

5. SPATIAL DIRECTIVES

Merafong City Vision:

“A prosperous, Sustainable and Community-Oriented City”

Merafong City Mission:

“To provide quality services to our community through accountable governance”.

The Strategic Goals and Objectives Framework for Merafong City:

- To provide an integrated spatial development framework for sustainable development
 - ✓ Land use management
 - ✓ Spatial planning
 - ✓ Human settlements management
 - ✓ Infrastructure master planning
 - ✓ Environmental management
 - ✓ Rural development planning
- To ensure the provision of basic services
 - ✓ Physical infrastructure
 - ✓ Municipal services
- To promote local economic and social development
 - ✓ Economic development
 - ✓ Social development
 - ✓ Rural development
- To ensure good governance and public participation
 - ✓ Corporate governance
 - ✓ Broaden local democracy
 - ✓ Local government accountability
- To ensure financial viability and management
 - ✓ Financial viability
 - ✓ Financial management
- To ensure municipal transformation and organisation development
 - ✓ Business management / leadership
 - ✓ Strategic positioning (policies, structures, strategic planning, operational planning, focus on core business)
 - ✓ Organizational culture
 - ✓ Stakeholder relations management / communication
 - ✓ Business performance management
- Resource management
 - ✓ Human resource management
 - ✓ ICT management
 - ✓ Record / knowledge management
 - ✓ Asset management

Spatial Planning Vision:

Develop the fragmented towns of Merafong into a unified city that is liveable, sustainable, efficient and provides opportunities for economic growth and social development.

From the Spatial planning Vision, policy directives on national, provincial and district level coupled with the results from the spatial analysis, the following spatial development strategies have been developed as a response:

1. IMPROVE URBAN EFFICIENCY AND RECTIFY APARTHEIT SPATIAL DISPARITIES
2. IMPROVE URBAN AND RURAL LIVEABILITY
3. FACILITATE SUSTAINABLE ECONOMIC GROWTH AND DIVERSIFICATION
4. PROTECT NATURAL AND AGRICULTURAL RESOURCES

These will now be discussed in detail.

1. IMPROVE URBAN EFFICIENCY AND RECTIFY APARTHEIT SPATIAL DISPARITIES	
POLICY	Integrate segregated urban areas and restructure the urban form to meet current and future challenges with greater efficiency.
OUTCOMES/ DESIRED STATE	<ul style="list-style-type: none"> ▪ An efficient system of towns functioning as an integrated network. ▪ Reduced costs of infrastructure provision. ▪ An urban system that offers convenience and choice to its inhabitants and users. ▪ An urban system that provides universal access to all users. ▪ An urban system that encourages business development by providing in the needs of all kinds of enterprises.
IMPLEMENTATION STRATEGIES	<ul style="list-style-type: none"> ▪ Re-align the urban structure of Merafong settlements into 3 distinct urban areas namely the northern, central and southern urban areas. Connect all 3 urban areas through a primary development corridor that will restructure settlements into the desired state. ▪ Develop infrastructure in accordance with the restructuring strategies. ▪ Establish a hierarchy of nodes and corridors to facilitate restructuring. ▪ Implement 3 growth management boundaries in order to manage growth in a sustainable manner: <ul style="list-style-type: none"> ✓ A land use intensification boundary, within which appropriate mixed land uses and densification are encouraged. ✓ An urban development boundary, which contains urban development and indicates where future urban expansion may take place. ✓ An Urban–Rural Interface boundary, within which appropriate mixed land uses are allowed. ▪ Determine settlement viability of mine settlements and develop accordingly ▪ Integrated transport and mobility should form part of decision making processes.

POLICY ALIGNMENT	From the national and provincial primary policy synthesis: Grouping 2 and 5
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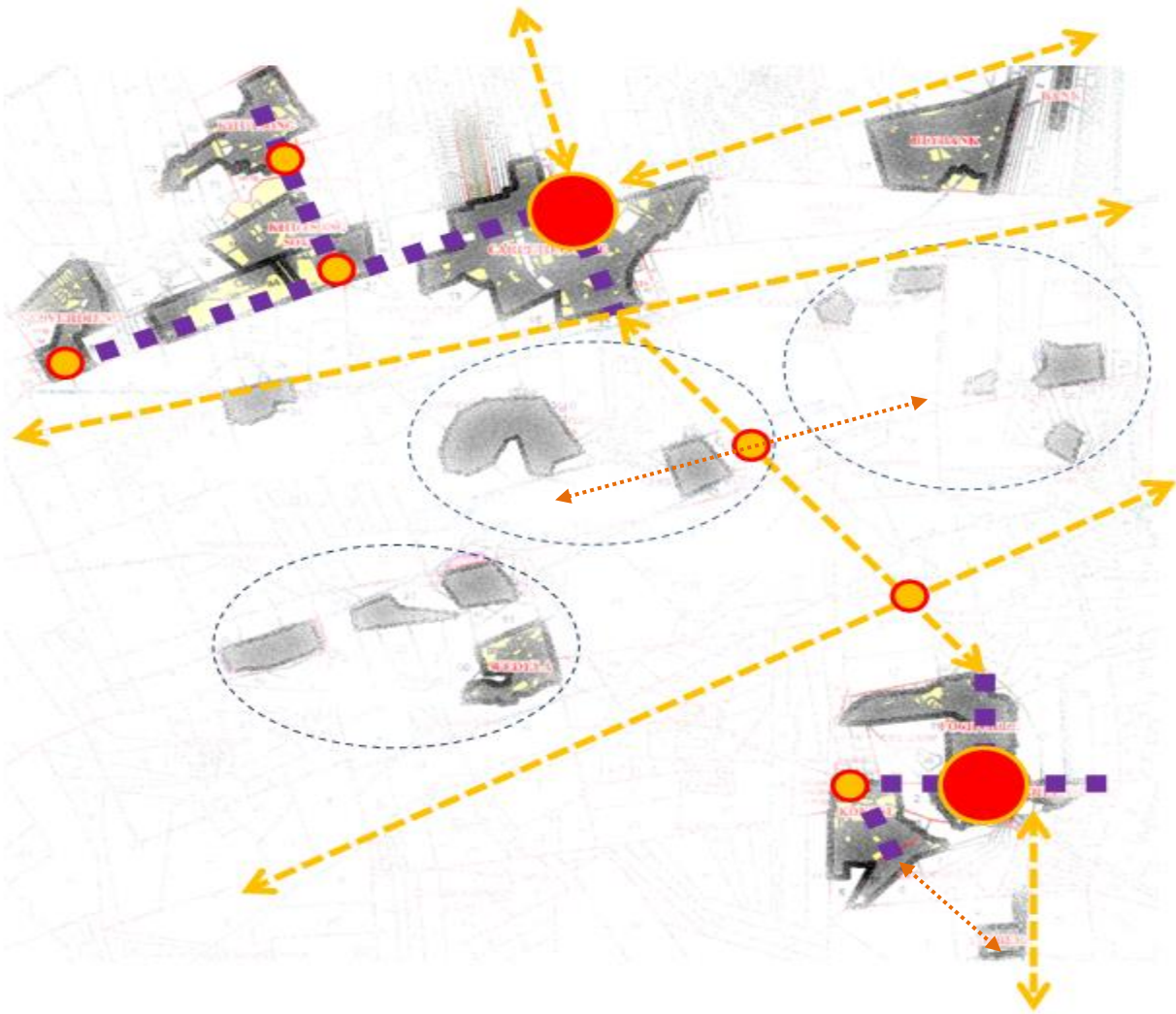
5.1.1 Restructure scattered settlements into a single future city







The status quo of urbanization in Merafong lends itself to a future desired state where the scattered settlements of today have developed into three distinct urban areas namely the northern, central/mining belt and southern urban areas. The northern area comprises of Welverdiend, Khutsong, Khutsong South and Carletonville. It is the most populous and economically active area in Merafong. For the most part this urban area will restructure with more ease than the other areas because of its population size which enables nodal development along the corridor. The central area comprises of Blyvooruitzicht, West Wits, Driefontein, Elandsrand, Wedela and Deelkraal. Most urban areas are unproclaimed mine villages and occur in a scattered pattern. This area will create the most problems because of the scattered nature of the mostly small settlements and also the state of mine operated infrastructure. The southern area will comprise of Fochville, Kokosi, Greenspark and Losberg Industrial. Settlements in this urban area are grouped closer together which reduces the cost of services; however the combined populations of these settlements are smaller, offering fewer opportunities for nodal development.

It is of great importance that even though these 3 urban areas are separated by topographical barriers and each has its own distinct constraints and strengths, they are integrated with each other as much as possible. In order to achieve the desired growth characteristics a hierarchical network of nodes and corridors will be utilised as the main structuring tool. The network will be dominated by the primary development corridor that connects all 3 urban areas. It will also form the backbone of future public transport. As such all major economic, institutional and residential developments will take place along this corridor. The main development corridor links all the most important nodes and all major/strategic future nodes are also connected by the corridor. Secondary corridors branch out to connect areas currently removed from the main development axis.

The restructuring of Merafong's settlements into the proposed future form will greatly improve the efficiency of urban systems to perform their functions in sustaining the livelihoods of citizens.

The long term structural vision for urban settlements in Merafong is illustrated on the next page.

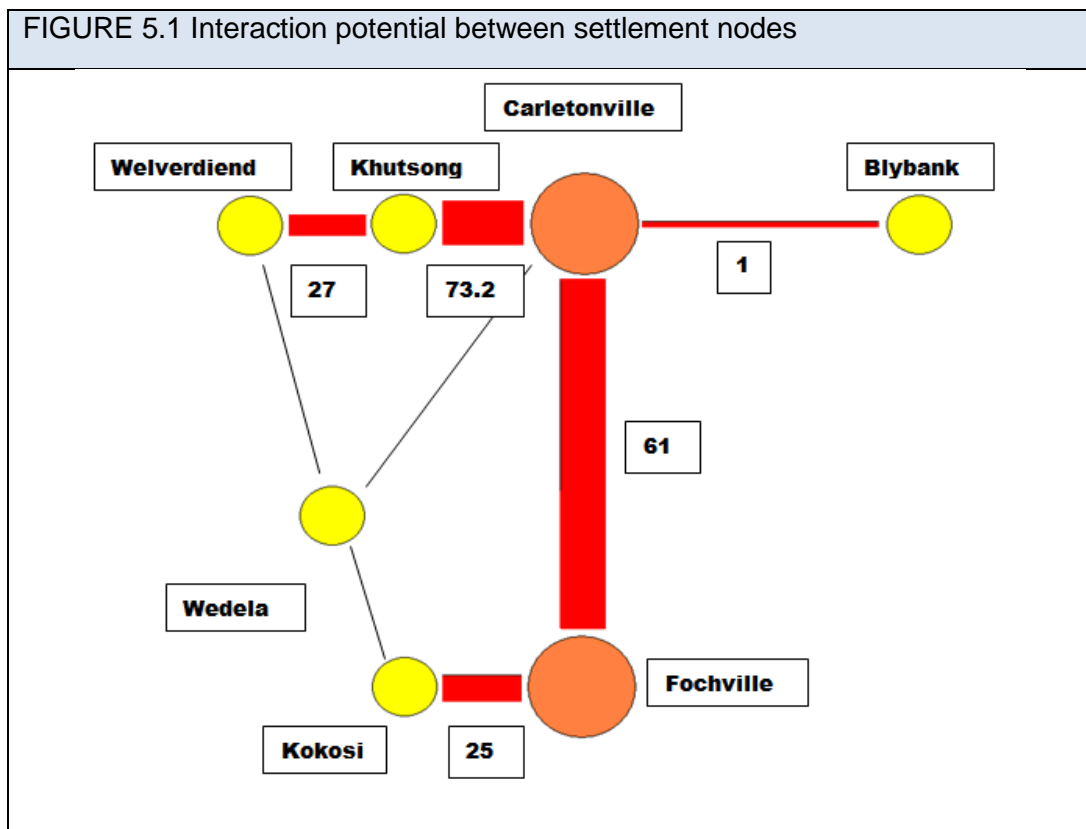


	Primary development nodes
	Secondary development nodes
	Transport linkages
	Development spines
	Village service delivery clusters
	Proposed new transport links

The Primary Development Corridor

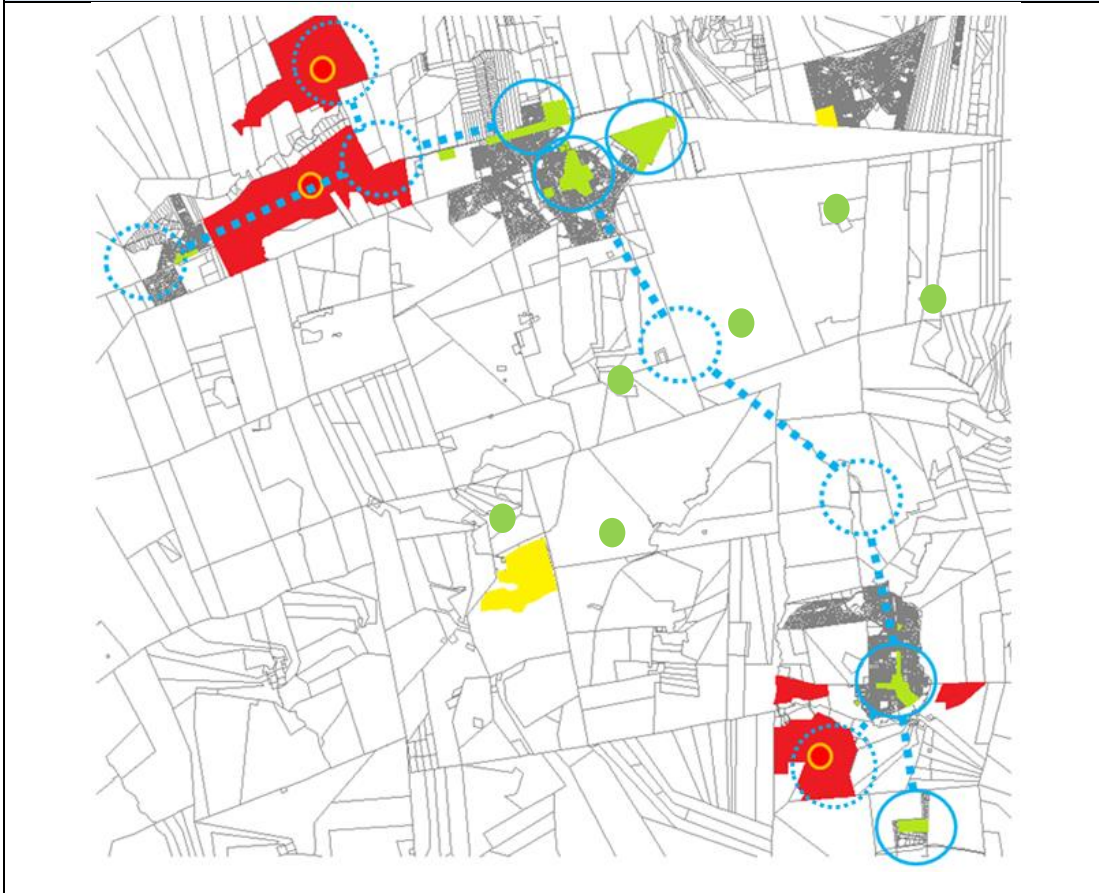
As mentioned the Primary Development Corridor aims to restructure Merafong's scattered urban areas into an integrated city consisting of the north, the mining belt and the south.

The following figure gives a schematic illustration of the interaction potential of commuter corridors within Merafong City, based on a gravitational model. An increase in value demonstrates an increase in interaction potential.



The following figure depicts the spatial logic behind the locality of the Primary Development Corridor including the current and proposed economic nodes, areas of employment and residential areas of high unemployment (Red).

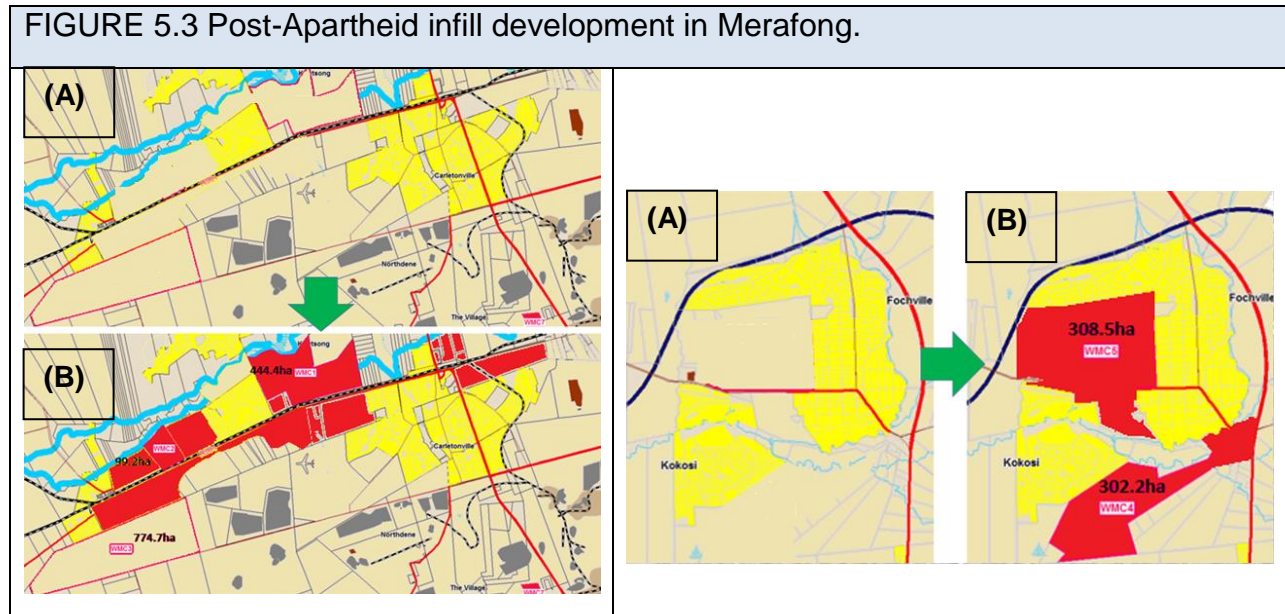
FIGURE 5.2 Areas of high unemployment (Red), employment nodes (Green) and potential development nodes overlain.



It is of great importance that the 3 main urban areas are integrated with each other and in order to achieve the desired growth characteristics a hierarchical network of nodes and corridors will be utilised as the main structuring tool. The network will be dominated by the primary development corridor that connects all 3 urban areas. It will also form the backbone of future public transport. As such all major economic, institutional and residential developments will take place along this corridor. The corridor will form the spine of development and Public Transport in future with primary Public Transport node localities located along the corridor. Transit Oriented Development and Universal Access principles are focused on these nodes. The main development corridor links all the most important nodes and all major/strategic future nodes are also connected by the corridor. Secondary corridors branch out to connect areas currently removed from the main development axis.

The restructuring of Merafong’s settlements into the proposed future form will greatly improve the efficiency of urban systems to perform their functions in sustaining the livelihoods of citizens.

The following 2 figures illustrate the extent of infill development in Merafong from the apartheid legacy (A) to the planned infill developments (B).



5.1.2 Develop a hierarchy of nodes and corridors to support urban restructuring and generate opportunities.

Nodes

The movement of people, goods and services are channelled along routes that give rise to a network of interaction. Where networks intersect the opportunity for people, goods and services to interact develop and these are referred to as nodes. These are areas where a higher intensity of land uses and activities will be supported and promoted. Nodal development improves efficiency as it provides easy access and creates thresholds for a variety of uses and public transport services. Typically any given municipal area would accommodate a hierarchy of nodes that indicates the relative intensity of development anticipated for the various nodes, the varying sizes of the nodes, and the dominant nature and activity of the nodes. Not all potential development nodes will be designated as such because opportunities have to be channelled into the most promising areas.

Nodal types

For planning purposes the nodes in Merafong have been divided into 3 main types and each type can consist of different sized nodes. The 3 main types are:

1. Primary nodes

These are the 2 Central Business Districts in Merafong namely Carletonville CBD and Fochville CBD. Although the Fochville node will not qualify completely as a traditional CBD, it has been included as viewed from a lower population perspective.

Characteristics:

- These nodes are the focus points of economic activities in Merafong with the highest order functions and also the greatest variety of functions including:
 - ✓ Retail of consumer goods, semi-durable and durable goods,
 - ✓ A variety of services including business-, personal-, professional- and industrial services,
 - ✓ Government offices,
 - ✓ Social institutions, and
 - ✓ Entertainment.
- These nodes will form the main anchors of the Primary Development Corridor and will remain the focus of most economic and social activities in Merafong. Their influence is felt on a regional scale.
- The economic and land use morphology of the 2 CBDs is typical of towns where significant suburban shopping centre development has not yet taken off. A typical characteristic is national chain stores that are located within the CBD on street. The health of the 2 CBDs are currently under threat from 2 development trends:
 - ✓ Firstly, the development of a suburban shopping centre between Carletonville and Khutsong. Inevitably this will cause a degree of decay in the CBD of Carletonville. Fortunately the proposed shopping centre development in Fochville will be an expansion of the existing President Hyper centre within the CBD.
 - ✓ Secondly, it seems as though a process of informal trade infiltration and succession is taking place from the taxi rank of Carletonville, spreading southwards. And to a lesser degree in Fochville. This is a process where informal traders infiltrate an area and cause formal businesses to move out and be replaced by formal businesses trading in lower end products and services (Typically shops owned by immigrants), directly in competition with the informal traders. If this happens on a large enough scale severe decay may start to set in because the healthy mix of retail and service gets disturbed. Such morphological disturbances leave gaps for further infiltration and can lead to increased levels of crime and physical decay, causing a reinforcing feedback loop of decay. This process could be sped up and partly be caused by the development of new suburban shopping centres.
- Gap market housing projects should as far as possible be located in or near Primary Nodes and major transport interchanges.
- Service industry should preferably locate north of Osmium Street in Carletonville and south of Kerk Street in Fochville.

2. Secondary nodes.

- These nodes serve sub regional/district areas, e.g. larger parts of a town. These nodes have developed more complicated morphologies and usually develop from an expanding neighbourhood node.
- They are predominantly located on Class 2 and 3 roads.
- All new developments should take parking requirements into account and design should favour pedestrian movement.
- Land use diversification and residential densification is encouraged within these nodes.
- It is preferred that business activities be on the ground floor and residential and office uses on the floors above.
- Sized from community to regional level

3. Tertiary nodes

- These nodes are located within neighbourhoods and serve a smaller area with a focus on convenience.
- They are mostly located along Class 3 or 4 roads.
- These nodes do not necessarily have a strong urban structuring function although some could develop into secondary nodes over time.
- Sized from a corner shop up to neighbourhood level.

4. Possible Future Nodes

- These nodes are located in favourable places; however the right conditions for their development are not yet present. It is important to give residents, business owners and government an indication of where these nodes may be allowed to develop in future so that lifestyle and investment decisions can be made accordingly. These include some localities in Dolomite Road, Grundling Street, Onyx Road, Losberg Ave, and distributor roads in Khutsong, Wedela, Welverdiend and Kokosi.

5. Special Development Zones (Nodes).

These zones can have varying sizes and perform more specialised functions and the following types are described for planning purposes:

- Industrial and Commercial Zones. These zones accommodate all kinds of manufacturing, industrial services and commercial. Other land uses such as the sale of hazardous or unsightly goods such as liquid petroleum gas, transport depots and farming equipment as well as warehousing are also acceptable.
- Renewable Energy and Blue Economy Zones. Areas utilised for the generation of renewable energy and associated activities. In Merafong Solar and bioenergy is most relevant. Energy generating as well as supportive/ancillary activities may be noxious.

- Health Care Zones. The focus is on a health care institution such a public or private hospital or clinic surrounded by complimentary uses such as pharmacies, consulting rooms of medical practitioners, frail care/elderly housing, outpatient/recovery housing, medical laboratories, paramedic dispatch centres, etc.
- Mixed use Zones. These are urban areas where a mix of land uses is encouraged and could include non-traditional mixes such as retail and industrial. However care has to be taken not to mix incompatible uses. Heavy polluting, odorous, noisy and unsightly industries are excluded from this zone.
- Peri Urban Development Zones. Urban-Rural transition uses such as:
 - Agriculture
 - Agricultural small holdings
 - Low density residential.
 - Other peri-urban, low bid rent uses (Very low income per square meter) including
 - service enterprises that deliver their services off-site (e.g. plumbers),
 - light open air manufacturing,
 - smaller transport enterprises,
 - small scale non-commercial storage,
 - agri-business and
 - building material suppliers.

No uses may lower the amenity of the surrounding environment. Only small enterprises less than 20 employees (No limit on agriculture). Visual screening may be required by the municipality in terms of Merafong Tree Screening Standards.
- West Rand Mega Agri-Park Zones. Areas designated for small farmer cooperatives that will fall under Farmer Support Units as part of the West Rand Mega Agri-Park. This includes intensive agriculture and related infrastructure & facilities.
- Eco Recreation and Conservation Zones. There are good opportunities to develop tourism activities at these locations. These may include bird watching, game viewing, hiking, 4x4 trails, fishing, boating, canopy tours (In Northern Highveld Afro-temperate forest areas), camping, picnicking, rock climbing, etc. Accommodation establishments including conference and events venues are encouraged to locate in these areas. Residential eco estates can be considered where the environmental impact will be low. Residential developments on working farms are a preferable option (Especially game farming).

Nodal development and management guidelines

General

- ✓ Nodes should develop from directly around the intersection that forms the focus of the node.
- ✓ Land uses that encourage 24 hour per day activity are encouraged.
- ✓ Unless stated otherwise, nodal boundaries are situated mid-block and parallel to streets. The lateral boundaries are set at the erf boundary of the furthest rezoned erf. When application is made to change the land use of an erf on the premise that it forms part of

the node the erf may not be situated more than 1 erf away from the current nodal boundary.

- ✓ These policy statements shall not be construed as permitting a land owner or any other person to use a property in any way contrary to any restrictive conditions of title or any Act.

Architecture and urban design

- ✓ Each node should have its own unique sense of place created through public and private sector initiatives related to construction and urban design.
- ✓ All public and private spaces that are visible from the street reserves must be landscaped and maintained. Land owners are encouraged to adopt parks and open spaces next to their properties in order to improve appearances around their properties.
- ✓ The municipality should use conditional linkages to make incremental infrastructure improvements (Especially related to public landscaping) when large scale development applications are received.
- ✓ Buildings and public space designs should take into account the needs of the elderly and disabled.
- ✓ All buildings must have street fronts in the form of windows and doors to the satisfaction of the municipality.

Mobility and accessibility

- ✓ Nodes should receive priority attention in terms of road upgrading and major new developments will require traffic impact studies as determined by the municipality.
- ✓ Traffic calming measures should be implemented on access streets, collector roads and lower order distributors, with mobility receiving higher priority on higher order distributors.

Infrastructure provision

- ✓ Bulk infrastructure provision should be made in order to allow for residential densification

Corridors

Corridors are links between nodes, along which an increased intensity of development will naturally be attracted and should be encouraged. Similar to nodes they improve access to opportunities. Corridors should provide an appropriate level of access to the opportunities along the corridor and would typically include public transport routes.

In the Merafong MSDF distinction is made between 4 different types of corridors:

1. The primary Development Corridor

2. Activity Corridors
3. Activity Streets
4. Potential Future Corridors or Extensions

1. The Primary Development Corridor

- In conjunction with its associated nodes it is the main urban structuring instrument in Merafong and is intended to merge the scattered settlements of today into the planned integrated city of tomorrow.
- Andersen and Burnett in National Department of Transport: An Integrated Urban Corridor Assessment and Strategy Development Process defines a development corridor 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”
- The Primary Development Corridor (PDC) should not be viewed as a road with an intensification of land uses next to it. It is an **integrated urban corridor** associated with a central spine where public transport will primarily flow through. Transit Oriented Development and the bulk of facilities, activity nodes and urban infrastructure will be located along the corridor in order to obtain higher rates of efficiency and integration.
- The corridor does not necessarily form 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 natural open space could be found.
- Mobility trumps access along the corridor where possible. Where direct access exists, future redevelopments should have entrances on perpendicular access streets where applicable.
- Most of these roads are under the custodianship of Gauteng Province.
- The amount of intersections along these routes should be kept to a minimum.
- Provision should be made for safe stop areas for public transport that does not cause traffic to slow down or become congested.
- As far as possible pedestrian and vehicular traffic must not mix along these routes.
- No traffic calming measures may be implemented unless it is a necessity, e.g. some parts of a CBD where pedestrian safety is a problem.
- Planning and development along these routes should take possible future ‘bottlenecks’ into account.
- Provision for small to large scale modal interchanges has to be made at development nodes.

2. Activity Corridors

These are linear development areas where increased development intensity is encouraged. The following principles are applicable:

- The development of economic activities is encouraged due to increased efficiency and improved thresholds.
- Increased residential densities along the corridors are promoted in order to reduce traveling distances and times.
- Bulk engineering services should be channeled through these corridors to serve increased densities and capture economies of scale.
- In general, mixed land uses are promoted in order to maximise economic and social interaction.
- With most corridors the focus is on mobility as well as accessibility.
- Provision should be made for public transport.
- Sufficient parking is important along a development corridor because it promotes improved mobility and accessibility.
- Development corridors act as major structuring elements and must connect nodes in order to function properly. In Merafong development corridors are utilised as major urban structuring elements that perform the dual role of rectifying apartheid spatial disparities and also improving the efficiency of urban systems and networks.
- Each corridor must have specific development guidelines and controls to guide development. Where such guidelines do not yet exist, the general principles contained in this document will apply.
- These policy statements shall not be construed as permitting a land owner or any other person to use a property in any way contrary to any restrictive conditions of title or any Act.

3. Activity Streets

- These are lower order corridors put in place to promote the development of micro enterprises in appropriate localities, especially in previously disadvantaged areas.
- Located mostly on Class 4 public transport feeder and collection routes.
- Small scale incremental job creation is enabled in traditional labour sending areas.
- Walking distances and convenience is an important factor.
- These streets are easily accessible to police, ambulances and fire trucks, therefore all alcohol and gambling related economic activities are to be located along these routes.
- Activities may not be noxious or noisy such as spray painting and panel beating.

4. Future Development Corridors

These are potential corridors, deemed to have future development potential. Currently these are not considered development corridors because the potential for development has not yet been unlocked. They are indicated to give direction on what is envisaged for the municipal area in the

future and include Dolomite Road (Extension), Grundling-Onyx, Agnew, Paul Kruger, Main road Kokosi Extension 7, Stasie Street Welverdiend, Du Preez Street Fochville.

5.1.3 Establish Growth Management Zones to sustainably manage residential development.

In order to achieve the desired state of an integrated urban system, the municipality’s urban areas are divided into different Growth Management Zones. These GMZs support the nodal and corridor network in restructuring urban areas to a more sustainable and efficient form. Also of great importance is the relationship between transport and land use. Transit Oriented Development (TOD) has to be applied to enable an efficient public transport network. Unfortunately residential densities in the area will in the foreseeable future not reach the targets attained by metros which will limit the number of public transport options available in future.

Therefore the entire municipality is divided into 6 Growth Management Zones in order to guide residential development:

1. HIGH DENSITY ZONE	
Areas within these zones will form the future cores of the urban system where most people will live, work and ‘play’. These zones will be characterised by higher densities in residential and economic land uses and the greatest diversity in land use. Most amenities and institutions will be located within these zones because they will be the most accessible through public transport. These areas will be developed in terms of the principles of Transit Oriented Development and as such must contain the widest variety of housing typologies. Higher density applications may be considered outside this zone in areas adjacent to the spine of the primary Development Corridor as well as areas where it will strongly promote urban efficiency (Especially in terms of engineering services, public transport and urban renewal/revitalisation).	
Target Dwelling units /Hectare	Up to 80 du/Ha
Coverage	Up to 80%
Floor Area Ratio	Up to 2.7
Height	3 Floors
Additional rooms	2 on properties that have not been redeveloped.
Boarding houses	Allowed on properties that have not been redeveloped.
Second dwellings	Allowed on properties that have not been redeveloped.
Residential land uses	Free standing homes, town houses,
Guidelines	<ul style="list-style-type: none"> ▪ All new developments are subject to SANS 1936 (2012) as well as engineering service availability. Locate major public transport hubs in this zone and integrate them into the urban fabric. ▪ Increase housing densities, encourage mixed higher densities & different housing tenure options and attempt to locate the bulk of Gap housing initiatives within this zone. ▪ Due to dolomitic constraints in the northern urban area, larger high density buildings are more practical and obviously have a lower cost per unit. ▪ Increase Non Motorised Transport accessibility and increase pedestrian safety. ▪ Encourage mixed land uses where appropriate. Locate retail on ground level and residential uses on upper floors.

	<ul style="list-style-type: none"> ▪ Within sectional title developments that do not have yard/erf space for every unit, communal recreation space has to be provided to the satisfaction of the municipality. ▪ Developments with limited access have to make provisions for a waste receptacle to the satisfaction of the municipality. ▪ The developer shall landscape the street space in front of the property with trees. Parking areas that are not covered shall be planted with trees to the satisfaction of the Municipality. ▪ Surfaced on-site and/or surfaced on street parking for visitors shall be provided to the satisfaction of the municipality. ▪ Once the status quo of service infrastructure has been established more specific parameters can be attributed at the street block level. Extensive infrastructure upgrades may be required in the long term.
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2. AFFORDABLE INCREMENTAL DENSIFICATION ZONE	
<p>Densification on a smaller incremental scale is encouraged within this zone. The envisaged densification can take the form of second dwellings, subdivisions, and boarding houses (Up to 8 rooms). This zone makes provision for central town rental opportunities to develop. Many centralised areas are in a state of disrepair and incremental densification will breathe new life into these areas. It is expected that young individuals, young families and lower middle income residents will be accommodated in these areas. Increased densities may be considered adjacent to development corridors.</p>	
Dwelling units /Hectare	Between 10 and 30
Coverage	50 - 60%
Floor Area Ratio	1
Height	2 Floors
Additional rooms	3 in addition to primary residence (Including old servant's quarters), not allowed if an additional dwelling unit exists.
Boarding houses	Allowed
Second dwellings	Allowed. Not if there are additional rooms constructed in addition to old servant's quarters.
Residential land uses	Free standing homes, boarding houses, additional rooms
Guidelines	<ul style="list-style-type: none"> ▪ Higher density developments could be considered subject to spatial suitability. ▪ All new developments are subject to SANS 1936 (Northern urban area) as well as engineering service availability. Lower densities are less desirable and moderate densification is encouraged up to 30 dwelling units per hectare with an average of ± 15 dwelling units per hectare per street block. ▪ In dolomitic areas small building footprints and additional water services may be problematic. Boarding houses are more feasible. ▪ The construction of small rooms with cheap building materials is prohibited. Any additions must conform to the architectural style of the primary structure on a property or the prevalent style of the neighbourhood. ▪ Once the status quo of service infrastructure has been established more specific parameters can be attributed to the street block level.

3. SUBSIDISED HOUSING AND INFILL ZONE
Predominantly freestanding subsidised housing units. Mixed typologies are encouraged

Dwelling units /Hectare	Up to 40
Coverage	50 - 60%
Floor Area Ratio	1
Height	2 Floors
Additional rooms	2
Boarding houses	Allowed
Second dwellings	Allowed
Residential land uses	Free standing homes, second dwellings and additional rooms
Guidelines	<ul style="list-style-type: none"> ▪ Higher density developments could be considered subject to spatial suitability. ▪ All new developments are subject to SANS 1936 (Northern urban area) as well as engineering service availability. ▪ No development may in the opinion of the municipality degrade the small town/rural atmosphere of Merafong. Building styles should preferably fit in with the surrounding environment. ▪ Any additions to existing buildings or second dwellings must conform to the architectural style of the primary structure on a property or the prevalent style of the neighbourhood. ▪ Once the status quo of service infrastructure has been established more specific parameters can be attributed to the street block level.

4. MEDIUM DENSITY ZONE

Single residences, second dwelling units and town houses are encouraged within this zone. Within nodes and along corridors this can take the form of walk-ups with business on the ground floor.	
Dwelling units /Hectare	Between 10 and 25
Coverage	50 - 70%
Floor Area Ratio	1
Height	2 Floors
Additional rooms	2
Boarding houses	Not allowed
Second dwellings	Allowed
Residential land uses	Free standing homes, second dwellings and town houses
Guidelines	<ul style="list-style-type: none"> ▪ Higher density developments could be considered subject to spatial suitability. ▪ All new developments are subject to SANS 1936 (Northern urban area) as well as engineering service availability. ▪ No development may in the opinion of the municipality degrade the small town/rural atmosphere of Merafong. Building styles should preferably fit in with the surrounding environment. ▪ Any additions to existing buildings or second dwellings must conform to the architectural style of the primary structure on a property or the prevalent style of the neighbourhood. ▪ An erf size of 250 m² and 400 m² shall be maintained with a maximum density of 25 dwelling units per Hectare. ▪ Within sectional title developments that do not have yard/erf space for every unit, communal recreation space has to be provided to the satisfaction of the municipality. ▪ Developments with limited access have to make provisions for a waste receptacle to the satisfaction of the municipality.

	<ul style="list-style-type: none"> ▪ The municipality may at its own discretion, relax the density restriction with up to 10% especially in instances where the topography, storm water, or erf dimensions merit it. A minimum erf size of 250 m² shall still be maintained. ▪ Once the status quo of service infrastructure has been established more specific parameters can be attributed to the street block level.
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5. LOW DENSITY ZONE

This is the typical suburban zone characterised by low density free standing homes. The zone is predominantly a high motor vehicle use area. Areas within this zone will remain in a similar state than they can be found currently; however some incremental densification, mostly in the form of second dwellings will be allowed. Land use changes are not inhibited and as long as proposed changes conform to policies they are not discouraged within this zone. Moderately higher densities are encouraged within nodes, and mixed land uses are generally more desirable.

Dwelling units /Hectare	Between 10 and 12.5
Coverage	50 %
Floor Area Ratio	1
Height	2 Floors
Additional rooms	Not allowed
Boarding houses	Not allowed
Second dwellings	Allowed
Residential land uses	Free standing low density urban and rural
Guidelines	<ul style="list-style-type: none"> ▪ All new developments are subject to SANS 1936 (2012) as well as engineering service availability. Low to medium density residential densities is acceptable and mixed tenure options are encouraged. ▪ On the edges of this zone an appropriate interface with the bordering zone is required. ▪ Urban sprawl beyond this zone is not allowed.

6. PERI URBAN ZONE

This zone is a transition area where urban transforms to rural. The zone may contain a mix of high intensity rural, low density residential and lower bid rent urban uses. Each area has its own unique character which must be considered. Many areas are undergoing a process of land use intensification, however residential densities must remain low to reduce environmental impacts in un-serviced areas and to retain the existing character. Some isolated areas within this zone are not located directly outside an urban area, but still have the same characteristics.

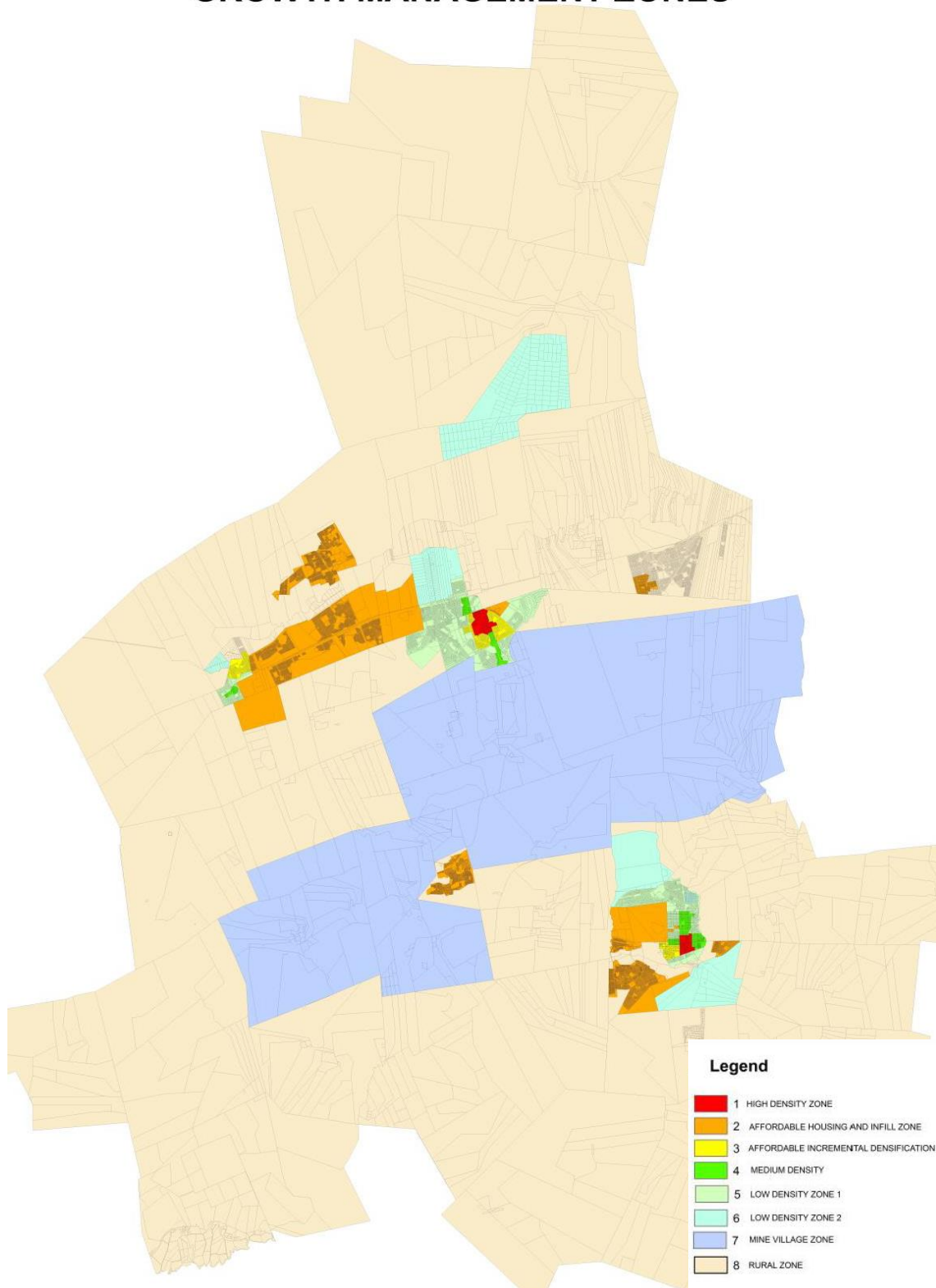
Dwelling units /Hectare	5 Or less
Coverage	50 % or less
Floor Area Ratio	N/A
Height	2 Floors
Additional rooms	Not allowed in proclaimed urban areas with residential zoning
Boarding houses	Not allowed, except for farm workers on agricultural zoned land
Second dwellings	Allowed
Residential land uses	Free standing low density urban and rural
Guidelines	<ul style="list-style-type: none"> ▪ All new developments are subject to SANS 1936 (Northern urban area).

	<ul style="list-style-type: none"> ▪ Residential densities must remain low. A general guideline base density of 2 units per hectare (2u/h) and lower is preferable. ▪ Subdivisions of land are allowed as long as they do not equate to the same densities as township establishments. ▪ Mixed land uses are encouraged where acceptable; however caution should be taken before approving noxious activities and the comments of neighbouring land owners is very important. Land use changes must be in keeping with the semi-rural nature and feel of the environment. ▪ In general, land uses that require larger land areas to function and simultaneously have low land rent values may locate within this zone (At the discretion of the municipality). Mitigation measures may be required if unsightly activities can be injurious to the aesthetic and/or natural environment. ▪ Ecological corridors may occur within this zone that should be respected and protected through Land Use Management and Site Development Plans.
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7. RURAL ZONE	
This zone encompasses rural areas throughout Merafong excluding small holdings. The zone is dominated by agricultural land uses including intensive and extensive farming. It is important to conserve the rural character of the area and also to protect agricultural land from development. The aim is to keep this zone in its rural state with only land uses allowed that are appropriate within a rural aesthetic setting. The protection of high value agricultural land and ecologically sensitive areas is very important in this zone.	
Dwelling units /Hectare	10 or less
Coverage	50 % or less
Floor Area Ratio	N/A
Height	2 Floors
Additional rooms	Not allowed, except for employees on appropriately zoned land
Boarding houses	Not allowed, except for employees on appropriately zoned land
Second dwellings	Allowed
Residential land uses	Free standing low density rural
	<ul style="list-style-type: none"> ▪ All new developments are subject to SANS 1936 (Northern area).

8. MINE VILLAGE ZONE	
This zone encompasses mining lease areas that contain mining villages and/or hostels. No further development within this zone should be allowed unless it is linked to the Primary Development Corridor and contained within an established township.	
Dwelling units /Hectare	10 or less, except for hostels and flats.
Coverage	50 % or less, except for hostels and flats.
Floor Area Ratio	N/A
Height	2 Floors, except for hostels and flats.
Additional rooms	Not allowed
Boarding houses	Not allowed, unless it forms part of an established township.
Second dwellings	Not allowed, unless it forms part of an established township.
Residential land uses	Free standing low density with hostels and flats
	<ul style="list-style-type: none"> ▪ All new developments are subject to SANS 1936. ▪ Development is generally restricted because most localities are unsustainable and unviable as functional urban areas.

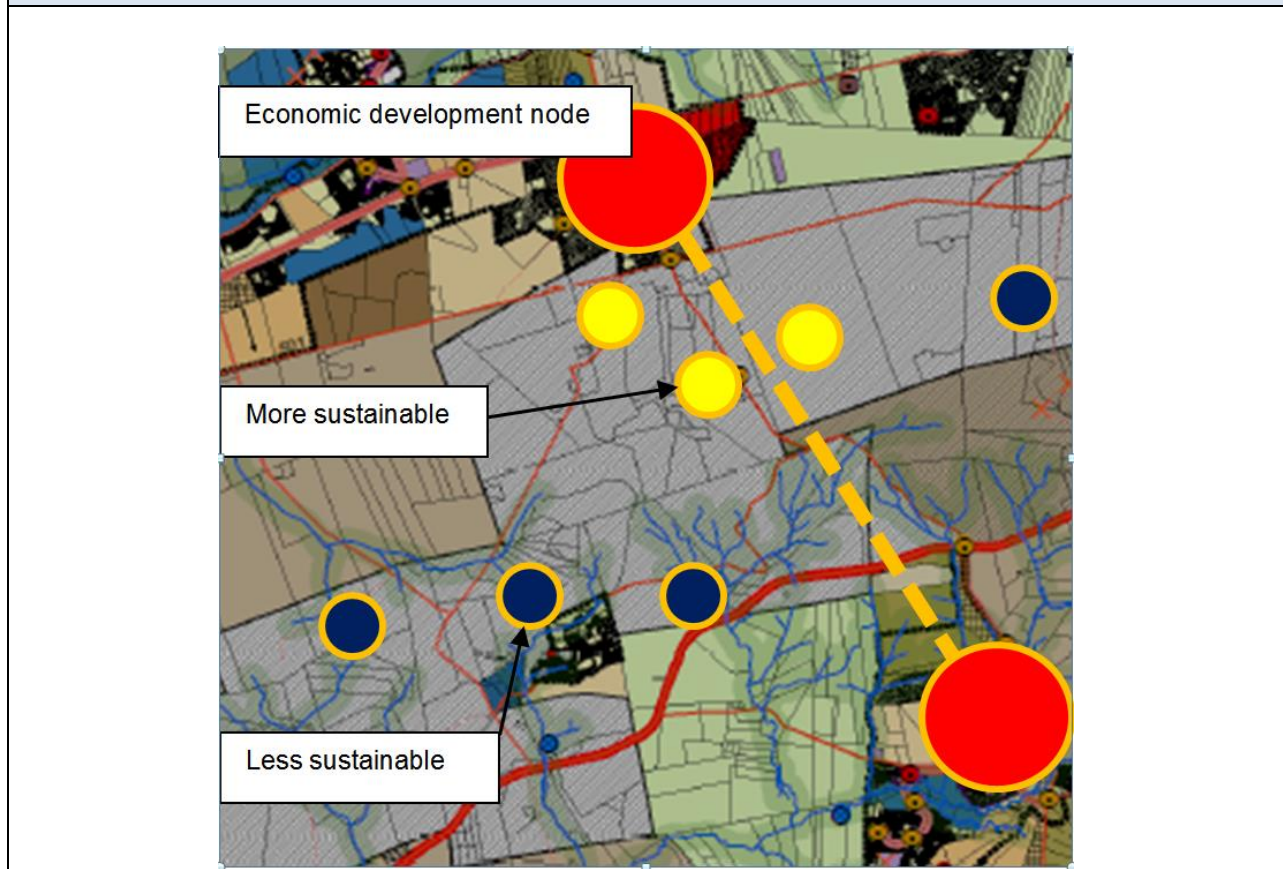
GROWTH MANAGEMENT ZONES



5.1.4 Focus development on viable and sustainable settlements and develop strategies to deal with unsustainable settlements.

Infrastructure developed by the mines valued at billions of Rands will be left behind after mining activities have ceased although some areas will be completely rehabilitated to a natural state. Although many structures will be stripped for salvaging/recycling a lot of usable infrastructure elements will remain. Unfortunately most of these mines are in locations that make the continued use of these facilities for other purposes unfeasible.

FIGURE 5.4 The sustainability of mining settlements and economic nodes



Some mining areas are located close enough to economic nodes or corridors to promote further development and adaptive re-use of infrastructure and facilities for future development. The following areas fall under the above mentioned criteria: **West Wits, the western portions of West Driefontein and Blyvooruitzicht and to a lesser degree, Mponeng.**

Solutions should be sought to make use of facilities in all localities. The following options could be considered:

- ✓ Industrial (Refer to game changer projects)
- ✓ The West Wits village has a marginally viable location near the Leslie Williams private hospital, an aesthetically pleasing atmosphere and numerous facilities
- ✓ The vast tracts of land owned by mining companies could be used for agriculture, game farming and nature reserves. Additionally, sites of tailings dams that remain toxic after rehabilitation should be considered for future land fill sites.
- ✓ Apart from efforts to 'green' decommissioned slimes dams, options should be investigated regarding the extent to which these large wastelands can be used for producing energy crops.
- ✓ Recent technological advancements in geothermal electricity generation have made geothermal power viable in a vast number of new locations all over the world. The existing mine voids could perhaps be used for geothermal power generation because the existing voids will reduce the amount of drilling required to reach feasible temperatures and the existing infrastructure like buildings and power cables would be useful.
- ✓ Old mines could become tourist attractions. This is discussed in greater depth in the tourism section of the protection of strategic resources strategy.
- ✓ Mining by-products like stone, water, etc. can be utilised
- ✓ The mining worker hostels could be utilised although their locations are unfavourable in most instances.

5.1.5 Integrate transport and land use through Transit Oriented Development (TOD) in order to improve efficiencies and attain universal access.

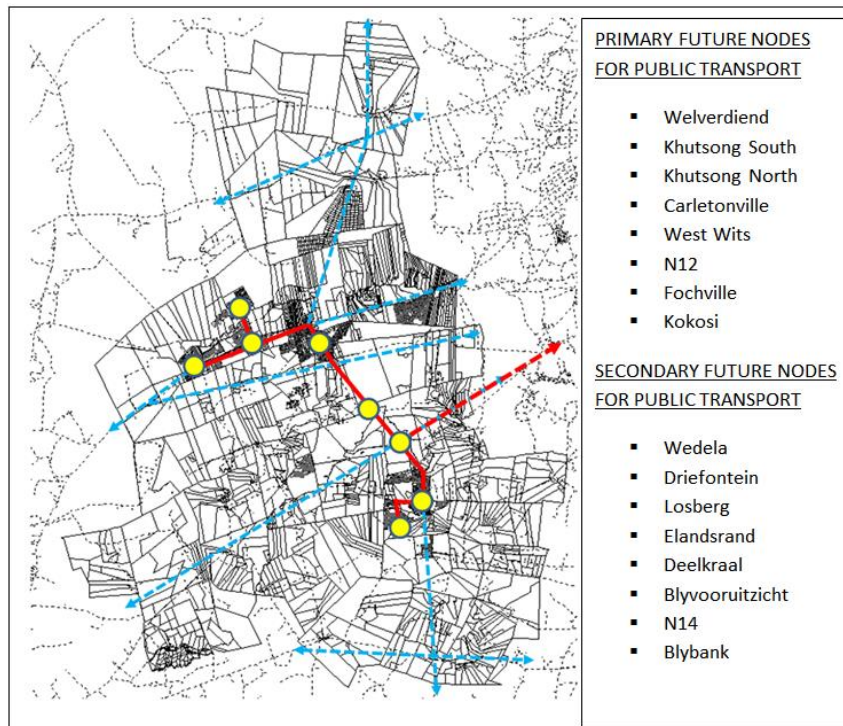
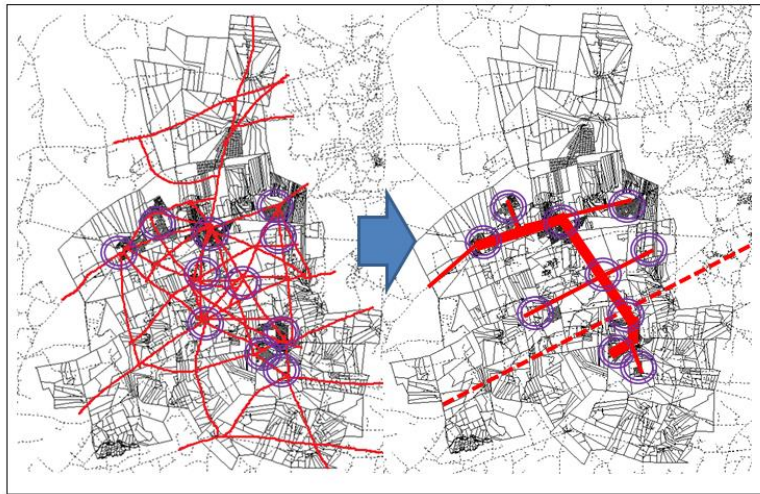
What is universal access? It is not only a function of distance. Universal access enables all citizens to reach every destination served by their public street and pathway system. Universal access is not limited to access by persons using cars. Travel by bicycle, walking, or wheelchair to every destination is accommodated in order to achieve transportation equity, maximize independence, and improve community liveability. Wherever possible, facilities are designed to allow safe travel by young, old, and disabled persons who may have diminished abilities.

Settlement elements and networks should be organised in such a way that urban transport is efficient and can be used as a control instrument in development management.

- The current settlement pattern would require a public transport network that is very similar to a dispersed radial network. This type of network is very inefficient with a low passenger turnover.
- The network is currently undergoing a shift because of the newly implemented spatial policies. An example of this is the Khutsong south extensions. If the spatial proposals in the SDF are implemented correctly the network will take on the form of a hub and spoke network (Refer to the figure below)
- A hub and spoke network is more efficient with a moderate to high passenger turnover and more people using public transport than with a dispersed radial network.

- The Primary Development Corridor will form the spine of Public Transport in future with primary Public Transport node localities located along the corridor. Transit Oriented Development and Universal Access principles are focused on these nodes. It will serve to organise the chaotic dispersed radial system into a more rational hub and spoke system as indicated below.

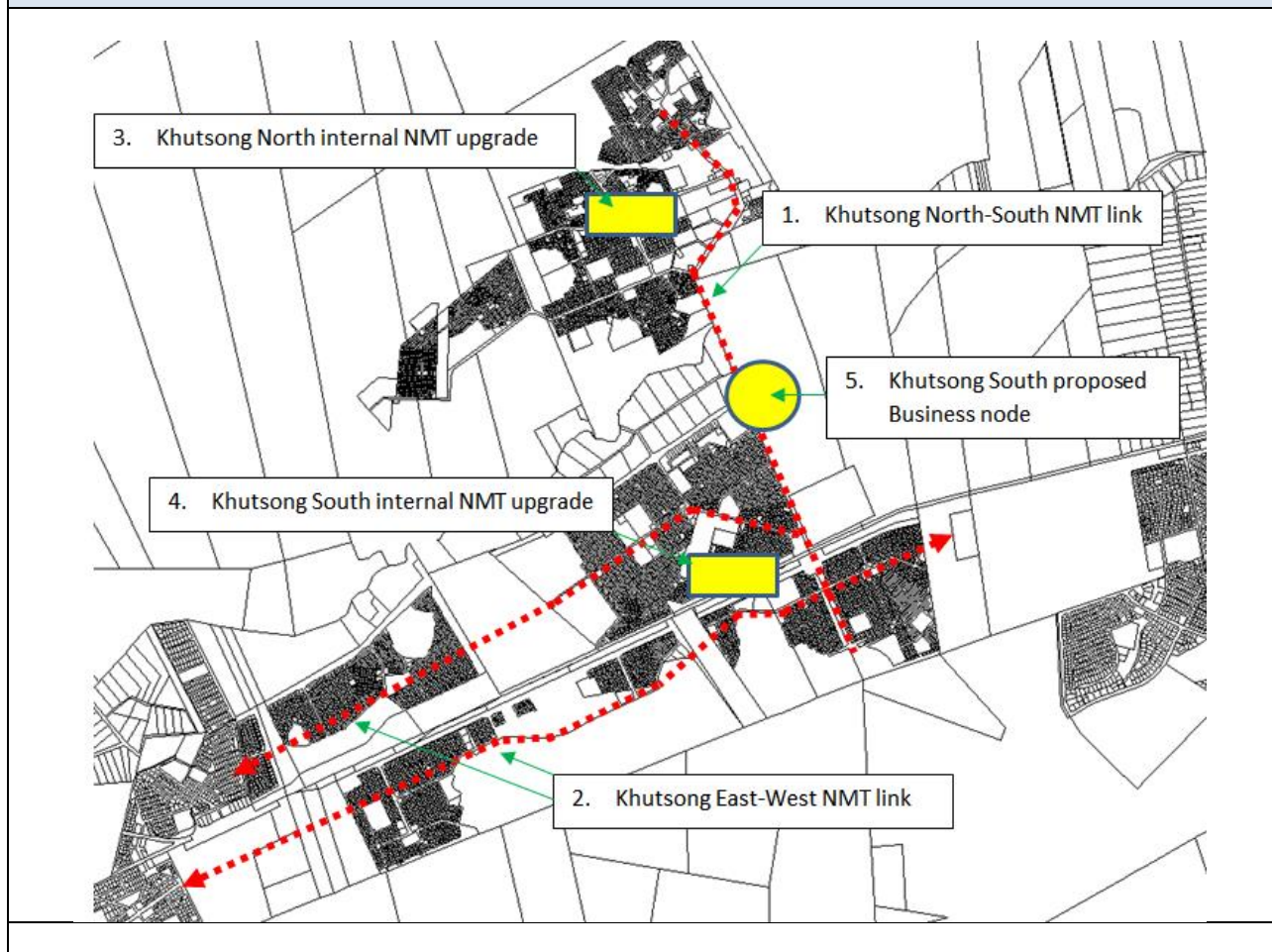
FIGURE 5.5 The rationalisation of public transport through the Primary Development Corridor

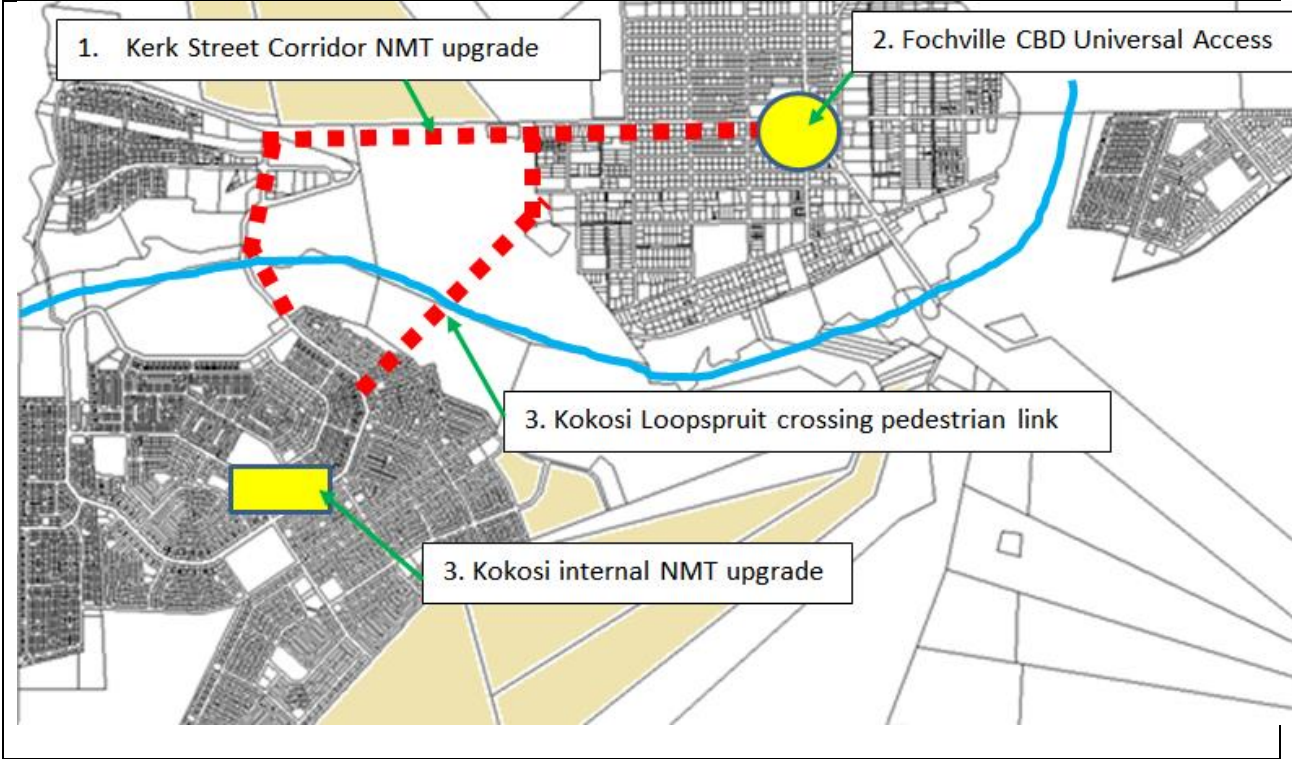


Non-Motorised Transport (NMT) includes all means of transport that are human or animal powered. Non-Motorised Transportation includes Walking, Animal-Power and Bicycling, and variants such as Small-Wheeled Transport (skates, skateboards, push scooters and hand carts) and Wheelchair travel. It is the most available, but not always the most accessible mode of transport due to a lack of consideration. NMT comprises the vast majority of first and final movements in public transport trips. The Gauteng City Region Observatory estimates that 47% of NMT users have household income of less than R1600.00 which equates to 24 200 households in Merafong. More in-detail planning on precinct level is required regarding NMT and universal access. The following broad proposals are made:

- Create NMT routes along major movement corridors in Khutsong, Wedela and Kokosi
- Improve universal access in the Carletonville and Fochville CBDs
- Upgrade internal NMT provisions in all urban areas especially those with lower car ownership rates.

FIGURE 5.6 Non-motorised transport priority areas





2. IMPROVE URBAN AND RURAL LIVEABILITY

POLICY	Create a liveable environment for the community where basic needs are met, the cost of living is bearable, amenities and employment is accessible and urban space is aesthetically pleasing and healthy.
OUTCOMES/ DESIRED STATE	<ul style="list-style-type: none"> ▪ Public facilities are adequately provided for in the right localities with the necessary amenities. ▪ All social facilities contribute to human development, meeting basic needs and act as social development safety 'nets' to protect human rights and human dignity. ▪ Urban design provides quality of place and the maximum utilisation of spaces for their most appropriate uses. ▪ The urban environment is aesthetically pleasing and unique ▪ Green infrastructure provides ecosystem services to the benefit of the human and natural environment. ▪ All residents have adequate housing with different options of tenure.
IMPLEMENTATION STRATEGIES	<ul style="list-style-type: none"> ▪ Social infrastructure development ▪ Sustainable human settlements ▪ Improve urban design and green infrastructure in order to promote universal access and create a unique identity. Develop an Urban Design Framework. ▪ Rural development ▪ Promote or enforce principles of design and land use patterns that reduce crime, the fear of crime and also promote safety.
POLICY ALIGNMENT	From the national and provincial primary policy synthesis: Grouping 3, 4 and 5

5.2.1 Develop a robust system of social infrastructure to enable human development.

Social infrastructure is the combination of basic facilities which are necessary for human development. It includes facilities such as schools, churches, clinics, community halls, sports facilities etc.

For a summary of available facilities and deficits per town, refer to the local level assessment. The following estimates were calculated using the **CSIR Guidelines for Human Settlement and Design and the CSIR Summary Guidelines and Standards for the Planning of Social Facilities and Recreational Spaces in Metropolitan Areas**. Areas colour coded in red need immediate attention, yellow in the medium term and a green coding denotes adequate provision

Primary schools	Population	Number needed	Provision (additional vacant erven available)	Actual	Surplus/deficit (Need and actual provision)
Merafong City NU	7020	1.2	0	2	
Khutsong	62457	11.4	±10	9	-2
Carletonville	28386	5.2	2	4	-1
Wolverdam	2706	0.5	2	1	0
Fochville	9504	1.7	1	2	0
Greenspark	2586	0.5	0	1	0
Kokosi	26400	±6	2	3	-2
Blybank	3140	0.57	1?	0	0
Wedela	17931	3.3	0?	2	-1

The new Khutsong South extensions have the largest deficit in primary schools. The construction of a new combined primary and secondary school between Kokosi and Fochville is underway. This school will relieve demand pressure in the area until Kokosi Extension 6 and 7 have been completed. Then another facility will be needed. Wedela and Carletonville also have deficits, however through the provision of larger sized facilities the problem can be overcome for the medium term.

Secondary schools	Population	Number of Secondary schools needed	Provision (additional vacant erven available)	Actual	Surplus/deficit (Need and actual provision)
Merafong City NU	7020	0.6	0	0	0
Khutsong	62457	5	4+	3	-2
Carletonville	28386	2.3	2?	3	1
Wolverdam	2706	0.2	1	0	0
Fochville	9504	0.8	0	2	1
Greenspark	2586	0.2	0	0	0
Kokosi	26400	2.2	1	2	0
Blybank	3140	0.3	0	0	0
Wedela	17931	1.4	0	1	0

Khutsong is the only area that is experiencing a supply deficit with regards to secondary schools. The problem is serious with thousands of new subsidised units being constructed without a school. The construction of the new combined primary and secondary school between Kokosi and Fochville will ensure adequate supply in the medium to long term.

Clinics	Population	Number of clinics needed	Provision (additional vacant erven available)	Actual provision	Surplus/deficit
Merafong City NU	7020	1 or 2	0	0?	0
Khutsong	62457	2	Numerous options	3	0
Carletonville	28386	1	0	1	0
Welverdiend	2706	1	1	1	0
Fochville	9504	1	1	1	0
Greenspark	2586	1	0	1	0
Kokosi	26400	1	2	2	0
Blybank	3140	1	0	1	0
Wedela	17931	1	0	1	0

The provision of clinics in Merafong's formal urban areas is sufficient. The number of clinics relative to the population is higher than average due to the fragmented distribution of urban areas.

Community halls	Population	Larger (30000)	Current provision (Large)	Smaller (15000)	Current Provision (Small)	Surplus/deficit
Merafong City NU	7020	0.2		0.5	0	0
Khutsong	62457	2.1	0	4.2	2	L=-2; S=-2
Carletonville	28386	1	2	1.9	1	0
Welverdiend	2706	0.1	0	0.2	0	0
Fochville	9504	0.3	1	0.6	0	0
Greenspark	2586	0.1	0	0.2	0	0
Kokosi	26400	0.9	0	1.8	1	L=0; S=-1
Blybank	3140	0.1	0	0.2	0	0
Wedela	17931	0.5	0	1.2	1	0

Regarding community halls, there is a need for a larger scale facility in Kokosi and two large and two smaller scale facilities in Khutsong.

District level facilities	Multi-purpose sports halls		Swimming pools		Outdoor sport complexes	
	Requirement	Actual provision	Requirement	Actual Provision	Requirement	Actual provision
Khutsong	2	0	1	0	1	0
Carletonville	2	1	1	1	1	1
Fochville	2	1	1	1	1	2

On a district level, Khutsong has a sizable deficit in sports facilities. The land to develop these facilities is available.

Sports facilities	Population	General provision	Current provision (Land only)
Merafong City NU	7020	0	0
Khutsong	62457	35 Ha	35+ Ha
Carletonville	28386	16 Ha	16+ Ha
Wolverdam	2706	1.5 Ha	1.5+ Ha
Fochville	9504	5.5 Ha	5.5+ Ha
Greenspark	2586	1.5 Ha	1.5+ Ha
Kokosi	26400	15 Ha	15+ Ha
Wedela	18 000	10.1 Ha	4.5 Ha

Wedela is the only formal urban area where the municipality does not have sufficient land for sports facilities available. In addition to acquiring new land (which is difficult in the Wedela area due to the topography) more intensive use and sharing of facilities should be encouraged.

5.2.2 Develop sustainable human settlements that go beyond the basic provision of housing units.

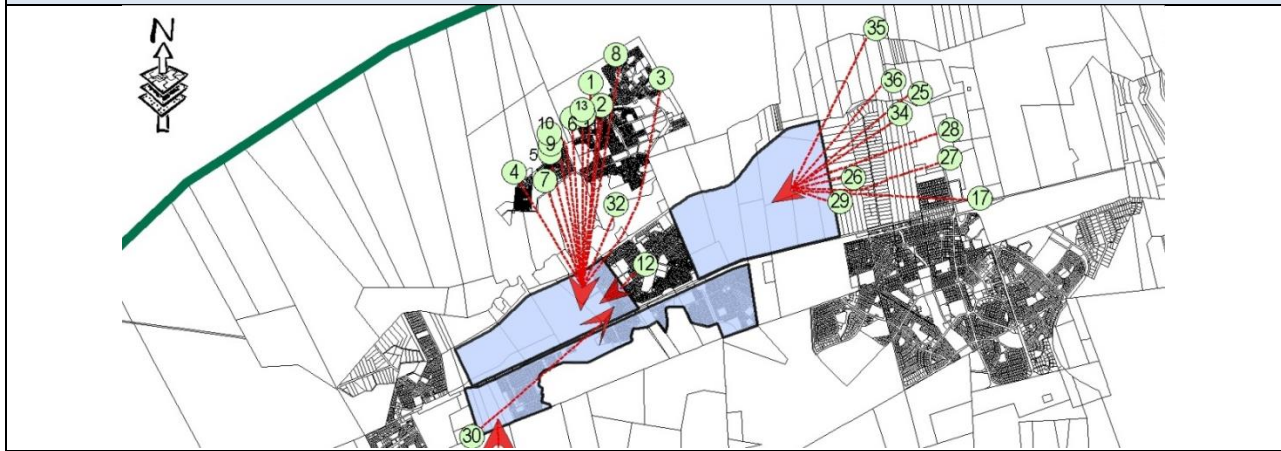
The creation of sustainable human settlements involves 2 broad processes. Firstly the provision of sufficient housing stock with different tenure options to supply in the demand for housing. Secondly the creation of sustainable and viable settlements with a good urban liveability is also of critical importance. This section deals with the first and the next section deals with the second.

Housing delivery in Merafong City occurs in four different forms, namely:

- State funded, low cost housing in which the municipality serves as a developer.
- Private sector developments targeting mainly the middle to upper income groups.
- Affordable rental accommodation and social housing.
- Informal settlement up-grade.

Northern urban area

FIGURE 5.7 Resettlement origins and destinations in the northern urban area.



There are 11 193 informal settlement households within the northern urban area. The informal settlements located on the periphery of Khutsong have access to basic services, such as water, sanitation and high mast lighting, whereas the informal settlements located on farm land around the Carletonville area, basically only have access to water and basic sanitation. All of these areas are however subject to dolomite conditions, and in terms of SANS 1936, no informal structures may be permitted on dolomitic land. *In situ* development of these informal settlements is therefore not an option, and all of these informal settlements need to be relocated to suitable safe land. As indicated in Figure 5.7, all of these informal settlements have been earmarked for relocation to the Khutsong South Extensions Development. It is estimated that approximately 20% of the total 11 193 informal households will not qualify for subsidized housing, due to nationality, income and other reasons, and can therefore be accommodated in a transit area or rental accommodation.

Timeframe	Baseline: End of 2013/2014	2014/2015 Completed		2015/16 Secured funding		2016/2017 Secured Funding		2017/2018 Planned				TOTAL
Backlog: housing need	16 630	15 376 Backlog after implementation		15 111 Backlog after implementation		14 608 Backlog after implementation		13 688		12 438		12 438 Backlog
Project		K/S Ext 1, 2 & 4		K/S Ext 5 (Phase 1)		K/S Ext 5 (Phase 2)		K/S Ext 5 (Phase 3)		K/S Ext 7		
		Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	
Internal Services		5500 serviced sites		500		935		535		1250		3220
RDP		1214	1254	617 *		250		920		1250		4291
GAP						253						253
TOTAL Housing Stock	3894	5148		5765		6268		7188		8438		8438

Southern urban area

The southern conurbation consists of the Fochville, Kokosi and Greenspark areas. The majority of informal settlements are located in and around Kokosi, on the periphery of Greenspark and in the farming areas surrounding Fochville.

FIGURE 5.8 Resettlement origins and destinations in the southern urban area.



There are 2848 informal settlement households within the southern conurbation. The informal settlements located in and around Kokosi and on the periphery of Greenspark have access to basic services, such as water, sanitation and high mast lighting. As indicated above, all of these informal settlements need to be relocated. Kokosi Extension 99 will always have to remain a transit area, as the water table is too high and township establishment cannot be considered. The other areas are either affected by servitude areas, graveyards or private properties, and *in situ* development cannot be considered. As indicated, all of these informal settlements have been earmarked for relocation to Kokosi Extension 6 and 7 or Greenspark Extension 1 areas. The households that do not qualify for subsidized housing will have to be accommodated in other forms of housing typology, such as bonded houses, rental stock or social housing.

Timeframe	Baseline End of 2013/2014	2014/2015 Completed		2015/16 Secured funding		2016/2017 Secured Funding		2017/2018 Planned		TOTAL
Baseline/ Backlog	2484	2468 Backlog after implementation		1458 Backlog after implementation		722 Backlog after implementation		330 Backlog after implementation	(2839) Surplus	(2839) Surplus
Project		Wedela/Kokosi		Kokosi Ext 6 (Phase 1)	Kokosi Ext 7	Kokosi Ext 6 (Phase 2)		Kokosi Ext 6 (Phase 3)	Kokosi Ext 7	
Internal Services					Outfall sewer				3169	3169
Housing Typology		Planned	Actual							
RDP		16	16	1010		736		392	2430	2154
GAP									728	728
MIXED									11	11
TOTAL		16		1010		736		392	3169	5323

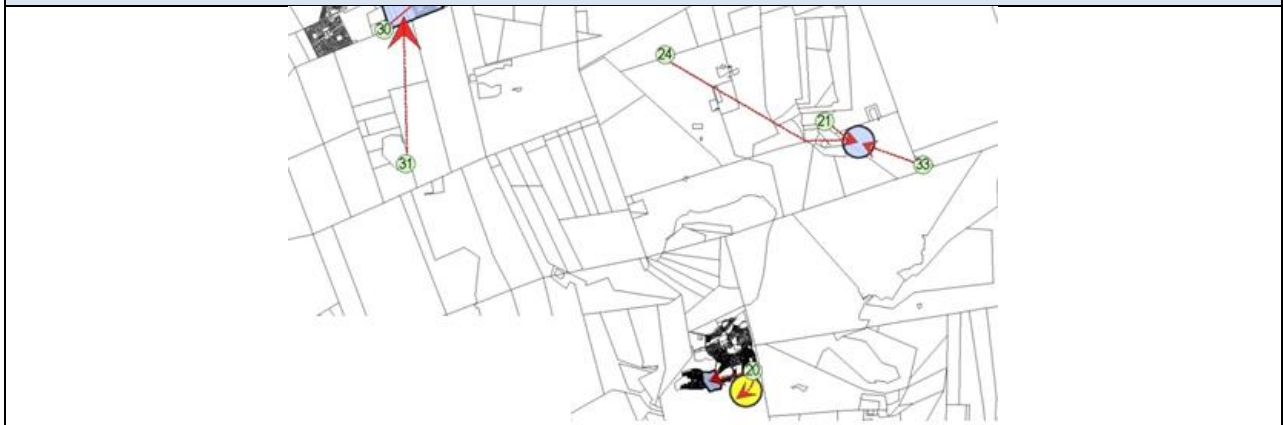
Mining belt

The mining belt consists of Wedela, and the following mining villages are located within the mining belt:

- West Wits
- East & West Driefontein
- Elandsridge
- Deelkraal
- Blyvooruitzicht
- Doornfontein

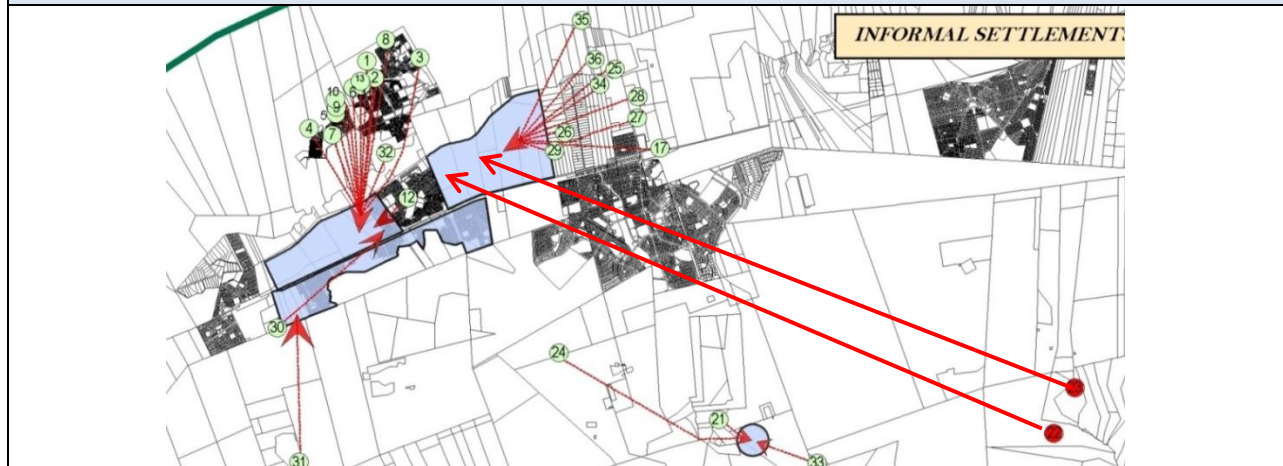
The location of these informal settlements is indicated on the map below:

FIGURE 5.9 Resettlement origins and destinations in the mining belt.



As can be seen from the above table, there are 7009 informal settlement households within the mining belt. The informal settlements located at Blyvooruitzicht, and Western Deep Levels, can be accommodated at the West Wits Township, either through subsidized housing or the CRU project. The informal settlement at Deelkraal can be accommodated at Deelkraal itself through the CRU project by Harmony Gold, or accommodated in a subsidized housing project in Wedela Extension 4. The informal settlements at East Driefontein created problems for both Goldfields Mining Company and the Municipality for many years. Based on the location of East Driefontein Village, and in terms of the concept and requirements for sustainable settlements, and in terms of the Merafong City SDF, the informal settlements at Driefontein cannot be formalized. In view of the fact that East Driefontein is a mining village and not a proclaimed township, the informal settlements have to be relocated to the Khutsong area. The area indicated in Figure 7 has been earmarked for this purpose.

FIGURE 5.10 Resettlement origins and destinations for the East Driefontein (Mapatlwa) area.



In terms of the housing plan, the housing demand of 7009 households in the mining belt can therefore be addressed as follows. It is however important to note, that the 5437 informal settlement households of the East Driefontein area will have to be accommodated in the northern conurbation as part of a Presidential Package.

Timeframe	Baseline: End of 2013/2014	2014/2015		2017/2018				TOTAL	
		Baseline/ Backlog	1104	1004 Backlog after implementation		356	106		(394 surplus)
				Backlog after implementation					
Project		Blybank (Sibanye)	Wedela (Angolgold)	Deelkraal CRU	West Wits CRU	Wits	Wedela Ext 4 (2)	West Wits (1)	
Housing Typology									
RDP							500		500
GAP		50	50					500	600
CRU				648	250				898
TOTAL			100			1898			1998

Restructuring Zones


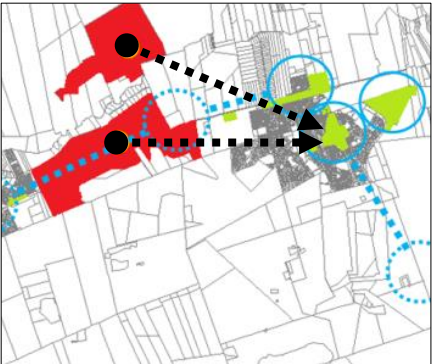
The policy document: “SOCIAL HOUSING POLICY FOR SOUTH AFRICA - Towards an enabling environment for social housing development, 2005, p. 10” from the National Department of Human Settlements, defines designated restructuring zones as follows:

“Designated restructuring zones are those geographic areas identified by local authorities and supported by provincial government for targeted, focused investment. Within these areas, the Capital Grant will apply. This is a significant capital contribution from government for the development of social housing in these defined localities as part of a broader goal of social


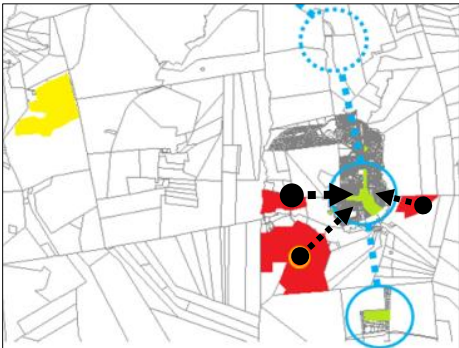
restructuring in South Africa. Outside of these restructuring zones (and within them if desired) the institutional subsidy may be used for rental or other forms of development.

“Social housing in restructuring zones must take the form of medium density multi-unit complexes requiring institutionalised management. This includes townhouses, row housing, multi-storey units, walk-ups etc., and excludes detached units. A defined density threshold, in respect of all social housing projects, will be elaborated in the guidelines for this programme.”

Two initial Restructuring Zones have been identified in Merafong and was submitted to Gauteng for approval and proclamation:

QUALIFICATION CRITERIA	1. CARLETONVILLE CENTRAL
A clear indication of affordable housing human settlement need	<ul style="list-style-type: none"> - Northern Conurbation total = 11 193 (2015)
Existence of sufficient existing bulk infrastructure capacity to accommodate additional demand or approved plans in place	<ul style="list-style-type: none"> - Bulk infrastructure is available Central Business District is under developed in terms of planned Floor Area Ratios and Coverage which could be developed.
Existing Spatial Context and Infrastructure	<p>Municipal Spatial Development Framework:</p> <ul style="list-style-type: none"> - Carletonville has the highest level of economic potential with the lowest level of human need. - Increased densities in the primary economic node - Existing high level of service provision - Along the primary development corridor - Primary hub of social amenities and activities in Merafong <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
Economic security and/or promote employment (job creation)	<ul style="list-style-type: none"> - Located within the largest employment node (Carletonville CBD) - Located next to industrial area (Carletonville Ext. 6) - Located next to planned future industrial complex
Promote a range of human settlement options	<ul style="list-style-type: none"> - Wide range of densities and tenure options - Most cosmopolitan area within Merafong - Already mixed ethnicities and age groups

Social Justice	<p>Amenities (MSDF):</p> <ul style="list-style-type: none"> - 4 Primary schools, 3 High schools - 1 Hospital, 1 clinic - 1 Regional civic centre, 1 regional sports complex, 1 regional library - Walking distance from taxi rank, walking distance from proposed future public transport hub - Numerous cultural and economic amenities
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QUALIFICATION CRITERIA	2. FOCHVILLE CENTRAL
A clear indication of affordable housing human settlement need	- Northern Conurbation total = 11 193 (2015)
Existence of sufficient existing bulk infrastructure capacity to accommodate additional demand or approved plans in place	- Bulk infrastructure is available Central Business District is under developed in terms of planned Floor Area Ratios and Coverage which could be developed.
Existing Spatial Context and Infrastructure	<p>Municipal Spatial Development Framework:</p> <ul style="list-style-type: none"> - Increased densities in the second largest economic node in Merafong - Existing high level of service provision - Along the primary development corridor - Primary hub of social amenities and activities in the south of Merafong <div style="display: flex; justify-content: space-around;">   </div>
Economic security and/or promote employment	<ul style="list-style-type: none"> - Located within the largest employment node in southern Merafong (Fochville CBD) - Located next to industrial area (Fochville south)
Promote a range of human settlement options	<ul style="list-style-type: none"> - Wide range of densities and tenure options - Already mixed ethnicities and age groups
Social Justice	<p>Amenities:</p> <ul style="list-style-type: none"> - 3 Primary schools, 2 High schools - 1 Private Hospital, 2 clinics - 1 Civic centre, 1 regional sports complex, 1 library - Walking distance from taxi rank - Numerous cultural and economic amenities

5.2.3 Enable rural development

The following is an extract from the Draft Merafong Rural Development Framework:

The framework has 6 focus areas based on the Gauteng Comprehensive Rural Development Strategy and the needs and potential of Merafong:

- Promotion of Sustainable Land Reform in Merafong;
- Support of Rural Infrastructure Development, Access to Services and Sustainable Livelihoods.
- Job Creation Linked to Skills Training and Capacity Building.
- Sustainable Use of Natural Resources and Protection of the Environment.
- Good Governance
- Risks and Vulnerability

Promotion of Sustainable Land Reform in Merafong

The categorisation of beneficiaries through targeted allocation is proposed by the national Comprehensive Rural Development Strategy. Land reform projects have often been criticized for ineffectual targeting primarily because the redistribution programme has been demand-driven. Beneficiaries will in future be stratified into 5 categories to target those with proven interest and skills in farming from the rural areas and farms so as to create developmental pathways appropriate to different target categories. The proposed categories are as follows:

- Category 1: Landless households – those who have no space even for subsistence production and seek land for small-scale subsistence purposes, with or without settlement; including rights-based applicants such as farm dwellers
- Category 2: Commercial-ready subsistence producers – those who wish and are capable of having a more commercial focus but need land and support, mostly on part-time basis; including rights-based applicants such as farm dwellers
- Category 3: Expanding commercial smallholders – those who have already been farming commercially at a small scale and with aptitude to expand, but are constrained by land and other resources
- Category 4: Well-established black commercial farmers – those who have been farming at a reasonable scale, but are disadvantaged by location and other circumstances, and with real potential to become large-scale commercial farmers
- Category 5: Financially capable, aspirant black commercial farmers – established businesspeople who aspire to expand into commercial agriculture and who by and large will be part-time farmers

Merafong Municipality can do more to assist National and Provincial Government with land reform. A database should be compiled of existing emerging farmers and possible candidates living/working on farms in Merafong and categorized in terms of the CRDS categories in order to assist National Government to find households that have not been taken up in registers or databases.

Support of Rural Infrastructure Development, Access to Services and Sustainable Livelihoods

The links between urban and rural areas are very important since they unlock latent economic and social opportunities by bringing dispersed economic and social functions together. The linkages within Merafong are better than in most other municipalities because of the well-developed road network. There are therefore no deep rural areas within Merafong. The need however always exists to improve on accessibility and interaction. This can be achieved in the following ways:

- ✓ Improve more localised access links.
- ✓ Maintain and improve on existing infrastructure.
- ✓ Improve telecommunication penetration in the more remote areas.
- ✓ Develop service delivery centres at centralised points.
- ✓ Develop small markets at service delivery centre locations.

For the most part the municipality does not deliver services outside urban areas. The District Municipality, Gauteng Province and National Government are responsible for facilities like schools and clinics, roads, disaster management, etc.

Rural housing is quite a complex matter due to factors such as people living on land owned by others, communal land rights, viable locations for housing, the availability of services and access, the proximity of employment opportunities, etc. About 16% of rural households in Merafong do not live in formal housing structures.

The only remaining rural school in Merafong is Rooipoort Primary School. There is a Redora Primary School less than a kilometer outside of Merafong in Randfontein Municipality which also serves some pupils staying in the De Pan area in Merafong. There is also a primary school at Klipdrift less than 2 kilometers from the southern border of Merafong.

Social infrastructure. Social infrastructure plays a critical role in rural areas because of the marginalised nature of these areas. This includes the following:

- ✓ Access to resourced clinics
- ✓ Sports and recreation facilities especially for women and youth development
- ✓ Rural libraries stocked with the appropriate books
- ✓ Rehabilitation and development of schools
- ✓ Community halls
- ✓ Skills training centres
- ✓ Support facilities for NGOs
- ✓ Mobile clinics

All of these facilities are accessible to rural people by traveling to urban areas. The rural population in Merafong is too dispersed to build dedicated rural facilities. Focus could rather be given to improving transport options for the inhabitants of rural areas.

Job Creation Linked to Training and Capacity Building

Rural development in Merafong should be based on the development of a vibrant agrarian production sector that includes the following:

- ✓ Increased production which includes optimal and sustainable use of natural resources including land, grass, trees, water, etc.
- ✓ Livestock farming with the associated beneficiation activities.
- ✓ Cropping with the associated beneficiation activities.
- ✓ The establishment and strengthening of rural livelihoods for vibrant LED.
- ✓ The use of appropriate technologies, modern approaches and knowledge systems.

There are several constraints on small scale farming and other entrepreneurial activities like a lack of funding, lack of skills and information, no access to land for farming and business, over centralization and competition with large companies, lack of access to markets, etc. Local Economic Development (LED) is very important and can be very effective in rural areas because it takes a self-selective approach where specific local opportunities are exploited.

- A significant challenge is to clearly distinguish business development and social development. With the “project” approach to LED prevalent in South Africa, there tends to be a big confusion between economic and social objectives, and business and subsistence activities. One of the main problems is that promotion organisations are often not adequately organised.
- Rural production, both agricultural and nonfarm, tends to involve rather complex value chains, both in terms of inputs and commercialisation. If critical elements of a value chain are weak or nonexistent, it will compromise the competitiveness of every business in the chain. Understanding value chains, analysing their bottlenecks and, together with businesses, defining measures to remedy the problems is an essential element of promoting rural entrepreneurship.
- The lack of market access and over centralized markets are two of the major inhibitors to small scale farming development. Other economic activities apart from or in support of agrarian ones are important in order to diversify the rural economy. LED projects have to be identified in this regard.

The South African economy has entered a state where it is better at creating jobs for more skilled and educated labourers leaving unskilled and often semi-skilled workers marginalised. Agrarian based economic activities tend to be among the most labour intensive. There is however still room for increased labour intensity without compromising on efficiency and competitiveness. This is in the form of small scale farming in a cooperative manner. Smaller scale farming should be encouraged and opportunities created.

Sustainable Use of Natural Resources and Protection of the Environment

Agrarian and other economic activities should make optimum use of natural resources without over exploiting them. In this regard a management plan for environmentally sustainable agrarian activities for Merafong should be considered in order to mitigate human impacts. By meeting basic human needs and creating economic opportunities the impact of poor rural dwellers on the environment will be greatly reduced. More environmentally sustainable farming practices like

organic farming should be promoted, especially in LED projects. The relatively new practice of Agro ecology, where farmers use practices that are more in tune with nature can be used not only to reduce negative externalities but also to improve productivity.

Good Governance

It is important that the municipality recognise the principles of cooperative governance and the provisions of the Intergovernmental Relations Framework Act, 2005.

Risks and Vulnerability

Rural areas are vulnerable to droughts, floods, hail, heavy rainfall, strong wind gusts, violent thunderstorms, pests and disease. Large commercial farmers are more adaptable than smaller scale farmers. It is therefore necessary to implement mitigation and management plans that can take the form of:

- An agricultural development management unit that provides assistance and information
- Disaster mitigation and management plans that go beyond geological risks and deal with environmental disasters and how to minimise their effects.
- Good environmental management, agricultural and development practices also apply here since the degradation of natural resources, specifically land degradation can exacerbate and even cause environmental disasters.

Safety and security are a precondition for social and economic development. The responsibility for the establishment of peace and harmony in the countryside lies with all citizens, but particularly with the local leadership. Elected councilors have a responsibility to the whole community. A community policing forum (CPF) should link up with every police station. In many urban areas, these have already become effective, breaking down suspicions and ensuring community involvement in policing. Other much needed improvements are a victim support programme, better information management, police training and motivation and improved infrastructure.

3. FACILITATE SUSTAINABLE ECONOMIC GROWTH AND DIVERSIFICATION	
POLICY	Facilitate the development of new economic drivers and the diversification of the economy and to revitalize stagnant economic activity nodes.
OUTCOMES/ DESIRED STATE	<ul style="list-style-type: none"> ▪ A broader economic base consisting of a mix of mining, agriculture and manufacturing. ▪ A more diverse non-basic sector that absorbs local purchasing power. ▪ Accelerated economic growth in leading sectors that stimulates job creation. ▪ Provide for the needs of the informal economy and to facilitate harmonious co-existence with the formal sector. ▪ A more developed economy will enlarge the tax base, which will in turn provide more capital for municipal investment.
IMPLEMENTATION STRATEGIES	<ul style="list-style-type: none"> ▪ Enable industrial development through the provision of industrial land and infrastructure according to demand coupled with well researched incentives for investment. Develop an Industrial Development Strategy for Merafong to guide municipal actions in this regard. ▪ Enable faster development and growth of the agricultural sector and its associated value chains. ▪ Target decaying areas within development nodes for urban renewal initiatives. ▪ Develop new strategic nodes with base economic potential in order to utilise their latent potential. ▪ Continuously identify spatial threats and constraints to economic development and mitigate. ▪ Create an enabling environment for informal enterprises to thrive without adversely affecting the formal sector.
GUIDING PRINCIPLES	<ul style="list-style-type: none"> ▪ Enable non-basic economic expansion through land provision and Land Use Management. Designate more land for business and services expansion. ▪ Economic development and job creation is of great importance and as such administrative processes related to Land Use Management, building plan assessment and property disposal should prioritise economic development activities.
POLICY ALIGNMENT	From the national and provincial primary policy synthesis: Grouping 1, 3, 4 and 5

One of the most important roles of government in the economy is to create an environment where enterprises can thrive. This document approaches that challenge from 2 angles:

- Firstly, the indirect approach where an urban environment is created that supports business development through the way it enables production and consumption of economic goods to take place and the efficiency with which it is done. This can range from economic infrastructure projects to the way urban development is managed.

- Secondly, the direct approach, where the municipality directly changes the space economy by implementing economic development projects. These projects can range from small informal sector support initiatives to large ‘game changing’ projects that reorganize the entire space economy.

5.3.1 CREATE URBAN ENVIRONMENTS THAT ENABLE ECONOMIC DEVELOPMENT

There are a number of ways in which spatial conditions in settlements create opportunities for economic activity. These principles must be applied in Spatial Planning and Land Use Management:

- The first is ***intensification***. This requires the promotion of higher unit densities than is the norm under the current model of settlement development. The case for increasing densities rests on a number of grounds. Higher densities create more opportunities for interaction, a climate in which economic activity - and small-scale economic activity, in particular - can thrive. A further effect of increased densities is an increased local demand for goods and services, promoting increasing specialisation and diversification in the small business sector.
- The promotion of economic activity is also affected by the **efficiency of movement systems**. Efficiency of movement creates higher levels of support for goods, services and social facilities, simultaneously ensuring a wider range of goods and social facilities and increasing the viability of the services provided. In this way **higher densities** play a crucial role in achieving higher levels of convenience. Higher densities lead to increased support for public transport systems, improving their viability. Higher densities, by lowering unit costs, can also contribute to the more efficient use of infrastructure. Finally, higher densities can contribute to the efficient utilisation of land, the counteracting of urban sprawl, a reduction in travelling and a reduction in energy consumption and pollution.
- A second way in which settlements maximise opportunities is by the **integration** of the different parts of the settlement, so that they contribute to each other. When a settlement is fragmented into a number of smaller, inwardly orientated parts, each part is largely reliant on its own internally generated resources. Consequently, levels of service and convenience may be low. By contrast, when the parts of a settlement are integrated, each part benefits from a much larger area. New settlements should accordingly not be viewed as ends in themselves only. They should also be viewed as instruments of restructuring, in the sense that they can be used to integrate a fragmented settlement environment. The above has implications for our thinking about movement. The challenge is to establish and maximise a continuity of movement systems, tying local living areas together. Movement systems need to be viewed not just as movement channels, but as spatial structuring elements. This line of thought leads to the conclusion that **maximising access is as important as maximising mobility**.
- A third way of increasing opportunities is **by enabling the evolutionary development of more complex settlements**. When this occurs, a diversity of large- and small-scale activities can find viable locations within the settlement system.
- A fourth way of creating opportunities is by **using the generating power of larger activities to attract smaller activities**, both of which benefit from the movement flows that result from the presence of the other.

5.3.2 CREATE OPPORTUNITIES FOR INDUSTRIAL DEVELOPMENT

In order to “kick start” industrial investment in Merafong investment incentives are required. Once the municipality has reached a satisfactory level of industrialisation the approval of new incentive packages can be stopped or reviewed to be more appropriate to the conditions of that time.

It is necessary to create a critical industrial mass by increasing the number of industrial businesses. Once this critical mass has been reached a state of conjunctive symbiosis will be obtained within industry clusters and disjunctive symbiosis in general.

Tailor made industrial incentive packages should be offered to industrialists who locate to the designated zones. Specifics still have to be completed.

The Merafong Growth and Development Strategy (GDS) and the Merafong Municipal Spatial Development Framework (MSDF) promote the creation of an incentive scheme that is competitive with neighbouring local authorities within the context of the strengths and weaknesses of different localities. This will serve to improve the competitiveness of the local economy and help to pave the way to a more sustainable economy. These zones are proposed in existing industrial areas, their proposed expansions and at certain rural nodes and areas to be designated as potential Agri business parks.

At major industrial development zones the focus is on investment attraction of predominantly small, medium and large enterprises whilst at minor industrial development zones the focus is on small and micro enterprises as well as industrial service enterprises and mixed uses of an unaesthetic nature.

Industrial development zones:

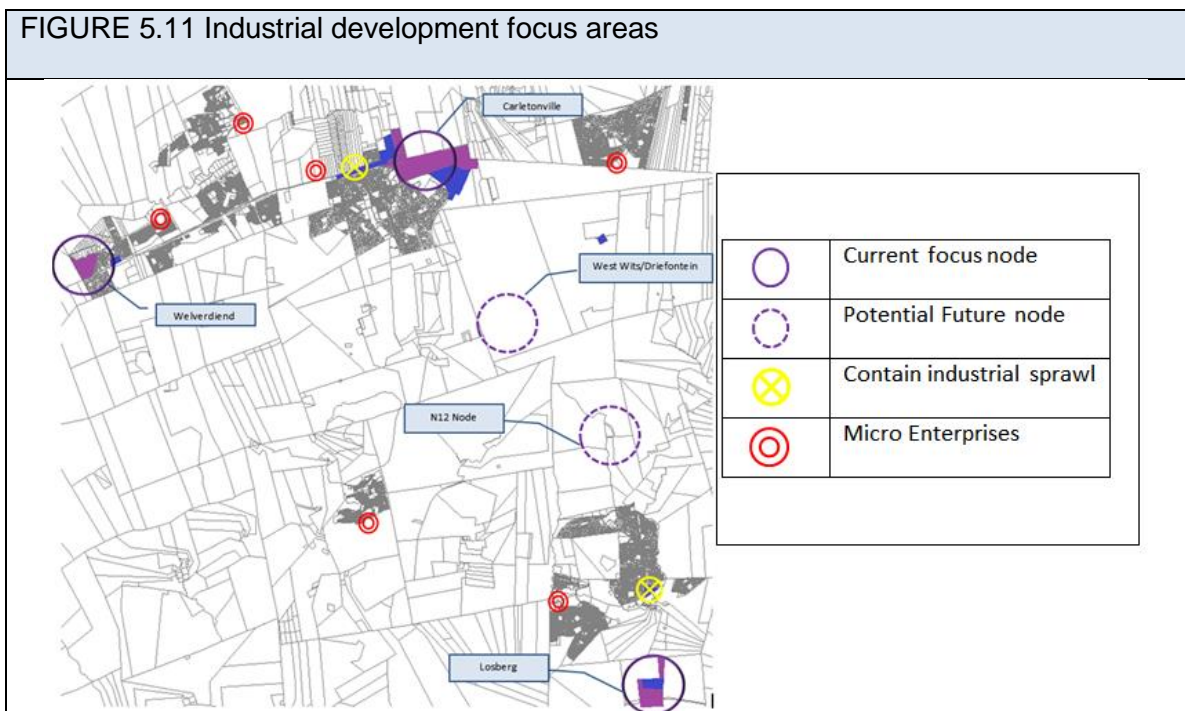
- Carletonville & Oberholzer. The largest industrial node with both major and minor characteristics at opposite ends. On the western side in Oberholzer land use is dominated by service industry and on the eastern side are Carletonville Extension 6 and Extension 14 (14 not yet developed). In between are the Oberholzer railway station and a portion (Remainder of Portion 53 of Wonderfontein 103 I.Q.) of land that will accommodate a new taxi rank and a mixture of business, warehousing, transport and light industrial uses. It is proposed that Footwall Street in Carletonville Extension 6 be extended by ± 380 meters to link up with the proposed new township on Re/Portion 53.
- Khutsong. These small industrial areas will focus mostly on micro enterprises with government support. An industrial hive already exists at P7 and a new enterprise hub funded by the province will be constructed as well, laying the foundations for a mixed node. I2 is zoned industrial and must be developed subject to geological constraints.
- Welverdiend. This is a small industrial node that went into decline during the 1990s and is currently dominated by a single group of companies.
- Fochville south-central. This is the oldest industrial area in Fochville and has started to encroach upon residential areas. It comprises of a mix of industrial services and retail

uses and true fabrication. It is proposed that this industrial area be confined to its current extent and non-noxious densification/intensification be allowed.

- Fochville Extension 14. This is a new township currently being established. It is a mixture of light industrial/industrial service uses along the main road to Kokosi and a number of subdivided erven for business purposes. This node is focused on small and micro enterprises.
- Losberg. This industrial area south of Fochville can accommodate small to large operations and noxious activities as well. It has rail access to a station that is not currently in use along a railway line that is still in use.
- N12. This emerging node is ideally situated for logistics clustering. Some logistic support (Fuel) and service industry businesses have already established. This node will be allowed to develop into mixed industrial, business and commercial land uses. Infrastructure provision needs to be investigated to support growth.

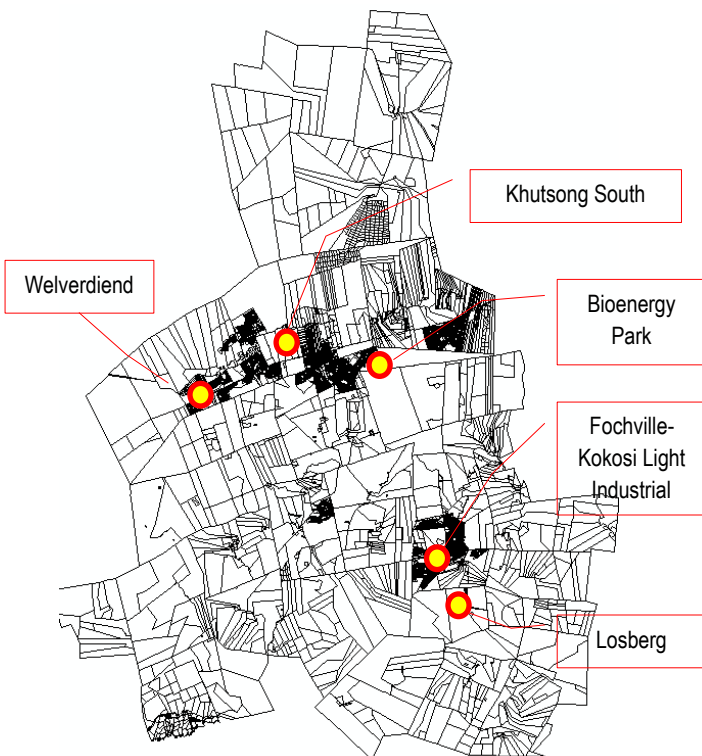
Kokosi. This is a proposed small industrial area for micro enterprises. No investigations have been completed in this regard; however there exists a strong demand for small scale industrial space.

The following figure depicts a municipal overview:



5.3.3 ENABLE THE DEVELOPMENT OF AGRICULTURE AND ITS VALUE CHAINS

Merafong has significant tracts of high value agricultural land and has the second highest agricultural production in the West Rand. Unfortunately a significant proportion of viable land is not utilised because it is locked in mine ownership without any mining taking place. Of all the West Rand municipalities, Merafong has the largest share of agriculture in its economy and the municipality contributes 42% of the agricultural production in the district. With an average growth per annum of 7% the Merafong agricultural sector has far outpaced the district (-5%) over a 10 year period. Catalytic projects are very important for the development of the agricultural sector in Merafong. Agro-Processing will have the best catalytic effect. The benefits derived from these projects can be enjoyed throughout the sub-sector instead of just the particular project. Therefore these projects add much more value than ordinary projects and can set the sub-sector on a new growth trajectory. It is of great importance to create an environment that is conducive to the development of the Agro-Processing subsector:

Creation of an environment conducive to Agri-Processing investment and development	
<p>Many structural gaps and inefficiencies within the SA economy inhibit the establishment and development of agro-processing businesses. Locally, measures need to be taken to address these problems directly from the municipality's side, where applicable, and to assist where possible in provincial and national interventions. Viable municipal interventions coupled with support interventions to assist national and provincial programmes have to be identified and implemented. Given the fact that it is government's primary role in the economy to create an environment that is conducive to growth and development, this is the most important agro-processing intervention required.</p>	
<p>Components</p> <ul style="list-style-type: none"> ▪ Upgrade infrastructure at Losberg. ▪ Upgrade basic infrastructure at Carletonville Extension 6 to a higher level. ▪ Establishment of Carletonville Extension 14. ▪ Warehousing and logistics development Carletonville 'Bloubos' and N12 Node. ▪ Link Carletonville Ext. 6 with Bloubos. ▪ Creation of an Eco-Industrial Park focussed on resource recovery of agro-industries and industrial scale agri production. ▪ Create a sustainable and effective incentive scheme ▪ Incubator and cluster formation support to the DTI and Gauteng. ▪ Investigation into and facilitation of the improvement of local value chains. 	
<p>Action taken</p> <ul style="list-style-type: none"> ▪ Carletonville Ext 14 and Losberg are finalised, only funding required for infrastructure. ▪ Studies done on 'Bloubos' ▪ Research started on incentives 	

<p><u>Action required</u></p> <ul style="list-style-type: none"> ▪ Financing for infrastructure installation ▪ Financing for infrastructure upgrading to draw more agro-industrial investors ▪ Development of an incentive scheme (In-house) ▪ Cooperation between the West Rand, Province and National Gov. ▪ Connect with agricultural and agro-processing organisations. <p><u>Land availability</u></p> <ul style="list-style-type: none"> ▪ Carletonville Ext. 6 erven and 'Bloubos' land owned by Merafong. ▪ Losberg Industrial erven owned by Merafong. ▪ N12 node owned by mine and private owners 	
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5.3.4 ADDRESS INFRASTRUCTURE BOTTLENECKS

Numerous urban development projects including subsidised housing, upgrading of urban and transport amenities, industrial development, mixed use development as well as urban renewal projects are being affected negatively by infrastructure bottlenecks. As many as 10 township establishments are currently held back by insufficient infrastructure in the following areas:

Khutsong South – Welverdiend area

- 20 MI Water reservoir (Khutsong South) – R 70,000,000
- Of the required 48 hour water holding capacity, currently 0 hours available.
- Bulk Supply Khutsong South 132kV Substation - R86,000,000
- Bulk supply Khutsong South secondary network - R17,500,000
- Projects halted:
 - Khutsong South Extension 6 and 7 (±1519 erven mixed typologies)
 - Chief Albert Luthuli (Varkenslaagte) mixed use development (±10 000 erven mixed housing including BNG, Walk-Ups, FLISP and Social Housing as well as retail, office and government institutional developments)
 - Welverdiend Gap housing development (256 erven)
 - Welverdiend mixed use node (Truck stop and retail with envisaged expansion)

Fochville - Kokosi area

- 30 MI Water reservoir – R159,000,000
- Kokosi Waste Water Treatment Works modular addition – R98,500,000
- Projects halted:
 - Fochville Extension 3 (156 Middle income units)
 - Fochville Extension 7 (700 High income erven)
 - Fochville Extension 8 (1429 Gap market erven)
 - Fochville Extension 14 (± 50 Industrial erven)

- Kokosi Extension 7 (3211 Mixed typologies with business uses)
- Residential densification within the designated Restructuring Zone.

Carletonville area

- 20 MI Water reservoir – R 70,000,000
- Of the required 48 hour water holding capacity, currently 0 hours available.
- Projects halted:
 - Merafong Bioenergy Park (Thousands of job opportunities in the balance)
 - Merafong Solar Farm Cluster (Up to a thousand job opportunities in the balance)
 - Residential densification in the designated Restructuring Zone.
 - Carletonville Heritage Precinct urban renewal

If these bottlenecks are opened up, new investments of billions of Rands will be able to flow into the area. Apart from reducing water losses, these projects should be prioritised and funding should be sought from the national and/or provincial government.

5.3.5 IMPROVE THE VITALITY OF UNDER DEVELOPED, STAGNANT AND DECLINING URBAN AREAS.

The business audit that was conducted as part of the Merafong Growth and Development Strategy revealed that the city appearance is perceived as one of the factors contributing to an environment that is not conducive to the attraction and retention of business activities. The urban environment has a very significant impact on its residents on a physical, economic, social, cultural and psychological level. Furthermore the environmental quality of city spaces can have a big influence on aspects such as urban livability, crime, sense of community, aesthetics, etc. The quality of urban environments in Merafong City is a matter of concern and should be addressed.

The business area of Carletonville has seen a trend of deterioration recently, and the economic development nodes of Khutsong and Kokosi are under developed. The latter two have to be developed into well-developed economic nodes. The potential for this exists. The following interventions and actions are required:

- The upgrading of infrastructure to be more efficient and aesthetic, including, paving, street furniture, greening, lighting, traffic calming, parking, delivery zones, etc.
- All new or expanding National or Provincial government offices must locate here and existing ones must be encouraged to move here. NGO offices must also be located within these zones.
- Appropriate hawker trading infrastructure has to be created to accommodate informal trade and avoid conflict with the formal sector.
- Incentives should be offered to building owners for upgrades to building facades. There are numerous opportunities for Public Private Partnerships in urban revitalisation projects similar to those in Newtown Johannesburg with incentives to the private sector, e.g. the Multi Modal

Transport Hub, Social and High density GAP housing projects within CBDs, a hotel in Carletonville and a mining museum.

- The area of these zones must be compact to increase land use intensity.
- Public and private sector housing developments are of critical importance in re-invigorating these areas. This will strengthen the diversity and 'gravitation' of these nodes.

The Carletonville CBD is the only node in Merafong that is experiencing a marked deterioration in its appearance as well as showing signs of deteriorating business conditions. This is having a negative effect on business as well as general urban liveability. It also falls within one of the two primary areas for economic development in terms of the spatial synthesis which means that it will leverage the best results with regard to an intervention by the municipality. Therefore it is the first area to be targeted for urban renewal.

Development activity within the Carletonville CBD has gradually migrated in a western direction over time. This has led to a situation where the original eastern part of the CBD is starting to show signs of decay and floor space vacancy rates are high. The area is effectively cut off from the rest of the CBD by Annan Road which carries high volumes of traffic and is not properly designed to accommodate pedestrian flows. As indicated in Figure 5.12 Area A is experiencing decay, Area B is currently stable but vulnerable due to several factors and Area C is experiencing growth. Portions of land directly adjacent to Annan Road on the eastern side are also experiencing growth of non-pedestrian, motor vehicle related development.

FIGURE 5.12. The spatial trend of development depicting the current (left) and desired (right) state.



Given the problematic situation depicted a catalytic development is needed to revive the old part of the CBD and to instil pride in the town and attract investment. The connectivity between the two sides separated by Annan road has to be improved and the entire area needs to be made

more pedestrian friendly in order to draw in people. In order to improve the connectivity and pedestrianise the area it is proposed that the existing vista be strengthened. Terminating vistas are considered an important method of adding aesthetic appeal to a city/town, and to emphasise important structures or monuments.

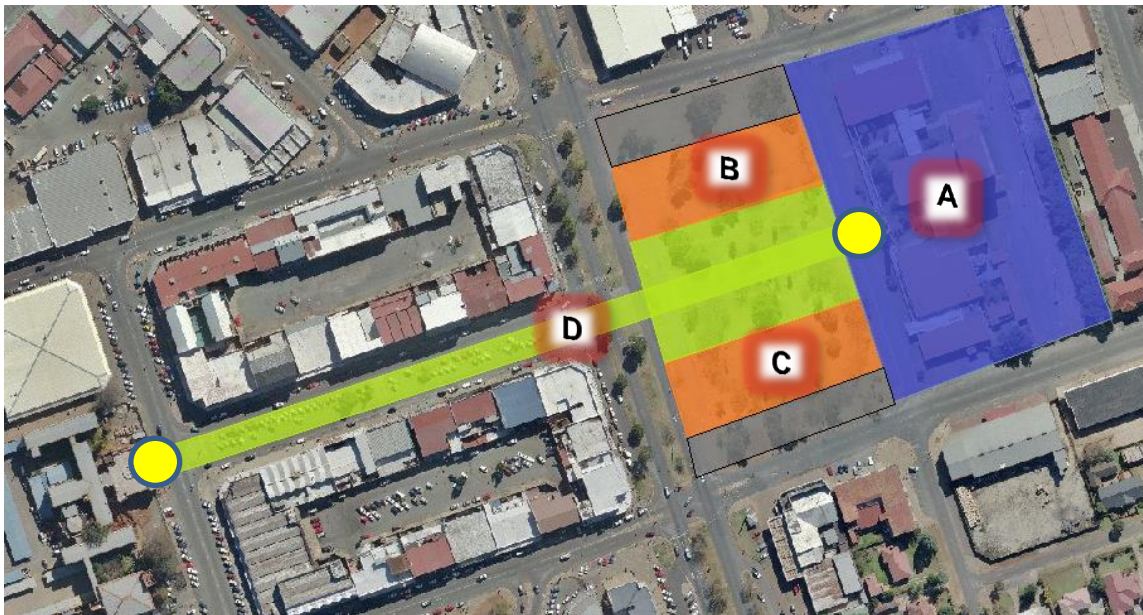
A significant development is required on the eastern side to act as an activity node where the vista terminates. An integrated mixed use development is proposed that utilises the existing strengths and opportunities of the area comprising of the following:

Carletonville Heritage Precinct Development

The development will consist of the following:

- ✓ Convention centre and hotel
- ✓ Museum and public library
- ✓ Retail floor space
- ✓ Residential units
- ✓ Sunken amphitheatre
- ✓ Heritage Vista walkway
- ✓ General upgrades to public infrastructure

The development will form the heart of Carletonville and will re-vitalise the stagnant eastern part of the CBD by breathing new life into the area as well as connecting it with the rest of the CBD. The development will be underpinned by the enhanced terminating vista between the main development area and the municipal offices. The development will enhance the area of tourism development that has the most potential namely business tourism. It will also enhance the image of the area and help to give Carletonville and Merafong in general a more unique identity. Although the feasibility of most of the components is obvious, all components have to have proven business cases. The components are shown on the illustration (Not to scale) below.



Museum

The museum will be focussed on two areas of history. Firstly the history of gold mining in Merafong and South Africa in general, including the unique geological heritage of the area connected to dolomite and the Vredefort Dome. Secondly a focus on the mining labour movement and its influence on the broader labour and political environment during the apartheid and democratic eras. Contemporary digital interactive media and theme-park-like elements such as a simulated underground tour and an old mine train ride will add additional interest. The museum will be linked to the existing public library and the existing rock library is to be included.

Development components

- Upgraded library
- Rock library
- Mining history exhibit
- Labour movement exhibit
- Interactive digital displays
- Simulated underground tour
- Mining train ride for children



Target market

- Educational trips for school children
- Tourists visiting family and friends
- Business tourists
- Merafong community

Convention Centre and Hotel

The convention centre and hotel will be an integrated development although they will function independently. The convention centre will focus on business tourism, mostly related to mining; however it will be able to host a large variety of events. Most of the required buildings are existing and will only have to be revamped and/or repurposed which will reduce the size of the required capital outlay. There is no convention centre in the area and the centre will be less than an hour from Johannesburg. The hotel will be tailored in accordance with the final parameters of the convention centre and other types of demand. It should also act as support infrastructure for the convention centre, e.g. supply cuisine.

Development components

- Convention centre for minor to major events.
- Numerous halls and an amphitheatre
- Supportive infrastructure
- Hotel with supportive infrastructure.



Target market

- Small to large business conferences
- Conventions and trade shows
- Social and cultural events
- Hotel guests linked to the events hosted by the convention centre as well as general stay overs.



Retail, office, entertainment and residential development

A retail and residential development will complement the hotel, convention centre and museum. The retail component will consist of niche market opportunities not yet developed in Carletonville in support of and integrated with the other activities. Given the fact that entertainment opportunities in town are very limited and that new entertainment opportunities will complement the hotel and convention centre, activities such as coffee shops, gift shops, restaurants and pubs should be promoted. Medium to high income residential opportunities in the Central Business District are not available currently. This development could offer a unique lifestyle opportunity for residents being close to work and play spaces in the central area right above the proposed retail floor space.

Project components

- Niche market retail floor space
- Entertainment component
- Office space
- Restaurants and coffee shops in front of the central public space
- Niche market residential component on the top floor.

Target market

- General public visiting the CBD
- Visitors to the hotel, convention centre and museum
- Residential: Middle to high income looking to be close to employment and entertainment.



Heritage Vista, Sunken Amphitheatre and aesthetic upgrades

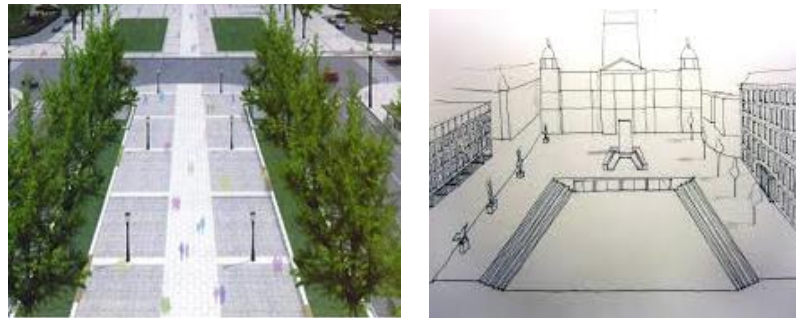
The heritage vista will be an upgrade and enhancement of the existing terminating vista between Halite street and the proposed development. It will link up with the museum and library by containing historic and heritage information elements in the form of a date line that give the pedestrian an experience of walking through history with 2 histories in opposite directions. The crossing over Annan Road will be made safe for pedestrians and the general urban design elements within the CBD will be upgraded in an integrated manner. The 2 termination points of the vista have to be emphasised visually. A public space will remain in the centre of the existing park and a sunken amphitheatre will improve the use value of this area.

Project components

- Heritage vista walkway
- Termination points of the vista
- Public space/square with sunken amphitheatre
- General Pedestrianisation and aesthetic improvement of the CBD

Target market

- Connecting the disparate parts of the CBD to enable pedestrian access.
- General aesthetic upgrades to the CBD to benefit the community, visitors and investors.



In addition to a precinct plan, a feasibility study and business case is required, before any further steps can be taken.

5.3.6 REORGANISE THE SPACE-ECONOMY FROM BASE-LEVEL UPWARDS BY IMPLEMENTING 'GAME CHANGER' PROJECTS AND PLANNING FOR FUTURE NODAL DEVELOPMENT.

A number of project concepts have been developed at Merafong that are regarded as game changers. A game changer project is seen as one that has the ability to fundamentally change the space economy of a town or entire municipal area. These projects are aimed establishing a new diversified economic base that will enable post mining growth and establish Merafong as a more prominent urban centre within the Gauteng City Region. Most of these projects are currently only concepts; however some are already being implemented on smaller scales to be up scaled at a later stage such as the bioenergy and solar projects.

1. Merafong Bioenergy Park

In short it is an energy conversion Eco-Industrial Park based on renewable bioenergy, resource recovery, economic clustering as well as energy-, water- and materials cascading. Infrastructure will promote industrial symbiosis between 'tenants' which will enable cost reductions and new revenue streams. A modular approach with built in flexibility will enable integration with the West Rand Mega Agri-Parks concept.

The park will utilise anaerobic digestion and pyrolysis to create the right types of value addition and cost reductions that could potentially attract a large number of industrial and agricultural investors. Companies will have the ability to go green without incurring higher costs. Even some heavy polluters will have the opportunity to turn a waste stream into a revenue stream and improve their environmental track record.

This project has massive potential to act as a catalyst for industrialisation and modernisation of the economy. This is potentially the most comprehensive blue/circular economy initiative ever attempted in South Africa. This project will have a huge impact on correcting the imbalances in the Merafong tax base by widening it and decreasing dependencies.

2. Merafong Solar Farm Cluster

It entails the development of a cluster of solar farms centred on shared infrastructure to reduce capital and operating costs with supportive economic activities also located in close proximity. If numerous solar farm projects share infrastructure, costs will be reduced. Many benefits of economic clustering including economies of scale and scope will come into play. If sufficient 'critical mass' is obtained and government support is leveraged, a fully-fledged economic cluster may form over time where all aspects of the solar energy economy will be included. Merafong is hypothesised to be the best locality in Gauteng for solar farms due to a variety of factors. Project could be linked to bioenergy in order to produce sustainable base load electricity. Industrial and service activities related to solar would support re-industrialisation.

3. Mining Industrial Park

Not only is South Africa considered a global leader in mining technology and techniques, the country is also perfectly located to tap into the industrial and service market associated with the African mining boom. An Industrial Park is required to provide the right type of incubational environment to uplift companies from being local suppliers to becoming competitive exporters.

The park could also offer existing exporters expansion opportunities. The park would have to be able to connect to mining regions in South Africa and the rest of Africa to deliver products and services as well as the Gauteng City Region for inputs. The park must also have a high level of infrastructure provision with additional services. The ideal locality would be an area where the previously mentioned criteria are met along with having the incubational effect of existing mining operations. Companies would have a local market and testing ground for new technologies. Tenants of the park would mostly include manufacturers of high value mining equipment, service industries and also manufacturers of lower value products such as protective clothing.

Numerous sites are available in Merafong including mine shafts that are facing closure in the near future. Merafong is very well connected to the Gauteng City Region and Southern Africa. Existing infrastructure is ready to be used and land prices are a fraction of the values in the larger urban areas such as Krugersdorp, Johannesburg and Ekurhuleni. The future of gold mining in SA lies in deep level mining where conditions are too hazardous for human labour to operate continuously. Furthermore there is a global shift in mining from mechanisation to automation. Underground automation will be implemented in the gold mining sector in Merafong for the first time in South Africa. The mixture of automation as well as labour intensive mining at different shafts creates the ideal incubational environment for an industrial park such as this.

4. Mining Centre of Excellence

The Merafong Growth & Development Strategy (GDS) proposes the development of a Mining Centre of Excellence that provides vocational training to students in mining related fields. The centre will include practical training underground in fields such as safety, drilling, explosives, mechanics, engineering, etc. It could also include above ground mining operations such as water purification, ore refining, environmental risk mitigation, etc. Currently there are very few institutions globally that offer true practical training of this nature.

The centre will have to be built and operated from an old mine that has reached a point where economic viability of operations have become marginal and have relatively low operating costs. There are a number of options in the West Rand, including several options in Merafong City Local Municipality. There are a number of mine shafts where operations have ceased, however the infrastructure including buildings, and housing remains largely intact.

5. West Rand Mega Agri-Park

A very sustainable new small farmer initiative is being developed on national level. It is intended to function on a massive scale and is known as Mega Agri-Parks. For the most part it is based on existing models for small scale farming with some major adjustments to compensate for inefficiencies. The most notable being the size of the program. Such a park will consist of thousands of small scale farmers, supportive functions, agro processors as well as a marketing and logistics component. These are packaged into 3 components namely:

- Agri Hub Unit. Agricultural production, equipment hire, processing, packaging, logistics and training.
- Farmer Production Support Unit. A rural outreach unit connected with the Agri Hub that supports groups of farmers.
- Rural-Urban Market Centre Unit. Links and contracts rural, urban and international markets and provides market intelligence and information feedback.

A number of strategic nodes have been identified that could be instrumental in unlocking latent economic growth within the municipality and support the development of the Primary Development Corridor. The following nodes have been identified:

- **Welverdiend mixed use node.** This node will complete the Primary Development Corridor by acting as a counterbalance to enable corridor development. A wide variety of uses are to be accommodated from industrial to retail.
- **Khutsong South Extension 8 Future Node.** This future development will have the ability reach a development threshold large enough to draw in investment from the more established nodes and create significant employment.
- **Carletonville Bloubos.** This proposed development will have a positive impact on public transport in Merafong and will also create a link that integrates the Oberholzer and Carletonville industrial nodes and also better connects the Carletonville industrial node with the CBD. In addition to this new erven will become available for transport and warehousing with rail access.
- **Bio energy eco-industrial Park.** Located directly east of Carletonville, this development has the potential to put Merafong on a new growth trajectory in the leading sectors of agro-processing, high value horticulture and the beef/pork value chain.
- **Carletonville CBD.** It is the largest and most diversified node in the area and will continue to play an important part in the development of non-basic diversification and job creation.
- **N12 industrial and logistics node.** This emerging node is a good opportunity for Merafong to capitalise on its positioning within the GCR. A mine industry industrial park will be well located to serve the Gauteng, North West, Northern Cape and SADC mining, gas and oil.
- **West Wits Future Mixed Use Node.** This node will become important in the long term as a mixed use node. It will reinforce the restructuring efforts of the municipality and create a new centralised node for the mining belt, helping to integrate the most spatially disjunctive area in Merafong.
- **Fochville CBD.** The second largest node and will play a similar role to the Carletonville CBD.
- **Fochville-Kokosi Light Industrial.** This new township establishment will supply a growing demand for light manufacturing and service industry in the southern urban area and facilitate job creation and urban restructuring.
- **Losberg future expansion to heavy haul railway.** Transnet plans to start upgrading the railway traversing the south of Merafong into a heavy haul railway line that links Gauteng with the Western Cape. This upgrade will enable massive savings on logistics costs and create huge opportunities for especially heavy industries.



5.3.7 NORMALISE THE ECONOMY IN PREVIOUSLY DISADVANTAGED AREAS

Due to the spatial distortions in previously disadvantaged areas, special measures are required to enable normalization of the economy in these areas. In order to achieve this, incentives and regulatory relaxation measures have to be implemented to draw in investment and to enable informal micro enterprises to establish and evolve into formal businesses.

Provision for church erven

Churches and other NGOs perform a vital role not only in the social wellbeing of previously disadvantaged areas, but also in the economy. Unlike business and most other institutional uses, churches function better and are more sustainable when situated in a scattered, non-centralised spatial pattern. Therefore land was sought in as many different localities as possible in areas of high demand. Unfortunately the supply of municipally owned land is limited and provision also has to be made for other land uses in order to improve the sustainability and viability of previously disadvantaged areas. The supply is further decreased by geotechnical constraints in the north as well as flood lines and topographical constraints in numerous areas.

It is believed that the current high number of church institutions is unsustainable; however provision is made as far as possible with the knowledge that land uses can be changed as the land use market changes. All church erven will be zoned appropriately before being disposed of.

The following minimum standards have been set for church erven:

- Minimum erf size = 2 100 m²
- Parking = 1 per 10 seats (25m² per parking bay)
- Coverage = In terms of relevant scheme and 60% for Communities Development Act areas – dependant on parking and external buildings provision.
- Provision of 30% coverage for external buildings.
- Furthermore all legislative and policy conditions have to be met.

Provision is made for 2 types of applicants. Firstly, churches that are able to purchase properties. These churches must have larger congregations in order to be able to afford the land. Erven will be made available at the standards discussed above. Secondly, churches that are not able to purchase properties. Communal areas will be made available for these institutions to rent spaces and erect marquis tents or other applicable structures, subject to dolomite stability. Numerous erven have been identified in previously disadvantaged areas.

Provision for micro enterprises

This category includes non-noxious and non-intrusive micro enterprises. These types of businesses can benefit from being clustered together and consist of informal and formal enterprises. Providing spaces for these businesses to function in may help to formalise them and bring them into the main stream economy and create employment.

Once the land has been identified it will be left to the discretion of the relevant social/economic development sections to determine how to manage these sites. It is proposed that demarcated 'plots' with minimal infrastructure such as basic service connections and fencing be made available for rent at minimal rates to pay only for running expenses. The design and layout has to be included in a Site Development Plan to be approved by the Spatial Planning & Environmental Management Section as well as the Fire department. As far as possible, centralised localities have been chosen and will be zoned appropriately.

Provision for industrial micro enterprises

This category includes more intrusive uses namely industrial and industrial service enterprises. These types of businesses can also be formal or informal and will benefit from being clustered together. Many neighbourhoods will also benefit from the removal of these activities from residential areas.

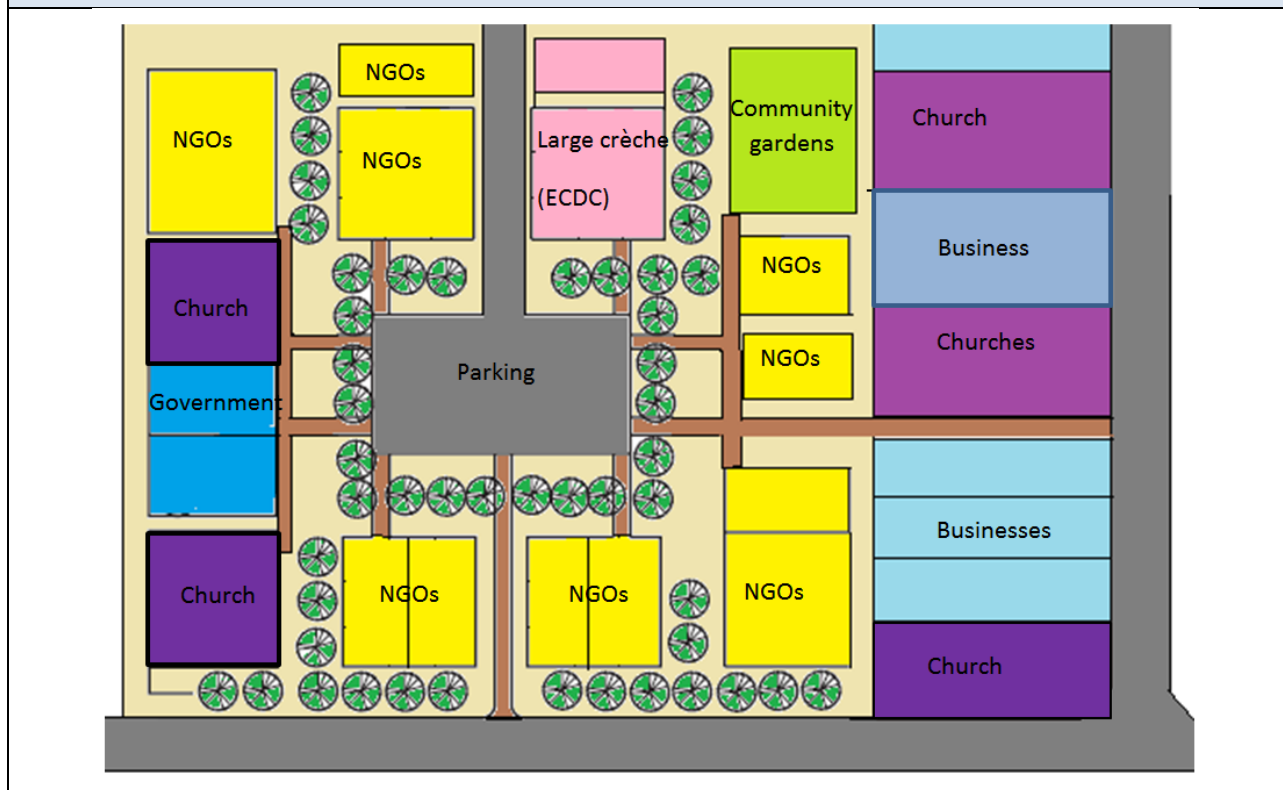
Once the land has been identified it will be left to the discretion of the relevant social/economic development sections to determine how to manage these sites. It is proposed that demarcated 'plots' with minimal infrastructure such as basic service connections and fencing be made available for rent at minimal rates to pay only for running expenses. The design and layout has to be included in a Site Development Plan to be approved by the Spatial Planning & Environmental Management Section as well as the Fire department. Because these localities are not suitable for all types of noxious activities, new applications have to be approved by the Spatial Planning & Environmental Management Section.

Social Development Clusters

Social Development Clusters is a concept developed to include public facilities as well as spaces for NGOs and informal traders. It is partly based on the 'chaos precinct' concept and will in a sense function as a 'shopping centre' for social development functions. The following land uses will be accommodated:

- ✓ Early Childhood Development Centre (Grouping of crèches)
- ✓ Non-Government Organisations (NGOs)/ Community Based Organisations (CBOs) e.g. frail care centres, disabled centres
- ✓ Community gardens
- ✓ Government facilities
- ✓ Churches
- ✓ SMME's (Chaos precinct concept)
- ✓ Bee-hive
- ✓ A retail "anchor" and small taxi rank could also be included

FIGURE 5.13. A conceptual design for the Social Development Cluster on Erf 3335 Kokosi Extension 4.



Farmer Support Units

A very sustainable new small farmer initiative is being developed on national level. It is intended to function on a massive scale and is known as Mega Agri-Parks. A Mega Agri-Park will be developed in the West Rand and Merafong will form part of it by accommodating Farmer Support Units where groups of small farmers will receive technical and infrastructural support. A number of existing small scale farm projects will be assimilated into the project and up scaled. A number of new areas have also been identified for inclusion.

Existing and new areas:

- Wedela
- Nooitgedacht (South of Kokosi)
- Merafong Flora (Khutsong)
- Khutsong South Proper
- Khutsong South Extensions
- Kokosi East
- Blybank
- Far West Rand Dolomitic Water Association (West of Blybank, east of Carletonville).

Planned shopping centres

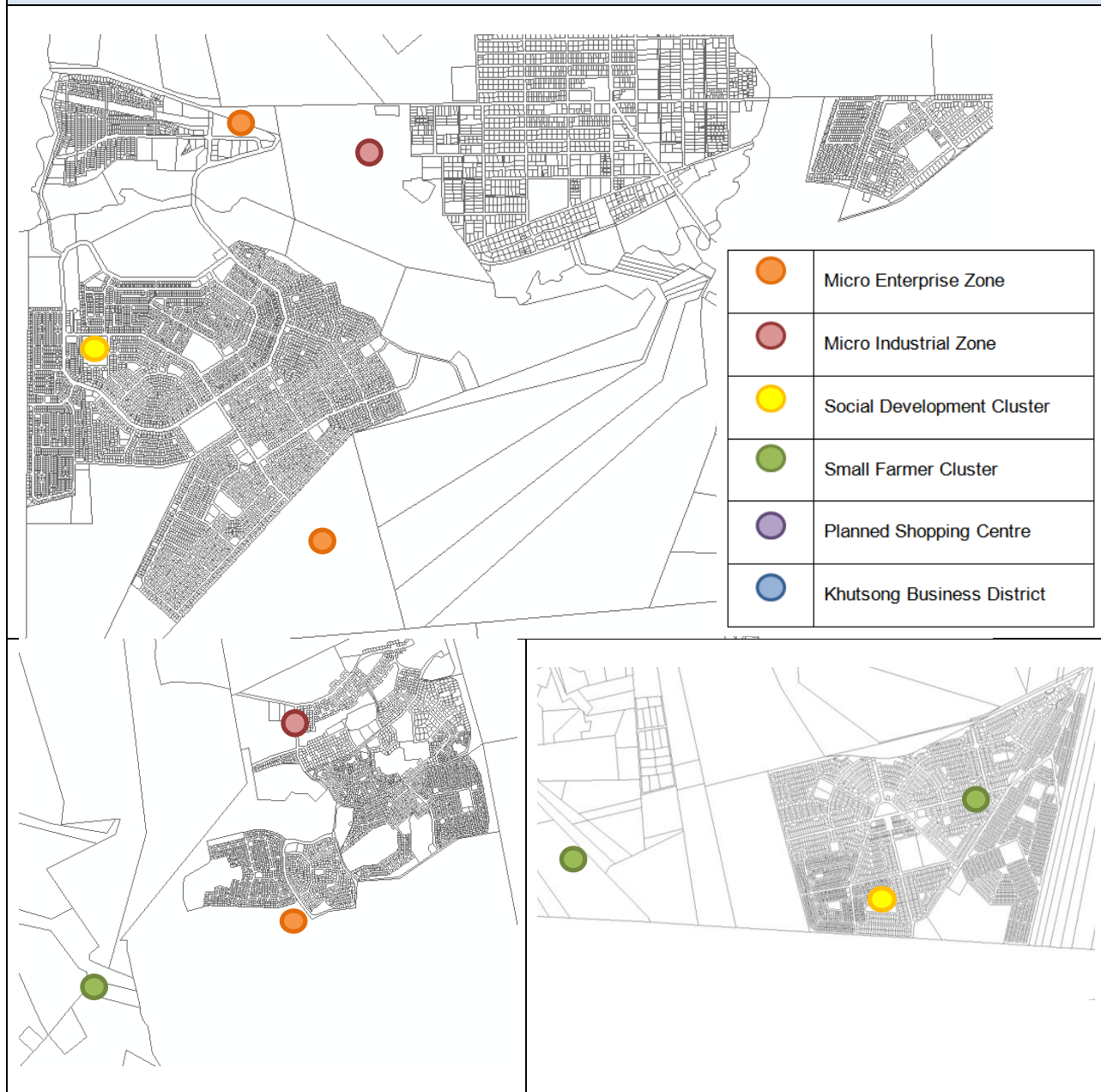
Planned shopping centres can have a profoundly positive impact on 'township' economies by bringing in large scale investment and about 1 job per 30m² of floor space, which could amount to hundreds of jobs for a single centre. It also signals to other formal sector investors that an area is suitable for investment which can lead to additional economic activities over time. The following areas have been flagged:

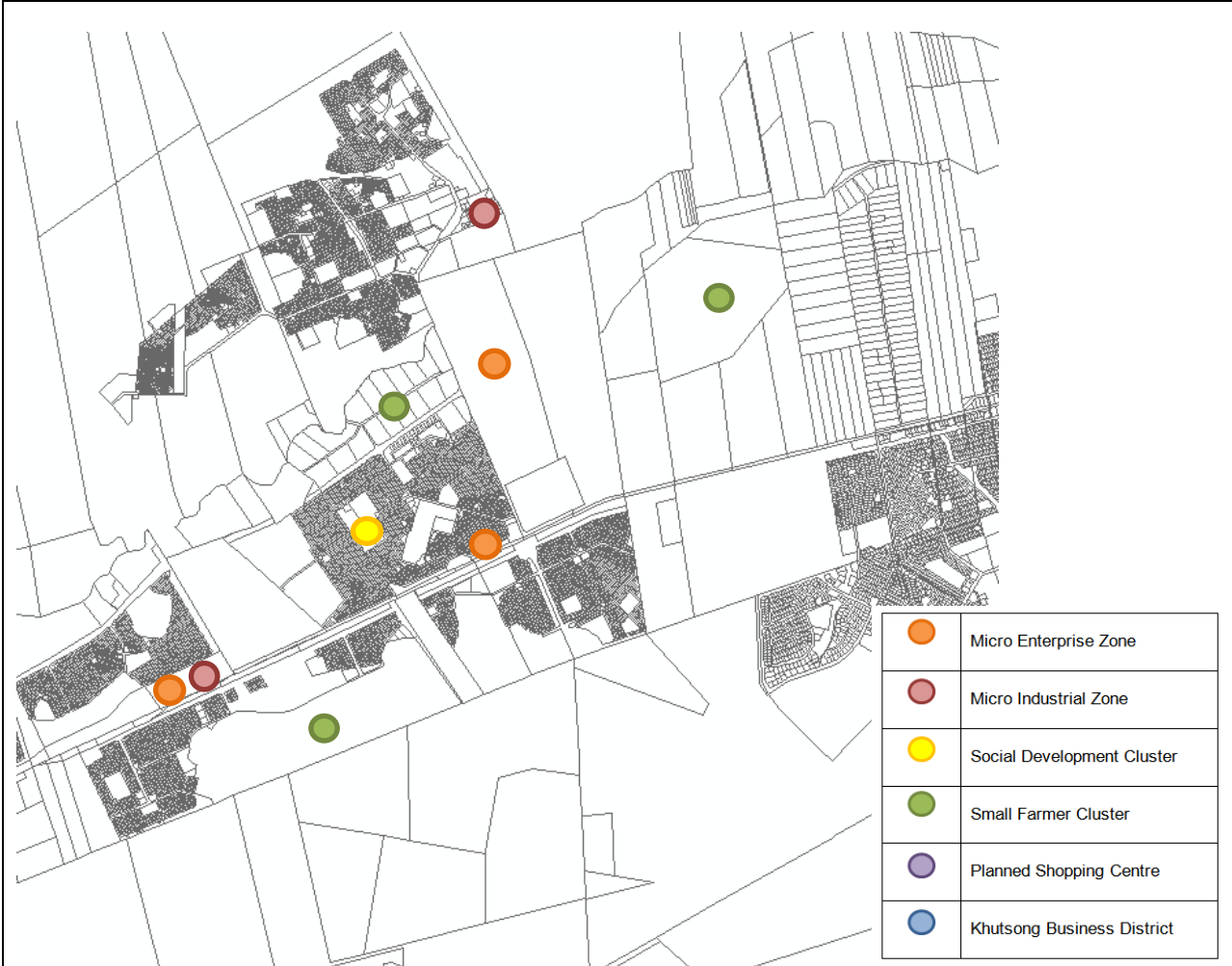
- The municipality is currently facilitating the establishment of a Neighbourhood Centre in Kokosi with a Shoprite-Checkers anchor. It will create more than a hundred permanent jobs.
- In Wedela a Convenience or small Neighbourhood Centre (Up to 3 000 m²) at 15% market share could be established in the proposed Extension 4. There is virtually no formal retail space currently available in Wedela and given the large proportion of the market taken up by the LSM 6-9 segment, a new retail offering seems highly feasible.
- A neighbourhood Centre could be feasible for the northern part of Khutsong. Sized 6 800 m² at a market penetration of 10%. Located more than 5 km from the existing Carletonville Mall, it would provide increased convenience to about 40 000 residents.

Khutsong Business District

With the planning phase of the next extension in the Khutsong South developments about to begin, an opportunity exists to establish a properly planned business district to support the ±70 000 population of the area. It will be designed for Transit Oriented Development and incentives will be offered to attract major business. The intention is to create a base for the attraction of other economic activities and employment.

FIGURE 5.14 Special economic interventions in previously disadvantaged areas.





4. PROTECT NATURAL AND AGRICULTURAL RESOURCES	
POLICY	<ul style="list-style-type: none"> Protect and actively manage the natural environmental resources in Merafong in order to ensure a sustainable coexistence between urban, mining, agricultural and ecological land uses. Protect valuable agricultural land from development.
OUTCOMES/ DESIRED STATE	<ul style="list-style-type: none"> Sustainable development that will keep resources intact for future generations. Urban and rural land uses and systems that will be resilient in the face of climate change.
GUIDING PRINCIPLES	<ul style="list-style-type: none"> Protect and enable ecosystem services in urban and rural areas. Actively expand green infrastructure for ecological, economic and social purposes. Minimise environmental impacts of developments. Mitigate impacts of local activities on neighbouring areas. Mitigate and manage impacts caused by climate change Urban pollution, especially storm water pollution, should be minimised. Mining pollution should be addressed. Improve on unsustainable farming practices near previously disadvantaged areas.
POLICY ALIGNMENT	From the national and provincial primary policy synthesis: Grouping 2, 3 and 5

In most cases the protection of strategic resources are grouped into separate areas of concern like environmental, economic, cultural, etc. There is however a worldwide movement towards the integrated management of strategic resources in order to recognise and manage the interrelated nature of different resources so that the status alteration of a specific resource does not adversely affect the status of another resource. This trend is clearly reflected in South African environmental legislation. The protection of strategic resources is interlinked with all the other development strategies and is affected by them and it also affects them on various levels. Merafong lacks proper policy guidelines regarding its strategic resources which need to be addressed. A state of the environment report will be compiled, which will address environmental issues. One aspect of environmental management that has of yet not received enough attention is the encroachment of alien vegetation in Merafong. If this problem is not addressed soon it will become a very costly issue and will have the ability to cause irreparable damage to the environment.

5.4.1 PROVINCIAL AND REGIONAL ENVIRONMENTAL FRAMEWORKS

Within Gauteng and the West Rand there are 2 important frameworks that guide spatial planning and land use management namely the Gauteng Environmental management Framework and the West Rand bioregional Plan.

Gauteng Environmental Management Framework

The GEMF replaces all other EMFs in Gauteng. The objective of the GEMF is to guide sustainable land use management within Gauteng. It serves the following purposes:

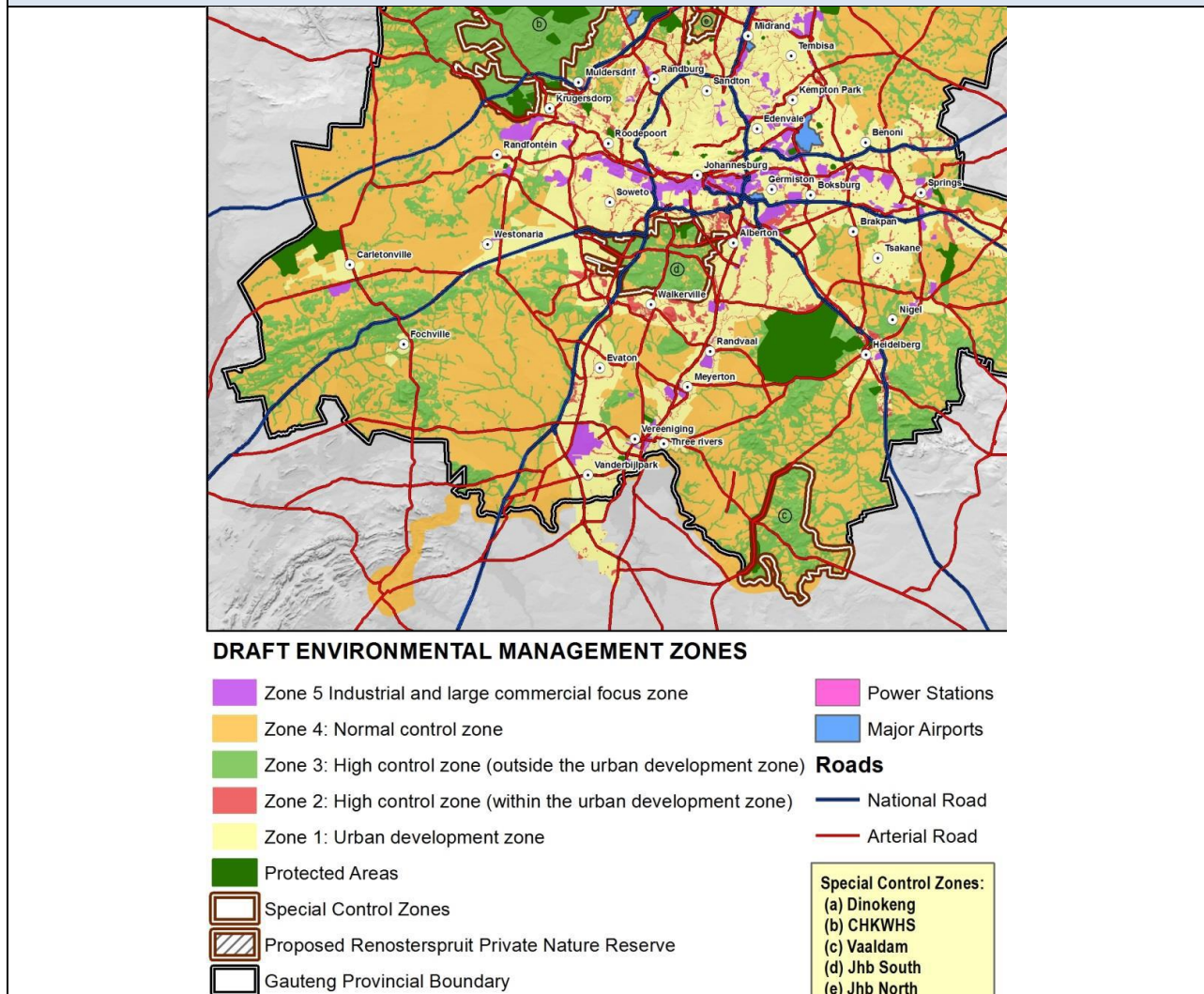
- To provide a strategic and overall framework for environmental management in Gauteng.
- To align sustainable development initiatives with the environmental resources, developmental pressures as well as growth imperatives of Gauteng.
- Determine geographical areas where certain activities can be excluded from an EIA
- Identify appropriate, inappropriate and conditionally compatible activities in various Environmental Management Zones in a manner that promotes proactive decision making.

The following Environmental Management Zones are applicable:

- Zone 1: Urban development zone. The intention with Zone 1 is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the Gauteng Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas. Certain currently listed activities may be exempted from environmental assessment requirements at the discretion of the competent authority.
- Zone 2: High control zone (within the urban development zone). Sensitive areas within the urban development zone must be conserved and where linear development (roads etc.) cannot avoid these areas, a proper assessment and implementation of alternatives must be undertaken.
- Zone 3: High control zone (outside the urban development zone). Special control zones are sensitive areas outside the urban development zone. These areas are sensitive to development activities and in several cases also have specific values that need to be protected.
- Zone 4: Normal control zone. This zone is dominated by agricultural uses outside the urban development zone as defined in the Gauteng Spatial Development Framework. No listed activities may be excluded from environmental assessment requirements in this zone.
- Zone 5: Industrial and large commercial focus zone. The intention with Zone 5 is to streamline non-polluting industrial and large scale commercial (warehouses etc.) activities in areas that are already used for such purposes and areas that are severely degraded but in close proximity to required infrastructure. Certain currently listed activities, in addition to

those intended for Zone 1 may be excluded from environmental assessment requirements in this zone in future.

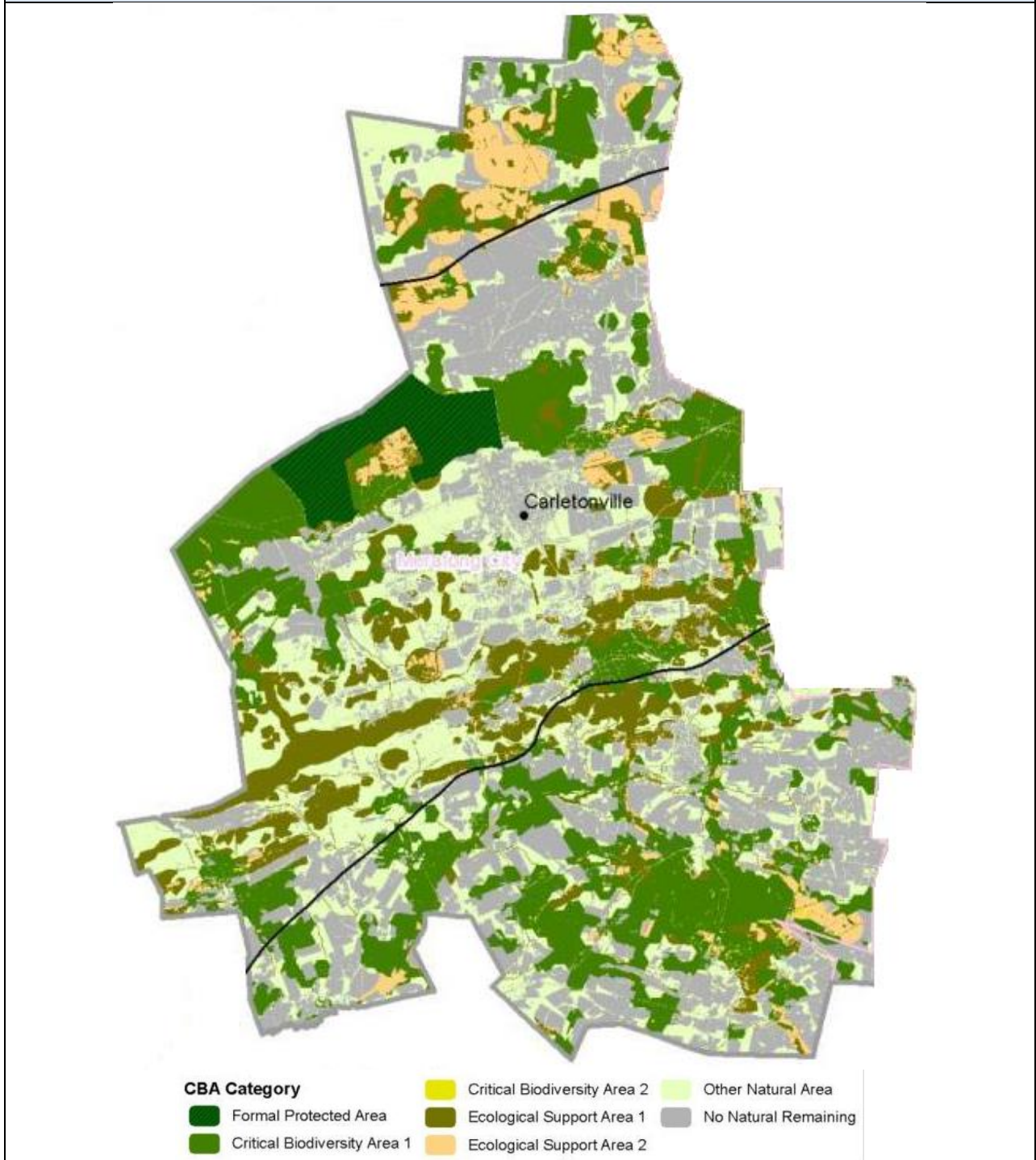
FIGURE 5.14 Environmental management Zones in the Draft GEMF



West Rand Bioregional Plan

The purpose of a bioregional plan is to inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. This is done by providing a map of biodiversity priority areas, referred to as Critical Biodiversity Areas and Ecological Support Areas, with accompanying land-use planning and decision-making guidelines.

FIGURE 5.15 Bioregional zonation map for Merafong



Category on the CBA Map	Description	Land Management Objective	Land Management Recommendations	Compatible Land-Use	Incompatible Land-Use
Protected Areas	Formal Protected Areas and Protected Areas pending declaration under NEMPA.	Maintain natural land. Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation.	Maintain or obtain formal conservation protection.	Conservation and associated activities.	All other land-uses.
Critical Biodiversity Areas (1)	Areas required to be maintained in a natural or near natural state to meet targets for biodiversity pattern (features) or ecological processes.	Maintain natural land and ecological processes. Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation.	Obtain formal conservation protection where possible. Implement appropriate zoning to avoid net loss of intact habitat or intensification of land use.	Conservation and associated activities. Extensive game farming and eco-tourism operations with strict control on environmental impacts and carrying capacities, where the overall there is a net biodiversity gain. Extensive Livestock Production with strict control on environmental impacts and carrying capacities. Urban Open Space Systems	Urban land-uses including Residential (including golf estates, rural residential, resorts), Business, Mining & Industrial; Infrastructure (roads, power lines, pipelines). Intensive Animal Production (all types including dairy farming associated with confinement, imported foodstuffs, and improved/irrigated pastures). Arable Agriculture (forestry, dry land & irrigated cropping). Small holdings
Critical Biodiversity Area (2)	Cultivated landscapes which retain importance for supporting threatened species	Maintain current agricultural activities. Ensure that land use is not intensified and that activities are managed to minimize impact on threatened species.	Avoid conversion of agricultural land to more intensive land uses which may have a negative impact on threatened species or ecological processes.	Current agricultural practices including arable agriculture, intensive and extensive animal production, as well as game and ecotourism operations, so long as these are managed in a way to ensure populations of threatened species are maintained and the ecological processes which support them are not impacted.	Urban land-uses including Residential (including golf estates, rural residential, resorts), Business, Mining & Industrial; Infrastructure (roads, power lines, pipelines). More intensive agricultural processes than currently undertaken on site.

Category on the CBA Map	Description	Land Management Objective	Land Management Recommendations	Compatible Land-Use	Incompatible Land-Use
Ecological Support Areas (1)	Natural, near natural and degraded areas required to be maintained in a ecologically functional state to support Critical Biodiversity Areas.	Maintain ecological processes.	Implement appropriate zoning and land management guidelines to avoid impacting ecological processes. Avoid intensification of land use.	Conservation and associated activities. Extensive game farming and eco-tourism operations. Extensive Livestock Production. Urban Open Space Systems. Low density rural residential, smallholdings or resorts where development design and overall development densities allow maintenance of ecological functioning.	Urban land-uses including Residential (including golf estates, rural residential, resorts), Business, Mining & Industrial; Infrastructure (roads, power lines, pipelines). Intensive Animal Production (all types including dairy farming associated with confinement, imported foodstuffs, and improved/irrigated pastures). Arable Agriculture (forestry, dry land & irrigated cropping). Small holdings Note: Certain elements of these activities could be allowed subject to detailed impact assessment to ensure that developments were designed to maintain overall ecological functioning of ESAs.
Ecological Support Areas (2)	Areas with no natural habitat which retain potential importance for supporting ecological processes.	Avoid additional impacts on ecological processes.	Avoid intensification of land use, which may result in additional impact on ecological processes.	Existing activities (e.g. arable agriculture) should be maintained, but where possible a transition to less intensive land uses should be favoured.	Any land use or activity which results in additional impacts on ecological functioning, mostly associated with the intensification of land use in these areas (e.g. Change of floodplain from arable agriculture to an urban land use or from recreational fields and parks to urban).
Other Natural Areas	Natural and intact but not required to meet targets, or identified as Critical Biodiversity Areas or Ecological Support Areas.	No management objectives, land management recommendations or land-use guidelines are provided as these areas are outside the ambit of the Bioregional Plan. These areas are nevertheless subject to all applicable town and regional planning guidelines and policy. Where possible existing transformed areas should be favoured for development before "Other natural areas" as before "Other natural areas" may later be required either due to the identification of previously unknown important biodiversity features on these sites, or alternatively where the loss of "Critical Biodiversity Areas" has resulted in the need to identify alternative sites.			
No natural habitat remaining	Transformed or degraded areas which are not required as Ecological Support Areas, including intensive agriculture, urban development, industry, and infrastructure.				

5.4.2 BUILD UP A MORE ROBUST GREEN INFRASTRUCTURE SYSTEM TO REDUCE ENVIRONMENTAL IMPACTS WHILST IMPROVING URBAN LIVEABILITY AND RESILIENCE

Green Infrastructure Plan

“Green infrastructure refers to the interconnected set of natural and man-made ecological systems, green spaces, and other landscape features. It includes planted and indigenous trees, wetlands, parks, green open spaces and original grassland and woodlands, as well as possible building and street-level design interventions that incorporate vegetation, such as green roofs. Together these assets form an infrastructure network providing services and strategic functions in the same way as traditional hard infrastructure. (State of Green Infrastructure in the Gauteng City-Region (GCRO 2013)

“Ecosystem services are the benefits supplied to humans from nature. They are the naturally occurring functions of ecological processes, ranging from air purification, water flow regulation, reducing erosion and disaster risks associated with environmental change, the provision of green space for growing food and in which people can relax, as well as the provision of habitats and ecosystems that support biodiversity” (State of Green Infrastructure in the Gauteng City-Region (GCRO 2013)

A Green Infrastructure Plan is needed for Merafong. The Gauteng City Region Observatory (GCRO) is currently working on a Green Infrastructure Plan for Gauteng which will go a long way in guiding a local plan. Initially only a basic plan is needed to guide the municipality and the private sector in the right direction.

Conservancies

As mentioned in the status quo, the study area is mostly covered by grassland and smaller areas of savannah. The savannah areas are considered vulnerable, with many areas afforded a large degree of protection by game farming. The grassland biome is considered endangered due to habitat destruction caused by, cultivation, urbanisation, erosion, over grazing, etc. Grasslands do not receive the amount of protection that savannah areas do because grasslands host agriculture and livestock farming, which are more exploitative by nature, and not a lot of game farming. Grasslands contain very productive ecosystems and therefore need more protection.

Habitats can be preserved in the following ways:

1. This can be done by encouraging farmers to leave a small proportion of their land undisturbed, especially near pans or streams.
2. Declaring conservancies. There are 2 areas that are good potential candidates for conservancies:
 - Proposed Abe Bailey Eco-Corridor conservancy.
 - Proposed Losberg conservancy.

CRITERIA	WEIGHT	De Pan	Abe Bailey	Galstrand	Losberg	Klipdrift
1. Biodiversity	15	10	12	10	10	10
2. Aquatic ecosystems & wetlands	15	12	15	8	6	13
3. Ecosystem Protection Level	15	12	10	10	10	10
4. Alignment with GEMF & MSDF	15	10	14	9	14	8
5. Land use conflicts	10	4	5	5	8	2
6. Threatened veld types	10	6	4	4	4	4
7. Corridor function	5	1	5	4	1	3
8. Variety of veld types	5	2	2	2	4	2
9. Ecosystem services that reduce urban or mining impacts	5	2	5	3	2	5
10. Economic value of conservation Related land uses	5	1	5	3	5	2
TOTAL	100	60	77	58	64	59

Agricultural land

According to the Agricultural Research Council, Merafong City lies within a moister availability class that is conducive to rain fed arable agriculture. The eastern half of the Municipal Area has higher moisture availability than the western half of the Municipal area and is therefore more suitable for rain-fed arable agriculture than the western half. Agriculture is one of the primary economic sectors of Merafong City. Although mining is a far greater contributor to the region's GGP, agriculture is the dominant land use within the Municipal Area in terms of land covered. Two distinct agricultural land use types can be identified: intensive agriculture and extensive agriculture.

- **Intensive Agriculture.** Intensive agriculture is the more economic active agricultural sector and normally involves high produce, irrigation farming. Three intensive agriculture areas can be identified within the Municipal Area. The first is located south of the N12, in the Losberg

region. Fochville largely serves as a rural centre for the communities living on these farms. The second intensive agriculture area flanks the N12, near the Klipdrift Dam. The third intensive agriculture area is located north and south of the N14. The agricultural region is served by the De Pan rural node.

- Extensive Agriculture. Extensive agriculture is primarily found in the western half of the Municipal Area, north and south of the mining belt. The reason for this can most probably be contributed to the fact that the western half of the Municipal Area has lower moisture availability than the eastern half.

The MSDF Main Map gives a good indication of what areas fall under intensive or extensive agriculture.

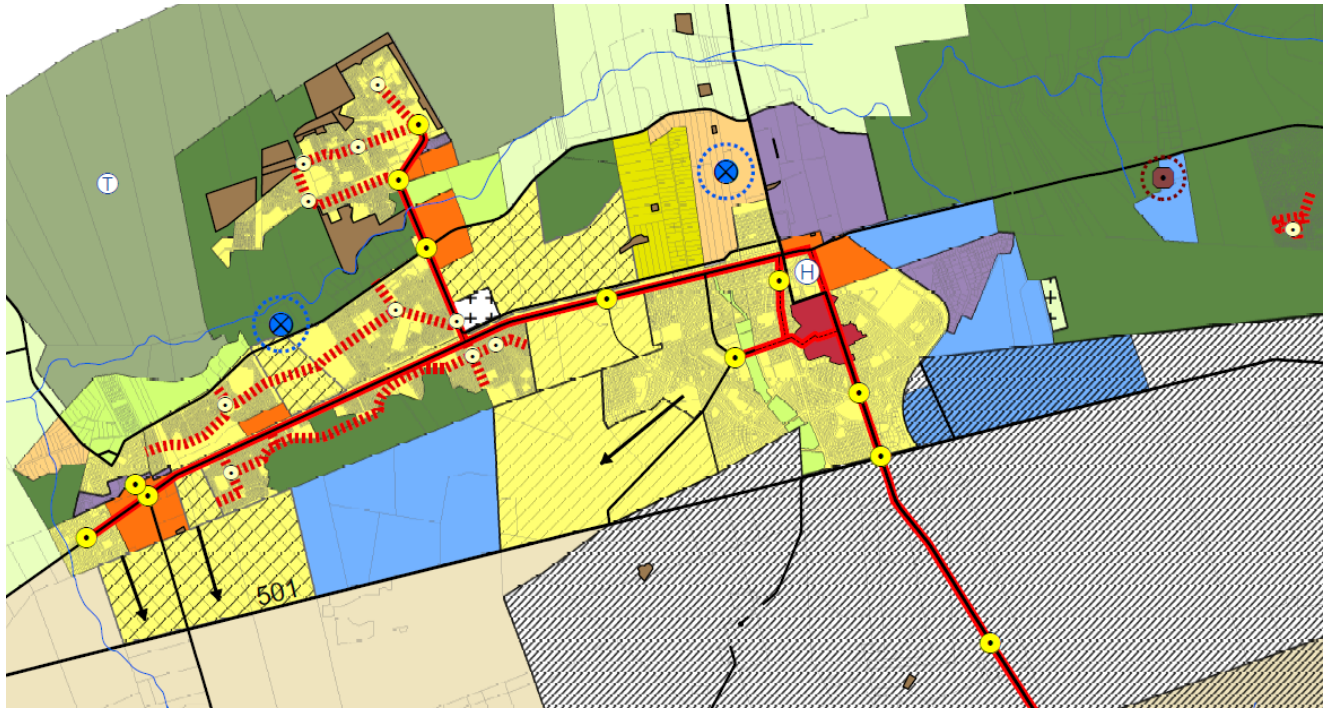
6 THE SDF MAP

For maps visit the Town Planning Section in Halite Street Carletonville, Room G 21

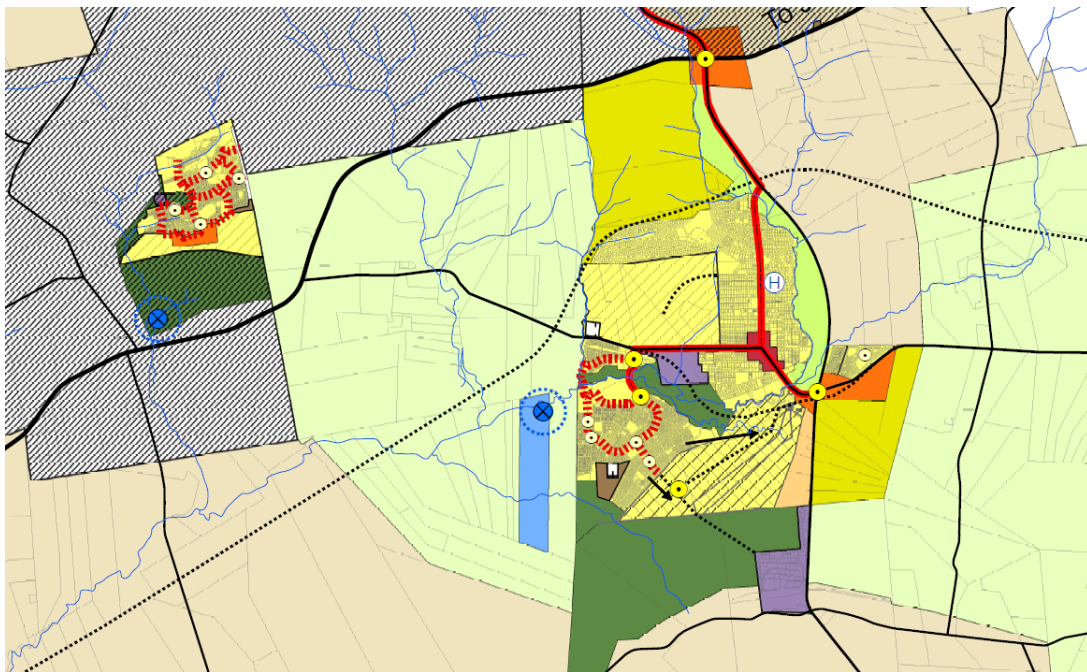
Legend

	800 m Buffer
	500 m Buffer
	Tertiary Node
	Secondary Node
	Tourism
	Health Care
	Landfill Site
	Waste Water Treatment Plant
	National Road
	Main Road
	Secondary Road
	Arterial Road
	Growth Direction
	Activity Street
	Activity Corridor
	Development Corridor
	Proposed Road
	Central Business District
	Informal Settlements
	Mining and Renewable Energy
	Eco Recreation and Conserveation
	Peri_Urban Mixed Use
	Industrial and Large Commercial Zone
	Renewable Energy Zone
	Mixed Use
	Peri Urban Residential
	Residential (Private Sector)
	Residential (Public Sector)
	Cemetery
	Intensive Agriculture
	Extensive Agriculture
	West Rand Mega Agri-Park Zone
	ABE BAILEY NATURE RESERVE



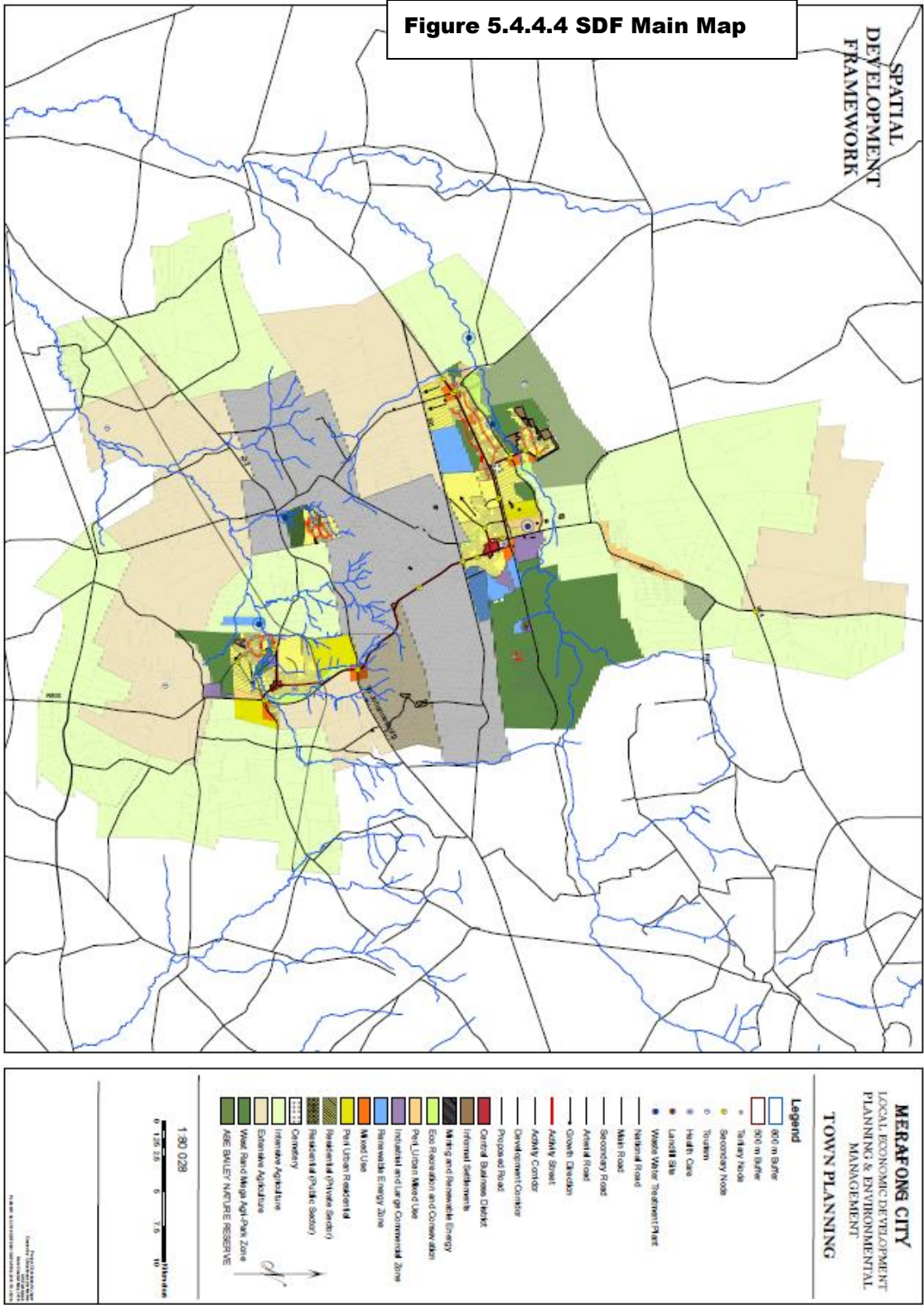



Northern Urban Area (Carletonville) (Above)








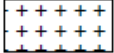










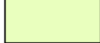



Southern Urban Area (Fochville) (Above)

Figure 5.4.4.4 SDF Main Map



SDF map legend descriptions	
Map legend feature	Description
Primary Development Node (Central Business District)  Central Business District	These nodes are the focus points of economic activities in Merafong with the highest order functions and also the greatest variety of functions including high density residential; retail of consumer goods, semi-durable and durable goods; a variety of services including business-, personal-, professional- and industrial services; government offices, social institutions, and entertainment. Refer to Section 5.1.2
Secondary Development Node  Secondary Node	These nodes serve sub regional/district areas. Land use diversification and intensification is encouraged within these nodes (Including residential densification) It is preferred that business activities be on the ground floor and residential and office uses on the floors above. Sized from community to regional level. Refer to Section 5.1.2
Tertiary Development Node  Tertiary Node	These nodes are located within neighbourhoods and serve a smaller area with a focus on convenience and a limited footprint. Sized from a corner shop up to neighbourhood level. Refer to Section 5.1.2
Primary Development Corridor	It is an integrated urban corridor associated with a central spine where public transport will primarily flow through. Transit Oriented Development and the bulk of facilities, activity nodes and urban infrastructure will be located along the corridor in order to obtain higher rates of efficiency and integration. Refer to Section 5.1.2
 Activity Corridor	Linear development areas where increased development intensity is encouraged. Refer to Section 5.1.2
 Activity Street	Lower order corridors put in place to promote the development of micro enterprises in appropriate localities, especially in previously disadvantaged areas. Refer to Section 5.1.2
 Health Care	A sizable health care institution such as a hospital where ancillary uses such as a pharmacy, frail care/assisted living facility, medical consulting, etc. Is permissible in the immediate vicinity. Refer to Section 5.1.2
 Tourism	General area where tourism related land uses are promoted subject to environmental constraints. Developments in the area have to take cognisance of and give consideration thereto.
	Occurrence/grouping of informal residential structures.

 Informal Settlements	To be resettled in more sustainable areas. Further expansion to be controlled and redirected to transfer areas where services are provided.
 Landfill Site	Roopoort Regional Landfill that serves the entire municipal area and includes ancillary land uses such as recycling. Noxious. Agricultural production within 500 meters of the site should be for bioenergy or biofuel purposes exclusively.
 Waste Water Treatment Plant	Municipal Waste Water Treatment Works with ancillary uses such as a Waste-to-Energy plant. Could be noxious. Preferred buffer of 800 meters.
 National Road	Major national transport corridor. N12 and N14 traverse Merafong.
 Growth Direction	Desired future direction of expansion.
 Proposed Road	Proposed future road needed to avoid bottlenecks and to promote good accessibility.
 Mining and Renewable Energy	Mining leasehold areas. Subject to mining surface right permits. Mining shafts and associated uses such as processing plants, support services, renewable energy plants, existing residential villages.
 Cemetery	Areas designated for current and/or future cemeteries.
 Residential (Private Sector)	Residential expansion, private sector driven development. Predominantly low and medium densities.
 Residential (Public Sector)	Residential expansion, public sector housing projects. Medium to high density. Could include gap market development by mining companies.
 Mixed Use	These are urban areas where a mix of land uses is encouraged and could include non-traditional mixes such as retail and industrial. However care has to be taken not to mix incompatible uses. Heavy polluting, odorous, noisy and unsightly industries are excluded from this zone.
 Industrial and Large Commercial Zone	Industrial, light industrial, service industry and commercial. Including noxious industries in certain localities. Refer to Section 5.1.2
 Renewable Energy Zone	The production, storage and transmission of renewable energy such as solar or bioenergy with all relevant ancillary uses which could be noxious. Refer to Section 5.1.2
	Transition between urban and rural land uses. Lower

 Peri Urban Residential	density residential, agriculture and tourism. Could include non-intrusive agri-business (Except in Watersedge)
 West Rand Mega Agri-Park Zone	Land parcels where activities associated with the West Rand Mega Agri-Park will enjoy preference over other uses (where practical). These include agricultural production, hydroponics, aquaponics, aquaculture, farmer support functions, etc. Refer to Section 5.1.2
 Peri_Urban Mixed Use	Urban-Rural transition uses such as: <ul style="list-style-type: none"> ▪ Agriculture ▪ Agricultural small holdings ▪ Low density residential. ▪ Other peri-urban, low bid rent uses (Very low income per square meter) including <ul style="list-style-type: none"> ✓ service enterprises that deliver their services off-site (e.g. plumbers), ✓ light open air manufacturing, ✓ smaller transport enterprises, ✓ small scale non-commercial storage, ✓ agri-business, ✓ building material suppliers, and ✓ suitable uses that do not require (and per square meter cannot afford) full municipal services in an established township. No uses may lower the amenity of the surrounding environment. Only small enterprises less than 20 employees (No limit on agriculture). Visual screening may be required by municipality in terms of Merafong tree Screening Standards. Refer to Section 5.1.2
 Intensive Agriculture	Valuable agricultural land to be protected. Suitable for intensive agricultural purposes subject to environmental protection constraints.
 Extensive Agriculture	Land areas with less favourable soil conditions. Suitable for agricultural purposes subject to environmental protection constraints.
 ABE BAILEY NATURE RESERVE	The Abe Bailey Provincial Nature Reserve. Conservation and tourism. Intensive development should not be permitted directly next to the nature reserve. Refer to Section 5.4
 Eco Recreation and Consevation	These are areas of high biodiversity that contain sensitive terrestrial and/or aquatic ecosystems that should be preserved. Controlled recreation and tourism activities such as bird watching, fishing, hiking, picnicking, etc. are encouraged. Refer to Section 5.4
<ul style="list-style-type: none"> ▪ These development zones/areas do not grant land use rights directly. The correct land use rights in terms of the applicable land use scheme have to be obtained. ▪ In order to avoid misconceptions, users of this document are strongly encouraged to <ol style="list-style-type: none"> a) make sure what their existing land use rights (Zoning rights) are, and to b) contact the Spatial Planning & Environmental Management Section before making any investment decisions based on these development zones/areas. ▪ Contact details: 018 788 9039/9696 	

