made with regard to the economic viability and sustainability of Emfuleni, such as the development of retail and office nodes and industrial and commercial areas.

c. Infrastructure Development

The proposals included guidelines for the development of transportation infrastructure, the promotion of public transport and the integration of land use and transportation. The concept of Transit Oriented Development (TOD) was employed. The proposals also guided the development of municipal infrastructure by applying the land use budget, which estimated the extent of future urban development within Emfuleni.

d. Housing Development

Proposals not only addressed the housing backlog within the Municipal Area, but housing was also applied as a strong form-giving element that would impact on the future development of the Municipal Area. For example, housing was used as an infill land use, which could integrate the fragmented urban area currently found within Emfuleni. Also, housing was used to provide the necessary land use densities to support public transport and retail centre development within the Municipal Area.

e. Open space conservation

Guidelines for the conservation of natural open space and the creation of an open space lattice were proposed. These proposals were based on existing environmental documents, such as C-Plan2 that was prepared by GDARD.

Phase 5: Strategic Environmental Assessment

The primary aim of the Strategic Environmental Assessment (SEA) was to evaluate the Emfuleni SDF proposals and its impact on the natural, social and infrastructural environment. This was done in order to determine the sustainability of the proposed spatial development pattern and to propose mitigating measures to limit the negative impacts that these proposals may pose to the natural environment.
Phase 6: Land Use Management System

The Development Framework set out above, was translated into a Land Use Management System (LUMS) that can be used to implement the Framework proposals through applications for land use change. Detailed land use management issues pertaining to the implementation of the Development Framework proposals were addressed. The Land Use Management System was presented in the following mutually supporting formats:

a. Demarcated zones

Emfuleni was divided into a number of Land Use Management Zones. Each of these zones aimed to promote the development of a specific land use character within the Municipal Area through the application of land use mix and density.

b. Land use matrix

The Land Use Management System was presented in a matrix format for easy reference and use by municipal planners, developers and property owners. The matrix was linked to the demarcated zones mentioned above and must be read with these zones. The matrix defines the land use mix and density to be allowed within each demarcated zone.

Phase 7: Implementation Framework

A comprehensive Implementation Framework was prepared for the implementation of the proposals made in the Emfuleni SDF. This Implementation Framework contained the following components:

a. Development programme

The Emfuleni SDF phased the development of Emfuleni over a number of years. This development programme aims to guide the township establishment process and the approval of land use rights within Emfuleni. In addition, this programme enables the planning of the roads and bulk municipal services infrastructure that needs to coincide with and support each development phase. This phasing programme also enables the planning of affordable housing development and the provision of the necessary supporting community facilities.
b. Capital Investment Programme

A rudimentary Capital Implementation Programme (CIP) was prepared; based on the development programme set out above. The CIP focuses on the public sector investment needed to unlock the development potential of Emfuleni.

1.2.2. GIS DATABASE COLLATION

The spatial and infrastructure planning information pertaining to the Emfuleni Municipal Area was drawn into a GIS database. The electronic mapping and other information was made available to the Municipality for inclusion in their GIS database and is compatible with the Municipality’s Geographical Information System. Care was taken to ensure that the information that was presented is as true as possible, legible and user-friendly.

1.2.3. STAKEHOLDER PARTICIPATION

It was considered essential to obtain buy-in into the Emfuleni Spatial Development Framework. To achieve this, Urban Dynamics Gauteng consulted with all the relevant stakeholders. Consultation was conducted on the following three levels:

a. Project Manager

Monthly meetings were held with the municipal project manager and the core municipal planning team responsible for the management of the Emfuleni SDF. This enabled the municipal project manager to be kept up to date with the progress of the project.

b. Technical Steering Committee
Two meetings were held with the Technical Steering Committee, which included relevant municipal technical representatives from all the relevant municipal departments of the Municipality. Technical meetings were convened and chaired by the Municipality. Provision was made to allow Steering Committee members to review all interim project documents.

c. Community Stakeholders

Urban Dynamics Gauteng consulted with key local stakeholders in Emfuleni. To ensure relevant and needs-accurate inputs are obtained, the consultation process targeted specific stakeholders that have a good understanding of Emfuleni, but who also had the necessary experience of and exposure to town planning and town planning principles. This will include ward representatives, environmental action groups, property owners, town planning consultants, developers, and resident’s associations.

In total, 2 project presentations were presented to the Technical Steering Committee, one after the completion of the draft Status Quo (Phase 2) and one after the completion of the draft Development Framework proposals (Phase 4). To accommodate local stakeholders, a presentation was held where all ward representatives were present. A report was prepared detailing the public participation process followed. This report is included as the last chapter of the Emfuleni SDF report. This report sets out the consultation process followed, as well as the comments received on the draft Emfuleni SDF report.
SECTION 2: STATUS QUO

2.1. CONTEXTUAL SETTING

The Emfuleni Municipal Area (also referred to as Emfuleni) is located within the southern region of the Gauteng Province. As depicted on Figure 1, Emfuleni is situated south of Johannesburg and southwest of Ekurhuleni. Midvaal is situated between Emfuleni and Ekurhuleni. To an extent, Emfuleni is peripherally located within Gauteng and it is therefore not well-located in terms of access to core employment opportunities found within the region, which is mostly found within the triangle formed by the Johannesburg CBD, the Tshwane CBD and the OR Tambo International Airport. However, Emfuleni is well-connected to its neighbouring municipal areas by the N1 freeway and the R59 freeway (amongst others), which gives it access to these areas and the employment opportunities that are found within these areas. The Vaal River forms the southern boundary of Emfuleni. It also forms the boundary between the Gauteng Province and the Free State Province. The Vaal River is a popular tourist destination and weekend holiday destination.

Figure 2 depicts an aerial photograph of Emfuleni. It is evident from this photograph that Emfuleni is basically separated in terms of land use by the N1 freeway. Emfuleni is mostly rural in nature to the west of the N1 freeway, comprising smallholdings and farmland. In contrast, Emfuleni is mostly urban in nature to the east of the N1 freeway. The eastern half of Emfuleni includes (amongst others) Evaton, Sebokeng, Vanderbijlpark Boipatong, Bophelong, Sharpeville, Vereeniging and Three Rivers. Mittal Steel is located in the centre of Emfuleni, between Sebokeng and Vanderbijlpark. This industrial facility is one of the largest heavy industrial facilities within Gauteng. Coal mining land is situated on the southeastern boundary of Emfuleni, directed southeast of Vereeniging.

2.2. EXISTING POLICY

A number of policy document relating to spatial development within Emfuleni have been developed in recent years. These documents include the Sedibeng Growth and Development Strategy 2005, the Sedibeng Spatial Development Framework 2009, and the Emfuleni Spatial Development Framework 2009/10. These policy documents are recognized as the basic points of
departure in the formulation of the Emfuleni SDF 2011. This will be done to ensure that the Emfuleni SDF meets the objectives of overarching plans such as the Sedibeng Growth and Development Strategy and the Sedibeng Spatial Development Framework, which aim to integrate spatial development on a regional level. Where the Emfuleni SDF 2001 differs from these plans, the reasons for this will be clearly explained during the course on the document.

2.2.1. SEDIBENG GROWTH AND DEVELOPMENT STRATEGY 2005

The Sedibeng Growth and Development Strategy aims primarily to house the entire Sedibeng population in an integrated and sustainable human settlement pattern by way of implementing the following strategic guidelines:

- Infiling and densification should be prioritized
- Housing provision needs to be integrated with engineering and social services provision in order to enhance sustainability
- A functioning property market need to be created through the development of mixed income human settlements
- A range of alternative housing typologies and tenure option need to be provided

2.2.2. SEDIBENG SPATIAL DEVELOPMENT FRAMEWORK 2009

The Sedibeng Spatial Development Framework was drafted for the Sedibeng District Municipality to guide spatial development within Sedibeng. This document is a primary policy document that guides urban development within Sedibeng on a regional level. The Emfuleni SDF thus needs to heed the spatial development principles and objectives set out in this document. The following main development principles of the Sedibeng SDF aim to guide the spatial structuring of the Sedibeng District:

- Promoting economic activity within the core development triangle formed by Sebokeng, Meyerton and Vanderbijlpark.
- Development and promote specialised activity nodes within the core development triangle.
- Optimise linkages within the core area.
- Link disadvantaged communities to the core area.
- Develop mixed use, high-density development along corridors and at nodes.
- Structure the Integrated Regional Public Transport Network (IRPTN) to support development corridors.
- Extend economic activities to Previously Disadvantaged Areas (PDAs).
FIGURE 1: EMFULeni Area Locality
• Promote infill residential development.
• Upgrade engineering and social infrastructure in townships.
• Maintain and upgrade residential quality in suburbs.
• Formalize and protect the metropolitan open space system.
• Promote access to services through Customer Care Centres (CCCs).
• Implement a statutory Urban Development Boundary.
• Support and promote land reform.

The following spatial objectives were derived by the Sedibeng Spatial Development Framework:

• Create a continuous and sustainable open space network through the Sedibeng district.
• Promote a system of functionally defined activity nodes within the district.
• Optimise linkages between the identified nodes within the district, as well as linkages between the disadvantaged communities and the main employment centers. The current commuter rail linkages should be promoted as the main public transport corridors within the district.
• Demarcate an Urban Development Boundary and enforce it in order to strengthen the existing urban areas and nodes, to contain urban sprawl, to promote a more compact urban development pattern and to protect the agricultural and ecological potential of the district.
• Future urban development should consist primarily of infill and densification within the proposed Urban Development Boundary.
• Maximise the major development opportunities within the district.
• Promote high-density development along main public transport routes.
• Focus the upgrading of services in previously disadvantaged township areas.

The ensuing proposals of the Sedibeng Spatial Development Framework are as follows:

a. Nodal development

The Sedibeng SDF considers the main urban node within the District to remains the Vereeniging/Vanderbijlpark complex, supported by the secondary urban nodes of Meyerton (located in Midvaal) and Heidelberg (located in Lesedi). The respective Central Business Districts of Vereeniging, Vanderbijlpark, Meyerton and Heidelberg were identified for revitalization.
b. Corridor development

A major economic development corridor is proposed along the P156 (R59 freeway), while the K147 (Barrage Road) is seen as a secondary activity spine over the long term. Future integrated development was proposed along the N1 freeway, as well as along the K57 (Johannesburg Road), the K45 (Golden Highway) and K147 (Barrage Road). It was proposed that developments adjacent to corridors, which are located outside the Urban Development Boundary, be supported for tourism, commercial and higher density residential development.

c. Township development

The Sedibeng SDF proposed that the Evaton and Sebokeng complex should be the focus area for future reconstruction and redevelopment initiatives. In general, the Sedibeng SDF proposed that development opportunities should be maximised in areas where existing engineering infrastructure existed. The SDF revised Urban Development Boundary should guide decision-making on developmental applications within Sedibeng and aims to promote the intensification of the existing urban structure.

d. Tourism and rural development

The Sedibeng SDF proposed that tourism development should be prioritized along the Vaal River. Regarding rural, the SDF proposed that existing rural nodes should be strengthened and consolidated. The SDF revised Urban Development Boundary aims to protect high potential agricultural land within Sedibeng.

2.2.3. EMFULeni SPATIAL DEVELOPMENT FRAMEWORK 2009/10

The Emfuleni Spatial Development Framework was drafted to guide spatial development within Emfuleni. The Emfuleni SDF provides a regional overview of development trends and desired land use objectives within Emfuleni. In addition, it provides detailed Local Spatial Development Frameworks (LSDFs) which refine the content of the Emfuleni SDFs. Local Spatial Development Frameworks were drafted for Bedworth Park, Lochvaal, Three Rivers and Evaton. The main elements of the Emfuleni SDF are the following:
a. Strategic Development Areas

Strategic development areas have been identified by the Emfuleni SDF, where principles of integration, densification and infill development can be encouraged. According to the SDF, this should occur to the east of Sebokeng and the southeast of Evaton; specifically in the area located between Sebokeng, Evaton and Sonlandpark. The development of this land should take place in an incremental way, starting at Sebokeng in an eastward direction. Higher-density development must be located near Sebokeng and Evaton and these development densities must be tapered off towards the K57 (Johannesburg Road). These higher densities will provide a platform for public transport oriented development near the Sebokeng rail line, which form the western boundary for this strategic development area.

b. Transport and Infrastructure

According to the Emfuleni SDF, Emfuleni is well-served with an extensive road network. Major routes tend to converge on the primary central business centres of Vereeniging and Vanderbijlpark. According to the Emfuleni SDF, engineering infrastructure capacity within Emfuleni has lagged behind development pressures in recent years. However, plans have been set place to address the existing infrastructural backlogs.

c. Urban Development Boundary

According to the Emfuleni SDF, the Urban Development Boundary is a planning tool that directs development towards a more compact and densified urban form. The SDF suggested that the Urban Development Boundary be amended to incorporate Mantevrede A.H., a portion of Zuurfontein Ext 3, Cyferpan, a portion of Steelvalley, Rietkuil, Linkholm A.H., Eatonside, Waterdal A.H., Quaggasfontein, a portion of Houtkop A.H., a portion of the Vlakfontein Development, Roshnee, and Rust-ter-Vaal.

d. Economic Catalyst Projects

The following economic catalyst projects were initiated with a view to help reducing the high unemployment rate within Emfuleni:

- The revitalization of the Central Business Districts
- The development of tourism facilities
The expansion of manufacturing
The development of activity nodes
The promotion of vacant industrial stands
The establishment of urban agriculture and the implementation of land redistribution projects
The development of housing by the beneficiaries themselves
The investigation into an airport

e. Agriculture

The Emfuleni SDF proposed that agricultural activities should be encouraged on land identified for such purposes in terms of land suitability criteria. Various portions of land have been identified in the SDF that are located in close proximity to existing and proposed urban development areas. The primary purpose of these identified areas is to present unemployed disadvantaged beneficiaries an opportunity to become involved in subsistence urban agriculture activities.

2.3. SOCIO-ECONOMIC

2.3.1. SOCIO-DEMOGRAPHIC PROFILE

The purpose of this section is to provide an analysis of Emfuleni in terms of its socio-demographic development, particularly with regard to population and education.

2.3.1.1. POPULATION AND HOUSEHOLDS

Emfuleni population was calculated using Census 2011 figures based on Census 2011 sub-place areas (see Figure 3). As depicted by the Table below, Emfuleni housed a population of approximately 654000 people by the year 2005. It was estimated that this population had increased to approximately 680000 people by the year 2010. The number of households that resided in Emfuleni area by 2005 was estimated to be approximately 183000. This figure was estimated to have increased to an estimated 204000 by 2010. Emfuleni currently has approximately 12974 informal households living in informal settlements within Emfuleni and approximately 17675 informal households living within backyard shacks within Emfuleni.
TABLE 1: EMFULENI POPULATION 2011

<table>
<thead>
<tr>
<th>Item</th>
<th>Population (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>721663</td>
</tr>
<tr>
<td>Formal population</td>
<td>603903</td>
</tr>
<tr>
<td>Informal population</td>
<td>72106</td>
</tr>
<tr>
<td>Traditional Residential</td>
<td>53777</td>
</tr>
<tr>
<td>Farms</td>
<td>2444</td>
</tr>
<tr>
<td>Collective living quarters</td>
<td>14179</td>
</tr>
<tr>
<td>Industrial</td>
<td>2530</td>
</tr>
<tr>
<td>Small Holdings</td>
<td>17778</td>
</tr>
<tr>
<td>Vacant</td>
<td>3624</td>
</tr>
<tr>
<td>Commercial</td>
<td>5099</td>
</tr>
</tbody>
</table>

Source: Estimated from Census 2011

The Table below illustrates that Emfuleni is a largely urban area in terms of population, with 88% of its population living within urban areas. This is despite the fact that most of Emfuleni is rural in nature from a geographical perspective. The size of the urban population is also significant, constituting roughly half of the population of the Tshwane Metropolitan Municipality. This high level of urbanization within Emfuleni inevitably stresses the need to manage urban development within this Local Municipal area.

TABLE 2: EMFULENI URBAN AND RURAL POPULATION 2010

<table>
<thead>
<tr>
<th>Item</th>
<th>Population Estimate (2010)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural population</td>
<td>79976</td>
<td>12</td>
</tr>
<tr>
<td>Urban population</td>
<td>600320</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>680296</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Estimated from Census 2001
2.3.1.2. AGE PROFILE

The Diagram above reflects the age distribution within Emfuleni. From this Diagram it can be concluded that Emfuleni has a predominantly young to middle-age population with most of the residents between the ages of 0 and 39 years. The decreasing numbers of children (ages 0 and 19 years) suggest that most households are becoming smaller.

DIAGRAM 1: AGE PROFILE
Source: Census 2011