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).
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.

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 area 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

<table>
<thead>
<tr>
<th>Township/Catchment Area</th>
<th>Node/Precinct</th>
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<tr>
<td>Mamelodi/Nellmapius</td>
<td>1. Eerste Fabrieke Station Node</td>
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<td>2. Solomon Mahlangu Precinct (Denneboom Station)</td>
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<td>3. T-Section Node</td>
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<tr>
<td>Atteridgeville</td>
<td>4. Saulsville Station Node (includes: Saulsville Station, Atteridgeville Station, CBD and resorts)</td>
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<td>5. Saulsville Station</td>
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<tr>
<td>Mabopane/Soshanguve</td>
<td>6. Soshanguve South x14 (Klipkruisfontein)</td>
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<td>7. Hammanskraal/Temba Node</td>
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<td>8. Olievenhoutbosch/ Monavoni</td>
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**Node being considered for future incorporation**

<table>
<thead>
<tr>
<th>Township/Catchment Area</th>
<th>Node/Precinct</th>
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<tr>
<td>Mabopane/Soshanguve</td>
<td>Garankuwa Node</td>
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### 2.4 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.
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 a 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 spatially unsustainable. 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 of residents 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 use 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 and urban image, then the integration between aspects such as transport planning, land-use planning, urban design and urban management becomes vital.

**Mobility/ Transport 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

**TOD**

The Institute for Transportation and Development Policy developed The Transport Orientated Development Standard, built on the experience of many organizations around the world. It addresses development that maximizes the benefits of public transit. TOD implies high quality, thoughtful planning and design of land use and built form characteristics to support, facilitate and prioritize not only the use of public transport, but the most basic modes of transport, walking and cycling. Based on research on sustainable communities and transport, undertaken during the development of the Principles of Transportation in Urban Life the key principles for guiding the development of TODs are the following.

- Develop TOD’s that promote walking [walk]
- Prioritize non-motorized transport networks within an to TOD’s [cycle]
- Create dense networks of streets and paths within the TOD.[connect]
- Locate development near high-quality public transport [transit]
- Optimize density and transit capacity [densify]
Create regions with short commutes [compact]
Increase mobility by regulating parking and road use
Reduce car dependence within TOD’s (National Development Plan, GSDF, CIPT, Principle).
Encourage active interfaces between buildings and streets.
Larger uses should locate at the edge of the circle allowing a fine grain mix of use at the centre
Residential and non-residential uses combined within the same or adjacent blocks.
Encourage vertical mixing of uses
Encourage development characteristics that spread economic impact (Spluma, Objective, promote economic and social inclusion).

Three TOD’s have been earmarked in Region 4 namely:

- CENTURION GAUTRAIN STATION

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 (PWV-(9) 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 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 City’s Tshwane Rapid Transit (TRT) makes up a substantial portion of the total IRPTN. The modes of choice for the TRT is Bus Rapid Transit (BRT). Currently, two TRT trunk routes are operational; one between Pretoria CBD and Hatfield, and the other between Pretoria CBD and Rainbow Junction. The City plans to have six TRT trunk lines operational by 2028, accompanied by complementary and feeder systems. See Error! Reference source not found. for the TRT operational roll out.
The incomplete concentric road network needs to be developed further to serve the multi-nodal structure of Tshwane. In terms of the approved IDP 2017/2021 the BRT is regarded as the correct investment for the City that is pursuing compaction and densification.

The Gautrain-rail is another movement system 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 potential for urban renewal in and around station precincts. The proposed extensions of the Gautrain to the east of the city is supported and will improve the general movement within the city. The Gautrain project is primarily aimed at enhancing and supporting economic growth in the Gauteng Province and generating employment opportunities. The Gautrain is contributing to the urban restructuring of Gauteng Province. Gautrain station nodes are important as the more people start to stay around stations, the better services are used, less time and money is spend 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.

Bicycle lanes and pedestrian lanes: Effort must be put in the establishment of separate bicycle lanes pedestrian walkways to allow for safe movement of the latter. If the latter is provided it will encourage this kind of transportation which will alleviate traffic problems.

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 to affordability.

Apart from the physical route, there is also the matter of the modes of transport one will favour traveling 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 increase 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.

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 900 metres of a transit station
• reduced ratio 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.

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. Further expansion to the east will also allow for additional densification opportunities.

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.

Livable Streets Concept

Liveable streets are defined as streets for everyone that are planned, designed and operated to enable a network of safe access for all users, including pedestrians, cyclists and transit riders.

The liveable street concept requires streets to be designed to enable safe, convenient and comfortable travel and access for all users, regardless of their mode of transportation. Complete streets accommodate walking and cycling. Streets are currently designed to only cater for cars; pedestrians are accommodated in the leftover space along narrow sidewalks. No provision is made for other modes of transport and the socialising function of streets is ignored. This is specifically problematic in the inner city where there are large numbers of pedestrians and where the limited space available requires streets to be part of the open-space system.

In terms of the complete streets concept vehicle and public transportation users are separated. It also makes provision for the socialising needs of residents and inner city users.
The design principles of complete streets are –

- traffic-calming measures to lower the speeds of vehicles;
- a road diet to reduce the number of lanes for vehicles and on-street parking;
- landscaping and street-scaping elements such as trees and benches to create a conducive pedestrian environment and protect pedestrians from vehicles;
- wide sidewalks to accommodate comfortable pedestrian movement;
- widening of sidewalks in some places to allow for socialising spaces;
- accommodation of cyclists, such as protected or dedicated bicycle lanes; and
- accommodation of public transport such as the bus rapid transit.

The capacity of car-oriented streets and multimodal streets. These two diagrams illustrate the potential capacity of the same street space when designed in two different ways. In the first example, the majority of the space is allocated to personal motor vehicles, either moving or parked. Sidewalks accommodate utility poles, street light poles and street furniture narrowing the clear path to less than 3 m, which reduces its capacity.

In the multimodal street, the capacity of the street is increased by a more balanced allocation of space between the modes. This redistribution of space allows for a variety of non-mobility activities such as seating and resting areas, bus stops, as well as trees, planting and other green infrastructure strategies. The illustrations show the capacity for a 3-m wide lane (or equivalent width) by different mode at peak conditions with normal operations.

Source: Global Street Design Guide
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.

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. The protection of ridges as habitats of red data and endemic species is of utmost importance.

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, guaranteeing 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.

In Region 4, tourism opportunities exist in the western and north western area, adjacent to the Cradle of Mankind World Heritage site, the Crocodile River basin, The Hennops River basin and the main access routes from the south to the Hartebeespoortdam area (R511).

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 Bronkhorstspruit 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.

**Watercourses** - All watercourses and dams, with the associated open space to protect their floodplains in terms of the *Tshwane Open Space Framework (TOSF)*, are applicable in terms of the RSDF in order to control development, ensure environmental compliance and the unhindered flow of flood/storm water during floods. Flood lines usually form the borders of open space along watercourses.

Tshwane has more than 5,000km watercourses. Watercourse centre lines for all watercourses in Tshwane have been delineated and spatial and attribute data captured.

Flood lines have not yet been determined for all watercourses within Tshwane, but the 1-in-50-year and 1-in-100-year flood lines have been determined for most watercourses within urban areas.

Where flood lines have not been determined *indicative* flood lines can be used for urban planning purposes. *Indicative* flood lines are based on flood peak data obtained from Tshwane’s hydrological model and contours derived from aerial photography and *Lidar* survey data. Because the *indicative* flood lines are calculated from general contours that do not take any site-specific features or drainage structures like bridges into account, the flood lines are called ‘*indicative*’. The 1-in-100-year indicative flood lines have been determined for ALL watercourses within Tshwane.

### 2.5.3 RURAL MANAGEMENT

**Introduction**

The erstwhile City of Tshwane (previous dispensation) was mostly characterized 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 Areas. 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 analysed and planned in order e.g. 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.

**Background**

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

- Tshwane Biodiversity Plan. (2016))

  All information with regard to the existing Urban Edge, Ridges, Ecological support areas, important areas, Irreplaceable areas, Protected areas, Conservancies, 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 “Division” of Farm land Plan and policy

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

Demarcation of the Rural Component

In terms of the Gauteng Spatial Development Framework, 2011 the responsibility of determining the Urban Edge has moved to the Local Authorities and is no longer a responsibility of the Provincial Planning Authority.

There are furthermore areas within the Urban Edge earmarked for Future Urban Development and densification with no provision for 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 services 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 Areas been serviced, these newly serviced areas will be excluded from the Rural Component and will form part of the urban fabric of the city.

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 agro processing, and where possible also by mining and tourism.
- 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 transportation modals
- Public transport should be provided as a service for the more densely rural areas.
- Identification of multipurpose community centres 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 institutional arrangements of ownership and tenants’ rights must receive attention and finalised, especially in areas where tribal land ownership exists.
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 maps 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 zones for Tshwane Metropolitan area are:

- Development Edges
- 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

Conclusion

The main principle is to increase accessibility for 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 of- 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 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.
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 (Krugerdorp) and the North-West Province.

The Region is highly 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.

<table>
<thead>
<tr>
<th>Region 4</th>
<th>M²</th>
<th>km²</th>
<th>ha</th>
<th>Wards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>488,555,898</td>
<td>489</td>
<td>48856</td>
<td>11</td>
</tr>
</tbody>
</table>
3.3 DEMOGRAPHIC INFORMATION

An estimated population figure for this area suggests 463,737 people in 2018. (IHS Global Insight & City Planning). The average growth rate for Region 4 is about 4.6%. The average growth rate of Region 4 is the highest of all the regions.

**Total population and growth rate, 2011-2025**

The above graph indicates the total population in Region 4 and the associated percentage growth rate since 2011 to 2013. As indicated in the figure, population in Region 4 has been steadily increasing in nominal terms, however, the percentage growth has been subjected to minor volatilities. In 2011, the total population was approximately 354,158 and grew to 390,108 in 2013, representing 10 percent growth over the period. The population growth is growing at declining rate, in 2011 the population growth rate was at 5.7 percent and this has declined to 4.7 percent in 2013.

Source: IHS Global Insight & City Planning

The previous graph indicates the 2011 and 2013 population pyramid for Region 4, from the figure, it can be noted that there is a youth bulge in Region 4’s population i.e. it can be observed that a significant portion of Region 4’s population is younger than 35 (59.7 percent).

**Highest level of education attained for Region 4**

Source: IHS Global Insight, Regional eXplorer 1029 (2.5w), 2015
The previous figure indicates how the educational profile of the population that is 20 years or older in Region 4 has changed over the 2011 – 2015 period. As indicated in the figure, the percentage of the people (20 years +) in Region 4 with no schooling has increased from 2.0 percent in 2011 to 2.3 percent, whilst the percentage of people with at least matric have marginally decreased from 33.2 percent in 2011 to 32.4 percent in 2015. The percentage of people (20 years +) in Region 4 with certificates or a diploma without matric has declined from 1.1 percent in 2011 to 0.9 percent in 2015.

UNEMPLOYMENT IN REGION 4, 2011 -2013

The above graph indicates the unemployment rate in Region 4. It can be noted from the figure that the unemployment rate in Region 4 has been relatively unstable, however, over the 2011 – 2013 period, region 4 recorded improvements. In 2011, the unemployment rate was 12.0 percent, this slightly improved to 11.4 percent in 2013.

SERVICE DELIVERY

Access to service delivery is a key government responsibility. Table below reflect the share of households occupying formal dwelling, households with hygienic toilets, piped water at or above RDP level and in Region 4.

<table>
<thead>
<tr>
<th>Year</th>
<th>Share of household occupying formal dwellings (%)</th>
<th>Share of households with hygienic toilets (%)</th>
<th>Share of households with piped water at or above RDP-level (%)</th>
<th>Share of households with electrical connections (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>75.2%</td>
<td>88.6%</td>
<td>91.7%</td>
<td>86.1%</td>
</tr>
<tr>
<td>2012</td>
<td>74.2%</td>
<td>87.7%</td>
<td>91.9%</td>
<td>85.2%</td>
</tr>
<tr>
<td>2013</td>
<td>73.0%</td>
<td>86.4%</td>
<td>91.5%</td>
<td>84.2%</td>
</tr>
</tbody>
</table>
Share of household occupying formal dwelling measure combines households occupying both formal and very formal dwelling units and takes the total as a percentage of all households. A formal dwelling unit is a structure built according to approved plans. This category includes a house on a separate stand, flat or apartment, townhouse, room in backyard, rooms or flatlet elsewhere etc, but without running water or without a flush toilet within the dwelling. A very formal dwelling unit is the same as a formal dwelling unit but has both running water and flush toilets within the dwelling.

3.4 WARD PRIORITIES FOR 2017/18

During the public participation process in preparation for the 2017/18 IDP review; the three top priorities per ward in terms of community needs/ service delivery were reconfirmed and compiled.

In summary, the following were the key dominant service delivery areas which were raised in Region 4 during the 2017 review process:

Most of the submissions received from Region 4 relate to the following:
- Road upgrades, storm water management, public transport facilities and traffic congestion;
- Water, sanitation and electricity;
- Housing and formalisation; and
- Safety

The service delivery issues which were raised are therefore clustered into relevant City’s departments as per the graph below:

3.5 REGIONAL CHARACTERISTICS

The main characteristics of 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 easy reach of Johannesburg and the greater Tshwane area.

The Hennops River basin is situated within this region. The Crocodile River basin located 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 4 covers an area of 48856ha and consists of 11 Wards.

### 3.6 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%)

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”.

### 3.7 PHYSICAL ENVIRONMENT

#### 3.7.1 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 Region 4, which forms an integral part with the open space resources of the south-western part of 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, Gommes 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 cultural and historical sites at Cornwall Hill, Irene, Rooihuiskraal, Koppie Alleen, Hospital Cave, etc.

#### 3.7.2 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).

3.7.3 NODES

Region 4 accommodates a large percentage of 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 township applications were approved, 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)
• Hennopspark Industrial Area (part of the N1 development corridor)

• Louwlardia - 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

3.7.4 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/ envisage within the region:

• Eco-Park (Highveld) – including different housing typologies, commercial, retail, office development
• Louwlardia/ 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

3.7.5 RESIDENTIAL

In terms of a city wide perspective the region has the following residential characteristics.

• 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 7000 formal structures and 30 000 informal structures.
• To the west 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 Census 2011 is 2.9 persons per single residential structure.
• Vacant areas within the suburban environment have recently developed extensively with densities varying from 400 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.

<table>
<thead>
<tr>
<th>Ward</th>
<th>Population</th>
<th>Area in Ha</th>
<th>Density per Ha</th>
<th>Dwelling Units</th>
<th>Average Household Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>35896</td>
<td>21051.31</td>
<td>1.71</td>
<td>12757</td>
<td>2.81</td>
</tr>
<tr>
<td>57</td>
<td>28131</td>
<td>1099.46</td>
<td>25.59</td>
<td>11304</td>
<td>2.49</td>
</tr>
<tr>
<td>61</td>
<td>42756</td>
<td>4243.79</td>
<td>10.07</td>
<td>13296</td>
<td>3.22</td>
</tr>
<tr>
<td>64</td>
<td>35216</td>
<td>1340.71</td>
<td>26.27</td>
<td>11212</td>
<td>3.14</td>
</tr>
<tr>
<td>65</td>
<td>21396</td>
<td>4488.97</td>
<td>4.77</td>
<td>7624</td>
<td>2.81</td>
</tr>
<tr>
<td>66</td>
<td>23483</td>
<td>4005.81</td>
<td>5.86</td>
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<td>3.52</td>
</tr>
<tr>
<td>69</td>
<td>24631</td>
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<td>25.04</td>
<td>8752</td>
<td>2.81</td>
</tr>
<tr>
<td>70</td>
<td>31205</td>
<td>2993.57</td>
<td>10.42</td>
<td>10062</td>
<td>3.10</td>
</tr>
<tr>
<td>77</td>
<td>84536</td>
<td>3199.53</td>
<td>26.42</td>
<td>28777</td>
<td>2.94</td>
</tr>
<tr>
<td>78</td>
<td>23183</td>
<td>2471.33</td>
<td>9.38</td>
<td>8829</td>
<td>2.63</td>
</tr>
<tr>
<td>79</td>
<td>28902</td>
<td>2977.53</td>
<td>9.71</td>
<td>10077</td>
<td>2.87</td>
</tr>
<tr>
<td>Total</td>
<td>379335</td>
<td>48855.59</td>
<td>7.76</td>
<td>129364</td>
<td>2.93</td>
</tr>
</tbody>
</table>

The need of additional residential units is about 4000 a year in Region 4.

### 3.7.6 REGION 4 SOCIAL VULNERABILITY INDEX

This region consists of urban areas in the east and rural areas to the west, and exhibits low to very low vulnerability (lighter green to green shades) (figure 3.5). The region is currently under pressure from accelerated development, and contains large residential areas of medium-to-high income populations. There are two distinct pockets of socially vulnerable communities: Mooiplaats, and Olievenhoutbosch. Heuweloord and Laudium also display some vulnerability. The southern areas of the region are located in dolomitic areas, which render them susceptible to sinkholes if subjected to heavy rains (Figure 3.6), are located within the flood line making them susceptible to flooding. However, the types of human settlements and the socio-economic status of the majority of the population in these areas implies reduced vulnerability to this threat.
3.8 MOVEMENT AND TRANSPORT SYSTEM

3.8.1 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 accelerated 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.

3.8.2 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 Rail 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 feeder 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 opportunities. 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 Lanseria Airport is situated just south-west of this region creating opportunities for economic and residential development within Region 4.

**BRT**

No lines are planned in Region 4 in the first phase of the BRT role out.

### 3.8.3 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, Louwlardia and the Centurion CBD. Provision and 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 instalation 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 and the extend of services needed 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 provisioning. 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 for development outside the development edge.

3.9 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.

3.9.1 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.

3.9.2 WEAKNESSES

- The current spatial 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.

3.9.3 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 and stimulate re- development of existing development adjacent to the precinct, including the Super Sport Park complex.
- Future Gautrain extension stations at Samrand and Irene, will provided addisional development opportunities if developed.
- r development along the R21 will create new opportunities.
- 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.

3.9.4 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.

3.9.5 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.

3.10 DEVELOPMENT TRENDS IN REGION 4

In terms of buildings constructed between 2012 and 2017 the most development took place in Centurion Node and along the N1 corridor. About 130 000 m² retail was developed between 2012 and 2017 in Region 4.

3.10.1 TRENDS IN NODES

The Centurion node, in close proximity of the Gautrain station, experiences a large number of office development. This trend is expected to continue over the short term.

A large number of high density residential developments are under construction or planned around the Centurion Gautrain station. This trend is expected to continue on the short term and the density is increasing to about 10 storeys in terms of the new applications received.

The Centurion node, which is positioned within the development corridors linking Johannesburg and Ekurhuleni will be a major player in the proposed high intensity developments which are destined to take place in the region.
3.10.2 TRENDS ALONG CORRIDORS

The strip on the N1 between the Botha Avenue on/off-ramp and the John Voster on/off-ramp has seen a considerable number of office development between 2012 and 2017. The current development of the strip is expected to continue over the next 5 years.

Between 2012 and 2017 a large number of new warehouses/ offices were completed in the Brakfontein/ Louwlardia area along the N1 corridor. The R 21 corridor in the City has experienced constant development in terms of industrial and office development between 2012 and 2017. This trend is expected to continue.

3.10.3 TRENDS IN PREVIOUSLY DISADVANTAGED AREAS

The Olievenhout Plaza of 16 314 m² with 50 shops was completed in June 2013 and brought much needed retail to the area. Between 2010 and 2015, 2.5 billion Rand has been spend on low cost housing developments in the Olivenhoutbosch area.

3.10.4 TRENDS IN SUBURBAN AREAS

On the western side of Region 4, medium density residential development is taking place along the R55 between Olivenhoutbosch in the south and Sunderland Ridge in the North. A private developer is undertaking another mixed-housing development, worth approximately R5 billion, over eight years, and consists out of 14 000 housing units in the Monavoni area which includes 1 400 RDP houses.

3.10.5 TRENDS IN RELATION TO SPATIAL PLANNING

The trend of developing high density residential units in the Centurion node is in line with the new Centurion Node Urban Development Framework. The N1 corridor is developing according to the MSDF and RSDF. Further the proposed development is in line with the Provincial Planning.
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:

4.2 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, 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 mid-block 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.

4.3 RURAL AREAS

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.

4.4 GEOLOGY

The geological conditions in the region are predominantly dolomitic limestone formations (Dolomite) with Syenite intrusions and Granite areas to the south-western part of the region. Instability may occur natural but is expedited by many other orders of magnitude as a result of man’s activities. The primary triggering mechanisms in such instances include the ingress of water from leaking water-bearing services, poorly managed surface water drainage and groundwater-level drawdown. Instability can occur in the form of sinkholes and dolines, and could result in loss of life and limb.

Virtually every land-use application will only be considered once suitable engineering-geological investigations have been undertaken in order to assess the risk of of instability and likelihood of subsidence and sinkholes resulting in structural damage. Depending on the site specific characteristics and depth of the dolomite, and besides the fact that various mitigating measures have been applied in the past to manage risk, it has had a decisive influence on the typology and intensity of land uses.

Measures to prevent the concentration and infiltration of water, which seems to be the triggering mechanism for instability, have been applied with great success. By far the greatest number of occurrences of subsidence can be related directly to leakage water or sewer lines or the collection and infiltration of stormwater. The emphasis of preventative management of wet services and surface runoff has therefore proven paramount to risk management in the area. In order to facilitate development in this dolomitic area a scientific, multidimensional and consultative approach with an emphasis on dynamic and adaptive solutions sensitive to inherent constraints and tailored variables should be followed.

In the CBD area of Centurion including the Lyttelton Agricultural holdings proposed development should be primarily high density developments in the form of large multi-storey buildings. In the past a 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.
The Metropolitan Spatial Development Framework (MSDF) proposes a number of Metropolitan Cores / Transport Orientated Development and Urban Cores. The Tshwane Retail Strategy is also applicable to these nodal areas of metropolitan importance.

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, 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 centre 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 centre. TODs generally are located within a radius of one-quarter to one-half mile (500 to 900 m) from a transit stop, as this is considered to be an appropriate scale for pedestrians.

In terms of TOD it is important to provide a pedestrian-friendly environment, mixed use areas were the needs of the commuters and residents can be addressed in one place. Small business opportunities must be promoted around the stations and along the trunk route.

It is further important that the mix of landuses around the TOD should generate ridership at different times of the day. (Ideally 24 hours.) According to the recent SAPOA publication Developing a Collective Approach to Mixed-use Development in Transit-Orientated Development Precincts “place to work, to live, to learn, to relax and to shop for daily needs should be located as close to the stop/station as possible. Transit non-supportive uses such as car sales, car washes, warehouse, storage and low intensity industrial uses.

The following nodal areas are highlighted in terms of the MSDF:

See detail principles in section 2.4.1 URBAN FORM AND TRANSPORT INTEGRATION
4.5.1 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/Cladius emerging node

4.6 REGIONAL NODES / LOCAL NODES

The RSDF indicates a number of nodes (either existing or emerging) which are important on a regional and local level.

The extension of existing, well located nodes should however be encouraged before the creation of new nodes. As in the case of existing nodes, it is proposed that higher density residential uses be introduced as part of the node. It should also include social and community facilities.

Typically community centers and neighborhood centers should include both commercial and social facilities, such as retail facilities, schools, professional offices and community facilities, where such facilities are absent in the surrounding area.
For these nodes to function properly they should form part of a hierarchy of nodes, directly related to the characteristics of the population it serves.

The hierarchy of retail centers as proposed in terms of the “Retail Strategy” should be applied to the region, subject to need and desirability within the region.

Summary of strategy

Renewal Strategy: In many instances retail facilities have become outdate, 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 outdate 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.

Higher density areas will therefore have a higher frequency of nodes in a smaller geographical area. The ideal locality of such nodes will have to be determined through retail studies taking into account all factors that could have a significant impact on the success of such a node.

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

- Locational Requirements
- Urban Design
- Pedestrian movements (walkability)
- Parking requirements and layout
- Taxi ranks and public transport facilities
- Informal Trade
- Site development plans
- Retail and traffic impact studies.
- Impact on surrounding land uses

A feasibility study will be required for retail developments of greater than 4000 square metres.

4.7 JOB OPPORTUNITIES

4.7.1 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, Louwlardia, 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.

4.7.2 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.

- The Samrand/ Louwlardia 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.

4.8 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 Goede hoop Road in the east as well as the future Olievenhoutbosch Road which will provide an east-west link in Region 4 and beyond. This corridor area is situated on the farm Doornkloof 391 JR and is divided in two main portions by the Hennops River. The portion north of the Hennop River forms part of the Irene Emerging node, where various mixed land use developments is approved. The larger part of the farm Doornkloof 391 JR south of the Hennops river is mainly undeveloped vacant land which consist of unique natural resources and ecological focal points. The area forms part of the Sesmlyspruit and Hennops
river water drainage system and is characterised by a number of natural elements and cultural-historic areas. This linear open space system is continued to the north through the Irene Country Club, Southdowns Estate, Centurion Golf Estate, Super Sport Park and Centurion Lake. This open space system footprints through the heart of Region 4 and provides opportunity to create an active social public space where different facets of recreation usage can be developed and integrated to form a unique commodity for the City and its residents. The City’s emergency boreholes as part of water provision are also situated in this area. The introduction of land uses for this area should complement, enhance and protect the ecological sustainability of this unique public space commodity. Development in this area shall be subject to the provision of municipal infrastructure with special reference to sewerage and storm water systems to prevent inter alia ground water pollution.

- Land uses foreseen for the area bounded by the R21 to the west and the Rietvlei Dam to the east will be a mix of different housing typologies, hospitality industry, entertainment and recreational uses. Office and high technology development, industrial, warehousing and commercial s may be considered on merits for the area wedged between the R21 and Sterkfontein Road. The introduction of Development Frameworks is of utmost important to ensure high quality developments with urban design elements and architecture that will create an integrated urban form.

- 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 Aerosud as part of the 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.

### 4.9 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 (flows 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 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
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 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. Land use changes for the consolidation of erven adjacent to existing nodes in residential areas will be considered on merit. Erven adjacent to roads that link such 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.

However, development along more sections of the spines should only be permitted subject to suitable access which would normally mean from internal roads. Development along the spines should only be permitted subject to access management strategies to protect the mobility function of these roads.

The Spatial Development Concept that underpins these Spatial Development Strategies comprise the following three fundamental spatial structuring proposals:

- Concentrating new development along public transport corridors;
- Concentrating new development in a network of major metropolitan nodes and Transit Oriented Development nodes
- Compacting the urban footprint and restricting the outward expansion of the municipality
The interrelation between a proposed functional road classification and activity matrix is illustrated by the table below and is only used for the purposes of the evaluation of land use applications. (The South African Road Classification and Access Management Manual is applicable to engineering standards for roads and access) (Amended as per Council resolution dated 27/09/2018):

<table>
<thead>
<tr>
<th>Functional Road Classification</th>
<th>Land Use</th>
<th>Function and Design</th>
<th>Roads and Streets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highways</td>
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<tr>
<td>(Class I)</td>
<td></td>
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<tr>
<td></td>
<td>• No Direct Access to land uses.</td>
<td>• Accommodate mainly national, regional and longer distance metropolitan trips.</td>
<td>• N1 (Polokwane Bypass), N4 (Emalahleni Highway),</td>
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<td></td>
<td></td>
<td>• No traffic lights on these roads</td>
<td>• N14</td>
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<td></td>
<td></td>
<td>• Access is restricted to the interchanges only.</td>
<td>• R21 (Nelson Mandela Freeway south of Solomon Mahlangu Avenue),</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Proposed PWV 9</td>
</tr>
<tr>
<td>Mobility Spine</td>
<td></td>
<td></td>
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<tr>
<td>(Class II and III)</td>
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<tr>
<td>A Mobility Spine is an arterial</td>
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<td>along which through traffic</td>
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<tr>
<td>flows with minimum</td>
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<tr>
<td>interruption (optimal mobility)</td>
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<tr>
<td>Much smaller than highways,</td>
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<tr>
<td>Mobility Spines are usually</td>
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<td>made of two lanes of opposite</td>
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<tr>
<td>vehicle flow.</td>
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<td>It serves the purpose of inter-</td>
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<tr>
<td>regional and metropolitan</td>
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<td></td>
<td></td>
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<tr>
<td>movement.</td>
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<td></td>
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<tr>
<td></td>
<td>• Nodal Development at intersections.</td>
<td>• Little (exception) or no direct access to land uses adjoining the spine. Access is usually through side roads and service roads.</td>
<td>• M34 – Ruimte Road / Tulip Road</td>
</tr>
<tr>
<td></td>
<td>• Mixed land uses at intersections.</td>
<td>• Involves inter-metropolitan and inter-regional routes</td>
<td>• K103 –Solomon Mahlangu Drive / Trichardt Road/Wiera Avenue (part of the Northern Development Spine)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No on street parking permitted</td>
<td>• K54 – Proposed( part of the Southern Development Spine)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Very few traffic lights</td>
<td>• K52 - Proposed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Restricted pedestrian movement</td>
<td>• K46 / K103 / M26</td>
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<td></td>
<td></td>
<td></td>
<td>• K27 – Hennopsriver Road</td>
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<td>• K44 – Proposed</td>
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<td></td>
<td></td>
<td></td>
<td>• R101 – Old JHB road</td>
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<td></td>
<td>• R55 – Voortrekker Road</td>
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<td></td>
<td>• PWV 6 - Proposed</td>
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<tr>
<td>Transport Corridors</td>
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<tr>
<td>(Class II and III)</td>
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<tr>
<td></td>
<td>• Mixed land uses at BRT stations.</td>
<td>• Public –transport orientated – with the prioritising of public transport and Non – Motorised Transport over Private transport.</td>
<td>• IRTN routes in the future</td>
</tr>
<tr>
<td></td>
<td>• Mixed uses along sections of trunk route.</td>
<td>• Mixed uses to front onto trunk route.</td>
<td>• R101 – Old JHB road (Parts of )</td>
</tr>
<tr>
<td></td>
<td>• High density residential along corridor</td>
<td>• High density residential along corridor</td>
<td>• K103 –Solomon Mahlangu Drive / Trichardt Road/Wiera Avenue (part of the Northern Development Spine)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public –transport orientated – with the prioritising of public transport and Non – Motorised Transport over Private transport.</td>
<td>• R55 – Voortrekker Road</td>
</tr>
<tr>
<td>Functional Road Classification</td>
<td>Land Use</td>
<td>Function and Design</td>
<td>Roads and Streets</td>
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<tr>
<td>Nodal development with a mixed use character (developments concentrated at intersections and around BRT stations)</td>
<td>Nodal development with a mixed use character</td>
<td>Pedestrian/cyclist oriented environment with traffic calming for cars where appropriate.</td>
<td>Botha Avenue (K103)</td>
</tr>
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<td></td>
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<td>Road space reallocation aiming to re-balance provision between private cars and more sustainable modes such as no motorised transport and the BRT.</td>
<td>Brakfontein Road</td>
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<td>Limited accommodation for private cars on the Corridor.</td>
<td>Goedehoop Avenue</td>
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<td></td>
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<td>High accessibility for pedestrians.</td>
<td>Hendrik Verwoerd Drive (part of the Central Development Spine)</td>
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<tr>
<td>Mobility Roads</td>
<td>Medium to high density residential as per density map.</td>
<td>Limited direct access permitted (not frequent)</td>
<td>John Vorster Avenue</td>
</tr>
<tr>
<td>(Class III and IV)</td>
<td>Nodal development with a mixed use character</td>
<td>Services roads to enhance access opportunities</td>
<td>K103 extension</td>
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<td>On street parking also permitted close to major intersections and in the vicinity of significant nodes only</td>
<td>K73 – Proposed</td>
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<td>Plays a collector and distributor function though trips are of a short distance</td>
<td>K109</td>
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<td>Pedestrian movement along the route in various parts</td>
<td>Knoppieslaagte Road</td>
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<td>Public transport very important along Mobility Roads</td>
<td>Lenchen Avenue / River Street (part of the Central Development Spine)</td>
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<td>Mimosa Street</td>
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<td>Mimosa Street – proposed</td>
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<td>Olievenhoutbosch Drive and Nellmapuis Drive</td>
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<td>Rabie Street / Cantonments Street</td>
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<td>Rooihuiskraal Road</td>
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<td>Functional Road Classification</td>
<td>Land Use</td>
<td>Function and Design</td>
<td>Roads and Streets</td>
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| Activity Spine (Class III and IV) | Mixed uses along the spine (refer to par 4.9.1) | Provide public transport facilities | Tulip Von Melle Road- proposed  
|                                  | Interface with adjoining lower intensity residential developments to be treated sensitively | | Van Ryneveld Road (North of the N1)  
|                                  | Urban design guidelines important to guide the development along the spine. | | West Avenue (Refer to LSDF for Monavoni)  
| Activity Street (Class IV and V) | Low-intensity mixed land uses with a focus on community services and economic opportunities (refer to par 4.9.1) | Pedestrian/cyclist oriented environment with traffic calming for cars where appropriate | Botha Avenue (the section between Cantonments Road and River Road)  
|                                  | Low to medium density residential developments | High accessibility to land and normally only gaining access from a service road. | Cantonments Road (excluding the Lyttelton Manor Business Node and the retail centre on the south-western corner of the Cantonments/ Selbourne intersection)  
|                                  | Interface with adjoining lower intensity residential developments to be treated sensitively | Mixed land uses along service roads | Hendrik Verwoerd Avenue/Lenchen Avenue (Central Activity Spine)  
|                                  | Urban design guidelines important to guide the development along the street. | High density development with mixed uses must be promoted in suitable locations along these routes. | Jean Avenue (North of South Street)  
|                                  | | On-street parking where appropriate. | West Avenue  

- 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  
- Elephant Road (the section between the R21 and Orion Avenue  
- Golf Avenue (the service lane adjacent to the Old Johannesburg Road)
<table>
<thead>
<tr>
<th>Functional Road Classification</th>
<th>Land Use</th>
<th>Function and Design</th>
<th>Roads and Streets</th>
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<td>Hekla Road (the section between Vindhella and Broadway East) - Valhalla</td>
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<td>Jean Avenue (The portion east of South street – Doringkloof)</td>
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<td>Korana Street (only between aster avenue and erven east of Erf 1129, Doringkloof x 1)</td>
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<td>Lyttelton Road (the section between the N14 Highway and the Old Johannesburg Road)</td>
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<td>Panorama Road (only from the Old Johannesburg Road up to Rooihuiskraal Road)</td>
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<td>Pretorius Road (between River Road and Amkor Road)</td>
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<td>Legong Street</td>
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<td>River Road (only the section between Clifton Avenue and Botha Avenue)</td>
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<td>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.</td>
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<td>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)</td>
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<td>Saxby Road (the section between the Old Johannesburg Road and Ruimte Road)</td>
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<td>Saxby Road between Ruimte Road and Wierda Road (subject to a traffic</td>
</tr>
<tr>
<td>Functional Road Classification</td>
<td>Land Use</td>
<td>Function and Design</td>
<td>Roads and Streets</td>
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<tr>
<td>Residential collector (Class IV a and b)</td>
<td>Local collector road within suburb, characterised by small scale social amenities</td>
<td></td>
<td>• Skilpad Street (the section between Elephant Road and Orion Avenue) 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)</td>
</tr>
<tr>
<td>Residential collector (Class V)</td>
<td>Residential Street • Residential uses</td>
<td>Characterised by low speeds (50km/h and less) • Must be provision for pavements • Parking on site • These streets serve primarily local traffic accessing the served area and feeds into arterial roads</td>
<td>As per map</td>
</tr>
<tr>
<td></td>
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<td>Parking on site • Residential uses</td>
<td>As per map</td>
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</tbody>
</table>
4.10 DEVELOPMENT GUIDELINES

LAND USES

The desired activity’s along the activity corridors, streets and nodes is illustrated by the following notation and definition must be used as a guideline and must be read in conjunction with the Nodes and Corridor Map at the end of this section.

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 centre 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 centre. TODs generally are located within a radius of one-quarter to one-half mile (500 to 700 m) from a transit stop, as this is considered to be an appropriate scale for pedestrians.

NODE

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.

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. Emerging nodes will be managed subject to growth management principles.

RETAIL

Areas of concentration of mixed land uses with the focus on retail

MIXED USES

Refers to land uses such as offices/commercial/residential/industrial/retail/entertainment/institutional ect. 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.
OFFICE USES

Means land and buildings used as an office, retail industry, limited places of refreshment, fitness centre, hairdresser, nail bar, medical consulting rooms, medical workshops such as, dental technician, prosthetist, orthotist, pathologists, optometrist technician, or for other businesses such as inter alia beauty salon, pet salon, beauty/health spa, funeral undertaker, place of instruction, uses subservient to the main use. Uses must be compatible to the surrounding area and must focus on serving the local community.

INDUSTRIAL USES

Light or heavy industrial or high-tech and commercial uses. The appropriate intensity of development to be determined on a local level.

GENERAL PRINCIPLES IN NODES, CORRIDORS, MIXED USES AREAS AND DENSIFICATION AREAS

One of the main concerns for non-residential development and high density development within residential areas is the compatibility and interaction of land use changes to the abutting residential uses. The existing characteristics of an area and street plays an important role in the determination of land uses that is considered appropriate and are compatible with the residential component. The permitted land uses shall only be accommodated along the street up to the mid-block line of blocks running parallel to a street or adjacent service lane.

The following general principles are applicable:

- Encourage development characteristics that spread economic impact (SPLUMA Objective, promote economic and social inclusion).
- A “walkable” environment- place commercial, housing, jobs, parks and civic uses within walking distance of the community and transit stops (National Development Plan, GSDF, Principle)
- Encourage infill and redevelopment along activity streets corridors within existing neighbourhoods.
- A mix of residential, retail, commercial and community uses needed along activity corridors and streets. (SPLUMA Principle 7(a) Spatial sustainability).
- Activity streets must be frontage streets, with emphasis on public interface.
- Locate jobs, retail and commercial near residences to reduce car dependence. (National Development Plan, GSDF, Principle)
- Encourage active interfaces between buildings and streets.
- Larger uses should locate at the edge of the circle allowing a fine grain mix of use at the centre
- Residential and non-residential uses combined within the same or adjacent blocks.
- Encourage vertical mixing of uses.

Source: City of Tshwane; West Capital Urban Design Framework 2014
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

THE FOLLOWING DEVELOPMENT GUIDELINES SHALL BE USED:

FAR

- Shall be determined by erf size, parking to be provided on site and the influence of privacy with regard to the surrounding residential properties.

HEIGHT

- 2 storeys or higher, depending on the locality and surrounding land uses. Clause 26(2) (b) of the Tshwane Town Planning Scheme, 2008, shall be excluded.
- Height Restriction in TOD and Transport Corridors will be used as a guideline as indicated in this RSDF.

- Relate building height to street width and intended character. Urban centres are characterised by a strong sense of enclosure with street spaces that are generally lined by buildings set along the front property boundary.
- Solar access to adjacent structures, situated to the south of a property to be developed, shall be protected as far as possible from the adjacent structure.

FLEXIBILITY

Positive settlements have always showed a measure of flexibility in their structure to accommodate changes in use and occupants over time. 3 dimensional frames and 2 dimensional layouts should be robust in their ability to be re-occupied and / or redeveloped. This is important not only to save on resources and minimise waste but to accommodate a range of agents and unexpected demands over time.


COMPACTION AND INTEGRATION
The intensity of land use activities and density of buildings is essential to creating a vibrant urban environment. Where land uses are separated and developed in discreet pockets on their own land portions, the intensity of use of the total environment is diluted.

Compaction requires that land uses are integrated horizontally and vertically. The integration of different user groups is also critical to ensure vibrancy. Two of the main sets of user groups are pedestrians and vehicle owners. The potential conflict between these two user groups can be managed by prioritising one or the other clearly through design interventions. In the case of the Hub Precinct pedestrians will generally be prioritised above private vehicles and their owners.


SCALE

Scale is about the relationships between, in this case, a human being and their built environment. While being a quality that cannot be easily defined it is something that is critical to the psychological well-being of an individual. Design associated with the public realm should always use the person on foot as measure of appropriateness.

The width of the street spaces and the extent and shape of the public squares, forecourts etc. should be carefully considered against the volume of people expected to occupy the space and the nature of the expected activity. The overscaled nature of spaces and buildings can be mitigated through design and/or the utilisation of trees or other vertical elements.


DIVERSITY

Buildings facing onto public streets and in particular the main PT routes and public spaces should accommodate a range of occupants. Large operators often require visible entrances but prefer blank edges for security and/or privacy.

Large tenants can therefore locate internal to development blocks, freeing the edge of the urban blocks for a range of smaller scale operators. The modules of the block interfaces should ideally be narrow to ensure the largest number of
operators is exposed to the passing public. A vertical mix is also essential to ensure extended periods of activity into the evenings across areas that will contain some residential units.


**LEGIBILITY**

![Diagram](image)

Development of the blocks needs to be legible to users in environments which are dense and integrated. Entrances need to be located in high visibility locations such as corners or associated to key open spaces. Where they are not they should be designed as welcoming spaces that people can clearly understand as the main access points to their intended destinations. The integration of horizontal and vertical circulation is also preferable.

Furthermore design of the volumes of the intended development should give clues as to how the land uses / tenants / occupants / activities are distributed and relate to each other. For example where courtyards are part of the broader city public network of spaces then the public should have glimpses of the inner courtyard from the outside to know that they exist.


**SOLAR ACCESS AND OVERLOOKING**

Solar access to adjacent residential structures to the south of a property to be developed must be protected as far as possible. (sun angle of about 36° to 41° as guideline), measured from the adjacent structure. The slope of the site, height of windows, size of windows, roof overhang, orientation of buildings, height of boundary walls and existing vegetation will also influence solar access. Solar access studies can be required by the City of Tshwane if the influence on neighbouring residential properties is obscure. Solar access and overlooking in nodal areas and TOD will be evaluated on merit as solar access and the restriction of overlooking will not always be achieved due to the height of buildings promoted in these areas.

- To prevent overlooking onto the northern side of adjacent residential buildings, the following is applicable:
- No balconies may be established on the southern side of the building abutting a residential property.
- Windows must be located at such height or distance from the boundary of a residential property that they do not enable overlooking.

- A row of indigenous trees should be planted next to the wall. If the boundary is on the northern side of the residential property, only deciduous trees should be used.

Source: City of Tshwane: Centurion CBD Framework, 2013

Building Placement

- Building position is important in the development of the complete and liveable street concept.
- Buildings must be placed as close as possible on the street boundary.
- Buildings should be staggered along street boundaries in order to break long street frontages.
- Orient buildings to sidewalks.
- Place buildings at the sidewalk (perimeter blocks)
- Street and building configuration should be designed to create vistas, or to terminate views with a landmark feature, building, or public space.
- Buildings at intersections within the corridor and activity street should provide for landmark features.
- Orientate new building to optimise sunlight and amenity for dwellings, private open spaces and adjoining public spaces.
- Large buildings should be treated as aggregates of smaller components to achieve a human scale. Therefore, massive buildings should be avoided.

Variations in the setback are encouraged to respond to building function and to create visual interest.

Monolithic slab-like structures that wall off views and overshadow the surrounding neighbourhood are discouraged.

Buildings may, but are not required to, step back above the minimum height required along the street. Step-backs should be judiciously applied to minimise disruption of the overall street wall.

Breaks in the street wall should be limited to those necessary to accommodate pedestrian movement.

**BUILDING LINES**

- Build to lines or minimum 2 meter building lines on street boundaries.
- Buildings must be place as close as possible to the erf boundary adjoining streets.
- Adequate side building lines should be imposed to protect the neighbouring residential component.
- The area within the building line should be used mainly for parking purposes and landscaping. Minimum 16% of the area should be covered with soft surfaces.

**PARKING**

- Parking ratios are an important tool in the development of corridors and TOD's.
- Revise parking laws – de-link them from land use and link them to spatial proximity to public transport facilities.
- Discouragement of the use of private cars must be reflected in the parking ratios of TOD and along Transport Corridors
- Parking relaxations will be applicable in TOD and Corridors.
- **Parking ratio guidelines for TOD and along Transport Corridors**
  - Nodal and Corridor retail: 3/100 m²
  - Nodal and Corridor offices: 2.5/100 m²
  - Nodal and Corridor residential: 0.5/unit
  - (Ratios are only a guideline and will depend on applicable area)
- Developers should determine their own parking ratio in in TOD and along Transport Corridors
- Parking ratio’s will depend on parking available.
- **Discourage the use of private car through reduced private parking ratios in TOD and along Transport Corridors**
- Shared parking can be allowed regardless of whether the zoning ordinance requires any off-street parking, or whether public parking is available
- Parking ratios per area and per application.
- Parking should be provided sub-surface as far possible.
- Carports shall be located in such a manner that it is not visible from the street.
- Avoid sprawling parking lots adjacent to transits.
- Promote shared or joint parking and structured parking.
Parking must be placed at the back of a building, away from the street.

Soft landscaping must form part of open parking areas.

One tree must be provided for every two parking spaces.

Parking areas should be broken up in small parcels and spread over the site. A break of at least 5 m (soft landscaping or dwelling unit intruding and overlooking the space) should be established between two parking pockets.

Provide safe and convenient access between car parking areas and pedestrian access to buildings.

PHYSICAL BARRIERS AND CRIME PREVENTION

- Walls abutting neighbouring residential properties shall be maintenance free on the side of the adjacent property and constructed in brickwork. The wall shall at least be 2,1m in height to offer more protection to the abutting residential activity. No prefabricated concrete walls are allowed.

- A well designed and articulated boundary wall of brick should be constructed on the other boundaries of the site. No prefabricated concrete walls are allowed. The boundary wall should be minimum of 2 meters high and a maximum of 3,0 meters high and should be maintenance free on the side of the adjacent property;

- Physical barriers along the street boundaries shall be semi-transparent to enhance landscaping, architecture and aesthetics. Set back upper levels of tall buildings to help create a pedestrian scale at street level and to mitigate unwanted wind effects.
- All residential developments, albeit housing complexes or new neighbourhoods, should be designed according to the principles of crime prevention through environmental design.

- The "eyes on the street" concept must be applied.

- Maximise informal or passive surveillance of streets and other public open spaces while protecting the privacy of properties.

- Accentuate and identify building entrances by providing good visual and physical connections between the street and the lobby spaces.

- Property enclosures should be permeable to allow for visual surveillance onto and from the street.

- Use level changes, especially living areas and balcony spaces elevated above the street level, to allow views from residential units onto adjacent public spaces while controlling views into these units.

- Use low-height, transparent or partially open fences to create an impression of openness and permeability. If the site is fenced in, a palisade fence should be used for at least 75% of the length of the site. Solid boundary walls should be placed where it is critical to provide for privacy or private outdoor spaces.

LANDSCAPING

- Regionally indigenous landscaping shall be incorporated.

- 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.

- One tree shall be provided for every two parking spaces with adequate space for tree trunks and tree roots for healthy long term growth.

- Soft landscaping shall form part of parking areas.

HERITAGE IMPACT

- Future developments within Region 1 must take cultural and heritage aspects into consideration if applicable. Historical structures older than 60 years are found within the Pretoria North.

- The conservation of cultural resources within the corridor is controlled by the National Heritage Resources Act, 1999 (Act 25 of 1999). In terms of the Act, structures and sites older than 60 years must be protected. Section 34(1) of the Act indicates that no person may demolish any structure or part thereof that is older than 60 years.
When making development decisions that affect heritage resources, one must

- ensure that heritage resources are conserved in their authentic state as far as practically possible, to reflect their historical and cultural value;
- acknowledge the significance of scale when making conservation-related decisions and evaluating heritage resources within broader contexts;
- wherever appropriate, ensure that a place’s character (tangible and intangible) is protected based on its context and scale (rather than protecting the character of individual sites and/or objects only);
- where possible, ensure that new developments in historic precincts are of an appropriate scale and in an appropriate architectural ‘language’ (massing, articulation and texture);
- ensure that signage, roadways, pavements, colonnades, open and green space design, landscaping and tree-planting respect the character of historic buildings and precincts, as far as practically possible;
- encourage investment in the adaptive reuse of historical sites, facilitate integration between the conservation and adaptive reuse of heritage buildings, and promote urban regeneration strategies; and
- discourage the demolition or inappropriate alteration of historical sites where there is a possibility that these can be retained and integrated into a new development without undermining the inclusive potential of the development. When assessing development applications, the creation of views of heritage sites where no general access is provided, must be encouraged.

Source: City of Cape Town, Municipal Spatial Development Framework (MSDF) Draft, 2017

ADVERTISING

- Advertising must be as per Council policy and guidelines.

HEALTH MEASUREMENTS

- Air-conditioning units or compressors shall not be mounted to the exterior walls of buildings without the prior consent of the Municipality.
- Any requirements for air pollution-, noise abatement- or health measures set by Municipality shall be complied with to the satisfaction of the Municipality without any costs to the Municipality.
- 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 any residential property.

URBAN OPEN SPACE AND INTERFACE GUIDLINES

The explicit purposes of the Urban Open Space Development Guidelines are:

- To enable urban (re)development to engage with and take relevant stewardship of adjacent open space;
- To increase the overall physical and spatial value and quality of both the development project and the surrounding urban landscape
- Improve interface edge conditions
- To increase inclusive public access to nearby open space and to the greater urban open space network
- To Improve or provide safe street crossings and improve street intersections
- To improve or provide walkable access to non-motorised transport (NMT) such as cycle lanes and pedestrian walkways
- To improve or provide adequate public lighting
Development adjacent to public open space must be oriented toward and engaged with the public open space. Buildings must support the definition of the public space through a continuous line of buildings on the boundaries of the linear space.

Developments must also –
- improve legibility, accessibility, and activity on the periphery of the open space;
- provide edge conditions that support clear active articulate thresholds and access to open space;
- provide ample lighting; and
- have generous sightlines and avoid changes of grade that minimise sightlines.

Source: Open Space Development Guidelines, PG Smit, C Davey, Dec 2017

Along longer, continuous boundaries facing open space, it is critical to maintain a finer grain development interface that will enhance pedestrian permeability to penetrate from the surrounding neighbourhoods through the strip development into the open space.

Source: Open Space Development Guidelines, PG Smit, C Davey, Dec 2017
We must—

- Establish clear sightlines by the sensitive location of buildings and other site features;
- locate development to overlook open space and/or adjacent development;
- create building frontages that include a sense of activity;
- design pathways, underpasses and other spaces to minimise sudden changes of grade and blind corners;
- maximise the visibility of high risk areas such as car parks (public and employee), stairwells and underpasses; and
- design site layout so that pedestrian corridors and destination points are easily identified.

Source: Open Space Development Guidelines, PG Smit, C Davey, Dec 2017

SUSTAINABLE NEIGHBOURHOOD DEVELOPMENT

Climate change matters to Tshwane and the City of Tshwane is committed to addressing climate change by reducing carbon emissions and fighting climate impacts.

The City’s role in C40 is part of a broader movement to encourage local governments to attend these annual meetings under the leadership of ICLEI (Local Governments for Sustainable Development) and C40 Cities for Climate Leadership (C40), so as to advance an overwhelming perspective that climate response cannot be managed by national governments only.

A sustainable city, or eco-city (also “ecocity”) is a city designed with consideration of environmental impact. These cities are inhabited by people who are dedicated to minimising required inputs of energy, water, food, waste, output of heat, air pollution (CO₂, methane), and water pollution.

Spatial sustainability means Sustainable patterns of consumption and production should be supported, and ways of living promoted that do not damage the natural environment. It is important to keep awareness of future impact of climate change in existing and future policies and plans of the City. Spatial sustainability also means that public space should be multi-functional space that includes sports and recreational facilities alongside habitats for biodiversity and other sustainable practices of resource preservation listed here.
While the practical application varies among disciplines, some common principles are the following:

1. **Promote the use of green energy, buildings and infrastructure;**

   The municipality will become more resource-efficient, with low emissions, zero waste and conservation of agricultural land. All green and blue spaces will be harnessed for the provision of ecosystem services. Waste will be properly and almost fully recycled. The principles of sustainable urban drainage systems that ensures that water is captured and re-used must be practiced throughout the region.

2. **Promote energy conservation in buildings.**

   Reduce the energy demand for heating and cooling through design. Provide more insulation, which reduces energy wastage by maximising heating and cooling. Design “tighter” buildings with less air leakage.

3. **Promote the reduction of waste, and recycling on site level.**

   Developments should take recycling into account at the design phase and provide for adequate space on site.

4. **Promote alternative transportation and non-motorised transport.**

   The focus of transportation should be on the reduction of greenhouse gasses by reducing the need for vehicle ownership. Ensure efficient land-use and development by densifying urban areas to make communities more “walkable”. Encourage people to drive less by providing non-motorised transport facilities such as bike sharing, cycle infrastructure, cycle storage on site, showers and pedestrian-friendly environments in especially high-density areas. Promote efficient modes of transport such as public transport, non-motorised transport and green vehicles. Provide electric charging stations for electric cars and scooters. Further, it is important to promote various transportation options. The City will start with the establishment of car-free streets in certain nodal areas.
5. **Promote urban forestry and urban agriculture.**

Designs should include urban greenery projects such as rooftop gardens, community gardens, sidewalk vegetable gardens, and fruit trees in the urban environment and public spaces. The urban heat island effect can be reduced by these measures. Encourage land owners to plant trees and other roadside greenery in order to reduce the heat island effect in the urban areas. The development of food security in urban areas will become important in the near future. For urban biodiversity protection and ecological functions to be present in urban systems, all open and green space should form an integrated network. Every development must take cognizance of surrounding development and connect to adjacent green and open space in some way. This network should be accessible to people and can contain a combination of recreational and sport facilities, food gardens, natural vegetation, remnant spaces and streets.

6. **Promote renewable energy**

Increase the use of renewable energy resources and reduce dependence on carbon-based fuel resources, with the aim of reducing climate-change impacts.

Install off-the-grid energy-generating equipment (solar in Tshwane) and apply the green-building principles.

7. **Promote water conservation and water harvesting.**

Water harvesting and storage will become more relevant to individual households and communities in the future. Building designs will have to incorporate water harvesting and storage in order to address food and water scarcity. Design for the recycling of grey water and rain water. Landscape plans must focus regionally indigenous species and those that require little water. The use of municipal water for gardening purposes in Tshwane will be discouraged in the future.
4.11 RESIDENTIAL

Current City Form of Tshwane

- Apartheid left South Africa a Fragmented Spatial Framework
- Urban Sprawl and dysfunctional urban form.
- Low densities mean that public transport cannot benefit from economies of scale.

Solutions for Tshwane

- Reverse the spatial patterns of apartheid.
- Plan for compact cities and transport corridors.
- Compact cities – more infill and multi-story developments, mix of land uses.
- Densification must be public transport orientated. - focus on commuter Rail and BRT.
- Integrate land-use planning and transport planning.
- Reduce the need to travel.
- Public transport must be prioritised over private transport.
- Embrace BRT’s monorails, NMT, Pedestrians.
- Disincentives private car usage – reduce the number of vehicles on the road.

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

- Densification 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 public transport, or have the potential to be well served by public transport in future. Pedestrianisation must be included into the densification process and 1.8 meter walkways must be provided on erf boundaries in these areas by developers. 1.8 meter walkways must be provided on erf boundaries in these areas by developers as per NMT priority map in this document.
- 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.
- Retain, enhance and encourage cultural assets
- Densities for social housing developments, old-age homes and retirement centres, hostels and boarding houses, student accommodation 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 Densification 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. Densification 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 benefits of Densification and Intensification:

- Concentrations of people in areas of high urban activity
- Access of people to opportunity increase
Population threshold increases which means that a viable market for business and transport is established.

Density is significant for the economic performance of a city.

- **Urban efficiency**
  - Travel distances and time
  - Cost of Engineering Infrastructure
  - Public transport becomes more viable
  - High density assures the maximisation of public investments including infrastructure, services and transportation and allows efficient utilisation of land.

The strategy proposes four key density zones, namely:

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

**Criteria for densification**

Applications for densification shall be evaluated in terms of if the proposed rights can be accommodated on the erf / property against the following criteria:

- Proposed form and size of property.
- Sufficient safe access can be provided.
- Sufficient parking and vehicular movement can be provided.
- Neighbouring structures to the south are not negatively influenced by overshadowing. (See exclusions in Guidelines)
- Percentage of units with northern orientation.
- Unit typology and mix of typology and unit type.
- Open space provision on site.
- Application contribution to non-motorized transport.(Provision of NMT)
- Privacy to neighbouring properties to the south can be respected.
- Geotechnical conditions.
- Environmental and ecological considerations.
- Where any other criteria influence the height of potential buildings and therefore the potential density.
Where extensive portions of land as part of a development are allocated for open space or ranks or other public amenities, the densities of portions within this larger development can be higher, in order for the overall density of a development to be in line with the preferred density of the area.

In line with development guidelines as per RSDF.

4.11.1 CONCENTRATION ZONES

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

The Concentration Zones are the primary focus areas for high density 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. Density of + 200 units/ha will only be supported on properties adjacent to the trunk routes.

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 a 800m walking radius of a railway station or a major public transport node.

(500 m up to 800m walking distance: density 120 units/ha)
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 a 700m walking radius of a railway station or a major public transport node.

The areas around the existing PRASA railway stations in Metropolitan Nodes and urban core railway stations and around the proposed BRT/ITPN stations have been earmarked for higher-density transit promotion zones. Densification should take place within an 800m walking radius of a BRT/ ITPN station. Densities of + 200 units/ ha in nodes and around rail stations will be applicable for the first 500m walking distance and up to 120 units/ ha for the area between 500m and 800m. The guidelines have been determined by National Treasury in terms of their urban Hub Design Toolkit. Funding of BRT lines and station are dependent on these guidelines. The walking distances will be determined by the distance between stations. The closer the station are to one another the shorter the walking distances will be.

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 / ITPN station. Densities of + 200 units/ ha in nodes and around rail stations will be applicable for the first 500m walking distance and up to 120 units/ ha for the area between 500m and 800m.

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.

Existing and planned PRASA railway stations outside the Metropolitan Cores and Urban Cores will be regarded as densification areas. Densification should take place within an 800 m walking radius from a PRASA station. Densities of up to 200 units/ha 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 800 m. Only two- to three-storey developments (walk-ups) are envisaged for these areas around rail stations.
4.11.2 LINEAR ZONES (CORRIDORS AND SPINES)

(Up to more or less 200m walking distance from public transport: density up to 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 focused, 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. In terms of the densification strategy, linear zones refer specifically to high activity areas that are located along major routes. The main aim of the routes should be to encourage public transport. The average density supported around linear zones will be in the order of 80 /ha as prescribed in the Tshwane Compaction and Densification Strategy.

To promote public transport in the western part of the region, routes will be restricted to these three routes on the short to medium term. Densities of up to 80 units per hectare should be promoted along these routes.

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
- K111
- 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.

4.11.3 SUBURBAN DENSIFICATION ZONES

Suburban Densification 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 Densification Map. The maximum density in these areas will be restricted to a maximum 25 dwelling units per hectare.

Within Suburban Densification areas the core principles of densification are:

- Densification must contribute to the provision of lifestyle choices within the specific area. As an example provision must be made to sustain 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 and 1.8 meter walkways must be provided on erf boundaries in these areas by developers as per NMT priority map in this document.
- Areas targeted for densification should be well served by social facilities such as education, place of public worship open space, recreation etc. or should have the potential to be well served by social facilities. Public space and

The exceptions will be the nodal/core areas (as indicated on the densification map by a black circle) within the suburban areas where densities of up to 200 dwelling-units per hectare can be supported, depending on available public transport and social amenities. The average density supported around suburban nodes will be in the order of 80 /ha as prescribed in the Tshwane Compaction and Densification Strategy.

Activity streets in suburban areas as indicated in the RSDF are also earmarked for densification up to 80 units per hectare.

Whereas the Concentration and Linear Zones proposes a particular urban environment, both the Suburban Densification Zone and the Low Density Zone are distinctly suburban zones.
specifically Council owned property should be kept in reserve as the need for social facilities increase. Other related uses such as schools, crèches and places of instruction must be accommodated in these areas as densification takes place.

- 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.

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. Sustainable neighbourhood planning seeks to achieve long-term socially, environmentally and economically viable communities. The main objective is to create pleasant, safe and sustainable residential neighbourhoods with a mix of residential typologies, community and social facilities, recreation areas such as parks, sports fields and playgrounds, access to public transport for those who need it, and local economic opportunities.

“A successful and sustainable neighbourhood is a product of the distances people have to walk to access daily facilities, the presence of a sufficient range of such facilities to support their needs, and places and spaces where a variety of activities can take place.”

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.

Greenfields development (farm portions and small holdings) will be handled on merit and the general principles of density will apply. The maximum density be in the order of 80 /ha as prescribed in the Tshwane Compaction and Densification Strategy will be supported within a 25 km radius of the City CBD. Previously disadvantaged areas will mostly have densities of more than 25/ha and that would remain applicable. New layouts in these areas will be evaluated in terms of the standard principles of densification.

4.11.4 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, and it is preferable not to encourage population concentrations in these areas.

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.

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7 Source: Homes and Communities Agency: Urban Design Compendium 1
4.11.5 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 allowed in areas with Council approved piped water. Divisions of 5 ha and more will be supported in areas without piped water except in cases of high agricultural potential and environmentally sensitive areas. Divisions must take flood lines and water courses into account when applied for.

<table>
<thead>
<tr>
<th>Notation</th>
<th>Size</th>
<th>Services</th>
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<tbody>
<tr>
<td></td>
<td>5000 m² (No second dwelling unit allowed)</td>
<td>Piped water</td>
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<tr>
<td></td>
<td>1 ha</td>
<td>Piped water</td>
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<td></td>
<td>2 ha</td>
<td>Piped water</td>
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<td></td>
<td>4ha – 5ha</td>
<td>Piped or Borehole Water</td>
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<td>Piped or Borehole Water</td>
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<td>+20 ha</td>
<td>Piped or Borehole Water</td>
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4.12 SUSTAINABLE HUMAN SETTLEMENTS

Sustainable Human Settlements should be provided in accordance with the guidelines as set out in the above Tshwane Compaction and Densification Strategy. Such settlements should be developed within concentration zones and along linier zones with the supporting densities as prescribed. Further human settlements should be provided in close proximity of social amenities and public transport.

4.12.1 INFORMAL SETTLEMENT UPGRADES AND RELOCATION

In Region 4 about 20 000 informal units exist and need basis services.

- Existing informal settlements that fall outside of the urban edge should not be provided with in-situ upgrading. They should rather be relocated.
- Informal settlements should only be relocated to areas that geotechnically sound and do not fall within a flood line.
- Compaction, infill and densification should serve as key guiding principles for both in-situ upgrading and relocations.
- Informal settlement management plans should incorporate landscape planning.
The approved IDP contain the strategic context within which the 2017/21 IDP has been developed and contain five strategic pillars which is guiding the focus for the 5 year term. Pillar 2: A City that cares for residents and promotes inclusivity specifically relates to informal settlements.

Priority 6: Upgrading of informal settlements

Too many communities in Tshwane do not have access to quality basic services and live in underdeveloped areas. Residents in many informal settlements still only have access to rudimentary water and sanitation services, infrequent refuse removal and area cleaning, and do not benefit from adequate infrastructure upgrades. The City aims to address this as a matter of priority in a systematic way as a redress initiative. Tshwane currently has 173 informal settlements, most of which have no access to or receive rudimentary basic services. This is wholly unacceptable. The City will prioritise the upgrading of services delivered to informal settlements in order to improve the quality of life of those residents. The City will upgrade informal settlements by:

Action 1: Mainstreaming services to informal settlements

- Conducting an audit of service delivery standards in all informal settlements;
- Introducing a number of basic service delivery relief measures in unserviced informal settlements, including access to sanitation measures where none are available, weekly door-to-door refuse removal and regular area cleaning;
- Prioritising the roll-out of site and service upgrades on a systematic basis;
- Aiming to meet national service standards in informal areas;
- Increasing access to clean and safe drinking water;
- Improving access to the electricity grid;
- Servicing rudimentary sanitation services more regularly and aiming to systematically expand and upgrade sanitation services across informal settlements;
- Performing weekly door-to-door refuse removal services and conducting regular area cleaning;
- Addressing the vulnerability of residents to crime and disaster (unpacked under the Safe City section); and
- Establishing a back-yarder programme in townships and informal settlements to serve more residents with basic services in a denser area.

Action 2: Addressing the spatial development challenges of informal settlements to improve quality of life

- Exploring re-blocking initiatives by partnering with civil society and community groups in informal areas;
- Working towards upgrading the road network in informal areas; and
- Creating safe public spaces in informal areas for recreational activities.
4.12.2 SOCIAL HOUSING

- Housing should provide a range of typologies within strategic nodes in order to address both social and economic restructuring.
- Housing typologies should allow for diversity and significant densification in order to address the green economy of spatial planning.
- Brownfield development is preferable to greenfield development in order to achieve infill development.
- Compaction and rejuvenation of decaying areas (where applicable).
- Housing location should be targeted towards significant places of work opportunity, i.e. metropolitan nodes and primarily urban cores.
- Housing developments should include the provision of or be located next to safe and efficient linkages with space for pedestrians and cyclists.
- Housing location should be well planned to ensure connectivity via public transport to other places of significance in the metropolitan area.
- Urban design, landscaping and streetscaping should be incorporated in housing schemes.
- Social housing should be an effective component of sustainable human settlements i.e. providing or being located close to social amenities and facilities.
- Mixed-use residential buildings should be implemented where possible, allowing for an optimal use of all available resources, supporting transit-oriented development and providing a sustainable living environment.
- Promote incremental upgrading (where possible, in-situ) as a major complementary housing programme, in line with Part 3 of the National Housing Code.
- The provision of activity streets in all new residential township layouts and the provision of the necessary rights along the activity streets in the proposed layouts.
- Promote incremental upgrading of activity streets by means of NMT development.
- In order to stimulate the township economy, formalisation of legitimise enterprises will be one of the top priorities for City.
- Alignment of residential developments within transport nodes in all new township layouts.
- “Shifting settlement patterns should be investigated to align public investment in infrastructure and services with these trends, and to develop appropriate systems of land tenure and growth management. Special attention must be given to areas of densification along transport corridors within previous homelands”. – NDP.

The sketch below shows an example of the redevelopment from a single residential site to a more compact high residential area. The principles here is linked to the promotion of higher density residential and also mixed use (TOD) principles) whereas the guideline is to gradually allow the redevelopment to achieve the desired form.

The map below indicates different initiatives/tenure options that the City will be implementing in the 2017/18 financial year through the Intervention Programme. These programmes include the following:

- Informal settlements upgrade
- Affordable rental (social housing)
- Mixed integrated developments

Movement and Connectivity for more information on transit oriented development).

Also see 4.14.14 Human Settlements in rural areas.
4.13 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.

4.13.1 HIGHWAY 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. In Region 3 the following strategic projects are indicated: 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 carriageway 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 5 years, in which time, this particular intersection will be under additional stress
- 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.
- Old Jhb Road (K101) and Wierda Road (K103) - Both these transport corridors fulfil an important regional function in terms of accessibility and 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 transport route 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
- 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 Eeufees 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 (As confirmed by the Centurion CBD study, this interchange will take a lot of pressure off other critical linkages.)
- Olievenhoutbosch Road (Rietvlei Dam Interchange to Brakfontein Road)

4.13.2 RAIL

Gautrain

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 Olievenhoutbosch or beyond, thereby contributing significantly to the creation of an integrated transport system.

![The Gautrain Network and Proposed New Rail Links](image-url)
Passenger Rail Agency of South Africa (PRASA) network planning proposals

PRASA priority corridor in the next 5 years in Gauteng is the Mabopane/Johannesburg/Soweto line. Upgrading of the line in Region 4 is in process. 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 railway station at the proposed Ollevenhoutbosch Road crossing of the existing Pretoria/Olfantsfontein 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.

The future PRASA station in Irene at the south western point of the so-called 5 O’clock development will have the making it a very important TOD development opportunity.

4.13.3 ROAD NETWORK

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.

4.13.4 BUS RAPID TRANSIT (IRPTN SYSTEM)

The City’s Tshwane Rapid Transit (TRT) makes up a substantial portion of the total IRPTN. The modes of choice for the TRT is Bus Rapid Transit (BRT). Currently, two TRT trunk routes are operational; one between Pretoria CBD and Hatfield, and the other between Pretoria CBD and Rainbow Junction. The City plans to have six TRT trunk lines operational by 2028, accompanied by complementary and feeder systems.

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, 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.
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 other road services in terms of the 2017/2021 IDP. See Details in Chapter 2.

- The projected residential and employment in the Olievenhoutbosch area is relatively dense, with little existing or planned public transport coverage other than the planned BRT network. This part of the network should receive some priority to be able to meet the future expected demand in this area.
4.13.5 NMT AND UNIVERSAL ACCESS

In terms of the Gauteng 25 Year Integrated Transport Master Plan as approved in 2014 none motorised transport must be prioritized in terms of transport planning. Pedestrians are seen as priority 1 and cyclist as priority 2. Public transport is seen as priority 3 and private cars as the least important.

In terms of the Tshwane CIPT 2016 the following principles are applicable to NMT within the BRT / IRPT corridor. The principles as set out in the TSHWANE RAPID TRANSIT (TRT): SPATIAL DEVELOPMENT POLICY: DENSIFICATION AND INTENSIFICATION GUIDELINES as approved by Council on 27 March 2014 will be applicable along future IRPTN lines and rail stations.

- NMT (pedestrian & cycle) routes to be provided to all trunk and feeder stations, up to a maximum distance of 2km.
- Upgrading/construction of routes to be to Universal Access standards.

- Bicycle facilities (bike racks) to be provided at stations.
- Prioritise pedestrian and bicycle movement over motor vehicle movement.
- No-motorised transport planning must be incorporated in all planning along the IRPTN route and future developments.
- Parts of the routes be declared car-free on Sundays and people come out in their masses and cycle and walk through the city for recreation.
- Provide effective pedestrian and bicycle access.
- Pedestrian and cycle access must be independent from vehicle access.

The design goals of the NMT and universal access in Region 4 are as follows:
- Continuous and Barrier-free
- Safe (separate pedestrians and cyclists from vehicular movement)
- Secure at-grade crossings
- Routes should be easily navigable and legible.
- Easily navigable/ legible and in terms of universal access.
- Designed for the local climate (all-season design)
- Increase pedestrian permeability into and through high density precincts.
- To promote human scale, pedestrian friendly developments
- Upgrading/construction of routes to be to Universal Access standards.

- Designed for the local climate (all-season design)
- To promote human scale, pedestrian friendly developments
- Upgrading/construction of routes to be to Universal Access standards.

- Developers need to provide walkways as specified and agreed with the City and need to submit a walkway application to the City Transport Department Way leave office.

Any person who submits a land development application shall address provision of public transport and non-motorised transport in accordance with the standards, specifications and requirements, of the City. In evaluating a transport impact assessment or public transport assessment in terms of section 38(2)(b) of the Act or a transport impact assessment contemplated in Schedule 6 Item 3(16) of the Land Use Management By-Law, the Municipality shall give due attention to the provision of infrastructure that promotes and accommodates non-motorised transport including, but not limited to—

(a) secure places to store cycles;
(b) easy and convenient access to the premises by pedestrians and cyclists;
(c) safe pedestrian crossings over public roads giving access to the property;
(d) traffic calming measures, such as zebra crossings, pelicans, toucans and midblock crossings;
(e) accommodating special categories of passengers and pedestrians;
(f) pedestrian walkways and cycle lanes where appropriate, and
(g) ablution facilities and dustbins.

The NMT plan at the end of this section indicates the end goal.

Source: City of Tshwane: Centurion Gautrain station: 2016.
4.14 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 Rural map at the end of this section will be applicable to the Rural areas of Region 4.

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.
- Promote the prevention of irreversible loss of productive agricultural land.
- Limit the fragmentation of productive agricultural land.
- 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 agri village concept
- 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.

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.

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)
4.14.1 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)

4.14.2 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.

4.14.3 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

4.14.4 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.

**4.14.5 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.

Within these Management Zones land uses and densities, which do not fit into the denser urban complex, should be permitted. Uses supported in the management zone would be Lodges, Wedding Venues, mini storage, place of refreshment; children party venues. The availability of services and the ease of access to major roads will play an important role in the evaluation of no residential uses as mentioned above. The easy of non-residential uses serving the rural population and surrounding urban areas should be concentrated in Community Service Centres as indicated on Region 6 Rural Component Plan. Locations at the intersections of major Roads will be supported.

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

**4.14.6 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. Productive agricultural land will be protected as far as possible in terms of this framework. Fragmentation of agricultural high potential areas will be restricted to a minimum. Agri- industry will be supported in and in close proximity of agricultural high potential areas.

See map at end of section.
4.14.7 Sensitive Protected Areas /Biodiversity Zone

Sensitive protected areas. (Combination of Biodiversity 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, 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

Non-agricultural uses will only be promoted if the amenity of the rural area remains intact and the impacts of the development on neighbouring properties are minimal.

4.14.8 Sensitive Ridge Areas

Sensitive protected areas. (Combination of Biodiversity and 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 Areas of Region 4 are:

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

4.14.9 Heritage and Cultural protected Areas

Similar to protection of monumental 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 Tourism attractions.

4.14.10 Tourism Potential Places/Areas

Of natural and economic importance for Tshwane is the accruement 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 the 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

4.14.11 Conservancies

Proclaimed conservancies have legal standing and management prescriptions. Conservancies strive towards preservation and 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

4.14.12 Game and Nature Reserves

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

- Renosterspruit Nature Reserve


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.

4.14.14 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.
must move needs planning according to an approved program. Specific measures must be taken to manage adjacent land.

**Agri-Village Establishment**

The focus on the establishment of specialised centres in the form of Agri-Villages in appropriate locations will specifically help to facilitate agrarian transformation and land reform as envisioned by the CRDP. Notably, such villages also aim at promoting food security. The key to the success of Agri-Village development is rooted in the principle of focused and deliberate government investment spending to ensure that these centres develop to provide an extensive range of community facilities, and becoming the spatial focal points of agriculturally driven LED interventions and land reform initiatives. By doing so, an Agri-Village possess the inherent potential to act as a spatial point within a larger rural space- economy around which the critical mass required to initiate formal and informal local economic development can occur.

### 4.14.15 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.
4.15 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

Discussions with GDARD 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.

4.15.1 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.

4.15.2 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.

4.15.3 ENVIRONMENTAL AREAS

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

Cultural-Historical Areas

- Schurveberg 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.

The Biodiversity map also indicates the Gauteng Sustainable Development Guideline and the Gauteng Pollution Buffer Zone Guidelines for Industrial uses. Mine dumps, landfill sites and sensitive valley’s.

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.

The Biodiversity map and tables, as identified and defined by GDARD (used Gauteng Environmental Management Framework 2014) must be used as a guideline for land use management in these areas. Where a property falls within a zone associated with a critical biodiversity area, the on-site specifics may not necessarily translate into the entire cadastral unit being subject to such guidelines. Areas unaffected by biodiversity restrictions will be subject to the normal land use proposals as indicated in the RSDF and surrounding properties.
LAND MANAGEMENT GUIDELINES

- This table details management recommendations for each category on the Critical Biodiversity Areas map.
- The recommendations are designed to inform a wide range of land use and planning decision making processes and conservation implementation activities.
- The recommendations only provide guidance to decision-makers and serve as an informant to planning processes on appropriate land management and activities and do not in themselves grant or remove development rights.

<table>
<thead>
<tr>
<th>Category on the CBA Map</th>
<th>Description</th>
<th>Land Management Objective</th>
<th>Land Management Recommendations</th>
<th>Compatible Land-Use</th>
<th>Incompatible Land-Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected Areas</td>
<td>Formal Protected Areas and Protected Areas pending declaration under NEMPA.</td>
<td>Maintain natural land. Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation.</td>
<td>Maintain or obtain formal conservation protection.</td>
<td>Conservation and associated activities.</td>
<td>All other land-uses.</td>
</tr>
<tr>
<td>Critical Biodiversity Areas (1)</td>
<td>Areas required to be maintained in a natural or near natural state to meet targets for biodiversity pattern (features) or ecological processes.</td>
<td>Maintain natural land and ecological processes. Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation.</td>
<td>Obtain formal conservation protection where possible. Implement appropriate zoning to avoid net loss of intact habitat or intensification of land use.</td>
<td>Conservation and associated activities. Extensive game farming and eco-tourism operations with strict control on environmental impacts and carrying capacities, where the overall there is a net biodiversity gain. Extensive Livestock Production with strict control on environmental impacts and carrying capacities. Urban Open Space Systems</td>
<td>Urban land-uses including Residential (including golf estates, rural residential, resorts), Business, Mining &amp; Industrial; Infrastructure (roads, power lines, pipelines). Intensive Animal Production (all types including dairy farming associated with confinement, imported foodstuffs, and improved/irrigated pastures). Arable Agriculture (forestry, dry land &amp; irrigated cropping). Small holdings</td>
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<tr>
<td>Critical Biodiversity Area (2)</td>
<td>Cultivated landscapes which retain importance for supporting threatened species</td>
<td>Maintain current agricultural activities. Ensure that land use is not intensified and that activities are managed to minimize impact on threatened species.</td>
<td>Avoid conversion of agricultural land to more intensive land uses which may have a negative impact on threatened species or ecological processes.</td>
<td>Current agricultural practices including arable agriculture, intensive and extensive animal production, as well as game and ecotourism operations, so long as these are managed in a way to ensure populations of threatened species are maintained and the ecological processes which support them are not impacted.</td>
<td>Urban land-uses including Residential (including golf estates, rural residential, resorts), Business, Mining &amp; Industrial; Infrastructure (roads, power lines, pipelines). More intensive agricultural processes than currently undertaken on site.</td>
</tr>
<tr>
<td>Category on the CBA Map</td>
<td>Description</td>
<td>Land Management Objective</td>
<td>Land Management Recommendations</td>
<td>Compatible Land-Use</td>
<td>Incompatible Land-Use</td>
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<tr>
<td>Ecological Support Areas (1)</td>
<td>Natural, near natural and degraded areas required to be maintained in an ecologically functional state to support Critical Biodiversity Areas.</td>
<td>Maintain ecological processes</td>
<td>Implement appropriate zoning and land management guidelines to avoid impacting ecological processes. Avoid intensification of land use.</td>
<td>Conservation and associated activities. Extensive game farming and eco-tourism operations. Extensive Livestock Production. Urban Open Space Systems. Low density rural residential, smallholdings or resorts where development design and overall development densities allow maintenance of ecological functioning.</td>
<td>Urban land-uses including Residential (including golf estates), Business, Mining &amp; Industrial, Infrastructure (roads, power lines, pipelines). Intensive Animal Production (all types including dairy farming associated with confinement, imported foodstuffs, and improved/irrigated pastures). Arable Agriculture (forestry, dry land &amp; irrigated cropping). Note: Certain elements of these activities could be allowed subject to detailed impact assessment to ensure that developments were designed to maintain overall ecological functioning of ESAs.</td>
</tr>
<tr>
<td>Ecological Support Areas (2)</td>
<td>Areas with no natural habitat which retain potential importance for supporting ecological processes.</td>
<td>Avoid additional impacts on ecological processes</td>
<td>Avoid intensification of land use, which may result in additional impact on ecological processes.</td>
<td>Existing activities (e.g. arable agriculture) should be maintained, but where possible a transition to less intensive land uses should be favoured.</td>
<td>Any land use or activity which results in additional impacts on ecological functioning, mostly associated with the intensification of land uses in these areas (e.g. Change of floodplain from arable agriculture to urban land use or from recreational fields and parks to urban).</td>
</tr>
<tr>
<td>Other Natural Areas</td>
<td>Natural and intact but not required to meet targets, or identified as Critical Biodiversity Areas or Ecological Support Areas.</td>
<td>No management objectives, land management recommendations or land-use guidelines are provided as these areas are outside the ambit of the Bioregional Plan. These areas are nevertheless subject to all applicable town and regional planning guidelines and policy. Where possible existing transformed areas should be favoured for development before “Other natural areas” as before. “Other natural areas” may later be required either due to the identification of previously unknown important biodiversity features on these sites, or alternatively where the loss of “Critical Biodiversity Areas” has resulted in the need to identify alternative sites.</td>
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4.16 WETLAND MANAGEMENT PLAN FOR TSHWANE

This plan has been developed to improve wetland management in the City of Tshwane. Wetlands are critical to the wellbeing of the local economy, communities and individual people and provide a range of services for the City of Tshwane.

Wetlands can be regarded as “ecological infrastructure”. They are as important as other types of infrastructure for providing a range of services for residence. As with other forms of infrastructure such as roads, wetlands also require management and maintenance in order to keep them in good condition and functioning well.

Ecosystem services provided by wetlands include: water storage, flood protection, water purification, food, materials, habitat for species, carbon storage, local climate and air quality regulation.

It is important to take note that wetlands benefits all the residence of the City of Tshwane. Although the Municipality is the custodian of wetlands only on municipal properties, all the wetlands supply ecosystem services to all residents.

The goals of the plan are as follows in Region 4:

Wetlands are conserved and protected.

- In areas where the continuing loss or degradation of wetlands, or their functions, have occurred and/or reached critical levels, wetlands are rehabilitated or enhanced.
- All departments are aware of the importance of wetlands and wetland functions are recognised in resource planning, management and economic decision-making with regard to all programmes, policies and activities within the City of Tshwane.
- Local communities collaborate in wetland management.
4.17 SOCIAL FACILITY PLANNING

From a spatial or location perspective, the clustering of parks and social facilities in and around corridors and other points of highest accessibility (such as major transport facilities) is of vital importance.

Different social facilities such as schools, clinics, pay points, library’s, active open space and other should be clustered at one central point in the residential neighbourhood and should be accessible in terms of public transport.

Public space and specifically Council owned property should be kept in reserve as the need for social facilities increase. Open green space should not be privatised. Existing open spaces and parks must be protected and not used for development purposes.

Encourage community and stakeholder collaboration; and retain, enhance and encourage cultural assets. Neighbourhood amenities must be provided as densification takes place. Where neighbourhoods lack sufficient open space, new parks and recreation areas must be introduced, especially in areas earmarked for higher density development. Activity Support is the presence of activity planned for the space. Development designs should locate plazas, for example, in places where they are most likely to be used for gatherings (both organized events and informal meetings).

### Primary schools Needed in Region 4

<table>
<thead>
<tr>
<th>Attracted population</th>
<th>Facility equivalent</th>
<th>Suburb / Sub-place</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 192</td>
<td>An equivalent to 8 schools of 1000 pupils</td>
<td>Monavoni AH</td>
</tr>
<tr>
<td>1 701</td>
<td>An equivalent to 2 schools of 1000 pupils</td>
<td>Irene Farm Villages</td>
</tr>
<tr>
<td>1 638</td>
<td>An equivalent to 1 school of 1000 pupils</td>
<td>Irene View Estate</td>
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</tbody>
</table>

### Secondary Schools Needed in Region 4

<table>
<thead>
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<th>Attracted population</th>
<th>Facility equivalent</th>
<th>Suburb / Sub-place</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 026</td>
<td>Equivalent of 4 secondary schools of 1000 pupils</td>
<td>Monavoni - AH</td>
</tr>
<tr>
<td>1 636</td>
<td>Equivalent of 2 secondary schools of 1000 pupils</td>
<td>Irene – close to Cornwall Hill Country Estate</td>
</tr>
<tr>
<td>1 000</td>
<td>Equivalent of 1 secondary schools of 1000 pupils</td>
<td>Rooihiuskraal</td>
</tr>
</tbody>
</table>
PART FIVE: DETAIL PRECINCT PLANS

5.1 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:

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

**IRENE EMERGING NODE**
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.

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.
• 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 Precint:

• 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.
5.1.4 OLIEVENHOUTBOS URBAN DEVELOPMENT FRAMEWORK

Local Context

Olievenhoutbos is ideally located within Region 4 with close access to major routes. The N14 highway is directly to the north of the township and the R55 divides the township in an eastern and western portion. The Monavoni Precinct, which includes the Forest Hill Mall is situated to the north of the township and provides immediate opportunities for job-creation, employment, recreation and social facilities of approximately 290 000m². To the south of the township is newly developed local retail centre, Olievenhoutbos x 38, which currently provides in the retail needs of the residents. Two other local nodes have been provided in Extension 36 and 40 respectively. Provision was also made for business opportunities on a smaller scale throughout the area. However, the economy within the township is mainly reliant on income earned outside the township and opportunities on a small and local scale is needed to address the high rate of unemployment and stimulate local entrepreneurship.

Olievenhoutbos comprises of mainly subsidized residential developments with small scale supporting commercial-, social- and recreation opportunities. The majority of the housing development at present comprises of single residential stands and provision was made for higher density developments especially in Olievenhoutbos Extensions 36, 37 and 27, development of these properties are foreseen in the near future and the stands earmarked for social amenities to support the increased densities need to protected for that particular purpose. Various properties have been earmarked for social and recreation purposes, but only a few of such facilities are developed. Olievenhoutbos lacks a strong physical structure, identity and activity spines with continuous pedestrian movement and access to public transport and social amenities.

The Tsosoloso Programme

The Tsosoloso Programme envisioned the following key points for Olievenhoutbos:

- Transform places and spaces by creating community active centres and improving the pedestrian environment.
- Provision of quality public facilities and amenities to create community pride with a strong structure and points of interest.

- Providing public transport facilities which become a social hub. Olievenhoutbos x 40 has been identified for these purposes where the taxi rank will form part of a retail centre.
- Physical upgrading and enhancement - Vibrant, liveable, durable and beautiful urban environments. Two multi-purpose recreation and community facilities have been earmarked in extension 37 and 27 (east and west of the R55) respectively.

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:

- Monavoni and western farms development framework 2020, approved 2008
- LSDF for Laudium/Claudius/Erasmia/Christoburg, approved 2009
5.3 REQUIRED PRECINCT PLANS (NON-PRIORITISED)

Different levels or tiers as well the scale of planning within Tshwane are based on the following principles.

1. **Metropolitan (MSDF)** – Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city.

2. **Regional Spatial Development Framework (RSDF)** - Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of a Region.

3. **Area Planning** - The focus of this level of planning will be on a specific area within a Region which is under development strain, for example the Future Development Area within a Region as indicated in the RSDF.

4. **Corridor Planning** - Integrated transport and land uses planning will be the focus of the spatial planning at this level. The aim of the plan will be to promote land development along transit corridors with the goal to optimise the utilisation of transport. Urban design will play an important role at this level.

5. **Nodal Planning** - Nodal planning focus on intensity, mix and clustering of land uses within a node, which normally forms part of larger Corridor development. The aim of the plan will be to determine the desired density and mix of land uses within a node or precinct. Urban design will play an important role at this level.

6. **Precinct Planning** - The precinct plan is regarded as the most detail level at which spatial planning is done. The plan must ensure appropriate urban design, for the effective integration of infrastructure and facilities within a larger node or corridor. Precinct planning can also take place for specific activity corridors or Activity Streets within a Region and which are not related to development corridors.

The following plans are considered as Precinct Plans which are required to guide the development of specific precincts within Region 4.
### 5.3.1 City Wide Policy Prioritization

<table>
<thead>
<tr>
<th>Spatial Policy</th>
<th>Purpose</th>
<th>Changes in planning Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update of the Tshwane Town Planning Scheme, 2008 to be in line with the Proposals of the Rationalized Spatial Development Frameworks.</td>
<td>To align with the 7 Regionalized Framework and Tshwane Town Planning Scheme, 2008 / LUM system.</td>
<td>Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city.</td>
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<tr>
<td>Update of the MSDF 2012 to be in line with the Spluma and Bylaws.</td>
<td>To align with the 7 Regionalized Plan and MSDF.</td>
<td>Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city.</td>
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<tr>
<td>Update of the Tshwane Open Space Framework.</td>
<td>As per legislation.</td>
<td>Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city.</td>
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<tr>
<td>Update of the Tshwane IRPTN operational plan.</td>
<td>To align with the 7 Regionalized Plan and IRPTN.</td>
<td>Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city in terms of the IRPTN.</td>
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<tr>
<td>City Wide Urban Design Guidelines</td>
<td>To establish spatial guidelines different areas within the City for example, TOD’s, industrial, mixed uses, high density residential areas.</td>
<td>Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city.</td>
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<tr>
<td>TOD development Guidelines</td>
<td>To Guide Planning and Densification and Mixed use around TOD’s including Public open spaces and social facilities. Focus must be on the public space and streets.</td>
<td>Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city.</td>
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<tr>
<td>Parking Standards for TOD in the City of Tshwane.</td>
<td>To Guide Parking standards and rates around TOD’s.</td>
<td>Planning / interventions at this scale will focus on policy and long term visions regarding the spatial structure of the city.</td>
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5.3.2 Region 4 Priority.

<table>
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<th>Spatial Policy</th>
<th>Purpose</th>
<th>Changes in planning Context</th>
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<tr>
<td>Precinct Plan for Gautrain Station (Centurion).</td>
<td>To Guide Planning and Densification, Mixed use and Public Transport including Public open spaces and social facilities. Focus must be on the public space and streets.</td>
<td>Guidelines for Densification and Mixed land use including transport and nmt</td>
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<tr>
<td>Urban Design Framework and Infrastructure Management Framework for the Centurion Metropolitan Core.</td>
<td>To Guide Planning and Densification, Mixed use and Public Transport including Public open spaces and social facilities. Focus must be on the public space and streets.</td>
<td>Guidelines for Densification and Mixed land use including transport and nmt</td>
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<tr>
<td>The Lanseria Regional Spatial Development Policy.</td>
<td>To Guide Planning and Densification, Mixed use and Public Transport including Public open spaces and social facilities.</td>
<td>Guidelines for Densification and Mixed land use including transport and nmt</td>
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5.4 PLANNING POLICY RATIONALISATION

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<th>Status</th>
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<th>Purpose</th>
<th>Changes in planning Context</th>
<th>Proposed Future of Plan</th>
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<tr>
<td>Tshwane 2050 Integrated Development Plan</td>
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<td>Guidelines regarding development in the city</td>
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<td>Monavoni and western farms development framework 2020</td>
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<td>2008</td>
<td>Guidelines regarding development on the Monavoni</td>
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<td>LSDF for Laudium/ Claudius/ Erasmia/ Christoburg</td>
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<td>2009</td>
<td>Guidelines regarding development</td>
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<td>To be retained</td>
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<tr>
<td>OLIEVENHOUTBOSCH URBAN DEVELOPMENT FRAMEWORK</td>
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<td></td>
<td>Guidelines regarding development</td>
<td>Status Quo remains</td>
<td>To be retained</td>
</tr>
</tbody>
</table>
6. REFERENCES


City of Johannesburg, Complete Streets, April 2013.


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Acknowledgements


Mapping

Charlotte Smart, Lizelle van Staden

Legal Input

Nicolene le Roux