

EMM REGION A RSDF LAND USE PLAN

GUIDELINES FOR DESIRABLE LAND DEVELOPMENT



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MODULE 1: LAND USE PLAN
REGION A
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1 INTRODUCTION

The Ekurhuleni RSDf for Region A contains a Spatial Plan that depicts the overall development framework, highlighting, inter-alia:

- Strategic development proposals
- Corridors to be promoted (mobility and activity)
- Specific activity nodes to be promoted
- Potential Transit Orientated Developments (TODs)
- Areas where existing development rights should be maintained;
- Areas where new/additional development rights should be supported, and
- Areas where residential densification will be supported, including the extent and nature of such densification, taking into account the impact of such densification on the environment as well as the impact of external factors on the densified areas.

1.1 OBJECTIVE AND PRINCIPLES OF THE RSDf

The aims of the Spatial Plan are to:

- Ensure **efficient** functioning of the urban system;
- **Equity** between different income groups; and
- Environmental **sustainability**.

The framework thus subscribes to the principles of:

- Mixed land use;
- Increased densities;
- Public transport;
- Mixed income groups;
- Integration between land use and public transport; and
- Protection of environmentally sensitive areas.

1.2 SUMMARY OF SPATIAL STRUCTURING ELEMENTS FROM THE REGION A SPATIAL PLAN.

The spatial plan for Region A of the Ekurhuleni Metropolitan Municipality consists of the following spatial structuring elements:

- An **open space network** that protects and connects the open space nodes of:
 - Dries Niemand Park;
 - Gillooly's Farm;
 - Bill Steward Nature Reserve;
 - Germiston Lake;
 - Boksburg Lake;
 - Benoni Lakes; and
 - Blaauwpan east of the airport.
- A number of **activity nodes**, namely:
 - The Aerotropolis Core Node;
 - The Germiston Node;
 - The Boksburg Node;
 - The Bedford View Node; and
 - The Elandsfontein, Ravensklip and Knights station nodes.
- A number of **development corridors** that connect the different nodes of the region as well as areas outside of the region:
 - The Aerotropolis-Boksburg Corridor;
 - The Aerotropolis-Germiston and Bedford View Corridor; and
 - The Mining Belt Corridor.

These spatial structuring elements are depicted in Figure 1 below.

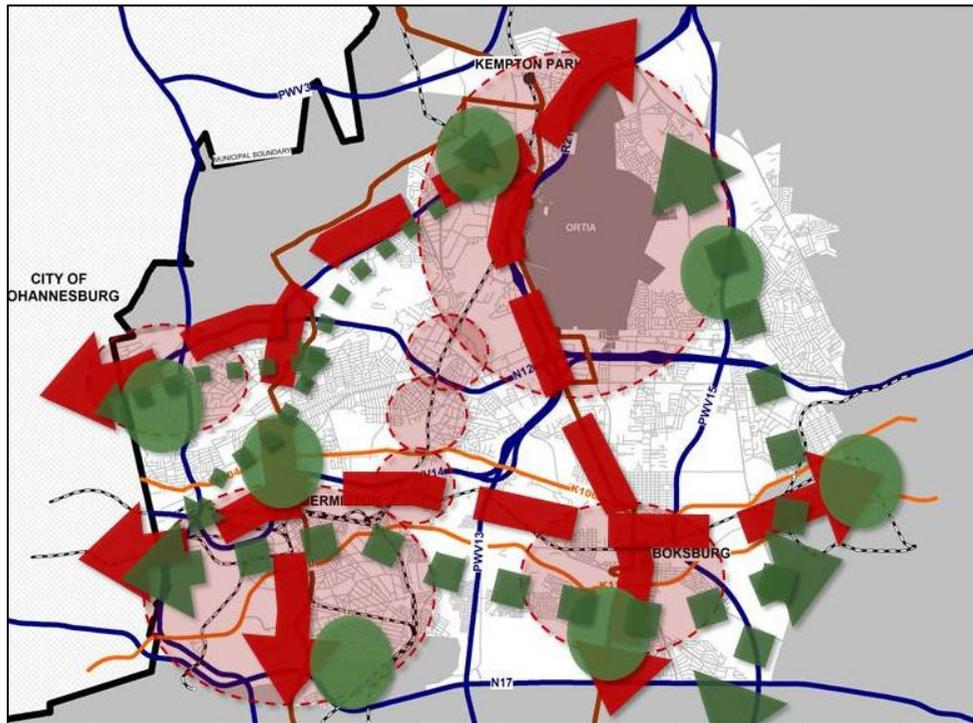


Figure 1: Region A - Combined Spatial Plan

1.3 THE ROLE OF LAND USE PLANNING

Modern urban planning emerged largely in response to rapidly growing, chaotic and polluted cities. Traditionally spatial plans (sometimes referred to as structure plans or blueprint plans etc.) showed a detail view of the city once it has achieved its desired or ideal state. The primary legal tool for achieving this desired state was the zoning scheme. Historically this legal tool separated “conflicting” land uses leading to urban sprawl and mostly homogenous suburbs. The current reality facing our modern cities is that we have highly complex urban areas (often rapidly changing) shaped by a range of local and international forces often beyond the control of the urban

planner. The most fundamental problem of planning today is that it completely fails to accommodate the way of life of the majority of inhabitants in rapidly growing cities that also contain large number of urban poor and informal settlements. This linked with inappropriate and outdated planning legislation, and low capacity to implement plans has led to a growing gap between plan and reality.

The new Spatial Planning and Land Use Management Bill (SPLUMB) proposes a better linkage between spatial planning and land use management as a possible way to narrow the gap between reality and our spatial plans. Ekurhuleni is currently in the process of reviewing its Land Use Scheme. This scheme therefore should be able to implement the proposals put forward in the Region A RSDF.

The aim of this Land Use Module accompanying the Region A RSDF is to:

- propose land use concepts to match the spatial concepts put forward in the Spatial Plan;
- investigate the application of these concepts in the different spatial structuring elements of the Spatial Plan (nodes and corridors); and
- highlight the implications on land use management.

2 LAND USE CONCEPTS

The spatial plan identifies a number of activity nodes and development corridors as the spatial structuring elements for Region A. The land use implications for each are highlighted in bold and described from 2.3 onwards.

2.1 NODAL DEVELOPMENT

An "activity node" can be defined as an area of high accessibility and intensive ***mixed land uses*** that provides services to the surrounding areas. The hierarchy of activity nodes is determined by the extent of the area the nodes provides service to. Nodes should thus be:

- Highly accessible via all modes;
- ***Multi-functional;***
- Developed at a ***high intensity and density;***
- Pedestrian-oriented – walkable; and
- Characterised by a high quality ***public space***
- The station nodes form an important element of the structure of the region, specifically for stimulating rail usage and achieving ***transport-oriented development.***

Nodes are characterised by the intensity, mix and clustering of activities or land uses (including commercial/business development and associated employment opportunities, higher-order services and higher residential densities) at points of maximum exposure, convenience and urban opportunity.

The following nodes were identified for Region A:

- The Aerotropolis Core Node;
- The Germiston Node;

- The Boksburg Node; and
- The Bedford View Node.

2.2 CORRIDOR DEVELOPMENT

Development corridors are critical in providing access to the nodes and to ensure sustainable public transport and to improving the legibility of the region. The ***highest density and intensity of mixed land uses*** should be concentrated around the activity spine. Development corridors connect major nodes, creating purposeful interaction, requiring high-density development - both residential and commercial - along the route.

- The Aerotropolis-Boksburg Corridor;
- The Aerotropolis-Germiston and Bedford View Corridor; and
- The Mining Belt Corridor.

Combining nodes and corridors will promote densification of residential development while serving as an increasing thresholds for public investment around these corridors and nodes. Figure 2 illustrates a mixed land use corridor development.

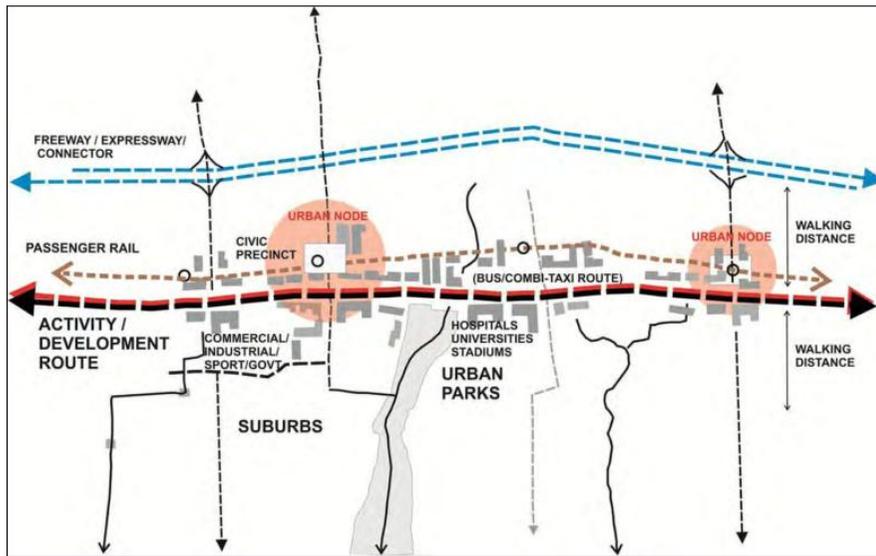


Figure 2: Mixed land use corridor development

Development corridors exhibit dynamic roles and land uses, which influence the character of specific areas along the corridor. However, corridor development generally exhibits a strong relationship between the transportation route and the surrounding land uses.

In this regard, more intensive development and economic activities tend to be concentrated, at least initially, in nodal areas.

2.3 TRANSIT ORIENTATED DEVELOPMENT

A transit-oriented development (TOD) is a *mixed-use residential and commercial area* designed to maximize access to public transport, and often incorporates features to encourage the use of public transport. 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 400 to 800 m from a transit stop, as this is considered to be an appropriate scale for pedestrians.

The following Transit Orientated Development Nodes were identified for Region A:

- Elandsfontein rail station node;
- Ravensklip rail station node; and
- Knights rail station node.

2.4 MIXED LAND USE

Area of existing or proposed horizontal and/or vertical integration of suitable and compatible residential and non-residential land uses within the same area or on the same parcel of land; implies contextually appropriate intensity of land uses that should facilitate efficient public transport and a vibrant local urban environment.

Mixed land use may be “horizontal mixed use” or “vertical mixed use.” “Horizontal mixed use” means that residential and commercial uses are adjacent to each other. “Vertical mixed use” means that residential and commercial uses are stacked over each other. Typically, residential uses are placed over ground-floor retail, office and/or restaurant uses. By focusing on development and redevelopment projects where land uses are more integrated, people are enabled to walk to school, to shopping facilities and to work.

Neighbourhood identity will be stronger, people will feel more connected to where they live and will have a stronger sense of place. By encompassing more required functions, residential, shopping and dining, the number of vehicle trips will be reduced. Mixed-land use

strategies will allow communities to develop in a more integrated manner and will encourage the planned integration of compatible uses, both in new development and redevelopment projects.

2.5 DENSIFICATION AND INTENSIFICATION

The process of land use intensification refers to achieving a greater spectrum of *mixed uses* (commercial, industrial and residential) through the *increased use of space*, both horizontally and vertically, in accessible, high-opportunity locations. Employment-generating activities, retail development, social facilities, public institutions and intensive mixed-use and residential development should be encouraged.

Through adopting an integrated approach to economic, transport and land use planning, it will encourage land use intensification along the nodal development corridors, facilitating and reinforcing opportunities for accessibility for a range of people.

3 KEY DRIVERS OF CORRIDOR AND NODAL DEVELOPMENT

It is important to know that nodes and corridor development require high quality, reliable transport to secure accessibility to promote and achieve densification. Certain land uses are better suited to different environments, and the City must ensure that these needs are catered for.

Three main structural elements that can drive land use intensification by means of mixed use in development corridors and nodes includes strip development, urban freeways and rail networks.

Strip development - Strip development is characterised by corridor-type development, but on a reduced scale comprising of mixed uses (commercial, industrial and residential) and is often located along portions of development routes and activity routes/streets. The mix of activity along these strips may vary, with some areas having a stronger commercial/retail focus, while others may be characterised by dense residential development.

Urban freeways - These routes provide high levels of visibility and flows of people. The high motor vehicle connectivity provided by direct freeway/expressway connections tends to attract manufacturing, warehousing, major retail and industrial type land uses. These opportunities tend to be realised around key intersections/off ramps and/or on roads running parallel or linked to freeways/expressways.

The rail network- The rail network provides for mobility over longer trip distances. The hierarchy of stations supporting the rail service are primary points of accessibility, particularly when associated with areas of high road based accessibility, and can generally support intense concentrations of activity and medium – high land use densities.

As complete, compact communities, nodal developments have a number of social, environmental, health and economic benefits. Summarised below are benefits of a mixed land use nodal corridor development.

Community benefits	Enhancing neighbourhood life can boost the perceived security of an area by increasing the number of people on the street.
Environmental benefits	It reduces sprawl and traffic, and preserves precious open spaces and environmentally sensitive areas.
Public health benefits	With shops, services and housing in such close proximity to one another, nodal development helps make active transportation options like walking or biking more realistic

	for a broader range of community members.
Economic benefits:	By concentrating growth in areas that are already serviced with community water and sewer services, municipalities are able to reduce infrastructure servicing costs, while diversifying and growing their tax base.

Table 1: Benefits of mixed land use and corridor development.

4 LAND USE PROPOSALS

4.1 ACTIVITY NODES

The following general land use principles should be adhered to in these nodes:

- The highest intensity of land use must be located within the nodes.
- Appropriate scaling down of the density and intensity of land uses on the interface and beyond the nodal boundary must be managed and facilitated to protect existing residential areas.
- Establish a mixed- and multi-use approach to activity patterns to achieve an urban (as opposed to suburban) scale of intensity.
- Horizontal spread / growth of nodes to be contained within defined boundaries and regulated according to the supporting transport and engineering infrastructure capacities and the neighbourhood character.
- Health, education, social, religious and other public / social facilities that attract a constant flow of people should be used as nodal 'anchors' (aim to maximize private investment in proximity to these facilities).
- Market places and facilities for trading to be accommodated in the design.

4.1.1 THE AEROTROPOLIS CORE NODE

The Aerotropolis is a young and bold concept which is underpinned by the notion that in today's world airports are economic assets and catalysts for development. The Aerotropolis can be defined as aviation linked urban form consisting of an airport surrounded by tens of thousands of acres of light industrial space, office space, upscale retail mix, business-class hotel accommodations, restaurants, entertainment, recreation, golf courses, and single and multifamily housing¹.

The Aerotropolis is analogous in shape to the traditional metropolis made up of a central city and its rings of commuter-heavy suburbs, the Aerotropolis consists of an airport city core and outlying corridors and clusters of aviation-linked businesses and associated residential developments². As the Aerotropolis develops, it often becomes the centre of a complex distribution and shipping network or a destination for niche industries, such as high-tech, time sensitive and freight forwarding companies. This in turn leads to impressive economic growth and job creation.

Such job creation on the other hand, stimulates residential projects – thus, further fuelling Aerotropolis development.

As multimodal transportation and advanced communication infrastructure develops at and near airports, businesses will have even more reason to move to an Aerotropolis³. As increasing numbers of businesses and commercial service providers cluster around airports, the Aerotropolis is becoming a major urban destination

¹ "Assessing the Feasibility of an Aerotropolis Around Cleveland Hopkins International Airport: Executive Report". The Center for Public Management, Cleveland State University. (2010)

² "The Way Forward". John Kasarda. Global Airport Cities. Insight Media. (2010)

³ According to Kasarda, the principal determinant of land value, lease rates and the type of commercial use on any given property will be the cost of moving people and products to distant markets.

where air travellers and locals alike can work, shop, meet, exchange knowledge, conduct business, eat, sleep, and be entertained without going more than 15 minutes from the airport.

For detail land use proposals consult the Aerotropolis 'Planning and Land Use Guidance' Document (PLUG).

4.1.2 GERMISTON CBD

The Germiston node includes Germiston CBD; Primrose Secondary Node, Rand Airport, and the station densification nodes of Germiston, President, Driehoek, Gosforth Park, Refinery, Hillview, India, Germiston West, Germiston South, and Germiston Lake.

The Ekurhuleni Municipality has embarked on a programme to prepare an Urban Design Framework & Implementation plan for the urban renewal of Germiston. The most predominant land uses within the node include:

- Industrial: 68ha
- Mining activities: 37ha
- Open space: 20ha
- Residential: 12ha

The Germiston Urban Design Framework proposes the following land uses and development controls for the Germiston CBD. For more detail refer to the document EMM Urban Renewal: Priority Area 1: Germiston: gearing towards 2030.

Land Use	CP	BC	GI	TOD	CD	HDR	TE
Low density residential						•	
Medium density residential	•	•	•	•	•	•	•
High density residential		•			•		
Primary/Secondary Education		•	•	•	•	•	
Tertiary Education							•
Medical		•			•		
Community (e.g. Church, Hall)	•	•	•	•	•	•	•
Micro enterprises				•			
Retail		•	•	•	•		
Office	•	•	•		•		
Entertainment		•		•			
Motor trade			•				
Commercial			•				
Light Industrial			•				
Public Open Space	•	•	•	•	•	•	•
Maximum FAR	7.2	15	2.8	2.4	2.4	2	2.4
Maximum Coverage	60%	60%	40%	40%	60%	40%	40%
Maximum Height (storeys)	12	25	7	6	4	5	6

Table 2: Precinct Land Use Proposals - Germiston CBD

4.1.3 THE BEDFORDVIEW NODE

Bedford view node includes the three secondary nodes: Eastgate, Bedford Village and Bedford Centre. The node also incorporates the activity spines of Nicol Road, which links Eastgate and Bedford Village, and Bradford Road, which links Eastgate and Bedford Centre.

Land Use	Proposals
Low density residential	
Medium density residential	•
High density residential	•
Primary/Secondary Education	•
Tertiary Education	
Medical	•
Community (e.g. Church, Hall)	•
Micro enterprises	
Retail	•
Office	•
Entertainment	•
Motor trade	
Commercial	
Light Industrial	
Public Open Space	•
Maximum FAR	3.5
Maximum Coverage	60%
Maximum Height (storeys)	6

Table 3: Land Use Proposals – Bedfordview Node

4.1.4 THE BOKSBURG CBD NODE

The Boksburg Node includes the primary node of Boksburg CBD, the secondary node of Boksburg North as well as two station densification nodes, namely Boksburg and Boksburg East Railway Stations. As mentioned prior, the first phase of the IRTPN route connects the Boksburg Node to the Aerotropolis Node in the north. Furthermore, it connects the node to the secondary nodes of

Klippoortje and Lesedi in the south. The K106 connects the node to the Germiston Node in the west and Benoni in the northeast.

The following table provides guidelines with regards to proposed land uses in the area. Note that these proposals are further subject to the requirements of the Boksburg CBD and surrounds LSDF.

Land Use	Proposal
Low density residential	
Medium density residential	•
High density residential	•
Accommodation Establishment	•
Auto Trade	•
Business	•
Commercial	•
Community facilities	•
Cemetery, Crematorium, Chapel	•
Primary/Secondary Education	•
Filling Station	•
Hospitality uses	•
Home enterprises	•
Industrial	•
Medical facilities	•
Offices	•
Personal Service Industry	•
Service Industry	•
Sport Stadiums and Facilities	•
Spaza shops	
Taverns	

Public Open Space	•
Maximum FAR	9
Maximum Coverage	85%
Maximum Height (storeys)	10

Table 3: Land Use Proposals: Boksburg CBD

Municipal	•
Government	•
Sport Stadiums and Facilities	•
Public Open Space	•
Maximum FAR	3.6
Maximum Coverage	60%
Maximum Height (storeys)	6

Table 4: Land Use Proposals: Station Nodes

4.2 STATION NODES (TRANSIT ORIENTATED DEVELOPMENT NODES)

These nodes represent opportunities to restructure the current fragmented City form and to provide more inclusive environments for the City's communities. Table 4 below sums up proposed land uses and development controls for these nodes.

The key to successful land use and transportation integration is obtaining higher land use densities and a greater mix of land uses at transit stations, such as IRPTN stations and rail stations. These are the points where access is obtained to the public transport systems and attempts should thus be made to optimally use these strategic locations. This can be done by locating a mix of work, community and higher-density residential uses at these stations, as illustrated in table 4.

Land Use	Proposal
Low density residential	
Medium density residential	•
High density residential	•
Auto Trade	•
Business/Retail	•
Commercial	
Community facilities	•
Light Industrial	
Heavy Industrial	
Medical facilities	•
Offices	•
Entertainment	

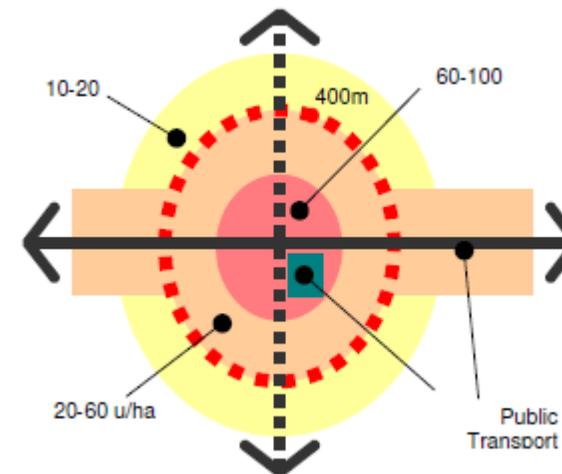


Figure 3: Housing Densities

Figure 3⁴ illustrate proposed residential densities in and around Transit Orientated Development Nodes, with the highest density closet to the proposed station.

The process of land use

⁴ City of Johannesburg BRT Study

intensification refers to achieving a greater spectrum of mixed uses (commercial, industrial and residential) through the increased use of space. This is achieved through through a vertical land use mix.

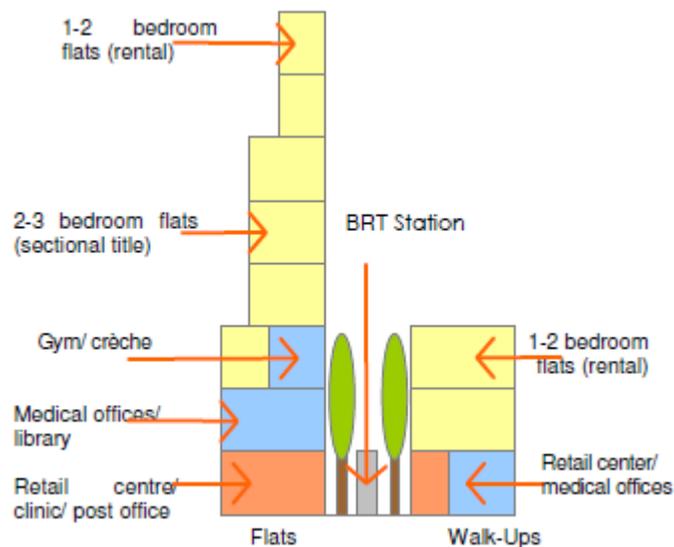


Figure 4: Vertical Land-Use Mix⁵

4.3 DEVELOPMENT CORRIDORS

For those part of the identified corridors where traffic flows with minimum or no interruption (e.g. the R 24) the following land uses are proposed:

- Mixed land uses at intersections and nodal points; and
- Predominantly higher density residential along the corridor.

For the activity corridors, the following land uses are proposed:

- **Medium to high density residential:** Locating medium density development adjacent to major transit routes, (i.e. activity corridors) will ensure that a large number of residents, workers and shoppers have direct access to transit services, and will ensure that there are enough users to support high levels of transit service along the route.
- **Encourage Mixed-Uses:** Including medium density residential, retail, small shopping plazas, localized commercial, offices, small scale light industrial and entertainment activities will promote transit use along activity corridors by encouraging more balanced ridership levels, day-long transit use and a safer pedestrian environment

Mixed-use development along activity corridors could take several forms:

- Mixed-use development on individual sites, which might include various combinations of retail, commercial, light industrial, and residential.
- Different uses on different sites. Although individual sites may include only one use, the mixed-use character of the street would be preserved by varying uses between sites.

⁵ City of Johannesburg BRT Study

5 PLANNING / DESIGN GUIDELINES

Although there is no single design template that can be applied to all nodes, there are certain planning and design principles present in all good examples of nodal development.

- **Compact and complete:** Nodal developments should be designed to include a range of mutually supportive uses, including retail, service, offices and residential uses combined and integrated in a compact form. As nodes are developed around pedestrian accessibility, core services, transit and shopping should be no more than a five-minute walk from residences.
- **Public transport orientated:** To reduce the dependency on cars and provide greater transportation choice to residents, visitors, workers and shoppers, successful nodal developments include good connections to, from and through the community. It is important to provide sufficient housing densities to support public transport - between 35 to 100 dwelling units per hectare.
- **Pedestrian friendly:** Street life is an integral component of successful nodes. To encourage and facilitate walking, successful nodes feature a comfortable, safe and efficient pedestrian network with wide sidewalks, seating, rain protection and other pedestrian comfort features.
- **Residentially diverse:** Successful nodes are dynamic communities able to accommodate a diversity of residents at varying stages of life. From seniors housing to family-oriented developments, they contain a mix of housing types from detached single family homes to flats and group housing. This residential diversity helps accommodate a broad range of incomes and needs, while also helping support area services and businesses. With the higher densities, residential privacy and safety can be addressed through careful design and building orientation and siting. Target housing densities (gross) can vary from around 30 units per hectare in more rural nodes up to 150 units per hectare in the densest urban nodes.
- **Multi-modal:** Large surface parking lots are minimized and replaced with smaller lots to the side and at the rear of buildings and with on-street parking. Transit stops are conveniently placed and pedestrians are provided with wide sidewalks and safe cross-walks. Streets often include dedicated bike lanes to improve cyclist safety
- **Well designed:** Good building design through the use of design guidelines helps achieve higher residential densities while maintaining liveability and is a prerequisite for attracting both residents and businesses. Design guidelines should be location specific and created in consultation with property owners, businesses, and citizens. Guidelines can stipulate simple design features like having storefronts and entryways face streets, plazas or parks.
- **Public:** An active, engaging and safe public realm is central to successful nodal development. Comfortable sidewalks, public sitting and gathering places, street trees and other plantings, public art, and ground level, street front retail are all components of a positive public realm. Investing in and upgrading these spaces can help attract more pedestrians and street traffic and promote local businesses. Many nodes also include some kind of larger public gathering or event space as a focal point around which other uses can be clustered. These high-quality public spaces help foster community interaction and community pride and can be used for a variety of events with regional drawing power, such as farmers markets and festivals.
- **Green:** Successful nodal developments integrate, protect and enhance natural features and open space. Existing vegetation like trees and notable landforms, such as bluffs or large boulders should

be maintained as focal points or incorporated in the overall design. Naturalized storm water management is also encouraged to reduce servicing costs and create more multi-purpose green and open space. In general, a minimum of 20 % of a node's gross area should be maintained as park or open space.

6 CONCLUSION

The proposals put forward in this document rely mainly on the following elements:

- Adequate provision of public transport;
- Higher residential densities around nodes and corridors,
- The intensification of land uses by providing a mix of land uses, either on an individual stand (or within a single building), or different uses along a street. The grain of the mixed land use differs between the CBD nodes and the transit orientated nodes (finer grain), and
- The ability to house different income groups in the same geographic area.

These proposals should be supported by the land use management scheme through the use of innovative tools such as “overlays”, management areas or even more flexible zonings. There is also a need for urban design at a nodal level – moving from the broader concepts highlighted in this document to a higher level of detail.

To properly give effect to the proposals contained in the RSDF as well as the proposed new SPLUMB legislation and the requirements of urban design and flexible land use management, Ekurhuleni should ensure that sufficient planning capacity and skills exist.