

# The Spatial Development Concept

## 1. Introduction

The spatial development concept provides strategic guidance for the spatial restructuring of the municipal area. Having determined what the objectives for spatial development in Mogale City are, the following phase is the formulation of those development proposals and strategies which are essential to achieve the objectives.

The spatial development concept therefore indicates the desired spatial distribution of various land uses and activities across Mogale City. It indicates where certain types of developments should or could take place, how these areas relate to other areas, and what development standards should apply.

## 2. Constructing the Spatial Development Concept

The spatial development concept is based on a system of interrelated and integrated spatial elements which together make up the desired spatial development form for the municipal area. These spatial elements are made up of nodes, networks, and surfaces.

The essence of development in this system is the movement of people, goods and services that produces the basic impetus for developing functional relationships between otherwise independent and unrelated elements. The movement of people, goods and services are channelled along specific routes that describe a **network of interaction**. Where networks intersect the opportunity for people, goods and services to interact develop and this gives rise to activity nodes. The intensity of interaction gives rise to the development of a **hierarchy of nodes** of different sizes depending on the level of interaction taking place in a node. This system of networks and nodes are tied together through **surfaces** that fill the areas between the nodes and networks.

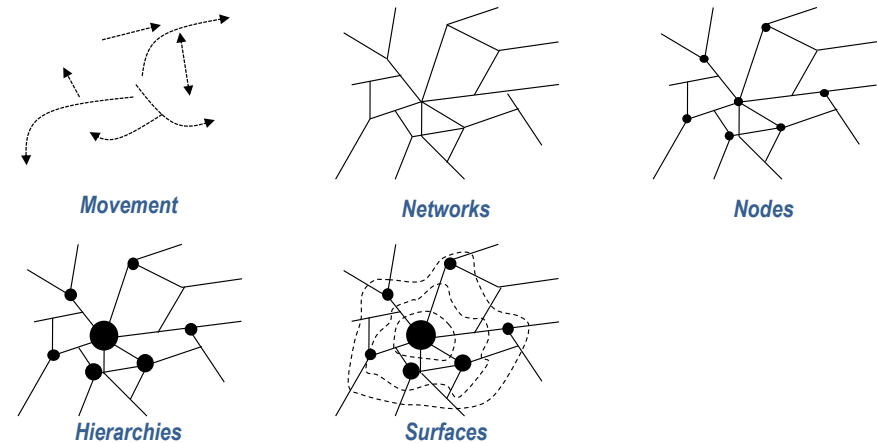


Figure 4 : The development concept

The spatial elements are dealt with according to a layering approach, where different elements build onto one another based on the reciprocal relationships between these elements, namely:

- The spatial development concept starts by identifying the **natural structuring elements** that exist in Mogale City and adjoining municipalities. These constitute pre-existing conditions in the municipal area which to a large extent dictate spatial form and development patterns because of the restrictions that these elements often place on development. The natural structuring elements include physical barriers such as mountains, ridges, and rivers or natural resources such as conservation areas.
- Secondly, the spatial development concept looks at the division between **urban and rural environments** through the application of an **urban development boundary**.
- The spatial development concept will subsequently address the **urban and rural environments** in terms of the nodes, networks and surfaces that apply to those environments.
- Finally, the spatial development concept looks at the **movement network** that exists that connects the different elements, and how this should be strengthened to enhance the interaction between the various elements.
- The spatial development finally concept also deals with certain non-spatial issues such as cultural heritage and city identity.

The spatial development concept follows a focused and strategic approach in identifying development opportunities. This means that, taking into consideration current growth dynamics, it is better to make a few key development proposals that will focus development energy to areas where agglomeration advantages can be achieved and a difference can be made in the spatial structure as opposed to identifying every possible development opportunity and never reaching critical mass with any of those.

It should be borne in mind that the Mogale City Spatial Development Framework remains a broad strategic planning framework due to the large geographic space that it covers. It cannot therefore make detail proposals for specific areas. For that purpose, local spatial development frameworks must be drafted.

### 3. Natural Structuring Elements

#### 3.1 Natural Open Space System

Natural open space consists of areas or physical elements that have valuable ecological characteristics and include -

- Mountains and ridges
- Rivers and dams
- Nature reserves and environmentally sensitive areas
- Wetlands
- Drainage lines
- Riparian zones

The protection and management of Mogale City's natural environment is important for the following reasons –

- The ecological integrity of the natural open space system is important in order to maintain natural ecological systems and processes.
- The proximity of the Cradle of Humankind World Heritage Site to Mogale City means that the management of the municipality's natural environment is of importance to protect the internationally significant cultural heritage found in the area.
- The protection of the natural visual quality of the area increases the attractiveness, liveability and investment potential of the area.
- The natural open space system plays an important role in the social, mental and physical well-being of residents.
- The natural environment forms the basis of tourism in Mogale City and it is therefore imperative that the natural environment is conserved to ensure the long-term sustainability of the tourism industry in Mogale City.

The table below sets out the natural structuring elements of municipal and regional importance.

**Table 24: Natural structuring elements**

Natural Structuring Element	Identification
<b>Mountains and Ridges</b>	Magaliesberg, Witwatersberg, Protea Ridge
<b>Rivers, drainage lines, dams, wetlands and Riparian zones</b>	Crocodile River, Jukskei River, Skeerpoort River, Magalies River, Klein River, Bloubank River, Wilge Spruit, Honingklip Spruit, Nooitgedacht Spruit, Muldersdrift Spruit, Rietspruit, Hekpoort Spruit, Doring Spruit, Rooisloot Spruit, Swart Spruit, Hugenote Spruit, Wonderfontein Spruit, Tweelopies Spruit, Blaauwbank Spruit
<b>Nature reserves, conservancies and environmentally sensitive areas</b>	Krugersdorp Nature Reserve, Hartbeesfontein Conservancy, Magaliesrivier Conservancy, Lammermoor Conservancy, Urban Wildlife Reserve, Blougat Reserve

The Mogale City Environmental Management Framework is the main tool the municipality has at its disposal to manage the natural environment in its area of jurisdiction, and as such all development proposals should be evaluated against this framework.

“The main purpose of an EMF is to proactively identify areas of potential conflict between development proposals and critical and sensitive environment. It assists in focussing EIA’s and

other decision-supporting instruments on the most important issues by pro-actively ‘red-flagging’ areas of high environmental importance”<sup>6</sup>

The following generic principles should apply to the natural open space system:

- The natural open space system should be protected from intrusive, irresponsible and *ad hoc* developments that damage the ecological integrity as well as visual quality of these areas. These include urban development, mining activities and agriculture.
- A continuous open space system must be developed in Mogale City. This means that in certain areas where natural open space is currently affected by activities the municipality must intervene in order to ensure that ecological corridors can be created and are able to function appropriately.
- Focus should be placed on and resources allocated to those consolidated natural open space areas where long term ecological sustainability can be achieved.

Although the Spatial Development Framework aims to make development proposals that respect the ecological integrity and environmental sustainability of the area, it has been necessary in certain instances to re-evaluate environmental potential against development potential in order to achieve the truly sustainable development of the area.<sup>7</sup> Two specific areas that have been looked at in this regard are the following:

- The Cradle of Humankind World Heritage Buffer Zone on the western side of the N14, between Hendrik Potgieter Road and Malibongwe Drive has been evaluated in terms of the impact it has on the inherent development potential of the area, in particular the
  - The Lanseria Airport Node development

<sup>6</sup> Source: Mogale City Environmental Management Framework, 2003

<sup>7</sup> “Sustainable development” means the integration of social, economic and environmental factors into planning, implementation and decision making so as to ensure that development serves present and future generations. Source: National Environmental Management Act, 1998



- The development of a corridor along the N14 of approximately 600 metres wide on the western side of the N14
- The development of nodes around the intersection of the N14 and Hendrik Potgieter Road.
- The Muldersdrift area to the east of the N14 has been indicated as an urban development area, notwithstanding the presence of isolated pockets of environmentally sensitive land in this area. These pockets of land are not contributing to a larger ecological system (with the exception of watercourses that run through the area). Measured against the inherent development potential of this area, these pockets of land should be re-evaluated and reconsidered in terms of the triage principle of allocating resources to those areas where a difference can be made.

## 4. Growth Management

### 4.1 Introduction

In terms of the Development Facilitation Act, 1995's Chapter 1 General principles for land development, "*policy, administrative practice and laws should promote efficient and integrated land development in that they... discourage the phenomenon of urban sprawl in urban areas and contribute to the development of more compact towns and cities*".<sup>8</sup>

South African urban areas are characterised by urban sprawl (i.e. urban areas that are spread out). "*This means that people have to spend a lot of time and money travelling long distances to work, shops, schools and social facilities. It also means that local authorities must spend large amounts on providing and maintaining excessive amounts of infrastructure*".<sup>8</sup>

<sup>8</sup> Manual on the Chapter 1 Principles of the Development Facilitation Act, 1995

In order to deal with this undesirable development pattern, a key consideration of the spatial development framework must be growth management. One of the strategies typically employed in the South African context to deal with growth management is the demarcation of an urban growth boundary (or urban edge). There however exist a number of other supporting strategies that collectively form a package of interventions for growth management.

### 4.2 Understanding the Urban Edge

The urban edge can be defined as an institutional boundary within the municipality with the sole purpose of containing physical development and sprawl and re-directing growth towards a more integrated, compact and efficient urban form. The urban edge clearly demarcates the boundary between urban and rural development.

Peripheral locations such a Mogale City are, due to their location on the edge of the larger urban complex, the recipients of continuous outward development pressures and are typically seen as the perpetrators of sprawl. The delineation of an urban edge for Mogale City is vital for achieving an efficient and sustainable municipality through -

- Containment of urban sprawl;
- Intensification of development;
- Integration of urban areas;
- Protection of valuable agricultural, natural and cultural resources;
- The optimum use of existing resources in established urban areas, such as bulk service infrastructure, roads and public facilities; and
- Reducing the need for commuting as well as commuting distances.

The delineation of the urban edge for the purpose of the Mogale City Spatial Development Framework takes a long term, strategic approach, looking at potential future pressure areas, provincial growth directions, population projections and strategic value of certain locations. The value of having a long term urban development boundary for the municipality is that –

- It enables long term, focused planning for infrastructure and service delivery;
- It provides certainty in the market; and
- It enables integrated, pro-active long term spatial planning which can direct and manage growth and development.

**Having determined the edge from such a strategic perspective, the municipality should not entertain ad hoc, short term proposals for the amendment of the urban edge, unless a strategic change has taken place in the municipal and provincial context.**

### 4.3 Boundaries

In terms of the Gauteng Spatial Development Framework, 2000 and Beyond, the provincial urban edge around Mogale City was identified as -

*“... thence northwards along the boundary of Randfontein and Krugersdorp around the Krugersdorp Nature Reserve, and following the Krugersdorp Ridge to the N14, thence following the R28 in a northerly direction up to the R512 meeting the boundary of the WGSC and following it around Lanseria and the Diepsloot Nature Reserve ...”*

During subsequent revisions of the urban edge by the Gauteng Provincial Government, the urban edge in the Muldersdrift area was however pushed back to the Johannesburg municipal boundary, and the area around Lanseria airport was demarcated as an island of urban development. The current provincial urban edge in Mogale City is drawn around existing urban environments and does not make provision for any urban expansion. One of the key tasks of this Spatial Development Framework is to investigate the feasibility of the current urban edge and to make recommendations regarding an amendment of this edge to accommodate development pressure in Mogale City and long term potential development needs in the province as a whole.

Future growth opportunities in Mogale City were investigated from a provincial and structural perspective as opposed to looking at individual pockets of development pressure. The proposed expansion was discussed with the Gauteng Provincial Government and it was agreed

that the urban edge as proposed in this SDF is an ideal long term development boundary for the province in general and Mogale City specifically.

In this regard, the area that presents the most meaningful opportunity for future development is the area to the east of the N14, between Hendrik Potgieter Road in the south and the R512 in the north. This section of the N14 is seen as one of the next major provincial development corridors, spurred on by the development proposals currently taking shape around Lanseria Airport.

### 4.4 Supporting strategies for growth management

The urban edge is not an isolated management tool, but rather part of a package of urban growth management tools that all need to be employed equally vigorously by the local authority in order to achieve desired, sustainable and efficient urban growth management.

Internationally, a sustainable approach to growth management aptly called “**smart growth**” is seen as the most efficient way of developing urban areas. Smart Growth is a collection of urban development strategies aimed at reducing sprawl and promoting growth that is balanced and fiscally, environmentally and socially responsible. Smart Growth tries to promote growth and development in areas with optimal opportunity, and offers an antidote to the sprawl that has resulted from unlimited low-density development further and further away from the urban centres. Rather than simply restricting development, smart growth is focussed on how and where new development should be accommodated.

The principles of smart growth are –

- New growth and development must be leveraged to improve existing areas of opportunity.
- Redevelopment of existing areas must be promoted rather than abandoning existing infrastructure and facilities only to rebuild it farther out.
- Development must be “town-centre”, transit and pedestrian oriented.
- Integrated, mixed-land uses must be promoted in strategic locations.

To support the successful implementation of the urban edge, the municipality must also focus on employing the following strategies:

- **Management Zones along the urban edge.** Well functioning urban environments are structured around zones of diminishing intensity as it moves away from areas of highest opportunity. Typically the fringe of urban areas are characterised by what is termed the urban-rural transition zone, comprising low density urban development, low intensity, extensive land uses and semi-rural activities such as nurseries. The urban edge should therefore not denote a clear divide between urban and rural, but rather include management zones along the edge that make provision for a gradual transition from an urban to a rural environment. The area directly inside the urban edge should look at lower urban intensities, while the areas directly outside the urban edge should make provision for semi-rural and rural residential activities.

In this regard the proposed Muldersdrift Spatial Development Framework should provide specific guidance with regard to various intensities of land uses, the nature of the corridor along the N14 and the transition of the urban environment into the Cradle of Humankind World Heritage Site Buffer Zone. Likewise, the Buffer Zone should make provision for transitional land uses along the N14 corridor.

- **Promoting Infill development** refers to the identification of vacant land parcels within the demarcated urban areas, amongst existing developments, and developing these parcels of land according to their optimal development potential.
- **Promoting Densification in and around strategic locations** is an important antidote to urban sprawl as it looks at providing high numbers of housing units in strategic,, highly accessible locations with high levels of access to economic and social opportunities. If the housing demand, or part thereof, can be satisfied through centrally located, high quality, higher density residential development then there will be less demand for low density residential developments on the periphery. The secret to success for stimulating a demand for higher density residential living is the quality of the urban environment in which these developments are located. These areas should therefore be focus areas for public investment in infrastructure, social services,

streetscape and urban design, open spaces and general high quality, positive performing urban environments.

- **Managed expansion** refers to the gradual and incremental outward growth of a settlement (i.e. the so-called ripple effect), but within demarcated urban development boundaries (or urban edge), as opposed to leap frog developments that are not physically and functionally integrated with the main urban area. This approach is of particular importance for future urban development in the Muldersdrift area. Because of the size of the area, it will take a number of years for development to fill this area. What should not happen is a scattering of developments throughout the area which have no linkages with each other or the main urban activity areas. The Muldersdrift Spatial Development Framework should therefore indicate the phased development of the area through an incremental development approach. Leap frog development should not be permitted in the area.

## 5. Urban Areas

For the purpose of the Mogale City Spatial Development Framework, Urban Areas are defined as those areas that are characterised by large concentration of activity and built-up areas. The typical activities found in urban areas include residential development, business and administrative functions, social services and infrastructure, industrial and commercial developments etc. The urban areas should comprise a range of services and facilities that are required to achieve a sustainable, efficient, convenient and liveable environment.

The following section deals specific with the urban environment and its main elements, namely

- Future of mining land adjacent to urban areas
- Activity Network
- Densification Priority Areas
- Residential Settlements
- Urban Open Space System



## 5.1 Activity network

The activity network that have been identified as part of the spatial development concept are focussed on the following –

- Strengthening the Krugersdorp **Central Business District**.
- Creating a network of interlinked **activity nodes** that ensure an equitable distribution of services and facilities throughout Mogale City. One of the aspects that was identified in the previous spatial development framework is the fact that Mogale City lacks an effective and functionally defined hierarchy of nodes.
- Utilising the energy created by major movement infrastructure and public transport networks to create **activity spines**. These spines are especially focussed on linking up with activity areas to the east of Mogale City to ensure functional integration with the Johannesburg activity network.
- Utilising the development potential of the N14/R28 to create a **development corridor**.
- Creating opportunities for **specialised activity areas**.

## 5.2 Activity nodes

Urban activity nodes are concentrations of economic and social activity located at accessible locations such as modal interchanges and the intersections of public transport routes. These nodes should be positive performing environments that are able to attract business and economic developments to these points. Well-functioning urban nodes are vibrant areas comprising shopping, work, social and cultural opportunities and public transport facilities in a high quality, safe public environment.

From an urban efficiency and functionality perspective, the clustering of community, social and business facilities in nodes around points of highest accessibility is of vital importance, i.e. -

- By clustering facilities, a high quality node can be created that can serve as the heart of communities and promote social interaction.

- Multiple neighbourhoods can be served by social services in central points.
- The sharing of facilities between various services (e.g. buildings, logistics, parking etc.) can take place.
- Central clusters ensure enhanced accessibility and convenience for residents.

The Krugersdorp Central Business District (CBD) is the main business, social and administrative centre in Mogale City and fulfils a regional function. As with most CBD's of towns and cities around the country, this area has seen a gradual decline in the character, attractiveness and demand for business space over the last few decades. Suburban retail and office developments are in many instances now more preferable locations for businesses. The CBD however still remains the administrative centre of Mogale City and as such have an important function to play. Urban regeneration initiatives in many CBDs around the country and internationally have seen the successful reversal of urban decline, with these areas once again becoming desired destinations and locations. With this aim in mind Mogale City has appointed service providers to do an Urban Design Framework for the Krugersdorp CBD.




The following general principles apply to the development and management of nodes:

- In order to support the effective development of nodes in Mogale City, the development of urban non-residential land uses, such as business, retail, community facilities, and social services should be restricted to areas demarcated as nodes in the SDF.
- Nodes should typically be located at the main access points in urban areas, typically at the intersection of a major mobility route and the major collector route or around public transport facilities such as train stations and bus termini.
- These nodes should show a large degree of public investment in infrastructure, public domain and social services.
- Nodes must be characterised by mixed-use, high intensity activity and higher density residential development (maximum FSR's, coverage and height should not be restricted).
- The manner in which parking in the nodal areas are treated is of importance. Large parking lots adjacent to streets should not be promoted. Buildings should be placed as close to street boundaries as possible to facilitate pedestrian movement and to define and shape the public space.

- Extroverted as opposed to introverted development patterns and typologies must be promoted.
- Site layouts and building designs of individual developments must take cognisance of and support public transport and pedestrian movement.
- Urban design frameworks must be formulated for each of the nodes.

The following hierarchy of nodes can be found in or are proposed for the Mogale City Urban Areas:

Table 25: Hierarchy of Activity Nodes

Hierarchy of Node	Characteristics and Guidelines	
<p><b>Primary Node</b></p>	 <p style="text-align: center;">Krugersdorp CBD</p>	<ul style="list-style-type: none"> <li>• Prime location for higher order office and retail development</li> <li>• A variety of goods, services and speciality products are offered</li> <li>• Higher density residential development should form an integral part of the environment. However, residential development in the CBD must comprise business development on ground floor.</li> <li>• Investment in the quality of the public environment and good urban management are key to retaining existing and attracting new high order business activities.</li> <li>• Public transport movement and infrastructure must be an integral part of the CBD.</li> </ul>
<p><b>Secondary Nodes</b></p>	 <p style="text-align: center;">Emerging Hendrik Potgieter Node</p>  <p style="text-align: center;">Emerging Leratong Node</p>	<ul style="list-style-type: none"> <li>• The secondary nodes serve specific sub-municipal regions</li> <li>• Secondary nodes should comprise mixed land uses, including higher density residential land uses</li> <li>• Where possible, the nodes should be structured around major public transport facilities</li> </ul> <p>From a municipal investment perspective, the first priority is investment in the Hendrik Potgieter Road node and the Leratong node, as these are existing development initiatives where a certain degree of development energy already exists.</p>

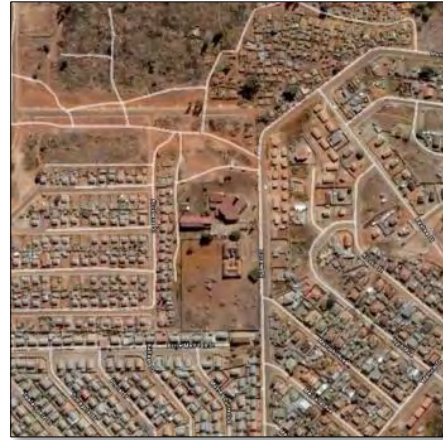
**Hierarchy of Node**

**Characteristics and Guidelines**

**Local Nodes**



Kagiso Local Node



Munsieville Local Node

- The Local Development Nodes serve one or more neighbourhoods.
- Nature of land uses are focused on local business development and the provision of local community and social services.
- Higher density residential development should be provided around the nodes.
- A focus should be on the creation of small business opportunities for local entrepreneurs.
- Because these nodes are the focus centres in local neighbourhoods, they should also fulfil the function of centres of socialisation for the local population. As such, each node should be structured around a public open space such as a square or park.
- The nodes should be integrated with major public transport facilities, and should as far as possible be located in such a manner that it is within walkable distance from a large section of the local population.
- Main routes linking the nodes with the internal neighbourhood should have a strong pedestrian focus.

The locations of the Munsieville and Kagiso nodes as indicated on the spatial development framework map are only indicative. The most viable location for the development of new economic and social nodes can only be determined through a more detailed investigation such as a township regeneration strategy.

### 5.3 Activity spines

The network of activity nodes is reinforced by a system of activity spines which connect with these nodes. Activity spines can be defined as concentrated urban development along movement routes which are typically also major public transport routes. Development can either take the form of continuous linear development or a series of nodes along the activity spine.



The criteria for identifying the activity spines in Mogale City were –

• The activity spines must be linked to major public transport routes in order to support public transport.	✓
• The activity spines must reinforce the strong urban linkages with the City of Johannesburg and must connect to that activity network.	✓
• The activity spines must have a functional relationship with the nodes in Mogale City, with the nodes typically acting as destinations on the activity spines.	✓
• The activity spines must be linked with the N14/R28 Corridor.	✓
• The activity spines must have a degree of demonstrated development potential, either in Mogale City or in neighbouring City of Johannesburg.	✓

Based on the above criteria, the following activity spines have been identified:

- Ontdekkers Road/Voortrekker Road
- Main Reef/R24/Coronation Road
- Beyers Naudé Drive

Although there are other high order roads (such as Randfontein Road and Hendrik Potgieter Road) that could in theory also qualify as activity spines, it is important to rather focus development energy to specific areas (see principle of focused and strategic development under “Constructing the Spatial Development Concept”).

The activity spines should be characterised by the following –

- High intensity, mixed land uses that are oriented towards the street space.
- High density residential development, either directly adjacent to the street or within a distance of 500m from the activity spines.
- The activity spines can be developed as continuous linear development areas or in the “beads-on-a-string” form. The nature of public transport and the length of the route should determine the development pattern. The longer the street and the less frequent stops are made by public transport, the more the development pattern should focus on the beads-on-a-string form. Shorter distances or where frequent stops are made by public transport are more conducive to continuous linear development.
- Activity spines should show a large degree of public investment in infrastructure and the public domain.
- Large parking lots adjacent to streets should not be permitted. Buildings should be placed as close to street boundaries as possible to facilitate pedestrian movement and to define and shape the public space. Land uses on the ground floor of buildings must have an extroverted public facade (e.g. shops, restaurants etc.)
- Site layouts and building designs of individual developments must take cognisance of and support public transport and pedestrian movement.
- Activity spines must achieve a balance between promoting access, creating pedestrian friendly environments, and accommodating mobility.

## 5.4 N14/R28 Development Corridor

### 5.4.1 Characteristics of a development corridor

A development corridor can be defined as “... a linear strip of land or area, connecting large activity nodes, traversing urban or inter-urban areas, surrounding a major transport facility or facilities providing an appropriate regional level of mobility and accessibility to adjacent areas, and containing a high concentration of population and mixed land uses” and “... accommodate major linear transport routes like heavy and light rail and/or freeways, large shopping concentrations etc., social, cultural and sporting facilities as well as a large amount of residential accommodation”.<sup>9</sup>

The typical elements of a development corridor are –

- Major movement infrastructure such as a railway line or highway acting as the spine of the corridor.
- Supporting movement infrastructure such as local access roads that will provide access for land uses situated adjacent to the main movement spine (typically the main movement line provides a high level of visibility to land uses while adjacent roads provide access to land uses).
- The main movement spine should preferably act as a conduit of public transport, with public transport facilities located along the corridor.
- Forces of attraction along the corridor, such as major destination points along the corridor, which creates the development impetus for eventual linear development along the corridor.
- High intensity land uses along the length of the corridor.

<sup>9</sup> Andersen and Burnett in National Department of Transport: An Integrated Urban Corridor Assessment and Strategy Development Process

The West Rand District Municipality’s Spatial Development Framework, 2008 has identified the N14 as a linkage with “high level of development potential”. The N14/R28 development corridor between Lanseria Airport and Randfontein is seen as one of the province’s future development focus areas, given the current development impetus around the Lanseria Airport.

### 5.4.2 Morphology of the N14/R28 Development Corridor

The proposed N14/R28 development corridor currently contains the following elements that already begin to define the physical make-up of the corridor:

- The N14/R28 movement route, acting as the spine of the corridor.
- Lanseria Airport, Krugersdorp CBD and Randfontein as major destinations on the corridor, acting as forces of attraction.
- The Hendrik Potgieter Road, Beyers Naudé Drive, R512 (Malibongwe Drive), Randfontein Road and Ontdekkers Road/Voortrekker Road intersections on the N14/R28 which provide opportunities for the development of strong nodes (or beads) along the corridor.
- The R114 road between Beyers Naudé Drive and R512 (Malibongwe Drive) which provides local access to land uses along the corridor in the short term.

One of the aspects that need attention and a great deal of public (or private) sector investment to unlock the development potential of the corridor is the development of local access routes to provide access to land uses along the corridor. Direct access to land uses is not possible from the N14 or the section of the R28 which runs through Krugersdorp onto Randfontein.

Land uses along development corridors are associated with a mixture of land uses such as residential and higher order commercial, retail, offices, sport and recreational, public facilities and manufacturing activities. In the case of the N14/R28 Development Corridor, it is envisaged that certain parts of the corridor will comprise certain land use characters, depending on the specific context of that part of the corridor.

The corridor also need not take the form of a continuous band of activity. At points of highest access along the central spine development will be more intense and of a higher order while at locations of lower access, lower intensity development or even part of a natural open space network may be found. Some preliminary proposals with regard to potential land use zones are-

- The section directly south of Lanseria Airport will have a more commercial, high-tech industrial nature linked to the airport, and also focusing strongly on job creation for the nearby Cosmo City and its future expansions.
- The section between Beyers Naudé Drive and Hendrik Potgieter Road should also focus on high-tech industries, but can also begin to include office, motor showrooms and other high order business activities
- The intersection of Hendrik Potgieter Road and the N14 could begin to play a regional recreational/entertainment function, building further on the existing Silverstar Casino.
- The section through Krugersdorp (i.e. to the south of Robert Broom Drive) will show the typical urban/sub-urban land-uses of retail, offices, residential and social facilities
- The section through the mining belt onto Randfontein will focus strongly on commercial and industrial type uses and, if the rehabilitation of the mining land permits it, residential.

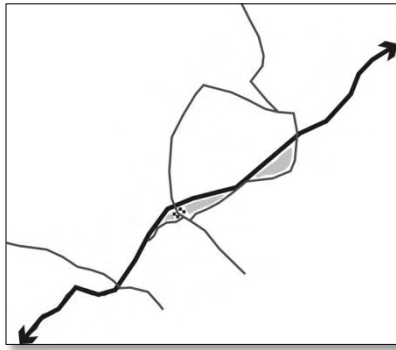

**Note:** The above land use proposals are merely indicative and do not at this point in time constitute potential land use rights in this area.

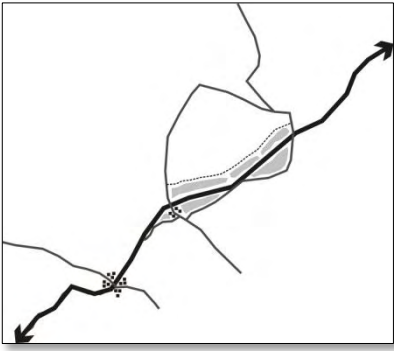
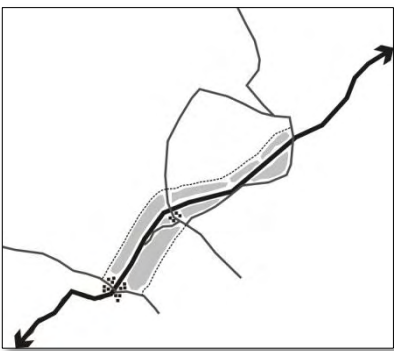
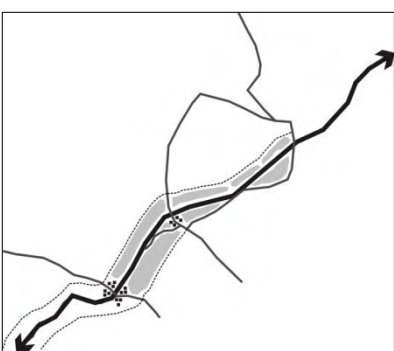
The ultimate aim is to create a high quality, well-functioning development corridor. Developments should submit to strict architectural and urban design controls to ensure a positive built environment is created. An urban design framework should be drafted which will guide development along the corridor.

One of the aspects that the urban design framework must incorporate into the design is the creation of visual corridors towards the Cradle of Humankind along the length of the N14 development corridor, but in particular at points where vistas currently exist due to topography.

### 5.4.3 Phasing of the N14/R28 Developing Corridor development

Because of the extent of the investment in road infrastructure that is required to support the development of the corridor, a phased development approach is proposed:

<p><b>Phase 1</b></p>	<p>Development of the eastern part of the development corridor between Lanseria airport and Beyers Naudé Drive, along the R114.</p>	
<p><b>Phase 2</b></p>	<p>Developing the node around the intersection of Hendrik Potgieter Road and the N14, with either private sector or public sector investment in road infrastructure to provide access to land immediately adjacent to the intersections.</p>	

<p><b>Phase 3</b></p>	<p>Developing road infrastructure along the western side of the N14 between Beyers Naudé Drive and the R512 and promoting development along this section of the corridor.</p>	
<p><b>Phase 4</b></p>	<p>Developing road infrastructure along the eastern and western side of the N14 between Hendrik Potgieter Road and Beyers Naudé Drive and promoting development along this section of the corridor.</p>	
<p><b>Phase 5</b></p>	<p>Developing supporting road infrastructure along the R28 through Krugersdorp and the mining belt where necessary and possible to provide access to high intensity land uses through the area.</p>	

## 5.5 Lanseria Aerotropolis

The area around the Lanseria Airport, stretching up to the R512 intersection on the N14, has been earmarked as a major development focus area (also known as the Lanseria Aerotropolis). This forms part of a greater regional development focus around the airport.

*“Major airports are key nodes for global production and enterprise systems offering them speed, agility, and accessibility. They are also powerful engines for local economic development attracting aviation-linked businesses of all types to their environs. These include, among others, time-sensitive manufacturing and distribution; hotel, entertainment, retail, and exhibition complexes; and office buildings that house regional corporate headquarters and air-travel intensive professionals.*

*As aviation-oriented businesses cluster around these airports and along transportation corridors radiating from them, a new urban form is emerging — the Aerotropolis — stretching up to 20 miles (25 kilometres) outward from the airports. Similar in shape to the traditional metropolis made up of a central city core and its commuter-linked suburbs, the Aerotropolis consists of an airport city core and outlying corridors and clusters of aviation-linked businesses.*

<sup>10</sup>

The Lanseria Aerotropolis development needs to support Lanseria Airport and its planned growth in terms of passenger and cargo traffic. Currently, the airport is located far from industrial, warehousing and commercial land uses. By locating these facilities close to the airport, the distances for freight transport to and from the airport will be greatly reduced.

Some of the potential land uses envisaged in this area includes tourism facilities such as hotels and visitors centres, warehousing, commercial uses (including small scale storage facilities) and industries related to aviation as well as a measure of high density residential development.

<sup>10</sup> Source: <http://www.aerotropolis.com/aerotropolis.html>

However, at this point in time the demarcation of the Lanseria Aerotropolis in the Mogale City Spatial Development Framework is merely conceptual in nature. Because of the fact that this area overlaps with the proposed buffer zone around the Cradle of Humankind World Heritage Site, more detailed investigations are required.

A Spatial Development and Urban Design Framework is required for this area in order to identify land use precincts and make more specific land use and development proposals. The formulation of the development framework should be a joint initiative between Gauteng Provincial Government, the City of Johannesburg, and Mogale City. Development and design proposals for this area should take cognisance of the environmentally sensitive land to the west thereof, and ensure that suitable interfaces and transition zones are created.

## 5.6 Specialised Activity Areas

Specialised activity zones are those areas that cater for a specific land use type that is not necessarily found in or considered desirable as part of mixed-use activity areas such as nodes and activity spines. Examples of specialised activity areas include industrial areas, educational campuses, larger institutional complexes, large sport and recreational complexes and any other economic or social activities that require large specialised areas.

In Mogale City, the following industrial areas exist:

- Chamdor
- Boltonia
- Factoria
- Delporton
- Fariaville

The existing industrial areas should be intensified before new expansion is permitted. In order to attract new development and encourage the renewal of existing development, the municipality should focus on urban renewal programmes in the existing industrial areas. Once

these areas are fully and optimally developed, the industrial areas can expand if land is available.

The following new specialised industrial areas are proposed:

- The area around the Lanseria Airport as part of the Lanseria Aerotropolis development. The nature of the industrial development in this area should be determined by an Urban Development Framework for the Aerotropolis, but should not include noxious industries.
- High tech, clean-industrial development can take place along the proposed N14 Development Corridor.

The following guidelines apply to developments in the industrial areas:

- The focus should be on industrial land uses, warehouses and commercial uses such as transport depots.
- Small scale storage facilities that are typically found in the more rural areas should be located in the industrial areas.
- Supporting facilities, such as convenience shops, restaurants / canteens, support businesses (such as printers, stationers, day-care and banks), can be provided within the industrial area, provided that the scale of such a development is restricted to that of an ancillary use that does not and will not attract the general public.
- Offices shall be restricted to administrative offices belonging to or directly linked to the activities established in the area.

## 5.7 Densification

As set out in section 43, one of the supporting strategies for growth management is “Promoting Densification in and around strategic locations “

Densification is not an end in itself, but a means to achieve more efficient utilisation of public transport, the creation of the necessary population thresholds to support community and

business facilities and to prevent low density outward expansion and development on land which is valuable from an ecological or agricultural perspective.

The two most important rules that should apply to densification are the following:

- Higher density development should be focused around and within walking distance from major activity areas and transport services.
- Densities should decrease as the distance away from major activity areas increases. Higher densities in the wrong locations or which are removed from major activity areas and transport routes can be harmful to urban efficiency and sustainability.

The following strategic densification priority zones have been identified-

- Around the Krugersdorp CBD.
- Along Voortrekker Road/Ontdekkers Road Activity Spine.
- Along Main Reed Road/R24/Coronation Road Activity Spine.
- Around the Leratong Node.
- Adjacent to the Beyers Naudé Drive Activity Spine.
- In the south-eastern quadrant of the intersection of R512 with the N14, up to the proposed PWV3. This area links up with high density proposals made in the adjacent City of Johannesburg as well as the Lanseria Aerotropolis.











These densification priority zones relate to the major activity areas as proposed by the Spatial Development Framework and is aimed at creating a synergy between economic activity and densification.

The following table sets out density guidelines for different parts of the urban areas. It should be noted that these densities are merely general guidelines and should not be rigidly employed. Deviations are possible depending on the design of a particular development and local conditions. Aspects that may influence the level of densification in a particular local context include –

- availability of infrastructure and services which can support higher density residential development.

- heritage aspects.
- socio-economic characteristics.
- topography.

**Table 26: Density Guideline**

	In densification priority zones	Within 600 metres from a node or activity spine	Adjacent to major public transport facilities such as railway stations	On the edges of the Urban Areas, directly adjacent to the rural environment	Internal residential neighbourhoods
<b>Residential Typology</b>	Medium-rise apartments	Duplex Residential and two storey walk-ups	Duplex Residential and Two to three storey walk-ups	Single residential developments	Single residential developments and townhouses
<b>Typical Density</b>	80 dwelling units per hectare and more	40 - 60 dwelling units per hectare	40 - 80 dwelling units per hectare	10 dwelling units per hectare and less	10 to 40 dwelling units per hectare (different densities will be applicable in different residential neighbourhoods based on the above-mentioned factors)
<b>Examples</b>					
					

## 5.8 Residential settlements

Having looked at the major activity areas and the densification priority areas in the urban areas, it is also important to look at the residential settlement areas that lie between these activity areas, and the principles that should apply to the development of those areas.

Residential development, in particular residential development for lower income groups, must focus on social and economic integration and inclusion. Settlement development should form an integral part of the urban areas and no housing development initiatives must be identified outside of these areas.

All future settlement developments that take place in the municipal area shall adhere to the principles of the policy document *Breaking New Ground: A Comprehensive Plan for the Development of Sustainable Human Settlement*. These include principles such as:

- Residents should live in a safe and secure environment, and have adequate access to economic opportunities, a mix of safe and secure housing and tenure types, reliable and affordable basic services, educational, entertainment and cultural activities, health, welfare and police services.
- Ensure the development of compact, mixed land use, diverse, life-enhancing environments with maximum possibilities for pedestrian movement and transit via safe and efficient public transport in cases where motorised means of movement is imperative.
- Ensure that low-income housing is provided in close proximity to areas of opportunity.
- Integrate previously excluded groups into urban areas and the benefits it offers, and to ensure the development of more integrated, functional and environmentally sustainable human settlements, towns and cities. The latter includes densification.
- Encourage Social (Medium-Density) Housing.
- Multi-purpose cluster concept will be applied to incorporate the provision of primary municipal facilities, such as parks, playgrounds, sports fields, crèches, community halls, taxi ranks, satellite police stations, municipal clinics and informal trading facilities.

- Enhancing settlement design by including design professionals at planning and project design stages, and developing design guidelines.
- Social housing must be understood to accommodate a range of housing product designs to meet spatial and affordability requirements.

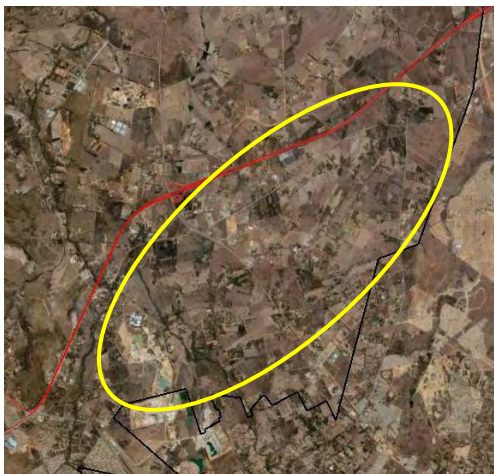
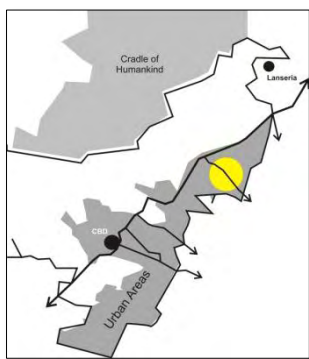

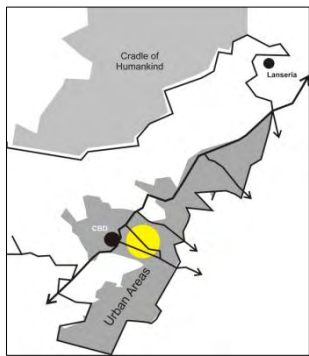
The residential settlement areas in Mogale City can roughly be divided into three areas, each requiring its own particular interventions over and above the standard principles as set out above. The table below indicates the three areas with the development strategies applicable to those areas.

The way in which the Muldersdrift area is treated is of specific importance, as this area will accommodate all long term growth in Mogale City. The table below provides an indication of the anticipated population growth (and resulting demand in housing units) over the next ten years (all income groups). The analysis shows that approximately 1800 ha will be required to provide in development needs. The Muldersdrift area is approximately 3800 ha in extent, which means that the area is more than sufficient to accommodate all growth for the long term.

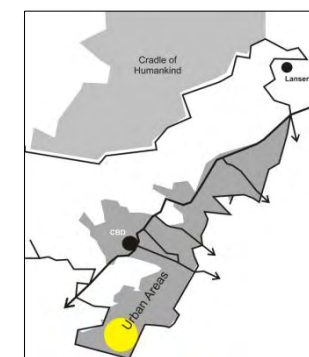
**Table 27: Estimated land requirements**

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Housing units required	4 661	4 347	3 981	3 563	3 098	3 049	2 992	2 928	2 865	2 777	34261
Residential (ha)	151	141	129	115	100	99	97	95	93	90	1107
Business (ha)	4	7	4	6	4	4	4	3	4	3	43
Public open space (ha)	12	11	9	13	8	8	8	11	6	7	93
Municipal facilities: (ha)	2	2	2	3	0	2	2	4	0	2	17
Community facilities: (ha)	19	22	24	19	17	18	14	15	16	17	180
Roads (ha)	41	39	37	35	29	28	27	29	26	26	316
<b>Total area required (ha)</b>	<b>228</b>	<b>222</b>	<b>204</b>	<b>191</b>	<b>157</b>	<b>158</b>	<b>150</b>	<b>156</b>	<b>145</b>	<b>146</b>	<b>1756</b>


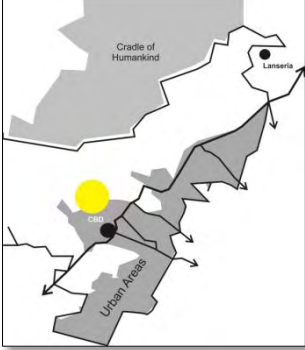
Table 28: Core settlement areas

Residential Settlement Area	Strategy		
<p><b>Muldersdrift development area</b>      <b>future</b></p>	<p>The Muldersdrift area provides numerous opportunities for a flagship development area. By pro-actively planning and management development in this area, a sustainable and efficient urban environment as opposed to a haphazard collection of land uses can be created. The Muldersdrift Spatial Development Framework should address the following issues –</p> <ul style="list-style-type: none"> <li>• Utilise the principles of Sustainable Human Settlements and New Urbanism and design an area that can be a model for sustainable human settlement development.</li> <li>• Integration of the settlement with the N14 corridor and Beyers Naudé Drive Activity Spine.</li> <li>• Appropriate residential densities depending on the urban morphology.</li> <li>• Integration with Johannesburg urban development patterns.</li> <li>• integration of affordable housing with the Cosmo City development in the area to the north of Beyers Naudé Drive.</li> </ul> <p>One of the current land use policies that may have a negative impact on the future development of Muldersdrift is the policy on small scale storage facilities. It is recommended that this policy be reviewed and amended.</p>		
<p><b>Krugersdorp</b></p>	<p>Krugersdorp is for all intents and purposes a fully developed area. Development options in this area are infill development and redevelopment/brownfields development. Appropriate redevelopment as far as residential densification is concerned is of importance.</p>		

Residential Settlement Area	Strategy
<p><b>Greater Kagiso/Rietvallei/Azaadville area</b></p>	<p>The greater Kagiso/Rietvallei/Azaadville area represents the largest concentration of disadvantaged settlements in Mogale City. These settlements have mostly been developed as dormitory towns and lack the full range of urban services and facilities. The physical barrier created by the mining land also means that these areas are physically and functionally separated from the Krugersdorp urban area.</p> <p>Development and investment in this area should focus on creating sustainable human settlements.<sup>11</sup> The following interventions are proposed-</p> <ul style="list-style-type: none"> <li>• An urban design framework and township regeneration strategy must be compiled which will provide direction for the development of the area.</li> <li>• The creation of an activity network (including activity nodes, spines and streets) linked to public transport facilities where economic, business and social activities can be provided at the most accessible locations. The exact location of such nodes and activity spines/streets should be determined through a detailed township regeneration strategy for Kagiso, but it should be situated in locations that are highly accessible and preferably within walking distance from as large a section of the population as possible.</li> <li>• Residential densification should take place around the activity network to create a proper mixed land use, integrated urban node.</li> <li>• Infill housing developments must take place on vacant parcels that are suitable for development.</li> <li>• The development of public open spaces such as parks, playgrounds and sports fields should be a major focus of capital investment in the Kagiso area. The development of these facilities should be integrated with the activity node.</li> <li>• Looking at possible integration of these areas with the Krugersdorp area across mining land, depending on the outcome of detailed feasibility studies on the rehabilitation of the mining land.</li> <li>• The Leratong Node should be developed as a major economic development</li> </ul>



<sup>11</sup> UN-Habitat defines a sustainable human settlement as one “where all have adequate shelter, a healthy and safe environment, basic services, and productive and freely chosen employment”.

Residential Settlement Area	Strategy		
<p><b>Munsieville</b></p>	<p>opportunity and high density housing area.</p> <p>Munsieville is a disadvantaged settlement which lies to the west of Krugersdorp. Similar to the Kagiso area, this settlement also lacks the full range of urban services and facilities and the focus should also be on the creation of an attractive, convenient, safe and well-functioning sustainable human settlement. The urban qualities that should be achieved in Kagiso also apply to the Munsieville area.</p> <p>The difference between Munsieville and Kagiso is that Munsieville presents more opportunities for integration with the Krugersdorp urban area, as it is not physically separated from Krugersdorp as is the case with Kagiso.</p> <p>Large scale further outward growth of Munsieville is hampered by natural environment constraints as well as the urban edge. The focus should therefore be on infill development where vacant land parcels are still available and densification around the proposed Munsieville Node.</p> <p>The future development of Munsieville must take place in accordance with an urban design framework for the area.</p>		

## 5.9 Future of mining land adjacent to urban areas

The location of mining activities in an area is linked to the availability and location of natural resources. Where such resources are located adjacent to urban environments the mining activities pose a constraint to development and hence play a decisive role in the direction of urban growth.

Mining in Mogale City is a prominent spatial feature in the form of the east-west mining belt which extends from Johannesburg through to Krugersdorp along the so-called "Main Reef". Although the principle mining activities in Mogale City have closed down (with the exception of the reworking of a number of mine dumps) the physical legacy of the mining activities remains in the form of a broad band of land which –

- has potentially been sterilised for development through the radioactive properties of the mine dumps and silt dams and the undermining of the land;
- presents a physical barrier between Krugersdorp to the north and the greater Kagiso area to the south, preventing spatial integration between these areas; and
- has left visual scars on the urban landscape.

With regard to the east-west mining corridor, no development proposals are currently made as future rehabilitation studies and actions on this land will indicate the development potential of the land. Should this area or parts thereof prove to be developable, the following principles should apply:

- This land should be utilised to achieve spatial and socio-economic integration between the different urban areas.
- An urban network must be established comprising activity spine linkages between the Krugersdorp CBD and Kagiso.
- Land which is not suitable for human habitation or economic activities must be converted into an open space system which can contribute to spatial integration between the various settlements.

A detailed investigation into the long term rehabilitation and development potential of the mining land must therefore be conducted. Based on the findings of this study, a local spatial development framework must be drafted for the area showing the local application of the principles as stated above.

Of concern is the visual and physical scars left on the environment by mines that have closed down. The rehabilitation of these mines is often not attended to after they have closed down since they no longer provide any source of revenue. Such a situation is unacceptable and rehabilitation must be enforced since mines are required to do so by law.

With regard to quarrying and mining activities in the Muldersdrift future development areas, long term mining permits should not be issued in the area where urban development is proposed, as mining activities sterilise pockets of land which in turn hampers gradual contiguous urban development and instead results in leap frog developments.

## 5.10 Urban Open Space System

The urban open space system is a network of both natural and man-made open spaces in the urban environment. The latter includes parks, hard open spaces such as town squares and active open spaces such as sports fields.

The development of a planned, interlinked open space network provides the urban environment with variety, legibility and visual relief. It also provides residents with an opportunity to enjoy open space, recreation and general amenity without having to travel great distances. It also provides for flood attenuation, stormwater management and urban agriculture opportunities.

An Urban Open Space Framework must be compiled for the Mogale City urban areas, as demarcated on the Spatial Development Framework. Typical elements of this framework will be –

- Parks
- Sports grounds



- Natural open spaces within the urban environment (such as wetlands, watercourses and ridges)
- Market gardens and allotments
- Town Squares
- Boulevards

The creation of high quality public environments with abundant public open spaces is of particular importance in the densification priority zones and the major activity nodes.

## 6. Rural Areas

Rural areas are defined as “the sparsely populated areas in which people farm or depend on natural resources, including the villages and small towns that are dispersed through these areas. In addition, they include the large settlements in the former homelands, created by the apartheid removals, which depend for their survival on migratory labour and remittances.”<sup>12</sup>

As shown in the contextual analysis, the largest part of Mogale City comprises a rural environment. The spatial development framework must therefore focus on how to enhance and support appropriate rural development in the area.

The rural environment in Mogale City is essentially made up of the following four elements:

- Agriculture
- Natural open spaces and conservation areas
- Rural service centres and towns
- Tourism

The rural environment should be protected from development that is not in line with the rural character of the area. The most important principle that applies is that development should be

<sup>12</sup> Source: National Rural Development Framework, 1997

restricted and that the rural character should be maintained. These areas are typically removed from major nodes or activity areas with little chance of functional integration with the main urban economy, which means that any inappropriate development in these areas will contribute to an inefficient spatial form and functionality. Any uses that would normally occur in urban or suburban areas should not be approved outside the urban edge.

The following principles shall apply when evaluating applications for developments outside the urban edge:

- Uses should be rural in nature, or should require a rural setting in order to be functional or viable;
- The development should not require extensive service infrastructure
- The development should not have any negative environmental impact
- The development should not create possibilities for other developments to establish in the area
- Uses that primarily service the local market
- Uses which are resource based
- Uses which are located at a defined and approved service delivery centre

Typical land uses that can be permitted in the rural environment include:

- Nature conservation/sensitive natural areas
- Agricultural activities<sup>13</sup>
- Tourism and related activities and facilities, provided that the nature, scale, development footprint and appearance of such tourism and related activities and facilities shall be appropriate for and sensitive to the rural character.
- Conference and training facilities, provided that the nature, scale and appearance of such conference and training facilities shall be appropriate for and sensitive to the rural character.
- Recreational facilities which are essentially rural in nature

<sup>13</sup> Refer to section on High Potential Agricultural Land for guidelines on agricultural activities and development.

- Farm stalls and home industries
- Resource based industries
- Any other uses that in the municipality's discretion fits in with the character of the area outside the urban edge, provided that such development adheres to the criteria set out above

Other conditions which must apply to development in rural areas are -

- Subdivisions of farm portions for exclusive rural residential use or so-called rural/country estates should only be permitted around and contiguous to existing urban areas.<sup>14</sup>
- Country estates which are not situated adjacent to urban areas should be considered with great caution, as it results in permanent residential development in areas that are not integrated with main activity areas. These estates are leap-frog developments that require the extension of services to areas where services should not be a priority and further result in greater commuting distances for the residents of these areas to places of work, education, social facilities and business opportunities. These estates could therefore in fact contribute to an inefficient spatial form and could be considered to be against the principle of integrated and sustainable development. Strict requirements must be laid down for the provision of engineering services to and within these estates to ensure that it does not lead to environmental problems. The ability to provide services according to the standards set by the municipality is a pre-requisite.
- As per the proposals of the Magaliesberg Spatial Development Framework, 2002, no subdivision of farm portions and smallholdings in the Tarlton area should be allowed in order to minimise the pressure on ground water.

<sup>14</sup> Rural Residential refers to residential land uses in the rural environment outside of the context of a rural service centre or village. It mainly refers to agricultural holdings or subdivided farm portions where people live without being involved in any form of agriculture. It also includes the new development trend in low-density country estates.

- Illegal land uses on farm portions, such as industrial and commercial developments that have no direct relation to agriculture, should be eradicated and moved to the urban areas or the rural towns.
- Mining activities in the rural environment may not be permitted within sensitive natural areas, high potential agricultural areas (Gauteng Agricultural Hub), near areas of high tourism potential or the Cradle of Humankind World Heritage Site and its Buffer Zone.

## 6.1 High Potential Agricultural Land

Historically agricultural land has not played a significant role in urban structuring. The Spatial Development Concept however designates high potential agricultural areas as an important structuring element in the long term growth of the municipality. This is based on the need for intensive agricultural production areas in close proximity to urban areas on account of cost advantages due to proximity to the market, direct and indirect employment opportunities for city dwellers, stimulation of secondary business activities (e.g. marketing) and food security.

As indicated in the contextual analysis, the Gauteng Department of Agriculture, Conservation and Environment has demarcated a number of agricultural hubs throughout the province. These hubs relate to the creation of centres of high quality agricultural activity, where niche market agricultural products such as vegetables, including indigenous vegetables, flowers, herbs and spices, will be farmed. The south-western part of Mogale City, roughly to the south and west of the R24, forms part of one such a hub.

These areas should be reserved as prime agricultural land in Mogale City and be protected from any development or land uses that may have a negative impact on the agricultural potential of the area.

The following activities may typically be permitted in the agricultural hub:

**Table 29: Activities permitted in the agricultural hub**

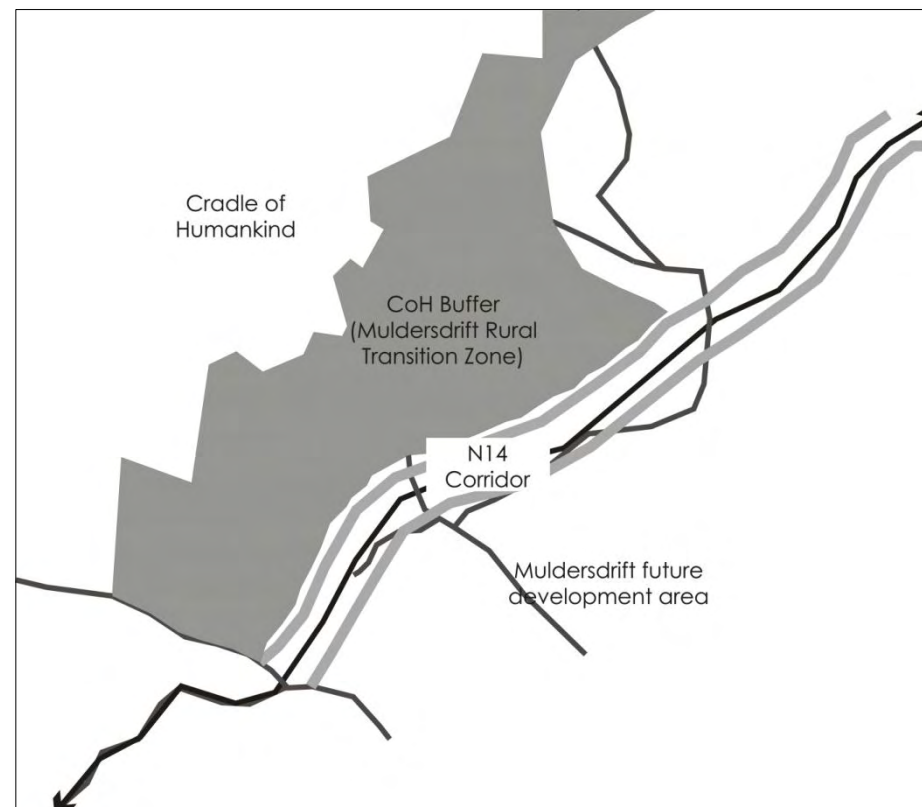
Activity	Definition
<b>Agriculture</b>	The cultivation of land for crops and plants or the breeding of animals or the operation of a game farm on an extensive basis on natural veld or land
<b>Agri-Industry and Agri-Processing</b>	An enterprise for the processing of agricultural products on a farming unit or within a rural area owing to the nature, perishableness and fragility of such agricultural products (e.g. wineries, farm pack stores, etc.).
<b>Agri-Village</b>	A private settlement situated within an agricultural area and where residence is restricted to bona fide farm workers and their dependents of the farms involved in the development.
<b>Agri-Tourism</b>	A type of tourism in which travellers travel to rural areas to experience the activities and lifestyles of people living and working in the agricultural sector

## 6.2 Muldersdrift rural transition zone and the CoH Buffer Zone

The Cradle of Humankind World Heritage Site and its buffer zone, the latter which covers a significantly large part of Mogale City, is a major provincial conservation initiative linked to the presence of pre-historic cultural heritage of international importance in the area.

The Gauteng Provincial Government is currently in the process of drafting an Environmental Management Framework for the Cradle of Humankind World Heritage Site and its Buffer Zone, which will indicate the nature and intensity of land uses which can be accommodated in these parts of Mogale City from an environmental perspective.

In the western part of Mogale City, the buffer zone falls inside a strictly rural environment where development must be restricted to rural activities. In the eastern part of Mogale City, the buffer zone however falls in the Muldersdrift urban-rural transition zone and conflict therefore exists between the buffer zone and development pressure.



As urban development in the Muldersdrift area is restricted to the N14 development corridor and the area to the east of the N14, the western side of Muldersdrift should be seen as a rural transition zone which is essentially rural in character, but where a slightly higher concentration and mix of land uses can be accommodated than which is allowed in the rural environment.

In terms of the West Rand District Municipality Spatial Development Framework, 2008, this area has been demarcated as a Peri Urban Area.

The following land uses could typically be accommodated in the buffer zone:

- Agriculture (no stock farming)
- Rural Residential
- Country Estates
- Conference/Wedding Venues
- Tourism accommodation facilities such as lodges
- Small rural residential villages

All development must comply with the following development criteria:

- All development must be subject to an Environmental Management Plan.
- The ecological/development<sup>15</sup> footprint must preferably be restricted to 2% of the property size, unless the Environmental Management Plan can prove that a larger footprint will not distract from the rural character of the area.
- Country Estates shall be developed in accordance with the cluster-and-space principle where it is required to create ecological corridors linked to adjacent ecological systems.
- The size of rural villages must be restricted in accordance with housing policy.

### 6.3 Rural Service Centres

Mogale City comprises three rural service centres, namely Tarlton, Magaliesburg and Hekpoort, of which Magaliesburg is most developed.

<sup>15</sup> The ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision.




The main purpose of these rural service centres is to act as central places in the rural environment where basic day-to-day services are delivered to the rural communities. The types of services that could be found in these centres include -

- Municipal satellite offices
- Social and Support Services
- Small scale (convenience) retail
- Tourism facilities and services
- Transportation services

It is also possible for these towns to have unique characteristics or identities that make them attractive for certain types of development. Magaliesburg has for example long been known as a tourism destination, and many uses related to the tourism industry have developed in this area.

The following table provides a concise development strategy for each of the three rural service centres, based on their location, identity, and development potential.

Table 30: Development strategy for rural service centres

Tarlton	Magaliesburg	Hekpoort
		
<p>Currently, Tarlton presents very little development energy, and it is not even functioning as a rural service centre.</p> <p>Some of the inherent characteristics that could however play a role in its future development are-</p> <ul style="list-style-type: none"> <li>• Relative proximity to the main urban centre</li> <li>• Situated at intersection of two main regional roads</li> <li>• Railway line</li> <li>• Forms part of the Gauteng Agricultural Hub</li> </ul> <p>Any actions by government to provide social services and facilities for the surrounding area should be focused on the Tarlton area, around the intersection of the N14 and R24 in order to establish a consolidated rural service centre. A potential niche development focus for Tarlton is as an agricultural support centre, comprising agricultural industries, transportation services, warehouses etc. There is a need for a rural based activity centre that can support the agricultural sector and also provide a centre where the illegal industrial and commercial activities on farm portions can be located to. Due to its location, Tarlton can fulfil this function.</p>	<p>Magaliesburg is known as a tourism centre and that identity should be further developed and strengthened. It should also be developed as the primary rural service centre and should comprise all the basic social services such as clinics, libraries, police stations, primary schools, etc. Government investment in social infrastructure in the rural environment should focus on Magaliesburg</p> <p>If there is a need for affordable housing provision in the rural areas, it should be provided in Magaliesburg as this area has the most existing services, facilities and opportunities of the three rural towns and provides the most opportunity for the creation of sustainable rural settlements.</p>	<p>Hekpoort comprises very little activity, and also do not have a major function within the rural environment other than providing some day-to-day convenience services to the rural population.</p> <p>The only developments that should be promoted in and around Hekpoort is tourism related facilities.</p>

## 6.4 Rural housing development

There is a great need for rural housing development in Mogale City and the sustainable delivery of such housing is a priority. However, the danger of accommodating housing developments in rural environments without thorough consideration and long term planning is that islands of poverty can be created which have no potential for future economic development or adequate provision of social and community facilities.

One of the general principles for housing development contained in the Housing Act, 1997 is that **socially and economically viable communities must be created**.

To ensure that residents of these settlements are not just housed in any rural location which is devoid of services, facilities and economic opportunities, there are certain principles that should inform the development of rural housing. These are –

- Rural housing should be developed as close as possible to existing rural service centres, or, more ideally, as close as possible to the Mogale City urban areas.
- Rural housing should focus on providing housing to people who are connected to the rural economy.
- Rural housing development should focus on particular locations in the rural environment where consolidated settlements can be developed. By focusing housing developments in particular locations in the rural environment, it will become possible to develop more sustainable settlements that comprise a range of basic social services and facilities, rather than having small scattered housing settlements across the rural environment where it is not financially feasible to provide services and facilities to each of those settlements.

## 6.5 Tourism

Linked to the presence of the Cradle of Humankind World Heritage Site, as well as the high quality natural environments in the western and north-western part of Mogale City around the Magaliesberg and Witwatersberg, one of Mogale City's niche development areas is rural or nature based tourism.

The following tourism sectors are active in Mogale City -

- Heritage Tourism
- Eco-tourism
- Outdoor Recreation
- Agricultural tourism

Two very important principles which the tourism development areas must adhere to are **quality** and **accessibility**. **Quality** refers to aspects such as environmental management, availability of essential engineering services infrastructure, land use management, development control and architectural standards. **Accessibility** refers to the availability of and quality of movement infrastructure such as roads and rail as well as the availability of transport services in the area.

From an accessibility, service delivery and identity-building point of view, it is more preferable to cluster tourism facilities along and around certain routes and nodes. For this purpose, a rural tourism route has been identified which should be the focus area for the development of tourism related infrastructure:

- R28;
- R563,
- R24 (north of Tarlton up to the R560) with Magaliesburg as tourism node.
- R560, with the Hekpoort town as tourism node

The intersections of these routes are considered to be the main gateways into the rural tourism area, and as such should be afforded specific attention insofar as directional signage, environmental quality and the quality of any potential developments are concerned.



Typical tourism facilities and services which may be permitted in the tourism focus areas include-

- Guest Houses and lodges
- Cultural Villages
- Environmental education centres
- Conference centres and training facilities
- Restaurants, tea gardens
- Wellness centre/spa
- Infrastructure that serves the tourism facilities

In evaluating applications and building plans for tourism related developments in the rural environment, care should be taken to ensure that the nature, scale and appearance of the development is appropriate for and sensitive to the rural character of the area.

## 7. The movement system

### 7.1 Inter-regional movement

As shown in the spatial analysis, the east-west movement system between Johannesburg and Mogale City is well developed, with a number of major roads connecting these two municipalities and their respective activity areas.

Connections to the north, south and east are not that well developed, but a number of major roads are planned for the area which will enhance connectivity with neighbouring municipalities. These are –

- The proposed N17
- Proposed PWV 1
- Proposed PWV 8

- Proposed PWV3

### 7.2 Intra-municipal movement

All the various spatial elements in Mogale City must be well inter-connected by means of a good and efficient movement, including public transport, system. The movement system within the existing urban areas is generally well developed.

The most important proposal as far as investment in movement infrastructure is concerned, is the development of parallel access routes for the length of the N14/R28 development corridor, where necessary. A roads master plan must be done to look at the future alignment of these access routes.

The Spatial Development Framework for the proposed Muldersdrift urban area will indicate the required road network for this area.

No other major proposals for road infrastructure are made.

The rail system has the potential of becoming the basis of public transport throughout Mogale City. Long distance commuting between Johannesburg and Krugersdorp and Krugersdorp and Magaliesburg should be focussed on rail, with a supporting vehicular feeder and distribution system for effective diverse cross-city movement.

### 7.3 Public Transport Network

The development of a regional public transport network between Mogale City and the City of Johannesburg is critical for the convenient and efficient flow of people, goods and services between these two areas and the stimulation of economic development in Mogale City itself.

The City of Johannesburg's planned BRT networks extend nearly up to the boundary of Mogale City along Main Reef Road, Ontdekkers Road and Beyers Naudé Drive. These systems need to be extended into Mogale City as part of the same network and same operating system (i.e. single ticket system irrespective of municipal boundaries).

## 8. Cultural heritage

Although cultural heritage is not necessarily always spatial in nature, or are not necessarily always of the same scale as other components of the spatial development concept, it is necessary to address it as part of the spatial development proposals as it forms an important part of the spatial environment and development proposals can have a harmful impact on the area's cultural heritage.

South African National Heritage Legislation makes provision for the protection of all natural and man-made heritage objects and intangible heritage. This includes rare phenomena like interesting rock formations, mountains, vistas, trees, bio-spheres, buildings, ruins, roads, animal or man-made tracks, fields, drifts, dams and furrows, graves, artwork, marked or unmarked places of worship or other religious or cultural uses etc. It also includes intangible heritage like folklore, folk art, folk dances, traditions, written and aural history, place names etc.

In general South African National Heritage Legislation stipulates that anything older than 60 years is regarded as of potential heritage value and may therefore not be destroyed or altered without written permission by the South African National Heritage Council. And even younger objects that the general public and/or the South African National Heritage Council may regard as of heritage value can be declared as Heritage Site/Objects with the same protection.

The following principles shall apply to developments with a possible impact on cultural heritage:

- All new developments should consider heritage resources as part of the environmental impact assessment process.

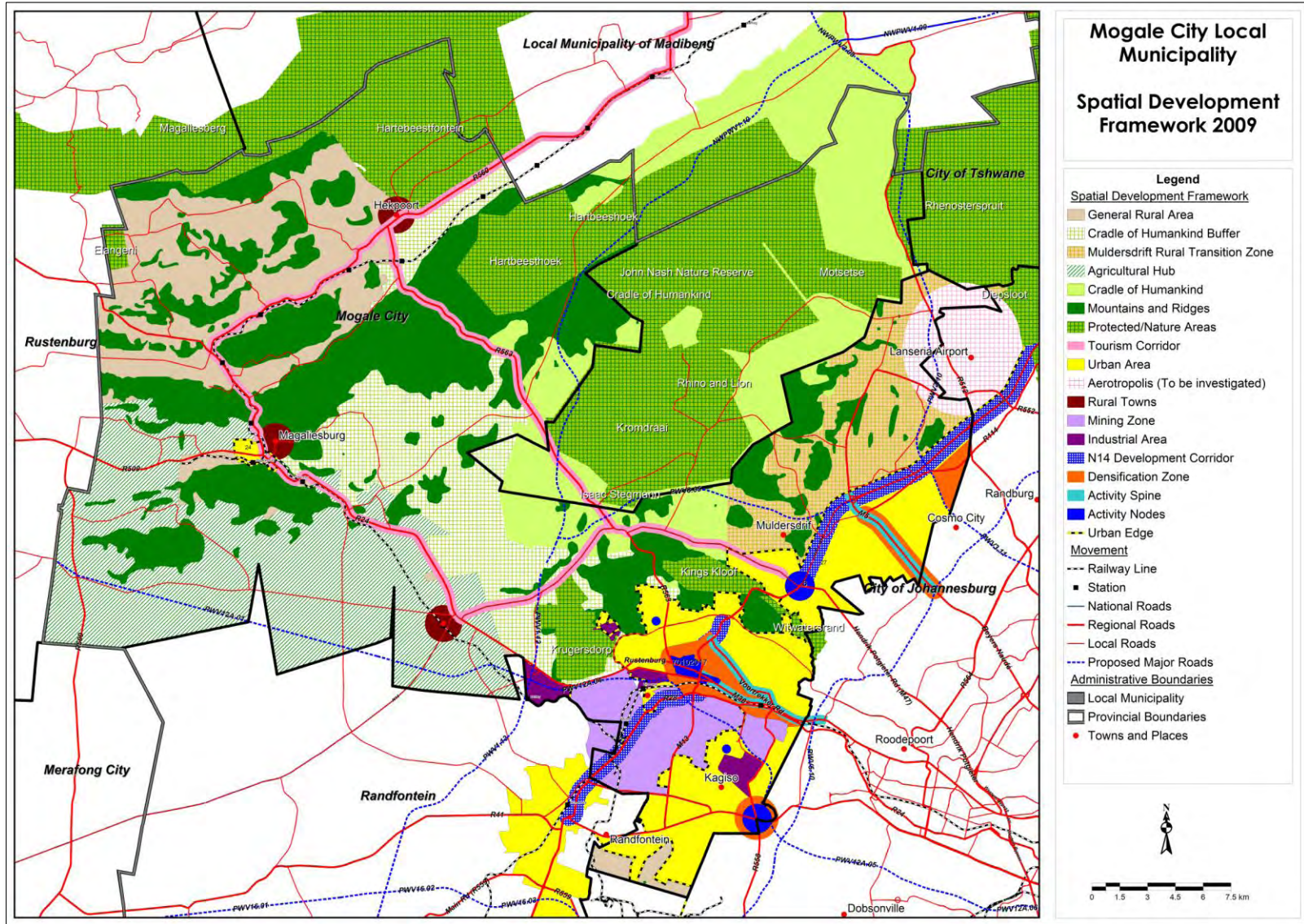
- All developments that affect existing structures older than 60 years or those that have been afforded protected status must adhere to the provisions of the relevant legislation.
- All gateways should be maintained as significant features. Signage along routes in the vicinity of gateways must be avoided.
- Major landmarks should be conserved.
- Historical sites such as forts, battlefields, cemeteries etc. should be well maintained.

## 9. City Image and Public Spaces

City image and the quality of public spaces relate to the convenience, safety, security and enjoyment related to residents' and visitors' experience of Mogale City. To achieve a positive city image with positive performing urban environment, the local authority must focus on urban management together with land use management.

The following are aspects that need attention:

- Entrances into Mogale City's urban areas should be celebrated through signage, monuments or other prominent features.
- Strategic sites which provide settings for landmarks should be identified and utilised. Buildings located at these positions should have landmark qualities.
- Important views and vistas should not be obstructed by development.
- Public urban spaces should be well designed in terms of their function and the role they play within the urban structure and community life.
- Any development should make a positive contribution to the public environment, whether it is an urban or rural setting.
- The placement of outdoor advertisements should be managed and coordinated.
- Main roads should be developed as important public space elements and treated as such with the planting of trees, maintenance of sidewalks and the provision of well designed, coordinated street furniture such as dustbins, bollards, benches, bus shelters etc.



Map 40: Mogale City SDF

