5. SPATIAL DIRECTIVES

Merafong City Vision Statement:

"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 Statement:

An integrated, unified compact 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.

5.1 IMPROVE URBAN EFFICIENCY AND RECTIFY APARTHEID SPATIAL DISPARITIES	
POLICY	Integrate segregated urban areas and restructure the urban form to meet current and future challenges with greater efficiency.
OUTCOMES/ DESIRED STATE	▪ 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.

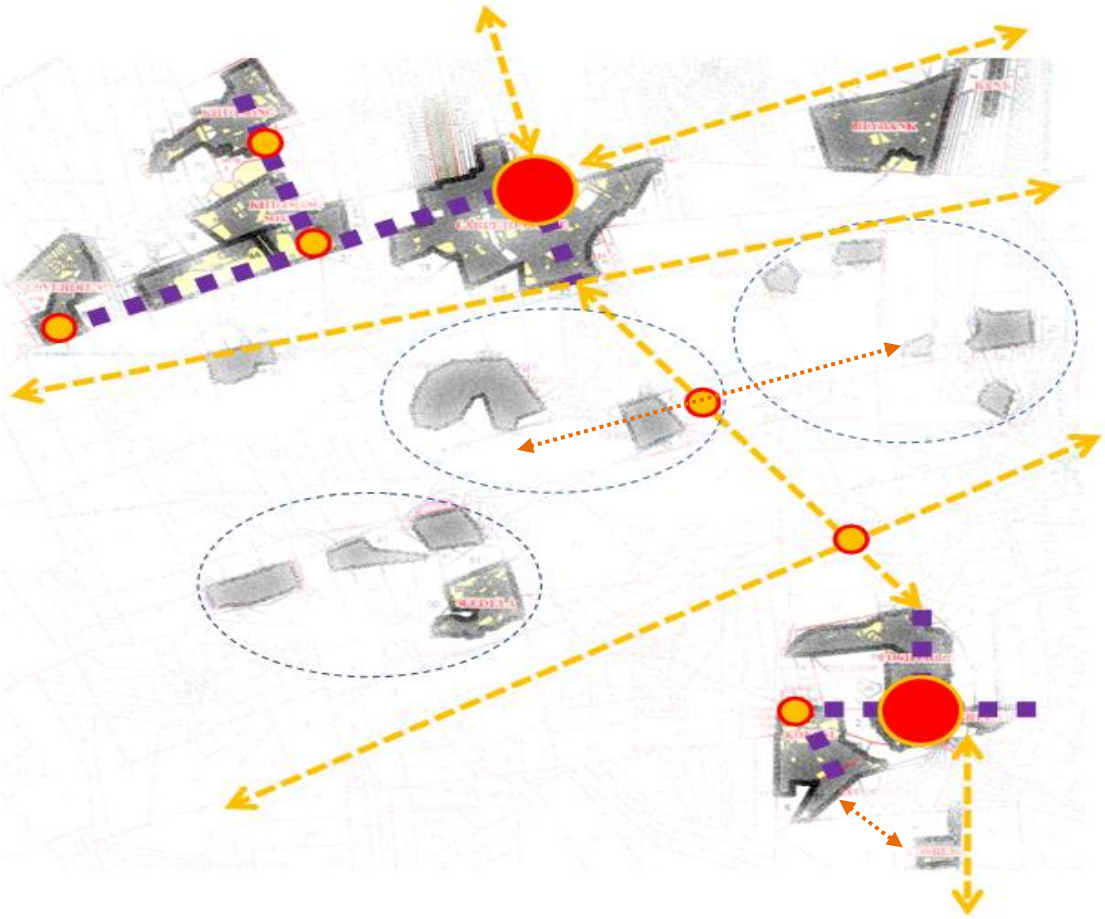
IMPLEMENTATION STRATEGIES	▪ Re-align the urban structure of Merafong settlements into 3 distinct urban areas namely the northern, central and southern urban areas. Connect all 3 urban areas through a primary development corridor that will restructure settlements into the desired state. ▪ Develop infrastructure in accordance with the restructuring strategies. ▪ Establish a hierarchy of nodes and corridors to facilitate restructuring. ▪ Improve linkages between spatial planning and land use management through the utilization of overlay zones. ▪ Implement 3 growth management boundaries in order to manage growth in a sustainable manner: ✓ 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

5.1.2 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.



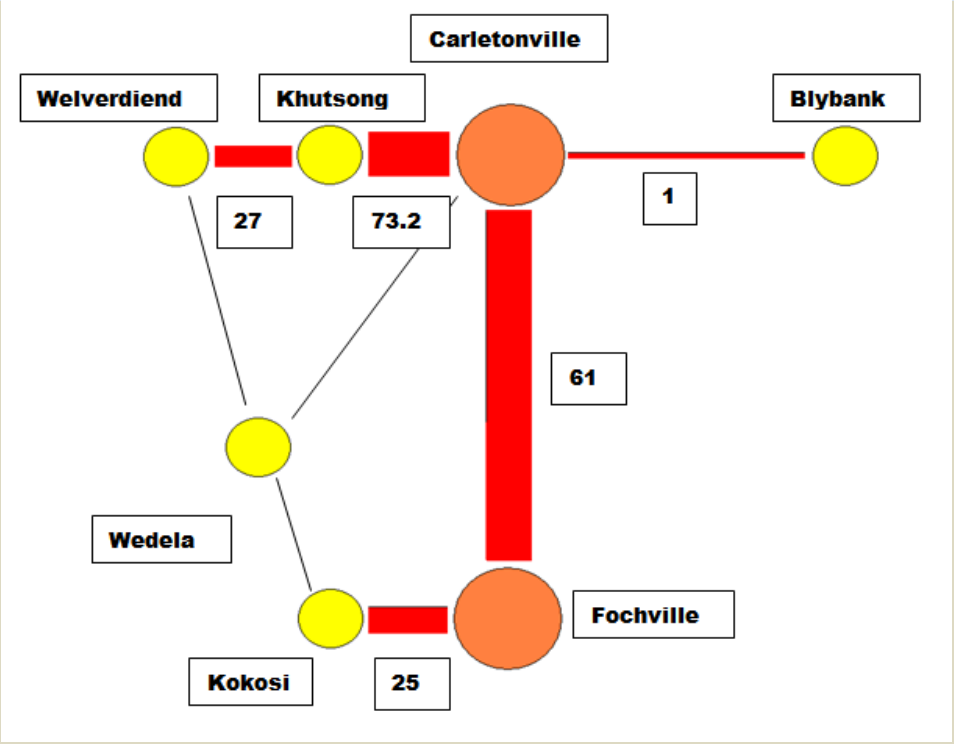
	Primary development nodes
	Secondary development nodes
	Transport linkages
	Development spines
	Village service delivery clusters
	Proposed new transport links

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.

FIGURE 5.1 Interaction potential between settlement nodes



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).

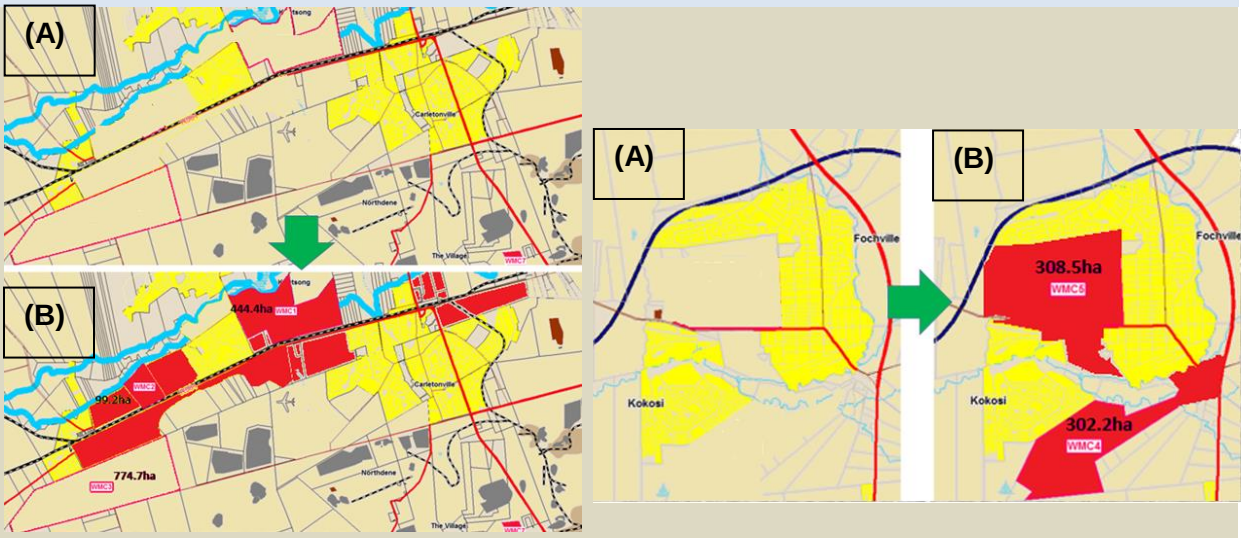
FIGURE 5.2 Areas of high unemployment (Red), employment nodes (Green) and potential development nodes overlain.

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).

FIGURE 5.3 Post-Apartheid infill development in Merafong.



5.1.3 DEVELOP AN ACTIVITY NETWORK OF NODES AND CORRIDORS TO SUPPORT URBAN RESTRUCTURING AND GENERATE OPPORTUNITIES

The activity network can be defined as the manner in which economic and mixed-use activity (as opposed to purely residential use) is arranged and connected in a particular area. This arrangement is mostly either nodal (concentration of activity at a particular point) or linear (concentration of activity along a linear element such as a street or a river) but can also take place in districts or special zones (such as an industrial area).

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.

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.

- *Special Economic Overlay Zone.* The Special Economic Overlay Zone has 2 primary functions, namely to promote economic cluster formation in the industrial sector and to enable circular economies to develop. The end goal is to enable the establishment of a manufacturing hub that is inherently competitive. Refer to Overlay Zones for more information.

- Township Opportunity Zones. The Township Opportunity Zones makes provision for special allowances in areas that have historically been marginalised by Apartheid policies. The main purpose is to put measures in place that enable small and micro enterprises to establish and operate with the aim of supporting job creation whilst making certain economic activities more accessible to communities with limited mobility and economic means. Refer to Overlay Zones for more information.

6. Other development areas (Nodes)

- *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 (To be developed).

- Environmental Control Zone. It links the West Rand Bioregional Plan to spatial planning & land use management in Merafong. The bioregional plan is the official reference for biodiversity priorities to be taken into account in land-use planning and decision-making by all sectors. 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. Refer to Overlay Zones for more information.

- Unproclaimed Mine Areas Zone. It enables land use management on mining land where formal township establishment has not been done. This includes all land associated with mining operations including ancillary uses such as mine villages. Existing villages contain different ‘stands’, however these stands are not independent cadastral units, i.e. erven. The only manner in which these ‘stands’ can be formalised into erven is through a township establishment process which is extremely difficult and/or undesirable in most cases and in many instances will never be done. Therefore an overlay is required to enable land use management through what is often referred to as a ‘split zoning’. Refer to Overlay Zones for more information.

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.
- ✓ Nodes must be characterised by mixed-use, high intensity activity and higher density residential development (floor area ratios, coverage and height should not be restricted as far as possible).
- ✓ The manner in which parking in the nodal areas are treated is of importance. Large parking lots adjacent to streets should not be promoted.
- ✓ 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.
- ✓ Buildings should be placed as close to street boundaries as possible to facilitate pedestrian movement and to define and shape the public space.
- ✓ Developments may not be inward focused and should always take cognisance of the environment around them during design and implementation. 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.
- ✓ Site layouts and building designs of individual developments must take cognisance of and support public transport and pedestrian movement.

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. Inter-Regional Transport Corridors
2. The primary Development Corridor
3. Activity Corridors
4. Activity Streets
5. Potential Future Corridors or Extensions

1. Inter-Regional Transport Corridors

- These corridors are transport links on a regional or national scale that connect Gauteng with other regions in Southern Africa. They include road and rail links as indicated in Section 4.6.
- These corridors are important from a transport and accessibility perspective and can also facilitate nodal development as with the N12 node. These routes also link Merafong with the NDPs National Competitiveness Corridor between Durban and Johannesburg.
- Development decisions should remain cognisant of the function of these routes and should use these routes to the advantage of developing Merafong within the context of the greater Gauteng City Region.
- The following corridors are relevant:
  - N12
  - N14
  - R500
  - R501
  - TFR rail line north through Carletonville
  - TFR rail line south of Fochville

2. 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.

3. 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.

4. 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.

5. 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.

5.1.4 IMPROVE LINKS BETWEEN SPATIAL PLANNING AND THE LAND USE SCHEME THROUGH THE UTILISATION OF OVERLAY ZONES

5.1.4.1 Overlay zones

An Overlay Zone is a land use management tool that creates a special zoning area, placed over an existing base zone, which identifies special provisions in addition to those in the underlying base zone. The Overlay Zone can share common boundaries with the base zone or cut across base zone boundaries.

The purpose of these zones is to implement the priorities of the municipality outlined in its integrated development plan and spatial development framework. These zones include a number of erven with their individual land use zonings.

An Overlay Zone, which has to be approved and advertised, shall have a specific function and include a number of developmental tools, to achieve desired priorities and objectives. The Overlay Zone shall comprise inter alia the following:

(a) A geographical delineation, ensuring that the boundaries are cadastrally based or geographically identifiable;
(b) Statement of policy and intention that elaborates on the developmental perspective and which will be used by the municipality in the assessment of land development applications within the special development zone;
(c) Development standards and proposed land management tools that will be in force in the special development zone;

An Overlay Zone shall be proclaimed following the process detailed below:

(a) The Overlay Zone shall be advertised as part of the normal MSDF participation processes;
(b) Written representations, comments or objections on the said Overlay Zone or any proposal contained therein may be lodged, with the municipality on or before a certain date. Such date shall correspond to the date for the Municipal Spatial Development Framework (IDP) participation process;
(c) The municipality shall consider each representation, comment or objection received within the stipulated period and approve or amend the special development zone, stipulating the date of commencement in a notice in the *Provincial Gazette*;
(d) The municipality may at any time amend a special development zone, subject to compliance with the procedures set out above (Refer to paragraphs 15(4)(a) to (d) of the Merafong Land Use Scheme);

After a special development zone has been approved by the municipality, it shall be deemed to be the overriding guidelines in terms of the spatial development framework for the erven falling within its boundaries. The municipality may revoke a special development zone by passing a resolution and should give notice.

General provisions relating to Overlay Zones:

- All overlay zones are applicable in addition to the base zone of the properties to which it relates, and may vary the development rules or use rights relating to a particular area or land unit, or may set new development rules or use rights.
- The provisions of an overlay zone may be more restrictive or less restrictive than the provisions applicable to the base zone of a property, or may set specific development rules for a particular area or land parcel.
- The provisions of an overlay zone do not in any way detract from any obligations in terms of national and provincial legislation.
- The provisions of an overlay zone may apply to a part of a land parcel, an entire land parcel or land parcels, an area, or to the municipality as a whole, as may be stipulated.
- The provisions of more than one overlay zone may apply to a land unit or area.

The following Overlay Zones shall be applicable in Merafong:

TOWNSHIP OPPORTUNITY OVERLAY ZONE

Purpose and developmental perspective:

The Township Opportunity Overlay Zone makes provision for special allowances in areas that have historically been marginalised by Apartheid policies. The main purpose is to put measures in place that enable small and micro enterprises to establish and operate with the aim of supporting job creation whilst making certain economic activities more accessible to communities with limited mobility and economic means.

Area designation:

As defined by the Overlays Map

Development provisions:

- Spaza shops are allowed in terms of a Spaza Shop Policy. Application for written consent in terms of Clause 35 of the Merafong land use Scheme, 2019 may be made for spaza shops.
- Taverns (On-consumption). The on consumption sale of liquor is permitted on erven that fall within nodes and/or corridors within the overlay zone as contained in Annexure B – Development Node and Corridor Guidelines and a Tavern Policy. Application for written consent in terms of Chapter 4 of the Merafong land use Scheme, 2019 may be made for taverns (On-consumption).
- Off-consumption. The off-consumption sale of liquor is permitted on any erf within the overlay zone as per the provisions of a Tavern/Spaza Policy. Application for written consent in terms of Clause 35 of the Merafong land use Scheme, 2019 may be made for Off-consumption premises.
- Parking parameters may be relaxed by up to 50% (Rounded up).

- The following minimum standards have been set for church erven:
    - Minimum erf size = 2 000 m²
    - Parking = 1 per 10 seats (25m² per parking bay; 1 m² per seat)
    - Coverage = 60%
    - Provision of 30% coverage for external buildings.
    - Furthermore, all legislative and policy conditions have to be met.

- Newly created erven in township establishments and subdivisions shall be subject to build-to lines (Not to be confused with building lines). A build-to line is a line at which construction of a building facade is to occur on a lot, running parallel to the front property line without setback. A property can also have more than 1 build-to line on different facing facades. These lines are intended to create more space and reduce wasted unusable space on small government subsidised erven for future building extensions or enabling a car to park on the property. Build-to lines shall be included in all Conditions of Establishment of new townships and shall be adhered to in all building plans within the said township.

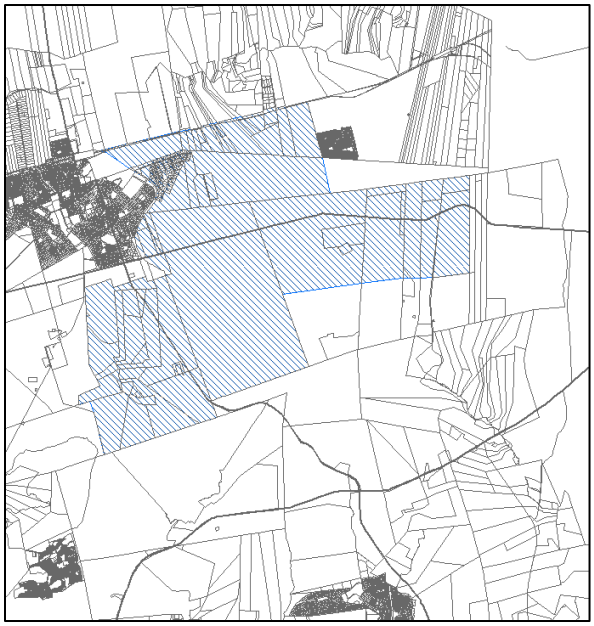
- Newly created erven in township establishments and subdivisions shall have the following building lines where possible and appropriate – 0 to 2 meters on street, 3 meters on a side boundary, and 0 meters on other sides. All 3 meter building lines in a street block must be on the same side, e.g. western side.

- Small scale retail and non-noxious services are permitted with “Written Consent” (In terms of the Merafong Land Use Scheme) along “Activity Streets” as designated in Annexure B – Development Node and Corridor Guidelines. Small scale = up to 60% coverage of a residential property. All other Town Planning Control Measures applicable as per land use. A Site Development Plan is required.

- Municipal owned erven may be exempt from the provisions of the Merafong Land Use Scheme in order to facilitate special projects of social and/or economic development. The municipality shall follow a process of applying for Written Consent in terms of Clause 35 of the Merafong Land Use Scheme in order to utilise this provision.

SPECIAL ECONOMIC OVERLAY ZONE

Purpose and developmental perspective:



The Special Economic Overlay Zone has 2 primary functions, namely to promote economic cluster formation in the industrial sector and to enable circular economies to develop. The end goal is to enable the establishment of a manufacturing hub that is inherently competitive. Any and all available policy levers must be used to create the enabling environment required for economic clusters to thrive. The establishment of the West Rand Special Economic Zone will act as a critically important vehicle. Spatial Planning, Land Use Management as well as other tools must be aligned to promote competitiveness.

Area designation:

As defined by the Overlays Map

Development provisions:

- This area is designated as development zone for the Merafong component of the West Rand Special Economic Zone (SEZ). As such all activities undertaken must have the best interests of the SEZ formation in mind.
- Applications made on land that falls within an industrial park must be sent for comments to the applicable industrial park management authority where reasonable and applicable. An industrial park management authority may apply on behalf of tenants for land use changes and/or building plan amendments.
- Any land use that, in the opinion of the municipality, reasonably promotes industrial cluster formation and a circular economy, reduces environmental impacts or improves revenues may be conducted with an application for Written Consent in terms of Clause 35 of the Merafong land use Scheme.
- Town Planning parameters may be reduced with an application for Written Consent in terms of Clause 35 of the Merafong land use Scheme.
- Structures may be constructed in public streets with an application for Written Consent in terms of Clause 35 of the Merafong land use Scheme.
- Private and municipal infrastructure may be located in unconventional localities and constructed in unconventional ways with an application for Written Consent in terms of Clause 35 of the Merafong land use Scheme.
- Application may not be made for a development proposal that would undermine or negatively affect the development of a circular economy or economic cluster formation within this zone.

- Statutory processes associated with industrial park developments have to be expedited and receive priority in processing of applications.
- Incentivised rates and fees may be charged.
- Policies should be developed to further expand upon provisions within this document in order to facilitate development processes within this zone.

GROWTH MANAGEMENT OVERLAY ZONE

Purpose and developmental perspective:

In order to achieve the desired state of an integrated urban system, the municipality's urban areas is 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. For more information, refer to the Nodal and Corridor Guidelines (Annexure B) as well as the section on growth management (5.1.3).

Area designation:

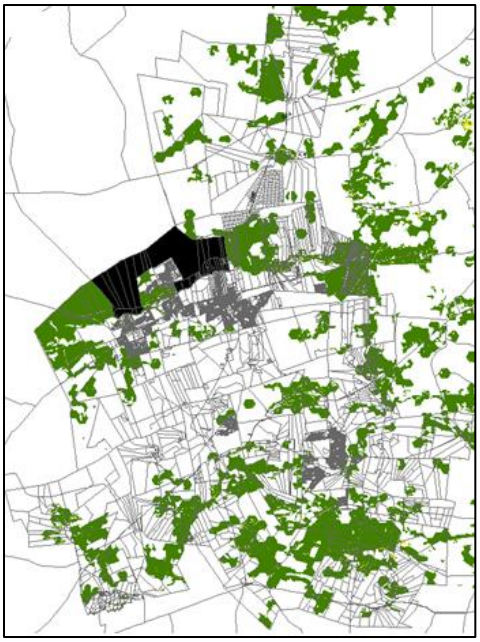
As defined by the Overlays Map

Development provisions:

- All provisions contained in Section 5.1.3 (Growth Management Zones) as well as Annexure B of the Municipal Spatial Development Framework shall be applicable.
- On properties zoned "Residential 1" in terms of the Merafong Land Use Scheme, 2019; densities may be increased up to 40 dwelling units per hectare through a Written Consent application as stipulated in Clause 35 of the said scheme. This is only applicable in the appropriate Growth Management Zones as contained in Section 5.1.3.
- Developments located within the nodal and corridor network as described in Annexure B, or in the Core Density Zone, Incremental Densification Zone and Medium Density Zone, may be partially exempt from development control measures to be set off against conditional linkages, e.g. not having to pay for on street parking in exchange for beautifying an adjacent park at a specified cost.

ENVIRONMENTAL CONTROL OVERLAY ZONE

Purpose and developmental perspective:



The Environmental Control Overlay Zone links the West Rand Bioregional Plan to spatial planning & land use management in Merafong. The bioregional plan is the official reference for biodiversity priorities to be taken into account in land-use planning and decision-making by all sectors. 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.

Area designation:

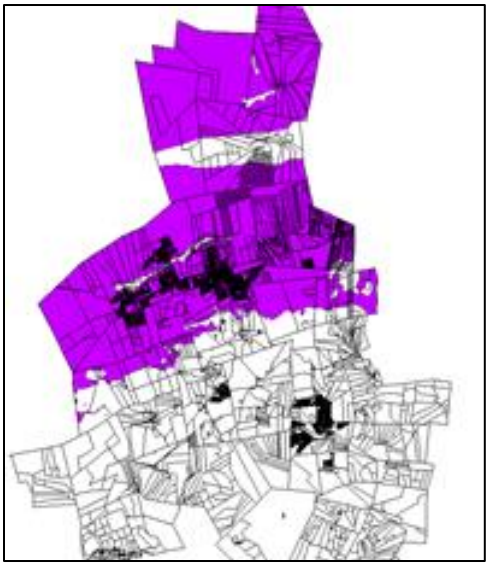
As defined by the Overlays Map

Development provisions:

- Development on land designated as Critical Biodiversity Area 1, 2 and Ecological Support Area in the West Rand Bioregional Plan shall adhere to the provisions of said plan.
- If development is proposed within one of the above mentioned areas a NEMA enquiry must be made to the Gauteng Department of Agriculture & Rural Development (GDARD).
- Instances may occur where only a part of a property is affected.

DOLOMITE MANAGEMENT OVERLAY ZONE

Purpose and developmental perspective:



Most of the northern areas in Merafong are underlain by dolomite which necessitates development restrictions or special procedures to be followed during development. The Dolomite management Overlay Zone designates areas where SANS 1936 are applicable. It should be noted that dolomite may occur outside the overlay zone. In cases where dolomite is discovered outside the overlay, the same procedures must be followed as inside the overlay zone. For more information refer to Annexure D of the MSDF and/or SANS 1936 (2012). SANS 1936 consists of the following parts, under the general title Development of dolomite land:

- Part 1: General principles and requirements.
- Part 2: Geotechnical investigations and determinations.

- Part 3: Design and construction of buildings, structures and infrastructure.
- Part 4: Risk management.

Area designation:

As defined by the Overlays Map

Development provisions:

- The provisions of SANS 1936 (2012) must be adhered to within this overlay zone.
- Annexure D gives guidance on some development aspects. Where information is not available a geotechnical investigation that could include drilling, may be required. Guidance on this matter can be given in a pre-submission consultation.
- The municipality may deviate from the provisions of the Land Use Scheme temporarily in order to make emergency provisions necessitated by geotechnical problems.
- If dolomite is found in any area outside the Overlay Zone during a geotechnical investigation the provisions of this overlay will be applicable.

UNPROCLAIMED MINE AREAS OVERLAY ZONE

Purpose and developmental perspective:

The Unproclaimed Mine Areas Overlay Zone enables land use management on mining land where formal township establishment has not been done. This includes all land associated with mining operations including ancillary uses such as mine villages. Existing villages contain different 'stands', however these stands are not independent cadastral units, i.e. erven. The only manner in which these 'stands' can be formalised into erven is through a township establishment process which is extremely difficult and/or undesirable in most cases and in many instances will never be done. Therefore an overlay is required to enable land use management through what is often referred to as a 'split zoning'.

Area designation:

As defined by the Overlays Map

Development provisions:

- A low detail Precinct Plan shall be compiled by the owner of the land and/or mining right holder for the approval of the Merafong City Local Municipality. This plan shall form the

basis of future spatial planning and land use management as well as giving guidance to mine closure plans.

- The base zoning shall remain Mining/Agriculture and the overlay will assign different 'overlay zonings' to properties defined by the Precinct Plan. These zones shall conform to the same standards as the base zones outside the overlay zone, i.e. the scheme will be applied in the same manner except for the fact that it will not be based on the cadastre. In the absence of a precinct plan, GPS coordinates may be utilised.
- Application may be made to the municipality to change the 'overlay zoning' to a new category with an application for Written Consent in terms of Clause 35 of the Merafong land use Scheme.

5.1.4.2 Amendments to the Land Use Scheme

No amendments to the Land Use Scheme (LUS) are proposed as the MSDF and LUS were developed in conjunction with each other. The interactive functioning between the LUS and the MSDF should be monitored in order to propose alterations where problems arise or opportunities present themselves.

5.1.4.3 Inclusionary Housing

Merafong does not yet have an Inclusionary Housing Policy. One will be developed once more policy direction is obtained from national and provincial government.

5.1.5 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. These GMZs will function as an overlay in the Land Use Scheme.

Therefore the entire municipality is divided into 9 Growth Management Zones in order to guide residential development:

1. CORE 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 120 dwelling units per Hectare, subject to geotechnical suitability
Coverage	Up to 70%
Floor Area Ratio	Up to 2.8
Height	4 Floors
Additional rentable rooms	Allowed.
Boarding houses/ rental lodging	Allowed.
Second dwelling	Allowed.
Residential land uses	Free standing homes, town houses, walk-ups, medium rise apartments
Directives	▪ On properties zoned "Residential 1" in terms of the Merafong Land Use Scheme, 2019 densities may be increased up to 40 dwelling units per hectare through a Written Consent application as stipulated in Section 38 of the said scheme. ▪ Densities between 40 and 80 du/Ha shall be zoned "Residential 2" ▪ Densities from 80 du/Ha and above shall be zoned "Residential 3" ▪ 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. ▪ All developments must promote Transit Oriented Development and walkability. ▪ 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 restricted 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 shade trees to the satisfaction of the Municipality. Paving around trees must be permeable. ▪ Surfaced on-site parking for visitors shall be provided to the satisfaction of the municipality. ▪ 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 and take human scale into account. ▪ 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. ▪ A minimum erf size of 150 m² and an average of 200 m² shall be maintained for each development as a minimum, exceptions may be made for subsidised housing.

	▪ In dolomitic areas a minimum erf size of 300m² is applicable. ▪ 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 150 m² shall still be maintained. ▪ All developments require the approval of a Site Development Plan and if in the opinion of the municipality the development may cause harm to its surrounding environment or is not suitable in terms of site specific conditions it will not be approved. ▪ 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. ▪ Additional rentable rooms: ✓ Definition – Rentable rooms (Not dwelling units) constructed on a property either connected to or separated from a main dwelling for the purpose of renting out for an extended period by the owner / occupant to unrelated persons who share communal facilities. ✓ The construction of small rooms with substandard 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. ✓ Rooms may only be built in the backyard. ✓ 5 Rooms are allowed in addition to the primary residence (5 Includes old servant's quarters). ✓ At least 1 ablution facility must be provided for additional rooms. Could include servants quarters ablution. ✓ At least 1 kitchen must be provided which could include the kitchen in the primary residence ✓ Building line relaxation applications for additional rooms will not be viewed favourably except in exceptional cases. ✓ A boarding house and additional rooms will be permitted on the same property up to a maximum of 8 rooms. ✓ Building plans and a Site Development Plan is required ✓ 1 parking bay per 2 rentable rooms is required on site. ▪ Boarding houses: ✓ Definition – A communal residential building where the habitable rooms are rented out for an extended period by the owner / occupant to unrelated persons who share the communal facilities such as the kitchen, lounge, dining room and bathrooms. ✓ A maximum of 8 rooms is permitted ✓ A minimum of 1 communal kitchen and 1 ablution facility shall be provided ✓ Building plans and a Site Development Plan is required ✓ 1 parking bay per 2 rentable rooms is required on site.

2. AFFORDABLE INCREMENTAL DENSIFICATION ZONE
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 5 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.	
Dwelling units /Hectare	Up to 40 du/Ha
Coverage	50 - 60%
Floor Area Ratio	1
Height	2 Floors
Additional rentable rooms	Allowed.
Boarding houses/ rental lodging	Allowed
Second dwelling	Allowed.
Residential land uses	Free standing homes, boarding houses, additional rooms, flats
Directives	▪ The option is available to either densify to a density of 40 dwelling units or build rooms in addition to an existing house. Both options may not be utilised at the same time. ▪ 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 40 dwelling units per hectare ▪ 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. ▪ In dolomitic areas small building footprints and additional water services may be problematic. Rentable lodging in existing houses may be more feasible (Boarding house). ▪ Additional rentable rooms: ✓ Definition – Rentable rooms (Not dwelling units) constructed on a property either connected to or separated from a main dwelling for the purpose of renting out for an extended period by the owner / occupant to unrelated persons who share communal facilities. ✓ The construction of small rooms with substandard 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. ✓ Rooms may only be built in the backyard. ✓ 5 Rooms are allowed in addition to the primary residence (Includes old servant's quarters). ✓ At least 1 ablution facility must be provided for additional rooms. ✓ At least 1 kitchen must be provided which could include the kitchen in the primary residence ✓ No building line relaxation may be approved for additional rooms ✓ A boarding house and additional rooms will be permitted on the same property up to a maximum of 8 rooms. ✓ Building plans and a Site Development Plan is required ✓ 1 parking bay per 2 rentable rooms is required on site. ▪ Boarding houses: ✓ Definition – A communal residential building where the habitable rooms are rented out for an extended period by the owner / occupant to

	unrelated persons who share the communal facilities such as the kitchen, lounge, dining room and bathrooms. ✓ A maximum of 8 rooms is permitted ✓ A minimum of 1 communal kitchen and 1 ablution facility shall be provided ✓ Building plans and a Site Development Plan is required ✓ 1 parking bay per 2 rentable rooms is required on site. ▪ Once the status quo of service infrastructure has been established more specific parameters can be attributed to the street block level.

3. MEDIUM DENSITY ZONE	
This is a zone of mixed residential typologies that can vary from a suburban density to walk-ups. In general smaller erf sizes are encouraged. Single residences, second dwelling units and town houses are acceptable 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	Up to 40
Coverage	50 - 60%
Floor Area Ratio	1
Height	2 Floors
Additional rentable rooms	Not allowed
Boarding houses/ rental lodging	Allowed, subject to neighbourhood suitability
Second dwelling	Allowed
Residential land uses	Free standing homes, second dwellings and additional rooms, walk-ups
Directives	▪ 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. ▪ A minimum erf size of 150 m² and an average minimum of 250 m² shall be maintained with a maximum density of 40 dwelling units per Hectare for each development. ▪ In dolomitic areas a minimum erf size of 300m² is applicable. ▪ 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 restricted access have to make provisions for a waste receptacle to the satisfaction of the municipality. ▪ 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 150 m² shall still be maintained. ▪ All developments require the approval of a Site Development Plan and if in the opinion of the municipality the development is may cause harm to its surrounding

	environment or is not suitable in terms of site specific conditions it will not be approved. ▪ Boarding houses: ✓ Definition – A communal residential building where the habitable rooms are rented out for an extended period by the owner / occupant to unrelated persons who share the communal facilities such as the kitchen, lounge, dining room and bathrooms. ✓ A maximum of 8 rooms is permitted ✓ A minimum of 1 communal kitchen and 1 ablution facility shall be provided ✓ Building plans and a Site Development Plan is required ✓ 1 parking bay per 2 rentable rooms is required on site. ▪ Once the status quo of service infrastructure has been established more specific parameters can be attributed to the street block level.

4. 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	Up to 12.5 without a second dwelling
Coverage	50 %
Floor Area Ratio	1.5
Height	3 Floors
Additional rentable rooms	One room allowed in addition to the primary dwelling (Except areas where more than one room has already been approved)
Boarding houses/ rental lodging	Not allowed
Second dwellings	Allowed
Residential land uses	Free standing low density urban and rural
Directives	▪ 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.

	▪ 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.

5. URBAN EDGE AND THE URBAN EDGE MANAGEMENT ZONE

The Urban Edge is a line delineating the extent of urban development. The main function of the Urban Edge is to contain urban sprawl and restructure the urban areas of Merafong into a more efficient future city. Major developments outside the urban edge will not be considered favourably and infrastructure development will take place with the edge in mind. Two notable exceptions are game changer projects and viable mine villages. The extent of both these categories will be determined.

Typically the fringe of urban areas are characterised by what is termed the urban-rural transition zone, comprising low density urban development, low intensity, extensive land uses and semi-rural mixed uses. The urban edge should therefore not denote a clear divide between urban and rural, but rather include management zones along the edge that make provision for a gradual transition from an urban to a rural environment. The area directly inside the urban edge should look at lower urban intensities, while the areas directly outside the urban edge should make provision for semi-rural and rural residential activities. Therefore it encompasses both the Low Density and Peri-Urban zones.

The Urban Edge Management Zone does not have a specific delineation as it is a dynamic transition area. Site specific conditions will play a major role in decision making with regards to land use applications. Planning officials will give guidance to prospective applicants during a pre-submission consultation.

6. THE URBAN RESERVE

The urban reserve is land outside the urban edge earmarked for growth over the next several decades. This protects future expansion land from piecemeal development and allows for long term infrastructure planning. This land should only be developed for large scale developments (Especially government subsidised developments) after more viable and sustainable localities have already been developed.

7. 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	1 Or less especially in more rural settings and ecologically sensitive areas. One dwelling unit per land parcel. The ecological status quo may affect densities.

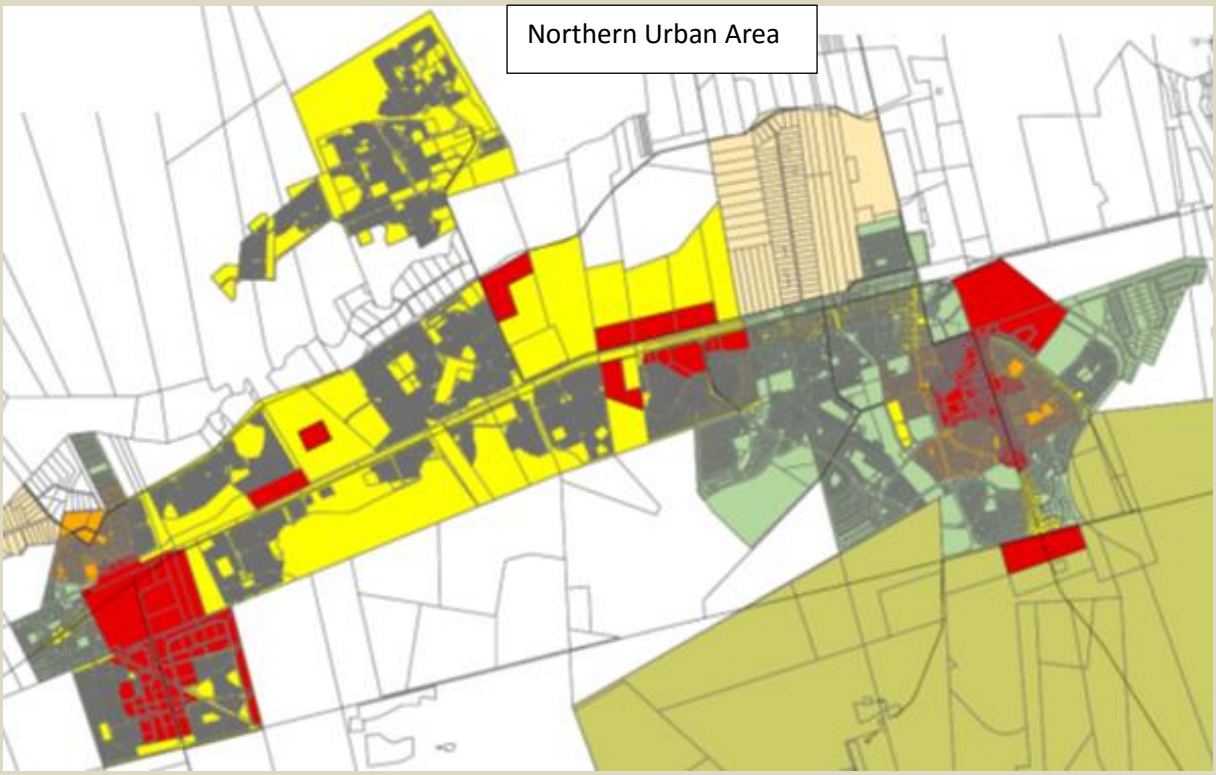
Coverage	10 % or less
Floor Area Ratio	N/A
Height	2 Floors
Additional rentable rooms	Allowed if it is ancillary to the primary land use.
Boarding houses/ rental lodging	Not allowed, except for farm workers on agricultural zoned land
Second dwellings	Allowed
Residential land uses	Free standing low density rural
Directives	▪ All new developments are subject to SANS 1936 (Northern urban area). ▪ Residential densities must remain very low and the existing character of rural areas must be protected ▪ Mixed land uses are possible along corridors including 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.

8. 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	Less than 1 per 4 Hectares as a general provision. Site specific conditions could warrant variations.
Coverage	N/A
Floor Area Ratio	N/A
Height	3 Floors
Additional rentable rooms	2 Allowed (for rental purposes). No limit for employees/family that work on the same farm.
Boarding houses/ rental lodging	Not allowed, except for employees on appropriately zoned land
Second dwellings	Allowed
Residential land uses	Free standing low density rural
	▪ All new developments are subject to SANS 1936 (Northern area).

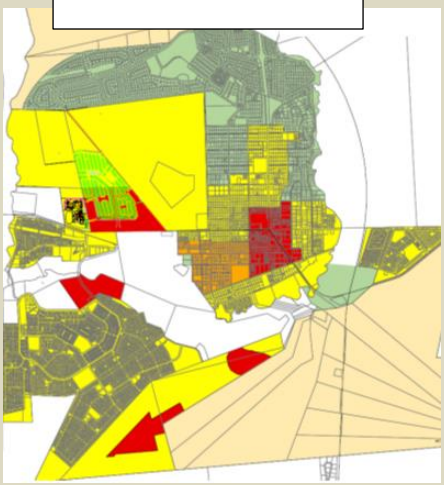
9. MINE VILLAGE ZONE	
This zone encompasses mining lease areas that contain mining villages and/or hostels. Further development within this zone should be discouraged unless it is linked to the Primary Development Corridor and contained within an established township. This area will be managed through the Unproclaimed Mine Areas Overlay Zone.	
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 rentable rooms	Not allowed
Boarding houses	Allowed
Second dwellings	Not allowed, unless it forms part of an established township.
Residential land uses	Free standing low density with hostels and flats
	▪ 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

Northern Urban Area

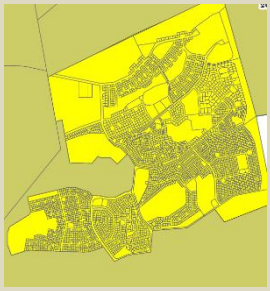


Northern Urban Area



Blybank

Wedela



5.1.6 FOCUS DEVELOPMENT OF MINING AREAS ON VIABLE AND SUSTAINABLE SETTLEMENTS AND DEVELOP STRATEGIES TO DEAL WITH UNSUSTAINABLE SETTLEMENTS

Mining in Merafong

The mining industry in Merafong is characterized by large gold and uranium mining operations located in a band stretching in an east-west direction between Carletonville and Fochville as well as a small sand mining operation north of Carletonville. Merafong's historical development is closely linked with the discovery of rich gold deposits in the early 1930s. Its boundaries enclose some of the richest gold mines in the world. In 1970, South African production accounted for two-thirds of all global production, with an annual mine output of around 1,000 tonnes. This has since diminished to 167.5 tonnes (in 2015) and the country is now ranked sixth amongst gold-producing countries. The following gold mining shafts and villages are located in Merafong:

Blyvooruitzicht

Blyvoor mine is the oldest in the area and is located directly south west of Carletonville. Mining became unprofitable under new ownership and when owners suspended operations in August 2013 there were about 6,000 people living in the village, as well as two schools and a crèche. But with no money coming in, those who remained were unable to pay electricity and water bills, so services were discontinued. Illegal miners, or zama zamas, overran the mine, scavengers stripped everything of value and crime soared. The mine and village was placed under liquidation. Fortunately Blyvoor mine is currently under new ownership (Blyvoor Gold Capital) and plans are underway to revive mining although the fate of the village remains unknown. Doornfontein is a second shaft of the Blyvoor mine. It has a small village and an industrial area. Doornfontein did not suffer as badly as Blyvoor during the liquidation process. The industrial land has been sold and a few companies are operating successfully.

Kusasalethu/Elandsrand

The Kusasalethu operations are owned by Harmony Gold and includes mine shafts, processing plants and a village. The operation is situated in the West Witwatersrand Basin and mines the Ventersdorp Contact Reef as its main ore body. The mine comprises twin vertical and twin sub-vertical shaft systems and uses conventional mining methods in a sequential grid layout. Mining is conducted at a depth of 3 388 meters, making it Harmony's deepest mine. Ore mined is treated at the Kusasalethu plant. The 2011 Census indicated that the area housed about 10 000 people. The life span of the mine is limited and conventional mining operations are expected to end within the next 5 years. Elandsrand also has a marginal locality when it comes to alternative employment and urban amenities. Deelkraal mine used to form part of Kusasalethu.

Deelkraal

Mining at Deelkraal shaft ceased shortly after the turn of the century and the village was bought by private investors, although there is an ongoing dispute over ownership and liability. In 2011

the population of Deelkraal was slightly above 1 500. Houses are being rented out to the open market. Deelkraal is located far away from employment nodes and urban amenities.

West Wits Complex

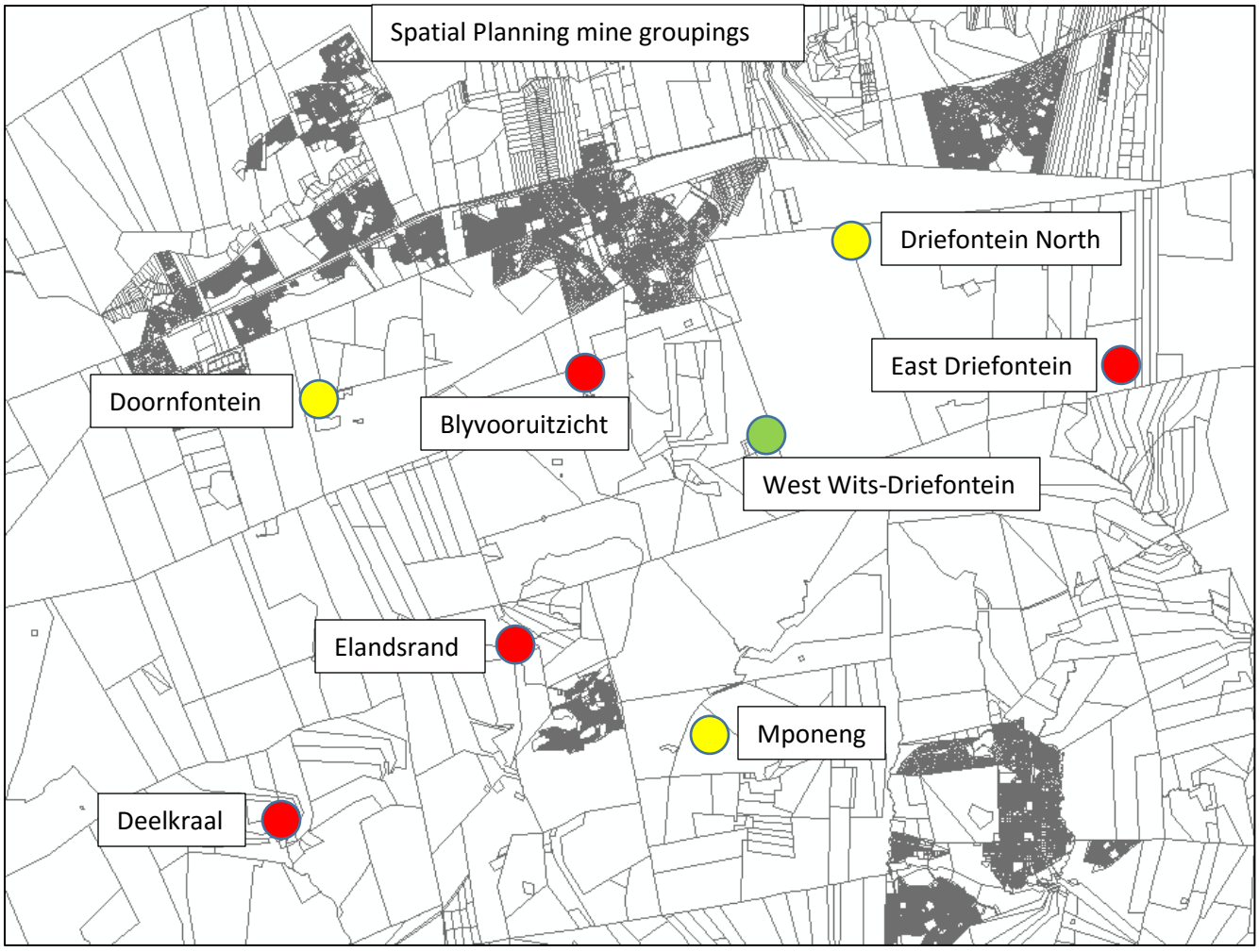
The Anglo West Wits Complex previously consisted of 3 main shafts including Tau Tona, Savuka and Mponeng. Due to continued losses the company was forced to close down Savuka and Tau Tona. Mining will continue underneath the closed shafts whilst these areas will now be served by Mponeng alone. Tau Tona is to be demolished and components of Savuka as well. A township establishment process is currently underway to formalise components of Savuka deemed worthy of saving for adaptive re-use. This new township named West Wits Village offers good opportunities for post mining economic development, specifically in industrial development (Refer to Game Changer Projects). The Mponeng mine currently mines the Ventersdorp Contact Reef with stoping taking place at an average depth of 3,054 meters. Anglo Gold Ashanti has indicated that is views Mponeng as a core asset and is investing new capital into the mine.

Driefontein Complex

The Driefontein Complex belongs to Sibanye Gold and consists of 2 main areas of operation namely West Driefontein and East Driefontein. Driefontein is a large, established, shallow to ultra-deep-level gold mine The current mine infrastructure consists of six producing shaft complexes that mine open ground and pillars with the deepest operating level currently some 3,420m below surface and three gold processing plants. The principal mining takes place on the Carbon Leader Reef, which constitutes almost 62% of the Mineral Reserves, the VCR 32%, the Middlevlei Reef 6% and the remainder from surface sources. Mining is expected to continue to 2039.

Infrastructure developed by the mines valued at billions of Rands will either be adapted for re-use or completely rehabilitated to a natural state. Unfortunately most of these mines are in locations that make the continued use of buildings and infrastructure for other purposes unfeasible. 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.

For functional reasons looking at municipal planning and mine closure, mining areas have been organized into areas as depicted in the map below:



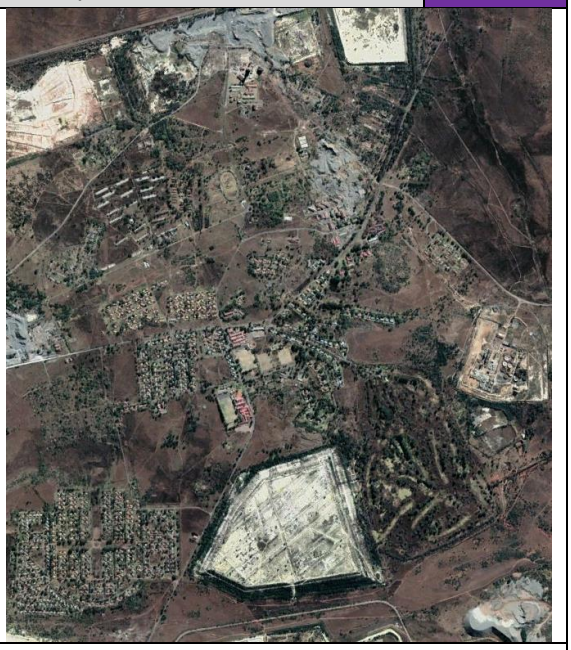
An assessment has been conducted to determine which mining areas should be designated for rehabilitation or for formalisation and adaptive re-use. It is put together in a matrix format for ease of reference. Individual scores of 70-100% are marked green, scores of 50 – 70% are yellow and scores of less than 50% are red. Fatal flaws are indicated in purple. Blyvooruitzicht with its outdated infrastructure and dangerous geotechnical status quo is the only area with a completely fatal flaw.

	DEELKRAAL	KUSASALETHU	BLYVOORUITZICHT	WEST WITS-DRIEFONTEIN	EAST DRIEFONTEIN (NORTH)	EAST DRIEFONTEIN (SOUTH)	MPONENG	DOORNFONTEIN
Accessibility (10)	1	2	7	7	7	5	5	6
Functional integration (10)	2	3	7	6	5	5	3	5
Logical and functional nodal hierarchy and structure (5)	0	1	3	4	3	2	3	2
Minimum viable settlement (5)	1	4	3	4	2	3	3	2
Promotion of compaction and densification (5)	0	2	4	3	1	1	2	1
Economic potential (10)	2	3	6	8	8	5	8	6
Efficiency of resource use/urban efficiency (5)	1	1	3	4	3	2	3	2
Convenience/choice (10)	2	3	8	6	5	4	4	5
Infrastructure viability (Locational) (10)	1	2	8	6	6	2	2	4
Bid rent compatibility (5)	1	2	3	3	4	2	3	2
Municipal financial viability (10)	0	1	6	7	5	2	6	6
Geotechnical constraints (5)	4	3	0	4	3	2	5	1
Adaptive re-use (10)	1	2	5	8	8	4	7	8
TOTALS	**16**	**29**	**63**	**70**	**60**	**39**	**54**	**50**

Following the viability and sustainability assessment recommendations on each area have been developed:

DEELKRAAL	Viability score	16
General Deelkraal is the most isolated mine village with very limited supportive land uses (Or possibilities) and very limited economic potential. Even though most residences are in a fair condition the market for rental or buying in Deelkraal is expected to collapse within the next few years due to new rental options in Carletonville and Fochville as well as mine shaft closure at Kusasalethu. Infrastructure and municipal financial sustainability - The most unsustainable locality in Merafong - Taking over services will weaken municipal financial viability - Merafong will not take over services in the area - A residential estate is not viable Formalisation No. Formalisation would weaken the municipal financial position and relegate people to a life of poverty.	 Adaptive re-use possibilities - Low potential. Isolated with limited agricultural opportunities - Rental up-take will decline due to new housing options in Carletonville, Elijah Barayi and Fochville Land use proposals Agriculture Actions required - Demolition - Rehabilitation	

KUSASALETHU/ELANDSRAND	Viability score	29
General Kusasalethu is expected to close within a few years. If the shaft opens again it would be operated through mechanisation and automation with very few jobs. The village and infrastructure are spatially isolated and adaptive re-use options are few and unconvincing. This situation is compounded by the presence of dolomite. Infrastructure and municipal financial sustainability - Unsustainable infrastructure - Taking over services will weaken municipal financial viability - Merafong will not take over services in the area Formalisation No. Formalisation would weaken the municipal financial position and relegate people to a life of poverty. Adaptive re-use possibilities - Low potential. Isolated - Agricultural opportunities exist - Solar farm possible - Residential viability is low due to the lack of a new economic foundation, few facilities and isolated locality	 Land use proposals Agriculture, ecological, renewable energy Actions required - Demolition - Rehabilitation	

BLYVOORUITZICHT	Viability score	63 Fatal flaw
General Blyvoor mine's gold mining component has recently been revived. The village would have had significant potential to be integrated into Carletonville however the area is affected by severe dolomitic constraints (Regarding dolomite, Blyvoor is potentially the worst area in the municipality). The Housing Development Agency (HDA) is currently conducting a feasibility study on the potential of reviving the village. The expectation is that it will not be viable to rebuild. If geotechnical conditions make development unsuitable, demolition may be the only option. Infrastructure and municipal financial sustainability Infrastructure is almost a century old and in a very bad state, not aligned with SANS 1936 of 2012. Repair up to Red Book standards would be extremely expensive and upgrades may not be considered unless the geotechnical conditions are suitable. Other government entities should stop investing in this unsustainable area because people will have to be moved. Formalisation **No** – Infrastructure rehabilitation prohibitively expensive and geotechnical conditions are dangerous	 Land use proposals Agriculture, renewable energy Actions required - Rehabilitation to allow for agriculture	

West Wits-Driefontein	Viability score	70
General Sibanye Gold and Anglo Gold Ashanti operate in this area. The 2 mining areas have been put together due to their spatial characteristics. The surface operations on the western side of the R500 (Anglo) have stopped and township establishment is underway. On the eastern side Sibanye is still operational. Infrastructure and municipal financial sustainability - Although water and sewer will not connect to the core network, the financial gains associated with proposed economic activities will more than make up for losses. Land use proposals - Refer to nodal guidelines - Heavy industry - Industrial park - Mixed use village - Variety of options Formalisation Yes – Already underway in West Wits Village	 Adaptive re-use possibilities - Good potential. Located on the Primary Development Corridor - Mining Industrial Park - Large industrial plants - Residential and institutional - Could develop into a significant node Actions required - Complete West Wits Township Establishment - Continue searching for up-takers for land and facilities - Feasibility study on the Mining Industrial Park - Precinct Plan required to plan future development and closure (Eastern side)	

DRIEFONTEIN NORTH	Viability score	60

General

This is a part of West Driefontein that is located closer to Carletonville and the R501. It contains infrastructure that could be vital to the Bioenergy Agro-Industrial Park which forms part of the larger Bokamoso Ba Rona Program.

Infrastructure and municipal financial sustainability

- Infrastructure could link up with the core network due to proximity to Carletonville
- The municipal financial sustainability would improve due to proposed economic activity

Land use proposals

- Industrial
- Residential – only related to agriculture
- Renewable energy

Actions required

- A Precinct Plan. Adaptive re-use possibilities opening up within the context of downscaling and lay-offs should be considered.
- Demolition of unusable structures and refurbishment of structures and infrastructure needed
- Rehabilitation of contaminated areas.
- Water availability for the bioenergy project is critical

Adaptive re-use possibilities

- Good potential especially within the context of Bokamoso Ba Rona
- Water infrastructure, warehousing, offices, residential, etc. could be utilised in future
- Existing electrical infrastructure and land is highly suitable for solar farms

Tailing Storage Facilities should be dealt with

Formalisation

Yes, if required. Could possibly operate without township establishment

EAST DRIEFONTEIN	Viability score	39

General

This relatively large area has a relatively weak spatial locality. It contains the largest informal settlement in the mining belt. Adaptive re-use options are limited unless it can be linked to the Bokamoso Ba Rona program.

Infrastructure and municipal financial sustainability

- Cannot link up with the core network
- If services are taken over by the munic it would weaken the financial position of the munic

Land use proposals

- Preliminary assessment: Demolition and rehabilitation
- Agriculture, renewable energy

Formalisation

No

Adaptive re-use possibilities

- Low potential. Agri village
- Rental up-take will decline due to new housing options in Carletonville, Elijah Barayi and Fochville

Actions required

- Precinct Plan with a study on economic potential

MPONENG	Viability score	54
General Mponeng is the last remaining shaft of Anglo Gold Ashanti and is considered a core asset which enables mining to continue underneath the closed Tau Tona and Savuka operations. It has a good locality in relation to the N12 which could be exploited once mine closure looms. Infrastructure and municipal financial sustainability - Significant economic activity would offset municipal losses accruing from isolated infrastructure if the area were to be formalised Land use proposals - Logistics - Manufacturing - Heavy Industry Formalisation To be determined	 Adaptive re-use possibilities - Possibly good potential in non-residential uses Actions required - Precinct Plan	

DOORNFONTEIN	Viability score	50
General Doornfontein has the potential to function on its own as long as the current industrial activities continue. It has the potential to function as a type of independent estate. Infrastructure and municipal financial sustainability - Wet services could potentially connect with the core network - The impact on financial sustainability is neutral, except if the 'estate' collapsed and the municipality had to take over service delivery. This could be avoided by linking up to the core network at the developer's expense. Land use proposals - Mixed, industrial residential - Should be limited unless the developer can make a convincing application Formalisation Yes	 Adaptive re-use possibilities - Current activities sufficient. Could be expanded upon. - Residences could be utilised for industrial employees. Actions required - Precinct Plan	

5.6 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.

A number of TOD nodes have been identified. These nodes include major public transport stops and modal interchanges such as taxi ranks and train stations. The following

- Central Business Districts. The Carletonville and Fochville CBDs are major focus areas for TOD and Carletonville taxi rank must be developed into a multimodal facility that would in future be able to accommodate park-and-ride and be developed as the main bus hub of Merafong.
- Township Hubs. Township hubs will be developed in terms of the Urban Network Strategy. Taxi ranks (Including bus stops in future) will form the heart of all Township Hubs. Ranks must be designed so that busses can be accommodated in future.
- PRASA train stations. Currently the Oberholzer station is the only station in Merafong served by Metro Rail, however 2 more stations are proposed. A study conducted by PRASA indicated the possibility of developing a single station in Khutsong South, however the development

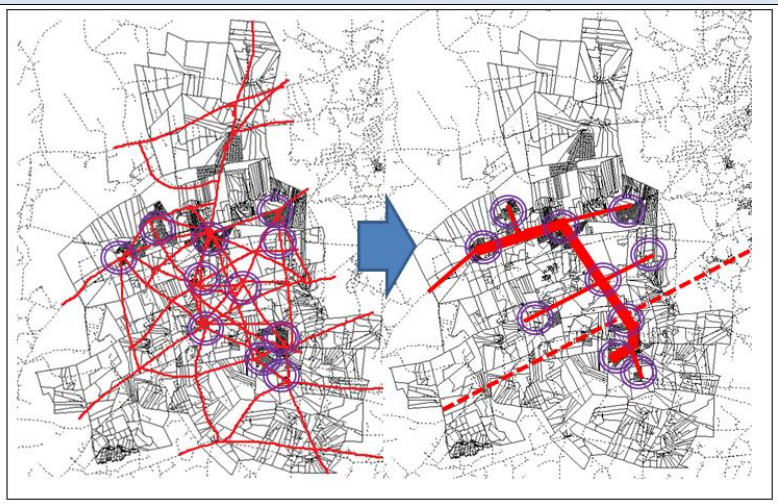
situation has changed. Merafong is making a stronger push towards densification and with the planned and implemented new developments 2 new stations will become viable namely the proposed Carletonville Mall Station and Welverdiend-Elijah Barayi station. Carletonville Mall Station would serve the proposed Khutsong South Extension 8 and form the heart of a proposed Township Hub. Welverdiend station will act as an overnight parking area for trains as well as a station that would serve Welverdiend and the new Elijah Barayi village.

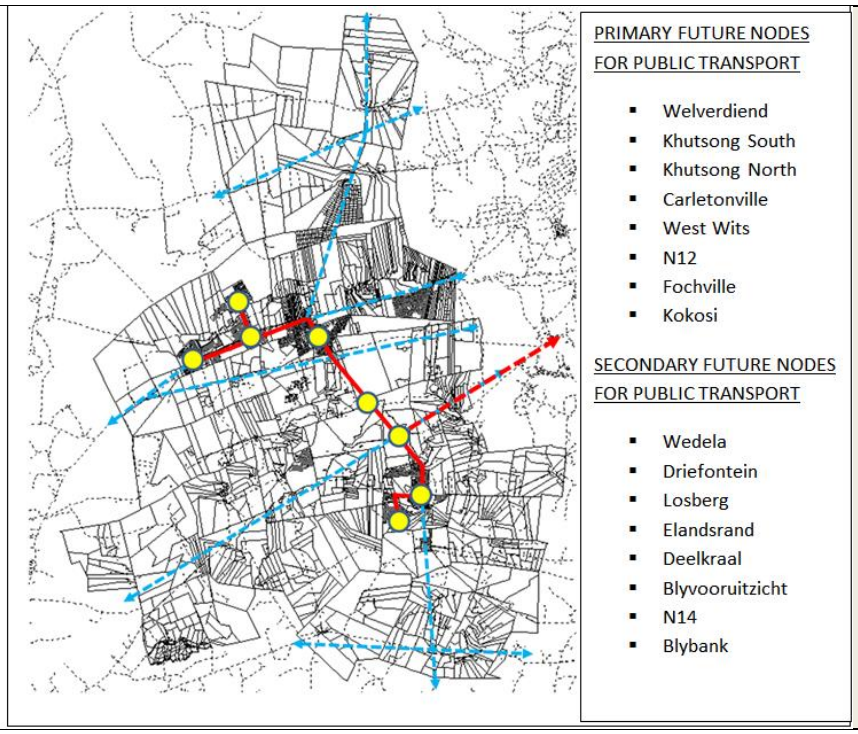
The N12, R501 and R559 would in future be able to act as linkages to the West Rand as well as Potchefstroom once Bus Rapid Transit is rolled out across the Gauteng City Region. Refer to 5.1.2

Most provincial and national roads are in an acceptable condition, however the R 500 north of Carletonville is in need of repair. The following roads are congested and need to be upgraded:

- The N12 regularly becomes congested between Potchefstroom and the Wedela turn-off. It requires an upgrade to relieve congestion and reduce the high number of fatal collisions. This route is also emerging as a significant national freight corridor.
- The R559 between Carletonville and Welverdiend has become increasingly congested after the construction of the new interchange in Khutsong South. During peak times it becomes particularly congested between Coronation Street and the interchange. There is also a serious problem with taxis and people crossing the road.

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 as well as Township Hubs
- Upgrade internal NMT provisions in all urban areas especially those with lower car ownership rates. Focus on Township Hubs and develop NMT opportunities that radiate outwards to enable pedestrians easy access to public transport and nodes of activity.
- More specific needs include a link between Kokosi Hub and Fochville as well as between Welverdiend Station and Elijah Barayi.

5.2 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	▪ 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. ▪ Geotechnical constraints are addressed in such a manner that a balance is found between safety and economic and social development.
IMPLEMENTATION STRATEGIES	▪ Social infrastructure development ▪ Cluster facilities at major activity nodes ▪ 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. ▪ Management of geotechnical constraints related to dolomite.
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/orange in the medium term and a green coding denotes adequate provision.

	Elijah Barayi-Welverdiend	Khutsong South	Khutsong North	Carletonville	Blybank	Fochville	Kokosi	Greenspark	Wedela
Community Health Centre	0	0	0	0	0	0	0	0	0
Primary Health Clinic	0.5	0	0	0	0	0	0	0	0
Fire Station (small town)	0	0.7	0.7	0	0	0	0	0	0
Police Station	0	0	0	0	0	0	1	0	0
Branch Library	0	0	1	0	0	0	0	0	0
Home affairs - Small office	0	0.6	0.7	0	0	0	0.6	0	0
Labour Office	0	0	0	0	0	0	0.6	0	0.9
Magistrate's Court	0	0	0	0	0	0	0	0	0
Municipal Office	0	0	0	0	0	0	0	0	0
Solid Waste Disposal + Recycling Depot	0.5	1.3	1.3	1.5	0.7	0	0	0.7	0
Community Hall	0.5	0.8	0	0	0	0	1	0	0
Post Office/ Agency with Post Offices	0	1.3	1.4				1.2		0
SASSA (Social Service Office)	0	0	0	0	0	0	0	0	0
Social Grant Pay Point	0	0	0	0	0	0	0	0	0.8
Special Education	0	0	0	0	0	0	0	0	0
Secondary School	1	1.5	1.8	0.9	0	0	0	0	1.2
Primary School	0.7	3.8	1.3	1.6	0	0	0.6	0	0
ECD Resource Hub	0	1.3	1.4	1.5	0	0	1.2	0	0
Neighbourhood Sports Facilities	1	1	1	0	1	0	0	1	0
Community Sports Facilities	0	1	0	0	0	0	1	0	0
Sub-Regional Sports Facilities	0	0	0	0	0	0	0	0	0
District park	0	0.7	0.7	0.7	0	0	0	0	0
Informal Market	1	1	1	0	1	1	1	1	1
Taxi Rank	1	1	0	0	0	0	1	0	0

From the table it becomes apparent that Khutsong North, Khutsong South and Kokosi have the largest backlogs when it comes to facilities. Once community participation and financial constraints are brought into the picture the prioritisation of facilities changes to the following:

	URGENCY		
	HIGH	MEDIUM	LOW
Elijah Barayi-Welverdiend	New Taxi Rank	Informal Market Community Hall Secondary School Primary School Community Sports Facilities	Waste Disposal + Recycling
Khutsong South	Secondary School Primary School New Taxi Rank Informal Market	District Park Waste Disposal + Recycling	Post Office Home Affairs
Khutsong North	Waste Disposal + Recycling Informal Market	Community Hall Taxi Rank upgrade	Secondary School Primary School
Carletonville	Waste Disposal + Recycling Primary School Taxi Rank upgrade	Secondary School	Informal Market
Blybank	Informal Market		
Fochville	Informal Market		
Kokosi	Police Station Post Office ECD Resource Hub Community Sports Facilities Informal Market New Taxi Rank	Community Hall	
Greenspark		Waste Disposal + Recycling Neighbourhood Sports Facilities Informal market	
Wedela	Informal market	Secondary School	

These backlogs present an opportunity to implement spatial targeting of facilities in designated hubs. For more details on specific facility needs refer to Annexure C Local Spatial Development Directives.

5.2.2 CLUSTER FACILITIES WITHIN MAJOR ACTIVITY NODES IN ORDER TO DEVELOP MAJOR ACTIVITY NODES IN PREVIOUSLY DISATVANTAGED AREAS.

Merafong City Local Municipality is embarking on a new approach to investment in previously disadvantaged areas. The current way of investing capital is not rendering the desired returns on investment with communities not benefitting optimally. Therefore the municipality is adopting an approach advocated fro by National Treasury called the Urban Network Strategy. This strategy is based on the approach taken by the National Development Plan (NDP).

The NDP's approach sees our cities as two distinct but interdependent networks. At the centre of the primary network is the CBD of the city (and there may be a few within a multi-nodal urban

system) which functions as the anchor access precinct. A secondary network feeds the primary network.

At the centre of each secondary network is a set of significant urban hubs. These hubs function as portals between the secondary networks in a township or group of townships and the primary network of the city, as they offer access to the primary network via a combination of higher order public transport links, the most important of which is rail (understood to be the backbone of the public transport network). They can be regarded as gateways to the broader urban region.

It is these points of maximum connectivity within the secondary network that then become the places for logical reinforcement and a concentration of resources if we are to give meaning to the restructuring imperative of the NDP that focuses on more equitable patterns of access through spatial and socioeconomic integration. Investment in these hubs will be catalytic with the intention of changing the market dynamics that play themselves out within South African urban settlement areas.

The hubs will in turn be supported by a network of lower order neighbourhood hubs that will be more embedded and service smaller communities.

The hubs will also be the connection to the broader city area and be the highest order node within the townships. They will contain the facilities that service not only local residents but those within a more broadly defined area (a region or district), pulling people from outside in and vice versa. This is essential to the functioning of the overall system of integrated access networks, tiered service delivery systems and in particular, integration of communities and geographic areas.

The hubs should function as urban service centres and contain a number of important public services combined with commercial activities around a transport hub or point of high accessibility. This is essentially the role of a town centre. Town Centres have historically held symbolic value as they develop over time and in so doing become meaningful to a range of people who use them. It should be the intention of these proposed town centre hubs to attain significance of a cultural nature. Furthermore town centres have historically been integrated with the residential fabric within which they a located. Residential development provides the thresholds on which the commercial land uses and, transport services are reliant besides providing essential levels of vibrancy and increased levels of passive security. Without the residential thresholds and 24-7 occupancy and accessibility, it is likely that hubs of this type will not succeed.

In conclusion the role of these new hubs is firstly as a service point, key housing and / or work destination for local residents, secondly as a potential draw-card into the area for residents outside of the area and thirdly as a gateway to the broader urban area for local residents. If the spatial and structural preconditions are set up for the hubs to fulfil these roles then the hub has the potential to address a number of needs simultaneously including but not limited to social problems such as unemployment, crime, degraded environments, a lack of key bulk infrastructure, bad local and metro wide connectivity as well as broader concerns of low private sector confidence levels and social and economic integration etc. However for the new hubs to succeed as vibrant mixed use environments that address day to day challenges of township residents, proposals need to do the following as a minimum:

- Create a sense of place by responding to the topography, climate, human needs, function and culture.
- Cater for those on foot (not at the exclusion of the car but always prioritized above the car)
- Be structured around a safe, convenient, secure, comfortable public space network supported by a mix of land uses and activities. A public network of spaces and links should be the most important focus of intervention within these hubs. This network should be carefully considered in relation to the existing/ proposed public transport network and designed so that it can be implemented in stages and at every point in time be experienced as a complete network. Key public facilities and commercial activities should associate with the network of spaces, places and linkages. This will allow thresholds to be increased along strategic routes and around key spaces.

The Urban Network Strategy was conceived to be applied to a metropolitan city environment, however this concept can be scaled down to the level of a non-metropolitan municipality. Within Merafong Kokosi has been chosen as the most viable first choice for implementation. After Kokosi the Hubs will be rolled out in Khutsong and Elijah Barayi as well. The development of an urban hub in Kokosi will include a variety of different projects. These projects will all give support to the establishment of a vibrant mixed-use node offering a wide variety of opportunities for employment, shopping, entertainment, social activities and access to government services to the people of Kokosi.

Three types of Township Hub will be developed in accordance with the catchment size for facilities as well as economic goods and services.

Large hubs will be developed to accommodate a variety of facilities and private sector activities with more extensive transport and civic infrastructure. These may also include secondary nodes linked to the primary hub. These hubs are planned to develop into significant business nodes over time. As of yet 2 nodes have been identified namely Kokosi, which will be developed as a pilot and Khutsong South Extension 8 which is still to be planned.

Medium sized hubs will serve more moderately sized settlements or a number of them will serve larger elongated settlements such as Khutsong South that is being developed along the Primary Development Corridor. Localities include Elijah Barayi and Khutsong East.

Smaller hubs will be developed in small settlements to provide access to as many services as is viable. Localities include Wedela, Blybank and Khutsong West (Extension 3).

Precinct plans are required for all 7 hubs and Kokosi will be the pilot project.

5.2.3 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 in conjunction with the Department of Human Settlements.
- Private sector developments targeting mainly the middle to upper income groups.
- Affordable rental accommodation and social housing facilitated by the Housing Development Agency or Human Settlements.

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. These informal settlements have been earmarked for relocation to the Khutsong South Extensions Development and Carletonville. 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.

A decision is required on whether the northern part of Khutsong has to be relocated entirely or partially due to severe geotechnical constraints. No new subsidised residential development shall take place in old Khutsong (North) or Blybank. Priority is given to develop subsidised housing in Carletonville and Khutsong South. Unless geotechnical conditions are proven to be better than expected and if infrastructure can be upgraded cost effectively, Blyvooruitzicht can also not be developed.

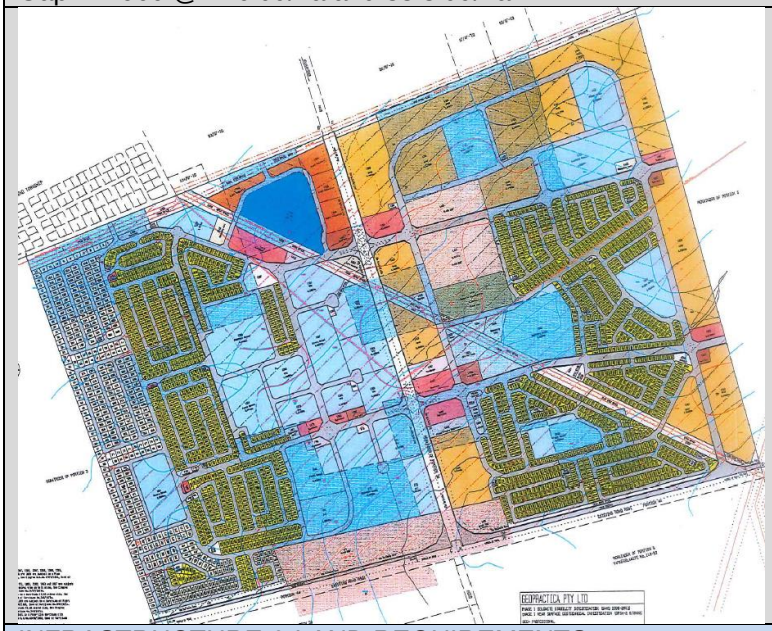
ELIJAH BARAYI	WARD 12

Major new urban development west of Carletonville, next to Welverdiend. Situated along Merafong's Primary Development Corridor and forms a nodal counterbalance to Carletonville enabling greater viability of public transport, social facilities and economic development.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Elijah Barayi Village		Government

DENSITY AND YIELD

RDP/BNG = 8 150 @ 120 du/ha and 33.3 du/ha
Gap = 2 900 @ 120 du/ha and 33.3 du/ha



ACCESS TO AMENITIES & EMPLOYMENT

- Proximity to Welverdiend amenities and employment
- Will generate opportunities due to population size. Will be much more populous than Welverdiend
-

DEVELOPMENT CONSTRAINTS

- Dolomitic area
- Provincial road
- Servitudes for electricity, water

INCOME/TYPOLOGY

Low (RDP/BNG) and Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = Full complement needed
- Land provision = Provision made appropriately
- Bulk infrastructure =

DEVELOPMENT TIMELINE	Short to long term – underway, phased

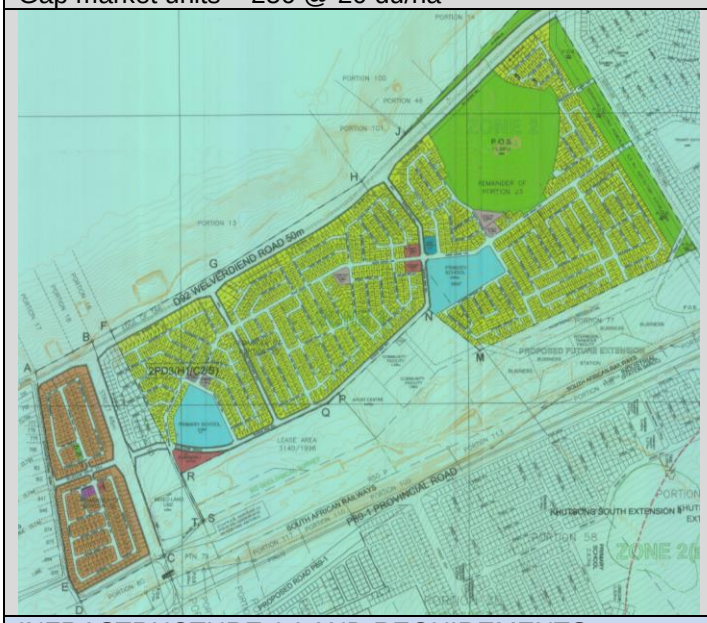
KHUTSONG SOUTH EXTENSION 5	WARD
	2

Township establishment that forms part of the Khutsong South Resettlement area between Welverdiend and Carletonville. The township establishment process has been completed. Gap housing will be provided next to Welverdiend on the western side and a small area remains excluded because the land could not be obtained. A wood milling plant is located on the southern side and land has been set aside for a possible future PRASA train station, however the locality may be too close to other planned stations and the development density too low for this station to be viable.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Khutsong South Extension 5		Merafong City Local Municipality

DENSITY AND YIELD

RDP/BNG units = 1 836 @ 33.3 du/ha
Gap market units = 256 @ 20 du/ha



ACCESS TO AMENITIES & EMPLOYMENT

- Land set aside for possible future PRASSA train
- Welverdiend amenities in proximity
-

DEVELOPMENT CONSTRAINTS

- Dolomitic area
- Old quarry
- Problems already dealt with in township layout and conditions of establishment

INCOME/TYPOLOGY

- Low (RDP/BNG) and Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities =Primary school and Secondary school
- Land provision = Township layout complete, Train station area could be repurposed
- Bulk infrastructure = Planned for and available

DEVELOPMENT TIMELINE	Short term – under way

KHUTSONG SOUTH EXTENSION 7	WARD
	2

Area of land in between Khutsong South Extensions 1 and 5. Land not yet acquired. This development will fill the gap and improve circulation and the opportunity exists to bring in mixed typologies and increase densities which would in turn improve opportunity generation.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Prtn 96 of Welverdiend 97 IQ	82 Ha	Private

DENSITY AND YIELD

Maximum Development Area (ha):	97.0
Useable Development Area (ha):	82.0

	Name	**Size (hectares)**
Exclusion zones	borrow pits, eucalyptus, geology	15.0

Residential Density(du/ha)	**80.0**	**33.3**
Roads and Parking (%)	20.0	20.0
Developed Parks (ha/1000 people)	0.3	0.3
Sport Areas (ha/1000 people)	0.56	0.56
Household Size	3	0.300
Proportion Allocated (%)	50	50

Net Residential Development Area (ha)	23.181	23.181
Development Area (ha)	41	41
Effective/gross development density (du/ha)	45.232	18.828
Number of dwellings	1854.5	771.9
Number of People	5563.491	231.580
Required Roads and Parking (ha)	8.200	8.200
Required Developed Parks (ha)	1.669	0.069
Required Sport Areas(ha)	3.116	0.130

ACCESS TO AMENITIES & EMPLOYMENT

- Khutsong South amenities are in proximity, including social facilities, proposed train station and taxi rank
- New road link will improve access to surrounding areas as well

DEVELOPMENT CONSTRAINTS

- Dolomitic area
- Borrow pit?
- Eucalyptus woodland (Water drawdown – geotechnical)?

INCOME/TYPOLOGY

- Low (RDP/BNG)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities =1 Primary school
- Land provision = 2 Erven for crèches, 2 erven for churches, 2 to 4 for business, 1 municipal, 1 institutional
- Bulk infrastructure = Available, capacity should be confirmed

DEVELOPMENT TIMELINE	Medium term - ownership

KHUTSONG SOUTH (Portion 123 Wonderfontein)	WARD
	12

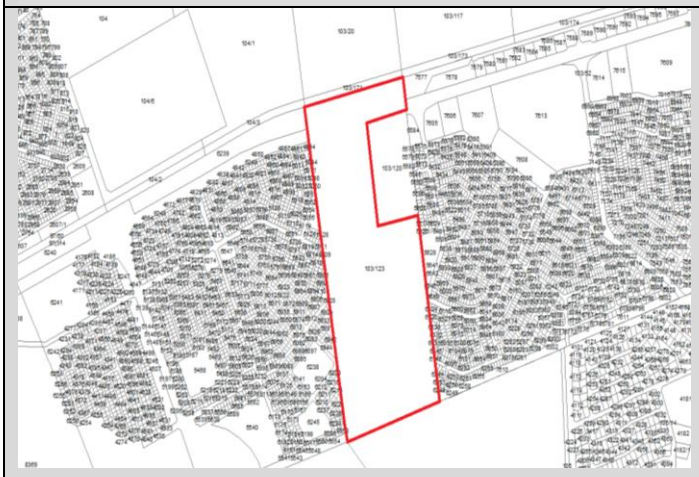
Area of land in between Khutsong South Extension 2 and Carletonville. Land not yet acquired. This development will fill the gap and improve circulation and the opportunity exists to bring in mixed typologies and increase densities which would in turn improve opportunity generation.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Prtn 123(Prtn of Prtn 20) of Wonderfontein 103 IQ	56 Ha	Private

DENSITY AND YIELD

Maximum Development Area (ha):	56.0	
Useable Development Area (ha):	49.0	
Exclusion zones	**Name**	**Size (hectares)**
	Commercial	1.0
	Geo	6.0
Residential Density(du/ha)	**80.0**	**33.3**
Roads and Parking (%)	20.0	20.0
Developed Parks (ha/1000 people)	0.3	0.3
Sport Areas(ha/1000 people)	0.5	0.5
Household Size	3	3
Proportion Allocated (%)	50	50

Net Residential Development Area (ha)	12.531	12.531
Development Area (ha)	24.500	24.500
Effective/gross development density (du/ha)	40.916	17.031
Number of dwellings	1002.4	417.3
Number of People	3007.339	1251.805
Required Roads and Parking (ha)	4.900	4.900
Required Developed Parks (ha)	0.902	0.376
Required Sport Areas(ha)	1.504	0.626



ACCESS TO AMENITIES & EMPLOYMENT

- Khutsong South amenities are in proximity, including social facilities, proposed train station and taxi rank
- Carletonville amenities are within reach
- Carletonville Mall

DEVELOPMENT CONSTRAINTS

- Dolomitic area
-

INCOME/TYPOLOGY

- Low (RDP/BNG)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities =1 Primary school
- Land provision = 2 Erven for crèches, 2 erven for churches, 2 to 4 for business, 1 municipal, 1 institutional
- Bulk infrastructure = Available, capacity should be confirmed

DEVELOPMENT TIMELINE

Medium term - ownership

KHUTSONG SOUTH (Re/Portion 43 of Welverdiend 97 IQ)	WARD
	12

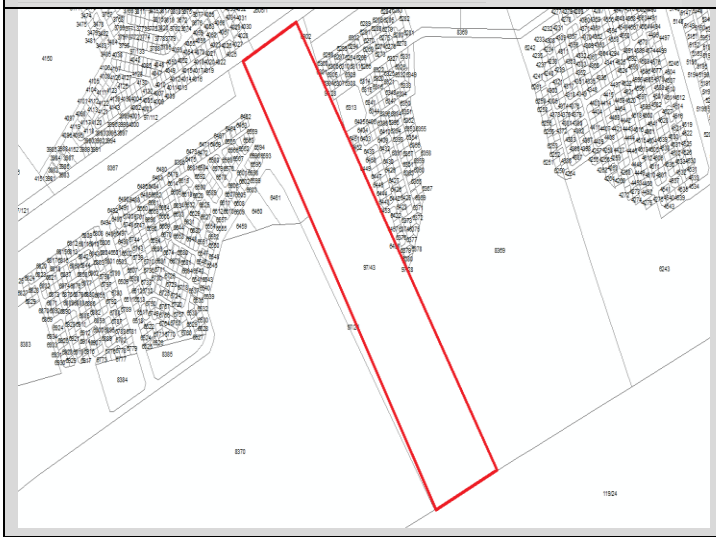
Area of land in within Khutsong South Extension 4. Land not yet acquired. This development will fill the gap and improve circulation.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Re/Prtn 43 of Welverdiend	82 Ha	Private

DENSITY AND YIELD

Maximum Development Area (ha):	25.8
Useable Development Area (ha):	6.0
Exclusion zones	**Name** Geo **Size (hectares)** 19.8
Residential Density(du/ha)	**33.3**
Roads and Parking (%)	20.0
Developed Parks (ha/1000 people)	0.3
Sport Areas(ha/1000 people)	0.5
Household Size	3
Proportion Allocated (%)	100

Net Residential Development Area (ha)	3.605
Development Area (ha)	6
Effective/gross development density (du/ha)	20.006
Number of dwellings	120.0
Number of People	360.099
Required Roads and Parking (ha)	1.200
Required Developed Parks (ha)	0.108
Required Sport Areas(ha)	0.180



ACCESS TO AMENITIES & EMPLOYMENT

- Khutsong South amenities are in proximity, including social facilities, proposed train station and taxi rank

DEVELOPMENT CONSTRAINTS

- Dolomitic area
- Borrow pit?
- Eucalyptus woodland (Water drawdown – geotechnical)?

INCOME/TYPOLOGY

- Low (RDP/BNG)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = 0
- Land provision = 0
- Bulk infrastructure = Available, capacity should be confirmed

DEVELOPMENT TIMELINE	Medium term - ownership

KHUTSONG SOUTH EXTENSION 8	WARD
	1, 28

Undeveloped area next to Carletonville. Falls within the Khutsong resettlement area between Carletonville and Welverdiend. Offers a good opportunity for infill at higher densities which will improve public transport viability, economic potential and social facility viability, especially at proposed station.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Prtn 116, 117, 120, 121of 103 IQ and Re, Prtn 1 of 104 IQ	±217 Ha	Far West Rand Dolomitic Water Association, to be donated

DENSITY AND YIELD

Maximum Development Area (ha):	367.0		
Useable Development Area (ha):	217.0		
Exclusion zones	**Name**		**Size (hectares)**
	Agric., geo.,water, commercial		150.0
Residential Density(du/ha)	**120.0**	**80.0**	**33.3**
Roads and Parking (%)	20.0	20.0	20.0
Developed Parks (ha/1000 people)	0.3	0.3	0.3
Sport Areas(ha/1000 people)	0.56	0.56	0.56
Household Size	2	2.500	3
Proportion Allocated (%)	20	40	40

Net Residential Development Area (ha)	22.291	44.582	44.582
Development Area (ha)	43.400	86.800	86.800
Effective/gross development density (du/ha)	61.635	41.090	17.104
Number of dwellings	2674.9	3566.6	1484.6
Number of People	5349.880	8916.467	4453.775
Required Roads and Parking (ha)	8.680	17.360	17.360
Required Developed Parks (ha)	1.605	2.675	1.336
Required Sport(ha)	2.996	4.993	2.494

ACCESS TO AMENITIES & EMPLOYMENT

- Good access to existing amenities in Khutsong South
- The existing police station node to be expanded with TOD at Carletonville Mall
- Close to Carletonville employment nodes

DEVELOPMENT CONSTRAINTS

- Dolomitic area
- Storm water

INCOME/TYPOLOGY

- Low (RDP/BNG) and Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities =Community Hall, Library, 2 Secondary Schools, 4 Primary Schools
- Land provision = 5 church erven, Activity node with business, municipal and institutional erven
- Bulk infrastructure =

DEVELOPMENT TIMELINE	Short to medium term – high priority

CARLETONVILLE EXT 7 (To be viewed with Carletonville Bloubos)	WARD
	18

Undeveloped area next to Carletonville Central. Initial geotechnical assessments indicate favourable conditions. From a social, economic and municipal financial perspective this is the most favourable site in Merafong. This site promotes socio-economic integration and infill development and is in close proximity to amenities and employment. Erf 4020 forms part of the existing township and can be developed as phase1, however the remaining area - de-proclaimed and requires township establishment.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Prtn 24 of Twyfelvlakte 105 IQ	Phase 1 = 1.07 Ha Phase 2 = 31 Ha	Merafong City Local Municipality

DENSITY AND YIELD

Maximum Development Area (ha):	32.0		
Useable Development Area (ha):	22.4		
Exclusion zones	**Name**	**Size (hectares)**	
	Geotech & storm water	9.6	
Residential Density(du/ha)	**100.0**		
Roads and Parking (%)	20.0		
Developed Parks (ha/1000 people)	0.3		
Sport Areas(ha/1000 people)	0.5		
Household Size	2.500		
Proportion Allocated (%)	100		

Net Residential Development Area (ha)	9.793
Development Area (ha)	22.400
Effective/gross development density (du/ha)	43.718
Number of dwellings	979.3
Number of People	2448.206
Required Roads and Parking (ha)	4.480
Required Developed Parks (ha)	0.734
Required Sport Areas(ha)	1.224

ACCESS TO AMENITIES & EMPLOYMENT

Access to amenities and employment:
- Central Business District
- FET College
- District Hospital
- Carletonville Industria

DEVELOPMENT CONSTRAINTS

- Dolomitic area

INCOME/TYPOLOGY

- Low (RDP/BNG) and Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities =
- Land provision = 2 Church erven, 2 business erven, 1 institutional, 1 municipal
- Bulk infrastructure = Available, new outfall sewer in later phases

DEVELOPMENT TIMELINE	Short to medium term – high priority

CARLETONVILLE BLOUBOS (To be viewed with Carletonville Ext 7)	WARD
	18

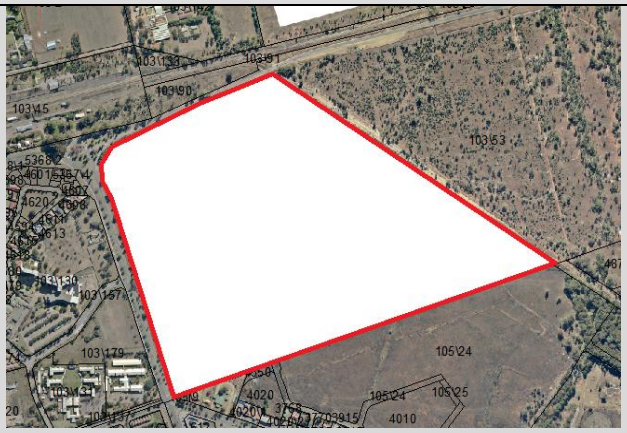
Undeveloped area next to Carletonville Central. Initial geotechnical assessments indicate favourable conditions. From a social, economic and municipal financial perspective this is one of the most favourable sites in Merafong. This site promotes socio-economic integration and infill development and is in close proximity to amenities and employment. The northern part has been deemed geologically unsafe and the southern area developable. A strip next to Anna Road will be utilised for retail and service industry activities. A new road is required to connect Annan Road with the Industrial area. This road will serve the internal needs of the development as well as to provide better connectivity to the larger Carletonville area.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Prtn 53 of Wonderfontein 103 IQ	Developable = 30 Ha	Merafong City Local Municipality

DENSITY AND YIELD

Maximum Development Area (ha):	57.0	
Useable Development Area (ha):	30.0	
	Name	**Size (hectares)**
Exclusion zones	Geology & Storm water	12.0
	Commercial	15.0
Residential Density(du/ha)	**100.0**	
Roads and Parking (%)	20.0	
Developed Parks (ha/1000 people)	0.3	
Sport Areas(ha/1000 people)	0.5	
Household Size	2.500	
Proportion Allocated (%)	100	

Net Residential Development Area (ha)	13.115
Development Area (ha)	30
Effective/gross development density (du/ha)	43.718
Number of dwellings	1311.5
Number of People	3278.847
Required Roads and Parking (ha)	6
Required Developed Parks (ha)	0.984
Required Sport Areas(ha)	1.639



ACCESS TO AMENITIES & EMPLOYMENT

Access to amenities and employment:
- Central Business District
- FET College
- District Hospital
- Carletonville Industria

DEVELOPMENT CONSTRAINTS

- Dolomitic area
- Tree buffer next to industrial area

INCOME/TYPOLOGY

- Low(RDP/BNG) and Medium(Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = 1 Primary School, possibly 1 Secondary School in future to serve larger area
- Land provision = 1 Church erf, 1 business erf in addition to business strip along Annan Road,
- Bulk infrastructure =

DEVELOPMENT TIMELINE	Short to medium term – high priority

CARLETONVILLE HERITAGE PRECINCT	WARD
	18

This development will be the residential component of the proposed Carletonville Heritage Precinct urban renewal project. Studies will have to be conducted to prove the concept feasible. The local economy must first bottom out before such a project would be feasible. The housing will form part of a larger development including a public space, Hotel & Convention centre, Retail, offices, museum, heritage walk public space, as well as general aesthetic and pedestrian safety upgrades.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Erf 130-134; 4558; 4655; 4698 Carletonville	Developable = ± 8000 m²	Merafong City Local Municipality

DENSITY AND YIELD

Maximum Development Area (ha):	0.8
Useable Development Area (ha):	0.8
Exclusion zones	**Name Size (hectares)**
Residential Density(du/ha)	**120.0**
Roads and Parking (%)	15.0
Developed Parks (ha/1000 people)	0.0
Sport Areas(ha/1000 people)	0.0
Household Size	2.500
Proportion Allocated (%)	100

Net Residential Development Area (ha)	0.341
Development Area (ha)	0.800
Effective/gross development density (du/ha)	51.105
Number of dwellings	40.9
Number of People	102.210
Required Roads and Parking (ha)	0.120
Required Developed Parks (ha)	0
Required Sport Areas(ha)	0

ACCESS TO AMENITIES & EMPLOYMENT

Access to amenities and employment:
- Central Business District
- FET College
- District Hospital
- Carletonville Industria

DEVELOPMENT CONSTRAINTS

- Dolomitic area
- Urban design and architectural guidelines to be developed in line with the Heritage Precinct concept

INCOME/TYPOLOGY

- Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = None required
- Land provision = No additional provision required
- Bulk infrastructure = Available – to be confirmed

DEVELOPMENT TIMELINE	Medium to long term – economic turnaround is a prerequisite for success

<table>
<tr><td colspan="2">CARLETONVILLE EXTENSION 18 - 22</td><td>WARD
28</td></tr>
<tr><td colspan="3">An established township with mixed typologies filling in between Khutsong South Ext 2 and Carletonville Ext 16. This development resulted from a partnership between private developers and government. Gap market units and houses will be available on the open market in addition to government subsidised RDP/BNG units.</td></tr>
<tr><td>PROPERTY DESCRIPTION</td><td>PROPERTY SIZE</td><td>OWNERSHIP</td></tr>
<tr><td>Carletonville Extension 18 - 22</td><td></td><td></td></tr>
<tr><td colspan="3">DENSITY AND YIELD</td></tr>
<tr><td colspan="2">1 880 units @ 120 du/ha
2 203 units @ between 20 and 33.3 du/ha</td><td></td></tr>
<tr><td colspan="2" rowspan="6"> 
</td><td>ACCESS TO AMENITIES & EMPLOYMENT</td></tr>
<tr><td>- Close to full complement of services and amenities in Carletonville including Carletonville Mall directly adjacent</td></tr>
<tr><td>DEVELOPMENT CONSTRAINTS</td></tr>
<tr><td>- Dolomitic area, considered during the township establishment process</td></tr>
<tr><td>INCOME/TYPOLOGY</td></tr>
<tr><td>- Low (RDP/BNG) and Medium (Gap)</td></tr>
<tr><td colspan="3">INFRASTRUCTURE & LAND REQUIREMENTS
- Social facilities =
- Land provision =
- Bulk infrastructure = Available</td></tr>
<tr><td colspan="2">DEVELOPMENT TIMELINE</td><td>Short term – implementation underway</td></tr>
</table>

Southern urban area

The southern urban area 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. There are 2848 informal settlement households within the southern urban area. 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. The primary focus areas for new housing developments will be Fochville Extension 8. Fochville Swimming pool, the Kokosi Hub and Kokosi Extension 7.

FOCHVILLE SWIMMING POOL	WARD
	21

Municipal land containing completely dilapidated facilities. This area is to be re-developed for housing purposes. Consideration could be given to refurbishing some of the social infrastructure. The development will strongly promote infill development and socio-economic integration. It should be designed to fit seamlessly into the existing urban fabric, albeit at a higher density.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Erf 3960 Fochville	1.89 Ha	Merafong City Local Municipality

DENSITY AND YIELD

Maximum Development Area (ha):	1.89
Useable Development Area (ha):	1.69

Exclusion zones	**Name**	**Size (hectares)**
	Exclusion	0.2

Residential Density(du/ha)	**80.0**
Roads and Parking (%)	20.0
Developed Parks (ha/1000 people)	0.3
Sport Areas(ha/1000 people)	0.0
Household Size	3
Proportion Allocated (%)	100

Net Residential Development Area (ha)	0.775
Development Area (ha)	1.690
Effective/gross development density (du/ha)	36.668
Number of dwellings	62.0
Number of People	185.907
Required Roads and Parking (ha)	0.338
Required Developed Parks (ha)	0.056
Required Sport Areas(ha)	0

ACCESS TO AMENITIES & EMPLOYMENT

Access to amenities and employment:
- Central Business District
- Industria
- Gov facilities

DEVELOPMENT CONSTRAINTS

- Shape of property
- Existing features could be incorporated

INCOME/TYPOLOGY

- Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = Not applicable
- Land provision = Not applicable
- Bulk infrastructure = Existing, although sewer upgrade may be required in Du Preez Street.

DEVELOPMENT TIMELINE	Short to medium term – infrastructure assessment needed

FOCHVILLE PUBLIC WORKS	WARD
	21

Undeveloped land within Fochville close to the CBD. Ideal for infill development to promote socio-economic integration and improve urban efficiency. Higher density housing with a central park area is most suitable.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Erf 756-763 Fochville	3.88 Ha	Public Works

DENSITY AND YIELD

Maximum Development Area (ha):	3.88
Useable Development Area (ha):	3.48

Exclusion zones	**Name**	**Size (hectares)**
	Exclusion	0.4

Residential Density(du/ha)	**80.0**
Roads and Parking (%)	20.0
Developed Parks (ha/1000 people)	0.5
Sport Areas(ha/1000 people)	0.0
Household Size	3
Proportion Allocated (%)	100

Net Residential Development Area (ha)	1.595
Development Area (ha)	3.480
Effective/gross development density (du/ha)	36.668
Number of dwellings	127.6
Number of People	382.814
Required Roads and Parking (ha)	0.696
Required Developed Parks (ha)	0.191
Required Sport Areas(ha)	0

ACCESS TO AMENITIES & EMPLOYMENT

- Fochville CBD within walking distance

DEVELOPMENT CONSTRAINTS

- Building ruin on western side?
- Line of trees on northern and western boundaries shall not be removed

INCOME/TYPOLOGY

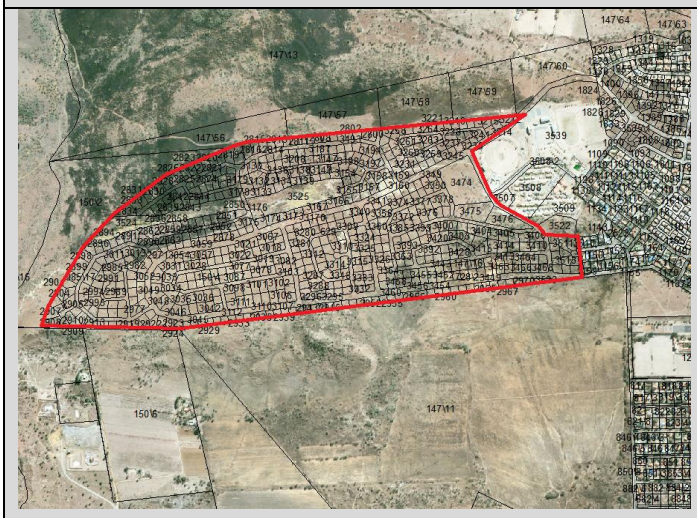
- Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = Not applicable
- Land provision = 1 park
- Bulk infrastructure = Existing, although sewer upgrade may be required in Du Preez Street

DEVELOPMENT TIMELINE	Medium term – ownership to be transfered

FOCHVILLE EXTENSION 7		WARD 14
Undeveloped township next to Fochville on a hilltop with great views. The area is constrained by geotechnical constraints and is located beyond walking distance from amenities. Therefore it is more suited to high income development		
PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Fochville Extension 7		Merafong City Local Municipality
DENSITY AND YIELD		



ACCESS TO AMENITIES & EMPLOYMENT

- Full complement of Fochville services and amenities available

DEVELOPMENT CONSTRAINTS

- Geotechnical – rocky outcrops

INCOME/TYPOLOGY

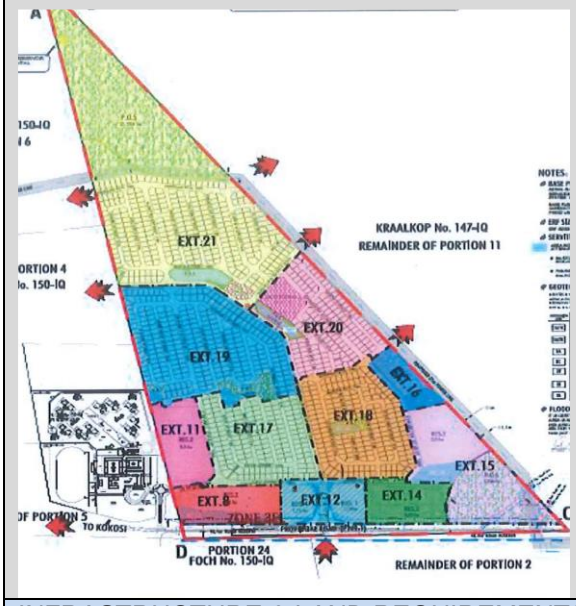
- High income

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = to be determined
- Land provision = to be determined
- Bulk infrastructure = currently only available for a small portion. Fochville Extension 8 development will improve viability

DEVELOPMENT TIMELINE	Medium term – once infrastructure permits – should be ready when private sector demand picks up

FOCHVILLE EXTENSION 8		WARD 24
Undeveloped area between Fochville and Kokosi. The site is perfect for infill development and integration. It also fits in well within existing urban infrastructure networks (Although some upgrades were required). The township establishment process has been completed and development has commenced and is to be completed in phases.		
PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Fochville Extension 8, 11-21		Merafong City Local Municipality
DENSITY AND YIELD		
1200 BNG units @ 120 du/ha 1200 Gap units @ 120 du/ha		



ACCESS TO AMENITIES & EMPLOYMENT

- Proximity to Fochville services and amenities
- Directly next to new primary and secondary school
- New light industrial development proposed directly south

DEVELOPMENT CONSTRAINTS

- Ecological and topographical – already dealt with

INCOME/TYPOLOGY

- Low (RDP/BNG) and Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities =
- Land provision = 2 Business erven,
- Bulk infrastructure =

DEVELOPMENT TIMELINE	Short to long term – high priority, phased

KOKOSI HUB	WARD
	25

This site has been designated for the development of a township hub which will have a similar function than a Central Business District on an appropriate scale and functionality for Kokosi. It will be the focus of economic and social investment by government for the area.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
1802, 3329, 3328	11.5 Ha	Merafong City Local Municipality

DENSITY AND YIELD

Maximum Development Area (ha):	11.5		
Useable Development Area (ha):	6.5		
Exclusion zones	**Name**	**Size (hectares)**	
	Business, POS	5.0	
Residential Density(du/ha)	**120.0**		
Roads and Parking (%)	20.0		
Developed Parks (ha/1000 people)	0.0		
Sport Areas(ha/1000 people)	0.0		
Household Size	3		
Proportion Allocated (%)	100		

Net Residential Development Area (ha)	2.369
Development Area (ha)	6.500
Effective/gross development density (du/ha)	43.734
Number of dwellings	284.3
Number of People	852.819
Required Roads and Parking (ha)	1.300
Required Developed Parks (ha)	0
Required Sport Areas(ha)	0

ACCESS TO AMENITIES & EMPLOYMENT

- Will become the hub of economic and social activity in Kokosi

DEVELOPMENT CONSTRAINTS

- Ecological
- Geotechnical – clay, valley bottom

INCOME/TYPOLOGY

- Low (RDP/BNG) and Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = Focus of new facilities
- Land provision = to be determined
- Bulk infrastructure = Available – to be determined

DEVELOPMENT TIMELINE	Medium term - High priority development

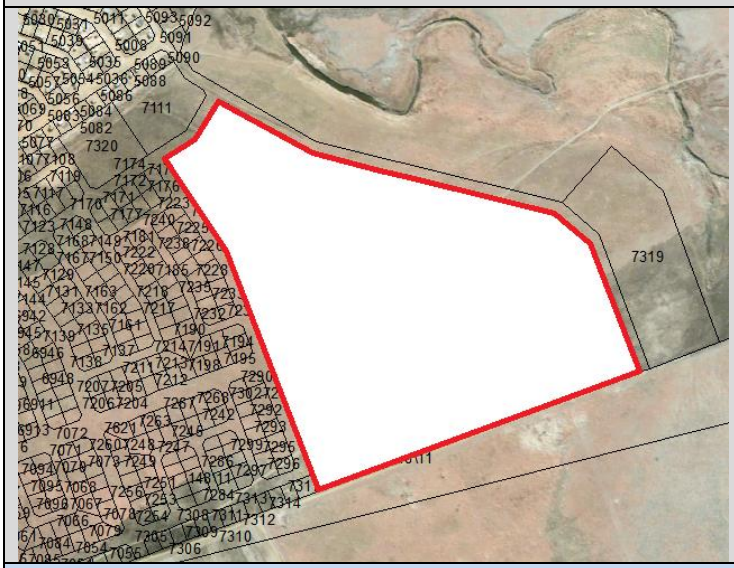
ERF 7241 & 7318 KOKOSI EXTENSION 6	WARD
	26

Undeveloped land within Kokosi Extension 6 to be developed at a higher density after development opportunities at the Kokosi Hub have been depleted.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Erf 7241 and 7318 Kokosi Extension 6	12.17 Ha	Merafong City Local Municipality

DENSITY AND YIELD

Maximum Development Area (ha):	12.17	**Net Residential Development Area (ha)**	5.419
Useable Development Area (ha):	12.17	**Development Area (ha)**	12.170
Exclusion zones	**Name Size (hectares)**	**Effective/gross development density (du/ha)**	35.621
Residential Density(du/ha)	**80.0**	**Number of dwellings**	433.5
Roads and Parking (%)	20.0	**Number of People**	1300.507
Developed Parks (ha/1000 people)	0.56	**Required Roads and Parking (ha)**	2.434
Sport Areas(ha/1000 people)	0.5	**Required Developed Parks (ha)**	0.728
Household Size	3	**Required Sport Areas(ha)**	0.650
Proportion Allocated (%)	100		



ACCESS TO AMENITIES & EMPLOYMENT

- Close to the proposed Kokosi Hub
- Planned Non-Motorised Transport (Pedestrian and bike path) to link up with Fochville

DEVELOPMENT CONSTRAINTS

- Geotechnical – clay soil

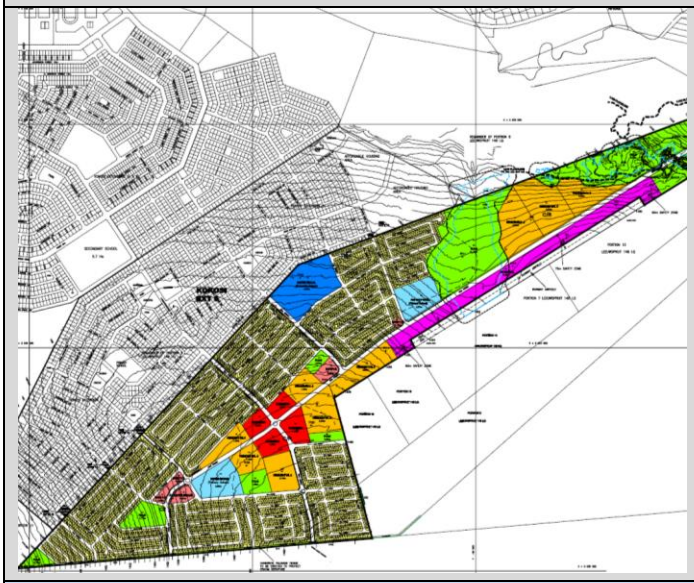
INCOME/TYPOLOGY

- Low (RDP/BNG)

INFRASTRUCTURE & LAND REQUIREMENTS

- Social facilities = No additional facilities required on site
- Land provision = N/a
- Bulk infrastructure = In place, however higher densities must be investigated

DEVELOPMENT TIMELINE	Not determined - demand dependent – All Fochville developments and the Kokosi Hub supersede this development.

<table>
<tr><td colspan="2">KOKOSI EXTENSION 7</td><td>WARD
26</td></tr>
<tr><td colspan="3">New development area with a strong central node to accommodate facilities and amenities.</td></tr>
<tr><td>PROPERTY DESCRIPTION</td><td>PROPERTY SIZE</td><td>OWNERSHIP</td></tr>
<tr><td>Kokosi Extension 7</td><td></td><td>Government</td></tr>
<tr><td colspan="3">DENSITY AND YIELD</td></tr>
<tr><td colspan="2"></td><td></td></tr>
<tr><td colspan="2" rowspan="4">  </td><td>ACCESS TO AMENITIES & EMPLOYMENT
- New road to be constructed to link up with Fochville on the southern side
-</td></tr>
<tr><td>DEVELOPMENT CONSTRAINTS
- Flood line
- Water pressure
- Sewer pump station required</td></tr>
<tr><td>INCOME/TYPOLOGY
- Low (RDP/BNG) and Medium (Gap)</td></tr>
<tr><td></td></tr>
<tr><td colspan="3">INFRASTRUCTURE & LAND REQUIREMENTS
- Social facilities = Included in township establishment process
- Land provision = Included in township establishment process
- Bulk infrastructure = Currently being upgraded</td></tr>
<tr><td colspan="2">DEVELOPMENT TIMELINE</td><td>Medium term – demand dependent – All Fochville developments and the Kokosi Hub supersede this development.</td></tr>
</table>

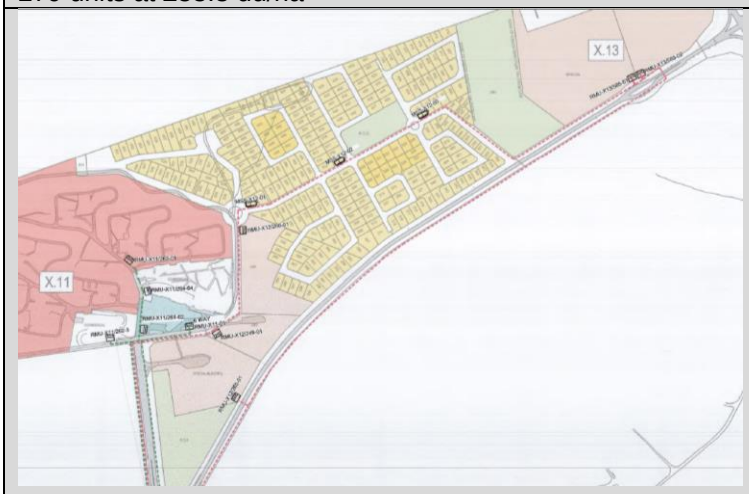
Mining belt

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

- West Wits
- East & West Driefontein
- Elandsrand/Kusasalethu
- Deelkraal
- Blyvooruitzicht
- Doornfontein

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 a CRU project. The informal settlements at East Driefontein created problems for both Sibanye Gold 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 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/Carletonville area.

The majority of informal settlements have to be moved to the northern and southern urban areas which are more sustainable. Serious consideration should be given to locating housing for Wedela at Fochville and Kokosi. Public participation should be done before a final decision is taken.

<table>
<tr><td colspan="2">WEST WITS VILLAGE EXTENSION</td><td>WARD
27</td></tr>
<tr><td colspan="3">Forms part of the formalisation of West Wits Village. The township establishment process is underway, and the extension is intended to provide housing to informal dwellers within the area. Once the township establishment process has been completed the land for subsidised housing will be transferred to the municipality for development.</td></tr>
<tr><td>PROPERTY DESCRIPTION</td><td>PROPERTY SIZE</td><td>OWNERSHIP</td></tr>
<tr><td></td><td></td><td>Anglo Gold Ashanti</td></tr>
<tr><td colspan="3">DENSITY AND YIELD</td></tr>
<tr><td colspan="2">279 units at ±33.3 du/ha</td><td></td></tr>
<tr><td colspan="2" rowspan="4"> 
</td><td>ACCESS TO AMENITIES & EMPLOYMENT
- Access to facilities and amenities at West Wits Village
- Existing mining activities
- Proposed Mining Industrial Park</td></tr>
<tr><td>DEVELOPMENT CONSTRAINTS
- No significant constraints</td></tr>
<tr><td>INCOME/TYPOLOGY
- Low (RDP/BNG)</td></tr>
<tr><td></td></tr>
<tr><td colspan="3">INFRASTRUCTURE & LAND REQUIREMENTS
- Social facilities =
- Land provision =
- Bulk infrastructure = Available</td></tr>
<tr><td colspan="2">DEVELOPMENT TIMELINE</td><td>Project put on hold pending revised needs assessment – layoffs in mining sector</td></tr>
</table>

WEDELA EXTENSION 4	WARD
	22, 23

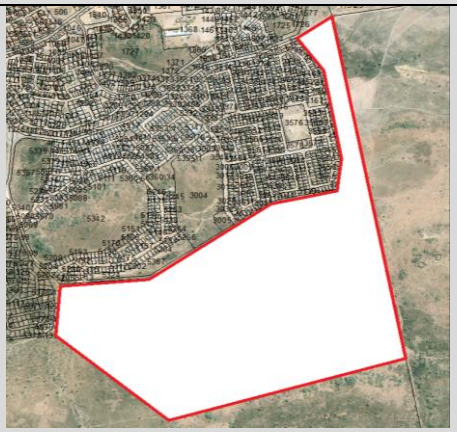
Undeveloped area next to Wedela. The development will consider the need for additional business and institutional activities A significant amount of informal dryland crop production is currently taking place on the site and this will also be considered. It is proposed that the design and layout of the new township be focused on an 'agri village' type theme that embraces and celebrates the existing characteristics of the site. There are serious sustainability concerns related to mine closures.

PROPERTY DESCRIPTION	PROPERTY SIZE	OWNERSHIP
Prtn 78 of Buffelsdoorn 143 IQ	± 518 total prop area	Merafong City Local Municipality

DENSITY AND YIELD

Maximum Development Area (ha):	29.0	
Useable Development Area (ha):	15.0	
Exclusion zones	**Name**	**Size (hectares)**
	Agriculture	10.0
	Mixed use	4.0
Residential Density(du/ha)	**100.0**	**40.0**
Roads and Parking (%)	20.0	20.0
Developed Parks (ha/1000 people)	0.3	0.3
Sport Areas (ha/1000 people)	0.56	0.56
Household Size	2.500	2.500
Proportion Allocated (%)	40	60

Net Residential Development Area (ha)	3.207	4.810
Development Area (ha)	6	9
Effective/gross development density (du/ha)	53.443	21.377
Number of dwellings	320.7	192.4
Number of People	801.642	480.985
Required Roads and Parking (ha)	1.200	1.800
Required Developed Parks (ha)	0.240	0.144
Required Sport Areas(ha)	0.449	0.269



ACCESS TO AMENITIES & EMPLOYMENT

- Access to Wedela amenities and this development will improve the available amenities in the area.
- Elandsrand, and Mponeng mining operations. Elandsrand to close down

DEVELOPMENT CONSTRAINTS

- Topography
- Geotechnical -alluvial deposits?
- Deeper soils for agriculture
- Informal cattle kraals - south

INCOME/TYPOLOGY

- Low (RDP/BNG) and Medium (Gap)

INFRASTRUCTURE & LAND REQUIREMENTS

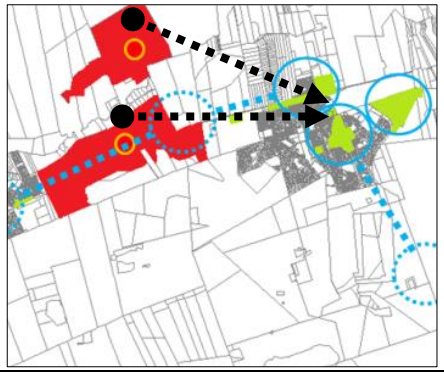
- Social facilities = To be integrated with facility shortfall in greater Wedela area
- Land provision = 3 Erven for municipal, 2 church, mixed use business erven on north eastern side
- Bulk infrastructure = Mostly available, outfall required

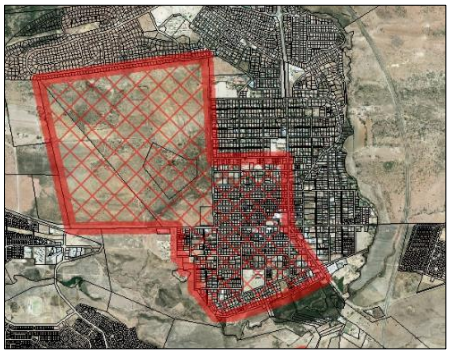
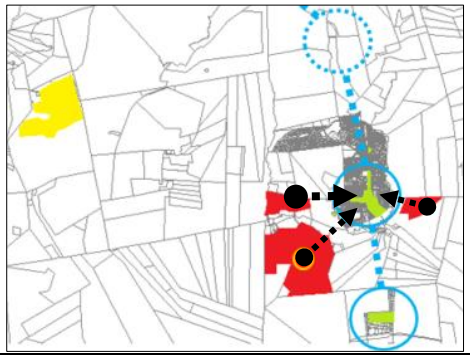
DEVELOPMENT TIMELINE	Project may be shelved due to serious sustainability concerns

Restructuring Zones

"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 human settlement need	- Northern urban area total = 11 193 (2015)
Existence of sufficient existing bulk infrastructure capacity to accommodate additional demand	- 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	Municipal Spatial Development Framework: - Carletonville has the highest level of economic potential, lowest level of human need. - Increased densities in the primary economic node - Existing high level of service provision - Primary development corridor, Primary hub of social amenities and activities  
Economic security and/or promote employment (job creation)	- 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	- Wide range of densities and tenure options - Most cosmopolitan area within Merafong - Already mixed ethnicities and age groups
Social Justice	Amenities (MSDF): - 4 Primary schools, 3 High schools - 1 Hospital, 1 clinic,1 Regional civic centre, 1 regional sports complex, 1 library - Walking distance from taxi rank, walking distance from proposed future public transport hub, Numerous cultural and economic amenities

QUALIFICATION CRITERIA	2. FOCHVILLE CENTRAL
A clear indication of affordable housing human settlement need	- Southern urban area total = ±3 000 (2015) + about 7 000 mining belt
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	Municipal Spatial Development Framework: - 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 -  
Economic security and/or promote employment	- 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	- Wide range of densities and tenure options - Already mixed ethnicities and age groups
Social Justice	Amenities: - 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

5.2.4 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.

<u>Job Creation Linked to Training and Capacity Building</u>

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.

5.3 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	▪ 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	▪ 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	▪ 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.

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

The World Bank recently released a report titled Competitive Cities for Jobs and Growth. The report examines the key dimensions of globally competitive cities. The report pulls together an impressive array of detailed economic data for 750 of the largest cities in the world, which it uses to distill the factors that bear on economic competitiveness. Basically, it gives a good indication on what the most competitive cities do and what they do not do and how it can be applied to a city that is not performing as hoped.

Notably one of the most competitive cities in the world is Gaziantep. This is relevant to Merafong because there are many similarities in where Gaziantep started and where Merafong finds itself.

Gaziantep is Turkey's sixth-largest city. As recently as the 1970s, it had a population similar to that of Merafong. The city's population today stands at 1.54 million, not counting approximately 300,000 Syrian refugees. Gaziantep has limited natural resources, and its land is dry and ill-suited for agriculture; it is not a port city; it is not a capital city; it does not have high-tech clusters; it is not a household name or a large, primary city. Yet Gaziantep's light-manufacturing firms sell their products in 175 countries around the globe. Exports increased tenfold in just 11 years, from $620 million in 2002 to $6.2 billion in 2013. It ranked ninth globally for economic growth in the decade 1999 to 2009. It recorded an average of 6.3 percent in annual gross domestic product (GDP) growth from 2005 to 2012, and 3.6 percent in annual employment growth. What this demonstrates is that any city can improve its competitiveness and grow its economy rapidly.

The figure below depicts how competitive cities evolve through 3 basic typologies. Wherever a city finds itself on the figure it benefits from moving to the right as indicated by the white arrows. In the case of Merafong the economy is moving back to the left and has to be re-industrialised from the base upwards. It would not be advisable for the municipality to simply spread resources in a haphazard manner, as has been the case thus far. The focus should be on tradable sectors in the economy that have significant latent potential. Tradable sectors i.e. the basic sector has to be developed in areas where Merafong already has or could develop a comparative advantage and from there the non-basic sectors will develop much more easily.

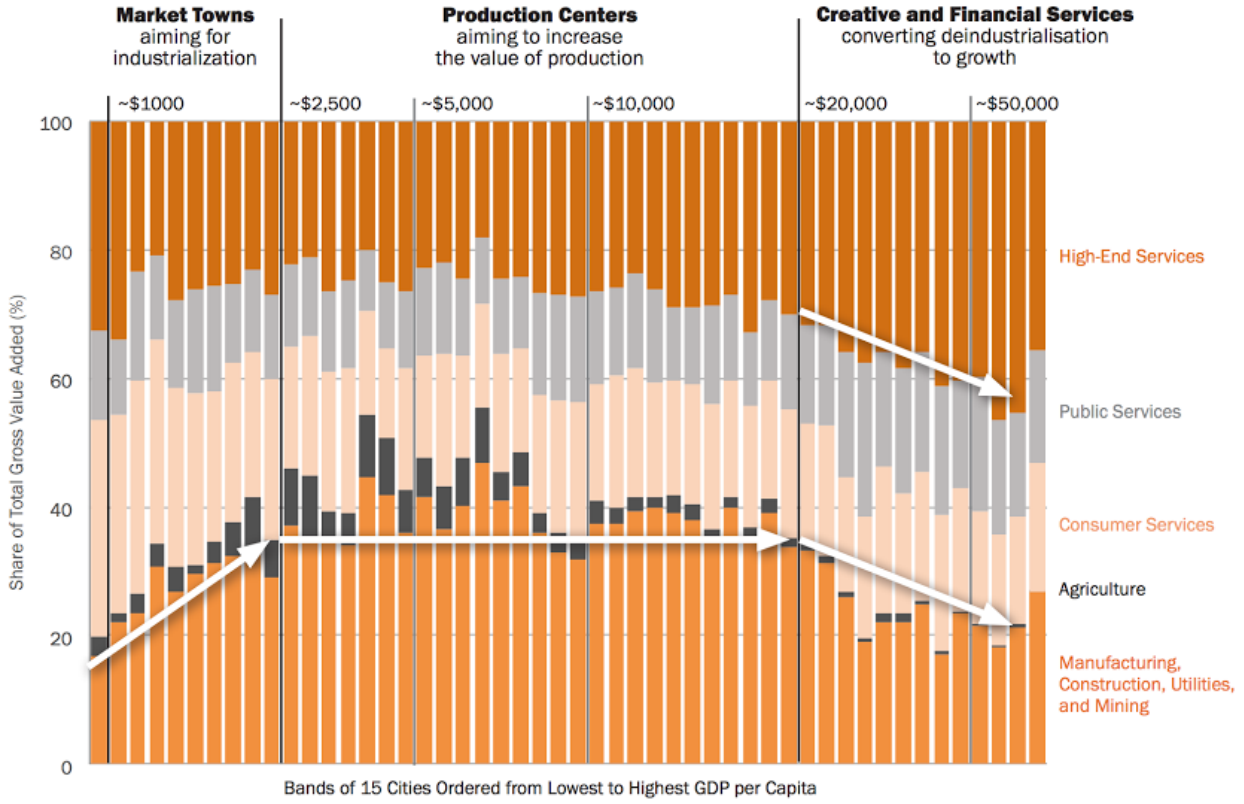
Competitive cities leverage key interventions to increase competitiveness:

a) Cities do not always need to overhaul their economies. Sometimes it is enough to do what you already do, but do it better, however in Merafong's case we need mostly new industries.
b) Cities can facilitate the growth of jobs, productivity and Incomes through four Categories of interventions:
    - Institutions & Regulations

- Infrastructure & Land
- Skills & Innovation
- Enterprise Support & Finance

These 4 categories of intervention should be phased for higher impact and not implemented all at once.

c) Cities become competitive by leveraging their comparative advantage, especially in tradable sectors that can be sold in other cities and exported to other countries.



Source: World Bank analysis of Oxford Economics Data 2000–12. See Fikri and Zhu 2015.

Given the municipal area's resource endowment, infrastructure network and positioning in the space economy, the major areas of development potential lie in agriculture, manufacturing as well as tourism and eventually urban renewal. This is confirmed by national and especially provincial policies.

The following sectors and sub-sectors have a good chance of becoming highly competitive in Merafong:

- Mining related value addition in the form of industrial products and training and education beyond current gold mining. Merafong has an existing base of mining suppliers, some of whom are globally competitive already. Furthermore, conditions are favourable for industrial development given the locality of Merafong within the space-economy of the Gauteng Global City Region and existing infrastructure and a blue-collar skills base. The mining boom in Africa presents a massive opportunity to provide products and services to mining companies

operating on the continent. Note: this initiative will not be affected by local mine closures as it will have a larger regional and continental focus.

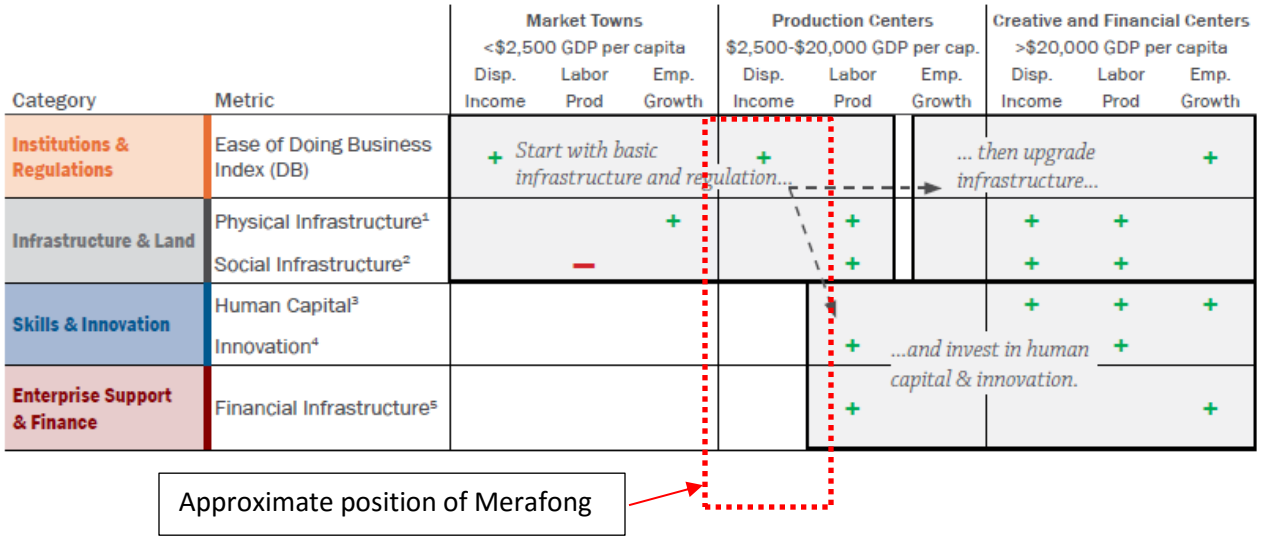
- General industrial development. As mentioned, the area has good industrial development potential. Niche areas have to be identified for development.
- Agriculture and agro-processing. Merafong has thousands of hectares of good quality arable land that has been locked away under mine ownership with billions of liters of underground water that could be used for irrigation purposes.
- Circular Economy. A confluence of opportunities and constraints has led to the development of economic concepts relating very strongly to industrial symbiosis and the circular economy. Merafong has the opportunity to reinvent itself and make a leap from lagging sectors to leading sectors that are competitive within the context of the 4th industrial revolution.
- Tourism and urban Renewal. Although the area has seen very little tourism development, there is massive latent potential. Merafong hosts the 6 largest caves in SA, has a site where an entire village was constructed in a cave and also has potential to expand the existing Abe Bailey Nature Reserve to become the largest provincial reserve in Gauteng without sacrificing agricultural land. The area also has a rich history of mining the labour movement and some of the best preserved examples of Mid-Century Modern Architecture in the country.

Given the knowledge of what broad areas need to be focused on the following guidelines should be followed in building a new economy in Merafong:

- Focus on constraints that can realistically be addressed.
- Consult with key players in order to provide industry with what it needs and not a 'build it and they will come' approach.
- "A competitive business environment is achieved by combining several interrelated, mutually reinforcing activities. Furthermore, strong political will to implement radical reforms help turn the local business climate around in a relatively short time." (Competitive cities for jobs and growth).
- Intergovernmental cooperation with provincial and national government as well as state owned entities is of paramount importance.
- During the process the aim is to create an environment conducive to growth and job creation. Globally it has been proven time and again that governments are particularly bad at doing business. Therefore the municipality must focus on governance and facilitation of growth and job creation. If this approach is followed thousands of jobs will be created because businesses will have what they need to thrive.
- Budgeting should reflect the priorities of the municipality which is not currently the case.
- The municipality needs a better understanding of its strengths and weaknesses in order to build on the strengths and to try to eliminate the weaknesses. This process should be structured in terms of the 4 categories of intervention mentioned. Some factors (Such as favourable market access and low cost of land) are obvious, however a comprehensive process needs to be followed in order to make the outcome credible and also to drill down to the less obvious and overlooked factors.
- The Competitive Cities for jobs and growth document should be followed. It is the most comprehensive and practical document ever created on global competitiveness of cities and it is also user friendly. This should be one of the primary source documents during development of the new Growth and Development Strategy.

- General as well as specifically targeted interventions should be channeled into the growth of existing enterprises, attraction of outside investors and the creation of new businesses. Initially the focus should be more on attracting outside investors in order to create a critical mass from which growth will be easier.
- The creation of strong self-sustaining economic clusters specifically in tradable sectors will have the best outcome with most jobs created.
- Non-traded sectors such as most types of retail and services that only sell locally is approached differently than tradable sectors and as such probably should not be incentivised. Non-traded sectors offer good opportunities for spatial income distribution into previously disadvantaged areas and these type of localities could be incentivised to a degree.
- Tradable sector activities are usually space-bound to very specific localities due to their specific infrastructure requirements and globally competitive nature.

A phased approach is needed in order to implement the right interventions at the right time. The following figure depicts which of the 4 categories are successful at which stage according to the successes and failures of cities all over the world. Merafong's approximate position is indicated in red.



In a broad sense, two phases are required for Merafong from its current position. The first should have a strong focus on institutions & regulations and also infrastructure and land with a smaller focus on enterprise support, skills development and innovation. During the second phase the focus should shift much more to enterprise support, skills development and innovation. Merafong currently has undertakings and existing strengths in all 4 categories, however these are disjointed and in some instances insignificant. The new Enterprise Development Centre is a great step in the right direction. It currently assists micro enterprises primarily. As the centre develops its capabilities and as the economy progresses, the centre should shift its focus to medium size start-ups and potential larger investors within target sectors in order to assist in the development of economic clusters in agriculture and manufacturing (Tradable Sectors).

There are a number of competitiveness initiatives the municipality could undertake. A number of proposals for Merafong are mentioned for consideration:

- Institutions & Regulations
  - Expedited permitting which could include a one-stop-shop approach, especially when new investors are interested in developing.
  - Business friendly zoning and land use policies. During the development of the new Merafong City Land Use Scheme, 2019 and MSDF, 2019 this has been taken into account with amendments to reduce time and costs associated with applications and the utilisation of tools such as overlay zones to create an environment more conducive to business and economic cluster development. Refinements should be made and a policy and procedural document developed to facilitate knowledge amongst existing businesses and new entrants to the Merafong space.
  - With the development of industrial parks, special regulatory environments can be created to enable new and established businesses to thrive.
  - Very importantly, local business and potential investors need to be consulted on what they need from the municipality and government. The municipality could also act as intermediary when dealing with other government entities.
  - The municipality needs to create a clear vision and specific outcomes in a type of 'Phoenix Program' which should include an incentive policy with very specific target sub-sectors. Implementation should not veer off course.
- Infrastructure & Land
  - Basic service delivery is one of the cornerstones of attracting investment. More advanced infrastructure cannot be considered if basic services are not delivered.
  - Land needs to be availed to priority investors at incentivised rates. Land should also be availed for small and medium enterprises in non-target sectors, however this should not be done at the expense of opportunities in targeted sub-sectors.
  - More advanced sector-specific infrastructure will be a key factor in differentiating Merafong from similar investment destinations within the Gauteng City Region. As an example, in Merafong's case, more specialised logistics infrastructure would benefit agricultural and industrial sub-sectors. Industrial parks with tailor made infrastructure must be developed.
  - Once again, consultation with target enterprises is of paramount importance.
- Skills & Innovation
  - Human capital development initiatives aimed at supporting specific economic clusters must be created in conjunction with the private sector. These initiatives must have a strong practical application focus within the local environment.
  - Improving the urban livability of Merafong will go a long way to attracting talent. This is a very important general intervention in the long run and will become easier to implement once the municipality's finances improve on the back of initial competitiveness gains. Currently Merafong is losing talent to other localities within the city region especially the neighbouring city of Potchefstroom.
- Enterprise Support & Finance
  - Investment facilitation in the form of business recruitment, expansion and retention initiatives and investor aftercare will become increasingly important and should be included in the 'one stop shop' approach.

- Market intelligence and business promotion should be included to market Merafong as a choice investment destination.
- Real commercial potential should be demonstrable.
- Continuous communication with key sectors (Economic clusters) is very important in order to stay informed and relevant in an economic environment where rapid change is the norm.

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 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.

Focus Area 1: Agriculture and Agro-Industrial

The intention with this area of focus is to establish a highly competitive economic cluster in the interrelated areas of intensive agriculture and agro-processing. Merafong is well endowed with highly productive agricultural land and an abundance of clean underground water decanted by mining operations. Vast tracts of high value agricultural land will be released through the Bokamoso Ba Rona initiative of Sibanye Stillwater. The Bioenergy Agro-Industrial Park is planned to act as a major catalyst for agriculture and agro-processing development.

i) <u>Bioenergy Agro-Industrial Park</u>

a) The development concept. In short it is an Agro-Industrial Park that utilises renewable bioenergy, resource recovery, economic clustering as well as energy-, water- and materials cascading to reduce environmental impacts whilst improving profitability. Infrastructure will promote industrial symbiosis between 'tenants' which will enable cost reductions and new revenue streams. The park will utilise anaerobic digestion to create the right types of value addition and cost reductions that could potentially attract a large number of industrial and agricultural investors.
The following activities are envisaged:

- Agricultural production – maize, soya, etc. to be utilised as feed
- Cattle feedlot with ± 15 000 heads of cattle – could be expanded
- 2 Piggeries with ± 200 000 pigs
- Abattoir and further processing of meat products
- Anaerobic digestion of wastes from animal feedlots and industrial processing to produce electricity and other usable products such as heat, CO2, water and compost.
- Greenhouses that utilise products from the digester.
- Other companies that can fit into the value chain or utilise by-products

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.

b) Economic impact. This project has massive potential to act as a catalyst for industrialisation and modernisation of the economy. Direct job creation is estimated at 800 and direct and indirect between 2 500 and 3 000.
c) Development stage. A feasibility study into the concept has been completed and came out highly favourable with an estimated Internal Rate of Return of about 18%.

ii) Horticulture Hub/ (Agro-Industrial Park Phase 2)

a) The development concept. The project aims to develop an agri-park type setup that will create an environment highly favourable for greenhouse horticultural producers to thrive. A number of factors will give Merafong a competitive advantage as an investment destination. These include land and water available at negotiable rates as well as by-products from anaerobic digestion such as water, heat, CO2 and compost. Tailor made infrastructure will support investors and ensure profitability and expansion opportunities.
b) Economic impact. As this project is in the pre-feasibility phase, the economic impact has not been determined. If the park develops to 200 hectares with a small component of cut flowers it could generate around 700 direct jobs and up to 2 500 direct and indirect employment opportunities. This could actually be exceeded if the development integrates sufficiently with the other components of the Biopark.
c) Development stage. This proposal is only in its early conceptual stage. A full conceptualization, market sounding and feasibility study is required to determine the viability of undertaking the initiative.

iii) UNISA Experimental Farm & Education Centre

a) The development concept. The University of South Africa (UNISA) has many agricultural study fields, however the institution lacks its own experimental farms where students can get practical training as well as where experimental research can be conducted. This farm would include institutional uses such as laboratories and lecture rooms as well as residential accommodation. Existing mine infrastructure such as hostels and institutional buildings could reduce costs significantly.
b) Economic impact. The economic impact has not been determined yet, however it will be significantly positive by bringing in state educational spending, consumption spending of students and improving education in agriculture.
c) Development stage. The municipality awaits a formal proposal from the university.

iv) Mining Rehabilitation Trough Phytoremediation and Bioenergy

a) The development concept. An opportunity exists to utilise phytoremediation and bioenergy to simultaneously reduce the cost of mining rehabilitation and create jobs in the process. Mining land that has been impacted by ground and water pollution could be rehabilitated through a process proposed by Promethium Carbon by growing biomass on polluted land, harvesting the biomass and then pyrolising it to generate electricity.
b) Economic impact. In addition to creating on field jobs, the process would boost the industrial symbiosis opportunities in the Circular Economy Zone which in turn can lead to additional investment.
c) Development stage. A pre-feasibility study has been conducted from a rehabilitation perspective. A full feasibility study with a pilot project is needed.

Focus Area 2: Manufacturing

i) Manufacturing Hub

a) The development concept. Anglo Gold Ashanti owns a highly valuable grouping of assets consisting of land, buildings and infrastructure located between the towns of Carletonville and Fochville within Merafong City Local Municipality. These assets are reminants of the Savuka and Tau Tona mining operations that are in the process of closing down and consist of a variety of industrial, institutional and residential buildings with associated infrastructure. Although demolition and rehabilitation of these assets to a natural state would have been more affordable and easier, AGA wishes to leave behind a positive legacy. Therefore with the consent of the municipality, AGA has embarked on a process of formalising these areas by going through a process of Township Establishment. By utilising the assets for industrial development the cost of setting up industrial parks and/or large industrial plants would be reduced. The availability of land, buildings and infrastructure at negotiable rates, coupled with limited retrofitting required on the brownfield sites will arguably be much more affordable than constructing on a greenfield site in another locality. Even the greenfield areas available can be developed at a reduced rate due to the availability of land and bulk infrastructure. The caracteristics of the assets give this locality an advantage in industrial development above other areas. Therefore the proposed initiative entails utilising the assets to promote mixed industrial development. A similar aproach to the Bokamoso Ba Rona initiative of Sibanye Stillwater will be followed.
b) Economic impact. At this stage it is very difficult to determine. If a mix of domestic and foreign investors can be attracted the impacts can be enormous.
c) Development stage. Conceptual. A Request For Information (RFI) should be sent out to the market to determine what the needs and demand is.

ii) Mining Industrial Park (Component of Manufacturing Hub)

a) The development concept. The opportunity exists to take advantage of Merafong's unique geographic position as an area where continued mining could incubate an industrial park aimed at supplying the growing demand in Africa for mining equipment. The park could have 2 main areas of focus, namely mining (and industrial) automation and also the manufacturing of mining equipment. 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. 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. A wide variety of products are used in mining and the manufacturers of these products would benefit from locating in an industrial park tailored to their needs. Existing mining infrastructure can be re-purposed at a much lower cost than constructing a new industrial park from the ground up. This project could form part of the proposed manufacturing hub.

b) Economic impact. The job creation potential has not been estimated although it could number anything from hundreds to over a thousand. This industrial park could greatly support efforts to build a new economic base by utilizing resources and opportunities available locally.

c) Development stage. This proposal is only in its early conceptual stage. A full conceptualization and feasibility study is required to determine the viability of undertaking the initiative.

Focus Area 3. Tourism and Urban Renewal

i) Merafong Integrated Tourism Package

a) The development concept. A number of potential high impact tourism attractions such as the large caves, village in a cave, Abe Bailey Nature Reserve Expansion, Metsing Dam (Khutsong) and township tourism can be developed in conjunction with each other in order to make up a highly viable integrated tourism package.

b) Economic impact. This project would have the potential of creating significant amounts of value and employment in smaller sized enterprises and even micro enterprises. Jobs could eventually number in the hundreds.

c) Development stage. Conceptual. Terms of Reference developed for a pre-feasibility study.

ii) Merafong Heritage Precinct

a) The development concept. An integrated mixed use development is proposed that utilises the existing strengths and opportunities of the area comprising of a Hotel and convention centre, museum with theme park elements, a heritage walk along a vista, residential development and a shopping centre. This is a revitalisation project and

therefore it will only become feasible after one or more of the other game changer projects have been implemented.

b) Economic impact. It will have a significant impact on the Carletonville economy as well as the larger Merafong economy by creating a significant amount of jobs and attracting investment.
c) Development stage. Conceptual. It will be acted upon once other game changer projects are underway. Only once other game changer projects have begun to gain momentum in transforming the economy will the Heritage Precinct become viable.

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.

Merafong has the following industrial development areas:

Carletonville Extension 6-Oberholzer Industrial Area

This node consists of 2 separate nodes that are planned to merge into a single large industrial area. These two nodes are Carletonville Extension 6 and Oberholzer.

Locality

Carletonville Ext 6 is located close to the intersection of the R500 and R501, with direct access to the industrial node from the R501. The R501 serve as a major provincial connecting movement spine in an east-west direction, linking Carletonville to the N12 (to the east) and in turn to the greater Gauteng region, and to the west, the R501 connects to the city of Potchefstroom and thus the North West province. The R500 serves as a north-south provincial connector, linking Carletonville to Fochville and links the Rustenburg platinum region to the Vaal Triangle. The Oberholzer component is located along Railway Street in the northern part of Carletonville and Oberholzer and is divided by the railway line.

Characteristics

The Oberholzer component (Sized 94 Ha) has matured with only a single vacant property. It mostly consists of service industry uses and some retail. Manufacturing mostly consists of metal related engineering works and is in decline and is being replaced by retail and services. Some vacancies lead to lower order uses such as indoor cricket. The Extension 6 component has a significant vacancy rate of ±60% mostly attributable to the municipality not attempting to dispose of its properties. Land uses are more mixed and include large metal works, a scrap yard, manufacturing and industrial services. Most activities are associated with the mining industry.

Infrastructure is generally in a good condition in both areas with a few minor potholes that need attention. All vacant properties in Extension 6 are fully serviced.

Challenges

- Some problems have been experienced with cable theft in Extension 6
- Dumping occurs in Ext 6.
- Accessibility between Ext 6 and the CBD is not ideal
- Oberholzer is undergoing changes, these have to be managed to avoid problems with decay. The marginalized locality north of the railway line (With no siding access) and its proximity to residential uses is causing problems.
- The tree buffer between Extension 5 and 6 was cut down a few years ago because the Eucalyptus trees are classified as an invasive species. Re-growth is taking place and should be left as this species does not have to be removed. To have the buffer open is not ideal.

Opportunities

- The Game Changer Projects of the municipality will soon start to create renewed demand for industrial land and rental space which promises to revive Oberholzer and reduce vacant properties in Extension 6.
- The opportunity to link up the 2 separate areas has to be utilised by developing infrastructure. A human settlement development next to Extension 6 will need a new road which will be used to link the industrial area better to the CBD.
- Expansion opportunities are available north (Up to 150 Ha) and east (43 Ha) of Extension 6. The eastern component is already zoned Industrial.
- An existing rail siding next to Extension 6 must be refurbished and extended into the industrial area. It can be extended to include both new development areas. The possibility of developing a communal loading facility to serve the industrial area has to be investigated.

Development guidelines and interventions

- Link the Carletonville Extension 6 and Oberholzer industrial areas.
- Build a new road to link Extension 6 with the CBD as well as the new Human Settlement project.
- Do not cut down the Eucalyptus trees within the buffer between Extension 5 and 6. The trees are classified as Category 2 invasives and as such do not have to be removed.
- The eastern part of the node (Extension 6) forms part of the new Circular Economy Overlay Zone. As such all developments within this area must adhere to the guidelines contained in the Overlay Zone. New development guidelines and a strategic plan for future development in the area is required.
- The space east of Extension 6 will include a mix of agriculture and industrial uses.
- Land and infrastructure has to be prepared to accommodate large industrial plants and marketed as development ready.
- Develop a policy to deal with the alienation of land as well as development incentives and alienate land to desirable investors at favourable prices.

West Wits-Driefontein Industrial Area

This area has enormous development potential as a new industrial area in the mining belt.

Locality

The area is located between Carletonville and Fochville along the R500 dual carriage way and falls within the central mining belt. The locality is close (7km) to the N12 freight corridor. It comprises 2 main areas. Firstly, land owned by Sibanye Gold east of the R500 where gold refining is currently taking place and secondly land owned by Anglo Gold Ashanti west of the road which comprises of mine shafts and ancillary uses such as warehousing, institutional and residential. A township establishment process is currently underway on portions of the Anglo land.

Characteristics

East. The potential land area is vast with over 300 Ha that could be utilised. Sibanye is currently demolishing marginal unused infrastructure and buildings. A number of warehouses and industrial buildings remain.

West. The mine shafts in this area have closed down and the new township (West Wits Village) will include industrial, warehousing, institutional and residential buildings as well as an entire village of free standing single residences.

There is significant bulk infrastructure in the area including a 120 mega liter reservoir owned by Rand Water. A significant amount of electrical, water, sewage and road infrastructure remains in a good condition.

Challenges

- Potential mismatches between municipal and mining development objectives
- Remnant ground pollution. Although the amount of pollution is relatively low and isolated it should be addressed.
- Planning and financing initial stages of adaptive re-use options

Opportunities

- The existing land, buildings and infrastructure in the area open up large opportunities for adaptive re-use especially related to industrial development. (Refer to 6.3.1)
- The area has good potential to accommodate the proposed Mining Industrial Park project.

Development guidelines and interventions

- The closure of these areas has to be managed pro-actively with mining companies.
- A precinct plan with development guidelines and strategic decision support has to be developed.
- Infrastructure in the area has to be adapted to be ready for investment.
- The area to the east of the R500 has potential for large heavy industrial plants.
- This development area should be marketed as investment ready once preparations have been made.

Driefontein North Industrial Area (Proposed)

This area has potential to be developed into a formal industrial area.

Locality

The area is located east of Carletonville, directly south of the R 501 dual carriageway on the farm Driefontein within a mining lease hold area.

Characteristics

The area is currently being used for surface operations and contains a mine shaft, water purification plant, large warehouse, waste water treatment works, high and low density residential buildings and ancillary industrial uses. Bulk infrastructure is available and the area is highly accessible.

Challenges

- Potential mismatches between municipal and mining development objectives
- Remnant ground pollution. Although the amount of pollution is relatively low and isolated it should be addressed.
- Planning and financing initial stages of adaptive re-use options

Opportunities

- The existing land, buildings and infrastructure in the area open up large opportunities for adaptive re-use especially related to industrial development. It may be particularly well suited for the Bioenergy Eco-Industrial Park, however this area is still very much in use by the mine. (Refer to 6.3.1)

Development guidelines and interventions

- The closure of these areas has to be managed pro-actively with mining companies.
- A precinct plan with development guidelines and strategic decision support has to be developed.
- Infrastructure in the area has to be adapted to be ready for investment.
- This development area should be marketed as investment ready once preparations have been made.

Special Economic Zone – Manufacturing Hub

The 3 areas mentioned above (Carletonville-Oberholzer, West Wits – Driefontein and Driefontein North) are to be developed into a single manufacturing hub. Development has to be cognisant of this.

Welverdiend Industrial Area

This is an old industrial area that developed in an era of railway expansion with Welverdiend acting as an important railway stop.

Locality

It is located directly north of the railway line in central Welverdiend next to the train station. It is close to the R559 and also a short-cut used by trucks to access the N14.

Characteristics

It is a small industrial area that served Welverdiend. Land uses mostly consist of service industry and metal fabrication. There are a number of vacant buildings.

Challenges

- The locality is somewhat isolated and the opportunities for agglomeration advantages are slim.
- Many buildings are vacant. Some industries at Welverdiend started closing down in the late 90s after the South African economy started competing globally.
- Infrastructure is not at a high standard with some roads unsurfaced. Most of the industrial space is completely undeveloped with no infrastructure. This undeveloped portion is owned by Transnet.

Opportunities

- Infrastructure should be improved to allow for the smooth operation of small to medium sized enterprises.
- Across the railway line on the southern side is a large area designated for mixed use. Industrial activities could be allowed to develop in this area, especially once the Elijah Barayi takes off.

Development guidelines and interventions

- Improve basic infrastructure, however interventions should be kept affordable as this is not a prime area for industrial development.
- Allow for mixed uses in order to get vacant buildings occupied again.
- Industrial development could be allowed to occur in the mixed use area between Welverdiend and Elijah Barayi, however it should be restricted to light industrial and industrial services to service the growing demand for services in the area.

Fochville Industrial Area

Locality

It is located in the south east and southern part of the town directly adjacent to the CBD. The Loopspruit corridor runs through the area.

Characteristics

It is about 17 ha in size and characterized by mostly service industry (About 50%) and mixed use (20%) including retail with one larger engineering works company and one agro processor. About 12% of properties are vacant.

Challenges

- Industrial encroachment into residential areas on the western and eastern sides have created problems.
- Some problems have been experienced with odours and noise.
- An abattoir previously owned by the Fochville Municipality and now under private ownership is situated in a bad locality relative to residential land uses and has repeatedly spilled nutrient rich pollution into the Loopspruit. It does not form part of the industrial development area, but is causing problems.

Opportunities

- Land uses are changing to more service industry and retail oriented uses.

Development guidelines and interventions

- No applications for any expansion at the abattoir may be approved and any municipal supported agro-processing projects should not cause increases in production at this facility. New processing facilities must be constructed at viable and sustainable localities.

- Any new noxious industry is discouraged. No new land use application for such industry may be approved.
- No further sprawling of industrial activities into other neighbourhoods is allowed unless the site specific conditions is favourable. No encroachment into residential areas whatsoever is allowed.
- This industrial development area must be allowed to undergo land a use transformation to more service oriented uses.
- More heavy industry must be enabled in Losberg, Carletonville Extension 6 and West Wits-Driefontein.
- Allow for the intensification of the right types of land uses.

Losberg Industrial Area

Locality

It is located south of Fochville on the R500 and the main freight rail line between Gauteng and the Western Cape.

Characteristics

Losberg is about 150 Ha in size, however it is almost 90% vacant, mostly because proper services were never installed. There are a small number of enterprises operating in transport, metal fabrication and brick making. Electricity is provided by ESKOM and all other services by the municipality.

Challenges

- The availability of engineering services is a problem especially water pressure. The municipality has a project to construct a water ring feed between Fochville, Losberg and Kokosi that will solve the problem. Surfaced roads is also a problem.

Opportunities

- Develop basic infrastructure.
- Rail sidings were planned which could be utilised.
- The freight rail line passing by the township has been designated for a wide gauge upgrade to allow more freight to be stacked in order to reduce costs.

Development guidelines and interventions

- Develop basic infrastructure but keep it flexible to accommodate large investments that require large tracts of land for cheap.
- Once water pressure has been improved, market the area as investment ready with rail sidings available (to be constructed by investors)

Micro enterprise industrial areas

These are special areas designated in previously disadvantaged areas for micro enterprise development. Uses such as motor mechanics, panel beating, spray painting, recycling, light manufacturing and retail will be encouraged within these areas.

Two approaches to land access will be possible:

1. Firstly, for enterprises with access to some capital, municipal erven in the designated areas can be subdivided and disposed of below market value.
2. Secondly for micro enterprises with extremely limited capital industrial hives can be expanded upon. The current system of hive construction and management is not working. The construction is too expensive and the hives are not managed properly.

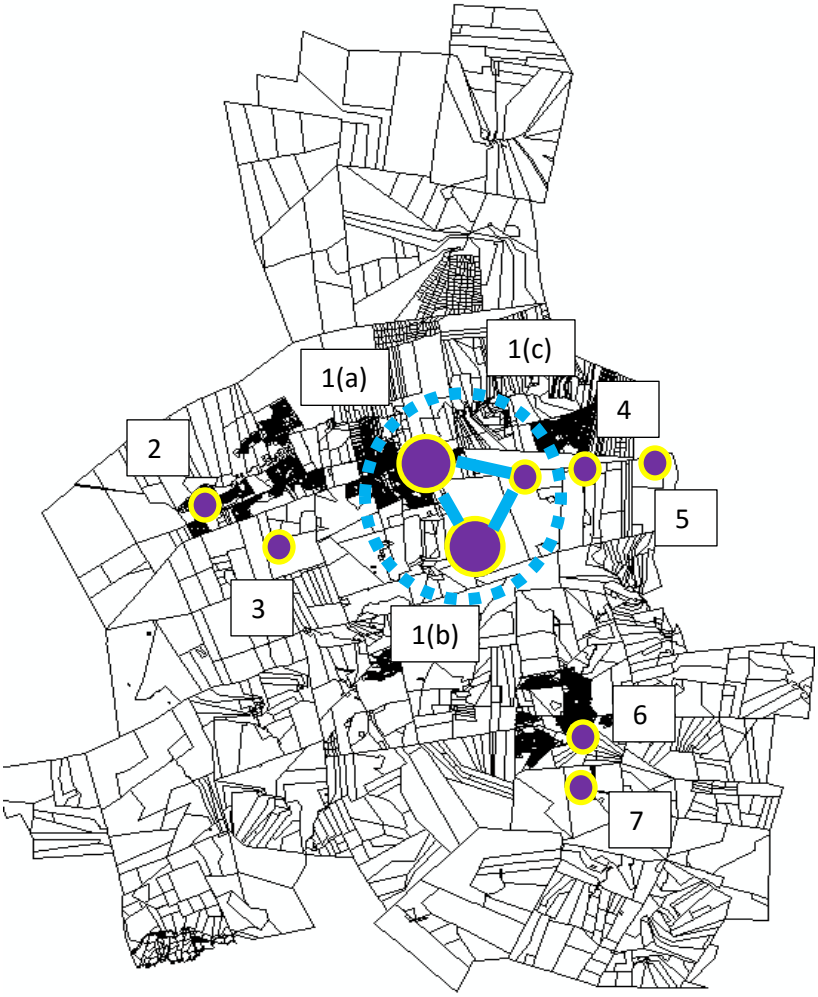
Possible localities:

- Khutsong Extension 5
- Khutsong South
- Khutsong South Extension 1
- Welverdiend
- Blybank
- Oberholzer Taxi Rank
- Carletonville Extension 6
- Wedela Extension 4
- Kokosi Extension 2

A pilot project with refurbished containers should be launched in order to test the uptake and to iron out any potential future problems.

Other industrial areas

- Doornfontein. This area used to form part of Blyvooruitzicht, however the current occupier bought the land. It is functioning well, however may encounter engineering service problems in future. Expansion will be tolerated, however it should be limited.
- Cementation. A small industrial area shared by a number of companies directly associated with mining. It is located next to the R501 between Carletonville and East Driefontein. Further expansion is not encouraged.
- Corobrik. A brick and associated products manufacturing plant next to the R501 between Carletonville and Westonaria. Expansion beyond brick making and associated products will not be supported.



Industrial areas:

1 (a). Carletonville-Oberholzer

1(b). West Wits – Driefontein

1(c). Driefontein North

2. Welverdiend

3. Doornfontein

4. Cementation

5. Corobric

6. Fochville

7. Losberg

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. 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. The Merafong Bioenergy Agro-Industrial Park as well as the larger Bokamoso Ba Rona initiative will make a huge stride towards developing agricultural value chains.

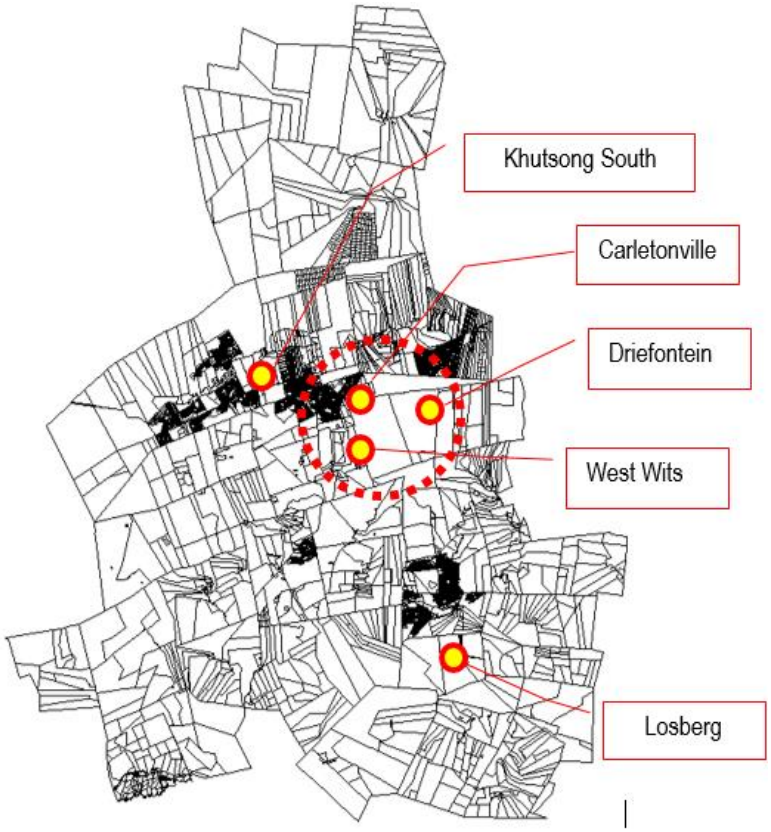
The following factors must be taken into consideration with regards to the Bokamoso Ba Rona initiative, Bioenergy Agro-Industrial Park and the agro-industrial economy in Merafong:

- Merafong plans to become a significant node in the West Rand and Gauteng City Region with regards to Agriculture and Manufacturing with plans for the development of advanced infrastructure to support intensive agriculture and agro-processing. The aim is to leap-frog from lagging dirty industries to leading and green industries.
- An enabling institutional environment is being created to facilitate ease of investment and development through the utilisation of spatial planning and land use management tools such as overlay zones and development friendly land use management plans and practices.
- Regenerative organic agriculture - restore soil health, sequester carbon and reduce input costs
- Agro-forestry - improve crop yields and harvest additional resources from the land.
- Conservation agriculture - improve yields whilst improving resilience and reducing environmental impacts
- Niche farming – small to larger scale niche market farming is growing rapidly and offers many opportunities to fill in market gaps. This type of agriculture tends to be more environmentally friendly, create more jobs per hectare and offer more opportunities for agro-tourism due to its artisanal and experimental nature.
- Promote enterprise and market supply diversity in order to increase economic development in the same manner complex urban environments multiply economic opportunity. Economic multiplication effects and employment will increase whilst biodiversity and ecosystem services will also increase
- Built-in resilience in the face of the 4th Industrial Revolution which will cause many market disruptions and shifts.
- Activity nodes e.g. Farmer Support Unit, smaller resource bound industrial uses, agribusiness, anaerobic digesters, etc. to locate in most suitable areas, as far as is practical not to be dictated by municipality
- Main industrial activities should preferably located in nodes as determined by MSDF in order to promote industrial symbiosis and derive agglomeration advantages.
- Water, energy, materials and skills cascading should be promoted in order to maximise resource potential. A system can only go as far as its least abundant resource allows, which means that water, will most likely determine the limits of growth potential from a resource perspective. Therefore it is of paramount importance to conserve water even though the perception is that there may be large volumes that could be utilised.
- Leave capacity for and incentivise Research & Development
- Incentivise key enterprises/sub-sectors that have, higher economic multipliers
- Normal industrialised agriculture has caused numerous sustainability problems and can actually inhibit the correction of market failures caused by bad policies of the previous century. The entire food production and distribution system needs to be overhauled in the long run. Although it cannot be expected that the Bokamoso Ba Rona program must make radical changes that an entrenched market is unable to absorb, incremental steps in the right direction need to be taken. Concepts such as conservation agriculture have already firmly taken root in agricultural practices in South Africa. The Bokamoso program should create some space for new ideas without causing financial risk.

- Infrastructure requirements
    - Basic industrial – Bloubos Industria to CBD link will improve accessibility to urban functions, Bulk water storage improvement underway.
    - Advanced industrial infrastructure:
        - ✓ Refurbish existing rail siding to TFR main line (Carletonville) and extend to enable more users.
        - ✓ Tailor-made agro-processing infrastructure development in industrial park related to aggregation, storage, distribution, industrial symbiosis, shared services, training and employee wellbeing.

<u>Nodes for intensive agriculture, agribusiness and agro-processing</u>

- Khutsong South – intensive agri production and small scale business → water available with lower level of infrastructure, affected by dolomite. Municipal land
- Carletonville – primary locality considered for Bioenergy Agro-Industrial Park → best infrastructure locality and Sibanye office park could be availed, affected by dolomite. Municipal and Sibanye land.
- Driefontein – could be considered for intensive production and/or agro-processing → clean water, infrastructure and buildings could be availed, affected by dolomite. Sibanye land.
- West Wits – prime locality for general industrial development → land, buildings and infrastructure. Anglo Gold land.
- Losberg – low cost locality with lower level of services. Municipal land
- Carletonville, Driefontein and West Wits could function in an integrated manner



Considerations

- Improve institutional arrangements to facilitate investment and operations
- Develop infrastructure in line with what industry role players need
- Avail land at affordable prices
- Develop a well-researched incentive scheme that offers relevant and affordable incentives

5.3.4 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. 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.

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

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 is needed. From this the Carletonville Heritage Precinct concept was developed. It will be discussed further in the next section.

5.3.5 NORMALISE THE ECONOMY IN PREVIOUSLY DISATVANTAGED 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.

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.

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.

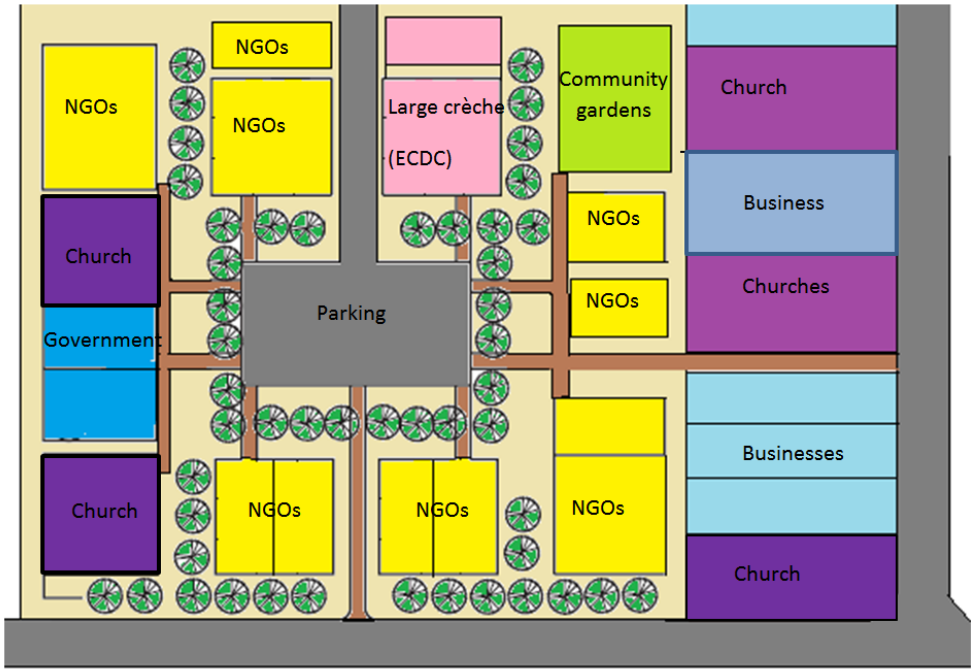
Social Development Clusters

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

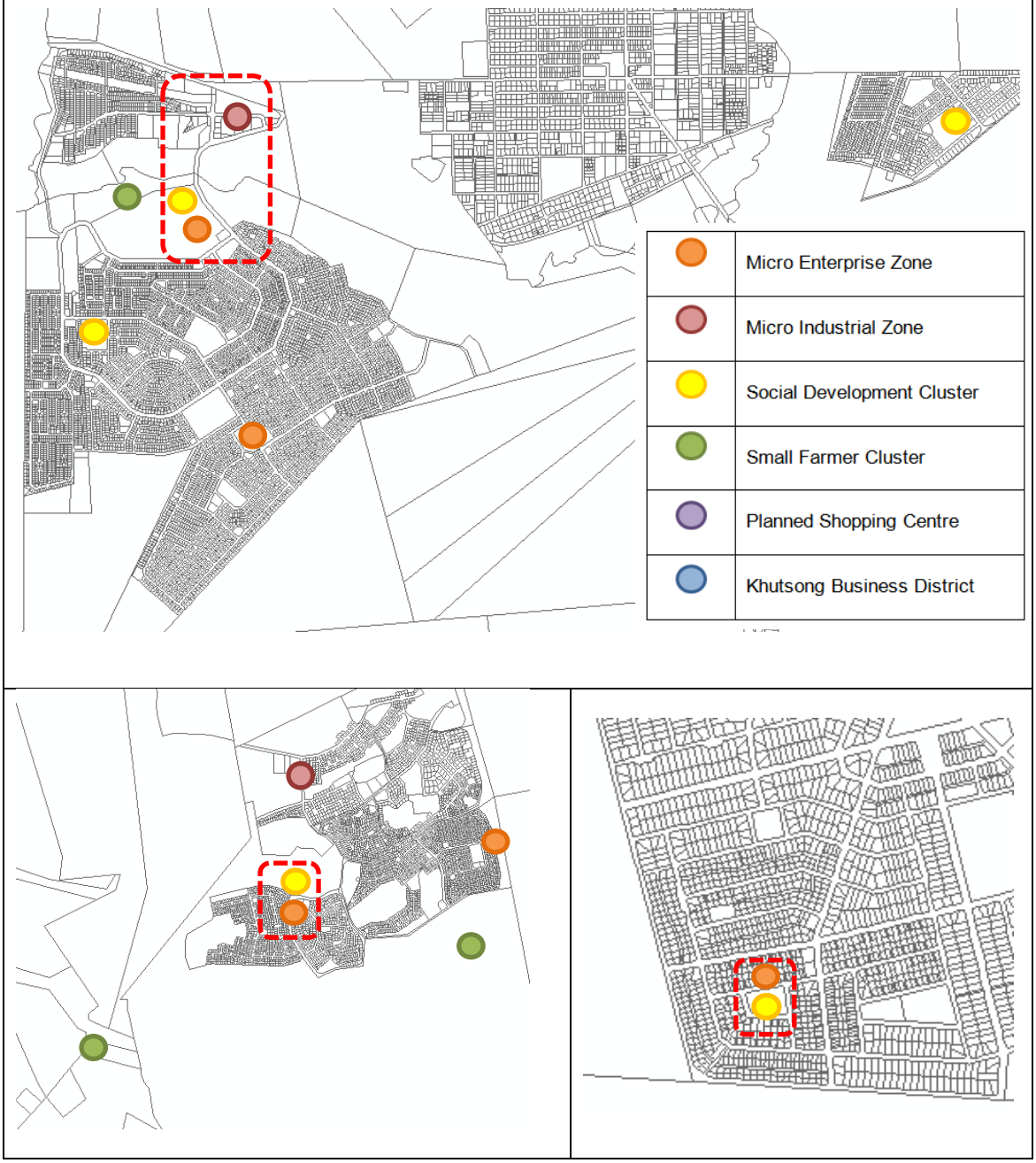
FIGURE 5.13. A conceptual design for the clustering of facilities.



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.



6. PROTECT NATURAL AND AGRICULTURAL RESOURCES	
POLICY	▪ 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	▪ 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	▪ 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

"Informed, long-term land-use planning is the most effective way of optimising how land is used socially, economically and environmentally. It is important to understand that environmental management and development are compatible (i.e. environment AND development, not environment OR development). Land-use planning must anticipate long-term trends in land use pressures in order to plan for a sustainable future" (Draft GDARD IDP, SDF Environmental Toolkit). Therefore environmental aspects have been taken up into spatial planning in Merafong with the following focus areas:

<u>The Gauteng Conservation Plan (C-PLAN v3.3</u>

The C-PLAN is a spatial biodiversity plan that highlights Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). The CBAs together with protected areas, ensures that a viable representative sample of all ecosystem types and species can persist; while the ESAs ensure the long-term ecological functioning of the landscape as a whole. The main objectives of the plan are:

1) to serve as the primary decision support tool for the biodiversity component of the Environmental Impact
   Assessment (EIA) process;

2) to inform protected area expansion and biodiversity stewardship programmes in the province; and
3) to serve as a basis for development of Bioregional Plans in municipalities within the province.

Within the West Rand the Gauteng C-Plan finds expression in the West Rand District Bioregional Plan developed by GDARD in conjunction with the South African National Biodiversity Institute. 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.

Relevance to the MSDF:

Within Merafong there are 4 main areas of concern:

1. Wonderfonteinspruit eco-corridor.

a) Locality and characteristics.

This area of Critical Biodiversity stretches in an east-west direction traversing the entire length of the municipality and beyond. The Wonderfonteinspruit which is fed by dolomitic aquifers forms the 'spine' of the corridor. A 4 100 Ha stretch falls within the Abe Bailey Nature Reserve that surrounds the township of Khutsong. It contains the single largest area of Carletonville Dolomite Grassland as well as numerous wetlands that act as filters for anthropogenic impacts. It has also been deemed an important climate change corridor to enable migration and repopulation of plants and animals in a changing climate.

b) Threats

- Mining pollution. The dolomitic compartment that feeds the river has been de-watered and water is now pumped to the surface and discharged. Other sources of treated mine water is also discharged. Spillages of mine tailings into the river system occurs at the insolvent Blyvooruitzicht mine (The recent take-over of a new owner gives hope that this situation may improve).
- Sewage spills. Sewage spills are occurring in the Khutsong area and seems to be occurring in Rand West Municipality as well.
- Urban development impacts. The presence of Khutsong has caused many problems for the Abe Bailey reserve management including poaching, illegal grazing of cattle, frequent fires during the dry season as well as physical encroachment (Informal settlements and land cultivation.
- Wetland degradation. The formerly pristine wetlands have become choked with invasive Arundo reeds. Bridges and culverts have become clogged which has artificially enlarged the size of some wetlands. This has also caused an increase in occasional flooding of the main access road to Khutsong.

c) Opportunities

- Abe Bailey Extension. An opportunity exists to enlarge the Abe Bailey Reserve to about 3 times its current size. Land owned by the Far West Rand Dolomitic Water Association and Sibanye Gold has been made available for a large-scale agricultural program called Bokamoso Ba Rona. A large tract of that land is however designated

as Critical Biodiversity Area in terms of the West Rand Bioregional Plan and forms an eco-corridor that stretches along the Wonderfonteinspruit and includes the nature reserve. Therefore, it will be reserved for conservation and should be incorporated into Abe Bailey. This would triple the size of the reserve and bring it up to over 12 000 Ha, making it the largest proclaimed nature reserve in Gauteng. Once the phase 1 expansion is complete it would be possible to go on a 30 km game drive and a 15 km river bed game drive once roads are in place. A phase 2 and 3 expansion would be possible although it is only theoretical and would be costlier. Through these expansions the first national park on the Highveld and in the grassland biome could be established linking up Abe Bailey with the Kraalkop Game Reserve and the Boskop Dam Provincial Reserve in North West.

- Integrated tourism package. Together with the Abe Bailey Expansion the opportunities presented by the Khutsong dam, Karst features (Caves and sinkholes) and township tourism could serve as an integrated tourism package that would actually have enough gravitational power to draw in substantial amounts of tourists. The tourism activities would help to make conservation efforts more viable and sustainable.
- Wetland remediation. A study is needed on what measures should be taken to remediate the wetlands. In the interim, clearance of invasive weeds could commence, especially with regard to the Khutsong dam recreation area.
- Community involvement. The management of the reserve has already made great strides with involving the Khutsong community by educating them, establishing a traditional medicine nursery and creating a buffer zone where residents can cultivate crops and where fire breaks are established. Currently the reserve planes to put up a fence to keep cattle out of the reserve. The proposed integrated tourism package will provide numerous employment opportunities and will eventually contribute to illustrating the value of conservation to the community.

2. Gatsrand eco-corridor

a) <u>Locality and characteristics.</u>

The Gatsrand was formed by the meteorite impact at Vredefort which also created the Vredefort Dome World Heritage Site. It is a mountainous formation that starts in the JB Marks Municipality in North West and traverses Merafong in west to east direction through the mining belt (Gold deposits were created by the same meteorite impact) and terminates at the Suikerbosrand Provincial Reserve to the east. It is classified as an Ecological Support Area and contains 3 biomes namely grassland, savanna and forest. The veld types that occur along this corridor include Rand Highveld Grassland, Gauteng Shale Mountain Bushveld, Gold Reef Mountain Bushveld, and Northern Highveld Afrotemperate Forest (Not yet mapped). Two areas of exceptional natural beauty are protected by Anglo Gold Ashanti. The one has been developed as a game reserve called Kraalkop.

b) <u>Threats</u>

- Mining. Some areas have been contaminated although in more recent times mining companies have reduced the environmental impacts of their operations. The biggest concern now lies in rehabilitation after shafts close down. This area contains numerous mining operations and villages that will have to be

rehabilitated once mining ceases due to their unviable localities for adaptive re-use.
- Invasive alien plant infestations. In most cases tree species that have become invasive can be traced back to trees planted to keep dust inert on tailing storage facilities and to beautify mine villages without knowing the consequences.
- Unsustainable cattle grazing. Cattle overgrazing next to Wedela is causing serious damage to veld and causing erosion in places.

c) Opportunities
- Enlarge conservancies. Virtually all land along this mountainous corridor is mine owned and conservancies could be expanded whilst the ecologically less important and disturbed land outside the corridor could be utilised for cattle grazing. If the conservancies are enlarged to a much larger extent they could connect with the extended Abe Bailey Reserve.

3. Loopspruit eco-corridor

a) Locality and characteristics

The Loopspruit originates in the Gatsrand hills and is artificially enlarged by mine water discharges and 2 Waste Water Treatment Works of Fochville-Kokosi-Greenspark and Wedela. Along its course through Merafong it forms several wetlands in areas with low gradients.

b) Threats
- Urban pollution. Significant sewage spills are taking place repeatedly from both the Kokosi and Wedela WWTWs. Emergency measures are being put in place to improve the situation. The Wedela plant is being changed from an activated sludge process to an oxidation dam system to deal with the problem of equipment theft and maintenance costs.

c) Opportunities
- Managed conservancies for piggery buffers. There are a number of piggeries along the western/northern banks of the river. These piggeries require biosecurity buffers. It should be investigated whether these buffers could be converted to conservancies and if the land owners would be interested in the idea.

4. Losberg Critical Biodiversity Area

a) Locality and characteristics

As its name implies, Losberg is a loose standing mountain with a second hill called Little Losberg. The hills and surrounds are home to 3 biomes namely grassland, savanna and forest. The dominant veld types include Andesite Mountain Bushveld in the mountainous slopes, Rand Highveld and Soweto Highveld Grassland on the lower hills and surrounding plains as well as Northern Highveld Afrotemperate Forest (Unmapped) on the southern slopes. Land use in the area is dominated by game farms and a large chemical explosives manufacturing plant although the plant seems to be managing its environmental impacts very well.

b) Threats

- No significant threats have been identified

c) Opportunities
   - Given the fact that land use in the area is dominated by game farms it should be relatively easy to establish conservancies. The area has tourism potential related to hunting, game viewing, mountain biking, hiking, etc.

The Gauteng Protected Areas Expansion Strategy (GPAES)

Protected areas are fundamental to effective biodiversity conservation. A system of protected areas must be representative and effectively secured and managed if biodiversity is to persist in the long-term. A system of protected areas may also contribute towards the mitigation of, and adaptation to, climate change impacts on biodiversity. Protected areas are maintained and expanded through expansion and consolidation of the protected area system, focussing on priority areas for representation and persistence of biodiversity. In Gauteng, this expansion is undertaken through the Gauteng Protected Areas Expansion Strategy (GPAES). The GPAES provides a framework for protected area expansion in the province. It sets out key strategies for protected area expansion and identifies spatial priorities and protected area targets.

The focus of the GPAES is to:

1) Secure priority areas of natural or near-natural habitat for representation and persistence of biodiversity.
2) Secure water resources and other areas of key ecological functionality to ensure acceptable standards of ecosystem health and species diversity are maintained.
3) Establish a system of ecological corridors, which will potentially include areas of degraded habitat that facilitate the movement and dispersal of key species across Gauteng and between adjoining provinces.
4) Consider the implications of climate change and how the protected area system can be designed to allow for its impacts.

In prioritising the GPAES spatial layer, the following categories have been adopted:

- Level 1: The largest intact areas in which the C-Plan Version 3.3 irreplaceability layer, NPAES (National) spatial priority layer and threatened ecosystem layer overlap in areas of natural habitat.
- Level 2: The largest intact areas in which two of the three layers overlap in areas of natural habitat.
- Level 3: The largest intact areas within one of the three layers in areas of natural habitat.

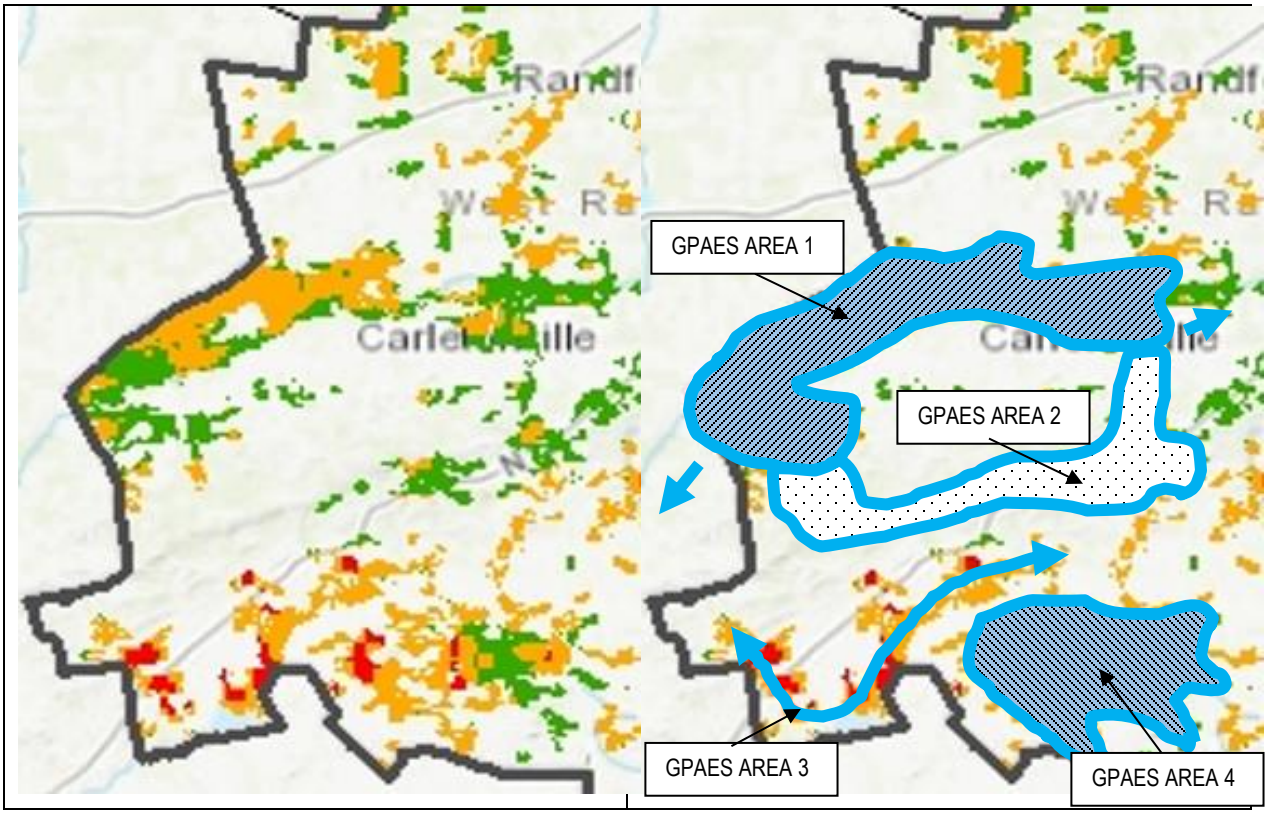
Relevance to the MSDF:

Merafong has 4 areas of interest with regards to Level 1 to 3 GPAES prioritised areas. These relate directly to the biodiversity areas of interest:

1. Wonderfonteinspruit eco-corridor. It contains mostly level 2 and some level 3 areas. This area should be a local priority because it has massive expansion potential. It comprises more than 12 000 Ha of land and is owned by a mining company willing to donate

ecologically sensitive land for conservation purposes. This area is included as a major project for the municipality.

2. Gatsrand eco-corridor. Includes some level 3 areas, however most of it fall out of the 3 categories. Although less important in terms of the GPAES agenda it will be relatively easy to expand in this area. Therefore it should be considered implementation in less than 5 years.
3. Loopspruit eco-corridor. Consists of a mixture of level 1 and 2 areas. Although not as large as area 1, area 3 contains the most level 1 land in Merafong. It will unfortunately be the most dificult to implement of all the areas because it is located on privately owned farm land. Despite this serious consideration should be given.
4. Losberg. Consists of areas designated as level 1, 2 and 3. The expansion potential of this area will be relatively easy despite the fact that it is privately owned farms.



The following table depicts the mapped veld types in Merafong and their Gauteng expansion targets.

Vegetation type	Andesite Mountain Bushveld	Carletonville Dolomite Grassland	Eastern Temperate Freshwater Wetlands	Gauteng Shale Mountain Bushveld	Rand Highveld Grassland	Soweto Highveld Grassland
Remaining extent within Gauteng	54 921ha	109 881ha	11 191ha	58 948ha	106 059ha	128 099ha
Current area protected within Gauteng	14 684ha	12 582ha	1 604ha	1 503ha	7 089ha	1 263ha
Gauteng province's 5-year PA expansion target	136ha	5 249ha	354ha	1 664ha	7 294ha	13 891
Gauteng province's 20-year PA expansion target	545ha	20 997ha	1 417ha	6 657ha	29 174ha	55 563ha
Target percentage of remaining vegetation	1%	19%	13%	11%	28%	43%
Largest un-transformed fragment	11 697ha	35 866ha	2 471ha	36 346ha	20 340ha	8 834ha
Total extent within Merafong	3300ha	66800ha	48ha	35600ha	54600ha	6650ha
Total area protected within Merafong	0ha	4100ha	0ha	0ha	0ha	0ha

Gauteng Ridges Guidelines, v8.1 of 2018

The Gauteng ridges are limited in distribution and hold unique plant and species composition. The ridges are beneficial for recharging groundwater, wetlands and rivers, and are considered as biodiversity hotspots and habitats for Red List species *(Red List: Species classified by the IUCN Red List into nine groups, specified through criteria such as rate of decline, population size, area of geographic distribution, and degree of population and distribution fragmentation).* In addition, ridges have an aesthetic value, in that they provide pleasant surroundings for visual enjoyment by citizens and recreational enjoyment by tourists.

The guidelines developed by GDARD: Biodiversity Management, provide information on the appropriate use and development around ridges based on their class and value. Ridge typologies:

- **Class 1** ridges are ridges in respect of which 5% or less of the area has been transformed by human activity. (Approximately 58% of ridges currently fall within Class 1, including the Suikerbosrand and parts of the Magaliesberg).
- **Class 2** ridges are ridges in respect of which more than 5%, but by less than 35%, of the ridge has been transformed by human activity. (Approximately 23% of ridges currently fall within Class 2, including parts of the Magaliesberg, ridges falling within the Cradle of Humankind World Heritage Site, the Klipriviersberg, the Bronberg and the Skurweberg).

- **Class 3** ridges are ridges that have been transformed by 35% or more, but by less than 65%, as a result of human activity (Approximately 8% of ridges currently fall within Class 3, including the Northcliff, Roodepoort and Krugersdorp ridges).
- **Class 4** ridges are ridges that have been transformed as a result of human activity by 65% or more. (Approximately 11% of ridges currently fall within Class 4, including the Melville Koppies and the Linksfield Ridge).

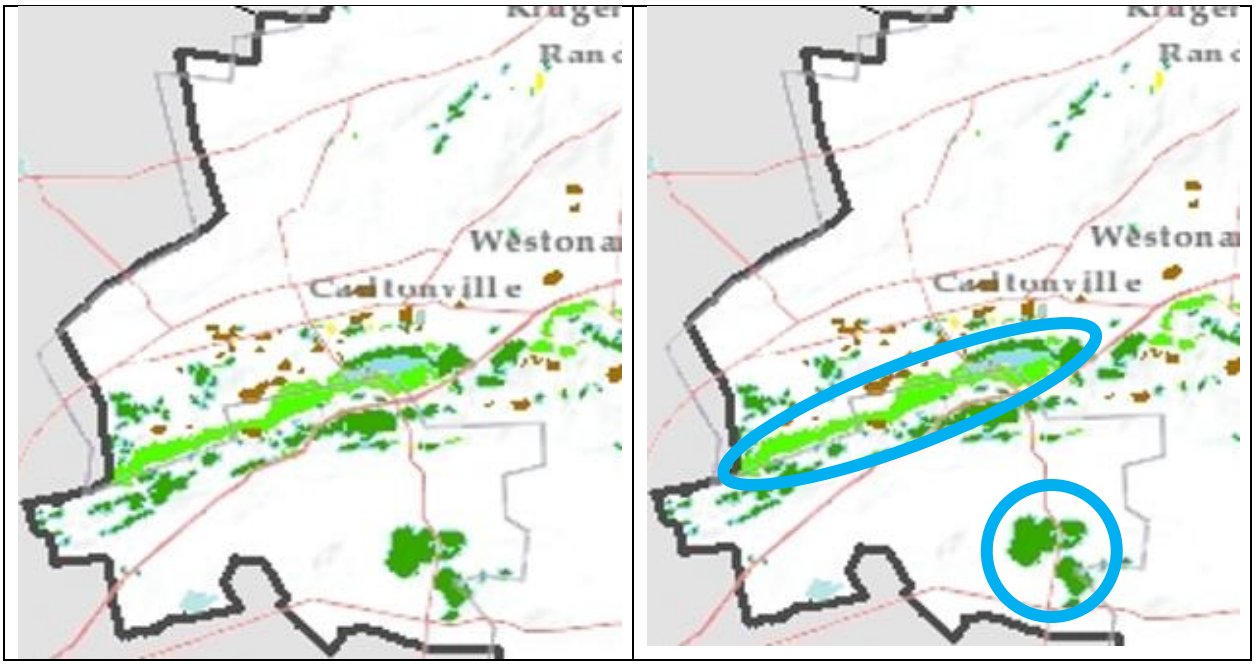
Ridge management guidelines:

- **Class 1 ridges**
  - Only low impact activities with an ecological footprint of 5% or less in the 200-metre buffer zone of the ridge will be supported, no development will be permitted on the ridge itself.
- **Class 2 ridges**
  - Development activities and uses that have a high environmental impact on a Class 2 ridge will not be permitted.
  - Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported. (The ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision).
  - Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge.
- **Class 3 ridges**
  - The guidelines for Class 2 ridges will be applied to areas of the ridge that have not been significantly impacted on by human activity.
  - The guidelines for Class 3 ridges will be applied to areas of the ridge that have been significantly impacted on by human activity.
- **Class 4 ridges**
  - Further development activities will not be supported in areas of the ridge where the remaining contiguous extent of natural habitat is 4ha or more.

Relevance to the MSDF:

In Merafong there are 2 main areas of concern:

- The Gatsrand eco-corridor. This area has a mixture of different classes brought about by mining activity. In some areas the extent of transformation may be underestimated.
- Losberg. Less than 5% of Losberg has been transformed.



The Gauteng Provincial Environmental Management Framework (GPEMF)

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

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

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.

Composition

The Urban Development Zone is composed of the following control areas within the area covered by the GSDF:

- Urban existing developed land;

- Urban development priority;
- Rural development priority;
- Rural and urban development priority.
- Conservation and agricultural priorities;
- Conservation and urban development priorities;
- Conservation, urban development and rural development priorities;
- Agriculture and urban development priorities;
- Agriculture, conservation and rural development priorities

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.

Composition

Sensitive areas within the Urban Development Zone include:

- Conservation priority areas (CBAs: Irreplaceable areas);
- Rivers (including 32m buffers);
- Ridges;
- Areas that are sensitive (as determined in the sensitivity assessment); and
- Protected areas.

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.

Composition

The following areas have been identified in this zone:

- CBAs (Irreplaceable and Important areas) and ESAs outside the urban development zone as defined in C-Plan 3.3;
- Rivers (including a 32m buffer on each side) and currently undeveloped ridges that must be conserved;
- Areas that are sensitive (as determined in the sensitivity assessment); and
- Protected areas.

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 (such as old and even current mining areas). Certain currently listed activities, in addition to those intended for Zone 1 may be excluded from environmental assessment requirements in this zone in future.

Conditions

- Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and storm water loads of increased densities; and
- Development in this area must identify any unmapped wetlands, especially seep areas that may occur on any site and when necessary apply for the required water use licence.
- Non-polluting Industrial promotion areas where selected activities are to be excluded from EIA processes in addition to those excluded in Zone 1.

Special Control Zones

There are no Special Control Zones located within Merafong.

<u>The Gauteng Environmental Management Framework (EMF): GPEMF Standards</u>

The National Environmental Management Act (NEMA) provides for the exclusion of listed activities from undergoing an EIA process in terms of the Environmental Impact Assessment Regulations, 2010. Activities are only proposed for exclusion in **EMZ 1** (Urban development zone) and **EMZ 5** (Industrial and commercial development focus zone). This has been gazetted in Gauteng as **'The GEMF Standards'.**

Zone 1: Urban development zone

Intention:

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.

Conditions:

Development in this zone must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and storm water loads as a result of increased densities. Existing open spaces and urban parks should be retained as open space to cater for the open space needs of the foreseen increased densities; and Storm water drainage must be in accordance with the Water Research Commission Report, 2012 and the South African Guidelines for Sustainable Drainage Systems.

Zone 5: Industrial and large commercial focus zone

Intention:

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 (such as old and even current mining areas). Certain currently listed activities, in addition to those intended for Zone 1 may be excluded from environmental assessment requirements in this zone in future.

Conditions:

Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and storm water loads of increased densities; and Development in this area must identify any unmapped wetlands, especially seep areas that may occur on any site and when necessary apply for the required water use licence. Non-polluting Industrial promotion areas where selected activities are to be excluded from EIA processes in addition to those excluded in Zone 1.

Pollution Buffer Zone Guidelines

The purpose of this guideline is to ensure that the residents of the Gauteng province are protected from the emissions from pollution generators. The guidelines spatially document and categorise industrially affiliated activities and establish buffers around them to ensure that only the compatible land uses are allowed in the buffer areas. Care should be taken in the placement of incompatible land uses with an emphasis on mitigation measures that will be implemented; this should not be a norm but a consideration on a case by case basis. The primary concern is to ensure that the people who live in Gauteng are protected from the negative health impacts of such activities. The prescribed categories are explained below:

Classification:

Industries and other pollution sources identified in Gauteng were classifies based on the department's brief and the release or potential for the release of harmful effluent or emissions and associated nuisance factors like noise. The classification is made on the basis of the nature and level of pollution or potential release of effluents or emissions associated with particular industrial areas.

Category 1: Industrial areas with pollution risks that can have potentially serious health effects on a large scale.

- Best case buffer: 1500m
- Worst case buffer: 750m

Category 2: Industrial areas with pollution risks that may cause minor health effects or with activities that results in nuisance rather than actual health impacts.

- Best case buffer: 500m
- Worst case buffer: 250m

Category 3: Industrial areas that pose little or no health impacts and may result in a nuisance on localised scale

- Best case buffer: 100m
- Worst case buffer: 50m

Other categories include the following:

- Sewerage treatment works: Best case buffer: 800m, Worst case buffer: 500m.
- Landfill sites/ Waste disposal facilities: Class A: 2000m, Class B: 1000M, Class C: 400m and Class D: 200m.
- Mine dumps (rock dumps or stockpiles): Best case buffer: 100m, Worst case buffer: 0m
- Mine slimes dams and ash dumps: Best case buffer: 1000m, Worst case buffer: 500m.
- The Pelindaba nuclear facility complex: Best case buffer: 5 000m, Worst case buffer: 2 000m.

Relevance to the MSDF:

In Merafong most pollution impacts emanate from mining activity and waste water treatment works. Some urban areas were built inside minimum areas for tailing storage facilities. Fortunately, these tailings are being re-worked and the sites rehabilitated, although it will take decades to complete. The Merafong Urban Development Boundary avoids buffer areas. Municipal facilities that buffers have been created for include:

- Waste Water Treatment Works = 800 meters
- Landfill site = 1 000 meters

Threatened Ecosystems

The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to preserve witness sites of exceptionally high conservation value.

Critically Endangered (CR) ecosystems

Ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation

Endangered (EN) Ecosystems

Ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems

Vulnerable (VU) Ecosystems

Ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems;

Protected Ecosystems

Ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed as critically endangered

Relevance to the MSDF:

Merafong hosts 2 vulnerable veld types:

- Soweto Highveld Grassland. A relatively small area of about 6 650 Ha is located in the south eastern part of the municipality. From here it traverses the province and includes parts of Mpumalanga up to the town of Bethal. The small area of Merafong it encompasses has been transformed by agriculture and is not of significant conservation value any more. Arguably this small area will disappear as climate change will likely cause this veld type to migrate eastwards.
- Rand Highveld Grassland. A sizable 54 400 Ha of the southern parts of Merafong host this veld type. Significant portions of the Loopspruit eco-corridor comprise of Rand Highveld Grassland. Significant parts of its extent that were previously cultivated have now partially returned to a natural state under grazing.

<u>National Freshwater Ecosystem Priority Areas (NFEPAs)</u>

The NFEPA project aimed to:

1) Identify Freshwater Ecosystem Priority Areas (hereafter referred to as 'FEPAs') to meet national biodiversity goals for freshwater ecosystems; and
2) Develop a basis for enabling effective implementation of measures to protect FEPAs, including free-flowing rivers.
   The NFEPA study responded to the high levels of threat prevalent in river, wetland and estuary ecosystems of South Africa.

NFEPAs provides strategic spatial priorities for conserving the country's freshwater ecosystems and supporting sustainable use of water resources. These strategic spatial priorities are known as Freshwater Ecosystem Priority Areas, or 'FEPAs'.

The following sub-objectives were identified to accomplish the aims of the NFEPAs:

- Establish criteria for identifying FEPAs and freshwater rehabilitation priorities.
- Explore the legal and institutional mechanisms for promoting the management and conservation of FEPAs and catalyse the formal and informal processes required for cooperation.
- Develop data and maps of FEPAs at a national scale, as well as at a catchment management scale.

- Develop an atlas of freshwater biodiversity planning in South Africa, using the NFEPA map products and data.

FEPA maps show rivers, wetlands and estuaries that need to stay in a good condition in order to conserve freshwater ecosystems and protect water resources for human use. River FEPAs are often tributaries that support hard-working mainstream rivers and are an essential part of an equitable and sustainable water resource strategy. This does not mean that FEPAs need to be fenced off from human use, but rather that they should be supported by good planning, decision-making and management to ensure that human use does not impact on the condition of the ecosystem. The table below represents the ecological state categories used to describe the current and desired future condition of South African rivers. For NFEPA, rivers in an A or B category were regarded as being in good condition.

Relevance to the MSDF:

Merafong has 2 rivers classified under the National Freshwater Ecosystem Priority Areas process:

- The Wonderfonteinspruit is classified as Critically Modified. This status is mostly due to mining and the fact that the river runs in a pipe between Randfontein and Carletonville. As mentioned before the river ecosystem has suffered impacts from mining pollution, urban pollution and invasive alien plants. All developments that could impact on this river system should propose remedial actions. Due to the strict discouragement of allowing water to infiltrate the soil in SANS 1936 of 2012 because of dolomitic constraints, storm water management does not offer solutions.
- The Loopspruit is classified as Largely Modified. This river is affected by mining and urban pollution. Fortunately, the area it flows through is not affected by dolomite which makes remediation of storm water through tools such as bio swales possible. Improved storm water practices should be investigated.

<u>Strategic Water Recharge Areas (SWAS)</u>

Strategic water source areas (SWAS) are those areas that supply a disproportionate amount of mean annual runoff to a geographical region of interest. Strategic water source areas are important because they have the potential to contribute significantly to overall water quality and supply. SWAS can be regarded as natural 'water factories', supporting growth and development needs. SWSAs have historically been defined using the criterion of the production of relatively large volumes of runoff which sustain lowland areas downstream.

The main objectives of SWAS are to:

- Review and refine the understanding of the hydrological processes that lead to the generation of runoff and groundwater recharge in South Africa's water source areas, and especially in groundwater systems.
- Develop an integrated method to identify and delineate water source areas that include run-off generation and groundwater recharge (i.e. surface water and groundwater).
- Link the water source areas and their associated water resources to key benefit flows.

- Identify key pressures and recommend management and protection options water source areas.
- Explore policy mechanisms for the uptake of the products.

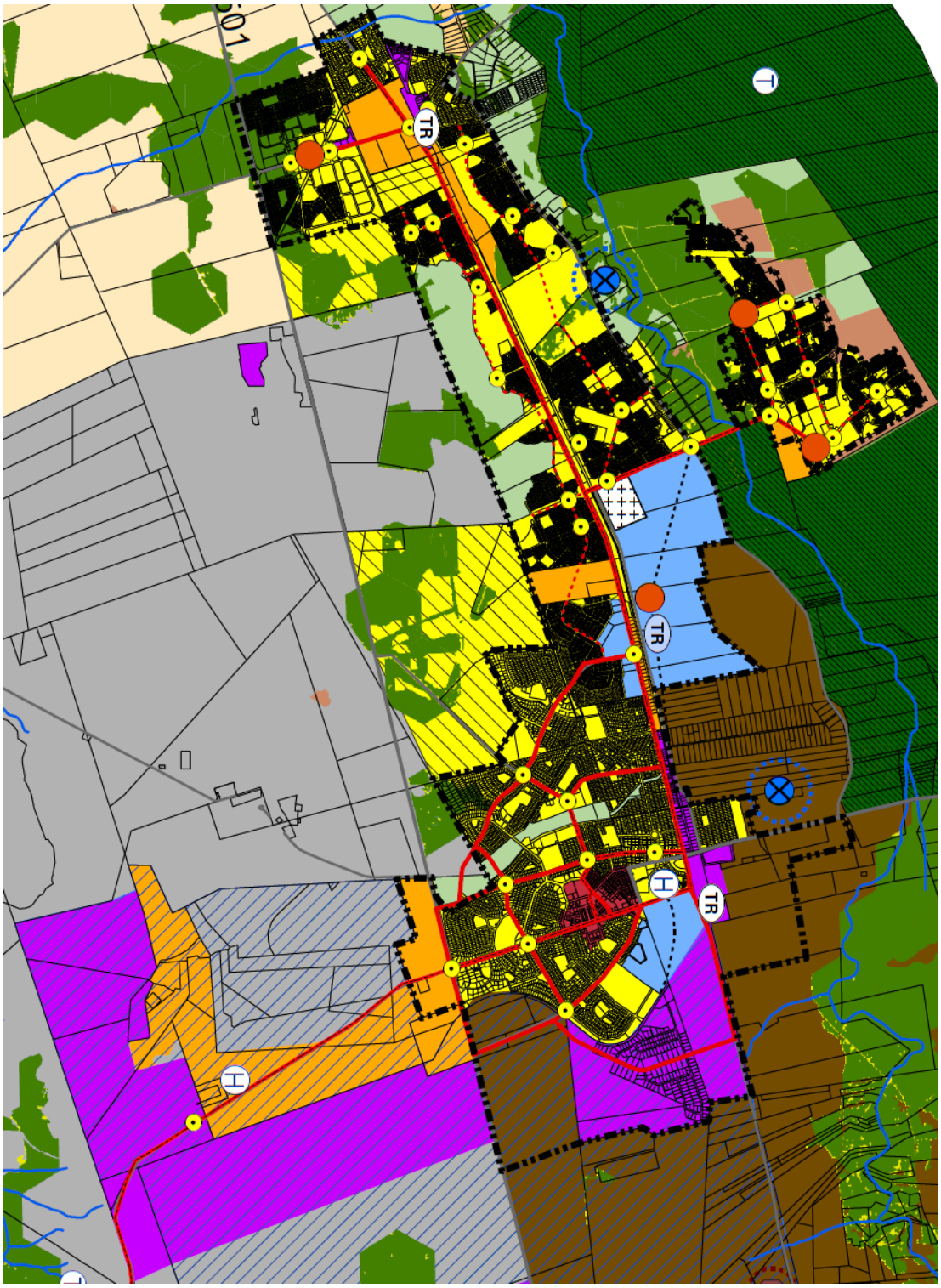
The SWAS identifies 3 groundwater source areas in Gauteng that are considered to be strategically important for water and economic security for South Africa. They have a key role in sustaining many towns, industry and irrigated agriculture.

Merafong hosts 2 of the 3 source areas:

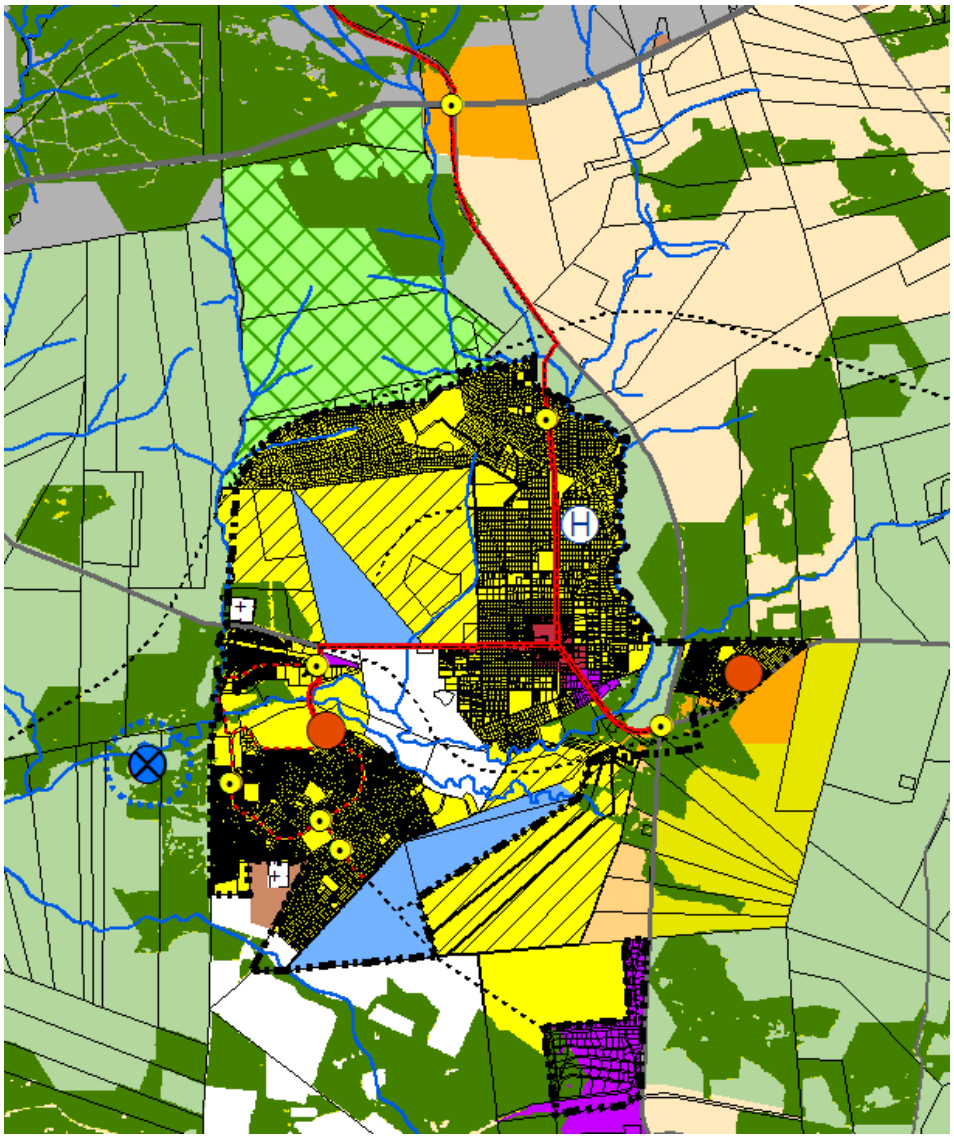
- West Rand Karst Region. This area is used for irrigation agriculture to a limited extent and is not affected by urban development or significant pollution.
- Far West Karst Region. This region falls squarely under the northern urban area of Merafong and is affected by mining pollution. Most compartments of this aquifer have been de-watered by mining activities. Thus far the impact has been limited because the water level is kept below mining level by continuous pumping. This aquifer could become seriously contaminated if it is allowed to re-water. The sinking of boreholes is strictly limited and monitored by the Council for Geoscience.

6 THE MSDF MAIN MAP

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

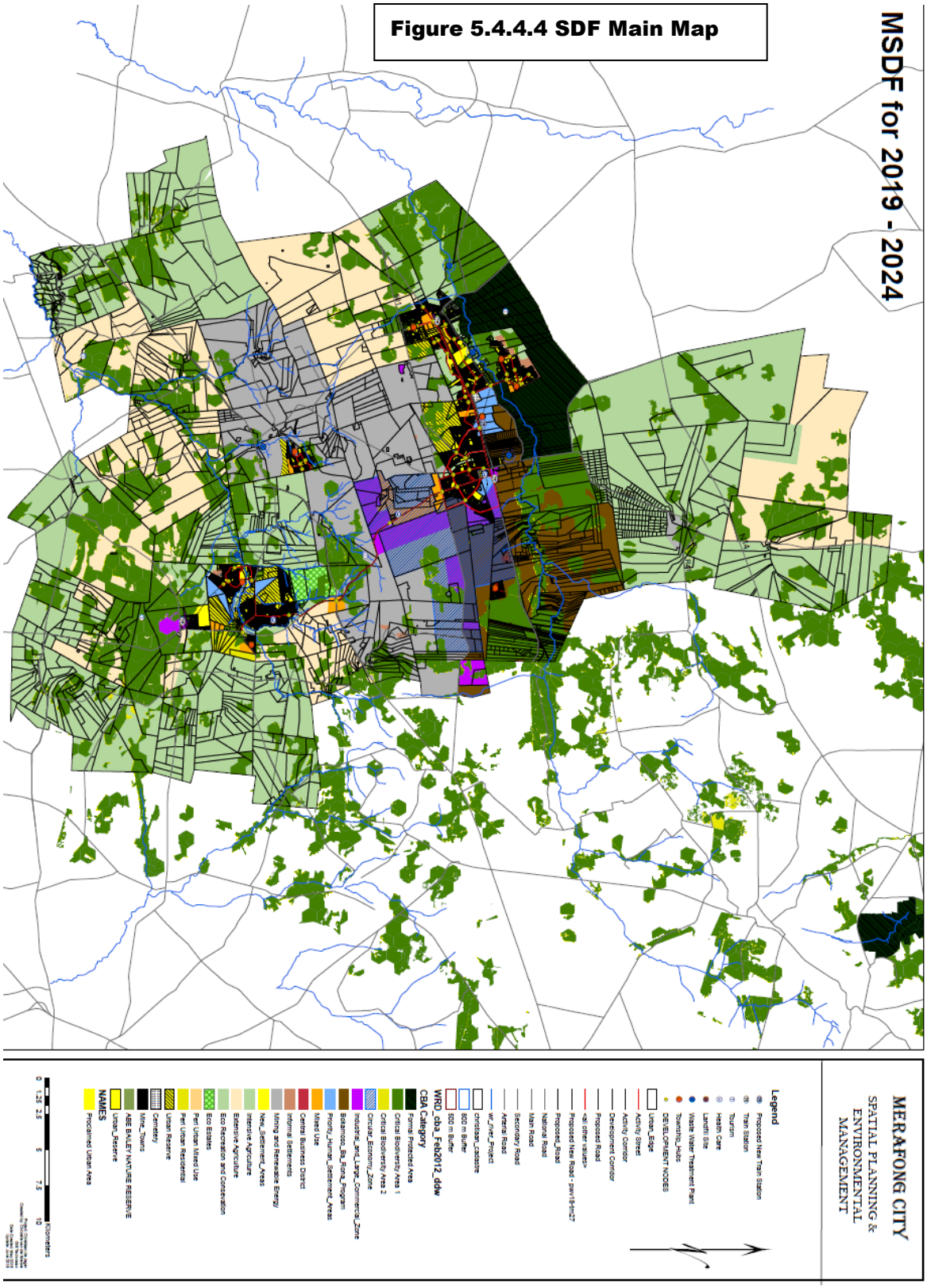


Northern Urban Area (Carletonville) (Above)



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.
 Proposed New Train Station	

Train Station	Existing or proposed train stations on Transnet lines. All lines carry freight and passengers although the Fochville Station lies dormant currently. Proposed localities for new PRASA stations. Transit Oriented Development will occur within walking distance of these stations.
Township_Hubs	The main activity nodes within previously disadvantaged areas planned to accommodate public transport, government facilities and private sector activities. These localities will become the gateways to and from the townships and aim to bring more urban functions into these areas.
Landfill Site	Rooipoort 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.
500 m Buffer	A 1 000 meter buffer in terms of the Gauteng pollution Buffer Zone Guidelines.
800 m Buffer	An 800 meter buffer in terms of the Gauteng pollution Buffer Zone Guidelines.
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.
Informal Settlements	Occurrence/grouping of informal residential structures. To be resettled in more sustainable areas. Further expansion to be controlled and redirected to transfer areas where services are provided.
Priority_Human_Settlement_Areas	Areas earmarked as the most sustainable localities for public sector housing in order to transform Merafong into a single integrated city in the future.
Urban Reserve	

	Land earmarked for future expansion. Development within this area should take future plans into account. This land may fall outside the urban edge.
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
Mine_Towns	Unproclaimed mine villages. These areas are regulated through the Unproclaimed Mining Areas Overlay Zone.
Peri Urban Residential	Transition between urban and rural land uses. Lower density residential, agriculture and tourism. Could include non-intrusive agri-business.
Bokamoso_Ba_Rona	Land parcels where activities associated with the Bokamoso Ba Rona Program will enjoy preference over other uses (where practical). These include agricultural production, hydroponics, aquaponics, aquaculture, farmer support functions, etc. Refer to Section 5.1.4; 5.3.1
Peri_Urban Mixed Use	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, ✓ 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.

Formal Protected Area 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
Critical Biodiversity Area 1 Critical Biodiversity Area 2	Areas of critically important biodiversity. These areas are regulated by the Environmental Control Overlay Zone in terms of the West Rand Bioregional Plan
Eco Recreation and Consevation	These are areas of high biodiversity that contain sensitive terrestrial and/or aquatic ecosystems that should be preserved. Controlled recreation, tourism and other economic activities. Refer to Section 5.4
Eco Estates	Low density gated estates that are highly conscious of environmental impacts and keep biodiversity intact. Township establishments are required.

- These development zones/areas do not grant land use rights directly. The correct land use rights in terms of the Merafong Land Use Scheme have to be obtained.
- In order to avoid misconceptions, users of this document are strongly encouraged to
  a) make sure what their existing land use rights (Zoning rights) are, and to
  b) contact the Spatial Planning Section before making any investment decisions based on these development zones/areas.
- Contact details: 018 788 9039/9696